

THE WORLD'S BEST-SELLING MUSIC SOFTWARE MAGAZINE!

cm DVD
7.9GB
PC MAC

COMPUTER music

£5.99 / April 2011 / CM163

MAKE MUSIC NOW



THE IPAD
STUDIO

We produce a
complete track in iOS

Make it

LOUD!

Power up your tracks with our level-boosting guide

cm DVD 7.9GB DVD-ROM PC MAC

EXCLUSIVE FREE SOFTWARE

MHarmonizerCM

Special edition of MeldaProduction's luscious
harmonising plug-in for Mac and PC



Get started with our
BEGINNER'S
GUIDES

**2006
SAMPLES**
THE 24-BIT NU DISCO
COLLECTION 2011

EXCLUSIVE
VIDEO

IN THE STUDIO WITH
RACKNRUIN

cm > 40 APPLICATIONS, INSTRUMENTS
STUDIO AND EFFECTS FOR PC & MAC!

STEP-BY-STEP TUTORIALS

Get classic vocals, master your top end,
go loopy with REX files and much more!



MAGNETIC MAN INTERVIEWED

REVIEWED!

STEINBERG CUBASE 6
AUDIO DAMAGE PHOSPHOR
CABLEGUYS CURVE
SONIC CHARGE MICROTONIC 3
IZOTOPE STUTTER EDIT
PSP AUDIOWARE N20
**THE LATEST SAMPLES AND
SOUNDWARE ROUNDED UP!**

Future
MEDIA WITH PASSION



9 771463 1687022

musicradar.com
APRIL 2011 #163
£5.99

Download Chart

	01 Tech-House Sample Magic £39.90
	02 Progressive Tools 4 Hy2rogen £13.90
	03 Glitched Vocals Pt. 1 Waveform Recordings £14.90
	04 Riemann Special Synths 01 Riemann Kollektion £19.95
	05 Glitch & Tech Vocals 3 Hy2rogen £9.90

Sound/Source

Pro Tips

Minimal Production Tips
Reverb and Delay FX
Fidget Production Tips
Making Glitched Vocals

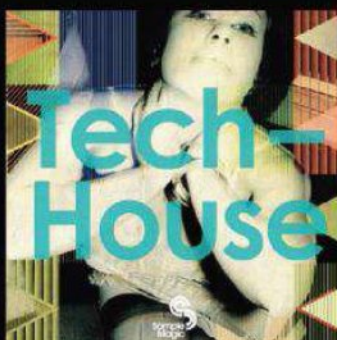
How To

Produce Like A G6 Bassline
Produce Layered Claps
Big Up Your Breaks
Uplifters & Downshifters

Q&A

Oliver Huntemann
Mason
Shlomi Aber
Catz N Dogz

New Releases



TECH-HOUSE £39.90

Sample Magic

Merging the best house, techno, progressive and minimal, Tech-House delivers 560+MB of powerful peak-time jams, pared-back beats and pounding workouts for the mainroom.



GLITCHED VOCALS Pt. 1 £14.90

Waveform Recordings

Glitched vocal loops, melody-laced layered toplines, beat-building vox rhythmic and more, all expertly engineered to give vocal sparkle to deep, tech and house productions.



RIEMANN SPECIAL SYNTHS 01 £19.95

Riemann Kollektion

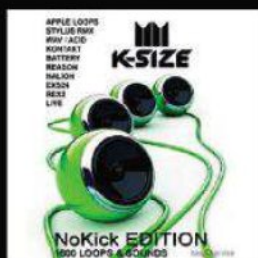
From deep and dubby workouts to twisted techno freakouts: 35 ultra-extended and ever-evolving rhythmic and melodic synth lines for straight-out-of-the-box inspiration.



DEEP PERCUSSIVE TECH £14.90

Sounds To Sample

Deep, driving afterhours-edged techno loaded with driving, organic-tech drum loops and one-shots, moody music loops and bin-busting basslines built for the underground.



K-SIZE NO-KICK EDITION £59.90

Best Service

1,500+ kick-free tech, tribal-infused and minimal tops loops, from grainy nu-perc workouts to chunky tribal grooves, all powered by the award-winning K-size kings.



PROGRESSIVE TOOLS 4 £13.90

Hy2rogen

Irrespressible up-front ear candy: floor-slaying synths, twisted toplines, glitched vox loops and a supersized one-shot arsenal, all engineered for the biggest of rooms.



HAKA £49.90

Sonokinetic

600+ samples of authentic tribal beats, village ensembles and warrior chants recorded from the Vanuatu, Samoan, Hawaiian, New Zealand and Marquesas Islands.



BOUNCE £12.90

FatLoud

Five hip-hop construction kits bristling with ultra-clear live instrumentation, cone-melting basslines, full phat drums, club-rocking synths and more.



DEEP & DUST HOUSE £12.95

Sounds To Sample

Late-night lazy house grooves, dusty keys, sparse percussion, raw basslines, vox rhythms, deep ambiences and more abound in this slow-lane house pack.



HORNCRAFT FOR R&B £25.49

Sony

Trombone, trumpet and saxophone samples featuring dozens of blistering riffs, solos, and sections. Indispensable for R&B, soul, jazz, pop and disco producers.



BLAZIN R&B & HIP HOP VOL. 3 £12.49

Best Service

A mammoth 2,000+ all-new urban, hip hop, pop and dirty south beats, blistering basslines and raw instrumentals alongside 35 platinum construction kits.

www.soundstosample.com The definitive download resource for music makers



SONY



samplestar

ZENHISER



FATLOUD

SONOKINETIC

ISSUE 163 APRIL 2011

Future Publishing Ltd.
30 Monmouth Street, Bath, BA1 2BW
Tel: 01225 442244 Fax: 01225 732275
Email: computermusic@futurenet.com
Web: www.computermusic.co.uk

EDITORIAL

Editor: Ronan Macdonald, ronan.macdonald@futurenet.com
Art Editor: Stuart Ratcliffe, stuart.ratcliffe@futurenet.com
Deputy Editor: Lee du Caine, lee.du-caine@futurenet.com
Production Editor: Cally Foster, cally.foster@futurenet.com
Multimedia Editor: Tim Cant, tim.cant@futurenet.com
Editor, **Specials**: Andrea Robinson, andrea.robinson@futurenet.com

CONTRIBUTORS

Owen Palmer, Scot Solida, Reuben Cornell, Rob Boffard, Danny Scott, Tim Oliver, Ben Rogerson, Alex Williams, Declan McGlynn, Rach Miel, Roger Cawkwell, Chris Randall, David Newman, Paul Taylor, Hamish Mackintosh
Illustration: Jake

Group Senior Editor: Julie Tolley
Senior Art Editor: Rodney Dive
Creative Director: Robin Abbott
Design Director: Matthew Williams
Editorial Director: Jim Douglas

ADVERTISING

Ad Director: Clare Dove, clare.dove@futurenet.com
Ad Sales Manager: Lara Jaggon, lara.jaggon@futurenet.com
Senior Sales Executive: Leon Stephens, leon.stephens@futurenet.com

MARKETING

Campaign Marketing Manager: Charlotte Pratten, charlotte.pratten@futurenet.com
Promotions Executive: Rebecca Hodges, rebecca.hodges@futurenet.com

CIRCULATION

Trade Marketing Manager: Verity Cooke, verity.cooke@futurenet.com

PRINT & PRODUCTION

Production Coordinator: Frances Twentymann, frances.twentymann@futurenet.com
Production Manager: Rose Griffiths, rose.griffiths@futurenet.com
Head of Production: Richard Mason, richard.mason@futurenet.com

LICENSING

Head of International Licensing: Tim Hudson, tim.hudson@futurenet.com
Tel: +44 (0)1225 442244 Fax: +44 (0)1225 732275

FUTURE PUBLISHING LIMITED

Publisher: Rob Last, rob.last@futurenet.com
Publishing Director: Mia Walter, mia.walter@futurenet.com
UK Chief Executive: Mark Wood

SUBSCRIPTIONS

Phone our UK hotline on: UK: 0844 848 2852
Overseas: (+44) (0) 1604 251 045
Subscribe online at: www.myfavouriteimagazines.co.uk
NEXT ISSUE ON SALE: 6 April

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

Want to work for Future?
Visit www.futurenet.com/jobs



A member of the Audit
Bureau of Circulations
15,771
Jan 2010-Dec 2010



Future produces carefully targeted magazines, websites and events for people with a passion. Our portfolio includes more than 180 magazines, websites and events and we export or license our publications to 90 countries around the world.

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

www.futureplc.com

Chief Executive: Stevie Spring
Non-executive Chairman: Roger Parry
Group Finance Director: John Bowman
Tel: +44 (0)20 7042 4000 (London)
Tel: +44 (0)1225 442244 (Bath)

© Future Publishing Limited 2010. All rights reserved. No part of this magazine may be used or reproduced without the written permission of the publisher. Future Publishing Limited (company number 2008885) is registered in England and Wales. The registered office of Future Publishing Limited is at Beauford Court, 30 Monmouth Street, Bath BA1 2BW. All information contained in this magazine is for information only and is, as far as we are aware, correct at the time of going to press. Future cannot accept any responsibility for errors or inaccuracies in such information. Readers are advised to contact manufacturers and retailers directly with regard to the price of products/ services referred to in this magazine. If you submit unsolicited material to us, you automatically grant Future a licence to publish your submission in whole or in part in all editions of the magazine, including licensed editions worldwide and in any physical or digital format throughout the world. Any material you submit is sent at your risk and, although every care is taken, neither Future nor its employees, agents or subcontractors shall be liable for loss or damage.



We are committed to only using magazine paper which is derived from well managed, certified forestry and chlorine-free manufacture. Future Publishing and its paper suppliers have been independently certified in accordance with the rules of the FSC (Forest Stewardship Council).



Get **Computer Music: Make Music Now**, Volumes 1, 2 and 3 for iPhone and iPod touch free in the App Store now!

welcome

Music producers have made it their mission to get their tracks as objectively loud as possible ever since the compact disc became the dominant format for commercial music at the end of the 80s. Whether to make it stand out from the competition on the radio, a compilation album or a shuffling iPod, attaining maximum

"You don't have to crush that waveform to win the loudness war"

volume in that final master has long been one of the primary goals of the mastering engineer. But the big downside of all that headroom-pushing is that such ultra-hot signals often come at the expense of

dynamics and musical sensitivity.

It doesn't need to be that way, though - you don't have to crush that waveform into a solid block to win the loudness war. Our cover feature this month loads you out with an armoury of tactical options for blasting that needle into the near-red without compromising the integrity, subtlety and tonal colour of your tracks. Complete with audio examples on the DVD, we take you step by step through an array of level-maximising techniques and tricks that you can deploy today to make your tunes sound bigger and better than ever, no matter what kind of music you're making.

ENJOY THE ISSUE...

Ronan Macdonald **Editor**



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

SUBSCRIBE AND SAVE! SEE P19

www.facebook.com/computer.music.mag facebook

twitter.com/computermusicuk E

cm / contents

Make it

LOUD

The dancefloor demands that you make your tracks as loud as possible. We reveal how to do so without compromising their dynamic integrity **p24**



PAGE 52

Tutorials

48__ PRODUCER MASTERCLASS

Eclectic producer RackNRuin plays pick 'n' mix

80__ TOTALLY TRACKERS

Get into Pornotracker

52__ CLASSIC VOCALS

Find your voice with our guide to producing vocals to suit classic styles

59__ THE TROUBLE WITH TREBLE

Don't overlook the top end: sparkling treble adds sizzle and excitement

65__ MAKE A COMPLETE TRACK ON IPAD

Does the iOS revolution mean you can eschew the studio completely?

72__ THE JOY OF REX

If you use sampled loops, you probably use REX files - but are you mining their full potential?

81__ THE EASY GUIDE

What's in a rhythm? Quite a lot, as it turns out...

82__ OFF THE DIAL

rachMiel evades the beat of life with drone music

84__ SOUND ESSENTIALS

Scot Solida cooks up a bubbling ambient effect

116__ Q&A

Readers' production problems solved

122__ cm FOCUS

We take a close look at the building blocks of synthesis: waveforms



Delve deep into synthesis with our guide to waveforms, p122



PAGE 86

86__ THE cm INTERVIEW

Magnetic Man have become the faces of dubstep. Artwork pontificates on the supergroup's rise to mainstream fame



Will Steinberg Cubase 6 shake up the high-end DAW market?

Reviews

94__ STEINBERG CUBASE 6

A legendary DAW from a legendary company, but can this update hit classic status?

98__ AUDIO DAMAGE PHOSPHOR

Based on the alphaSyntauri, Phosphor is a unique and characterful new synth

100__ CABLEGUYS CURVE

Can Cableguys tempt us to pay for this previously free synth?

102__ SONIC CHARGE MICROTONIC 3

This long-awaited update is versatile, creative and distinctively brilliant

104__ IZOTOPE STUTTER EDIT

BT brings his personal stutter effects to market

106__ PSP N₂O

Just as addictive as the gas of the same name, this fantastic multieffects unit offers something for all

108__ MINI REVIEWS

Round-up of sample packs, new apps and much more

112__ cm RECOMMENDS

The music-making gear that's got our attention



Essential cm

6__ INBOX

8__ NEWS

12__ THE BURNING QUESTION

18__ FREWARE NEWS

19__ SUBSCRIBE

115__ BACK ISSUES

130__ NEXT ISSUE

cm DVD CONTENTS

7.9GB

PC MAC



P38 Layer up those vocals with MeldaProduction MHarmonizerCM

38__ FULL SOFTWARE

Exclusive **cm** edition of MeldaProduction's harmoniser, AAS Swatches, and Togu Audio Line TAL-Filter II

39__ DEMO SOFTWARE

Did our reviews of Cableguys Curve, iZotope Stutter Edit, PSP N₂O and Sonic Charge MicroTonic 3 whet your appetite? We've got all the demos right here for you to try

40__ MELDA PRODUCTION MHARMONIZER CM

How to get busy with your incredible free harmoniser plug-in

43__ SAMPLES AND VIDEO

Get glammed up and release the funk with our 24-bit Nu Disco Collection 2011, plus RackNRuin revealing his production secrets in this month's *Producer Masterclass*

44__ cm STUDIO SESSION

Combine the CM-505 drum machine with Ohm Force's Ohmygod! to create crazy pitched rhythms

46__ READER MUSIC

Think you've produced a stunner? Send your track in via SoundCloud and we'll be the judges



P39 Lighten up your productions with the demo of PSP N₂O



P43 RackNRuin gives us a look at what he gets up to in the studio



P44 Pitched percussion using a combination of cm Studio plug-ins

PDF GUIDES FOR NEWCOMERS

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

cm/inbox

Indulge your enthusiasms with an email to cminbox@futurenet.co.uk

Message of the month

I've been buying *Computer Music* for about a decade now, and recently, inspired by your *Ten Years Back* column, I've been re-reading my old issues. To say that things have changed in the last ten years would be an understatement.

In *cm*, you used to often say that PCs are making the hardware-based studio redundant - it was almost the mantra of the mag. You don't say this very often these days, which I take to mean that the PC has now *made* the hardware-based studio redundant! Would you agree with that statement?

Then there's the sound quality we have available to us now. Looking back at early soft synths like LinPlug GakStoar Delta and Bitheadz Retro AS-1, I can't believe how far things have come. Those simple old synths sounded great at the time, but today's models blow them away -

Omnisphere, Sylenth1, Albino 3, etc. And don't get me started on the computer itself! I still have painful memories of constantly bouncing tracks to get even simple projects finished. Now, I'd struggle to push my PC to its limits making music with it.

Nowadays, new platforms like the iPad are starting to get attention from serious producers. I'm yet to be totally convinced of the merits of the iPad myself, but I can definitely see the appeal as a sketchpad-style extension of the home studio.

It seems to me that the first decade of *Computer Music* was all about moving away from the hardware studio into the 100% software domain, and that since then we've 'arrived' and the future is all about the evolution of digital systems and devices. It's an amazing time to be a musician!

Lee Farrier, Oxford

That it is. Yes, I'd say that it was pretty much game over for hardware effects units, mixers and recorders some time ago now. There will always be a market for that stuff, of course, but it's becoming increasingly niche. The present and future of music, as you rightly say, are all about the digits. *RM*

The writer of our *Message of the Month* will receive FabFilter's fabulous Creative Bundle suite of plug-ins for Mac and PC, worth £199!

www.fabfilter.com



'Pad mad

After reading the recent articles you've published regarding apps for the iPad, I am now the proud owner of one.

I'm a Mac user using Logic 9, which I put to good use producing my band. I was looking for a way to expand my synth library, so logically (excuse the pun), I thought an iPad was the way forward.

Using any new piece of kit always has a steep learning curve, and searching for tutorial videos online is nearly always a fruitless task, with people buffing their egos rather than giving concise instructions.

When my shiny new copy of this month's *cm* came through my letterbox, I was rather excited and very impressed to find your feature on the Korg



Korg's iMS-20 app is just one of a plethora of quality music-making apps for the iPad

iMS-20. I downloaded this app a few weeks ago, but struggled with the interface. My time will now be spent using your step-by-step guide.

cm once again proved vital in honing my production skills. A massive thank you for a remarkable magazine.

Toby Beal, Manchester

I write in complete and utter ecstasy at a new lease of life I have recently received.

About three years ago, I had a stroke, and continue to have smaller ones to this day. It has left me with quite an unusable left hand (a bit difficult for a computer musician!). I sat around for ages afterwards and

refused to even go near my studio, knowing that I would only be frustrated at being so restricted. I then sold about half of my gear, as it was near impossible to use. Then my wife suggested I buy an iPad...

To say that this has given me a whole new way of working is an understatement. I can now tweak synths, control my DAW and sit there for hours getting back into what I love: making music! Tools such as AC7 Pro, AC7 Core, Logic and Live are now so much easier to use with one hand. Today I bought the Korg iMS-20, and even that is a usable synth for me. The iPad has really changed my life.

I know a lot of people have slated the iPad as a jumped-up iPod, but it has become an invaluable tool for me, enabling



me to get back into my studio and back making music.

Matt Evans, Torquay

The iPad continues to amaze and surprise as a musical tool, and every month brings new tales of *cm* readers discovering its uniquely tactile charms. We can't wait to see what the forthcoming iPad 2 brings to the table, particularly in terms of upgrades to the CPU and RAM. For now, though, turn to p66 to find out how you can make a complete track with Apple's fondlelab. **RM**

A leap of faith

I've read with interest the recent developments with online DAWs, as I'm currently trying to organise a project with a friend. As yet, I can't imagine a task such as multitracking drums using Soundation or the like. Nor do I

"To say that the iPad has given me a whole new way of working is an understatement"

see professional studios making the switch just yet. However, my son currently plays games in his browser that put to shame anything I could ever run on my dear old Spectrum.

I can see developers eventually wanting a piece of the action, as I think an online account may help strike a blow to the software pirates. Perhaps there is room for them providing 'pay by the hour' pricing, where I can check in and check out all those sumptuous but expensive plug-ins I keep reading about!

We've got you surrounded! We now publish *Ultimate Guides* alongside the regular *cm* and *cm Specials*

I guess, as technology proves again and again, it's only a question of time.

Shawn Mullins, Bristol

It's early days for the collaborative online DAW concept as a whole, but as you say, it's only a matter of time before the likes of Soundation and the forthcoming Ohm Studio offer feature-sets and functionality to rival 'offline' DAWs. It's just one of the numerous intriguing ways in which the music production landscape seems set to change over the next few years. **RM**

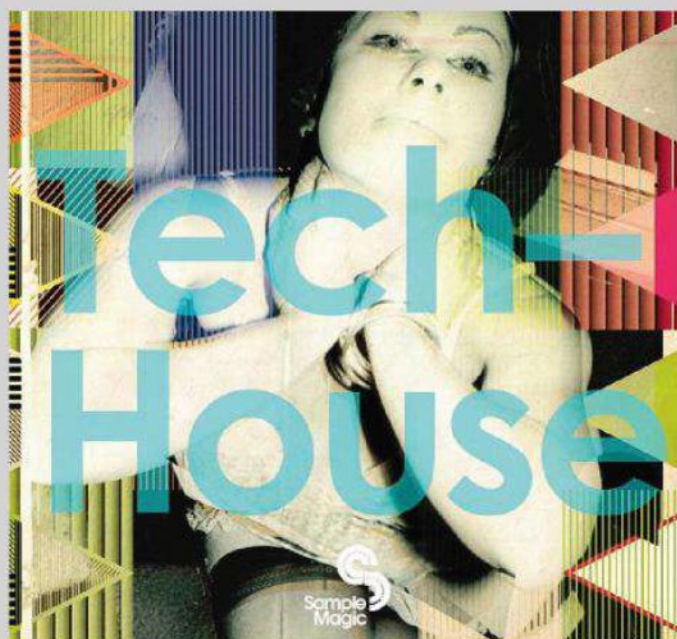
The *cm* army

You guys are quite the media empire these days, aren't you? As well as the main *Computer Music*, we've got *Computer Music Specials* and now your big *Ultimate Guides* - it's hard to find the time to read them all! I must commend you and your staff on your unfailing ability to keep them all incredibly diverse, though - you don't seem to leave any music production stone unturned! Keep it coming!

Chris Rampling, London

We aim to please! If you haven't got your copy yet, our *Ultimate Guide (to Mixing)* is available now in newsagents and from myfavouritemagazines.co.uk, as is the 46th *cm Special*, which sets its sights on improving the quality of your vocal recordings and productions.

You can now also buy digital versions of *cm* and *cm Specials* from the Zinio online magazine shop (www.zinio.com). Single issues and subscriptions are available, and are readable on Mac, PC and iPad - but do be aware that the DVD content isn't included. **RM**



TECH-HOUSE SM21

Peak-time jams, pared-back beats and pounding workouts for the mainroom.

£39.90 OUT NOW



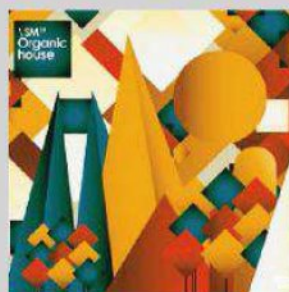
ELECTRO SM20

Pumping bass, jackin' beats and twisted synths.

"These samples are not just ready for the floor - they're dying to get out there and show off their moves... Quality through and through... **9/10**."

computer music

£49.90 OUT NOW



ORGANIC HOUSE SM19

Pumping house fused with disco, minimal, tribal and techno elements.

"The production quality is top notch... I'm not sure what else to say about this library: I really couldn't find a single thing wrong with it. **10/10**"

Waveformless

£49.90 OUT NOW



TOOLROOM RECORDS SAMPLES 01 SMP01

Cutting edge royalty-free samples from the world's most upfront dance label. First in a new series of exclusive label-themed packs on the Sample Magic Presents imprint.

£39.90 OUT NOW

Pro Samples/Loops/Books/Apps/Courses/
www.samplemagic.co.uk

cm/news

NEW RELEASES > COMMENT > INDUSTRY HAPPENINGS

Traktor 2 unveiled

Native Instruments revamp their range of DJ software and introduce two new audio interfaces

> German software giants Native Instruments have announced several new editions of their flagship DJ software, Traktor. All have been completely re-engineered "for maximum power and simplicity".

Traktor Duo 2's two virtual decks can now both be transformed into Sample Decks, each offering four sample slots. You can grab loops live out of your mix or from the library, then layer them in sync with the mix.

Duo 2's big brother, Traktor Pro 2, has four virtual decks, each of which can be turned into a Sample Deck. This version also lets you tweak the volume and filter for each Sample Deck separately. Pro 2's Loop Recorder enables you to record live loops from any channel, the live input feeds or the master output, then either drop them straight back into your mix or store them in a Sample Deck.

On the effects side of things, Traktor Pro 2 features 32 devices, including four new faces: Tape Delay, Ramp Delay, Bouncer and Auto-bouncer. You can chain up to six effects together. Synchronisation functions have also been expanded, with a new SoftSync feature that keeps tracks in time without affecting their phase.



Traktor 2's TruWave technology means that you should be able to distinguish between your track's kicks and snares by colour

Both versions of Traktor 2 have had a visual makeover. The new "high-visibility" GUI aims to make it easy to use "under all conditions", while the new TruWave feature displays all tracks and samples as multicoloured waveforms that "visualise both individual rhythmic elements as well as general sonic characteristics". You should

be able to differentiate between hi-hats and snares by colour, for example.

Virtual vinyl system Traktor Scratch also sees two new versions. Traktor Scratch Duo 2 contains Traktor Duo 2 software, timecode vinyl and CDs, and the new Traktor Audio 6 interface. This has six ins (two with phono preamps, for connecting turntables) and six outs, and a Direct Thru mode, which passes analogue signals through the device even if a computer isn't connected - handy for changeovers between sets.

The Traktor Scratch Pro 2 bundle kicks it up another notch, containing Traktor Pro 2 and the new Traktor Audio 10 interface. There are ten ins and outs (including a mic input and four phono preamps), and MIDI i/o too.

The new Traktor packages will be available on April 1, at suggested retail prices of £85 for Duo 2, £171 for Pro 2, £299 for Scratch Duo 2 and £513 for Scratch Pro 2. The new interfaces should also be available separately at SRPs of £213 and £342, bundled with Traktor LE 2.

www.native-instruments.com



The new Traktor audio interfaces feature more connectivity and improved visual feedback

Rob Papen Punch

Build your own drum sounds using synthesis and samples

We're expecting Rob Papen's latest to live up to the high standards set by its stablemates



> Rob Papen's latest instrument sees him turn his attention to percussion. Punch lets users build their own drum sounds using synthesis and samples. For each patch, you can use two kick, snare, open hat, closed hat, and clap sounds, with three toms and three 'user drums'. For kicks alone there are four selectable synthesis

"Punch delivers synthesised drums of the finest quality for the contemporary producer"

Rob Papen

models and 18 built-in samples, with other drums similarly well spec'ed. There are also eight dual sample slots, each with its own amp/pitch envelopes and filter.

Punch also features a sequencer that can play eight different patterns of up to 16 steps. Each pattern has swing and humanisation controls, and each step has its own velocity, panning, pitch, envelope speed and flam parameters. Further sound-shaping comes courtesy of two global envelopes, two LFOs and eight modulation slots, while the four FX tracks can draw on 25 effects, including distortion, reverb, chorus and delay.

Punch will be available in Spring 2011 for Mac and PC in AU, VST and RTAS formats. Its price will be £125.

www.robpapen.com

Mixdown



Our Deputy Editor reckons manual labour should be mandatory for developers

> I was surprised to learn that neither PSP Audioware's N2O or Cableguys' Curve comes with a manual. PSP instead offer over 40 minutes of YouTube video tutorials, while Cableguys say they'll make a manual if there's sufficient customer demand. They're not the only companies who've released

"Maybe I'm trapped in the past, but I consider a written manual an essential inclusion"

software without a manual, either. Maybe I'm trapped in the past, but I consider a written manual an essential inclusion.

Videos and even interactive tutorials are no replacement for a manual, surely. No matter how comprehensive they are, they're of little practical use as a reference. If I'm in the throes of creative ecstasy and I need to quickly look up the details of a certain feature, I don't want to be diverted by scanning through videos trying to find what I need. I just want the facts. And purely on a personal level, I generally find it easier to absorb information when it's in written form.

Manuals aren't just important for those who already bought the software, either. If I'm interested in a piece of software, the first thing I do is go to the developer's website and see if they've got a manual available to download. If it's a good one, it should tell me everything I need to know about the software's capabilities, and that might be enough to tell me if it's what I'm looking for.

Of course, some people *do* get a lot more out of videos and built-in tutorials, and they absolutely have their place, whether used to highlight important features/capabilities, or to explore them in more detail. I found the included Cubase 6 ones very informative, for instance.

Anyway, I was pretty curious to discover whether other computer musicians shared my hardline stance on manuals, and my first thought was to round off this column by inviting you to send in your thoughts. But that's a bit old school, isn't it? I'm also pretty impatient, so I instead created an online poll on our Facebook page to get some instant feedback. You can see the responses at on.fb.me/cmpoll45. The results were mixed, but around half of those who replied reckoned a manual is essential, which I'd say is a pretty good indicator that it's not something that ought to be skimmed on.

monome arc

Posh, minimalist control at an extravagant price

> monome's latest gadget is arc, a controller featuring either two or four knobs, and very little else.

Not designed to work with any program in particular, the USB-powered device sends data to a connected PC or Mac when its knobs are turned or depressed. An LED ring around each one lights up if the running application sends data back to arc.

Each knob has 256 steps per revolution, with an integrated push button. There are 64 LEDs per ring, and each one has 16 levels of brightness. Programs can interact with arc via the OSC protocol, but monome don't expect all musicians to be coders: they've already started writing compatible applications, and they expect the user community to get developing quickly, too.

With shipping starting in late March, the arc two costs \$500, while the arc four is \$800.

www.monome.org



The arc is made of milled black walnut, cut glass and aluminium - which is why it's so pricey!



Turbo S transforms sounds with six processing algorithms and a step sequencer

Sinevibes Turbo S

Waveshaper aims to transform your sounds

> Turbo S, an effect that “turns simple sounds into rich animated textures”, is the latest effort from Mac plug-in specialists Sinevibes. It offers six “high-definition” waveshaping algorithms, and company reckon that each one “drastically transforms the input signal and vastly enriches its harmonic content”.

There's also a 16-step sequencer, which can modulate the waveshape. It has 12 speed settings, “infinitely variable” swing and

adjustable time and smoothness for “complex pulsating and morphing sounds”.

Sinevibes have been busy of late and so far this year have also released Drift and Dynamo, these being a “fractal amplifier” and gate sequencer effect respectively.

Turbo S and Dynamo cost £29, while Drift is £14. All are available in Mac AU format only.

www.sinevibes.com

R.I.P. Jules Vleugels

> It is with sadness that we report the recent passing away of Jules ‘dj!’ Vleugels. He was the main man behind one of our favourite developers, 112dB, and a great guy to deal with.

112dB lives on, though, as a statement from Jules’ wife Anouschka reads: “It will mean a lot to me if dj’s work lives on after his death. With the help of his colleagues and industry friends, we will be providing tech support to all 112dB’s existing and future customers.” This is an entirely fitting tribute, and we encourage you to check out 112dB’s superb plug-ins and do Jules proud by using them in your tracks.

www.112db.com



Jules ‘dj!’ Vleugels, May 28 1969 – January 23 2011

Damaged



The incendiary Chris Randall retreats to the studio and makes a connection

> My wife and I live in Arizona. There. I said it. We live in that locus of American-style Crazy. There is a store not a kilometre from my house that sells fully automatic machine guns – the same ones carried by soldiers – and anyone can buy one. And even without all the gun-toting grandmothers waiting to light you up at the library, this state has a lot of ways to truncate your time on this mortal coil, from the flora and fauna (virtually every living thing here has spikes of some sort, is poisonous, or both) to simple daylight (summertime temperatures are regularly 48°C, and it got to 50°C twice last summer).

One benefit of the state being such an inhospitable environment is that it is quite inexpensive to live here. I’ve spent the majority of my life in much more expensive cities, like New York and Chicago, and the first thing I discovered upon moving here is

“For the first time since I began making music professionally, all of my gear is in one room”

that I can get twice the space for half the money – and with a swimming pool, natch. As a result, for the first time since I began making music professionally back in 1988, all of my gear is in one room. What’s more, it is all plugged in and accessible with nothing more than a simple mouse click. The External Instrument and External Effect plug-ins in Live and Cubase have become my main sources of inspiration in the last month.

And what I’ve discovered is this. With all due respect to my peers in the plug-in business (and myself, for that matter), there is a world of difference between a Roland RE-201 plug-in and using a real RE-201 as a plug-in. While I knew this on an intellectual level, having it there to drop in on a whim in my DAW is... well, let’s just say it has improved my workflow. Which is a good thing, since I don’t want to leave my house for fear of dying from sunburn, or worse. Bloody Arizona!

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



New Avid releases

A new Torq, Eleven Rack 'booster' and Mboxes for all

Torq 2.0 features more virtual decks than its predecessor, while Traq Morph could help those new to mixing



> Music tech stalwarts Avid have released a raft of new products. First up is an update to the Torq DJ software platform, which is aimed at "performance and real-time remixing and production". Torq 2.0 is now home to four virtual decks with EQ, level control, headphone cueing and crossfade, as well as Traq Morph, which helps with mixing by "intelligently applying audio effects during crossfade." For example, there's a Filter mode that cuts the bass from the first track while bringing in the low end of the second.

Version 2.0 now allows users to use the software with third-party hardware, or use it standalone. Elsewhere, the interface, database and music browser have all been spruced up, and there are 13 built-in effects to get a grip on: filter, phaser, delay,

"Torq 2.0 is a high-performance solution for creative DJ performance and real-time remixing"

Avid

strobe, distortion, repeat, brake, reverse and more. Torq 2.0 is available for download now for £192.

Next up is Eleven Rack Expansion Pack, a 'booster' pack for Avid's guitar amp simulation processor/interface. The bundle incorporates 19 new guitar amp and effects emulations, including a simulation of the Ampeg SVT bass amp and cab. Also new are parametric EQ and studio compressor channel strip effects aimed at vocal processing; stereo delay, multi-chorus and overdrive FX; and speaker break-up simulation for all cabs, which emulates "the natural distortion characteristics heard when turning up an analogue amp". Eleven Rack Expansion Pack is available from March 22 for Mac and PC, and it'll be \$99.

Finally, following Avid's decision to make Pro Tools 9 compatible with third-party hardware at the close of 2010, they've also seen fit to make each of their Mbox audio interfaces available as a standalone purchase, sans Pro Tools software. The Mbox Pro, Mbox and Mbox Mini can be had for £720, £456 and £276 respectively from March 22.

www.avid.com

Trackers & Demoscene



A kind soul makes life a bit easier for weary demosceners everywhere

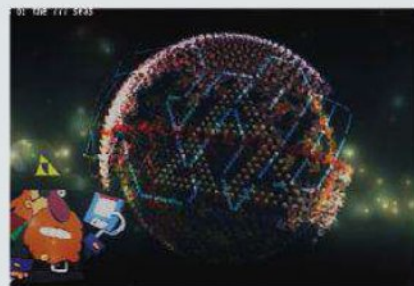
> Don't you just love it when other people make your day-to-day life easier? Like when someone flashes you through on a right-hand turn, a chum smears sun lotion on your back... or someone with the patience of a saint compiles the entire demoscene's music output for 2010 into one gloriously accessible and convenient torrent. That's exactly what's taken place over at The

"Against the backdrop of all this murky business, *Pirates of the 777 Seas* is an innocent, wondrous demo"

Mod Archive, courtesy of the curiously-named Jantore. Head over there and grab it now at modarchive.org. Not all torrents are illegal, ya know!

DEMO OF THE MONTH

***Pirates of the 777 Seas* by Razor 1911**
Notable software crackers, digital renegades and long-standing C64/Amiga/PC crew Razor 1911 have made quite a name for themselves over the years. As well as hosting a mirror for the controversial Wikileaks site, they've been responsible for cracking games a day after (*Quake*) or even before (*Battlefield 2142*) their release dates, as well as hacking Vista-only games to run on Windows XP, much to Microsoft's chagrin. Against the backdrop of all this murky business, *Pirates of the 777 Seas* is an innocent, wondrous Amiga Workbench-themed PC demo. At under 80KB, this compact demo features some exceedingly cool 3D bobs and a pirate that jigs along to superbly wistful chip music by British old-school music legend 4-Mat. Watch it for yourself, along with the rest of this month's best demos, by heading to the **Totally Trackers** folder on your **cm** DVD.



Razor 1911: pirates in every sense of the word

cm Special: Vocals

> If your tracks are crying out for better vocals, we recommend that you pick up our brand-new **cm Special 46: Vocals**.

Inside you'll find a host of modern vocal production techniques that will give you everything that you need to produce outstanding results - even if you can't sing a note. From natural, sweetly sung parts to robotic vocoded masterpieces, and from glitched and pitched sampled vox to ethereal effects, we've got it covered! Plus, on the CD you'll find a superb collection of more than 500 pro vocal samples.

If that's whet your appetite, don't delay! Turn to p114 for onsale dates and stockists.

www.myfavouritemagazines.co.uk





Will Android ever become viable for music-making?

> Here's a tale of two trade shows. At CES (Consumer Electronics Show) in early January, you couldn't move for new Android-powered tablets. They were everywhere, suggesting that 2011 will be the year that Google's mobile OS truly comes of age.

At the Winter NAMM Show in Anaheim a week later, though, it was a different story. Here, you couldn't tread more than a couple of paces without spotting an iPad, which would almost certainly be running music software. Android machines were conspicuous by their absence.

To those who've been following the mobile music-making scene for a while, this will come

"It now seems that the only thing holding Android back is its audio latency"

as no great surprise. Even the most ardent Apple hater would have to admit that, if you want to create tunes on a phone, media player or tablet, iOS is currently way ahead of the competition.

But why? As we've already suggested, it isn't as if Android devices aren't being launched or not selling well, and you've been able to buy

apps for them for well over two years now. Yes, Apple had a head start over their big rival, but that still doesn't explain the disparity.

A troubled platform?

Before we dig any deeper, it's worth noting that Android isn't completely devoid of music-making apps (check out MusicRadar for a list of ten of the best of them: www.bit.ly/bg3aHx). However, with the exception of Chris Wolfe's Jasuto, most of the big iOS releases haven't been ported across. This is even more frustrating when you consider that some, such as Blip Interactive's NanoStudio - arguably the most impressive 'mini DAW' yet seen - were written to be cross-platform, so could (in theory) be converted.

So what's the problem? Blip Interactive's Matt Borstel, who developed NanoStudio, told us: "The lack of ability to use native code was a big hurdle for a while, but since that was addressed, it now seems that the only thing holding [Android] back for real time music making is its audio latency. This can be up to 100ms compared to the iPhone's typical 10ms, and accounts for why many Android music apps are based around step sequencing. Gingerbread [Android 2.3] exposes a new API for potentially lower latency, but it seems that this potential has still not been realised on existing devices."

IK Multimedia's Enrico Iori echoes this: "We're often asked about AmpliTube on Android OS, but there is a simple reason that it's not currently possible: so far, Android OS is not able to provide real-time processing between input and output with latencies that are acceptable to musicians, which is what apps such as AmpliTube or VocaLive require."

"There is also another factor that we think will prevent Android from being a standard music mobile platform in the near future: the plethora of devices on the market. They all sport different features (eg, screen resolution) and slightly different Android OS versions that are customised by the mobile manufacturers. This would require us to support dozens of devices, which could turn into a real headache in terms of support and customer service."

The relationship between Android and the devices that run it is a key issue when it comes to the development of music-making software, a point also picked up by Create Digital Music's Peter Kirn (www.createdigitalmusic.com). Kirn is a keen and knowledgeable follower of the operating system's development.

"Android the software platform is already perfectly viable for making music apps," he explains. "But the hardware devices that run the OS have some significant limitations, at least if you want to do desktop-grade audio and not just offbeat creations. Buggy audio implementations on devices and under-performing audio hardware and firmware mean that sometimes audio input doesn't work the way you expect, or you have to set buffer sizes so large that you can't keep latencies down, and so on. The SDK has what you need, but the hardware landscape is troubling."

The tortoise and the hare

If these problems could be resolved, then, how easy would it be to port an iOS app such as NanoStudio to Android - and would there be a

will to do it? "I haven't investigated it fully, but NanoStudio's in pretty good shape to go cross-platform, since it was written to have minimal reliance on Apple-specific technologies such as Objective-C and Cocoa," says Matt Borstel. "There's already a Windows version, and I'd love to follow it with an Android version as soon as the platform's ready."

This should offer some comfort Android users looking enviously at what the iPhone and iPad have to offer music makers. Peter Kirn has more encouraging words, noting that, far from being a poor relation to Apple's mobile operating system, it also offers some things that iOS doesn't.

"A developer ecosystem is going to be healthy when it's fun to make software and fun to use software. That's true whether you're running a business or giving away a tool you made for yourself; whether you're doing proprietary development or open source development. And while business absolutely, positively matters, if people aren't having fun, you aren't going to be able to build a business. It is a lot of fun to make and use Android software, generally, but it's been less so on the audio side.

"Open-source development does have a role in making Android more productive for musicians. That's true for the obvious reasons - unlike Apple's store, which requires approval to distribute apps, needs a Mac as a development system and is incompatible with popular free licenses, Android development is friendlier to open-source developers.

"But open source also has more to offer Android, because it's a great model when you're dealing with a diverse hardware landscape. There's clearly some demand for open-source solutions, too, because we've even seen a significant amount of interest on the iOS side, in spite of some of its hurdles."

A three-horse race?

Of course, Android isn't iOS's only rival: Microsoft's Windows Phone 7 was launched just a few months ago, but seems sure to gain some ground. However, as Matt Borstel points out, its late arrival to the party could be a problem: "I have to come clean and say that I don't know much about Windows Phone 7. But maybe that says something in itself - there's an awful lot of catching up for them to do!

"A lot of audio developers will have invested considerable time in optimising for the ARM processor [a version of which powers the iPhone 4 and iPad], so processors such as the Snapdragon [used in some Windows Phone 7 devices], which have ARM-based instruction sets, might encourage them to port."

The new Microsoft mobile OS could be one to watch in the future, but for now, most who are seeking an alternative to iOS have their eyes on Android. And as Peter Kirn concludes, with all of those CES launches, it's getting towards make-or-break time as far as realising its potential for music making is concerned.

"I think we'll know more when we see the new Android tablets," he says. "If hardware support and audio performance improves, Android will become more popular among musicians and developers. If not, it won't - but, hey, there are still three desktop OSes and a slew of hardware from which to choose." Fingers crossed we'll soon be spoilt for choice in the mobile arena, too. **cm**

Ins & outs

WHAT ON ROBOEARTH?!

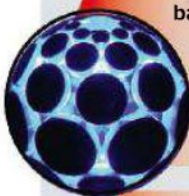
It's been reported that European scientists are working on a 'robot internet'. Called RoboEarth, this will allow robots to upload and share data. The beleaguered music industry just has to hope that they don't develop an illegal file-sharing habit...

MILTON BABBITT R.I.P.

We were sad to hear of the passing of Milton Babbitt, who can justly be called one of electronic music's true pioneers. His name will forever be associated with the RCA Mark II Sound Synthesizer, which has the distinction of being the very first programmable synthesiser.

THIS BALL IS OUR BAG

We tip our hat to Nu Desine's AlphaSphere: a hi-tech musical ball (www.alphasphere.com). It's covered in pads, totally programmable and sold only in pairs. OK, so we made that last bit up - but what's not to like?



OPTICAL DELUSION

Rumour has it that Apple are planning to omit optical drives from at least some of their new MacBook Pros. That could be a problem when installing music software. If this spells the end of multi-disc installations, though, maybe it could be a good thing...

BEST PRODUCER NAMED

The Brit Awards may have passed in a blur of banality, but we should congratulate Markus Dravs on bagging 'Best British Producer'. The Mumford & Sons and Arcade Fire helmsman automatically won when he was named Best Producer at the Music Producers Guild Awards.

NO MORE GUITAR HEROES

Activision has announced that it won't be making any more Guitar Hero or DJ Hero games. Say what you like about them, but they did get people interested in music making, so their demise is at least a little bit sad.



Busting jargon



Computer music terminology explained. This issue: **MIDI**

MIDI, which stands for Musical Instrument Digital Interface, is the best-known and most widely supported standard in music technology. It was originally proposed by synth pioneer Dave Smith in 1981 as a way of getting the many new electronic instruments of the time to 'talk' to each other, so that one synth keyboard could trigger another's sounds, or to connect devices together for sequencing. MIDI got a huge shot in the arm when, in 1985, Atari included standard MIDI ports on their new ST home computer. The ST subsequently became hugely popular with musicians, who used it to sequence their synths, samplers, etc.

Fast forward to these days of software instruments and in-the-box computer music production, and MIDI still has a key role to play. Our DAWs use MIDI data to 'play' our virtual synths just as they do real ones - it's just that the only cable involved is the one that runs from your controller keyboard to the computer. Even if this is USB, it still carries MIDI data (as opposed to any kind of sound) that's then translated in software.

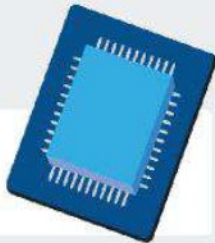
Despite its ubiquity, MIDI isn't perfect: you can't single out specific

notes in a chord for vibrato and pitchbend, for example. This being the case, some rival standards have emerged, notably OSC (Open Sound Control), which offers improved performance and resolution and is starting to gain some ground. There's also the Note Expression technology in Steinberg's VST 3.5; with this protocol, articulation messages can be applied to each event rather than on MIDI's per-channel basis. Nevertheless, more than 30 years after its launch, MIDI shows no signs of being superseded just yet.

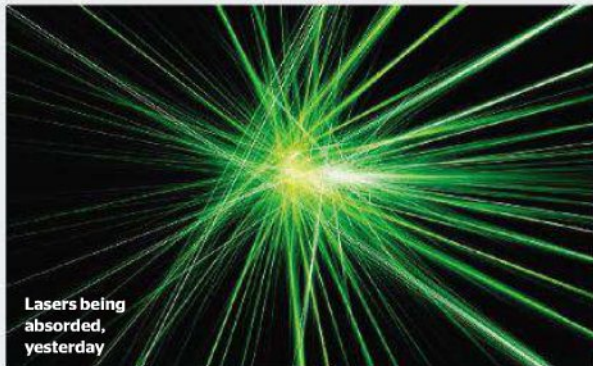


The Atari ST's built-in MIDI ports ensured that it became a studio staple for years to come

System check



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



Lasers being absorbed, yesterday

MOST ABSORBING

Mad scientists at Yale University have built the world's first device able to absorb a laser beam. The device focuses two laser beams at a specific frequency into a silicon cavity, which traps them until their energy is dissipated. It probably won't protect you from the high-energy beam weapons of futuristic robots or alien civilisations, but on the plus side, the technology will hopefully be used in next-generation supercomputers, which may well be light- rather than electron-based. The device measures about 1cm across at the moment, but team leader A Douglas Stone says that simulations have shown they could be made as small as six microns across – about one-twentieth the width of a human hair!

www.yale.edu

MICROKIA

The biggest news in the technology world at the time of writing is the shotgun wedding between software giants Microsoft and mobile monster Nokia. The Finnish phone-peddlers hit the headlines recently when new boss Stephen Elop warned that the company was at crisis point. In fact, he went as far as to describe their position as standing on a "burning platform", surrounded by innovative competitors – a metaphor, we assume.

Days later, Microsoft and Nokia announced they had joined forces in a deal that will see Microsoft mobile OSes used on Nokia's smartphones. Nokia tablets may continue to use other operating systems, however, with Elop explaining that Nokia "reserve the right to introduce tablets using other platforms, including ones we may be working on internally". Even so, this looks set to be a big, big boost to Microsoft's mobile ambitions.

www.nokia.com

www.microsoft.com

THE WIRE

Harvard University boffins have developed a computer chip made out of nanowires, tiny conductors thousands of times thinner than a human hair. Rather than being etched onto circuit boards, these chips are built up from their tiny component parts. The group's prototype design is based on a nanowire mesh, which contains nearly 500 of the little blighters in a 1mm square area, crisscrossed with normal metal wires. These so-called "programmable logic tiles" can be "cascaded" to yield far more complex circuits, and their creators hope that the technique may outpace the shrinking of chips made with current manufacturing techniques. Mind-bending stuff!

www.harvard.edu

Get with the programmers

IK Multimedia CEO Enrico Iori explains how the company go about developing high-end iOS apps



IK Multimedia

Enrico Iori

cm Do you have a separate iOS development division?

EI In 2008, we began building a dedicated iOS app development team and devoting some of our existing resources toward iOS application development. There is only minimal overlap between iOS and desktop development, primarily when it comes to DSP code. Developing an iOS app requires a dedicated effort, with minimal code that can be ported: the main part of the app has to be coded from scratch. The limited power of the iOS CPU requires a lot of optimisation work, while a regular OS app generally would not require it.

cm How does the AmpliTube Fender app for iPhone compare to its desktop equivalent?

EI When we develop analogue-modelled products, the initial stage of development

is the circuit analysis of the devices we wish to emulate. This sets the guidelines on how we do the translation of the circuit into a DSP algorithmic model. This analysis stage is the same for iOS and regular OS applications, and it's shared between the app and the plug-ins. The translation phase differs, since it has to take into consideration the optimisation required for iOS.

Apart from the circuit modelling, there are other parts that do share code. For example, the speaker emulation: this uses the same type of techniques as in our plug-ins, though at a different degree of sophistication and accuracy.

Let me also stress another important issue that makes a great difference in terms of final audio quality: the meticulous check and trim of the DSP code results by our team of audio engineers. Its purpose is to validate the algorithm quality and to compare it with the actual gear. This process is performed by the same team that validates our plug-ins, and is extremely important in making the highest quality iOS apps.

cm Will there ever be a standard plug-in architecture for iOS?

EI We do not think so: the platform has been designed around a closed architecture, and there are no folders or computer-like functions for

"Developing an iOS app requires a dedicated effort"

moving and sharing files between apps. So, developers have to find different ways to expand or enhance applications. In the case of AmpliTube, we have expanded the app from an amp sim into a full multitrack recording studio. And effects from new apps like AmpliTube Fender or

VocaLive will be available and accessible within AmpliTube to extend its functionality and processing capability.

cm What's next from IK Multimedia?

EI AmpliTube Fender for iPhone and iPad has just been released, and VocaLive and iRig Mic will be released within the current quarter. There will soon be big news regarding AmpliTube relating to our partnerships with manufacturers such as Fender, Orange, Ampeg, Soldano, Seymour Duncan, G&K, THD, Jet City and T-Rex. We will release StealthBoard, our universal hardware MIDI floor controller, soon after. Other IK flagship software such as T-RackS and SampleTank are also the subject of new developments and enhancements. It will be an exciting year for all iOS and desktop IK users!

SoftStep controller



Each of the device's pads can sense pressure, X/Y movement and rotation

> Keith McMillen Instruments have released a compact USB-powered foot controller. Aptly named SoftStep, the lightweight ("weighs less than an iPad") pedal features ten "multitouch" foot-pads that transmits up to six notes, continuous controllers, pitchbend, program changes, MMC or OSC commands.

"SoftStep is the most affordable, versatile and expressive foot controller available, with unparalleled flexibility"

Keith McMillen Instruments

Being able to send multiple control signals at once isn't particularly novel in itself, but the foot-pads themselves are: each one can sense pressure, X and Y motion, clockwise rotation and counter-clockwise rotation. Each of these control areas can thus be mapped to any possible MIDI or OSC destination.

The pedal comes packaged with a software application designed for "manipulating sensor data for finely tailored control". If you want to use the SoftStep to control regular MIDI hardware, there's the SoftStep MIDI Expander available as an optional extra. KMI also big up the fact that the device's class-compliance means it is compatible with iPad and iPhone apps.

SoftStep is available now for \$289.

www.keithmcmillen.com

Soundware news

> Described as "the sound of London on overdrive", Push Button Bang's **Dark Dub 2** (£30) contains vocal, tonal, drum and bass loops, as well as FX and vox hits.



It's 1.5GB of "pure audio weaponry" for dubstep, electro and dark techno producers.

If that's too grimy for you, take it down a notch with Prime Loops' **Trip Fantasia** (£15), a sound effects pack comprising 450MB of evolving ambient textures and soundscapes, all in 24-bit quality.

Looking after the urban scene, FatLoud have released **Bounce** (£13), which they bill as "banging club hip hop" construction kits. There are five kits, giving 80 loops in total.

Loopmasters love a good collaboration, and this month they've persuaded Intec Records' Axel Karakasis to unleash his techno mastery into a sample pack. **Axel Karakasis - Techno Producer** (£25) contains 545 24-bit samples and 100 patches.

The Roland TB-303 shaped the sound of house and techno, and 5Pin's **MIDI Focus - Bassline** (£20) contains 156 loops and 62 patches that capture its "fat and juicy" bass.

Introduce an ethnic flavour to your tracks with **World String Sessions: Dessert Oud Bundle** (£20). It features 384 "warm and acoustic" loops played on the Iraqi Oud.

www.loopmasters.com

Forget it all in a four-to-the-floor frenzy with Zenhiser's **Ultimate Psy-Trance Drum Kit** (£15), containing 277MB of kick, snare, hat, tom and clap one-shots, plus woodblocks, shakers, triangles, rimshots and more.

Sonokinetic's **Haka** (£42) features 684MB of warrior chants, tribal vocals and ethnic beats. All recorded deep in the islands of the Pacific, they're billed as "unmatched in authenticity, realism, power and beauty".

www.soundstosample.com



Toontrack EZdrummer users should keep their eyes peeled for the **Classic EZX** pack (ETBC). Featuring drums from Yamaha, Noble & Cooley and Craviotto, it claims to "merge the best of the past and the present".

www.timespace.com

News in brief

OMNISPHERE 1.5 RELEASED

Spectrasonics have released a free update to their Omnisphere synth. v1.5 contains an updated synthesis engine and GUI, over 700 new patches, and loads more. There's a real-time patch manipulation device called the Orb, and what's more, a free iPad app called Omni TR that really puts the Orb at your fingertips, giving you remote control over the desktop plug-in. Omnisphere 1.5 is available now for £329.

www.spectrasonics.net



PSP MIXPACK 2.1

PSP have revealed version 2.1 of their MixPack, which contains new plug-in MixSync2

alongside the familiar faces of MixBass 2, MixTreble 2, MixSaturator 2, MixPressor 2 and MixGate 2. MixSync2 is all about righting time- and phase-related issues, such as multi-mic time alignment problems and plug-in latency troubles. MixPack 2.1 also sees 64-bit support for Mac OS X and Windows. The suite is available in AU, VST and RTAS formats for \$199.

www.pspaudioware.com



ALESIS IO DOCK

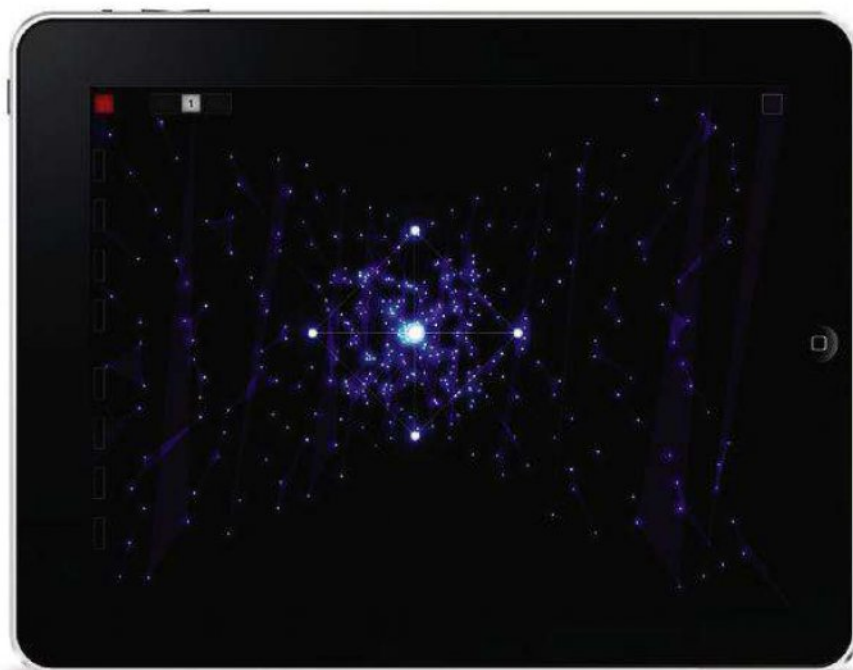
Alesis are set to release the iO Dock, a universal docking station that connects your iPad - and hence your music apps - to "virtually any pro audio gear or instrument". The device features two combination XLR and 1/4" inputs (each with its own gain control and switchable phantom power), a guitar-direct switch, MIDI jacks, a USB port, a composite video-out jack, direct-monitor switch, an assignable 1/4" footswitch input, two stereo 1/4" main outputs and a headphone jack. Look out for it in shops soon.

www.alesis.com

COMPETITION WINNERS

Stonking FXpansion plug-ins were up for grabs in CM161, with each prize consisting of a copy of the splendid Geist drum instrument and superb DCAM: Synth Squad synthesiser. The winners are: Steve Lincoln, Stephen Carroll and a yet-to-be-identified SMS entrant. Well done, all!

Now turn to p93 to find out how you could win a PSP Audioware TotalPack, EffectsPack or N2O!



Konkreet Performer's very pretty interface isn't just iPad art - it's actually a software instrument controller, and interacting with the graphics in any way will change the sound accordingly

App watch

New music-making apps for iPad

> It's time for controller apps to get some of that sexy iPad polish, it seems. Konkreet Performer can remotely control your desktop software via OSC, but it features no knobs or sliders at all. Instead, you feel your way to musical success by manipulating abstract objects.

Konkreet Labs say the idea is to "approach sound design from a new, inspiring angle". The heart of the app is the Control object, an abstract graphic element comprising ten nodes. This can be moved, zoomed into, turned, tapped, thrown, distorted and reshaped, with each action affecting the sound produced. The multitouch Ribbon controller gives access to additional sound design parameters such as pitchbend.

The shape (and hence the sound) of your objects can be saved as snapshots. Konkreet are also working on Visualiser, a desktop application that projects everything you're doing on the iPad onto a big screen.

Konkreet Performer costs £14.99 on the App Store and is for iPad only.

konkreetlabs.com

Those who work with traditional scores will welcome Xenon Labs' new iPad app, Symphony Pro. Choose a note length, then



Symphony Pro makes it easy to write music and hear how it sounds, whether you're near a piano or not

tap on the virtual keyboard or the score itself to get writing. A multitude of rhythmic and notational elements are available, including dynamic markings, ornaments, articulation and tempo adjustments. You can play back your work through 114 different instruments, with up to six tracks/four voices per composition. Copy/paste and undo/redo features are supported.

Grab Symphony Pro for £7.49 from the App Store. Again, it's iPad-only.

symphonypro.net



Game overture

Are games music tracks soon to be considered in the same breath as classical tunes?

> For the first time ever, a composer has been honoured for their work on a game soundtrack at prestigious American awards ceremony the Grammys. Christopher Tin picked up gongs for 'Best Classical Crossover Album', and 'Best Instrumental Arrangement Accompanying Vocalists', both of which were awarded for his hit song *Baba Yetu*.

As top PC gaming blog RockPaperShotgun (www.rockpapershotgun.com) pointed out recently, the world-music-influenced *Baba Yetu* - which features the Soweto Gospel Choir - was first unveiled in *Civilization IV*, accompanying its title sequence.

It's brilliant to see original music composed specifically for a game going on to achieve world-class recognition. Mr Tin used his acceptance speech to draw attention to the reason why he originally composed the track, saying: "Hopefully other game composers will follow me up onto this

"It's brilliant to see original music composed specifically for a game going on to achieve world-class recognition"

stage sometime." You can find out more about Christopher Tin and check out his work at www.christophertin.com.

Delving into the archives

YouTube user garudoh has been posting an amazing series entitled 'The Music of Video Games'. With over 500 tracks archived on his channel, we hope the copyright holders will allow him to continue bringing this music to the attention of the public.

We've been particularly enjoying the original *R-Type* soundtrack and the FM strains of the Megadrive's *Herzog Zwei*! You can find garudoh's channel at www.youtube.com/user/garudoh.



Christopher Tin won two gongs for his track *Baba Yetu*, the first ever piece of games music to be honoured at the Grammy awards

What concerned the computer musician back in the dark days of May 2001?

> The first version of Cakewalk's Sonar dominated the cover of **cm33**: after nine versions of Pro Audio, the US software company had delivered us a completely overhauled DAW. This heralded the arrival of the DX plug-in standard (a rival to VST), but it never really had much traction beyond the Cakewalk product line.

It was almost a decade before the next fundamental re-imagining of Sonar: X1 was released in December 2010, and does a fine job of bringing the software into the post-noughties.

"It was almost a decade before the next fundamental re-imagining of Sonar"

Staying on a DAW tip, the big news was the announcement of Emagic's Logic 5 and Logic Control hardware controller. Version 5 would turn out to be the last iteration of the software to run on the PC: Apple bought Emagic in 2002 and swiftly made the inevitable decision to make Logic a Mac-only concern.

Back in the Reviews section, we assessed the relative merits of various removable storage media (a portable 10GB hard disk went for £229 back then), and Native Instruments made their first move into effects with Spektral Delay.

Oh, and we also profiled an up-and-coming production team called StarGate. Last we heard they were writing and producing hits for such little-known artists as Rihanna, Beyonce and Katy Perry...



May 2001 saw the launch of Cakewalk's Sonar DAW and, er, some video software on the **cm** CD



Drive time

James Brooks

The Appliance vocalist/guitarist/keyboardist tells us about his five favourite pieces of software

APPLE LOGIC PRO

"In Appliance, we always used Pro Tools, but I switched to Logic when it became obvious that Apple were getting into bed with them. It's a fantastic piece of kit, and I have no regrets about switching. It's just so stable. You know it's all there, and it very rarely lets you down."

AUDIOEASE ALTIVERB

"When we put Appliance on pause, I went back to art school - so my world now is the relationship between sound, environments and visual art. I'm doing lots of exhibitions and sound pieces, so I use a lot of reverbs and synthetic spaces, and Altiverb is superb for trying out emulations of churches, cathedrals, small rooms or even tombs - nothing's been overlooked. The impulse responses are great: the way they're broken down into environments means you can use them how you want."

ABBEY ROAD RS124 COMPRESSOR

"This is just fantastic. I like the way it tries to replicate the old EMI compressors. Abbey Road have done their research, and a tremendous amount of circuitry analysis has gone into producing this plug-in. Some people might not like having it in software form, but I think it does a brilliant job."

LEXICON PCM NATIVE REVERB

"The way I use the PCM Native Reverb bundle is all about capturing things and putting them into the computer, compressing and reshaping them, and then placing them in different environments. I'm quite gentle with how I use these things. I'm still quite into the tactile thing of using guitars or synths, so with software I find it more interesting when

"Logic is a fantastic piece of kit, and I have no regrets about switching"

I've put something into the computer. Then I can reshape and remodel it with plug-ins."

PROPELLERHEAD REASON 4

"I always had Reason on my laptop when Appliance were touring. I like to generate rhythmic loops and patterns in Reason or Reaktor and then incorporate and sync them to the drums in Logic. It's a brilliant program for creating pulse ideas that we could then sync the band up to and write on top of. There is a danger of getting stuck in the presets, but if you can push your way past them and do your own thing, it's excellent."

Appliance Re-Conditioned, a three-CD collection of rarities, is out now. www.myspace.com/applianceuk

Marvel GEQ

Out of nowhere, Voxengo deliver another fantastic freebie, and this time round, it's a truly luxurious graphic equaliser

Developer **Voxengo**
Format **PC VST, Mac AU and VST**
Web **www.voxengo.com**

Voxengo have quite the reputation as commercial developers, and we're big fans of both their payware and free plug-ins – especially the superb spectral analyser SPAN and mid-side utility MSED. Marvel GEQ isn't the first free graphic EQ from Voxengo: you might also want to check out Overtone GEQ, a seven-band fixed-band equaliser that applies harmonic processing to colour its output.

Marvel GEQ, however, is more designed for transparent processing, and features 16 bands of fixed-band linear-phase EQ. Linear-phase EQ means that phase distortion isn't introduced to the signal, which makes it especially useful when working with multitrack audio, parallel processing and mid-side processing.

We caught up with Aleksey Vanev, the mysterious mind behind Voxengo, to find out more about his latest creation.

When creating a graphic EQ, how do you decide which frequency each band is located at? How different are the response curves for each band?

"The bands are equally-spaced on logarithmic scale. The EQ shape is constant for each band except the lower bands, where it becomes more like a shelf and less precise due to 'linear-phase filter kernel' size limitation. When adjusting the lower frequencies, one may need to pay more attention to the sound than they do to the numerical readouts."

How much extra work is it to implement linear-phase EQ? Does the linear-phase

"When adjusting the lower frequencies, one may need to pay more attention to the sound than the readouts"



This fixed-band linear-phase EQ also has a mid-side function, making it an absurdly capable piece of freeware

aspect have any other implications on creating or using the effect?

"Linear-phase EQ is technically more complex to implement than, for example, a biquad filter. That's because linear-phase EQ requires efficient convolution processing to be implemented, as well as special filter kernel design routines. The shortcoming of linear-phase EQs is that they induce processing latency, and are thus unusable for tracking. Fortunately, during mixing this latency is compensated for successfully by most audio host applications."

Do you have any tips for users of the plug-ins?

"Dragging the equaliser with the right mouse button engages the 'freehand drawing mode', which is quite a handy tool for creating a sketch of the required EQ curve."

You can find Marvel GEQ at Voxengo's website and on the **cm** DVD.

FREE ADVICE

MID-SIDE MANIA

Another string to Marvel GEQ's bow is its mid-side functionality. This enables you to set one frequency response for the middle of the signal, and another for the sides, which is useful for taking the bass out of the sides of a sound so that its weight sits in the middle of a mix, or for giving a sound more of a 'stereo feel' by EQing the middle and the sides differently. You can set up mid-side routing yourself using Marvel GEQ's Routing page, but to save time, we'd suggest selecting the **Side Bass Removal** patch from Marvel GEQ's list of presets and tweak that instead.

Its down

More good news on the EQ front: DDMF have updated their IIEQ plug-in. The original PC VST version now boasts a new and improved interface, and DDMF have released 64-bit Windows and Mac AU and VST versions of the effect.

IIEQ is a parametric ten-band equaliser with a characteristic sound and highly efficient CPU usage. The bands are all peak filters apart from the lowest and highest, which are low- and high-shelf filters.

www.ddmf.eu

Foo real

New developers Foo have released their first freeware offering, an emulation of the YC-20 divide-down combo organ from the late 60s. Foo-YC20 is a Windows and Mac VST instrument that faithfully recreates the YC-20's sound. The plug-in includes two main voice sections, a switchable bass section and a Realism control, which swaps between an idealised virtual version of the instrument and a more accurate emulation, complete with flaws.

code.google.com/p/foo-yc20

Take it from the Torp'

Commercial developers Two Notes have released a free version of their Torpedo PI-101 channel strip plug-in. Torpedo PI-Free features one model of power amp emulation, one speaker cabinet and one type of microphone, but is home to the full post-FX section and enables the user to move the virtual microphone in front of the speaker cabinet and simulate the sound of a speaker driven hard. Torpedo PI-Free is available in PC RTAS and VST and Mac AU, RTAS and VST formats.

www.two-notes.com

Organ donors

Organ-lovers have yet more to celebrate: Iliadis have announced that all their organ VST plug-ins for Windows are now free. These include the IBX Tonewheel Organ, the manual transistor IVF Combo Organ, the Hammond clone Euthymia Electronic Organ, and drawbar organ emulations VH-1 and VH-2. The organs boast a great range of different sounds, and feature straightforward and attractive interfaces that makes them both easy on the eye and straightforward to use. **cm**

iliadis.orgfree.com

COMPUTER music

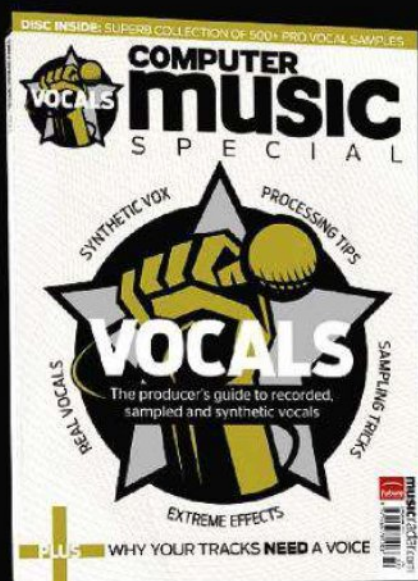
SAVE 20% WHEN YOU SUBSCRIBE

Thirteen issues per year and a DVD-ROM with every issue for only £15.49 every 3 months!

Click  **myfavourite**magazines.co.uk /cmup11

(Please use the full web address to take advantage of this special offer)

Call 0844 848 2852 quoting code cmup11 (Lines open 8am-9.30pm / 8am-4pm Saturdays)



COMPUTER music

SPECIAL

SAVE 20% WHEN YOU SUBSCRIBE

Six issues per year for only
£14.49 every 6 months!

Click  **myfavourite**magazines.co.uk /cmsp15

(Please use the full web address to take advantage of this special offer)

Call 0844 848 2852 quoting code cmsp15 (Lines open 8am-9.30pm / 8am-4pm Saturdays)

Terms and Conditions: This offer is for new UK subscribers paying by Direct Debit. Computer Music subscribers will receive 13 issues per year. Computer Music Special subscribers will receive 6 issues per year. Minimum subscription term is 12 months. If at any time during the first 60 days you are dissatisfied in any way please notify us in

All offers are subject to availability! We do not take any responsibility for any misprints or misinterpreted information!

All prices include 20% UK Vat and Tax paid is clearly shown on all invoices. For VAT registered companies this can be deducted at source. Please note that all our invoices will be in euros.

All transactions are carried out in euros and as such the GBP price can vary dependent on the current day's rate of exchange. Thomann are not liable for any surcharges added by your bank or card issuer.

The prices below are based on the published day's rate of exchange:
1 EUR = 0.840 GBP, 1 GBP = 1.190 EUR

thomann
MUSIC IS OUR PASSION

Musikhaus Thomann
Treppendorf 30
D-96138 Burgebrach
Germany
T 0203.5141643 (UK)
T +49 9546.9223-0 (Germany)
F +49 9546.9223-24
E international@thomann.de
| www.thomann.de

HOT DEALS

www.thomann.de | International Hotline: 0203 5141643 (UK) | Fax: +49 9546 9223-24

Zoom H1 Bundle

Mobile digital audio recorder

24bit/96kHz linear PCM, real X-Y mic arrangement, built-in monitor speaker, auto recording level, lo-cut filter, timestamp, track mark function, A/D and D/A conversion, 128 times oversampling, recording media: micro SD memory card and micro SDHC memory card (up to 16GB), USB 2.0, incl. 2GB micro SD card. Bundle incl. the t.bone HP-66 headphone and 2m USB cable.

€ 88.- **€ 82.-**
order code 253718

Tascam DR-07

Mobile digital audio recorder

Record and play mp3 (up to 320kbps) and WAV files (up to 24bit), 44.1/48kHz, built-in stereo mic, analogue automatic level input control, analog limiter, stereo line input, headphone/line out (stereo mini-jack), USB 2.0, powered via AA alkaline or NiMH batteries, includes 2GB SD Card and windshield.

€ 133.- **€ 112.-**
order code 223287

Zoom H2 4GB Bundle

Mobile recorder

24bit/96kHz, USB interface, record 360° sound as 2-channel data or 4-channel data simultaneously, mic/line input, headphone output, perfect for interviews, podcasts, meetings and live recording. Incl. USB cable, stand, power supply, windshield and 1GB SD card. Bundle includes additional 4GB SD card.

€ 159.- **€ 134.-**
order code 203048

Olympus LS-5

Portable digital recorder

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

€ 179.- **€ 150.-**
order code 250006

Zoom Q3 HD

Handy video audio recorder

Built-in stereo condenser mics with true X/Y configuration, 2.4" LCD display, video resolution up to full HD 1080p, MPEG-4 AVC / H.264(MOV), Mini-HDMI and NTSC/PAL TV out, 44.1/48kHz 16/24bit Linear PCM or AAC, accepts up to 32GB SDHC cards, auto record level, uses 2 standard AA batteries or NiMH rechargeable batteries, USB 2.0 with built-in cable, headphone out, Windows and Mac OS compatible, incl. 2GB SD card.

€ 244.- **€ 205.-**
order code 254938

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.

€ 295.- **€ 248.-**
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 filter, 5sec pre-record buffer, manual or automatic recording level control, USB-2.0 connection. Includes power supply, Soundforge Audio Studio LE, cable remote, 2x AA batteries and cable. Finish: Grey.

€ 315.- **€ 265.-**
o. code 238886

Zoom H4 N WIZOO Bundle

24bit/96kHz digital recorder

Perfect for interviews, podcasts, meetings and live recordings. 2 built-in stereo microphones, provides 24V or 48V phantom power, USB port. Includes windshield, USB cable, cover and Cubase LE4. Bundle includes 4GB SD card, Superlux HD681 stereo headphone and WIZOO Publishing, 'Mobile Recording' Thomann Special Edition by Kai Schwirzke.

€ 339.- **€ 285.-**
o. code 232016

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 MSL66 stereo headphones and 4GB SD card.

€ 349.- **€ 293.-**
order code 245233

Boss BR-800 Bundle

24bit/96kHz digital recorder

4-track recording at the same time on SD/SDHC card possible, 8-track playback + stereo drum track, usable as USB audio interface and effect engine, HiFi (MT2) Roland/Boss format and 16bit stereo WAV format, LCD display, headphone out, USB for audio I/O, MIDI I/O, incl. SD card, power supply, USB cable and Cakewalk Sonar 8.5 LE, weight: 872g. Bundle incl. the t.bone MB85 Beta dynamic microphone and Superlux HD681 headphone.

€ 449.- **€ 377.-**
o. code 254835

Fostex MR-16 HD

16-track HD recorder

16bit/44.1kHz, 4 tracks simultaneous recording, 4 XLR inputs with phantom power, FAT32 disc format and WAV recording, USB port, 2x AUX, SPDIF output, internal effects,

direct CD-RW connection over USB, built-in 40GB harddisk, dimensions WHD: 40 x 26.4 x 8.5cm, weight: 3.2kg.

€ 449.- **€ 377.-**
order code 113153

Zoom R24 Bundle

Digital recorder

24-track playback and 8-track recording simultaneous, 24bit/96kHz, 8 ins and 2 outs, built-in stereo mic, compressor/EQ, tuner and metronome, support SDHC cards up to 32GB, USB 2.0, 8x XLR-/TR-Input Mic/Line/Hi-Z, headphone out, incl. Steinberg Cubase LE, 1GB SD card, USB Stick (2GB with Drum Loop Library), power supply and cable. Bundle incl. the t.bone SC400 studio microphone, the t.bone HD-800 stereo headphones and cable.

€ 515.- **€ 433.-**
o. code 253669

Tascam 2488 NEO

24-track hard disk recorder

24bit/44.1kHz, 8x mic/line inputs (4x XLR with phantom power), internal FX processor, 16x CD-RW drive (red book compliant, import/export WAV files and backup hard 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. Weight: 8kg

€ 738.- **€ 620.-**
order code 219928

Edirol R-44

24bit/192kHz 4-track field recorder

4x XLR/1/4" TRS inputs with 48V phantom power, 4x RCA outs, digital I/O, internal stereo mic, integrated speaker, SD Card slot (supports SDHC cards), pre-record function, USB 2.0 connection, OLED display. May be powered via battery, camera battery or power supply.

€ 777.- **€ 653.-**
order code 205740

Tascam CD-RW 901 SL

Professional CD-RW recorder

24bit A/D and D/A converter, selectable disc reading speed, records and plays CD-R, CD-RW, plays mp3 files (128kbps only), AES/EBU digital I/O, coaxial digital I/O (S/PDIF), optical digital I/O (TOS), balanced analog I/O XLR, unbalanced analog I/O (RCA), tempo control. Dimensions: 19"/2U

€ 966.- **€ 811.-**
order code 118937

Behringer UB1202

12-channel mixer

2/2 bus, 4x stereo line ins, 4x mic ins with low cut, +48V, 1 post fader FX send, peak LEDs on all mono channels, 1x aux (post), 2-track I/O, control room out, external power supply.

€ 64.- **€ 54.-**
order code 158998

Behringer Xenyx X2222 USB

22-channel mixer

8 mic ins, 48V phantom power, internal 24bit effects processor, 16 presets, built-in USB audio interface, 4 stereo ins, 3-band EQ, 3 aux, 2 subgroups, weight: 4.78kg, incl. 19" rackkit, energyX2.2 Compact music production software for Windows XP/Vista (32bit), Mac OS X and Linux.

€ 255.- **€ 214.-**
o. code 243138

Behringer Xenyx X1832 USB
6 mic ins.
order code 243142 **€ 192.-**

Soundcraft EFX 8

8-channel mixing desk

8x mono inputs, 2x stereo inputs, inserts on all channels, 1x FX send, 1x aux send (pre/post), 48V phantom power, solo/mute switch, integrated Lexicon FX with 32 presets, peak LEDs on all channels, integrated power supply. Dimensions: 33 x 9.1 x 36.2cm. Weight: 4.6kg. Optional rackmount available.

€ 289.- **€ 243.-**
order code 118879

Mackie Onyx 1620i

Mixer

8x mic/line inputs, 2x instrument inputs (DI), 4x stereo inputs, 8x inserts, 4-band EQ, 2x parametric, 4x aux pre/post switchable, phantom power switchable per channel, control room out, internal talkback microphone, FireWire option, ProTools M-Powered compatibility officially licensed, optional rack kit available.

€ 818.- **€ 687.-**
order code 236559

Mackie Onyx 24.4

Live console

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

€ 966.- **€ 811.-**
o. code 193356

Mackie Onyx 32.4
38 mono ins.
order code 194635 **€ 966.-**

Behringer SX 4882

48-channel mixer

24 XLR mic ins, meterbridge with LEDs, neo-classic British 4-band EQ with 2x parametric mids, 100mm faders, 13-segment main LED, insert I/O per channel, direct out, main ins, 8 subgroups with inserts, 6 aux per channel, 2 headphone outs, 2-track I/O, 20dB pad, 6 stereo aux returns, 2 BNC lamp connectors, internal talkback microphone, dimensions WHD: 7.2/22 x 94 x 75cm, weight: 27.7kg.

€ 985.- **€ 827.-**
order code 246900

Mackie Onyx 1640i

Compact 16-channel mixer

16x mic/line ins, inserts aux direct outs on each channel, 4-band EQ, 2 parametric EQs, 6 pre/post auxes (switchable), switchable phantom power per channel, 4 sub groups, control room out, internal talkback mic, ProTools M-Powered compatible (officially licensed), integrated FireWire access point, incl. rackmount. Dimensions: 61.7 x 44.2 x 19.1cm. Weight: 13.5kg.

€ 1299.- **€ 1091.-**
order code 236561

Yamaha 01V96 VCM

Digital mixing console

24bit/96kHz, 24 analog inputs, 12x mic inputs, expandable to 40 channels, includes ADAT interface, 4 FX processors, parametric EQ, includes Studio Manager software.

€ 2490.- **€ 2092.-**
order code 161112

suitable flightcase **€ 182.-**
order code 199056 **€ 161.-**

Presonus Studioline 24.4.2

Digital mixer with integr. audio interface

32x26 FireWire audio interface, 44.1/48kHz, 24 mic ins, 24 line ins, tape in (2x RCA), 2x FX return (stereo), analogue inserts, 10 aux mixes, 2 FX sends, 4 sub groups, class A preamps, dimensions WHD: 63.9 x 54.1 x 17.8cm, weight: 10.4kg.

€ 3299.- **€ 2771.-**
order code 245038

Mackie CDB200 Refurbished Bundle

Digital open architecture mixing desk

72ch/96kHz (36ch/192kHz), 8 busses, 2 touch screens, 25 motorised faders, 4-band EQ, compressors and gates, VST plug-in compatible, 2 PCI slots, flexible I/O, 9 slots for optional I/O cards (not included in basic config), Mackie Control Universal mode for DAW control. Bundle incl. Xbus AES card, Xbus digital card and 2x Xbus line card. 8-Stock with full warranty!

€ 3599.- **€ 3023.-**
order code 251867

www.thomann.de

Telephone Hotline: 0203 5141643 (UK)

Fax: +49 9546 9223-24

The Thomann services

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

Akai MPKmini

USB/MIDI controller keyboard

25 velocity-sensitive mini keys, 8 MPC-style pads (2 banks, 16 total), 8 assignable O-link knobs, built-in arpeggiator (resolution, range and patterns, tap-tempo button), dedicated octave up/down and sustain buttons, program recall button to restore up to 4 separate global settings, USB powered, incl. software editor and sample player software.



o. code 254954

€ 99.- **£ 83.-**

M-Audio Oxygen 49 (3rd Gen)

MIDI USB Keyboard

49 velocity sensitive full size keys, 8 controller knobs, 9 fully assignable sliders, assignable buttons including 6 transport buttons, Windows XP/Vista 32bit and Mac OS X.



order code 236606

€ 159.- **£ 134.-**

Oxygen 61 (3rd Gen)

61 keys.

order code 236607

€ 199.- **£ 167.-**

Novation XioSynth49

Synthesizer and controller keyboard

49 keys with Novation quality synthesizer, USB audio interface and the „Xpression“ pad and pitch/mod joystick, ultra-low latency 2-channel I/O audio interface, X-Gator patch programmer, 60 sounds programmed by internationally acclaimed artists and producers, powered via USB bus-power, AA batteries (not included) or included PSU. No drivers required for Win XP and Mac OS X (plug-and-play).



order code 196672

€ 238.- **£ 200.-**

Thomann SP-5100

Stage Piano

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



order code 154090

€ 322.- **£ 270.-**

Thomann SPWS-5100

Wooden stand for SP-5100

order code 154141

€ 47.- **£ 39.-**

Thomann SP-5500

Stage piano

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



order code 154087

€ 375.- **£ 315.-**

Thomann SPWS-5500

Wooden stand for SP-5500

order code 204071

€ 47.- **£ 39.-**

Korg SP-170

Stage piano

88 natural weighted hammer action keys, 2x 9W built-in speakers, 10 sounds, reverb and chorus effects, key transpose and pitch control, 2 line/headphone outs, MIDI out. Dimensions: 131 x 32.5 x 13.3cm. Weight: 12.1kg.



Finish: Black

order code 242228

€ 477.- **£ 401.-**

Finish: White

order code 242231

€ 477.- **£ 401.-**

Yamaha P95

Stage Piano

Graded hammer keyboard with 88 keys, 64-voice polyphony, 10 voices, 4 reverb types, preset chorus/effect, dual function, 1-track recorder, MIDI in, 2 headphone connections, 2x 6W, sustain pedal included, dimensions: 132.6 x 15.2 x 29.5cm, weight: 12kg.



Finish: black

order code 245736

€ 655.- **£ 550.-**

Finish: silver

order code 245737

€ 655.- **£ 550.-**

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



order code 189377

€ 699.- **£ 587.-**

suitable flightcase

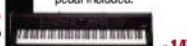
order code 116660

€ 188.- **£ 158.-**

Kawai MP-6

Stage piano

88 weighted keys with Ivory Touch key surfaces, 256 sounds, 256 memories, 12 tone wheel simulators, 192-note polyphony, amp simulator, DSP effects, pitch bend wheel, modulation wheel, master volume, 4x zone volume, dim. WDH: 135.5 x 34.7 x 18.1cm, weight: 21.5kg, Finish: black, F-10H damper pedal included.



order code 246881

€ 1475.- **£ 1239.-**

Kawai MP-10

Stagepiano

88 weighted wooden keys RH3 with Ivory touch key surfaces, 27 sounds (ultra progressive harmonic imaging), 156 setup memories, 12 tone wheels, 192 notes polyphony, DSP effects, pitch bend wheel, modulation wheel, master volume, 4x zone volume, incl. F-20H double pedal.



order code 246882

€ 2222.- **£ 1866.-**

Korg Monotron

Analogue ribbon synthesizer

VCO, VCF, LFO, VCO pitch, LFO intensity, VCF cutoff, VCF peak, LFO switch, assignable to oscillator pitch or filter cutoff, Ribbon controller, 1/8" stereo jack, headphone output, 1/8" stereo jack, power supply, dimensions: 12 x 7.2 x 2.8cm, weight: 95g.



order code 246282

€ 55.- **£ 46.-**

Moog Little Phatty Stage II Thomann Ed.

Analogue synthesizer with 37 keys

MIDI over USB, direct USB to computer connection allows the use of the Little Phatty editor, arpeggio and tap tempo function, 2 oscillators, 1 low-pass filter (classic Moog Ladder), 4-stage analogue Envelope generators, real analog control, 100 user presets, Thomann Edition (red back, red display, pitch wheel and mod-wheel, black sideovers).



order code 251804

€ 1111.- **£ 933.-**

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.



order code 243147

€ 189.- **£ 159.-**

Native Instruments Traktor Kontrol S4

DJ Audio interface and controller

4-channel mixer with ergonomic layout and 2 high-res jog wheels, 2 analog inputs with phono and mic preamp for CD player or external audio gear, 4-deck mixing and effects, loop recorder, 2 customizable FX, 24bit/96kHz, MIDI I/O, headphone output, Win XP or higher, Mac OS X 10.5 or higher (Intel), USB 2.0 bus power.



order code 253480

€ 888.- **£ 746.-**

Euphonic MC Mix

DAW controller

8 motorised faders, compatible with Windows 7 and Mac OS X, supports HUI and Mackie Control compatible DAW software. Dimensions: 42 x 23.8 x 3cm (WxDxH). Weight: 2.2kg



order code 203395

€ 888.- **£ 746.-**

Native Instruments Komplete 7

Complete package of software

Contains: Kontakt 4.1, Absynth 5, Guitar Rig 4 Pro, Reaktor 5.5, Battery 3, FM8 and Massive, more than 10000 presets and sample libraries with 100GB, all instruments as stand-alone or plug-in usable, supported formats: stand-alone, Audio Units, VST, RTAS, ASIO, Core Audio, Core MIDI, DirectSound.



order code 252237

€ 469.- **£ 394.-**

IK Multimedia AmpliTube iRig

Guitar amp and effect system

for iPhone, iPod Touch and iPad, real-time guitar and bass mobile multi-FX app, full rig made by 3 simultaneous stompboxes + amp + cabinet + mic, 10 stompboxes, 5 amps, 5 cabinets, 2 mics available, import and play along with songs and backing tracks with real time effects, 36 presets, includes tuner/metronome, free, LE and full versions available, same low-latency as any Mac/PC system.



order code 249318

€ 28.- **£ 24.-**

M-Audio Fast Track USB

USB audio interface

24bit/48kHz, 1x analog input, 2x analog output, input jack or XLR, headphone output, direct monitoring, for Win and Mac OS X, incl. ProTools M-Powered Essential Software.



order code 246876

€ 69.- **£ 58.-**

Native Instruments Audio 2 DJ

Compact DJ audio interface

24bit/96kHz, USB 2.0, 2x stereo line/headphone outs, 1x LED per channel, low latency ASIO/ Core Audio/DirectSound drivers. Includes 2 jack-RCA cables, Traktor Pro demo version, Kore player, Kore soundpack (free choice), Guitar Rig Go, for Windows XP/Vista and Mac OS X 10.4 or higher.



order code 235147

€ 95.- **£ 80.-**

Tascam US-122MK2

24bit USB 2.0 audio MIDI interface

Supports 2 ins and outs, 2x XLR mic ins with 48V phantom power, enhanced high grade mic preamps, 2x output line ins (1x switchable to Hi-Z guitar, bass in), MIDI I/O, 24bit/96kHz, latency-free monitoring with switchable mono function, USB 2.0, USB Bus powered, aluminium side panels, incl. Cubase LE4.



order code 235648

€ 133.- **£ 112.-**

Presonus AudioBox USB

Compact 2x2 USB audio interface

24bit/48kHz, 2x mic/instrument inputs (48V phantom power), 2x balanced jack outputs, MIDI I/O, clip LED (on each channel), headphone output, includes USB cable and Steinberg Cubase LE 4.



order code 217037

€ 148.- **£ 124.-**

Tascam US-144MK2

24bit USB Audio/MIDI interface

2x mic ins XLR, 48V phantom power, 2x analog line ins (1x switchable to Hi-Z guitar/bass input), MIDI I/O, S/PDIF digital I/O, 24bit/96kHz, latency-free monitoring with switchable mono function, USB 2.0, USB bus powered, includes Cubase LE4.



order code 235644

€ 166.- **£ 139.-**

Focusrite Saffire 6 USB

USB audio interface

2 preamps with 48V phantom power, Hi-Z instrument input with -10dB pad, 24bit/48kHz, MIDI I/O, headphone output, 105dB, noise (mic in): THD+N = 0.0025%, 2x combo ins (mic/line/instrument), 4x analogue outs. Includes Focusrite plug-in suite, Xcite+ bundle and USB cable, for Mac OS X or Windows. Weight: 1kg.



order code 236371

€ 168.- **£ 141.-**

M-Audio Fast Track Pro

USB audio interface

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



order code 184360

€ 179.- **£ 150.-**

Line6 Pod Studio UX2

USB audio interface

2x mic ins with preamp and phantom power, guitar/bass input, stereo line I/O, headphone out, Line 6 POD Farm software with FX Junkie model pack, 18 guitar amp models, 5 bass amp models, 64 effects, 6 mic preamp models, 24 guitar cabinets, 5 bass cabinets, includes Ableton Live Lite and Reason Adapted.



order code 214446

€ 179.- **£ 150.-**

Cakewalk UA-25 EX CW

USB audio interface

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



order code 235896

€ 192.- **£ 161.-**

Native Instruments Audio Control I

USB 2.0 audio interface

24bit/192kHz, 2x balanced ins (1x mic/line XLR/ TRS Neutrik with 48V + 1x line/HiZ TRS), 4x balanced outs (1/4" TRS), headphone out, direct monitoring with mono switch and mix function, MIDI I/O, 3x free buttons and one knob, ASIO/ Core Audio, for WinXP & Mac OS X. Includes Traktor 3 LE, Guitar Combos and XPress Keyboards.



order code 197402

€ 198.- **£ 166.-**

Tascam US-1800

USB 2.0 audio/MIDI interface

24bit/96kHz, 8 XLR mic/line ins with phantom power (switchable for 4 channels each), and level indicators on front panel, 2 balanced line/instrument inputs on front panel, 4 balanced line outputs on rear panel, 4 line outputs, stereo monitor out, stereo digital I/O switchable between S/PDIF and AES/EBU, MIDI I/O, incl. Cubase LE 5, 19"/1U.



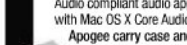
order code 256918

€ 322.- **£ 270.-**

Apogee Duet Bundle

FireWire audio interface

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



o. code 209773

€ 425.- **£ 357.-**

Focusrite Saffire PRO 40

24bit/96k FireWire audio interface

20x I/O, 6x mic preamps, 8x analog I/O (2x mic/line/instr. combo XLR, 6 mic/line combo XLR), ADAT I/O, 2x S/PDIF I/O, 2x monitor outs, monitor switch, 2 separate headphone buses, MIDI I/O, zero-latency DSP mixer/router, internal power supply, includes plug-in suite. Dimensions: 19"/1U. Weight: 3kg



order code 219725

€ 468.- **£ 393.-**

MOTU Ultralite MKIII Hybrid

FireWire and USB audio interface

24bit/192kHz, 2x mic/instrument ins, 6x bal. ins and 10x 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.

HOT DEALS

th.mann
MUSIC IS OUR PASSION

SOFTWARE

Band in a Box 2010 Pro

Version 2010. Just type in the chords for any song using standard chord symbols (like C, Fm7 or C13b9), choose the style you'd like. Band-in-a-Box automatically generates a complete arrangement of piano, bass, drums, guitar and strings in a wide variety of popular styles. Only for Mac.
order code 233712 **£111.-**

Sequencer Deals

222936	Steinberg Cubase 5	£499.-
222988	Steinberg Cubase Studio 5	£328.-
214673	Steinberg Sequel 2	£77.-
249877	Steinberg Nuendo 5	£1625.-
234397	Apple Logic Express 9	£149.-
238893	Magix Samplitude 11	£422.-
232883	Protools LE 10	£235.-
227700	Ableton Live 8	£375.-
227704	Ableton Live 8 Suite	£559.-
240738	Presonus Studio One Pro	£265.-
245593	Presonus Studio One Pro Upgrade	£265.-

Ableton Live Intro

Software for recording, composition, remixing or DJ'ing, supports VST and AU instruments and effects, up to 32 bit 192 kHz. Rewrite master and slave, intuitive mapping of controller and DJ hardware, realtime time-stretching and warping. Your Entry to the Ableton-Family, incl. Live Intro Collection (7GB), Windows and Mac
order code 240852 **£95.-**

Apple Logic Studio 9

incl. Logic Pro 9, Soundtrack Pro 3 (professional post-production), Studio Instruments (40 software instruments), 6 DVD's with Jam Pack Library, Studio Effects (80 effect plugins), Flex Time Function, Amp Designer, Audio Quantize, Varispeed, Drum Track Editing, Apple Loops, for Mac OSX.
order code 234726 **£388.-**

SYNTH & SAMPLER

Spectrasonics Omnisphere

Successor to Spectrasonics popular Atmosphere® instrument. Compatible with Mac Universal Binary (OS X 10.4 and higher) and Windows (XP/Vista). Supports AU, VST and RTAS plug-in formats.
order code 216595 **£355.-**

234033	Spectrasonics Trilian	£211.-
244684	Brainworx bx digital V2	£311.-
252727	NI Komplete 7	£444.-
235795	NI Kontakt 4	£355.-
137201	NI Kore 2	£355.-
236326	NI GuitarRig 4 Kontrol	£358.-

Propellerhead Reason 5

Virtual studio rack with analogue synths, FX, sampler, mixer and sequencers, for Mac and PC.
order code 252882 **£279.-**

115502	FXPansion BFD 2.0	£205.-
186741	FXPansion BFD DLX (Exp.)	£133.-
113945	XLN Audio Addictive Drums	£179.-
111457	VSL V90 Special Ed. (St. Ed.)	£208.-
251369	Steinberg Halion Sonic	£299.-
147344	Steinberg Halion 3.1	£205.-
198304	Steinberg Groove Agent 3	£325.-
171428	Virusynth Cantor 2	£299.-
189865	Virusynth Tera 3	£237.-
114337	Virusynth Poseidon	£199.-
111520	Rob Papen Predator	£125.-
231272	Rob Papen SubBoomBass	£89.-
167030	G. Garritan Pers. Orchestra 3	£133.-
253796	Synthogy Ivory II Grand Piano	£245.-

Spectrasonics VI Stylus RMX

Virtual vinyl groove module, VST plug-in, 3GB library with over 700 breakbeat remix loops, adjustable tempo, PC/Mac.
order code 201776 **£277.-**

218212	IK Multium. Total Workst. Bundle	£255.-
168008	Arturia MiniMog V	£179.-
141895	Arturia HipHop Producer	£111.-
244892	Motu Ethno V2	£338.-
165777	Applied Ac. Lounge Lizard EP2	£169.-
115279	Modartt Pianoteq 3	£225.-
137668	Motu Mach Five 2	£399.-
177350	MusiLab Real Guitar	£95.-
193582	TooNtrack EZ Drummer	£89.-
214085	TooNtrack Superior Drummer 2	£199.-
198274	Waldorf Edition	£46.-
228186	Waldorf Largo	£189.-
108614	Novation V-Station	£55.-

the t.bone Micscreen

Portable absorber/diffuser
Positioned behind any microphone, reduces the transmission of unwanted room reflections, echos and ambient noises, recommended for vocals, instruments, live and studio applications, quick and easy mounting on nearly every standard microphone stand.
order code 209023 **€91.- £76.-**

the t.bone SC140

True condenser microphone
18mm diaphragm, cardioid, 20Hz-20kHz, -30dB 75/150Hz low cut, -10/20dB pad, 130dB max. SPL. Includes shockmount, windscreen and aluminium case.
order code 195305 **€47.- £39.-**
SC140 Stereo-Set
Matched pair with stereo bar **€95.- £80.-**
order code 195307

the t.bone EM9600

Condenser shotgun microphone
Hypercardioid, 1.5V battery or 48V phantom power, ideal for video, vocal, overhead and choir, aluminium body, XLR connector, 60Hz-18kHz. Includes 6m XLR/XLR cable, windscreen and hard box. Dimensions: 22mm x 320mm. Weight: 130g
order code 141186 **€47.- £39.-**

Rode M3

Condenser microphone
Cardioid pattern, ideal for recording strings, choir and acoustic guitars, 40Hz-20kHz, 130dB max SPL, 21dBa background noise, 2000 impedance, 48V phantom power or 9V battery, status LED, high pass filter, includes windshield and stand mount. Dimensions: 225 x 33mm (length x diameter). Weight: 360g
order code 114494 **€88.- £82.-**

AKG C1000S MKIII Set

Condenser mic bundle
Cardioid/supercardioid, battery or phantom power, battery check LED, pattern switch, 50Hz-20kHz, 2000 impedance, 137dB max SPL. Weight: 275g. Includes K&M 27105 microphone stand, 10m Cordial XLR cable with Neutrik connectors, windscreen, clip and mic case.
order code 105776 **€144.- £121.-**

Rode NTG-2

Directional condenser microphone
Broadcast quality, condenser transducer, low-noise circuitry, low handling noise, phantom powered (44 - 52V) or battery powered (1.5V), 20Hz-20kHz, 131dB SPL max., ideal for film/TV/video. Includes stand mount, windshield and zip pouch.
Weight: 161g
order code 179383 **€189.- £159.-**

Rode NT5-MP

Condenser microphone stereo bundle
2 matched small diaphragm condenser microphones, 0.5" gold sputtered capsule, cardioid, 20Hz-20kHz, excellent for drum overheads, acoustic guitar and stereo live recordings. Including plastic case, microphone clips and wind screens.
order code 154595 **€279.- £234.-**

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
a. code 153692
Finish: Black
a. code 158648 **€1158.- £973.-**

the t.bone SC450 USB

USB studio large diaphragm microphone
USB for direct connection to computer (for Windows XP/Mac OS X, no special drivers required), phantom powered via USB, cardioid, 30Hz-20kHz, external low cut and -10dB pad switch. Includes shockmount, USB cable and plastic case.
order code 195302 **€95.- £80.-**

Samson G-Track

Large diaphragm USB condenser mic
Built-in audio interface and mixer, mic and instrument/line gain control with clip LED, stereo input jacks for instrument or line level signal, stereo headphone out for no-latency monitoring with level control, 3-position headphone switch, USB bus-powered and compliant. Includes desktop microphone stand, audio I/O cables, USB cable and Cakewalk Sonar LE software. Optional shockmount available.
order code 114393 **€105.- £88.-**

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.
order code 203865 **€144.- £121.-**

AKG Perception 220

Large diaphragm condenser mic
1" diaphragm, metal housing, cardioid polar pattern, 20Hz-20kHz, switchable 300Hz low-cut filter, switchable -20dB pad, 135/155dB max SPL, includes elastic holder and carrying case. Dimensions: 53 x 165mm (diameter x length). Weight: 525g
order code 208310 **€149.- £125.-**

Rode NT1-A Complete Vocal Recording Solution

Large diaphragm microphone
20Hz-20kHz, 1000 impedance, 132dB dynamic range, 137dB max SPL. Includes SM6 deluxe shockmount, 6m cable and Peter Freeman 'Studio Secrets' tutorial DVD.
order code 235937 **€185.- £155.-**

the t.bone SCT800 Set

Valve studio microphone
12AT7 valve, 20Hz-20kHz, 2000 impedance. Includes deluxe case, shockmount and external power supply. Bundle includes the t.bone MS180 pop shield.
order code 203198 **€189.- £159.-**
SCT800 Stereo-Set - matched stereo pair (pop shield not included) **€355.- £323.-**
order code 174362

the t.bone SCT2000 Set

Valve studio microphone
Truly warm sound, 20Hz-20kHz, omni/cardioid/figure-8 plus 6 intermediate stages, up to 130dB SPL. Includes case, shockmount and power supply. Bundle includes the t.bone MS180 pop shield.
order code 203196 **€288.- £242.-**

Rode NT1-A Studio Solution Set

1" large diaphragm microphone
Switchable between omni, figure of eight and cardioid patterns, variable high-pass filter - flat, 40Hz or 80Hz, PAD -5dB or -10dB HPF and PAD, frequency response: 20Hz - 20kHz, max SPL: 147dB, 48V phantom power required, weight: 860g. Bundle incl. deluxe shockmount SM6, 6m cable and tutorial DVD.
order code 256707 **€295.- £248.-**

Shure SM 7 B

Studio microphone
Dynamic studio microphone with cardioid polar pattern, 50Hz-20kHz, bass rolloff switch, mid-boost switch, 1500, shielded against broadband interference, fixed stand adapter, XLR connector, includes windscreen.
order code 129929 **€379.- £318.-**

Neumann TLM 102

Large diaphragm condenser microphone
Cardioid pattern, 20Hz-20kHz, 500 impedance, 12dB-A equivalent noise level, 144dB max SPL for THD 0.5%, includes SG2 stand mount swivel. Weight: 260g.
Finish: Nickel
a. code 237768
Finish: Black
a. code 237769 **€569.- £478.-**

Neumann TLM 103 Studio Set

Studio microphone
Large diaphragm cardioid microphone, pressure gradient transducer with one-diaphragm capsule, transformerless circuitry, extremely low noise: 7dBa, high-quality professional equipment for limited budgets, includes shockmount and box.
Finish: Silver
order code 174067 **€985.- £827.-**

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.
order code 139461 **€989.- £839.-**

KRK RP5 Rokit G2

Active studio monitor
45W, 5" + 1" speakers, 53Hz-20kHz, magnetically shielded. Dimensions: 27.6 x 18.5 x 25cm. Weight: 8kg. Unit price!
order code 213024 **€144.- £121.-**
KRK RP8 Rokit G2
8" + 1", 140W.
order code 213090 **€235.- £197.-**

Yamaha HS50M

Active 2-way studio monitor
70W bi-amped bass reflex system, 5" woofer, 3/4" tweeter, 55Hz-20kHz, XLR & jack ins, adjustable input level, mid EQ, room control, high trim, switchable low cut, fully magnetically shielded. Unit price!
order code 186461 **€155.- £130.-**
Yamaha HS80M
120W, 8"/1", unit price. **€258.- £217.-**
order code 186463

ESI nEar05

Active 5" studio monitors
Magnetically shielded, 33Hz-22kHz, bi-amped, 42W bass + 33W treble, balanced XLR & 1/4" jack inputs. Dimensions: 25 x 16.6 x 20cm. Pair price!
order code 160180 **€175.- £147.-**

M-Audio Studiophile BX5a Deluxe

Active nearfield monitors
70W, 5" woofer + 1" tweeter with wave guide, bi-amping, magnetically shielded, balanced XLR and balanced/unbalanced TRS inputs, volume control. Dimensions: 25 x 17.6 x 20cm (HxWxD). Pair price!
order code 207871 **€229.- £192.-**

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!
a. code 235038 **€285.- £239.-**

Adam A5X

Active nearfield monitor
2-way active bass reflex speaker, 6" carbon/rohacell/glass woofer with 50W, X-A.R.T. tweeter with 50W, frequency response: 50Hz - 50kHz, crossover frequency: 2.5kHz, dimensions WHD: 17 x 28 x 22cm, weight: 6.4kg. Unit price.
order code 245572 **€289.- £243.-**

Adam A7 Special Edition

Active nearfield studio monitor
6.5" Rohacell / kevlar sandwich woofer, A.R.T. tweeter, frequency range 46Hz to 35kHz, 100W (sim), 150W (rms), XLR and RCA input, dimensions: 18 x 33 x 28cm, weight: 8kg. Unit price.
black piano lacquer **€385.- £323.-**
order code 241073
white piano lacquer **€385.- £323.-**
order code 244797

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.
a. code 245513 **€439.- £369.-**

www.thomann.de
Telephone Hotline: 0203 5141643 (UK)
Fax: +49 9546 9223-24

The Thomann services

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

Superlux HD-68 I

Studio headphones
 Dynamic, semi-open, 98dB SPL, Impedance 32Ω, frequency response 10Hz - 30kHz, 300mW, 2.5m cable, stereo mini-jack. Incl. bag and 1/4" jack adaptor. Weight (without cable): 220g.

o. code 218865 **€ 19.30** **£ 16.20**

Superlux HD-662

Closed back.
 order code 239735 **€ 33.-** **£ 28.-**

AKG K 240

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

order code 153257 **€ 89.-** **£ 75.-**

AKG K 141 MKII

Dynamic, half open, 55Ω, 18Hz - 24kHz, 200mW. Weight: 225g
 order code 206955 **€ 95.-** **£ 80.-**

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 1/4" screw-on adapter. Weight: 240g

order code 206951 **€ 148.-** **£ 124.-**

5m extension cable

1/4" stereo jack.
 order code 153216 **€ 6.60** **£ 5.50**

Beyerdynamic DT-770 Pro

Dynamic studio headphone
 Closed diffuse-field system, bass reflex technology for improved bass response, 250Ω, 96dB/SPL, 5Hz-30kHz, circumaural, includes 3m single-sided cable. Weight: 270g

order code 106864 **€ 148.-** **£ 124.-**

DT990 Pro, open, 250Ω, 96dB/mW, cable with 1/4" stereo jack

order code 106865 **€ 148.-** **£ 124.-**

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 for 6.3mm jack. Weight: 140g.

order code 249403 **€ 149.-** **£ 125.-**

Sennheiser HD 212 pro

32Ω, 12Hz-19kHz.
 order code 161045 **€ 39.-** **£ 33.-**

AKG K-701

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

order code 185476 **€ 189.-** **£ 159.-**

AKG K-702

with Varimotion 2-layer diaphragm.
 order code 217575 **€ 299.-** **£ 251.-**

Beyerdynamic DT 880 Pro

Dynamic hi-end headphones
 Semi open, circum-aural, 5Hz-35kHz, 250Ω, 96dB SPL, 3m coiled cable, gold-plated stereo mini-jack connector with 1/4" jack adaptor. Weight: 295g (not including cable)

order code 197854 **€ 238.-** **£ 200.-**

Sennheiser HD-650

Hifi headphones
 Open back, dynamic, impedance 300Ω, frequency response 10Hz to 39.5kHz, 103dB SPL, 3m cable, 3.5mm stereo mini jack with 1/4" adapter. Weight: 260g (excluding cable).

order code 165585 **€ 289.-** **£ 243.-**

tc Helicon VoiceTone Correct

Vocal performer
 Combines pitch correction with tone and dynamic shaping that puts a recorded gloss on live vocals, pitch correction, adjustable auto-smooth compression, multi-band auto-shape EQ, silencing smoothing de-ess algorithm, accurate input pitch and correction display, clean, studio quality mic pre-amp with phantom power, dimensions WDH: 13 x 13.2 x 4.1cm, weight: 0.72kg.

order code 117111 **€ 133.-** **£ 112.-**

dbx 266 XL

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

order code 131808 **€ 135.-** **£ 113.-**

dbx 166 XL

Stereo compressor/limiter/gate
 2-channel compressor/limiter/gate, stereo or dual mono, OverEasy or hard knee mode, PeakStop limiting.

order code 131035 **€ 211.-** **£ 177.-**

Behringer DEQ2496 Ultra-Curve Pro

Digital mainframe
 4 simultaneous EQ modules (31-band graphic EQ, 10-band parametric EQ, feedback destroyer, 3 dynamic EQs per channel), 61-band real-time analyzer with separate RTA mic in, 24bit/96kHz AD/DA converters and 32/40bit signal processors, 113dB dynamics, balanced ins & outs with gold-plated XLR sockets, AES/EBU & optical S/PDIF.

order code 162785 **€ 255.-** **£ 214.-**

Presonus Digimax D8

8-channel mic preamp
 24bit/48kHz digital output, 2x instrument inputs (1/4" jack), 8x mic inputs (XLR), 8x XMAX Class-A mic preamps, pad switch (per channel), 48V phantom power, 8x analog direct outs, optical ADAT output, word clock input (BNC). Dimensions: 19"/1U

order code 216155 **€ 329.-** **£ 276.-**

SPL GoldMike 9844

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

order code 123370 **€ 433.-** **£ 364.-**

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 Toslink, 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

order code 133460 **€ 1245.-** **£ 1046.-**

Universal Audio LA-610 MKII

UAD-2 Duo Bundle
Classic tube recording channel
 Based on the legendary Bill Putnam 610 tube mic pre and EQ, Authentic Tetonix LA-2A style T4 opto-compressor, complete vintage channel strip, mic pre with gain and level controls, true bypass, large metering and improved signal output. Bundle incl. Universal Audio UAD-2 Duo PCIe DSP Card.

o. code 252465 **€ 1525.-** **£ 1281.-**

Hercules DJ Control MP3 e2

Portable USB DJ controller
 2x jogwheels, 1x crossfader and 2x volume faders, 6x level equalizer, 2 buttons to load tracks, automatic loops, USB bus-powered, incl. cover and Virtual DJ DJC Edition for PC and Mac.

order code 237201 **€ 79.-** **£ 66.-**

Behringer B-Control DeeJay BDC2000

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

order code 181179 **€ 98.-** **£ 82.-**

American Audio TTD 2400 USB

Direct drive USB DJ turntable
 USB audio interface, line and phono output, 33/45rpm, ±10% pitch, includes cartridge/stylus, USB cable and single adaptor for single vinyl. Requires PC with Windows 98, 2000 or XP or Mac OS9 or higher, USB 1.1 port. Includes Audacity software.

order code 108382 **€ 125.-** **£ 105.-**

Korg Kaoss Koaillator Pro

Phrase synthesizer
 Touchscreen Pad, 200 sounds, new sound effects and synth sounds, drum samples and presets for vocoder, 31 scales synchronised with flexible gate arpeggiator, loop recorder, USB/MIDI, SD card slot, editor/librarian software, stereo RCA I/O, MIDI I/O, headphone output, adjustable microphone input. Dimensions: 21 x 22.6 x 4.9cm. Weight: 1.3kg.

order code 243144 **€ 339.-** **£ 285.-**

Behringer DX 2000 USB

7-channel DJ mixer
 5 stereo ins and 2 mono-line ins, phantom power, gain-control and clip LED, USB audio interface, incl. energyXT2.5 compact Behringer Edition music production software with audio MIDI sequencer, Audacity software for vinyl restoration and recording, Incl. Podifier and Golden Ear podcasting software, 19" rackmount, finish: black.

order code 249768 **€ 255.-** **£ 214.-**

Behringer DDM 4000

32bit digital DJ mixer
 Beat-synchronized sampler, 4 multi-FX sections, 2 patented BPM counters, digital crossfader and MIDI, 4x phono/line stereo channels. 2x mic inputs with gain, EQ, talk function and FX. 4x stereo channels with gain, programmable parametric 3-band EQ with kill function, fader curve control and flexible crossfader.

order code 206918 **€ 299.-** **£ 251.-**

Allen & Heath XONE42

4-channel DJ mixer
 2x turntable ins (RCA phono RIAA), 2x line ins, X-FX send, 3-band EQ, 6dB total-kill EQ on all channels, internal switch-mode PSU, 2 headphone outs (1/4" & mini-jack), VCA crossfader with curve control, VCF filter with independent VU, resonance & frequency controls, USB 1.1 port (stereo I/O), XLR mic in with 2-band EQ and level control. Finish: Black.

o. code 231622 **€ 745.-** **£ 626.-**

Pioneer DJM-700

Professional 4-channel DJ club mixer
 Crossfader assignment, fader start, 3-band EQ (-26dB to +6dB), talk over (-20dB), peak level meter, rotary pots for master output. Dimensions: 32 x 38.1 x 10.8cm (WxDxH). Weight: 7.5kg

Finish: Black order code 118996 **€ 815.-** **£ 685.-**
 Finish: Silver order code 119965 **€ 815.-** **£ 685.-**

Numark NDX 800

Single CD/MP3/USB player
 with USB and MIDI interface, beat-synced DSP effects with wet-dry fader, fast, reliable, slot-loading drive, 7" scratch wheel, adjustable start and stop time for vinyl-like deck performance, automatic BPM analyzer and tap tempo for manual BPM entry, pitch ±6, 12, 25 and 100%, bending over pitch buttons, fader start, outputs: RCA and digital S/PDIF.

order code 247251 **€ 348.-** **£ 292.-**

Pioneer CDJ-350

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

order code 249908 **€ 589.-** **£ 495.-**

Pioneer CDJ-850

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

order code 251872 **€ 888.-** **£ 746.-**

Pioneer CDJ-900

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

order code 238584 **€ 1222.-** **£ 1026.-**

Pro Ssnake FireWire cable

150048 2m, 6 pin **£ 4.01**
 150050 3m, 6 pin **£ 5.60**
 150049 4.5m, 6 pin **£ 7.20**
 156728 3m, IEEE 1394 6/4 **£ 5.60**

Millenium rack bags

19", zipper operated doors back and front, 41cm deep, large accessory pocket, incl. screws
 132938 2U **£ 23.-**
 132939 3U **£ 27.-**
 132940 4U **£ 28.-**
 132941 6U **£ 31.-**

Millenium RW-2001

12U adjustable 19" angled rack trolley, 8U "sub" rack, height: 120-140cm, width: 65cm, depth 60cm.
 order code 129415 **£ 39.-**

Millenium MX-1000

modular mixer stand with shears construction, width: 53.5cm, weight: 7.1kg.
 order code 164320 **£ 39.-**

Millenium MX-2001

Stand for mixing desks, pianos, heavy duty (170kg maximum load), dimensions WHD: 78 x 72 x 60cm.
 order code 129406 **£ 47.-**

MICROPHONE ACCESSORIES

the t.bone SSM6
 Universal shockmount for all microphones with 1.5cm to 3.5cm diameter.
 order code 107912 **£ 6.40**

the t.bone SSM5
 Universal shockmount for all microphones with 22mm to 35mm diameter.
 order code 107393 **£ 10.60**

the t.bone SSM4
 Shockmount for all mics with 22mm - 26mm diameter, for the t.bone SC100, SC150, Neumann KM184 etc.
 order code 170674 **£ 8.-**

Millenium universal shock mount
 Professional shockmount for all mics with 1.5cm - 5cm diameter, Made in America
 order code 141421 **£ 24.-**

K&M pop filter
 professional pop filter with gooseneck, double sided, weight: 0.16kg, goose neck diameter 8mm, filter diameter 130mm.
 order code 106995 **£ 16.20**

K&M pop filter XL
 Filter Ø 200mm, weight: 0.19kg
 order code 162680 **£ 21.-**

the t.bone pop filter
 20cm elastic arm
 order code 141195 **£ 12.-**

the t.bone MS280
 metal popscreen with long gooseneck fitting
 order code 225146 **£ 12.90**

the t.bone metal pop filter
 order code 164835 **£ 12.90**

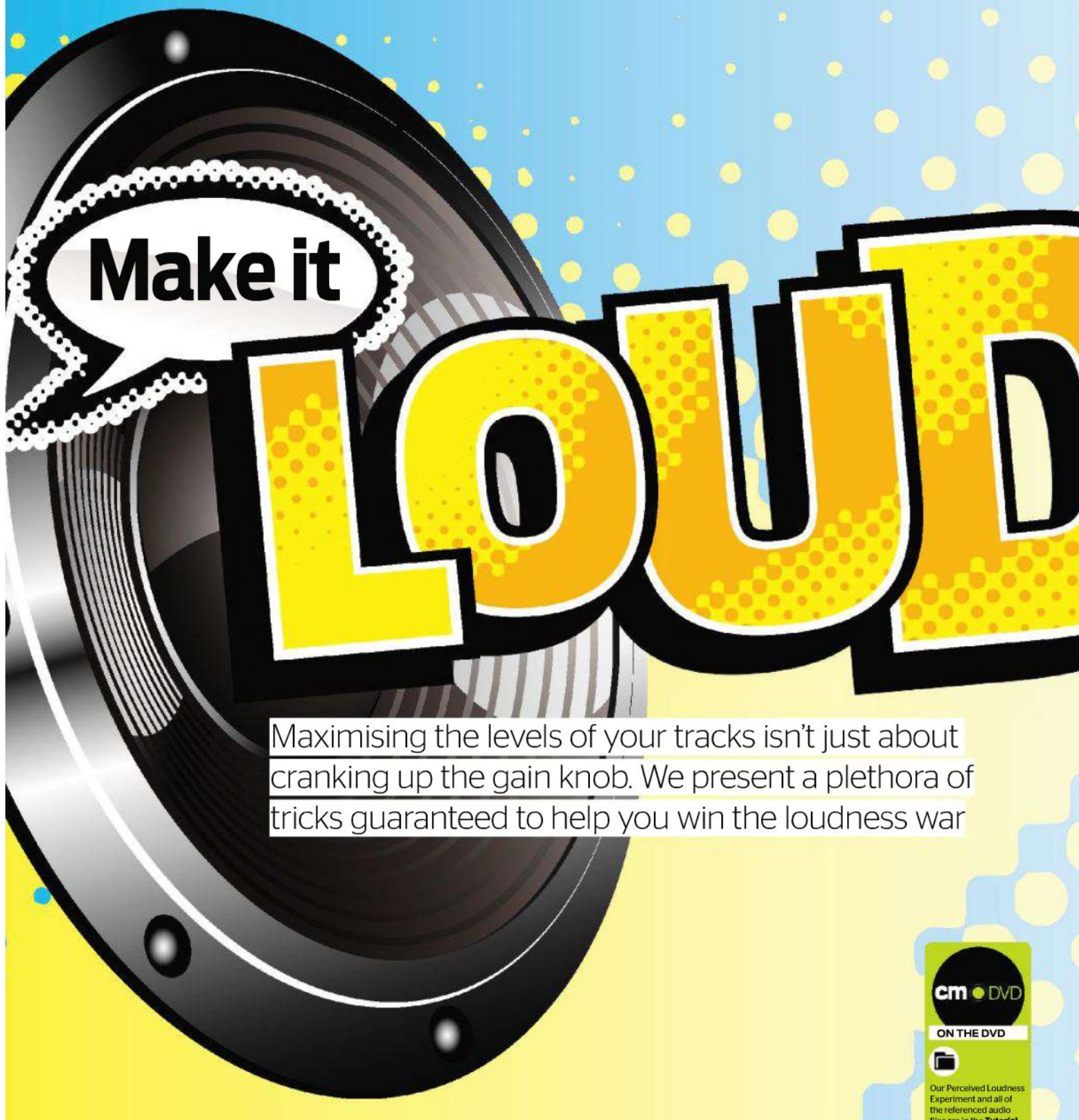
the t.bone microphone holder
 Flexible plastic holder, incl. 3/8" adapter screw, finish: black

Size S for small condenser mics
 order code 151248 **£ 2.41**
 Size M for all standard mics
 order code 105920 **£ 2.41**
 Size L for wireless mic
 order code 150793 **£ 2.41**

the t.bone WS-5
 Microphone wind screens, set of 5 pieces, diameter 40-50mm, Black, Blue, Yellow, Red, Green, suitable for all standard vocal mics
 order code 107356 **£ 8.10**

the t.bone YGM180
 Wind screen for large membrane mics with 45mm diameter
 order code 141196 **£ 12.-**

SE Electronics Reflexion Filter
 Portable absorber/diffuser. The Reflexion Filter is basically a portable device for recording live sources with reduced room ambience. The main function is to help obtain a 'dry' vocal or instrument recording.
 order code 191776 **£ 214.-**



Make it

LOUD

Maximising the levels of your tracks isn't just about cranking up the gain knob. We present a plethora of tricks guaranteed to help you win the loudness war



> **Although this feature is about mixing for loudness, not mastering for loudness, the two arts are inextricably linked. It's no secret that there's still a loudness war waging, putting pressure on mastering engineers to raise the levels of recordings to the point that audio quality is often compromised in favour of perceived volume.**

The practise of competing for loudness at the mastering stage seems especially misguided, since some styles are generally louder than others due to the ways in which they're produced. It's silly to expect an intimate, acoustic guitar-based track to match or exceed the levels of a

screaming death metal band, for example. Furthermore, it's logical that such a death metal band might want their song to be recorded violently loud. The values of the track in question should govern those sorts of decisions, which should be made on a case-by-case basis.

Supposing that your values demand a recording that's competitively loud, at least in part, the potential results of a mastering job will depend on how that particular track has been written, arranged, produced and mixed. We'd even contend that the steps before mastering are collectively far more important to the recording's loudness potential than the mastering itself.

Throughout this feature, we'll assume that you have a basic understanding of how to use the common production tools - but just in case, we've made every effort to make things easy to follow if you don't. Our goal is to encourage you to consider and learn about everything that contributes to the loudness of a track prior to mastering. Some of what's covered might be considered somewhat unconventional, but that's the nature of the task at hand - essentially, the art of chasing headroom. For best results, we recommend that you fire up your DAW and keep the **cm DVD** close by so that you can benefit from our step-by-step examples.

Every producer must strive to control the loudness of their mix at some stage. Suppose we were to attempt to divide all producers into two categories. One category is made up of those people who simply want their music to be as loud as possible. The other category is of those who want the option to be able to use contrasting dynamics to their advantage.

For those in the first category, there's immediate value in any technology or technique that helps them to realise a loud sound with as little compromise to the integrity of the audio as possible. However, in order for those in the second category to achieve maximum dynamic effect, they must fight the limitations that current technology has with regard to quiet passages, as well as mastering the art of maximising loudness. If they're able to do this, their ability to operate effectively at both extremes frees them to fully exploit the dynamic range available to them.

Therefore, the better you become at influencing perceived loudness, the better you'll be at keeping clarity and separation in a mix, even when elements of that mix are set at lower volume levels. This is why it should benefit you to learn these skills even if you don't intend to have your music blaring full-blast at all times.

Why so loud?

A loud mix has many potential benefits. We're wired to take notice of loud sounds, no doubt for evolutionary purposes. Primitive

humans who weren't alarmed by loud sounds would probably have been at more risk in the event of an approaching predator or natural disaster. Also, due to the non-linear response of our hearing, louder music can potentially have much greater detail in the treble and bass ranges. This helps with the impact as well, because music with a clear top and bottom appears to have presence and impressive perceived size.

An aural illusion

It should go without saying that exposure to excessive levels risks permanent damage to hearing. So, perhaps the ability to give the

It's important to note that perceived loudness is quite a subjective experience – one that's worlds apart from a decibel reading by a piece of audio equipment. As we'll be revealing throughout this tutorial, the loudness we perceive a sound to be at can depend on many small factors, and these are often things that you might have assumed were totally unrelated to each other. This is partly because the brain plays a huge role in the hearing process, leaving us staring down the barrel of that mysterious field of study called psychoacoustics.

Understandably, perceived loudness is something that's incredibly difficult to predict

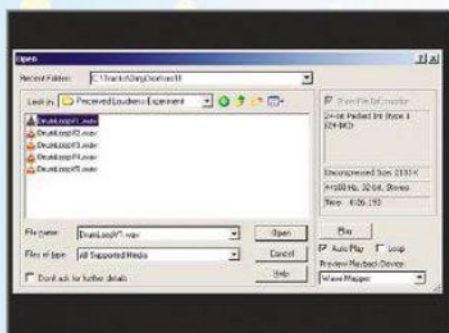
“The loudness we perceive a sound to be at can depend on many small factors”

impression of a loud sound at more moderate listening levels is a step towards retaining a degree of that alarming impact without the associated dangers. There are a surprising number of simple methods of producing insanely loud sound – just try stacking distortion plug-ins. The tricky part is doing it in a way that sounds natural, or at least desirable. The unbearable side effects of over-processed audio signals tend to cap the effectiveness of most loudness effects, but used in small doses they each have their place.

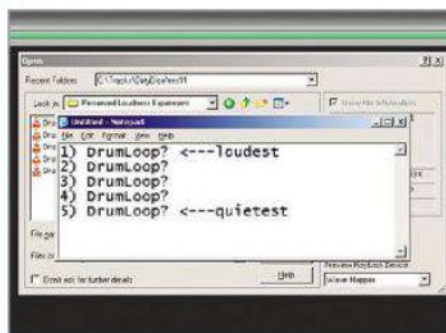
or measure. Happily, though, you can exploit this phenomenon: there are a number of nifty tricks and techniques that can help you work towards attaining the maximum loudness, using as little of the headroom available as possible.

Another way to look at it: when you keep as much spare headroom as you can, you're free to increase actual volume levels later. If you monitor how different elements in a mix work together, you can optimise the overall headroom of your mix, making that aspect of the mastering job a lot easier.

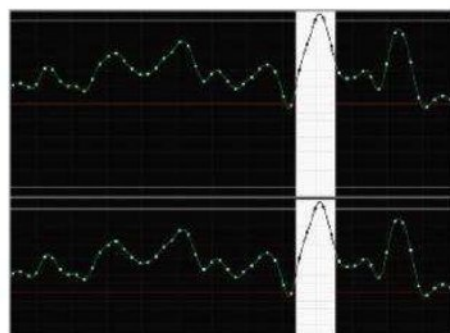
> Step by step **Testing the concept of perceived loudness**



1 > For this experiment, we've prepared five versions of a drum loop, each of which has been processed using a different chain of plug-ins. They're on the **cm DVD**, in the **Perceived Loudness Experiment** folder. Preview them, but *don't* import them into your software, where you can see their waveforms!



2 > Review these drum loops as much as you like and list them in rank order according to what you perceive as being loudest to quietest. Take your time and listen extra carefully. If you're unsure of the order, note down what you're unsure about as well.



3 > Load the files into a DAW or wave editor and take a look at their waveforms. Do any of them surprise you? We've included a stat-packed text document with the files (you'll need to scroll down), and the following pages will see us explain the significance of those stats.

> make music now / make it loud!

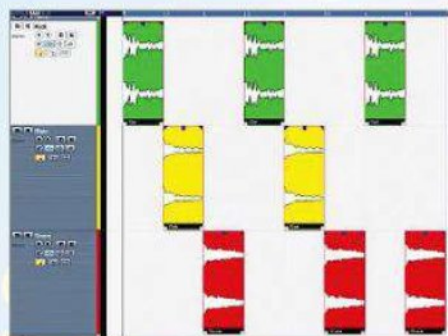
> Step by step Timing drums for maximum loudness



1 > Let's start by loading some samples onto audio tracks (it's best to use audio rather than MIDI for this walkthrough, since the visual cues are so useful). We've included **Kick.wav**, **Ride.wav** and **Snare.wav** on the **cm** DVD, and we're working at the pacey tempo of 177bpm. Load each sound onto its own track and colour them differently so you can see what's what.



2 > The first pattern we arrange is a sparse beat, with a single kick on the first beat, a snare on the third beat and ride cymbals on the remaining beats. It already sounds pretty loud because of our sound choice, but let's see if we can force these same audio files to sound even louder just by rearranging the pattern.



3 > This time we form a busy beat by giving the kick, ride and snare each an eighth of the bar, one after the other. Be careful that the sounds don't overlap at all. The level on the master meter won't have changed since the previous beat, but the result seems subjectively louder. Some would guess that this was because there are now no gaps in the rhythm...

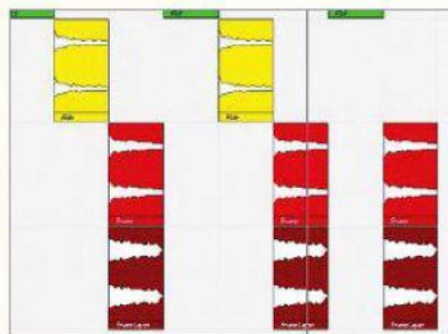
POWER TIP

>Stacking frequencies

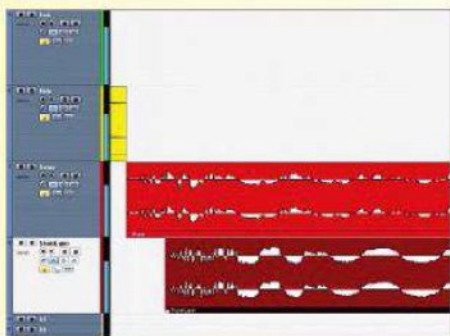
We use the frequency content of a sound to determine its pitch and timbre, which can play a huge role in how subjectively loud that sound is. For centuries composers have exploited the power of having a group of musicians playing in unison (ie, all playing the same notes at the same time). The layering techniques of the past are just as relevant now as they've ever been. Even drums can benefit from being doubled up with extra sounds! For best results, stack layers based on their frequency content. So, if your kick needs more top end, add a toppy layer.



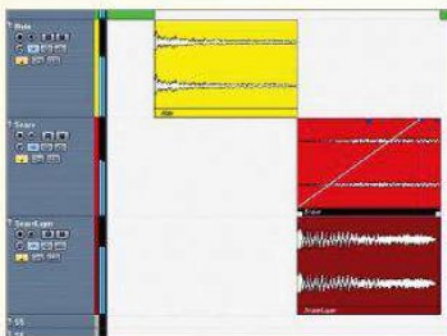
4 > Next we arrange the sounds into a much more hectic rhythm, but including forced gaps of silence. Notice how the hits that occur directly after each silent spot sound extra tight and punchy. This is because our perception of a transient is heavily coloured by the level that came before it. This beat also sounds louder than the previous two because there are more hits closer together.



5 > Let's look at how subtle timing differences can affect how additional drum layers sit in the mix. We've included the file **SnareLayer.wav** on the **cm** DVD. Revert to the rhythm of step 3 for clarity and simplicity, then import the file onto an audio track and arrange it so that it always fires at the same time as the snare.



6 > Listen back to how the snare layer sits in the mix on top of the snare. Switch off Quantise and Snap so that you can move the layer freely in time. While playing back and listening carefully, select all instances of the snare layer and zoom right in, then drag them backwards and forwards in time to find the loudest and clearest point.



7 > Another method of fitting in an extra layer without adversely affecting what you already have is to fade one in. Sometimes fading in the new layer is the way to go, while at other times fading in the existing snare works best - it all depends on which transient sounds best to you. Experiment - the technique might surprise you.

POWER TIP

>Layering in stereo

Adding a layer with a lot of stereo width can help to make your track sound huge. Even if you only intend to mix it in very gently, a wide layer can contribute much more than just stereo interest to the mix. The separation afforded by the nature of its position in the stereo field means you can often mix a new layer in using less amplitude but still improve the audibility of the sound in question. This technique works particularly well when layering wide drum hits, adding brightness and sharpness to your drum mixes.



> Step by step Stacking bass oscillators



1 > To demonstrate this technique, we're using LinPlug's Albino 3 synth. Under the **Diverse Sounds** bank, you'll find the **z_initial** preset. Change Osc 1's waveform to square (on the right). Right-click Osc 1's **Volume**, minimise the main amp envelope's **Release** and set **Precision** to **100**.



2 > We already have a good sound, but we can improve its ability to cut through the mix by increasing the harmonics. Activate Osc 2 and maximise its **Volume**. Set the **Wave** to **Spectr16**, then turn on Filter 1's **Sat**, set it to type **3** and turn the knob to 9 o'clock to add harmonics.



3 > There still seem to be a couple of weak points in the patch's frequency spectrum. To make it fuller, click **3** to switch the view to Osc 3 and 4, route both of them to **F2** and turn them both on. Set Osc 4's **Wave** to **Triangle** and **Oct** to **1**.

DIY loud patches

If you're daunted by the idea of programming your own synth patches, you'll be surprised at how much you can learn simply by opening up a random preset and resetting the controls one by one. This process requires you to explore the interface and hear what different parameters do, but minus the pressure of having to produce anything exciting. If you have any problems, refer to the manual to quickly find out what anything does or means.

Save this initialised patch to use as a starting point for future patches. It's often much quicker to get to where you want to go from a blank slate, because then you automatically have a better understanding of what each individual setting is contributing to the resulting sound. Having said that, other people's patches are great for studying if you want to learn new tricks.

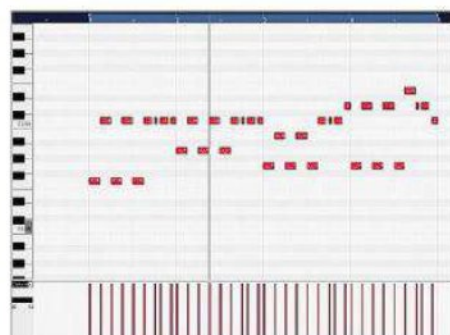
For loud patches, try any built-in saturation or distortion that your synth offers. Even the weediest digital waveforms can become dirty hard dance leads or dubstep bass timbres with the right type of distortion.

Take advantage of your synth's key-tracking (if available). This makes parameters respond to what keys are being played and can take your sound places that static insert effects just can't reach. When cleaning up the bottom end of a sound, it's far crisper to apply a high-pass filter with key-tracking than to search for a static high-pass position on your channel EQ. The latter method will yield inconsistent results across the keyboard.

> Step by step Stacking octaves



1 > Once you've learned to make fat patches, you need to know how best to use them within a mix for the benefit of overall loudness. Here we're starting with the **tas trance saw MW** patch in ZebraCM (in the **cm Studio** on the DVD), under **tasmodia**. This will provide our first layer.



2 > We program in a simple trance riff. Notice how we've kept the note range to within an octave. This isn't essential, but it makes mixing it much easier later on, because each octave layer will be confined to a narrower space.



3 > Launch a new instance of your synth and copy the same MIDI part onto its track. Drop the pitch of the new copy by an octave. You can help it sit in the mix by using less detune and stereo width.



4 > Now repeat the previous step but set the MIDI part for this third synth an octave above the first one. This time you could add more detune to the patch and increase the stereo width. Generally, the higher up you go, the more the layer will benefit from stereo width.

> make music now / make it loud!

> Step by step Inverting polarity

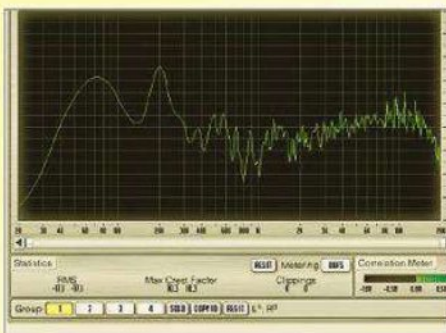


1 > We've included **RaggaBass.wav** and **RaggaBeat.wav** on the **cm** DVD. Import them onto audio tracks in your DAW, then insert an oscilloscope onto the master output and watch its display during playback. We're using Smartelectronix' S(m)exoscope, which you can get for free at bram.smartelectronix.com.

2 > Invert the polarity of the master channel. If your DAW doesn't offer this feature, you can use a plug-in to do it (try PhaseShifter by mgAudio - www.mgaudio.de). Observe the differences before and after inversion.

3 > Finally, invert the polarity of one of the two audio channels and observe the oscilloscope on the master output. Notice how the sound of each channel in solo is indistinguishable with the polarity flipped, but the sound (and the combined tax on headroom) is noticeably different when they're played together.

> Step by step Compression and limiting for loudness



1 > Import **Breakbeat111.wav** from the **cm** DVD and watch its peak and RMS values (see the sidebar for info on these). We're using Voxengo's free SPAN 2 analyser, which is reporting an RMS of -17.1dB. The audio channel shows a peak level of -0.7dB.

2 > You can use the peak and RMS readings to help keep track of the efficiency of your compression settings, but the most important thing is the sound you're producing. PSP's oldTimer sounds great, but we'll need something extra to catch those fast peak transients as well.



3 > Even with a tough 8dB input boost, Xenon's limiting deals well with those troublesome peaks. The oscilloscope indicates that we still have plenty of punch in the drums, but critical listening is most important at this point. We set Xenon's **Output** to -0.7dB to aid comparison.

4 > Now listen carefully again and compare the sound of the drums with and without the compression and limiting. Decide for yourself the settings that sound best. It's easy to go over the top with these effects, and it's always a good idea to listen in the context of the mix.

RMS vs peak loudness

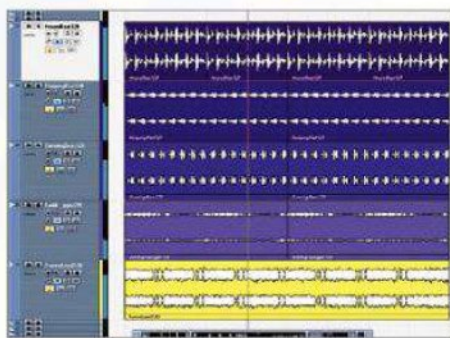
As we've mentioned, the human ear only accounts for part of the hearing process. The brain processes all incoming signals in a variety of ways, even adding or removing aspects of the sound, with the result of heavily biasing what we hear. Part of what causes this discrepancy is our perception of loudness over time. Even an extremely loud peak, if quick enough, could potentially go unnoticed in comparison to a much quieter audio event that lasts much longer.

To address this, audio equipment manufacturers invented the RMS method of measuring amplitude. RMS stands for 'root mean square', and it's an equation used to determine the average decibel level of a sound, which is much more akin to how we hear with our ears.

A peak amplitude value doesn't give away much about the overall loudness as we hear it, since that peak moment might occur very rarely - or perhaps only once. This is why you can potentially limit the peak loudness of a sound and thus free up headroom in the mix while barely affecting the overall level (or, more importantly, the perceived loudness) of the signal in question.

In conclusion, then, it's advisable to use RMS metering to get a clear indication of how loud your signal will sound, and also to compare relative levels.

> Step by step Precision EQ



>Flat EQ technique

Many producers and mix engineers use spectral analysis as a key tool in achieving a good sound. It's important to always let your ears make the final judgement, but there's nothing wrong with using an analyser to help you home in on a troublesome spot. It's just that sometimes a particular frequency area might jump out that can steal headroom and make surrounding frequencies less audible. The most balanced mixes tend to be fairly flat, but you shouldn't strive for perfect flatness as it's just not practical for a musical sound.

1 > Set your DAW's tempo to **128bpm** and import these files from the **cm DVD**: **HouseBeat128.wav**, **PumpingPad128.wav**, **RunningBass128.wav**, **TranceLead128.wav** and **SwirlingArpeggio128.wav**. Take a listen. It would be incredibly difficult to find satisfactory levels for each of these sounds in the mix without first addressing the frequency problems.

2 > Use a spectral analyser on the master output to identify overall problems with the mix. Immediately you'll see that there's too much bottom end, to the far left, but the bass doesn't sound well-defined. There's too much mud clogging up the lower mid-range, and the top end isn't well-defined either.



3 > With the drums soloed, we can hear a rumbling sound that's not contributing anything positive to the mix. We address this with a simple high-pass filter (Tone2's BiFilter2). The lowest frequency it reaches with its **HP 30dB** filter type is **50Hz**; setting it to that seems to do the trick. Extreme low frequencies devour headroom, but be careful not to remove too much low end.



4 > When we solo the bass we can hear that there's not enough sub content in relation to the higher harmonics. The problem is, we can't use the volume fader to get the bass to the level it needs to be without bringing up the mid-range frequencies that clash with other sounds in the mix. A gentle mid-range cut and a low shelf help to address the imbalance.



5 > Our pumping pad suffers from too much bloat in the lower mid-range, which obscures the lead. It also has too much sharpness at the extreme top end, which makes it difficult to level in relation to the drums. We cut it in the low end, lower mid-range and extreme highs to prevent us from having to turn the other sounds up louder in the mix.

>Frequency relationships

Never assume that cutting frequencies automatically leads to more headroom. This is a common misconception that disregards the way in which different frequencies interplay to produce a single timbre. When you EQ a particular frequency area, you'll almost always be affecting other frequencies in the spectrum because of their relationship with the frequency range that you're EQing. Without going into extreme detail as to why this occurs, you just need to be aware that if you remove one frequency, there's a chance that other frequencies will be released and the overall signal level will in fact increase.



6 > The swirling arpeggio has a loud, harsh area around 4kHz, where the resonance gets a little out of hand. This can be addressed easily with EQ. Notice that in this case, the subtractive EQ actually levels out the dynamics of this sound, which only got too loud when it was strong in that frequency area.



7 > The lead has low-end rumble, mud in the lower mid-range and harshness in the treble. All of these things obstruct other sounds in the mix. We high-pass filter and scoop out the lower mid-range and harsh treble, making the lead sound much more pleasant and smooth. This part is going to sound much better louder as a result of smoothing out its spectrum.

> make music now / make it loud!

> Step by step Parallel compression



1 > This technique sees us mixing a blend of an unprocessed signal and a heavily processed version of the same signal. It works exceptionally well on drums. We're using a jungle-style breakbeat, which you can import from the **cm** DVD (**UncompressedBreakbeat161.wav**). Notice that although it has an inherent energy, it could be more powerful.

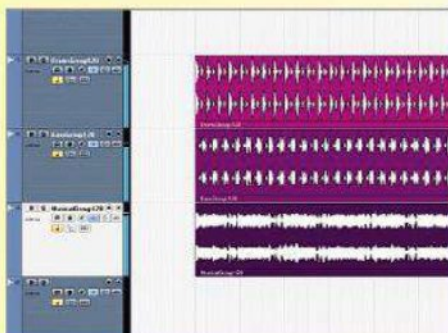


2 > The first thing we need to do is apply extreme compression. We're using the highest **Ratio** FabFilter's Pro-C compressor has to offer, and we've set the **Threshold**, **Attack** and **Release** so that the beat is severely squashed, but not to the point that it becomes over-distorted.



3 > Lastly, turn the **Dry Mix** up to **0dB** to reintroduce the dry signal. We lost so much gain during compression that we have to turn the compressor's **Output** up past **0dB** to get a good mix. Your aim is to combine the clarity of the dry signal with the power of the compressed signal.

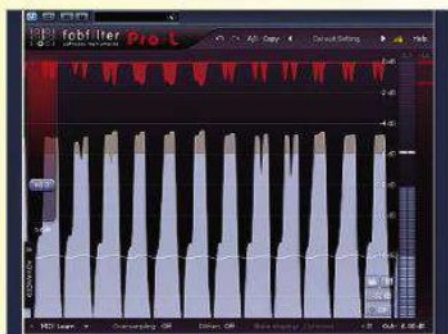
> Step by step Manipulating groups



1 > Let's look at the dynamics of grouped bus channels. On the **cm** DVD you'll find **BassGroup128.wav**, **DrumsGroup128.wav** and **MusicalGroup128.wav**. The individual elements within these groups have already been processed, but we reckon there's more headroom to squeeze out of them as groups.



2 > Starting with the drums, we're using Slate Digital's FG-X mastering processor. We don't even need to use the compressor on it, as the FG Level module is an esoteric loudness maximiser that specialises in retaining transients with minimal side effects. As a result, we've gained about 5dB in headroom.



3 > The bass looks fairly level on the oscilloscope, though it's a little inconsistent between the different notes it plays. Since there was such a small amount of levelling to be done, a limiter should work well. We manage to transparently rescue almost 2dB using FabFilter Pro-L.



4 > On the musical group, our parallel compression tactic works well again, but there are a few brief peaks left over that Cubase's limiter catches with minimal effort. Listen to the results and notice how full it sounds before mastering: (**FullMixWithBusCompression.wav**).

Compression and limiting

Compressors are generally thought of as tools designed to add loudness to a signal. That's only half the story, though, since their main purpose is to restrict dynamics. The only way to get more volume from a signal using a compressor is by adjusting its Gain control - but you certainly don't need a compressor for that.

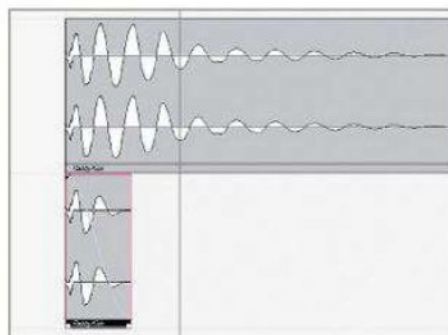
The beauty of using a compressor before turning up the gain is that it can reign in sections of the sound that are unnecessarily loud compared to the rest of the signal. In this respect, compressors are great for squeezing extra headroom out of signals that have a greater dynamic range than required.

This is especially true of limiters, which are like extreme compressors with much higher ratios and usually a quicker response time. Compressors tend to be better at levelling out the overall sound, whereas limiters usually excel at absorbing quick peaks.

Limiters are known to exhibit extremely unpleasant side effects when over-used, but some definitely sound better than others. Software compressors and limiters have come a long way in the last few years and there are some really involved products on the market today, each with its own strengths and particular character. Experiment with a few to find out which you prefer.



> Step by step Using a transient processor with duplicate channels



1 > Load **FlabbyKick.wav** from the **cm** DVD and have a listen. It could do with more punch at the start. We open up Shaack Audio's Transient Shaper 2 and boost the **Attack**. It sounds much better, but let's see if we can push it even further...

2 > Create a new audio channel and copy the same kick so that two copies of it occur simultaneously on two different channels. If you fade and reduce the length of the new copy, you'll effectively be boosting that portion of the kick overall. That's much better!

3 > Let's go to extremes by applying Transient Shaper to the second kick and readjusting its channel level in relation to the first kick. This gives us fantastic control over the punch of the kick. The result of this method can be heard on the **cm** DVD (**PunchyKick.wav**).

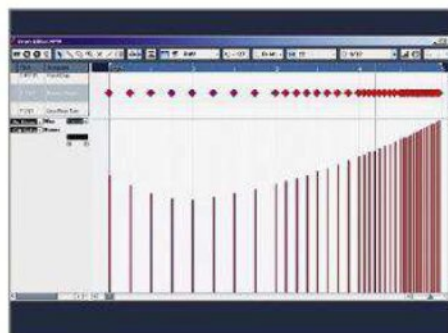
Close the gate

Noise gates work by reducing the amplitude of the incoming signal when it falls below a certain threshold. This concept isn't too dissimilar to the workings of a compressor, which reduces the amplitude when the signal goes above a specified threshold. Essentially, gating is really good for suppressing any low-level background noise that might have been inadvertently captured – for example, the hiss and hum of a guitar amp between phrases.

Don't overlook a gate's potential to help out even when background noise isn't an issue. Inserting a gate at the end of a soft pad can prevent its tail from bleeding unnecessarily into the next section, for example. Some gates are extremely quick, even capable of reducing the tails on staccato synth parts and the like. This practice also helps with definition in the mix, because the cumulative effect of cleaning up unkempt tails all over the place can be to create more space for attack transients to cut through.

If you're not careful, however, compression and limiting will raise the audibility of lower level noise that previously hadn't been an issue. In these cases, using a gate before a compressor or limiter in the signal chain may enable you to apply more compression and thus free up more headroom without clogging up the mix.

> Step by step Using amplitude envelopes



1 > We're starting with a pretty standard-issue snare roll on a MIDI track. This is triggering an analogue snare drum sample in LinPlug's RMV drum machine. In isolation it sounds fairly good, but it's using up more headroom than is necessary and could be a lot snappier.



2 > In cases such as this, where the transients are very close together, transient processing might not work so well. So let's head into RMV's envelope generator to see if we can provoke some peaks ahead of time. RMV gives a visual display of the waveform, too, so we can see what we're working with.



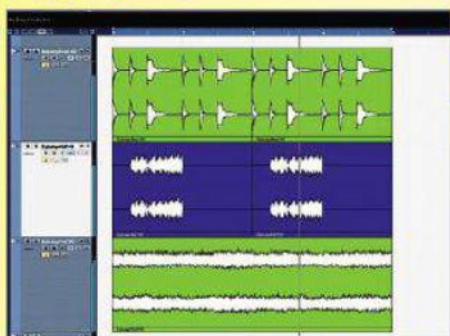
3 > To create a tight transient, we reduce the envelope's **Sustain** to about half way. Then we set the envelope's **Hold** and **Decay** as low as we can get them before it starts to sound ropery. Always play back while you adjust these settings. Allow for a drop in volume when you reduce the **Sustain**.



4 > So far we've got it sounding much snappier, but the snare's taking up more headroom than before. To finish the job, we're using Transient Shaper again, which enables us to reshape the dynamics and use the saturation **Drive** to keep the peak level down.

> make music now / make it loud!

> Step by step Creating space with sidechain compression



1 > The first step with sidechain compression is to make a conscious decision as to which sound to give priority over another. Import these files from the **cm** DVD into your DAW: **DubstepBeat140.wav**, **DubstepMid140.wav**, **Solo DubstepMid140.wav**, **DubstepPad140.wav**. Notice that there are already gaps to allow the drum hits through.

2 > Chasing headroom is a very different thing to the artistic use of sidechain compression. The results might be difficult to hear, but their purpose isn't to create an effect: it's to make space in the mix. Add a compressor to the pad's channel and set it to accept a sidechain input. Keep the **Threshold** at 0dB for the time being.



3 > Next, send the trigger source (in this case, the drums channel) to the sidechain input on the pad channel's compressor. For this example, we're using a full drum mix to trigger the compressor, but in practise you might want the different drum hits to affect the compressor by different amounts.

4 > All that remains is to adjust the pad channel's compressor for the best results. Start by pulling down the **Threshold**, but feel free to adjust the **Ratio**, **Attack** and **Release** as you go. Make sure you listen to the effect in the context of the mix as you fine-tune.

Volume automation

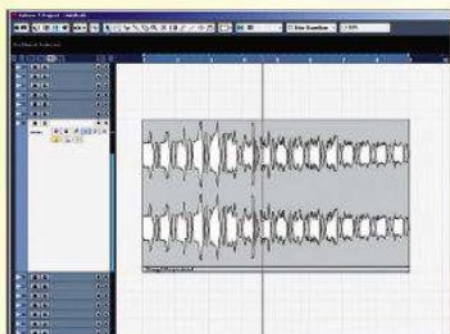
In the pursuit of headroom, you'll find that many subtle techniques in combination tend to work better than a single loudness plug-in or the like. One often-overlooked technique is simply the automation of individual volume faders.

Sometimes you'll want a new sound to burst in with great impact so that it's noticed, but it doesn't necessarily have to remain at that level. By the same token, just before you introduce a new sound, there's no shame in dragging down the volume faders of other sounds to make space for it as well.

Aim to use sympathetic volume automation in such a way that nobody would notice that the faders are moving. In doing so, you'll both free up loads of headroom and improve the tightness and clarity of the mix.

You might even decide that it's OK for a sound to enter far louder than usual, so that it drives a bus compressor if you're using one. This can add lots of excitement, especially in heavy mixes. You can then gently tuck it into the mix before the next sound is introduced. You'll be surprised at how the listener's ears will follow a sound that starts with a high impact, even if it's not mixed overly loud for the majority of the track's duration.

> Step by step Applying multiband compression



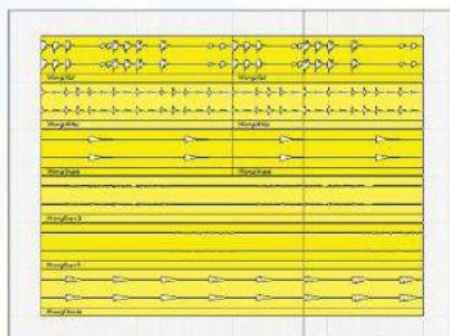
1 > We program a quick acid-like sequence in EnergyCM, with the **Resonance** set to maximum. As we adjust the **Cutoff**, we notice that the **Resonance** is making the sound peak way higher than intended. Hear our example on the DVD - **EnergyCMunprocessed.wav**.

2 > We're using iZotope's Alloy, which features a multiband compressor with a spectral analyser built in, enabling you to see where you're applying the compression. First of all, home in on the troublesome frequency. We find ours at around 150Hz and listen to the area in solo before applying compression.

3 > Listen really carefully as you reduce the **Threshold** and increase the **Ratio**: you want to suppress the frequency where you don't want to hear it, but not adversely affect it when it's not too loud. Fast **Attack** and **Release** times will even things out. (Audio on the DVD: **Energy CM+MultibandCompression.wav**.)



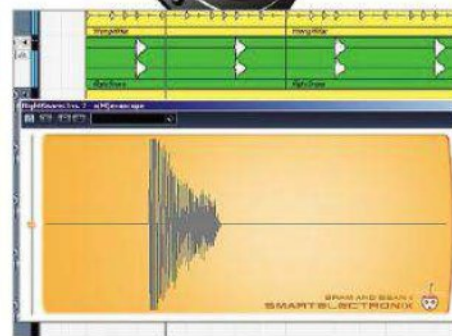
> Step by step Picking sounds for loudness



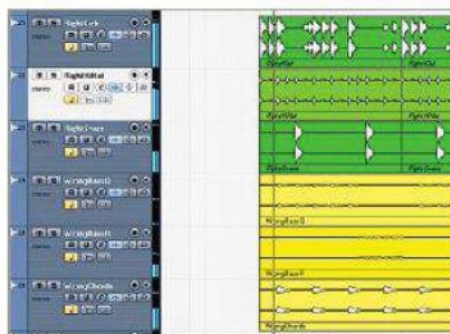
1 > We've made a crude dubstep instrumental with sounds that are in the right ballpark but don't tick all the boxes for a loud production. The MIDI file is on the DVD for you (**DubstepMIDI.mid**), as well as stems of the not-quite-right sounds for you to have a listen to (**WrongKick.wav**, **WrongSnare.wav**, **WrongHiHat.wav**, **WrongBassQ.wav**, **WrongBassA.wav**, **WrongChords.wav**).



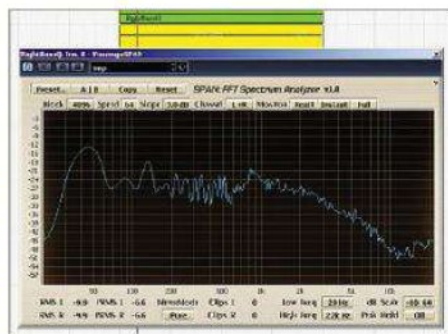
2 > Listening back to the piece as a whole, a much harder kick drum is required. The current one is a bit limp and falls too deep to leave room for a nice fat sub-bass. We set out to find a kick drum that sounds good and won't interfere with the bass. **DNB_KICK_36.wav** (from **cm156**'s featured samples) fits the bill perfectly.



3 > Next we're going to need a snare with more brightness, attack and body. Again we turn to the **cm156** samples and find that **DNB_SNARE_2.wav** is just the ticket. It could do with some reverb, since this is a dubstep mix, but for the purposes of picking the right sounds, this snare's definitely appropriate for the job at hand.



4 > Now we could do with some brighter hi-hats to finish up the drum mix. **DNB_HAT_135.wav** from the same library is just what's needed. With the drums fully substituted, it becomes even more obvious how bad the other sounds in the mix are. On the other hand, it makes it easier for us to hear what's lacking and provides clues as to what's needed.



5 > The first bass sound (**WrongBassQ.wav**) has plenty of harmonics but lacks texture and movement. Our replacement (**RightBassQ.wav**) is much bolder and fills out more frequencies with its movement. We don't have to look far to find a good replacement sound, we just need to be clear as to what we're looking for. We get **DNB_BASS_16.wav** from **cm156** also.

POWER TIP

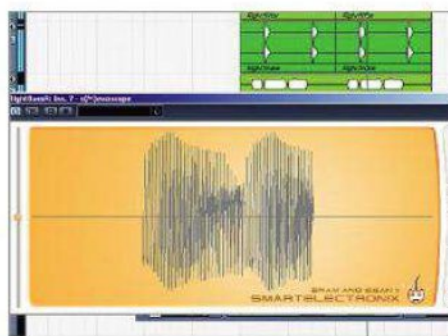
>Get it right as you write

Always aim to put in the right sounds as you write your music, and write with the right sounds in mind. It's very difficult to save a production that hasn't been written to work with loudness-friendly sounds. Some producers design or pick their sounds before they start writing, aiming to write patterns that exploit the best features of those sounds. The other approach is to come up with your ideas, then pick the best sounds to flaunt them. Both approaches have their pros and cons, but whatever you do, don't fall into the trap of neglecting the bigger picture.

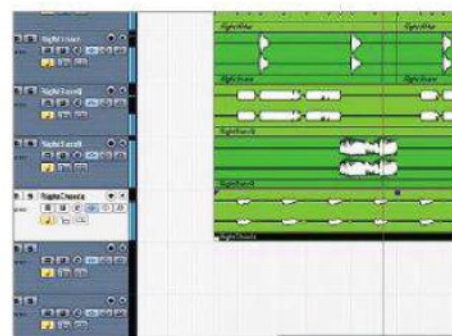
POWER TIP

>Pump it up

Distortion can help you artificially inflate would-be inadequate sounds. Distortion is a staple effect in any sound designer's arsenal, but sometimes even distorted sounds can benefit from an extra stage of distortion (especially if it's of a different type). Light distortion, distortion mixed in parallel and saturation are all ripe with potential when it comes to getting the best RMS performance out of your sound. A touch of saturation might even be all that's needed to reduce peaks where a traditional limiter falls short. You can avoid many of the negative effects of distortion by experimenting with placing an EQ before the distortion plug-in in the signal chain.



6 > The next wrong bass (**WrongBassR.wav**) has more grit to it than the previous wrong bass, but it still doesn't have enough fatness and character. We find a satisfactory substitute in **DNB_BASS_161.wav**. This has some movement to it and still fluctuates in amplitude, but the bottom end is tight (**RightBassR.wav**). This all sounds pretty good so far without processing.



7 > The staccato piano chords sound lifeless and don't add any atmosphere (**WrongChords.wav**). We turn to ZebraCM for a replacement and find the preset **tas e-piano string MW** under the **tasmodia** bank, which has a softer attack and smoother mid-range (**RightChords.wav**). The improvement is instant and dramatic. Hear the full mix before and after sound selection on the **cm** DVD.

> make music now / make it loud!

Loudness tips and tricks

START AS YOU MEAN TO GO ON

Prevention is the best cure for loss of headroom. If you're serious about getting the most apparent level out of your mix then it's important to be conscious of the different things that contribute towards peak volume. Begin making headroom-optimising decisions as early on in the creative process as possible. Make it your mission to defend that headroom in as many ways as you can think of.

USE REFERENCE MATERIAL

You don't have to reinvent the wheel to compete with the levels of your favourite mixes: you just need to study them and compare their techniques to your own. Keep high-quality reference material close at all times. If you're ever unsure about a decision and how it might affect the overall loudness of the track, check out how your reference tracks do things.

LEARN THE NUMBERS

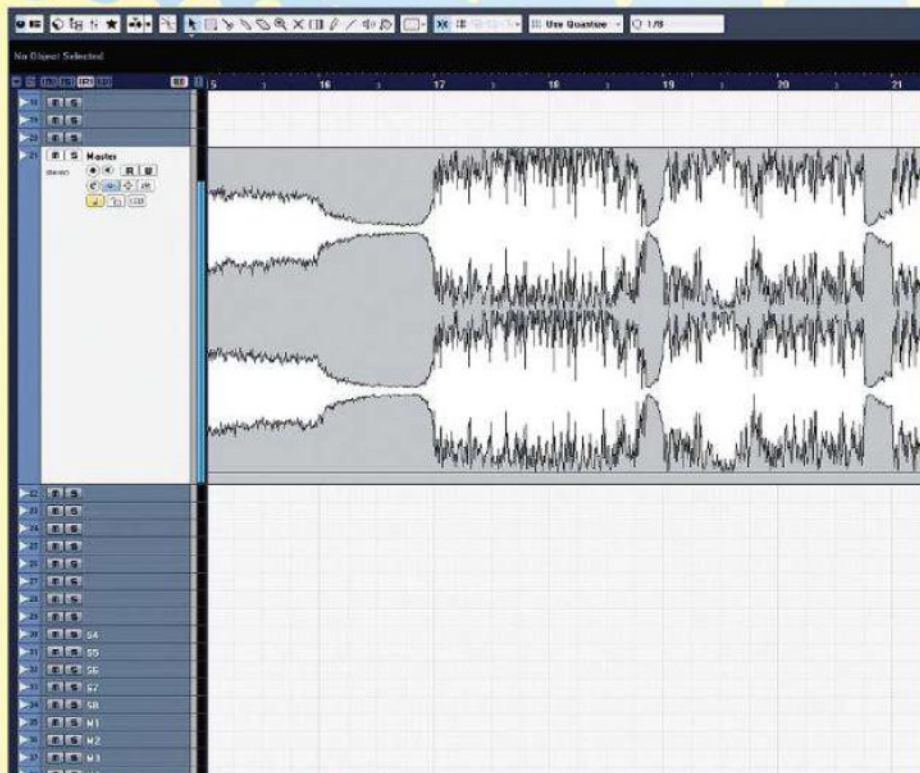
Many producers swear by keeping a record of important statistics and figures. What peak and RMS levels worked for your drum mix last time? How loud was the snare in relation to the kick? Where does the bass peak? Record the answers to these questions if you want to learn quickly from your successes and consistently hit those levels.

CREATE SPACE FOR TRANSIENTS

In a busy mix, even sharp attack transients can be very difficult to hear. One of the factors that contributes to our perception of a transient is the level of the sound that comes directly before it. You can add bite and clarity to a transient without increasing its peak level by simply inserting a tiny amount of silence or fading out the sound that precedes it. If it's quick enough, the ear won't notice any silence or fade, but the transient will cut through the mix better.

TAKE ADVANTAGE OF VISUAL CUES

Oscilloscopes and spectral analysers are fantastic for learning about how sound works and will often expose headroom-munching problems that might otherwise have been very tricky to detect. Spectral editors such as Image-Line Edison, Adobe Audition 3, Photosounder and iZotope RX take this



Use brief quiet moments to emphasise sounds, making them seem louder and emphasising their impact

concept to extremes with their three-dimensional 'view' of sound.

FILL UP YOUR BREAKDOWNS

Breakdowns can be troublesome. These sections - generally thought of as breathers - tend to be made up of far fewer sounds than the full mix sections. Don't be fooled - the number of sounds is not what determines how loud the overall mix can be, and a quiet breakdown creates impact when everything else comes back in. Fill out the frequency spectrum to keep it from sounding too weedy.

USE SILENCE

Ironically, silence is one of the most powerful tools available for creating the illusion of a ridiculously loud soundstage. It's all in the contrast, so it doesn't even need to be pure silence. Use silences and brief quiet moments

as intervals between loud sounds, giving them even more size and intensity.

LOOK AFTER TRANSIENTS

Smashed transients are often the most obvious sign of sound that's been put under too much pressure to be loud, so do whatever you can to protect and enhance them. Always pay close attention when applying any effects, because if you lose your transient clarity, the mix will likely sound forced or squashed.

BROADEN THE SPECTRUM

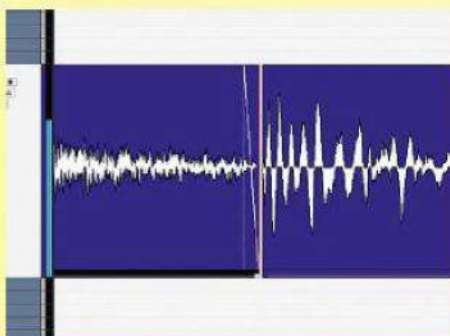
When a sound comes from a source close to our ears, it has much clearer top and bottom end than the same sound from a distance. So, to give a sound presence, make sure it has clear highs and lows. Your goal should be to give the overall mix that quality, though not necessarily the individual sounds within it.

EXPERIMENT

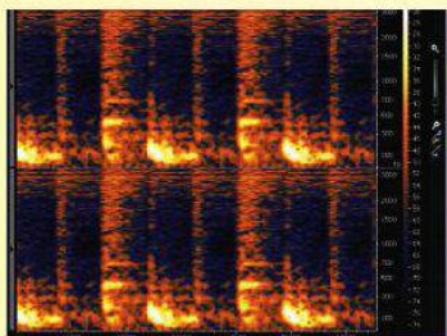
Test different plug-ins and techniques. If you're not sure which effects chain will be most effective in any given situation, try as many as you can. You'll learn so much from that you'll become better at making decisions that prevent headroom loss and maximise loudness and clarity in the first place.

BE CONSISTENT

Sometimes you'll want to replace a sound with an alternative - eg, switching from one bass tone to another. In these cases, you should aim to keep these sounds similar in terms of properties. Their frequency content should be well-balanced, and their peak and RMS levels should be a close match. **cm**



Insert a tiny amount of silence before a sharp attack transient to make it stand out more in the mix



Oscilloscopes and spectral analysers enable you to 'see' music, making it easier to find problem areas

Back to MUSIC NOTE EXPRESSION MUSIC

- Phase-accurate multitrack drum editing*
- Lightning-fast multitrack comping
- VST Expression 2 for editing controllers on single-note level*
- VST Amp Rack virtual guitar tone suite plug-in
- HALion Sonic SE with tons of production-ready sounds

VST Amp Rack

www.steinberg.net



* Cubase 6 exclusive

 **steinberg**
Creativity First

1&1 WEB HOSTING

"We at Learn2Sail have found the hosting and services offered by 1&1 extremely reliable and excellent value for money. Their control panel is simple to use yet full of features. We hope to grow our sailing school website for years to come using the services offered by 1&1."

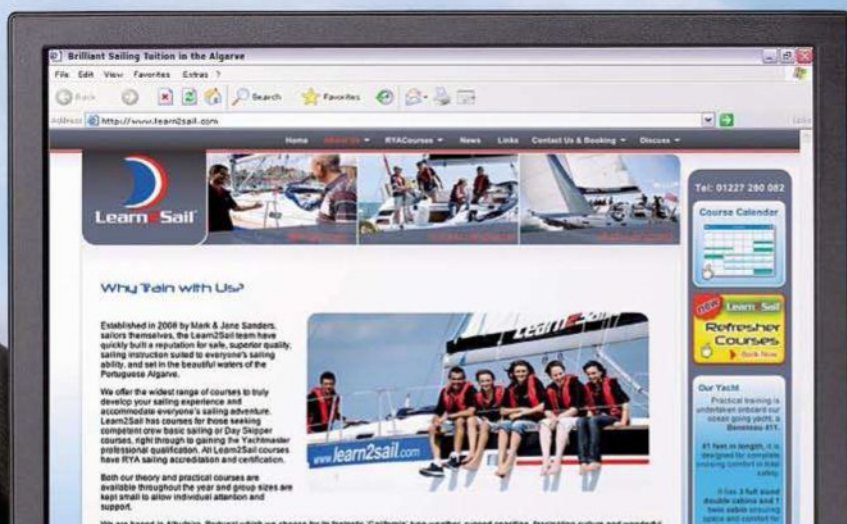
Mark Sanders, Learn2Sail
www.learn2sail.com



PROFESSIONAL WEBSITES
6 MONTHS
FREE!*



* 12 month minimum contract term applies for special offers on web hosting packages. NetObjects Fusion 1&1 Edition software only compatible with Windows operating systems and available as download from 1&1 Control Panel. Special offer price on .info and .co.uk domains applies for the first year of registration, subsequent years will be charged at standard price. Terms and Conditions apply, please see website for further details. Prices exclude VAT.



As the world's largest web host 1&1 utilises the latest technology to bring you great features such as...

.org.uk
.co.uk
.me.uk

Inclusive Domains

1&1 web hosting packages include .uk domains that are free for the life of your package.



Advanced Website Features

Give your website an extra dimension with our advanced site building and database tools.



Free Web Design Software

Professional web design software is included in all 1&1 web hosting packages.



Developer Features

Extensive scripting language support including Perl, PHP 4/5/6 (beta) and the Zend Framework.



Marketing Tools

1&1 provides marketing tools to optimise your website and drive visitors your way.



Green Data Centres

Our highly secure data centres are powered by green energy.

1&1 HOSTING PACKAGES
6 MONTHS
FREE!*
OFFER EXTENDED DUE TO HIGH DEMAND

1&1 HOME PACKAGE:

- 1 .uk domain included
- 10 GB Web Space
- UNLIMITED Traffic
- 1,500 IMAP/POP3 E-Mail Accounts
- 1,500 Online-Office Accounts
- 1 MySQL Database
- PHP 5 incl. Zend Framework, PHP 6 (beta) and Perl
- NetObjects Fusion® 1&1 Edition*
- 1&1 easyShop
- 24/7 Express Support

£0.00 ~~£4.99~~ per month
for the first 6 months,
then £4.99 per month*

Check out our website for more fantastic offers, such as...

DOMAIN OFFERS:

.info domains only £0.99 first year*
.co.uk domains only £2.49 first year*



Call **0871 641 21 21**** or visit us now

www.1and1.co.uk

> Full contents of your 7.9GB Dual-Layer disc

cmDVD

PC MAC

MeldaProduction MHarmonizerCM, the 24-bit **cm** Nu Disco Collection 2011, new reader demos, eclectic producer RackNRuin and more, all on this month's disc!

DVD contents Full software

Full software

MeldaProduction MHarmonizerCM (PC/Mac)
AAS Swatches (PC/Mac)
Togu Audio Line TAL-FILTER II (PC/Mac)
Voxengo Marvel GEQ (PC/Mac)

Demo software

Cableguys Curve (PC/Mac)
iZotope Stutter Edit (PC/Mac)
PSP N₂O (PC/Mac)
Sonic Charge MicroTonic 3 (PC/Mac)

Tutorial files

Classic Vocals
cm Focus
Make a complete iPad track
Make It Loud
MHarmonizerCM
Off The Dial
Q&A
Sound Essentials
The Easy Guide
The Joy of REX
The Trouble With Treble
Totally Trackers

Samples

24-Bit CM Nu Disco Collection 2011
Including construction kits, beats, loops, FX, hits and multi-samples

Reader Music

Galler - *Coming From Dub*
Gutch - *Skeng City*
High Note - *Forget Tomorrow*
Richie M - *Arpoon (Original Mix)*
Ghil - *Antennae*

Full software

MELDAPRODUCTION MHARMONIZERCM (PC/MAC)

Your exclusive free plug-in is perfect for turning single-track vocals into convincing harmonies, as well as creating more abstract effects. See the tutorial over the page for more details.

System requirements

PC Windows XP or later, VST host

Mac OS X 10.5 or later, AU or VST host

Web www.meldaproduction.com

Create full-blown choirs from just one vocal with MeldaProduction's amazing harmoniser plug-in, MHarmonizerCM



Get access to 40 AAS sounds for free with AAS Swatches

AAS SWATCHES (PC/MAC)

A 40-patch sound pack from Applied Acoustic Systems that uses their Ultra Analogue VA-1 and String Studio VS-1-powered AAS Player software.

System requirements

PC 1GHz CPU, 512MB RAM,

Windows XP SP2 or later, VST host

Mac Intel CPU, 512MB RAM, OS X 10.5 or later, AU or VST host

Web www.applied-acoustics.com

Voxengo Marvel GEQ is a high-powered free graphic EQ



TOGU AUDIO LINE TAL-FILTER II (PC/MAC)

Multimode filter with multi-breakpoint envelope that can be used to modulate cutoff frequency, volume, pan and more.

System requirements

PC VST host

Mac AU or VST host

Web kunz.corrupt.ch

VOXENGO MARVEL GEQ (PC/MAC)

Fixed-band linear-phase graphic EQ with mid-side functionality. Read more about this feature-packed plug-in in *Freeware News* on p18.

System requirements

PC Windows XP or later, VST host

Mac OS X 10.4.11 or later, AU or VST host

Web www.voxengo.com

Demo software

CABLEGUYS CURVE (PC/MAC)

This installer includes the trial version of Curve, plus other Cableguys software including FilterShaper 2, VolumeShaper 2 and the PanCake freebie. These demos are fully functional but unable to save patches, and you can only use one instance per project.

System requirements

PC 2GHz CPU, Windows XP or later, VST host

Mac 2GHz CPU, OS X 10.5 or later, AU or VST host

Web www.cableguys.de

IZOTOPE STUTTER EDIT (PC/MAC)

Stutter Edit makes creating complex edits and glitch effects easy. It also enables you to trigger them via MIDI, making it ideal for live use. The demo will expire after ten days, outputting silence from then on.

System requirements

PC Windows XP or later, RTAS or VST host

Mac OS X 10.5 or later, AU, RTAS or VST host

Web www.izotope.com

PSP N₂O (PC/MAC)

PSP's laugh-a-minute multi-effects plug-in has a semimodular architecture that enables you to route its filters, delays, bitcrusher and numerous other effects in countless configurations. The demo expires 14 days after installation.

System requirements

PC Windows XP SP2, RTAS or VST host

Mac OS X 10.5 or later, AU, RTAS or VST host

Web www.pspaudioware.com

SONIC CHARGE MICROTONIC 3

(PC/MAC)

This drum and percussion synthesiser covers everything from polished high-tech sounds to gritty lo-fi ones. The demo expires after three weeks of use.

System requirements

PC Windows XP or later, VST host

Mac G5 or Intel CPU, AU or VST host

Web www.soniccharge.com



Cableguys Curve is far more than just another subtractive synth, as we reveal on p100

BT reveals his s-s-secret with iZotope's new glitch effect Stutter Edit



Is PSP N₂O a worthy follow-up to its predecessor, Nitro? Find out on p106

The long-awaited update to drum synth MicroTonic is reviewed on p102

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.



USING THE DVD INTERFACE

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

PROGRAMS & PLUG-INS

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

SAMPLES

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

>Exclusive full software!

MeldaProduction

MHarmonizerCM

PC

MAC



Conjure up lush harmonies from just one part with our exclusive harmoniser plug-in from music software powerhouse MeldaProduction

> This issue's **cm** DVD plays host to a powerful plug-in indeed. MeldaProduction (the brains behind the PC VST virtual drummer plug-in MDrummer2 CM, which you can also find on the DVD in **The CM Studio\Guest Software**) have built us a special version of their awesome harmoniser effect, MMultiBandHarmonizer. That particular plug-in is so good, we awarded it our *Value* and

Innovation awards back in **cm154**. As you might have gathered from its name, MMultiBandHarmonizer is a multiband harmoniser. For the uninitiated, a harmoniser enables you to create harmonies artificially using a single monophonic vocal or instrumental line. They can of course also be used on other material, too, to interesting effect. MHarmonizerCM does away with the multiband aspect of the

effect, but offers all the harmonising power of its parent version - including three different algorithms suited to different types of source material. MHarmonizerCM's harmonisation processing can be controlled via MIDI, making it easy to quickly compose complex harmonies. The effect also features loads of other vocal processing tools, including formant controls, a

guitar-inspired 'strum' effect and pitchshifting, which can be used over a wide range and even modulated for pitchbend. In this step-by-step guide, we'll show you how to install and use this superb plug-in. There's a solo vocal ripe for workin' in the **Tutorial Files\MHarmonizerCM** folder on the **cm** DVD, so load it up and let's get harmonising! www.meldaproduction.com

MODE
Select which Granular, Vocoder, or Harmonizer algorithm is used

DRY/WET LEVEL
Sets the balance between the original and processed signals

TUNE
Affects how closely the tuning of generated voices in Harmonizer mode follows the source material

GLOBAL PITCHSHIFT
Static octave, semitone and cent pitchshift settings

PITCHBEND AND WIDTH
Continuous pitch control that can be modulated with MIDI pitchbend messages, and left and right channel pitch detune settings

FORMANT CONTROLS
Formant conservation and shift controls for adjusting the timbre of the vocals

GRAIN SIZE/STRUMMING CONTROLS
Parameters used to alter the timing of the effect in Granular mode

SHARPNESS
Controls the balance of harmonies in Harmonizer and Vocoder modes

VIRTUAL KEYBOARD
Can be used to create harmonies without the need for MIDI input

CHORD GENERATORS
Create chords on the virtual keyboard with these octave, key and chord type buttons

MHarmonizerCM (1.00)

Sound settings

- Dry/wet: 100.00% wet, 0.00% dry
- Mode: Vocoder
- Grain size: 50 ms
- Strumming: 0 ms
- Sharpness: 0.00%
- Tune: 100.00%

Global pitch

- Octaves: 0
- Semitones: 0
- Cents: 0.0
- Pitch: 0.00 semitones
- Width: 0.00 semitones
- Keep formants: 50.0%
- Formant shift: 0.00 semitones

Harmony

Virtual keyboard with notes C to B and chord type buttons (major, minor, sus4, etc.)

> Step by step Getting started with MHarmonizerCM



1 > First, install the plug-in. For Mac, head to the **Software/Mac Software/Full Software/MeldaProduction MHarmonizerCM** folder. The PC installers are in the **Software/PC Software/Full Software/MeldaProduction MHarmonizerCM** folder. Run the installer for your system and follow the on-screen instructions.



2 > Once the installation procedure has finished, launch your DAW. MHarmonizerCM works best with DAWs that can route MIDI data to audio plug-ins, such as Reaper, which you can also find on the **cm** DVD, in the **Library** section of the **Software** folder, or download for free from www.reaper.fm. Add MHarmonizerCM as an insert effect on an audio track.



3 > Copy **Vocals.wav** from the **Tutorial Files\MHarmonizerCM** folder on the DVD to your hard drive, then drag it from there onto the audio track. Set your DAW's tempo to **130bpm** and route a MIDI track to MHarmonizerCM's MIDI input. To do this in Reaper, start by creating another track, which you can label **MIDI data** to keep things clear.



4 > Click the **io** button on the vocal track, and Reaper's Routing window will appear. In the **Receives** part of the window, click the menu that says **Add new receive...** and select **2:MIDI data**. You don't have to do anything else - all MIDI from **Track 2** is now routed to **Track 1**.



5 > Create a MIDI object on **Track 2**, and draw in a single note C4 lasting for a few bars. Bring up MHarmonizerCM's interface and you'll see that note C4 on the plug-in's keyboard is responding to the MIDI input from Track 2.



6 > By design, C4 is MHarmonizerCM's root note, having no effect on the audio passing through. Modify the MIDI part to play different notes, as shown. You'll hear the pitch of the audio shift relative to the root note.



7 > This is useful in itself if you just want to change the melody of a vocal part, but MHarmonizerCM was built for creating convincing harmonies. Copy the MIDI chords shown here and take another listen. Complex harmonies are go! Just edit the MIDI part to change the harmony.



8 > You won't hear any audio at all from the MHarmonizerCM channel unless the plug-in is receiving MIDI input. If you want to experiment without having to set up a MIDI part every time, you can get around this problem by clicking the keys on the effect's virtual keyboard.



9 > MHarmonizerCM features three main operating modes: **Granular**, **Vocoder** and **Harmonizer**. Vocoder mode is selected by default. In this mode, you can increase or decrease the **Sharpness** parameter. Higher values make the sound duller, while lower values make it harsher.

> Step by step Getting started with MHarmonizerCM (continued)



10> **Vocoder** is the best mode for most tasks if you're after a natural sound. Switch to **Granular** mode, and try changing the **Grain size**. Doing so during playback can create loud pops, so either stop your DAW before you try this or turn the channel's level down.



11> At higher levels, the grains have loose timing, as you can hear. Turn the **Strumming** parameter up to stagger each voice, producing natural differences in timing between the parts, or guitar-like strumming effects. Select multiple notes on the virtual keyboard to build up chords.



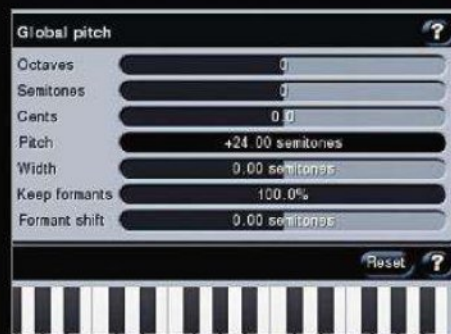
12> Change the mode to **Harmonizer**. The **Sharpness** parameter works much as it does in Vocoder mode, and you also get an extra parameter, **Tune**, which at **100%** makes the notes generated by the effect pitch-perfect, or at **0%** gives them the same tuning as the original. To get the best idea of how different values sound, use a single note to trigger the effect.



13> The Granular, Harmonizer and Vocoder modes each have at least one variation on offer, which affects how much processor overhead the plug-in uses. Give all the modes a try to get a feel for the differences between them.



14> Let's take a look at the parameters in the Global Pitch section. The **Octaves**, **Semitones** and **Cents** parameters all affect the pitch of every voice, as you might expect. The **Octaves** and **Semitones** settings jump in integers, but you can tune the **Cent** value to tenths of a cent.



15> The **Pitch** control can be used to pitch +/-24 semitones in cents. It can be controlled via the **Pitch bend** parameter of the MIDI input, and is useful for creating real-time pitchshifting effects.



16> The **Width** control is great for creating stereo vocal effects. The left and right channels are detuned by the amount specified, which can be anywhere from -12 to +12 semitones. If you're after a natural stereo effect, use a detune amount of **.24** semitones or less.



17> As well as the tuning controls, Vocoder and Harmonizer modes also give you access to a couple of formant parameters. These can be used to combat the unnatural effect that pitchshifting has on vocals, but we don't have the space to explain them fully here. Give them a try to hear how they affect the sound.



18> Last but not least, the Harmony section. We've already seen that you can click notes on the virtual keyboard rather than using MIDI input, and it's also possible to generate complex chords quickly using the key, chord, and octave range buttons. Now you know the basics, take the time to explore and experiment further - there's an awful lot of sound design potential on offer here. **cm**

>Royalty-free, pro-quality sounds

2006 **cm** samples

PC MAC



Get your gladraggs on: we're going glam with a collection of funky nu disco samples inspired by the smooth sounds of the 70s

The 24-Bit CM Nu Disco Collection 2011

Combining vintage-style loops with upfront beats, bass and multisamples, the Nu Disco Collection is all you need to make your own funk-up floor-fillers.

Groove Criminals

38 analogue synth hits
172 beat loops
159 drum hits
160 instrumental and percussion loops
72 FX
7 multisampled bass instruments
3 multisampled synths

Groove Criminals' have many past convictions for crimes against music, and this issue's samples are a clear-cut case of murder on the

dancefloor. Filthy bass licks, housey beats and ear-splitting analogue FX are just some of the myriad delights you'll encounter among their contributions to this month's sonic collection.

www.groovecriminals.co.uk

Cyclick

90 bass loops
280 beat loops
18 guitar loops
60 FX
50 drum hits
5 multisampled bass instruments

The highlights of this awesome selection of hits, loops and riffs are the booty-shaking guitar and bass loops, recorded using a vintage Fender Stratocaster and two late 70s Musicman Stingrays.

Ben Williams

101 bass loops
125 drum loops
50 guitar loops
125 synth loops

New blood Ben Williams makes his **cm** debut with a collection of fat basslines, killer drum loops, rocking guitars and slick synth riffs, including classic brass, clav and stab noises.

Reuben Cornell

14 construction kits
10 bonus musical loops

Another newcomer, Reuben has made us some authentic-sounding vintage construction kits, ideal for adding sparkle to both old-school disco and modern house tracks.

www.reubencornell.co.uk



Sample and video playback

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



Producer Masterclass Video

Artist **RackNRuin**

Matt Scott, aka RackNRuin, has an impressive list of remix credits to his name. His sound takes inspiration from a wide variety of musical styles, and in this exclusive video tutorial he deconstructs *Synthetic Heart*, a 146bpm mashup of dubstep, jungle and hardcore.

Web www.myspace.com/racknruinmusic



Steinberg Cubase 6

Four videos showing off some of Cubase 6's new features, including its enhanced drum editing capabilities, impressive VST Expression 2 system and guitar amp effects.

Web www.steinberg.net



HAVING PROBLEMS?

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

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

BROKEN DISCS: If your disc is corrupt, cracked or otherwise inoperable, we'll send you a spanking new replacement within 28 days. Send the DVD to: Disc Department, Reader Support, Future Publishing, CMU163/April/11, Bath BA1 2BW. Don't forget to include your full name and postal address!

cm STUDIO

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

APPLICATIONS

Outsim SynthMaker CM (PC)

Create your own VST synths and effects

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

VST host and sequencer with modular routing

INSTRUMENTS

AlgoMusic ElectraBass Rack CM (PC)

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

Big Tick RhinoCM (PC)

Amazing hybrid synth with cool FM capabilities

CM WusikStation (PC)

Hybrid sampler/synthesiser

Dominator (PC)

Virtual analogue synth with a classic feature-set

FabFilter One 2.01 (PC)

Beautiful-sounding single-oscillator synth

Homegrown Sounds Astralis CM (PC)

Modulation-heavy 'soundscape' synth

Homegrown Sounds Astralis Orgone CM (PC)

Flexible sample-based synth

Humanoid Sound Systems Scanned Synth CM (PC)

Create abstract noises and haunting instruments

Kotkas Paax 3 CM (PC)

Feature-packed soft sampler

Krakli CMorg (PC)

Vintage organ instrument

LinPlug AlphaCM (PC/Mac)

Subtractive synth with ring and amp modulation

LinPlug CM-505 (PC/Mac)

Analogue drum synthesis made easy

Muon CMplay (PC/Mac)

Powerful ROMpler instrument

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 sample

Odo Synths Unknown 64 CM (PC)

C64 SID chip-emulating VSTI

PowerFX Hütkins CM (PC)

Sample-based electronica synth

Synapse Audio Junglist (PC)

Effects-packed virtual analogue synth

Synapse Audio Plucked String (PC/Mac)

Specialised synth for creating plucked string sounds

u-he ZebraCM (PC/Mac)

Amazing virtual analogue synth

Ummet Ozcan Genesis CM (PC)

Another amazing virtual analogue synth

XT Software EnergyCM (PC/Mac)

Analogue-style sequencer

EFFECTS

Aixcoustic Creations Electri-Q CM (PC)

Sweet-sounding and flexible equalisation

Audio Damage Pulse Modulator (PC/Mac)

Wild, stompmbox-esque modulation effect

Betabugz Audio Vascillator (PC)

Semi-modular feedback delay multieffect

Blue Cat Audio FreqAnalyst CM (PC/Mac)

Sophisticated stereo spectral analyser

Camel Audio CMFuzz (PC)

Quick and dirty distortion

**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.

Image-Line CM Vocoder (PC)

Special **cm** version of FL Studio's FL Vocoder

Image-Line CM WaveShaper (PC)

Flexible wave distortion effect

Intelligent Devices

MegaDelayMassCM (PC/Mac)

Sound design-orientated delay module

Intelligent Devices

Slip-N-Slide CM (PC/Mac)

Easy-to-use double tracker

KResearch KR-Delay CM Edition (PC/Mac)

Dual delay lines with filters and sync ability

KResearch KR-Reverb CM Edition (PC/Mac)

Easy-to-use, algorithmic reverb effect

LiquidSonics Reverberate CM (PC/Mac)

Luscious impulse response-based reverb effect

Martin Eastwood Audio

CompressiveCM (PC/Mac)

Compressor/limiter with side-chain input

Martin Eastwood Audio Duet (PC)

Easy-to-use double tracker

NuGen Audio Stereoizer CM (PC/Mac)

Useful mixing tool for control over your stereo spread

Ohm Force Ohmygod! (PC/Mac)

Crazy resonant/comb VST filter

PSP Springverb (PC)

Authentic VST spring reverb effect

Sanford Phaser-CM (PC)

Phaser effect with advanced modulation abilities

SimulAnalog Guitar Suite CM (PC)

Plug-ins modelled on classic guitar effects and amp

Sugar Bytes Artillery2 CM Edition (PC)

Multi-FX with internal sequencer

Vengeance-Sound Philta CM (PC/Mac)

Awesome multi-mode dual resonant filter



Create filter sweeps to make them weep with Vengeance-Sound's amazing Philta CM Edition

Making pitched rhythmic loops

Virtual drum machines aren't known for producing pitched parts, right? CM-505, meet Ohmygod!...



1 > The cm Studio's CM-505 virtual analogue drum machine by LinPlug is great for making simple drum sounds - but if you run it through some of the cm Studio's effects, you can create unusual sounds and even pitched rhythms. Start by loading up CM-505 in your DAW and creating a MIDI part to trigger it.

2 > Copy the drum beat that we've made here, or come up with your own. If you decide to use the Ride Cymbal as we have, turn its **Tuning** down to **0** semitones and set its **Level** to **-35dB**. At its default settings, it's quite piercing.

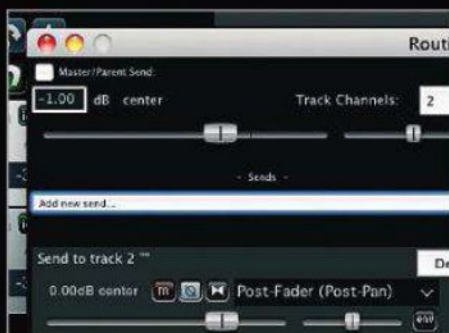
3 > Add Ohm Force Ohmygod! as an insert effect. This is a comb filter, and on playback you'll hear that it imparts a tonal quality to the sound. Sweep the **Frequency** control in the Comb Filter panel around to hear the kind of psychedelic effects you can create.



4 > You can control the intensity of these effects using the **Feedback** control in the Comb Filter panel. Set this to **85%** to get quite a strong effect. Note that you get finer control over parameters in this particular plug-in by dragging them horizontally rather than vertically.

5 > Controlling the pitch of the comb filter like this is great for sweeping sounds, but for melodic effects it's better to use MIDI. This requires us to send MIDI directly to Ohmygod!. How you do this depends on your DAW. In Reaper, create another track, then cut and paste Ohmygod! from the original to the new track.

6 > Once you've got the two tracks in Reaper, you need to route the audio from the CM-505 track to the Ohmygod! track. To do this, click the **io** button on the CM-505 track, then, in the Sends panel, click the menu that says **Add new send...** Select **Track 2** from the list.



7 > As we've routed the CM-505's track to the Ohmygod! track, we don't need to have the CM-505 channel routed to the master out, so deselect the **Master/Parent send** button in the top left-hand corner of the io panel. Play the project back to make sure that the routing is correct and you can hear the comb-filtered drums.

8 > Bring up Ohmygod!'s interface and change mode from Classic to **MIDI Poly**. If you try to play the project back now you won't hear anything, because Ohmygod! isn't receiving any MIDI. To remedy this, create a new MIDI item on the Ohmygod! track.

9 > Program some chords in the MIDI item you just created. You'll hear Ohmygod! play back the drum loop polyphonically, giving you rhythmic, abstract chords. As more voices are used you may find that the channel overloads, so turn down Ohmygod!'s **Master** fader until the clip indicator stops lighting up red.

Reader music

Ever wondered what the experts would make of your mixes? We give four readers a chance to find out...



Send us your music

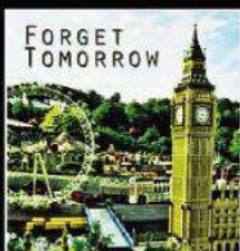
For the chance to be featured in *Reader Music*, simply send us your track via the SoundCloud DropBox on our website (see the walkthrough below for instructions), along with a description of your act, an image (sleeve art, photo or logo that you own the copyright to), and your equipment list. Be absolutely 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

HIGH NOTE Forget Tomorrow

Artist Mike Allison
Web mike@dubplate.tv



> *Forget Tomorrow* is interesting because it is a truly global composition (see the artist's comment) that, despite its modern production process, belongs in the 80s! The main culprits are the slap bass, soft backbeat and top-end shakers; these elements add a pop lightness that locks it back into that panglossian decade.

However, the song itself is strong with a good sentiment, and the vocals have a lovely fragile delivery and great effect treatment. There's also some great keyboard and synth work.

We can't stop imagining how different this song could be if it were given the chill-out house treatment, for example. Nudging the tempo up from 100bpm might make it work. A nudge down into trip-hop territory might be even better.

Slap bass was so dominant in the 80s, it's hard to imagine it ever enjoying another time in the spotlight. The part is very well played, but it's such an era label, and its busyness makes it take over. Overall, though, the song is a good one.

What the artist says:

"First, Polo (London) created a guide track and uploaded the elements to Kompoz. Darlene Pappalardo (Florida) wrote lyrics for Olivia Francis (Texas), who recorded the vocals in her studio. Simon Lau (Malaysia) recorded a new bassline. I took the elements and brought them together."

Equipment used Custom PC (Intel Dual Core 2.8GHz, 4GB RAM, 2x 500GB HD, four LCD monitors) KRK RP8 G2, KRK RP6, Yamaha HS50M, 12" subwoofer, Edirol FA-101, PreSonus Monitor Station, M-Audio Keystation Pro 88, PreSonus Faderport, Cubase SX 3, Native Instruments Komplete 4, BBE Sonic Maximiser, Waves Tune, Waves RVerb, Waves V Series, Waves L3.

RICHIE M Arpoon(Original Mix)

Artist Ricardo Aleixo
Web www.soundcloud.com/richie_m



> Prepare to be uplifted... Here's a no-holds-barred club anthem rooted in progressive house but with shades of trance tones too. The intro is a long old affair that doesn't bear much relation to the rest of the track, apart from setting the rhythm with a build of percussion around a classic house groove.

Once the track gets going, a great chordal synth riff runs through most of it. This is tied to the bassline, which builds and falls by opening and closing the release times and filter. Listen to the tight reverb treatment too. This is a great use of dynamics and a certain winner on the dancefloor. Unlike many dance tunes, it's also interesting to listen to in other environments because the sounds are so well put-together.

There's evidence of a high string - unless we're hearing things! This could be built upon as a useful device to take the dynamic further at the height of the builds. The mix is tough, warm, open and bright, which is a notable achievement. Its weight will be immediately noticed in a club - it's big.

What the artist says:

"This song came together because I wanted to make a song that I could play at my residency - something with energy that would make the crowd go wild and also had a nice melody. The big synths give a nice impact when it drops, making the crowd jump and giving me just what I really wanted: a nice big-room track."

Equipment used Samsung R730 laptop, Ableton Live 8, Adobe Audition 3.0, Edirol UA 4FX sound card, Alesis M1 Active 520, reFX Nexus, Sonic Charge Synplant, Luxonix Purity, Drumatic 3, Rob Papen Albino 3. Sample packs from, **cm**, Vengeance, Deadmau5, Mutekki and Sample Magic.



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.

facebook

Enter our weekly
CM FACTOR
competition for a
chance to get your
track on our DVD.
This issue's winner:

Ghil, Antennaewww.facebook.com/computer.music.mag

GALLER

Coming from Dub

Artist Mikael Syrén
Web www.myspace.com/rubadub09



> It makes a change to feature a successful dub track in these pages, because it's so hard to capture the authentic dub sound in the digital world. But from the moment the drum roll opens up *Calling from Dub*, you know it's there. The drums sound dirty – especially the hi-hat and the heavy kick with a clicky front, but also the snare when

it's dropped into the Space Echo and the delay times are switched; and then all the drums are thrown into the typical big spring reverb. There's the skanking piano, too, which occasionally gets passed into a dubbed feedback; and the horn section comes and goes effortlessly.

But this isn't just an exercise in making an old-school dub track. What makes *Coming from Dub* special is the way that new sounds are fitted in to update the idiom. The opening filtered synth sound and the mad synth part in the middle don't seem out of place. The heavy bass synth, also filtered, sits well, though it could do with a bit more work to make it seamless; the distortion is a bit fizzy in places and the timing of the filter feels a bit pushed at times. However, this is just a minor moan for a great tune.

What the artist says:

"This dub is an experiment – a search to find a balance between something old and heard, and something new and personal. It's old-school riddims and mixing meets contemporary sounds and energy. I'm just trying to make some fun dubs!"

Equipment used MacBook Pro, Digidesign Mbox Factory Pro 2, M-Audio Axiom 25, Mackie CR 1604, Roland RE20, Adam A5 monitors, Reason 4, ProTools 7.4, Digidesign EQ III, McDsp CompressorBank.

3 > Click **Upload new artwork** and choose an image. Confirm that you agree to SoundCloud's **Terms of Use** towards the bottom of the screen, hit **Send Track** and you're done!

What's wrong with my mix?

Tim Oliver casts aside his distrust of dubstep to deliver his verdict on Gutcha's *Skeng City*, a powerful, big-hitting tune with a surprising Eastern twist

Producer Tim Oliver



Tim never strays too far from the studio. He's currently putting the finishing touches to Nife's debut album on Top Cat Music, while the rest of his hours are spent doing the same to Sinead O'Connor's new record, which promises a return to form for that amazing voice.

GUTCHA

Skeng City

Artist Arion Oates
Web www.soundcloud.com/gutcha



> For me, dubstep has been a genre full of musical crimes. The movement has been drowned in dross, masking any genuine articles released into the scene. Only recently has the genre really begun to define itself and its sound, getting tougher and edgier. This track from Gutcha exemplifies the current freshness of the genre with a powerful, hard-hitting tune and interesting sonics.

At a little over three minutes, the track has a concise structure that essentially revolves around one musical section. This moves the track on through evolving eight-bar segments and is punctuated by drops in the beat or the bassline. There's nothing groundbreaking here, and because of the interesting sounds I don't really notice the orthodox nature of the structure. Analysing it, I'd say on paper that it could do with a distinctive middle section for a change and to provide the impact of a return to the main riff. In reality, though, it works as it is.

It's the sounds that make *Skeng City* special: they're big and brutal. The tempo of the track – about 72/144 – is perfect for creating space with a half-time beat and busy cuts. The bass sound leads the way, and as Arion says in his comment, it brings a unique character to the track – I love it. The occasional delay behind makes it huge. The string line adds the only conventional musical melody, although the tones of the bass and noises heard throughout the track also provide us with an implied melody. The strings' Eastern-ness has a surprising affect on the perception of the tune as a whole in that direction. The sound of the rhythm is dominated by the splash of the backbeat – a brave sound that works for me.

Skeng City has a tough mix that's dominated by the edge of the bass sound and the backbeat. I think that the overall tone and balance is spot on. The use of subtle and not-so-subtle delays is what makes the mix for me: it gives a depth and an impression of size way beyond its content. Overall, this is a great piece of work.

What the artist says

"The concept was to create a dark dubstep track that reflected inner city nightlife. I started with a powerful offbeat rhythm to provide the feeling of movement. To create a unique bass sound instead of the standard dubstep 'wobble bass', I used Logic's Autofilter, which changed the whole feel of the track. The simple plucked string melody adds an Eastern twist."

Equipment used MacBook Pro 13" 2.26GHz, Logic Pro 9, Reason 4, iZotope Ozone 4, Roland Edirol UA-25 audio interface, Korg nanoKey MIDI controller.



cm Producer Masterclass

RACKNRUIN

His productions mix up elements of DnB, breaks, reggae, hip-hop, jungle, house, electro and dubstep. Step into the studio of one of electronic music's great adventurers



Rack 'n' roll with it...



> Bass-loving Londoner RackNRuin - aka Matt Scott - has enthralled the dance scene in recent years with his eclectic style, which combines elements of house, dubstep, electro and DnB. As well as releasing a slew of EPs since his 2009 debut, Matt is an in-demand remixer and has reworked tracks for the likes of Nas & Damien Marley, J Majik & Wickaman, and Zero 7. *cm* paid a visit to Matt's north London studio to find out more about how he mixes up his inspirations, and hopefully pick up a few production hints and tips along the way.

"My dad was really involved in the music industry, and when I was a kid the house was just filled with records, so I really got into music through that," explains Matt. "When I was 14 I worked all summer to buy some rubbish turntables. I was mixing

"I wasn't really feeling the road DnB was going down, and I wanted to get into a slower sound"

hip-hop, and then some of my brother's friends played me jungle - so I started buying jungle and really got into DJing and pursuing the DnB sound."

Next came his interest in production. "When I was 16 I started making tunes on FruityLoops, learning how to sequence stuff, sample and make basslines," he continues. "I started using Logic on a PC when I was 17, upgraded to Mac when I was

19 and have been using Logic since then. I started doing it seriously in about 2000."

An evolving sound

For this *Producer Masterclass*, Matt breaks down the title track from his forthcoming *Synthetic Heart* EP. As its genre-crossing style suggests, Matt's influences are varied:

"All the RAM stuff and early Virus got me into the sound of DnB, and people like MJ Cole, Dem 2 and Sunship got me into garage. Musically I was really into reggae and hip-hop and old punk, stuff like the Clash, and I really wanted to get more into the reggae sampling sound. I started sampling reggae vocals and hits and put them into a jungle sound. After the DnB I did, I tried a bit of breakbeat: I wasn't really feeling the road drum 'n' bass was going down, and I really wanted to get into a slower sound. My friends started listening to house and techno, and I liked it and wanted to have a go at making it. I started making some early electro, experimenting with house beats and slower

tempos but still trying to keep the jungly sound in there.

"I went to a few dubstep nights and the sub was amazing and the experience was good, but I didn't really get into it that much at first - I thought it was too slow. Then I heard tunes like Skream's *Midnight Request Line* and Benga & Coki's *Night* and it started to change my opinion of that kind of tempo. Before those tunes I wasn't really into dubstep too much, but then I started to really understand it. I didn't want to remake what everyone else had already done, though. I just wanted to put my jungle and electro edge on it, and I think that's how my sound has developed."

In this guide, and the accompanying video on the *cm* DVD, Matt walks us through the production of his new track *Synthetic Heart*. If you like what you hear, be sure you check out RackNRuin's *Soundclash Remix* EP, which is due to be released on Black Butter Records in March.

www.myspace.com/racknruinmusic

Kit list



RackNRuin favours the Edirol FireWire FA-101 audio interface...

HARDWARE

Apple PowerMac G5
Carillon Audio FW hard drive
MK-246c Evolution MIDI keyboard
Edirol FA-101 audio interface
Dynaudio BM5A monitors
SE Electronics SE2200A

...While Audio Realism ABL Pro is his TB-303 emulator of choice



SOFTWARE

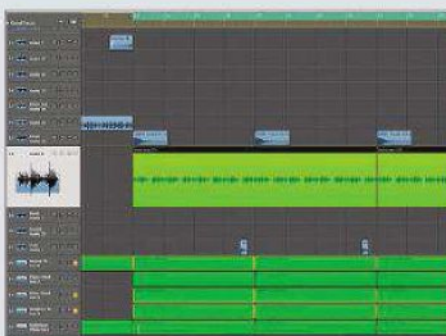
Apple Logic Pro 8
Waves plug-ins
Native Instruments plug-ins
GForce plug-ins
Rop Papen Predator
Rob Papen Albino 3

Cakewalk Rapture
Audio Realism ABL Pro
Arturia ARP2600 V
Novation BassStation
reFX Vanguard
FAW Circle

> Step by step Producing *Synthetic Heart*



1 > The first element of the beat to be laid down is the kick drum. "If it's a jungle kind of tune, I'll look through some old jungle records or some old funk records," explains Matt. In this track, a selection of kicks from sample libraries are used, all of them cut at **50Hz** and boosted at **100Hz** to give some extra punch.



2 > Next, Matt creates a hi-hat loop in double-time compared to the kick, which gives it a jungle feel. He EQs the loop to take care of the low end, and runs it through reverb to give it a little ambience. He bounces the result to audio and imports it back into the track.



3 > Matt adds a clap from Loopmasters' Deadmau5 sample library to give the beat more of a dubstep feel. He runs the clap through Logic's PlatinumVerb to get a dubby sound, and excites it with Logic's Exciter plug-in to bring out its 'better' frequencies. The harmonics are set to **19%** with a base frequency of **3900Hz**.



4 > To give the clap more body, Matt layers a mid-range snare under it. This is from a Vengeance-Sound library, and has a big DnB-style sound. He runs the snare through Waves' Renaissance compressor, and boosts it at just over **200Hz** to give it more low-end punch.



5 > Next, he adds a Roland TR-909 ride cymbal sample courtesy of the EXS24 sampler. He also excites this with Logic's Exciter, and then uses EQ to attenuate everything below **500Hz**, stopping them from muddying up the low-end of the mix.



6 > The final element of the beat is made using tom-tom samples from an Akai library played back via the EXS24 - a roll at the end of the four-bar loop. "I quite like using fun old drum machine sounds, because they sound kind of authentic and original," Matt enthuses.



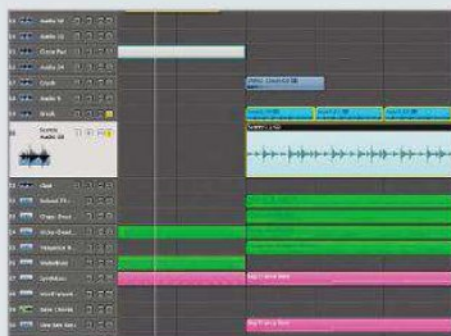
7 > The bass noise in the intro comes from a square wave-based tone made in Logic's ES2 synth, which is low-pass filtered and has Waves MaxxBass applied to boost the low end and add warmth. Matt cuts it at **50Hz**, taking out the lowest sub frequencies, so that the bottom end doesn't fully hit until the track drops into the main bassline.



8 > Matt uses another square wave-based patch from the ES2 with oscillators tuned a fifth apart to create a 'stadium' vibe during the breakdown. This is high-pass filtered in, and EQ is used to cut out all frequencies below **100Hz**. He calls on PSP StereoEnhancer to widen the sound, and runs things through Logic's Bitcrusher for a crunchy feel.



9 > The sub-bass tone comes from Logic's EXS24 sampler, pushed through the Waves Renaissance compressor. "Normally I don't compress subs that much; I leave them dry, because I think it's warmer. In this track I compressed the sub because there's so much going on - it needed something to keep it in check," Matt explains.



10> When the track drops, it changes from dubstep to a jungle vibe, complete with chopped up breakbeats. The first of these is Subnation's classic *Scottie* break (originally taken from James Brown's *Cold Sweat*). Matt slices this up on an audio track in Logic and bounces it down as a new audio file.



11> To supplement the *Scottie* break, Matt picks out another drum loop - a bongo-tinged break - and slices it up to fit with the rest of the groove. He attenuates it in the **250-300Hz** region with EQ, and brightens it up with PSP MixTreble, which helps to enhance the beat's transients.



12> Matt elects to add some hardcore piano flavour, but without sounding dated. "I didn't want to make it sound like cheesy old school pianos, so I used the EXS24's Electric Stage MkII preset," he reveals. This sounds a little lifeless without any processing, so he cracks out an EQ and PSP MixTreble to brighten the sound, compresses it with Waves Renaissance Compressor, and reverb's it a little.



13> To ensure the tune keeps on surprising the listener with new sounds, Matt adds a housey stab from Cakewalk's Rapture synth. This is based on a patch called **Classic Chicago Stack**, with Matt tweaking the transposition of the oscillators to get the right feel. The stab is run through MixTreble and Logic's Compressor to give it more impact.



14> Another stabby keyboard sound is provided by AudioRealism ABL Pro. This semi-modular, 303-inspired synth is used to create a rich tone comprising pulse- and frequency-modulated sine wave oscillators, with a healthy dose of white noise mixed in to create a warm, lo-fi sound.



15> In order to give the track some individuality and make it more of a song, Matt records vocals from male and female singers. The male vocal is a verse that plays over the breakdown - Matt EQs it and excites it with the MixTreble. A high filter slope setting is used in MixTreble, which really pushes the harmonics and the transients.



16> Matt deactivates the MixTreble's Hiss Remover because there's a lot going on in the mix, and the vocal needs the harsher high frequencies to cut through. Next, he uses Logic's Spreader to widen the sound, Renaissance Compressor to bring the level peaks under control, and delay and reverb to get a spacey feel.



17> At the end of the vocal phrase, the last word - "down" - is looped, and Waves' SoundShifter Pitch is used to pitchshift it down (see what he did there?), then back up again via automation of the **Semitone** parameter.



18> The female vocal in the track comprises rave-tastic "yeah" and "ooh" ad-libs. To make these fit in the mix, Matt cuts them at about **150Hz** and boosts them a little at **300-400Hz**. Finally, he excites them with Logic's Exciter, compresses them with Renaissance Compressor and inserts Logic's PlatinumVerb for a silvery finish. **cm**

CLASSIC VOCALS

Looking to get a characteristic vocal sound from a particular era or classic style? Find your voice with our step-by-step guide

> You might imagine it would be difficult to capture truly classic-sounding vocals in the average home studio. Many of the most memorable vocal production styles throughout history - the sizzle of Motown soul, the powerful tones of rock, the gentle dynamics of classic jazz - came from an era where it was hardware or nothing, with all the warmth of tone that came with it. In today's studio, where things are entirely digital, nailing those bygone sounds can seem daunting.

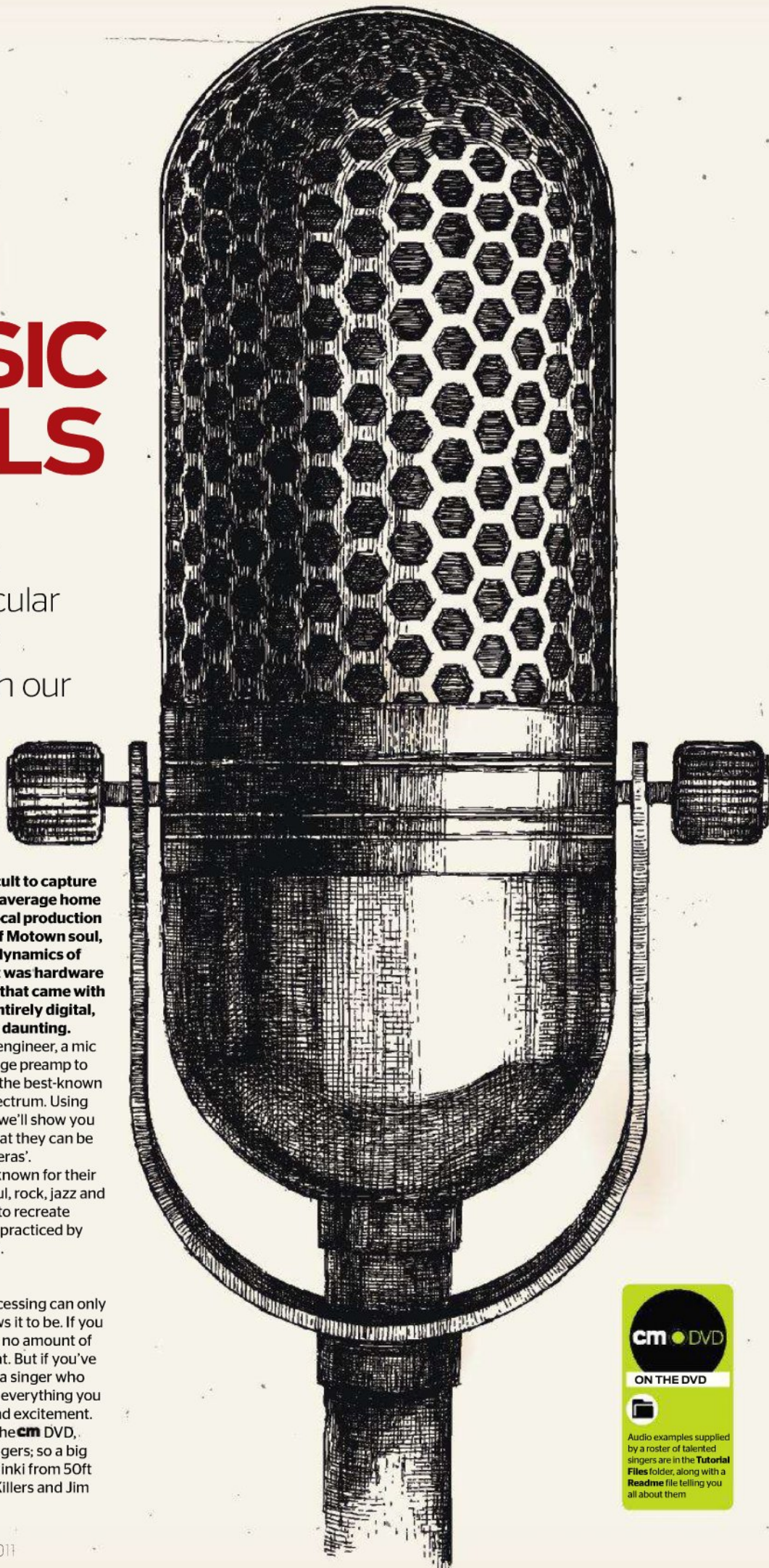
However, even if you don't have a pet engineer, a mic locker full of Neumanns and a dusty vintage preamp to hand, it's still possible to emulate some of the best-known vocal sounds from across the musical spectrum. Using nothing more than inexpensive plug-ins, we'll show you how to mix and process your vocals so that they can be placed in any one of a number of 'virtual eras'.

We'll go through some specific styles known for their particular vocal techniques, including soul, rock, jazz and ultra-clean pop. We'll also show you how to recreate some of the more outlandish vocal tricks practiced by artists like Kings Of Leon and Kanye West.

Get it right on the night

It goes without saying that any vocal processing can only be as effective as its source material allows it to be. If you have a poorly recorded take to start with, no amount of processing is going to make it sound great. But if you've got a decent recording environment and a singer who knows their way around a verse, you have everything you need to give your vocals that extra fizz and excitement.

For the demonstration audio clips, on the **cm DVD**, we've roped in a talented collection of singers; so a big thank you to Ilana Lorraine, Juliet Kelly, Minki from 50ft Woman, Kier from the Fearless Vampire Killers and Jim Distortion from Distorted Breed.



ON THE DVD



Audio examples supplied by a roster of talented singers are in the **Tutorial Files** folder, along with a **Readme** file telling you all about them

Motown magic

In the early days of Motown Records, when the label was striving to define a classic sound for soul music, Berry Gordy's engineers ran into a problem. They couldn't get their vocals to stand out in the mix.

Unlike a lot of music around at the time, those early soul productions had the instrumentation cranked up loud, which meant that the vocals had to fight very hard to compete. The engineers applied plenty of compression and EQ to make them sound bigger, but the early recordings felt like they had the life sucked out of them. With no dynamics, they just weren't as good as they could be. And at a label where songs routinely went through upwards of 20 different mixes to get them sounding as clear as possible, that just wouldn't do.

Enter Lawrence Horn. Now serving a life sentence for three murders, he was once one of

the best mix engineers at Motown. He came up with a technique that managed to lift the vocals up and make them powerful and bright, while still retaining their dynamics. Parallel compression was still some years away from being invented, but Horn's technique, which we illustrate below, uses the same principle: combining a compressed signal with an uncompressed one to get a fantastic combined sound.

Although production styles have moved on since the days of Motown, this is a technique that's still used in mixing soul music today. It's a very straightforward method to put into practice, and if you create a mixer template for it, you'll find that sticking it on your soul vocals becomes second nature.

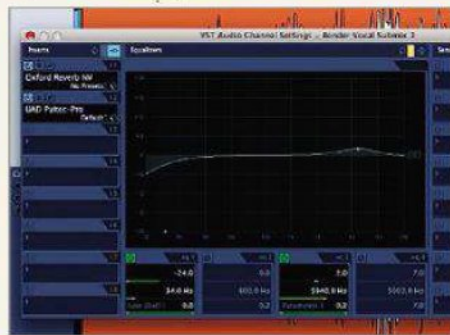
Clever mixing techniques helped Marvin Gaye and Diana Ross' vocals stand out from the crowd



> Step by step Motown-influenced soul vocals



- 1 > First things first: double up your vocal. You can use two different takes or simply duplicate the same one. In this case, we duplicate Ilana's voice, without adding any effects just yet. This technique can work just as well with a single vocal sent to an auxiliary track, but we've opted for doubling here.



- 2 > On the first channel, add some reverb and a bit of EQ. Neither has to be particularly heavy: wet the vocal with some comfortable reverb and apply a subtle boost around the 5kHz region, with possibly a little bit of low cut as well. (Audio on the DVD: **MotownTrack1.wav**.)



- 3 > The key is the second vocal channel. Compress this heavily, using a high **Ratio**, low **Threshold** and medium **Attack** and **Release** settings. Next, really push the EQ: anything over 5dB at 5kHz will do. You can also roll off anything over 12kHz. (Audio: **MotownTrack2.wav**.)



- 4 > Set the first vocal channel at a comfortable level, and slowly bring up the second. You should end up with a sound that's bright, full and clear, and will cut through any mix of instrumentation you throw it at. Getting this to sound natural is quite easy: you'll hear if you push the level too far. (Audio: **MotownMix.wav**.)



- 5 > It also helps to run your vocals through a saturation plug-in to colour the sound even more. We've gone for SoundToys' Decapitator here (www.soundtoys.com) because it has a setting (A) that models a tape drive used at both Stax Records and Chess Records' studios. However, any similar saturation plug-in will do. (Audio: **MotownWarm.wav**.)

POWER TIP

>Go classic

When we were processing Ilana's vocal, we used software emulations of some classic hardware units; specifically, Universal Audio's 1176LN compressor and Pultec EQP-1A equaliser. We did this to add some character to the sound, but don't feel that such things are absolutely essential in order to get that classic soul sound. You can produce great results using any number of plug-ins, so just go with your favourite effects and push them as hard as you can.

Pop power

Pop encompasses so many different forms and styles that the question of what constitutes a 'classic' pop vocal sound can be a rather open one. Fortunately, whether it's 80s power pop, 90s ballads or modern club bangers, there are a few things you can do to instantly capture a powerful pop vocal sound that would be right at home in any era – and on any chart.

For the most part, pop songs are designed to be heard through radios and huge speaker stacks – systems not known for their dynamic range. In other words, if you're mixing a powerful pop song, preserving the dynamic qualities of the vocal is less important than it would be in many other genres. What's more important is getting a sound that's big, forceful and unmistakable, and that can stand up to busy, compressed pop production. This is easier said than done – especially when you consider that pop backing

tracks can run to dozens of different elements, all of which need to make room for the vocal.

Many chart hits today involve the vocalist being Auto-Tuned, corrected and artificially backed up until there's almost nothing of the original left. We advise staying away from that sort of thing for the most part, but sometimes it can be a good thing to make your track's vocal sound ever so slightly artificial. That's why Auto-Tune is so popular, after all, and why doubling and delaying vocals to create a metallic sound can work so well for this kind of production.

Even Beyoncé's amazing voice benefits from a little EQ, compression and delay



> Step by step

Classic pop vocals



- 1 > Try to avoid any major EQ bumps with your pop vocal. A low cut around **50Hz** is always good, as is a slight boost at the very top. Far more important is compression, and the first thing you should do is apply a compressor as an insert effect. Don't go too hard at first: keep the **Ratio** between **1:2** and **1:4**, and the **Threshold** fairly high.



- 2 > To get that ultra-compressed sound, let's apply some parallel compression. Create an auxiliary channel and send your main vocal to it, making sure the send is pre-fader. On the aux track, add your choice of compressor and go hard, pushing it until there's at least 10dB of compression taking place. Play with the send level until you get a big, powerful sound. (Audio on the DVD: **DoubleComp.wav**.)



- 3 > Big doesn't necessarily mean harsh. You might find (as is the case with our example audio) that parallel compressing your vocal makes it a little sibilant, which isn't what we want. We use Digital Fish Phones' Spitfish (www.digitalfishphones.com) to smooth things out a little, sweetening the vocal up a touch.



- 4 > Now that you've got the basic, big sound down, you can point your vocal in the direction of the style you're aiming for. For example, here we're using reverb to get Mink! sounding properly 80s, cranking up the **Reverb Time** and dialling down the **Pre-Delay** to get something that wouldn't sound out of place on a synth love song. (Audio: **80sPop.wav**.)



- 5 > Going for something more modern? Lower the reverb a little, then add some delay (we like Loomer's Resound VST – www.loomer.co.uk) and bang in a harmoniser. You don't want to push it too hard, as all you're going for is a clean, metallic effect, but it shouldn't take much tweaking before you've got a chartable sound. (Audio: **ChartPop.wav**.)

POWER TIP

>Electro wire

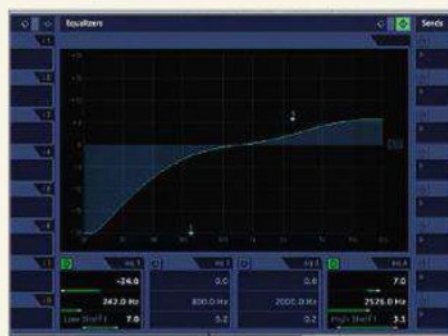
If your pop song has a serious electro or dance vibe, it may be worth doing some subtle doubling of the vocals. But rather than getting your singer to perform numerous takes and then layering them up, duplicate the track a couple of times and shift the audio very, very slightly (zoom in if you need to). This will produce a slightly robotic-sounding voice that will be right at home on top of a pounding dance beat.

> Step by step

Classic rock vocals



1 > Rock vocals come in so many different shapes and sizes that there are no set rules for processing them. However, there are still some general techniques you can apply to get the foundations right. We've got a big vocal to play with here - which is a good place to start!



2 > To get a powerful vocal like this sounding suitably rock-like, you need to be aggressive. We EQ it, boosting the highs dramatically and cutting out a good chunk of the lows. We need our singer coming in nice and hot, and this will do the trick. (Audio on the DVD: **RockEQ.wav**.)

POWER TIP

>Dirty things up

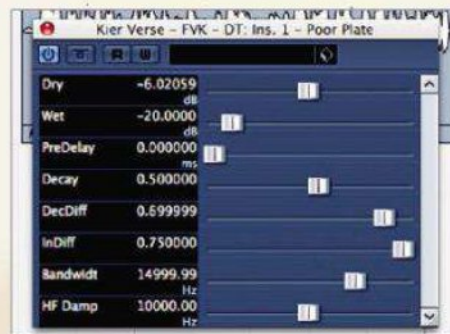
Nickelback get a lot of flack in the rock community, with people often criticising Chad Kroeger's vocals as sounding mushy and uninteresting. Whether they're right or wrong, the controversy proves a point: when you're processing your rock vocals, make them sound as distinctive and interesting as possible. The vocals might sound slick, clean and professional, but if you really want your rock song to stand out, you'll need to dirty things up a little.



3 > Likewise, you can hit the compression really hard to get a powerful, pumping vocal. We go for a **Ratio** of just below **5:1**, with slow **Attack** and medium **Release**, and a good dose of **Make-Up** gain. A limiter probably wouldn't hurt either if your singer has a big voice. (Audio: **RockComp.wav**.)



4 > Nothing will help you get a classic rock sound quicker than putting your vocals through some distortion. NI's Guitar Rig 3 (www.native-instruments.com) works great on guitars, but is just as effective on other sources, including vocals. We use it as a send effect to give our singer a bit of crunch. (Audio: **BigJim.wav**.)



5 > Sometimes things are a bit less intense and you need to tone down that huge sound a little to preserve the dynamics. We switch vocals to something quieter and with more dynamic range, then pull back the processing a little, and add some reverb. (Audio: **FKV.wav**.)



6 > Aiming for an old-school, 60s-style vocal? Layer a couple of different takes, then EQ out the highs and lows and boost the mids. You won't need a huge amount of compression, but a little reverb and delay will go a long way towards achieving this effect. (Audio: **1960Rock.wav**.)



7 > No guide to rock vocals would be complete without some demonic metal. We turn our first vocal into a seething hell-beast by layering up a number of different compressed vocal takes and sending them all to an auxiliary track with Guitar Rig 3 loaded onto it. We also spike the EQ at around **80Hz** to give it some grunt. (Audio: **Metal.wav**.)

POWER TIP

>Twice 'verbed

Unless you're going for a serious stadium rock effect, huge reverb on your rock vocals can sound out of place. But you can create some really interesting, textured reverb by inserting two reverb units on your vocal track. The settings don't have to be extreme - they can, in fact, be very low-key - but if you're looking to recreate the sound of groups like Oasis and Blur, this technique can work wonders.

Jazz it up

Jazz musicians tend to give their vocalists a lot of space – and we're not talking about the distance between them in the studio. Because classic jazz tracks tend to be gentle, textured and soft, it's a lot easier to pick out the subtle qualities of a singer's voice. In other words, if a vocal is treated poorly, the listener is certainly going to know about it!

Getting a classic jazz vocal sound isn't too difficult, provided you stick to a few basic principles. The first thing to be aware of is that you're trying to keep the singer's voice as natural as possible. When you do add processing to it, you're trying to bring out – rather than mask – its natural qualities. So when you're adding, say, reverb to the vocal, you're going to want to stay away from the more intense settings. If you think the listener will be consciously aware of the added reverb, dial it back.

It's by no means a concrete rule, but try to steer clear of any plug-ins that actively colour the sound. For example, a transparent EQ is better in this case than one that adds its own character. Better, but again, not essential: as long as you've got a decent EQ that doesn't actually advertise that it adds colour to the sound, you'll probably be OK.

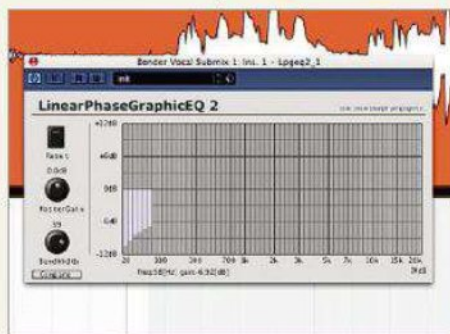
Compression is a consistently thorny issue in jazz mixing, with some engineers arguing that it shouldn't be used at all. By avoiding it, they say, the natural dynamics of the performance are preserved. We say, use your ears: if you think your vocalist would benefit from a little compression, go for it.

Great jazz vocals, like those of Nina Simone, are natural and soulful

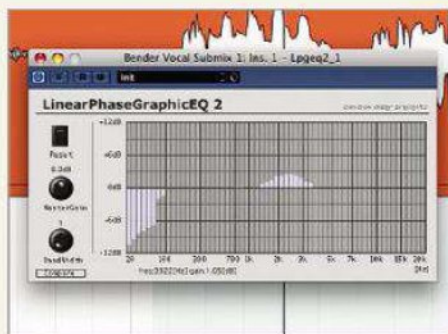


> Step by step

Mixing jazz vocals



1 > Let's EQ things first. Our plug-in here is the linear-phase Slim Slow Slider LPGEQ (www.apulsoft.ch/freeports), but you could use any transparent EQ. To begin with, there's a tiny bit of low-level hum here – something you'll find prevalent in a lot of jazz vocal material – so we cut everything below **50Hz** to smooth things out. You might want to lose some off the top, too.



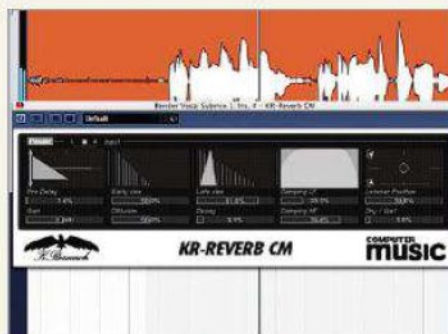
2 > You'll rarely want to boost the highs with jazz vocals – doing so can make things a little too hot, and what you're aiming for is smoothness and clarity. Here, we create some gentle boosts in the mid-range. We also boost a couple of decibels between **1.3** and **3.5kHz**, which will help to lift the vocal out of the overall mix. (Audio on the DVD: **JazzEQ.wav**.)



3 > We choose to use some compression here, just to catch the peaks of the vocal. We're extremely light-handed; though, opting for high **Threshold**, low **Ratio**, and generous **Attack** and **Release**. We're not looking to fatten the vocal; just to keep it at a consistent level throughout.



4 > Instead of compression, you might want to use some warming with an amp or distortion plug-in. In some cases, this can be very beneficial to the sound and the overall ambience you're trying to create. We insert a TAL-Tube plug-in (www.kunz.corrupt.ch) and disable our compression; running both at once would colour the sound a little too much. (Audio: **WarmJazz.wav**.)



5 > Although we don't really need to use it here, reverb on jazz vocals is one of the best ways to enhance the sound. However, it's also one of the easiest things to overdo. One good tactic is to mix in a natural-sounding, noticeable reverb, then bring down the **Dry/wet** setting until it's only just audible.

POWER TIP

>Keep it in

Before you go to town getting rid of all those clicks, pops, breaths and other odd noises recorded with your vocal, remember that such artefacts were intrinsic to a lot of classic jazz recordings. In many cases, they add something extra to the sound. You don't want noise obscuring your vocalist, of course, and sometimes you may need to use deessers and the like to clarify things, but non-vocal noises – particularly breaths – are often essential to a vocal's character.

> Step by step Using gates creatively



1 > Gated reverb on a vocal shuts off all the reverb as soon as they stop singing. Kings Of Leon, Peter Gabriel and Phil Collins have all used this effect, and it's really easy to create. Once you've got your vocals otherwise sorted, create an auxiliary track with your favoured reverb unit loaded and bus the vocal to it.



2 > Make sure the reverb is the first unit in the effects chain, and that it's set to **100% Wet**. Now, add a gate directly after the reverb. Make sure the **Threshold** of the gate is at maximum: there should be no reverbed signal getting through at all.



3 > Sidechain your gate to the vocal track. We're using Logic's built-in gate, as it has a convenient sidechain option. Now, experiment with the **Threshold** and **Reduction** of your gate, as well as the **Attack** and **Release** values. It shouldn't take too long before you get something that sounds natural and crisp. (Audio on the DVD: **GatedVerb.wav**.)

> Step by step Hide and Seek-style vocals



1 > Although it's mostly referred to as a vocoder track, Imogen Heap's *Hide And Seek* actually uses a hardware harmoniser to thicken and mutate her vocals. Although getting the exact effect without hardware is tricky, you can still achieve a similar effect in your DAW. First, record numerous takes of your vocal.



2 > You could use a real-life harmoniser, but if you want to replicate Heap's technique, you'll get better results from combining several dramatically pitch-shifted takes. We use Celemony's Melodyne (www.celemony.com) to create variations in the pitches. (Audio on the DVD: **PitchSwitch.wav**.)



3 > Try lengthening or shortening different sounds using your plug-in, panning the material, automating the levels or even adding a vocoder to one or two tracks. Let the material dictate how far you push things – you should find that you get a crazy vocal effect really quickly. (Audio: **HeapEffect.wav**.)

> Step by step Kanye West-style layered vocals



1 > Combining harmonising with layering and other effects is a good way to enhance a standard vocal, as Kanye West does on *My Beautiful Dark Twisted Fantasy*. First, combine several different takes of the same vocal – it's preferable if they're sung at different pitches, but not essential.



2 > We're using Stillwell's CMX harmoniser here (www.stillwellaudio.com). On each track, we add different settings. The goal is not to create something that sounds completely natural; rather, it's to make sure that the vocals sound metallic and slightly artificial. (Audio: **LayerVocal.wav**.)



3 > To get the slightly discordant flavour of Kanye's music, such as that found in *Lost In The World*, add different effects on each track. We go for chorus, octave and phaser, all with varying settings. There are no concrete rules – play around for some wild effects. (Audio: **KanyeEffect.wav**.)

ZERO-G PRESENTS

EXCLUSIVE DOWNLOADS

EXS24
INSTRUMENTS

ACIDIZED
WAV FILES

AIFF
APPLE LOOPS

REASON
NN-XT

KONTAKT
INSTRUMENTS

THE PARADISE SESSIONS

A sublime 1.3Gb collection of smooth and funky house featuring a range of styles from abstract Latin to jazzy, deep and funky gospel. With 35 massive construction kits plus additional drum and piano loops and guitar phrases, The Paradise Sessions is packed with soulful 24-bit sounds in multiple formats.

£60.95



GET
20% OFF
USE PROMO CODE:
CMPARADISE
OFFER EXPIRES
10th APRIL 2011



Urban Legend

Almost 8000
Hip Hop & RnB
samples.

£81.95



Animato

String and Flute
FX for Games,
Soundtracks & TV.

£91.95



Alien Skies

Emotional and
evocative timbral
experiences.

£91.95

"With Zero-G you can expect quality." - *Sound on Sound magazine*



Over 1,000 sample libraries
available to download 24/7

www.timespace.com

The trouble with treble

A properly handled top end can make your whole mix shine, but it's an area of production that can be a minefield. Here's our in-depth guide to tackling those troublesome highs...



> **Anyone who's old enough to remember owning a traditional hi-fi system will probably admit to having reached for the treble control at some point. The appeal of top end sheen is so universal that consumers have come to expect a high frequency/treble control on just about every player, speaker, mobile, TV and dishwasher. OK, that might be a bit of an exaggeration, but manufacturers do love to include them wherever they can.**

Consumers have a similar love affair with bass. Most devices with explicit bass and treble controls incorporate them in place of more flexible EQ, but there's no denying that bass and treble fulfil very different roles. There's something magical that happens when those sparkling high frequencies are mixed just right. Music tends to adopt a subjective presence, clarity and excitement. Snares snap, cymbals sizzle and vocals seem larger than life.

However, a carefree approach to boosting the high frequencies on anything and everything simply isn't effective. Perhaps you've attempted that already and your mix has suffered an array of unwanted side effects, while gaining very few of the elusive qualities that you were aiming for.

The treble frequencies can play host to all kinds of mix issues, including a harshness that we find irritating or fatiguing, so there are definitely pitfalls along the way. These issues give the engineering task of treble manipulation near-arcanic status, and inexperienced producers often resort to 'shot in the dark' style approaches to overcome a lack of real control.

Our aim here is to lift the veil and demystify treble - an area that's far too often neglected. In this tutorial, you'll learn how to get the most out of your sounds and produce a bright mix, as well as how to suppress or completely avoid issues at the top end.

Comparative listening

You may have noticed that the top end of a given mix sounds different from one playback system to another. The various ways in which different sets of speakers and headphones represent the treble frequencies can be unpredictable. This disparity is compounded by a multitude of potential issues that the listening environment itself can contribute across the frequency spectrum. If you're serious about treble then you must get serious about your monitoring situation.

Most of us can't afford the best speakers money can buy, let alone an ideal, acoustically treated space to use them in. The next best thing you can do is to take your mix for a

walk. So, listen to it on as many varied playback systems as you can. It's essential to take a selection of high-quality commercial mixes with you to reference as well. The important thing is to listen carefully and take note of the differences between systems, so that you can learn to better compensate for the strengths and weaknesses of your main setup.

Remember, also, that our perception of the treble and its relationship with the rest of the frequency spectrum is radically and non-linearly altered by playback volume. This throws something of a curve ball into the court, but you can dodge it by

Try your mix on as many different systems as possible to get a broad overview of how its frequencies behave

constantly crosschecking with good reference material, making sure that the listening levels are matched as closely as you can get them.

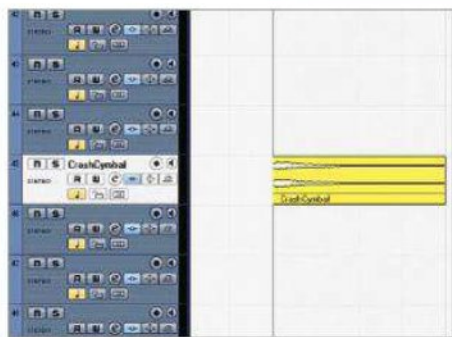
Using these cross-referencing methods, you'll effectively increase your awareness of issues in the top

end and train your ears to become more sensitive to them. This means you'll feel compelled to take action on details that you weren't even consciously aware of before. Eventually you'll get to the point where you've developed habits to deal with problems as you go along.



> Step by step

Subtractive EQ



1 > Import the file **CrashCymbal.wav** from the **cm** DVD into your DAW. It sounds pretty good already, but we can reduce some of the harsh resonance in the treble to make it sound smoother, cleaner and less protruding. This should help it to blend into pretty much any mix.



2 > Make sure your main output isn't too loud before following this next step. Open an EQ on the crash cymbal's channel. Boost between **6** and **12dB** with a narrow **Q** width using a bell shape (rather than a shelf), and slowly sweep down from the top of the frequency range until you find an area that sounds unpleasant.



3 > Once you've found the offending spot, reduce the boost until it becomes a significant cut. You may find that sliding the frequency left and right very slightly reveals the perfect spot to cut. Boosting helps you to identify the approximate area, so it makes sense to fine-tune the frequency and Q width as you cut it.

POWER TIP

>Keep your perspective

Try not to spend too long EQing any one sound, because your ears will adjust to the changes and you can very easily lose your perspective. If in doubt, less EQ is almost invariably the safer bet. If you find that your sound requires drastic EQ, it's probably time to reconsider whether you've actually made the right sound choice. Refer to a good commercial mix for help deciding whether to look again.

Watch the volume, too: monitoring at moderate levels helps to safeguard your health and minimise ear fatigue. Rest your ears a lot, especially after any process that requires slightly louder sound.



4 > Repeat this process with another EQ band for the next nasty spot as you sweep down the frequency spectrum again. We're using the EQ from iZotope Alloy, which has a handy spectrum analyser built in, but you could use Blue Cat Audio's FreqAnalyst CM, which is in the **cm** Studio on the **cm** DVD. Often you can actually see the obnoxious resonant peaks before you start EQing.



5 > You can keep repeating this process to continually clean up the sound. The results should be subtle. We don't want to change the character of the source signal too much; we only want to get rid of anything that makes it difficult for other sounds to compete in the mix.

> Step by step **Multiband distortion**



1 > Load **OldskoolHousePiano.wav** from the **cm** DVD and have a listen. Stylistically, it fulfils its intended role, but the piano patch used is a bit too meek - certainly not as sharp and chunky as the classic house pianos of the 80s and 90s.



2 > In the spirit of old skool, we're using Steinberg's QuadraFuzz, a legacy plug-in from the early days of VST that's still available as additional content with Cubase. We use the second shape option and boost the input of the top frequency band, moving it to where it sounds good.

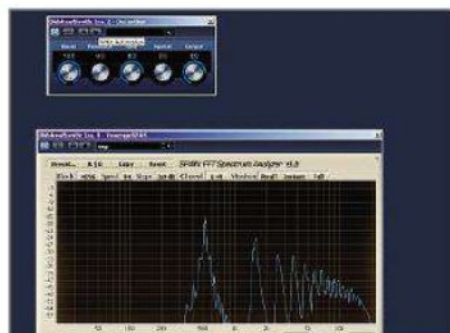


3 > To help to highlight the high end, we also boost the second highest band a bit, but pull down its handle, essentially tightening up that area. A small drop on the next band down helps to even it all out. We also drop the **Output** to restore a decent working level.

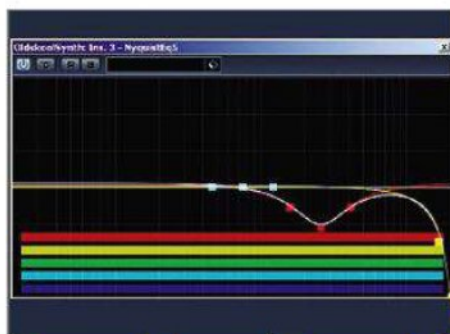
> Step by step **Full-band distortion and EQ**



1 > You'll also find **OldskoolSynth.wav** on the DVD. It sounds like it has a lot of character, but it definitely doesn't have much treble with which to cut through the mix. Looking at it on a spectrum analyser reveals that there's almost nothing there that you could boost with an EQ.



2 > Adding a simple distortion plug-in and recklessly driving it to the limit magically solves the problem. Always remember that distortion creates harmonics. Sometimes it will work in your favour and sometimes it will work against you, but this is the same principle that cured the piano above.



3 > Once you've created some treble frequencies to work with, you can further sculpt the sound with EQ. We're using the free NyquistEQ by Magnus (magnus.smartelectronix.com), which has been specifically coded to deal well with high frequencies in ways that the average digital EQ can't.



4 > When you're processing something this radically, it's essential to constantly compare your worked-on sound to the dry signal you started with. Use the Bypass function in your DAW's mixer to remind yourself of where you started. In this case we're satisfied that we've added what was needed.

The dangers of distortion

There are many reasons why we tend to love saturation and distortion. Under the right circumstances, sounds benefit from added harmonics, becoming subjectively richer, fuller and sometimes even clearer. However, distortion can also riddle a signal with all kinds of unwanted effects.

Our primary concern is with the build-up of high-frequency content that threatens to mutilate the treble, over-packing it with harsh and fatiguing noise that's unpleasant to listen to and masks other sounds in the mix.

Secondly, the dynamic shape can be disfigured, mostly compromising attack transients, but also misshaping certain timbres beyond recognition. A distorted snare might sound nice and bright, but struggle to cut through the mix without its dynamic identity.

Background noise, rumble and hiss that might have been inaudible to start with can become a huge problem after being inflated by medium to heavy distortion.

While in theory there are potential solutions for just about everything, such extreme unwanted effects might be impractical to repair. It's prudent to use non-destructive editing when testing out distortion, so that you can retrospectively avoid damaging the signal. You should minimise these effects by avoiding overuse, but you also need to be prepared to combat them when they arise.

Unwanted treble

When mixing in the digital realm of the modern DAW, problems are more likely to occur with too much high end than too little. Often, the outputs of soft synths extend to the top of the available frequency range, which presents a few potential problems.

Firstly, acoustic instruments and other sounds in the natural world tend to have their treble attenuated by the time they reach our ears, and get brighter the closer they are to us. A sound that's not supposed to be right at the front of the mix but has too much treble won't have a well-defined space in the mix in comparison to other instruments. Soft synths can be a little too pure in that respect, confusing our perception of depth in the mix and thus jeopardising any chance of good separation.

Secondly, the sample rate of any digital format not only caps the maximum frequency at half the sampling rate (known as the Nyquist frequency), it also introduces increasing amounts of distortion the higher up the frequency spectrum you go. Eventually this leads to aliasing artifacts - phantom sounds that are inadvertently created by attempting to surpass the Nyquist frequency.

> Step by step Take away harshness



1 > Load **WobbleBass.wav** from the **cm** DVD. This loud and obnoxious sound suffers from irritating frequencies in the top end that we need to tame. Using a static, traditional EQ would probably dull the sound down too much. We just want to suppress the harshness without losing too much excitement.



2 > Spitfish is one of our favourite free plug-ins (grab it in the Fish Fillets pack at www.digitalfishphones.com). Switch on **Listen** mode, adjust the **Tune** to the sharpest spot and carefully place the sensor at a point where it jumps up and down with the wobbles.

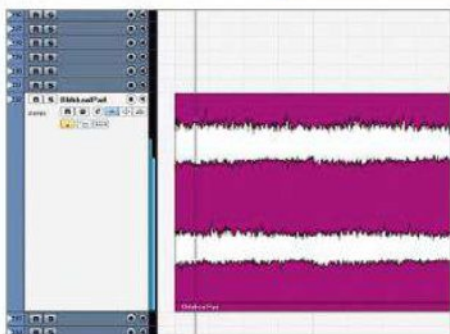


3 > Now switch off **Listen** mode and listen to the raw sound for a short while to let your ears readjust. Turn the **Depth** knob until it gives you a satisfying sound. Again, aim for clean and subtle. If it doesn't fix the sound in one go...



4 > ... then load up another Spitfish and repeat the process. If you're unsure where to tune a de-esser to in this context, tune lower rather than higher. You want to reduce harshness without losing too much of the extreme high end, which is important for presence and detail.

> Step by step Smoothing the top end with noise reduction



1 > On the **cm** DVD you'll find **OldskoolPad.wav**, which sounds like it was programmed with white noise as part of the tone. In fact, we made it in Albino 3, and it features two rich saw oscillators in unison, a square oscillator with symmetry modulation, and a resonant filter with envelope.



2 > Waves X-Noise is designed for noise reduction, so it's excellent for noisy treble that needs to be smoothed out. We start by setting **Reduction** to maximum, **100**. Next, we slide the **Threshold** up and down until it sounds good. In this case, **25** hit the spot.



3 > Now we can experiment with the **Reduction** amount and **Resolution**. A low **Resolution** sounds interesting, but in this case leaves too many harsh resonances behind. A high **Resolution** sounds nice and textured. Next, slide the **Reduction** down until you find an effective area. The result should have a beautiful, analogue-like texture.

Tips and tricks for better top end

KNOCK THE RATE DOWN

Sometimes a sound with questionable top end sounds better if you reduce its sample rate. You can do this by resampling a 44.1kHz file as a 32kHz or 22.05kHz file, or by using a dedicated plug-in. One outstanding example is Decimort by D16: it's extremely flexible and includes distortion, bitcrushing and filters, too. With the filters disengaged, it can also be used to create treble, but be careful not to leave too much mess up there.

PITCHSHIFT THE SAMPLE

When working with a sample, pitching it down shifts its frequency content downwards. This can make room for other sounds higher up, but it's not a solution that works in every case. Likewise, pitching a sample up shifts frequency content upwards, helping to fill out parts of the spectrum that it didn't previously reach. Try taking a copy of a dull snare, pitching it up and then mixing the pitched-up version with the dry signal. You may need to remove some of the lower frequencies from the high layer.

DIVE INTO WHITE NOISE

Many synths include a white noise generator. White noise is unique in that it theoretically uses every frequency in the spectrum. There's no shame in layering a burst of white noise over a hi-hat sample and shaping it with EQ so that it only contributes what the sample is lacking. Also, if you want to make a lead synth stand out above everything else, get busy with its white noise oscillator.

KILL CLICKS

One issue to look out for in the treble area is high-frequency clicking. Keep your ears open for sounds that are supposed to sit in the background but unintentionally exhibit

bright clicking that reaches into the foreground of the mix. Use envelopes, transient shaping, fades or filtering to hide the clicks and push that sound back into the mix, where it belongs.

CUT THE MUD-RANGE

Often a sound's treble content is hidden by too much bloat in the muddy lower mid-range. A cut between 200Hz and 800Hz can be all that's needed to reveal the signal's true brilliance. This problem is usually caused by the fundamental frequencies of the notes that are being played: these tend to be much louder than the harmonics, which determine the timbre of the instrument. If you're using a synth, you can minimise this problem by using a gentle high-pass filter with key-follow.

WIDEN YOUR SOUNDS

At lower frequencies, we find it harder to perceive a sound's placement in the stereo field. However, as you go higher up the spectrum, stereo spread brings separation and helps to increase a sound's perceived size. It's a good idea to keep the very top end quite wide. Try panning two hi-hats hard left and right, making sure that their frequency content is roughly the same. Do the same for tambourines and other high-frequency percussion.

ADD ANOTHER LAYER

If you need a part to be brighter and cut through the mix better, but processing isn't working, try adding a brighter sound in unison. Perhaps the layered sound will work better in a higher octave, although that's not necessary. If you're layering a sound for brightness, try to cut away as much of

anything you don't want it to add as possible and mix it in gently.

TRY MULTIBAND COMPRESSION

Multiband compression works in a similar way to multiband distortion. To brighten a signal, tighten up the top band and suppress the area just below it. Minimise harsh spots or excessive treble by compressing those bands with a high Ratio and fast Attack and Release times.

USE PARALLEL PROCESSING

It's easy to go over the top with heavy-handed techniques such as distortion and sample rate reduction. Any process that has a detrimental effect on the sound can be layered with a raw (or differently processed) copy. This doesn't always work, but it's worth a shot if you want a more natural result.

DIY SPLIT-BAND PROCESSING

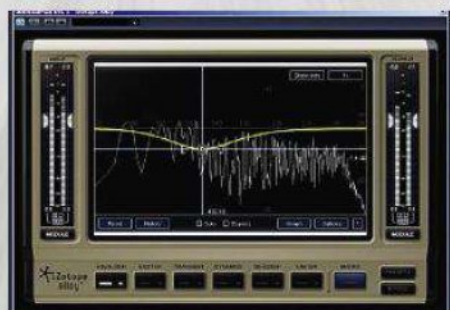
You can achieve many effects with multiband processing. Take two identical copies of a sound and use a steep high-pass filter on one and a steep low-pass filter on the other, both at the same cutoff frequency. You now have separate control over two bands. You could clean up top-end mess with a smooth phaser while keeping the main sound intact. **cm**



Employ multiband compression to tighten up specific parts of the spectrum without affecting others



To tidy up a messy top end, try lowering a sound's sample rate from 44.1kHz to 32 or 22.05kHz



A mix's treble content is often masked by a swamp of sound in the mid-range. A simple EQ cut can work wonders when that happens

Live
and
Unsigned

THE UK'S BIGGEST
NATIONAL MUSIC COMPETITION
FOR BANDS AND ACTS

SEE THE BEST
UNSIGNED ACTS IN YOUR AREA
GET YOUR TICKETS **TODAY!**

go to www.musicradar.com/live

PLUS...

Headline support
from signed artists,
including:



CANCER
BATS

Sunday 17th April
Beck Theatre, **Hayes**



DUB PISTOLS

Saturday 16th April
Hove Centre, **Hove**



Sunday 10th April
NEC, **Birmingham**

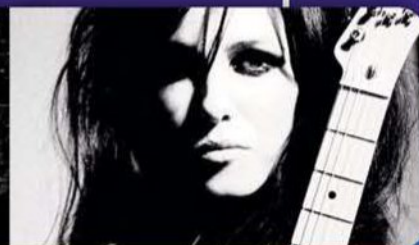
PEGASUS
BRIDGE

Sunday 27th March
Dewsbury Town Hall,
Dewsbury



Sandi Thom

Sunday 20th March
The Coal Exchange, **Cardiff**



ATTACK! ATTACK!

Sunday 27th March
Dewsbury Town Hall,
Dewsbury

FESTIVAL FINAL
AT THE 02
Saturday 23rd July



MORE ACTS
TBC...

www.musicradar.com/live

to get your tickets and information on all the regional finals

GEAR SPONSORS

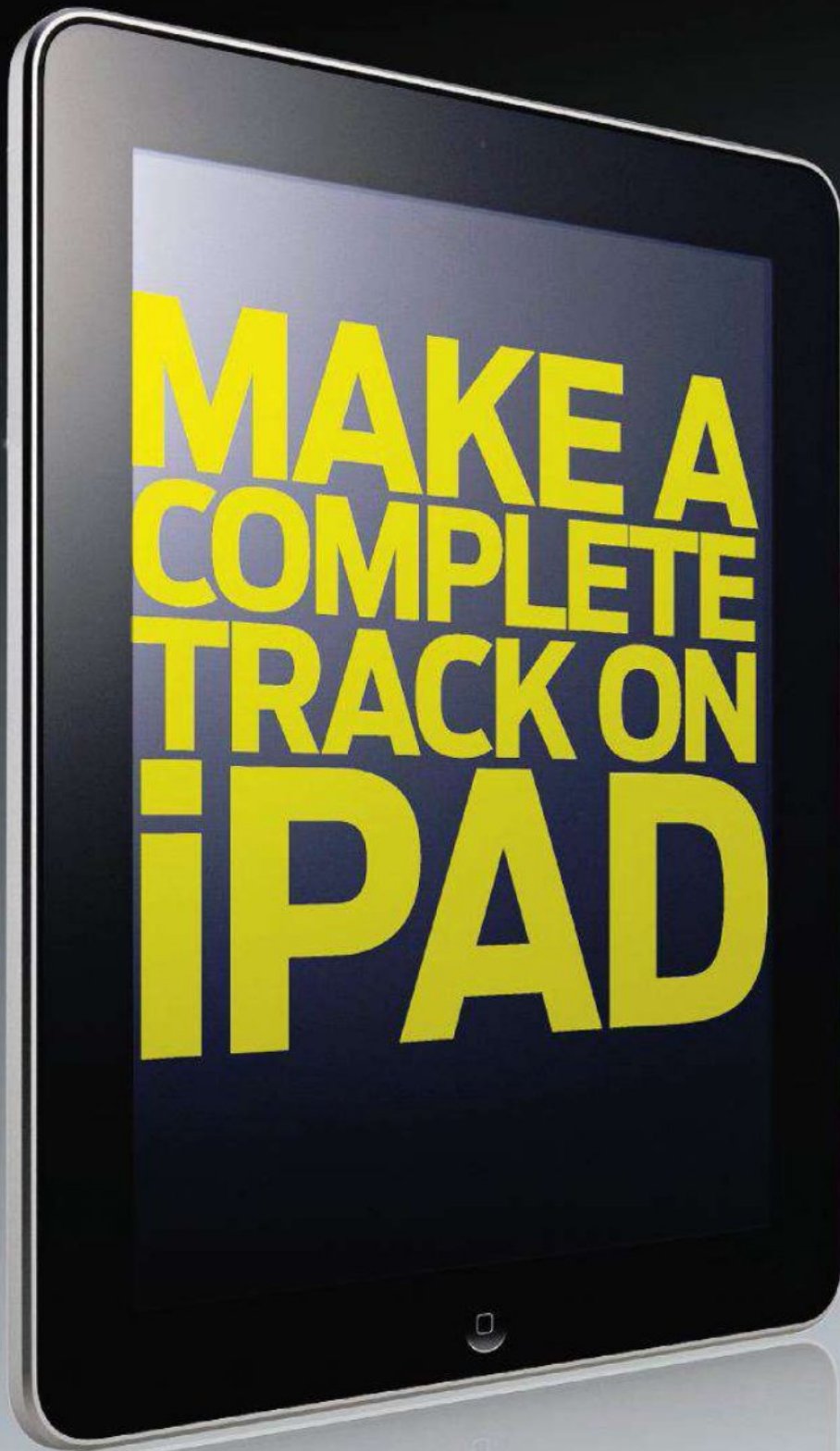
Blackstar[®] tc electronic  TC-HELICON



musicradar.com[™]
The No.1 website for musicians



As its huge presence at this year's NAMM show proved, the iPad is very much here to stay as a music-making platform – but can you really create a whole track with it?



> **There's no denying the popularity of the iPad. It's super-hot property, inspiring lust in a veritable army of tech-heads and kickstarting a flurry of follow-up me-too products from Apple's competitors. Yet as popular as it is, there are still naysayers out there – people who are all too quick to proclaim the iPad a toy and question its suitability for proper musical production.**

To a certain extent, the grumblers may be right – but not for the reason they think. The iPad is a very powerful device; in many ways, more so than the DAWs of only a few years ago. It has the grunt, but it is still in its infancy, so although there are hundreds of musical apps out there, only a few of them offer the tools that desktop producers have come to expect. Moreover, Apple have thrown a few spanners in the works regarding interfacing with the outside world.

Nevertheless, some intrepid developers have jumped in at the deep end, providing powerful production tools for the platform. There are beatboxes, modular synthesisers, sequencers and even a number of multitrack recorders available in the App Store. While in some cases they pale in comparison to their desktop analogues (no pun intended), some of them rival or better anything on the market, for all platforms. Korg's iMS-20, for example, packs in far more features than the plug-in modelled on the same classic instrument.

And again, it's early days. Developers are updating their apps at a furious rate to meet the demands of their users, and many of them know exactly what it takes to turn the iPad into a proper music production workstation. It's quite exciting to watch this activity as the platform begins to mature into adolescence. We can't help but feel

that we're witnessing the rumblings of a revolution in computer-assisted music production, and we're inclined to jump the gun, pushing our iPads to the very edge of their capabilities in an attempt to prove that they are indeed viable for serious composition.

With that in mind, we present an in-depth tutorial to guide you step-by-step through the processes required to create full, professional tracks on your iPad. We'll check out some of the best apps available and put 'em to the test: drums, synths, and real-world instruments are all game. We will, of course, encounter a roadblock or two – and so we'll show you how to leap over them with crafty workarounds. By the time we're through, we'll have a complete, produced arrangement to show for our efforts. So, make sure your iPad is carrying a full charge, and let's get started!

Copycats

Our beloved iOS is still teething, and there's much room for improvement, especially when it comes to standardisation between apps. At the very least, since we've no way to interconnect apps, we'd like to see a global standard adopted for copying and pasting audio data. This last point brings us to a fork in the road. Our goal is to create a full production on the iPad without resorting to the facilities of our desktop computers. Should we make an exception when it comes to shuttling sounds around? Some of our favourite apps allow files to be copied only via iTunes and a connected computer. In general, we'd say yes – but for this tutorial,

we're going to insist on staying inside the iPad.

At this juncture, there are two flavours of internal copy and paste on the iPad. One comes to us from Intua, makers of BeatMaker. As of iOS3.0, Apple have provided pasteboard functionality, and Intua's UIPasteboard uses this functionality to allow the trading of audio files and samples between apps. Lots of developers have got onboard, some implementing both copy and paste, while others support only one or the other. For instance, Harmonic Dog's MultiTrack DAW allows copying and pasting, while instruments like Rolf Wöhrmann's NLog Synthesizer and VirSyn's

IVoxel only allow the copying of files recorded from within those apps.

The trouble with the Intua format is that it only allows very basic copying and pasting – a single file at a time. This is fine for shuttling recordings back and forth, but not so hot for moving lots of samples between apps. That's where Sonoma Wire Works' AudioCopy and AudioPaste come in. Sonoma's variant supports up to 12 files in the pasteboard history at a time, each with audio previews. The AudioPaste Clipboard displays file info and even allows you to paste in multiple loops. This makes way more sense when dealing with sample-based apps.



ReForge is one of many apps that have adopted AudioCopy and AudioPaste

Support for AudioCopy and/or AudioPaste can be found in several apps, including Chris Wolfe's Jasuto Pro, Sonoma's InstantDrummer and StudioTrack, Beepstreet's iSequence and Sound Trends' Studio.HD.

> Step by step

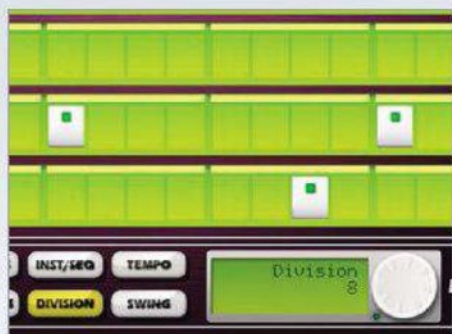
Programming beats in Molten Drum Machine



1 > We're using lots of different apps to make our song, and shuttling data between them. Let's start by creating a basic programmed drum track using Molten Drum Machine. There's no shortage of drum machines for the iPad, but we're keen on this one, with its cool approach to beat division. Tap the **Settings** button and clear the current pattern.

2 > Touch the **Tempo** button and use the **Data Entry** knob to change the tempo to **125**, then tap the **Tempo** button again. Next, touch the **Play** button so the pattern plays as you work. Tap the square in the lower left of the grid to put a kick drum on the first beat. The bottom row of squares is the kick, and the row above it is the snare. Put snare hits on beats 5 and 13.

3 > Let's add another kick drum hit at beat 11. Next, find the row called **Syn HatClosed** and add hi-hat hits at beats 1, 3, 7 and 9. We want to add some machine-gun hats at the end, but the beat division isn't small enough for that. No problem! Tap the line above the last group of four beats in the hi-hat row. It turns orange.



4 > Next, tap the **Division** button. The display shows that the beat is divided into four – use the dial to change that division to **8**. That segment of the grid now has eight rectangles rather than four squares. Tap some hits into the last five rectangles, as we have here. If you ask us, the Division function is one of Molten's coolest features.

5 > Tap the **Division** button to exit that function. It's time to save our pattern, so touch the **Patterns** button, tap **Write** and hit the **+** button. Next, enter a title for your pattern (we called ours **CMSkitter1**). Tap the **Save** button and touch **Yes** at the **Save Existing Pattern** prompt. The pattern will then be saved to Molten's library.

6 > Create another pattern to complement the first. This time, let's tweak the snare drum. Tap the green LED for the snare row and hit **INST/SEQ**. Activate and tweak the filter, adjust the oscillator's **Pitch** and **Duration** and nudge whatever else tickles your timbre. When you have something you like, save this pattern as well. You might also make a third, stripped-down variation and save that as **CMSkitterIntro**.

> Step by step Exporting our beats with AudioCopy



1 > Molten is a terrific drum machine, but we can't build an entire track in the thing - we need to get our patterns out of it and into something more suitable for arranging. Fortunately, Molten supports Sonoma's AudioCopy. So, tap Molten's **Pattern** button and select one of the patterns we just made.



2 > Next, tap the **Export** button at the top of the GUI (this button only appears when you've opened the Patterns browser). A window pops up offering a number of export options. We want to use AudioCopy, so tap that. Molten will prepare the file to be copied and after a short while tell you that it's completed the task.



3 > Now you'll see a window that tells you to select an app to AudioPaste into. We don't want to do that yet. Instead, we repeat the AudioCopy process with our other two patterns. AudioCopy allows us to keep up to 12 files on the clipboard - a great time-saver.

> Step by step Importing our beats into iSequence with AudioPaste



1 > Now that all three patterns have been AudioCopied, it's time to close Molten and open a sequencer. We're using iSequence, one of the most complete sequencers available for the iPad. Let's open it and start a new project. It's in record mode by default, so tap the **Rec** button in the right-centre of the interface.



2 > We want to make a new instrument with our loops assigned to various notes. Touch the up arrow just above the keys to make **New** appear in the display. Now, tap **Edit** to access the Instrument editor. Touch the **Samples** button and then hit **Paste** at the bottom of the window that appears.



3 > The AudioPaste window will open. Tapping the arrow to the right of the source will call up a list of available files. Do this, and find **CMSkitterIntro**, then select it and tap **Done**. This will now be indicated as the source file. Tap **Paste** to add it to the list of samples, and repeat this for all three loops we made.

> Step by step Editing instruments in iSequence



1 > If you're still in the AudioPaste section, tap **Waves** at the top to return to the list. All three samples are now listed. We pasted them in order, so **CMSkitterIntro** is at the top. Tap and hold the preview arrow to be sure it's the right sound. If so, touch the filename to insert it. Repeat this for all three samples.



2 > Tap the **Samples** button to close the list. All three files are displayed on the left, along with their assigned root notes and key ranges. Select one by tapping the filename or playing a key on the keyboard, and it will be shown in the display. You can play a wave by touching and holding the key to which it's assigned.



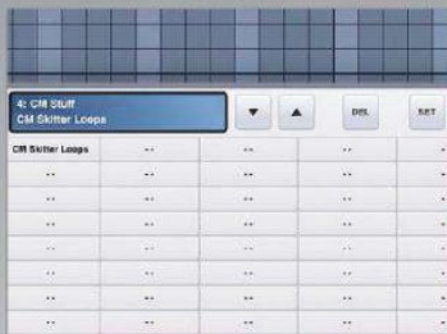
3 > You can select the sample type using the buttons over the waveform display. We're going to leave ours as **Keys** rather than **Loops**, since the latter can only house one sample at a time. Use the Instrument (**EDIT**) display to name it **CM Skitter Loops**. Tap the **Save** button under **Save to Bank** to create a new bank and save your sound.

> make music now / make a complete track on ipad

> Step by step Building and arranging a sequence in iSequence



1 > Now that our loops have been collected as an iSequence instrument, we can begin building and arranging our track. We start with the loops, naturally! Your iSequence project should be blank, showing only a single sequence - 00 - up top. Highlight the top left square and activate Record mode.



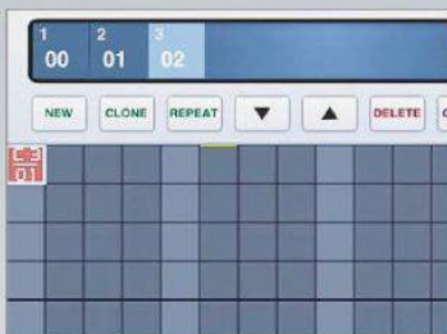
2 > We need to assign our loop instrument to the track. Tap the **Set** button next to the Instrument display and a list of sounds making up one of the factory banks will appear. Tap the up arrow until you get to your new bank (we called ours **CM Stuff** when we saved it). Tap the **CM Skitter Loops** button, then tap **Set** to bring up that instrument.



3 > Use the scroll bar above the keyboard to scroll to the left until you see the C-1 key. Touch and hold that key. Notice that our highlighted square now indicates that it is assigned to the C-1 key. Next, tap the 17th square from the left in the top track row to put the cursor there. Tap your C-1 key again to assign it to that step. Why? Because our loop is only half as long as this pattern.



4 > Tap the **Loop** button (in the transport in the top right-corner) and play the pattern. The timing is off, because iSequence defaults to 120bpm and our loop has a tempo of 125bpm. So, tap the **Mixer** button at the top and dial **125** in on the **BPM** knob. Note that dragging your finger further from the knob's centre gives you finer control.



5 > Tap the **Mixer** button to return to the main view, and click the **Play** button to engage the transport. That's better! The timing matches up nicely. Our 00 pattern now plays our intro loop. Tap **New** to create a second pattern, this one numbered 01. Now, repeat the previous steps to create a second pattern with one of the other loops, and then make a third pattern (02) with the third beat.



6 > Because the transport's **Loop** button is engaged, each pattern will loop until you select another. Let's return to pattern 00. Tap the up arrow above the keyboard to create a new instrument, then tap **Set** and find the **Juno strings** patch in the **Internal** bank. Assign that to our new instrument. Touch the first step in the second track and enter an **E-1**. Enter a **C#1** into the 17th step and a **D-1** into step 25.



7 > That's a good start for an intro. Let's go to pattern 01 and enter the same notes on track 2. This will be our verse pattern. On to pattern 02, which will serve as a chorus pattern. This time we'll enter a descending pattern of **E-1, D-1, C#1** and **A-0** on steps 1, 9, 17 and 25. Next, we need to add some instrumentation. Select a third instrument slot and assign it the **SQR bass** from the **Internal** bank.



8 > Still in pattern 02, enter some bass notes into the third sequencer track from the top. We put in notes that double what our strings are doing, but on the first and third steps of each beat. We also stick in a couple of extra A notes, played an octave higher at the end. You can copy ours if you like, or come up with something that suits you more. Create a bass part for pattern 01 too.



9 > Now, turn off the transport's **Loop** function, go to pattern 00 and tap the **Repeat** button. Next, select pattern 01 and tap **Repeat** three times, then do likewise for pattern 02. To copy and paste a group of patterns, you can tap the **Group** button and then select the patterns you'd like to copy. Use the Group commands to copy and paste them. Finally, tap the **Song** command to name and save the project.

Interface-off

Getting audio and MIDI signals into and out of the iPad is much more of a head-scratcher than it ought to be. The inclusion of CoreMIDI in the recent iOS4.2 update held some promise for us musically minded types, but said update also dealt a crippling blow by reducing the allowed USB power draw when using the Camera Connection Kit. This is Very Bad News for those hoping to use USB devices that require bus power. Oh, it can be done - but not all devices work, and they may need to be self-powered or plugged into a powered hub, which impinges on portability.

So how do you know which audio and MIDI interfaces will

work? That's a very good question, and unfortunately there's no definitive answer. We hauled out a number of USB interfaces and plugged them in both directly and via a powered hub. Nearly every bus-powered audio interface was a no-go without a powered hub, and even then, many of them didn't function or only partially worked. Even some that were self-powered from wall-warts didn't fly. Lexicon Ionix? Nope. Yamaha Audiogram or Presonus AudioBox? No sir. Finally, we found what we were looking for in the form of the old Alesis MultiMix 4 USB mixer. This provides four channels of audio input, two outs and a headphone mix. There are

a couple of preamps with phantom power onboard, and it works with its own power supply. Its small footprint means that it retains some portability, too.

On the MIDI front, we were surprised to find that Akai's iPhone-friendly SynthStation25 didn't work with the iPad. Neither did our M-Audio O2. However, the M-Audio Uno performed well and, in the end, this is the one we settled upon.

Fortunately, there are a number of more agreeable alternatives on the horizon. Akai unveiled the SynthStation49 at this year's NAMM show, designed to work



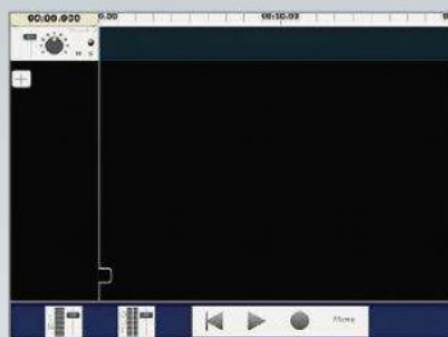
It wasn't out when we went to press, so we couldn't avail ourselves of Alesis' tasty new iPad accessory, the StudioDock Pro, to help us make our track

specifically with the iPad. As well as that, Alesis announced the spiffy StudioDock Pro, which covers both audio and MIDI I/O. We hope that these is just the very tip of the iceberg and that other manufacturers will follow suit.

> Step by step From iSequence to MultiTrack DAW



1 > That handful of tracks is enough to get a general idea of what we can do. If you like, you can add more stuff - we did. After that's done, we need to get our tracks out of iSequence and into a DAW-style recording app. The plan is to do so by exporting individual, soloed tracks. First, tap the **Mixer** button in iSequence.



2 > Now, solo track 1 (the drums). Tap the **Song** button and select **AudioCopy** from the **Export** menu. iSequence renders the track and brings up the AudioCopy window. Name the track and then tap **Copy Audio**. A list of apps into which you can paste pops up. Tap **Done**, then open Multitrack DAW and create a new song.

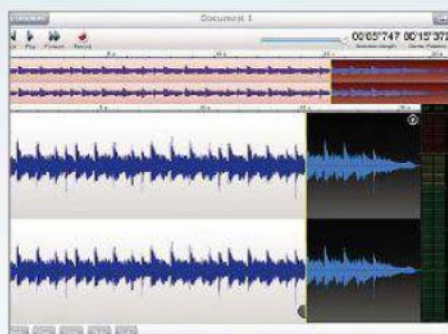


3 > Multitrack DAW will create an empty track. Tap the counter at the upper left, then hit the right arrow that appears in the middle of the GUI. Set the tempo to **125**. Next, tap and hold in the empty track area. A group of commands appears. Hit **Paste** and drag the file to the start position. Repeat this, adding tracks as you go.

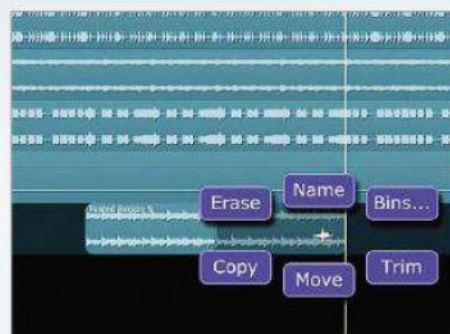
> Step by step Adding and editing instruments with ThumbJam and Twisted Wave



1 > There are lots of sample-based instruments available for the iPad. Many of them are cheap gimmicks with few qualifications to entice pros, but others are pretty good, offering recording and copy functions. We're using ThumbJam to knock together a quick dulcimer part in the same key and tempo as our song.



2 > Before we can paste the part into our DAW, we need to bring it into an audio editor, since Multitrack DAW doesn't yet provide the editing features we need. Put the file into Twisted Wave, normalise it and edit it down to a couple of bars in length.

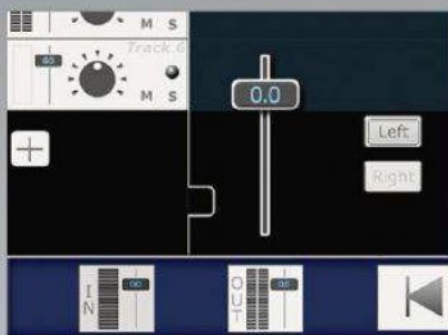


3 > Our next task is to paste the audio into the desired position on a new track in Multitrack DAW. We can then tap and hold on the clip to access Multitrack DAW's editing functions. We trim the clip, move it to the desired position and copy and paste it. Now we have two back-to-back copies that play along with our chorus part.

> make music now / make a complete track on ipad

> Step by step

Recording real instruments in MultiTrack DAW



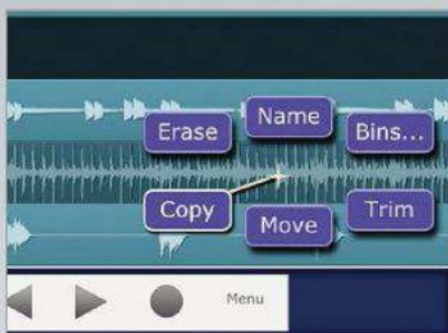
1 > We brought our tracks into MultiTrack DAW because we intend to record some real electric and acoustic instruments. So, we create a sixth track. We want to record in mono, so we tap the **IN** metre at the bottom and deactivate the right input. We keep the level the same, since we're using an external mixer for our recording.

2 > We're using the Alesis MultiMix 4 as our interface, via Apple's Camera Connection Kit. You can see it just to the right of the larger mixer. This mixer allows us to monitor through proper studio speakers or headphones while we work. We want to record an electric bass to track six. First, we practise the part.

3 > Next we tap the appropriate section in the new track to bring up the **Arm**, **Solo** and **Mute** buttons. There's nothing left to do but arm the track, hit the **Record** and **Play** buttons in the transport and let rip. If you need to get rid of a recording, you can access the **Undo** function from the menu in the transport bar.

> Step by step

Adding effects in StudioTrack



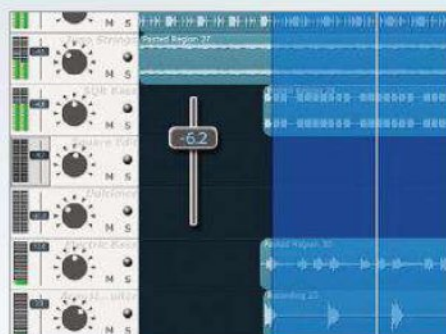
1 > We record two more tracks. One is an acoustic guitar part, recorded with a good mic through a studio-quality mic pre and then into the interface. The other is a shaker part recorded with the iPad's built-in mic. We want to add some reverb to the latter, but MultiTrack DAW has no effects! Copy the clip by tapping and holding it.

2 > The spiffy StudioTrack from Sonoma Wire Works has some decent effects. It only supports mono tracks, but that's no problem here. A reverb is available to the master track and a send on each track. We paste the track in, set the parameters to taste and then copy the main mix back to the pasteboard via AudioCopy.

3 > Since we copied the entire track, including the (relatively) silent bits at the beginning, it's easy to paste our newly processed maraca track back in and align it with everything else. We put it on a new track and mute the old version. When we're satisfied with the new one, we ditch the old track altogether. Easy!

> Step by step

Final touches in Twisted Wave and MultiTrack DAW



1 > We're almost ready to mix our song down, but there's some clean-up to be done! The ending is abrupt and messy, and there's some extraneous stuff from the live instruments after the song ends. We copy some of the tracks over to Twisted Wave and apply fades to the last few seconds, then paste the new tracks in.

2 > Now we've tidied up the ending and achieved a fade-out that we like, we need to see to the extraneous noises. We use Twisted Wave to silence the quiet places in the tracks. We also use MultiTrack DAW's Trim function to truncate each track where there is no material recorded.

3 > Finally, we work on the mix. Tap the **Volume** slider or **Pan** knob for a track to access its Volume and Pan controls. A large version of the control will appear. Turn on the **Loop** function and adjust the parameters to taste. Finally, use the **Mixdown** function in the **Help/Sharing/Upgrades** menu. And there you have it! **can**

OMNISPHERE

POWER SYNTH

1.5



- 700 new patches – now includes a total of 8,000 sounds
- Expanded synthesis capabilities
- Innovative new 'Orb' circular sound manipulation interface
- Plus, introducing Omni TR
 - Touch Remote iPad app free to 1.5 users

Omni TR



Available on the
App Store



"...this product more than upholds Spectrasonics' fine tradition of providing beautiful, creative, practical and playable sounds." - **Sound on Sound**

"...Omnisphere is a phenomenal instrument. It shows what can be done when the power of real, unusual samples is combined with a powerful, multi-approach synthesis engine." - **Future Music**

WWW.TIMESPACE.COM/OMNISPHERE

REX OF JOY THE



You've probably got hundreds of them in your collection, but are you getting the most out of your REX files? We look at the many ways in which the king of sampled loop formats can be deployed

> **Manipulating loops and breakbeats is standard practice these days. Pretty much every major DAW and soft sampler offers tools for slicing beats into pieces that can be quickly rearranged and retimed to fit in with your project. But back in the early days of software sampling, you were on your own, with no other option but to cut your breaks manually. Most samplers only had rudimentary waveforms displays, and many didn't have graphical representations of the audio at all, requiring the user to cut each element of a break via ear and then work out the timing of each slice. Bad times indeed!**

Thank heavens, then, for Propellerhead's ReCycle, which changed the game forever. It could automatically locate each drum hit within a beat, then save out individual slices that could be loaded into your sampler, as well as a corresponding MIDI file for triggering them in your sequencer. Cutting up, layering and quantising complex breaks suddenly became much easier and far less time-consuming, and as music software became ever more capable, support for the ReCycle EXport 2 format (.rx2) – which includes both audio and timing information – became standard in both DAWs and samplers.

The ReCycle software itself hasn't seen a major update in years, but the .rx2 format is still as popular as ever, and is supported by all the major DAWs. Using ReCycle files at their most basic level is as straightforward as using any other samples – you can just drag and drop them into your DAW or sample. In this guide we're going to show you how you can really get the most out of this powerful format, from tightening up your beats using amplitude envelope controls, to deconstructing loops into drum kits. You'll find a selection of REX files to experiment with on the DVD, in the **Tutorial Files\The Joy of REX** folder.

> Step by step Tuning and tightening up REX loops in UVI Workstation



1 > The problem with using REX files in most DAWs is that you don't get a huge amount of control over the amplitude and tuning of each slice. That's where UVI Workstation comes in (www.uvisoundsource.com). This excellent free ROMpler is rather good at REX file playback. Start by loading up the instrument in your DAW.

2 > You can simply drag and drop your REX file of choice onto one of UVI Workstation's instrument slots, or navigate your way to it using the Browser (click the icon at the top left hand corner of the interface). Load **Live Beat.r2** from the **cm** DVD into a slot.

3 > Now that the beat is loaded into UVI Workstation, it'll automatically play back whenever the project is played. That's great for auditioning loops, but we want to sequence its slices via MIDI. Click the **Loop** tab just above the virtual keyboard at the bottom of the interface, then click the **Map** button to tell UVI Workstation that we want to trigger the audio via MIDI.



4 > Here's the cool part: drag the big stave icon below where it says **Drag & Drop** onto the UVI Workstation's MIDI track. A MIDI part will appear, ready to play back the REX loop with all of its timing intact. 120bpm is a little slow, so set your project tempo to **150bpm**.

5 > Select the **Edit** tab above the virtual keyboard. Here we can really take control of the loop with UVI Workstation's editing tools. Currently the loop is really splashy, but we can make it sound much tighter by setting the Amp Envelope's **Sustain** to **0** and **Decay** to **1.46s**.

6 > Often it's helpful to be able to change the pitch of a loop to get it in tune with other drum sounds. To do this in UVI Workstation, just turn up the **Semi** value in the **Transpose** panel to pitch it up a couple of semitones.



7 > UVI Workstation also offers an array of effects with which to mangle your REX files. To get a rougher feel, activate the **Drive** effect by setting it to one of the three available modes. Select **Analogue** and turn the **Drive** knob up to **60%**.

8 > Select the **FX** tab above the virtual keyboard and select the **Dynamics** Compressor. Good for Drums preset. The effect is a little severe straight out of the gate, but if you turn the **Threshold** level up to **-28.40dB** then you'll get a tight, snappy, punchy sound.

9 > UVI Workstation enables REX files to be played back chromatically. Turn the **Sustain** level back up to **100** in the **Edit** panel, then return to the **Loop** tab and change the playback mode from **Slice** to **Stretch**. You can't trigger individual slices now, but the key that you play determines the pitch of the loop, which is timestretched to stay in sync with the project.

> make music now / the joy of rex

> Step by step Loop automation and slice editing with Dr. Octo Rex



1 > Reason's Dr. Octo Rex is one of the most sophisticated REX playback instruments around, and as its name suggests, it's capable of loading up to eight REX files at once. Launch Reason and create a new project. Add a Dr. Octo Rex to the rack and play the project back.



2 > Because **Enable Loop Playback** is selected, the first REX file will play back automatically - there's no need for MIDI input. Click one of the other **Loop Slot** buttons and the beat will change to that loop at the start of the next bar. You can change how quickly the loop switches using the **Bar**, **Beat** and **1/16** buttons on the left-hand side of the player.



3 > This functionality makes Dr. Octo Rex viable for live performance, as you can assign specific keys or MIDI controls to the different loop slots in order to switch between beats in real-time. Right-click a slot to display the triggering options.



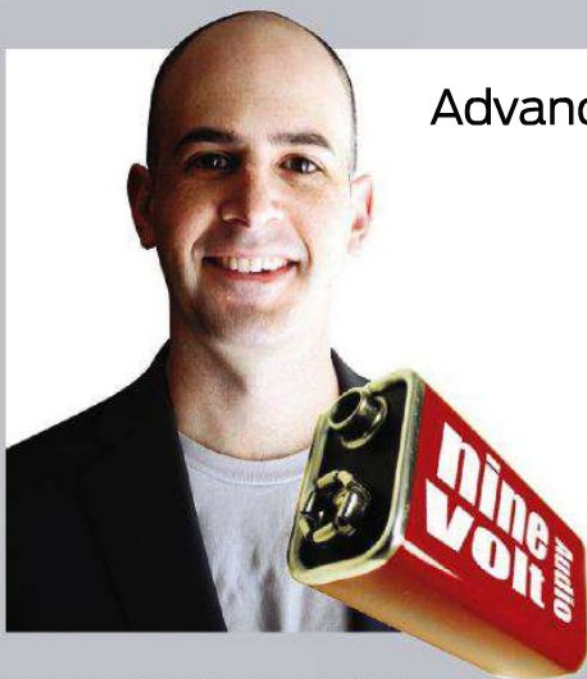
4 > Dr. Octo Rex has plenty of useful studio features too. To stop automatic loop playback, disable the **Enable Loop Playback** button. Next, click the small triangle at the bottom left-hand corner of the interface to show the Programmer screen. Before we explore this part of the instrument, it's important to understand the difference between the **Loop Slots** and **Note to Slot** settings.



5 > Clicking a **Loop Slot** button changes the loop currently shown in the Programmer, but with the Loop Playback mode deactivated, it won't switch Dr. Octo Rex's output to that loop. To demonstrate: select the first Loop Slot and click the **Copy Loop to Track** button. A MIDI part appears on the device's sequencer track, and playing back the project sets the first loop slot playing.



6 > If you select a different Loop Slot while the project is playing back, the loop in the first Loop Slot will keep playing. However, if you click the red button to the left of a Loop Slot, the MIDI will be routed to that Slot instead. So, if you route the MIDI to Slot 8, you'll hear that loop played using the MIDI from the first loop.



Advanced ReCycle tips

While making your own REX loops in ReCycle can be as simple as turning up the Sensitivity slider, you can go a lot deeper if you want to. We asked Kyle Z, of REX library specialists Nine Volt Audio, for his top tips.

"Have an idea of what kind of audio material translates well to a sliced REX file. Drum and percussion loops are the most obvious and easy to slice because they have well defined transients. So, a conga loop will easily slice into a REX file. An open-string guitar loop won't work very well because the transients are much softer and less defined.

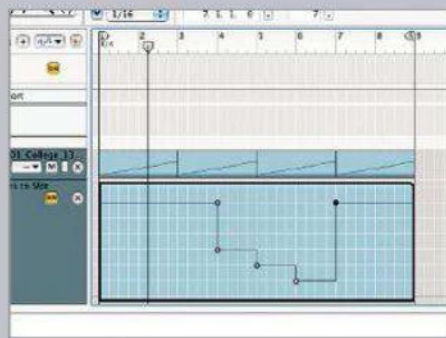
"Converting a tonal or melodic loop in ReCycle is much more challenging

and the results are less predictable. Again, if the melodic material has well-defined transients, like a funk guitar loop, the end result can be very good. A meandering synth line with notes that flow into each other won't work so well.

"Also, when working with tonal and melodic material, it's equally important to place slice markers at the beginning and end of each note whenever there's silence between notes. For example, if you have a gated synth loop, you'd need to treat the silent places the same as you would a place that has a note. If you don't do this, the rhythm of the loop will be lost when you play the loop at a higher or lower tempo.



7 > This technique of playing one loop with the MIDI part of another can be useful for experimentation, but if you want to take advantage of Dr. Octo Rex's ability to sequence between a series of REX loops, you'll need to use a little automation. Right click the **Notes To Slot** knob and select **Edit Automation**.



8 > Now you can use the automation lane in the sequencer to set which loop is triggered by the MIDI at any given point. Unlike in Loop Playback mode, these changes occur instantly, so make sure the automation lands at the exact point at which you want your loop to switch.

POWER TIP

>Alternate groups

Alternative Groups are useful for adding subtle variation to a loop. For example, you can assign all the snares in a loop to a particular Group to have one randomly selected for playback whenever any one of them is triggered. This can be used to give loops a more natural, organic feel. To assign a slice to a Group, click the **Alt** button and drag up on the slice you want to assign to set it to one of the four available Groups. Dragging the bar down to the bottom of its travel ungroups the slice.



9 > Perhaps Dr. Octo Rex's most powerful feature is the level of editing control that it gives you over every slice of every REX loop loaded into it. To get started, click the **Slice Edit Mode** button at the bottom of the interface.



10 > You can now adjust the **Pitch, Pan, Level, Decay, Reverse, Filter Frequency, Alt** grouping and **Output** controls under the waveform display, on a per-slice basis. To change the setting of a particular parameter for a particular slice, click the slice to be edited and turn the knob to the level required.



11 > Individual slices can be sent to separate outputs for processing if needs be. There are four auxiliary stereo outputs available as well the main outs. To assign a slice, click the **Out** button and drag upwards on the slice to select one of the four outputs.

"If you're creating your own loops to ReCycle, think about what types of sounds and articulations will translate well before you record. This will put you one big step ahead. We design our libraries for REX and Stylus RMX users first and foremost, so we start our recording process by thinking, 'Will this convert to REX well?' We also record everything at very slow tempos (usually in the 60-70bpm range) and then name the loop with its 'target' tempo - the tempo that the loop sounds best at or was written at. This means that users can slow loops way down without them breaking apart.

"ReCycle also features a 'stretch' function, which fills the gaps between slices when you slow a loop below its recorded tempo. In practice, the quality of the 'stretched' portion of the sound is highly dependent on the

source material. Loops with lots of high-frequency content, like hi-hats, will work better. Loops with lots of sustained low frequencies, like bass guitar, don't work well at all. It's important to note that ReCycle has the stretch setting turned to 40% by default. When you're converting a REX loop to the Stylus RMX format, this will increase the audio file size by 40%. Turning ReCycle's stretch function to 100% will double the original audio file's size. When using RMX in Groove Menu mode, all loops in a suite will load into the system's RAM, so this can have a pretty dramatic affect on system performance - particularly if the suite has a lot of loops in it. So, preview the loops in ReCycle with different stretch amounts and evaluate if, or how much, stretch you really need before saving it.

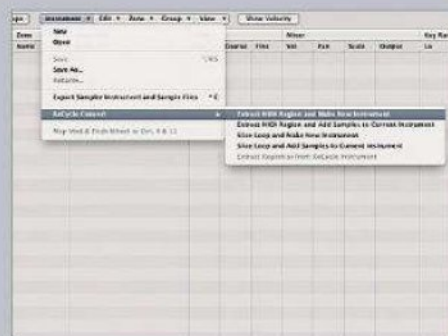
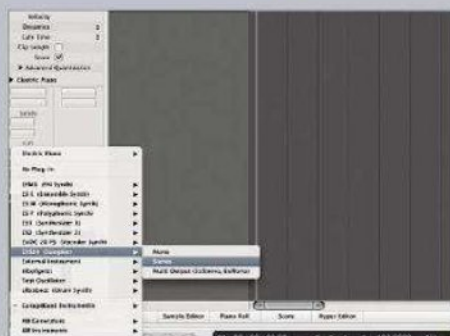


There's much more to Propellerhead's ReCycle REX file-authoring software than first meets the eye

"One more tip: if you've got a loop that doesn't take well to being sliced in ReCycle, try adding a rhythmic effect, like a synced delay, tremolo or gate. This can often add enough transients to make a great REX loop."

Thanks Kyle! You can check out Nine Volt Audio's libraries on their distributor's website, www.timespace.com.

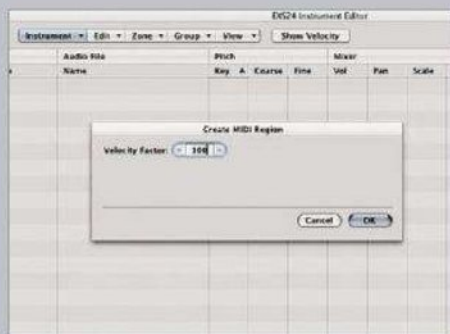
> Step by step Deconstructing REX files with EXS24



1 > Sometimes – especially when you want maximum control over individual slices – it's more convenient to use a REX file in your sampler. Create a new Logic project with a software instrument track on it. Set the instrument to **EXS24 (Sampler) Stereo**, and the EXS24's interface will appear.

2 > Click the **Edit** button towards the top right-hand corner of the EXS24 interface to bring up its instrument editor. This large and fairly complex window might look imposing at first, but it's really quite straightforward and gives you a huge degree of control over each slice.

3 > To import a REX file, from the **Instrument** menu, select **ReCycle convert>Extract MIDI Region and Make New Instrument**. Load **Hip-Hop.rxt** from the **Joy of REX** folder on the **am DVD**, and click the **Open** button.



4 > You'll be presented with a window to enter a **Velocity Factor**. Set to the default of **0**, you'll get a MIDI part with consistent velocity levels for each note. At a factor of **100**, the volume level of each slice will determine the velocity of each MIDI note. This is useful if you want to create a MIDI part with the same dynamics as the loop for triggering something else.

5 > As we're just looking to play back the REX file's slices from the EXS24, stick with the default **Velocity Factor** value of **0** and click **OK**. The slices will be mapped across the EXS24's keyboard. The notes that trigger slices have a little square above them on the virtual keyboard.

6 > A MIDI part at a constant velocity level has appeared on the EXS24's MIDI track. If you play this back, you'll hear the beat play at the project tempo. Now we have our part as MIDI triggering each slice in the sampler, giving us a great degree of control over the sound.

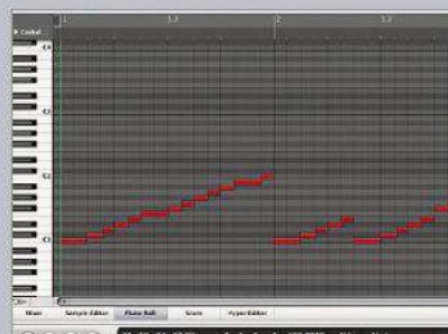
POWER TIP

> Multiple outputs

In this example we've got EXS24 loaded in Stereo mode, whereby all the slices are routed to the instrument's main left and right outputs. However, with some REX files you might want to apply different processing to different slices – to use different EQ settings on the kick and snare, for example. This is done by switching to Multi Output mode, which gives you five stereo outputs and six mono outputs, to which you can route slices using the **Output** column in the Edit window.

File	Pitch	Coarse	Mixer	Scale	Output	Key Range
Hop.aif	C1	0	0	0	Group 1	C1
Hop.aif	C#1	1	0	0	Group 1	C#1
Hop.aif	D1	2	0	0	Group 1	D1
Hop.aif	D#1	3	0	0	Group 1	D#1
Hop.aif	E1	4	0	0	Group 1	E1
Hop.aif	F1	5	0	0	Group 1	F1
Hop.aif	F#1	6	0	0	Group 1	F#1
Hop.aif	G1	7	0	0	Group 1	G1
Hop.aif	G#1	8	0	0	Group 1	G#1
Hop.aif	A1	9	0	0	Group 1	A1
Hop.aif	A#1	10	0	0	Group 1	A#1
Hop.aif	B1	11	0	0	Group 1	B1
Hop.aif	C2	12	0	0	Group 1	C2

7 > Now you can change the tuning, volume and pan of each slice individually. For example, by increasing the **Coarse** value of each slice incrementally, you can create an effect where the beat rises in pitch over an octave, say, from start to finish.



8 > Creating different rhythms from the REX file is now a piece of cake, as each hit has its own MIDI note assigned. You can rearrange the order of the slices to get a different feel, or delete everything and create your own beat from scratch.

> Step by step Using REX files on Logic's audio tracks



1 > The quickest way to use REX files in Logic is to drop them straight onto an audio track. Create a new project and drag **Hip-Hop.rx2** from the **Joy of Rex** folder onto an audio track. You'll be presented with a dialog asking how you want the imported file to be "fixed".

2 > Each "fix" method has its own advantages and disadvantages. **Don't fix** can cause clicks in the loop depending on the material and project tempo; **Crossfade** mode can have a negative impact on the hits' transients; **Add Tracks** splits the hits across multiple tracks; and the rest render the audio to a single file. Crossfade mode works well enough for this beat, so select it and click **OK**.

3 > The loop will be displayed as a single object, which you can drag around the arrangement. If you want to edit it in more detail, double-click it to reveal the individual slices.



POWER TIP

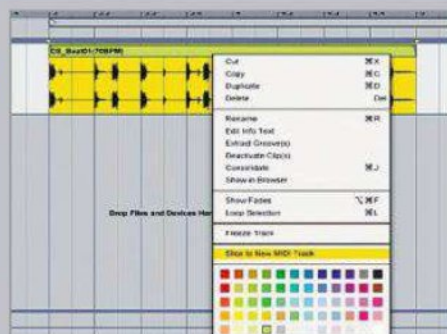
>Clipboard copying

If you're a Logic user and you find yourself using ReCycle a lot, you'll be pleased to learn that it's possible to send audio backwards and forwards between the two applications without saving out a new file each time. To copy audio from Logic to ReCycle, select the audio region and choose **Audio»Copy as Recycle Loop** from the **Arrange** menu, then use the **Paste as new Document** function in ReCycle. When you've finished editing, use the **Copy Loop** function in ReCycle and choose **Audio»Paste Recycle Loop** in Logic's arrange window to place the new version in the project.

4 > All the slices will be selected, so if you try to move one of them then the rest will move too. To select an individual slice, deselect the loop by clicking away from it and then click the slice you want. You can now move this slice on its own.

5 > If you're not happy with the way a particular slice fades into the next, you can change the length of the fade using either the **Curve** value in the Inspector's Region Parameter box or the **Fade Tool** from the tools palette.

> Step by step Splitting REX Files in Live

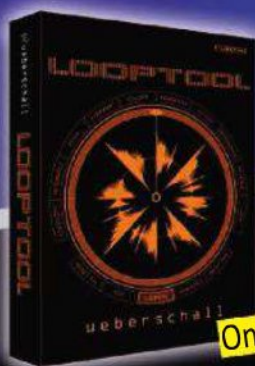


1 > Using REX files in Live couldn't be easier: just drag and drop a loop onto an audio track and it'll play back at the project tempo. You can slice the loop and rearrange it just like any other audio clip, as well as change its pitch. To get the most flexibility, though, you can automatically slice the audio onto a sampler track.

2 > To do this, right-click the REX loop on the audio track and select **Slice To New MIDI Track**. Live will ask which Slicing Preset you'd like to use. If you haven't made any custom presets, you'll only have one option. Click **OK** and Live will automatically cut the beat up into a Drum Rack on a MIDI track with an accompanying MIDI part.

3 > Mute the original audio track and take a listen to the MIDI part you just made. It's now much quicker and easier to change the timing and rhythm of the beat. You can also change the parameters of each slice by clicking the **Show/Hide Devices** button on the Drum Rack, then selecting the slice you want to edit in the Pad panel. **cm**

New Elastik v2.0



Only 45 £

With the release of the new Elastik 2 Sample player ueberschall presents: **Looptool**

This sound library features a huge variety of highest quality loops. 4 GB taken from over 50 of Ueberschall's best Elastik libraries.

Get started into a new world of loops and grooves! Perfect for all genres.

Elastik 2 Features

- innovative loopeye functions
- fast browser features (multiple filter search, tagging)
- prelisten in sync
- sequence mode (loads of editing features per slice)
- random sound replacement
- parameter automation
- realtime sync to host
- bounce of original and modified loops
- resizable window format
- multiple soundbank management
- timestretch and pitchshift in best quality

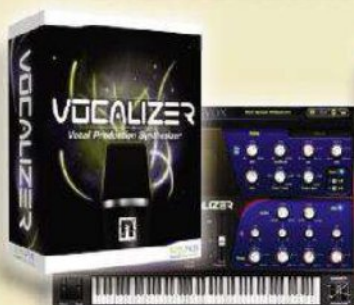
NEW



Elastik 2 for Mac and PC, 32/64 bit, VST, Audio Units, RTAS and StandAlone

Get a free download of Elastik 2 now on www.bestservic.de

VOCALIZER



Sonivox. A New Playground for Vocalists and Non-Vocalists Alike. Part effects plug-in, part synthesizer, VOCALIZER is entirely new. Speak, sing, whisper, yell, or even run your drum tracks or anything else through it, VOCALIZER will take your source input apart and pitch, harmonize, de-harmonize, modify, fortify, enhance, re-fry, re-synthesize, and reassemble to your imagination's outermost limit.

"VOCALIZER has changed the way music can be made, it's only limit is your imagination."

Aaron Pearce - Producer/Songwriter
Multi Format EFX £109,-

PULSE



Sonivox. The Heart and Soul of Your Rig! Unlimited music production power with an unrestricted workflow! PULSE - Advanced Production Instrument, is all that and more. Beyond a beat machine and way more flexible than old-school hardware units, PULSE provides the backbone of your beat and the heartbeat of your rig, driving your production forward with its sheer depth of features and uninhibited workflow.

Virtual Instrument £149,-

Broadway Lites



Sonivox. Broadway Lites™ is a virtual instrument with an attitude. A fusion of sound, music and technology. It features 15GB of multi-sample content, with over 20,000 unique samples of saxophones, trumpets, trombone and clarinet.

In addition to being powered by Kontakt 4 player, Broadway Lites™ uses the same groundbreaking midi-processing technologies as well as a select portion of instruments and audio content used in Fable Sounds' award winning and critically acclaimed Broadway Big Band.

Virtual Instrument Kontakt 4 Player £389,-

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!

The 2GB library contains wonderful string instruments such as an autoharp, a 36 string instrument with a series of chord bars, a kantele, a traditional plucked 5-string instrument of the zitherfamily native to Finland, a wooden celtic nylon harp or a bowed psaltery, an instrument of the zither family such as a kind of a wooden soundbox with unstopped strings over it.

Virtual Instrument £175,-



Key Dealers

absolute music - Poole Digital Village - all stores westend DJ - London
Rubadub - Glasgow Dolphin Music - Liverpool Soundware - Newcastle
Big Bear Sound - Dublin Studio Solutions - Dublin



bestservice

Each 89 £



K-SIZE ENGINE



K-Size FX-Edition

Best Service. 1400 high-end and totally new sounds and loops. All folders are clearly arranged and organized in proper K-Size style. All sounds are separated in the following categories: Atmos, Down Sweeps, Hits, Impacts, PreArrangement, Loops, Modulations, Noise, SingleShots and UpSweeps. £ 79,-



K-Size TechHouse Edition

Best Service. More than 2800 high quality loops and sounds. Kicks, Claps, Cymbals, FX, Basses, Percussion, Snare & Synths are available as single sounds and Sampler Patches. The Loops are splitted into the categories Full-, Addon-, HiHat-, Percussion-, Synth- und Sidechain(!)- Loops. £ 79,-



The ultimate source for the freakiest grooves, breaks and an overload of loops and samples for your Club, Minimal or Techno production.

— get K-Size Engine now! £ 219,-



K-Size No Kick

Best Service. Containing an unbelievable amount of 1500 loops in any common format, the K-Size NoKick Edition gives DJs and producers a riot of exciting grooving add-on loops. The selection ranges from Club to Minimal and Techhouse for the club sound of today. £ 79,-



K-Size Minimal Edition

Best Service. Featuring more than 2800 unique loops and sounds ready to use with your own club smasher: Kicks, Basses, Claps, Cymbals, Fx, Snare, Percussion, Synths, Vocals and Addon-, Full-, HiHat-, Percussion- & Synth Loops. £ 79,-

epic world

drones



Automation Presets

Epic World - Cinematic Landscapes by Eduardo Tarilonte is the perfect tool for composers and sound designers to create ambience for films, documentaries, video games and new age music.

Soulful and emotional, its magical atmospheres and acoustic instruments will take you on a sonic trip to a fantasy world.

Virtual Instrument £ 265,-



Daily shipping

www.bestservic.de email: uk@bestservice.de
phone: 0049(89)45228920

bestservice

Pornotracker

This free NES tracker isn't as controversial as its name suggests! We roll up our sleeves and get down to it



> A couple of months ago we mentioned the release of a saucy new NES tracker for Windows, called Pornotracker. Our fascination with all things old-school (plus the fact that Pornotracker makes some awesome noises) has inspired us to put together this tutorial.

First, head over to kkfos.aspekt.fi/projects/nas/tools/pornotracker/ to grab the free goods. Launching the tracker, you'll see four main areas: the Pattern display, Instrument list, Pattern Order and Instrument Editor. There's also a long grey panel at the very bottom informing

you of what your key presses are doing. The Pattern area comprises the five NES sound channels: two Pulse channels for melody and harmony, a Triangle channel for softer melodies and bass sounds, a Noise channel for percussion and effects, and a PCM channel for lo-fi samples.

You can leave your mouse at the door when using Pornotracker. Apart from when loading and saving files, the application is completely keyboard driven. The **Readme.txt** file lists all the keyboard shortcuts, and also provides the familiar Protracker-compatible commands.

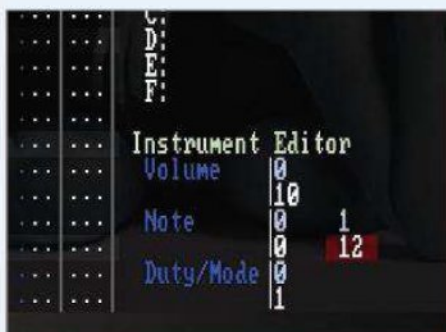
To get a feel for the sounds this baby's capable of making, load up the demo track that comes with the package: a cover of Rihanna's *Rude Boy*. This ably demonstrates the tracker's chip sound timbres, noise channel percussion and PCM-sampled drums and hits.

So, let's get to work making a tune from scratch. First we'll show you how to build your own chip instrument by manipulating the parameters in the Instrument Editor. Then we'll create a simply melody and bassline using this sound. Files, as usual, are on your **cm DVD**.

>Step by step Getting started with Pornotracker



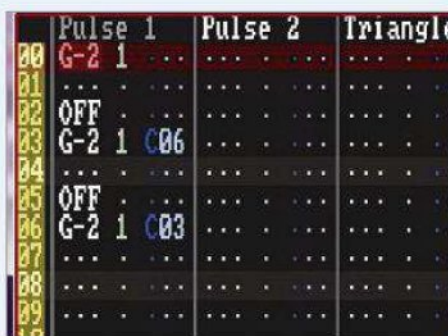
1 > Load up Pornotracker with a blank project. Press **F4** to put the cursor in the Instrument editor, and tease the **Up arrow** key until the envelope value for the **Volume** at position 0 reads **10**. You should be able to audition the instrument with the usual QWERTY keys, using **/** and ***** to switch octaves. (File on the **cm DVD**: **CM_trackers_tutorial_36a.**)



2 > Now press **Page Down** to select the **Note** parameter, and hit **Insert** to add another envelope value. We'll leave the first note at 0, so press the **right arrow** and increment the value to **12** by pumping the **Up arrow**. If you audition the note now, you'll notice that the sound flits quickly between its root and the octave above. (File: **CM_trackers_tutorial_36b.**)



3 > With our cursor still in the Note section, press **Shift+Right arrow** to move the envelope loop point right one position. Now when we play the note, it starts at the root, quickly jumps up an octave and stays there. Press **Page Down** and change the **Duty/Mode** value (affects Timbre) to **3**. Hit **F2** and press **Enter** to name your new instrument. (File: **CM_trackers_tutorial_36c.**)



4 > Now for a melody! Press **F1** to switch to the main pattern and press **Space** to enter Edit mode. Enter a note at positions 00, 03 and 06 in the **Pulse 1** channel. Before each note is retriggered, place an **Off** above it by pressing **Enter**. For the latter two notes, enter **C06** and **C03** respectively in the Effects column to reduce their volume. (File: **CM_trackers_tutorial_36d.**)



5 > Use the arrow keys to navigate back to the top. Now hold down **Alt** until you've selected from 00 to 07. Press **Ctrl+C** to copy, move to position 08 and press **Ctrl+V** to paste. Repeat this process for position 16, 24, 32 and so on. When you're done, amend each group of three notes to be a different pitch (creating our melody). (File: **CM_trackers_tutorial_36e.**)



6 > We'll use the same instrument for our bass. Press **Tab** twice to place the cursor in the **Triangle** channel, and enter a note every eight positions to coincide with the change in melody. In the Effects column, try the commands **2xx** (portamento down) and **3xx** (slide to note), where xx is the speed. (File: **CM_trackers_tutorial_36f.**) **cm**

Rhythmic roots

Every piece of music has a constant beat, but how does rhythm fit into this framework?



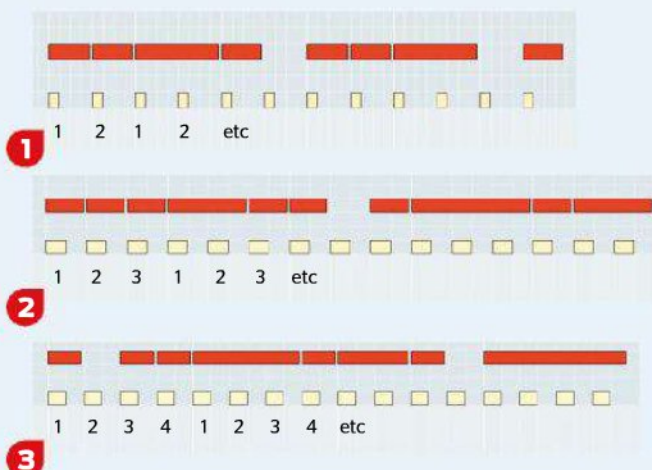
> This issue we're going to talk about musical rhythm. Rhythm is often felt intuitively, especially in popular music - which is why we often stick to explaining technical things like scales and chords. This time, though, we're prepared to lift the lid on what makes music tick - literally.

Finger on the pulse

The vast majority of music is based on a regular pulse. Exceptions include atmospheric washes of sound in film, game and TV background music, and some modern classical pieces where the rhythms are so varied or even conflicting that the pulse is hard to discern.

The sensation of pulse arises most naturally from the familiar experience of walking, where the more-or-less regular fall of our feet marks out the passage of time. One of the most common tempo markings is *Andante*, which literally means 'going along'. So, the word 'pulse' is synonymous with the musical use of the word beat.

As we walk, we naturally feel our steps in groups of two: left, right; left, right. Nearly all popular music likewise groups beats into small packages called bars (UK) or measures (USA). The majority of music uses bars of two, three or



1: A simple rhythm in two-time. Tap or count the white notes and sing or play the red notes, making sure you keep time just as accurately in the gaps.

2: A similar exercise counting bars of three beats. Notice that one of the notes lasts for three whole beats, completely filling the bar.

3: And now count beats in fours. Note that there are durations of one, two, three and four beats.

four pulses. Musicians call this grouping of beats into bars 'metre', and these packets of pulses form a ruler against which rhythms are measured.

Beat vs rhythm

These two words are often confused. The beat is the regular framework of pulses that may be

counted and felt - but not necessarily heard - consistently in the music. Rhythm consists of the sounds placed in time over this framework. When strengthening musicianship, a common exercise is to count the beats out loud whilst clapping or playing notes. **Fig 1** gives a simple example in bars of two beats.

In this first pattern, the white notes show the beats, while the rhythm itself is shown in red. Practise it firstly by counting "1, 2, 1, 2" and clapping or playing the notes on any instrument. Make sure that you keep the pulse (count) steady, especially during the longer notes and in the gaps where there are no notes.

The beat continues regularly even when there is a gap, or rest. As soon as possible, play these exercises on an instrument where the sound can be sustained and then cut off during the rests. Alternatively, tap the beat, keeping count in your head, and sing the rhythms.

Fig 2 shows a similar basic exercise in three-time and **Fig 3** shows one in four-time. Increase your count accordingly. As the bars are longer, some longer durations are introduced.

The *Staff notation special* illustrates how the same three rhythms may be written in conventional notation, and we hope that you will quickly be able to play them from notation, even if you've never learned to read music before. In addition, there's a PDF on the **cm DVD (RhythmExercises163)** that gives several equally easy examples for you to practise.

You will benefit from finding as many ways as possible to interpret these exercises; singing or playing while tapping hand or foot to keep the beat; playing notes on a keyboard with one hand and keeping time with the other; switching so the hand that was playing keeps the beat; and so on.

Practise until you can maintain an unwavering beat whilst playing these simple rhythms confidently, because next time we're going to start placing notes in between the beats. **cm**

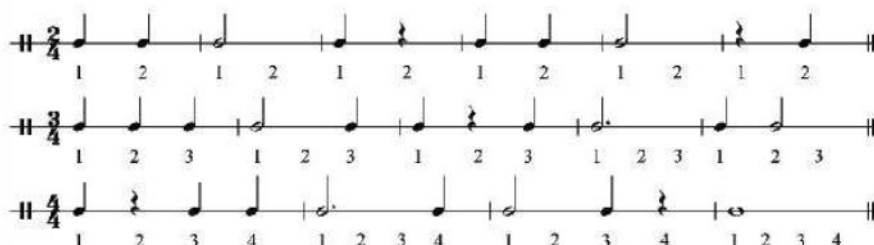
Staff notation special

Music doesn't always use the five-line staff; percussion parts are often notated on a single line, which is quite sufficient for writing simple rhythms. The notation will usually start with a time signature, which (unlike key signatures) does not have to be repeated on every line. The time signature, along, perhaps, with a tempo indication, gives the musician an immediate sense of the metric structure of the piece.

In simple time (compound time will be explained later), the upper number shows the number of beats in the bar and the lower figure shows what time value will represent the beat. In the examples here, which are identical to **Figs 1-3** in the main text, the beat is represented (as it almost always is

in popular music) by a crotchet (UK) or quarter-note (USA). Each bar is divided off from its neighbour by a vertical bar line (Americans use this word too, even when they otherwise refer to measures). This is purely visual - marking out time territory - and doesn't have any effect on the flow of beats. The minim (UK) or half-note (USA) lasts through two beats, and placing a dot after it lengthens it by a further beat, so it fills a three-beat bar.

The only other notation used here is the squiggly crotchet/quarter-note rest that is simply a placeholder for any beat where there is no sound - a silent beat, in other words. So the beat, and count, goes on even when there are no sounds.



Count and play - you know you want to...

The mysterious power of drones



rachMiel explains why escaping the confines of metre through these simple, repetitive noises can open up a meditative new world...

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.

> Drones are everywhere. Just pay attention: the traffic outside your window; the wind, rain or muffled patter of falling snow; the steady background whir of your computer fan; the sound of your cat purring. They're internal, too: the slow cycling of your breath; the high-pitched sound of your nervous system; the low pitch of circulation.

A drone, as I'm using it here, is any continuous sound that persists over a relatively long period of time, say a minute or more. Continuous does not mean unchanging, though. Drones change constantly: in pitch, timbre, volume, rhythm (slow pulsing) and more. However, these changes tend to be subtle and gradual. The abrupt change of silence being shattered by the striking of a gong is an act of percussion; the ensuing 30 seconds of fading gongness is in the realm of dronality. (To hear a great example of luscious gong drones, check out Karlheinz Stockhausen's 1964 piece, *Mikrophonie I*.)

Drones can alter the flow of time. Rhythmic music anchors listeners in clock time; events occur on a metronomic grid. The forward-pointing arrow of time rules; one moves inexorably from past to present to future. A drone, on the other hand, places listeners in an unbroken Now.

Drone power

Human culture is swimming in drones - we've been using them since time immemorial and show no signs of stopping. Indeed, there's been a huge resurgence in interest in drone music in the past 50 years, thanks largely to the work of La Monte Young, John Cale, Charlemagne

Palestine, Philip Glass and Terry Riley, Kraftwerk and Tangerine Dream, Robert Fripp and Brian Eno, John Cage, Phil Niblock, et al.

Drones are used to create profound moods, enhance meditation and evoke the spiritual. Physiologically speaking, drones can act as a form of brainwave entrainment audio (see last issue's *Off The Dial*): they can synchronise the frequency of our brainwaves to an external audio stimulus. Since different states of awareness are associated with different brainwave frequencies, this entrainment can change one's state of being.

But that's (pseudo) science. When it comes to exploring the power of drones, it seems appropriate to look beyond mere anatomy and physiology. In the early 1900s, Sufi musician and philosopher Hazrat Inayat Khan wrote: "Every motion that springs forth from this silent life is a vibration and a creator of vibrations." Thus sound, movement and form all emerge from silence. Solid matter arises from vibration/sound, not the other way around. The universe is sound, and its continual drone sustains us, much like a sonic drone sustains the oscillations that underlie it.

Though Khan was not specifically addressing drones in the following passage, it's as good a (nonscientific) description as I've come across: "With the music of the Absolute, the bass - the undertone - is going on continuously; but on the surface beneath the various keys of all the instruments of nature's music, the undertone is hidden and subdued. Every being with life comes to the surface and again returns whence it came, as each note has its return to the ocean of sound. The undertone of this existence is the loudest and the softest, the highest and the lowest; it overwhelms all instruments of soft or loud, high or low tone, until all gradually merge in it; this undertone always is, and always will be."

"Rhythmic music anchors listeners in clock time; a drone, on the other hand, places listeners in an unbroken Now"

The (KVRian) last word

Once again, I defer to the wisdom of the pundits at KVR (www.kvraudio.com/forum). These quotes are all taken from the thread, "What makes drone music great?"

Shamann writes: "Drones are an exercise in simply listening, in the way you would if you were sitting idly in a park. Structurally, drones are reductive - not a lot happens in them - and so to draw listener interest, the focus is on micro and macro levels: volume,

harmonics, dissonance, modulation, gradual processes, etc. In many cases, drones are experiential or pragmatic, and aren't really after the same results as most music. Think about prayer chants - you'd be missing the point entirely if you compared it to a sonata."

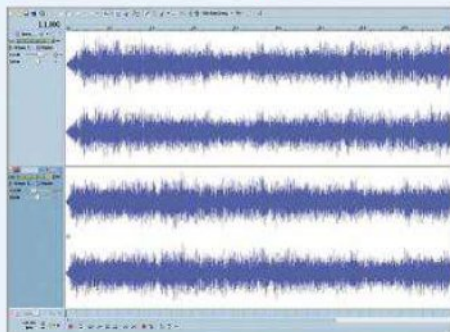
Dystonia_ek says: "When you are completely hypnotised by what's coming out of your speakers and can't remember what you've been doing for the last few hours,

you're on the right track. Pure drone music, when it works, should always sound sacred."

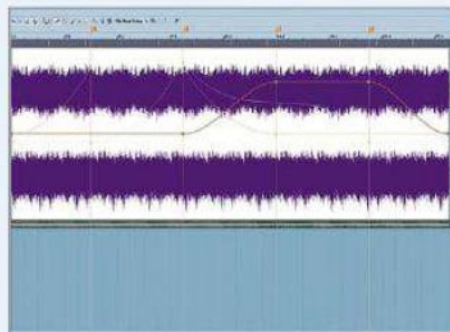
Dburgan thinks: "A good drone is one with lots of structure and orthogonal composition, where closer and closer listens expose more and more detail. This is why just holding a note on a keyboard for ten minutes is boring but listening to a didgeridoo player hold a note for ten minutes can be enlightening. There's more going on than the note being held."

>Step by step

Composing a musical drone



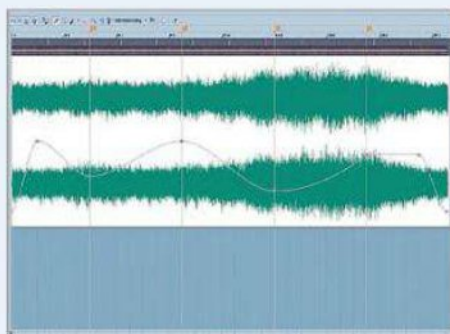
1 > I base my drone example piece on a 45-second sample from Sustained Encounters, a Cycling '74 audio library created by Ron MacLeod. The sample is gorgeous, but it's MacLeod, not rachMiel, so I personalise it by EQing it and mixing it with a reverse copy of itself. The EQed original, reverse and mix are on the **cm** DVD: **Drone_starter.wav**.



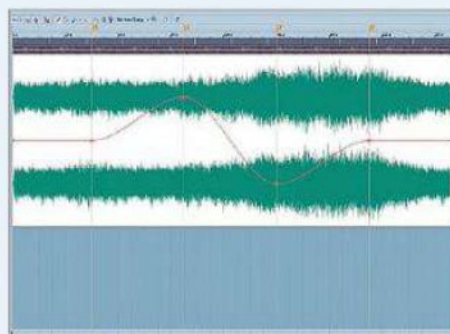
2 > My plan is to slowly change four key parameters of the drone over its 8:48 duration: pitch, timbre, dynamics and space. I start with pitch. Rather than pitchshifting, which would produce undesired artifacts, I use parametric equalisation to emphasise first the mid (650Hz), then high (2kHz) and then low (200Hz) frequencies: **Drone_pitch.wav**.



3 > Next on the agenda is timbre. Drones tend to sound really good when you fatten them up with chorus, so that's exactly what I do. I use Sonar 8.5's FxChorus plug-in to add bass chorus to three segments of the drone. I keep the **Dry/wet** mix to a maximum of 50%, so that the choral effect doesn't overpower: **Drone_pitch+timbre.wav**.



4 > We're gettin' there! For the dynamics, I draw a volume envelope that spans the entire duration of the piece. It fades in from -15 to 0 dB, goes down to -4.5 dB and comes back up to 0 dB about 2/5 of the way in. It then ebbs back down to -7.5 dB, rises to -1.5 dB at 4/5 in, and then fades out to -15 dB at the end. Here's the result: **Drone_pitch+timbre+dynamics.wav**.



5 > One more parameter to go: space, or stereo panning. I decide to synchronise the panning and volume envelopes by working with the same five-section grid that I used for dynamics. The signal starts centred, moves to 50% left at 2/5 of the way in, goes to 50% right at 3/5 in, then returns to centre at 4/5 in. Listen: **Drone_pitch+timbre+dynamics+space.wav**.



6 > All that remains is to master. I turn to the BBE Sonic Maximizer and Wave Arts Power Suite, my weapons of choice for subtle mastering jobs like this. (For pieces that fit more into popular electronic music genres, I generally use iZotope Ozone.) I maximize and EQ a tad, hint at reverb, and limit ever so slightly. Here's the final piece: **Drone_master.wav**. Enjoy!

Experimentalists' corner:

Chromatic, microtonal, cluster and noise drones

Drones often consist of two or more notes, played either together (chord, as on an organ) or in succession (sequence, as on an Indian tambura). Often these pitches fall within a diatonic scale (a mode or key). Other times they fall within a chromatic scale (the 12 equally spaced pitches that make up an octave). And sometimes they fall in between chromatic pitches, within the realm of the microtonal. Non-Western

traditional drones are often microtonal (Asian, Indian, African), as are the drones created by electronic dronologists.

A cluster is a chord consisting of adjacent pitches in a chromatic, diatonic or microtonal scale. A chromatic cluster drone might consist of the adjacent pitches C4, C#4, D4, E4, F4, F#4, G4; a diatonic cluster of C4, D4, E4, F4, G4 (the first five notes of a C minor scale); or a microtonal cluster of the

15 quarter-tones that span C4 to G4. The great (late) Hungarian composer György Ligeti was a master of the cluster drone.

Drones don't necessarily have to contain pitched notes; any continuous sound can potentially work. Such 'noise' drones might consist of the sounds of rain, wind, waves, waterfalls, bird chatter, human ululation, machine thrum, an air-raid siren, a long peal of thunder, or a train passing. **cm**

Bubble effects

Scot hits the laboratory and cooks up some bubble trouble in order to create an old-school sound effect



> Today's synthesisers are bursting with presets designed to both show off the instrument's capabilities and to provide the user with a wealth of sounds right out of the box. Sweeping strings, atmospheric pads, searing leads and booming basses are all prefabricated by hired guns so that you can get on with the business of making music, rather than getting bogged down with the details of sound design.

However, there is a drawback to having banks full of presets. Sure, they provide a quick and

easy answer to almost any musical situation – but in turn, they discourage experimentation. My first synthesisers offered no presets at all. Back then, the only instruments with patch memory cost far more than your humble scribe could afford. I was, therefore, left to my own devices. Some of the instruments I used early on resisted staying in any recognisable sort of tuning, so I abandoned any hope of emulative synthesis and dove headlong into knob-twiddling excess, wrangling bizarre sound effects out of the cantankerous old beasts.

I made lots of swooshing wind and surf noises, of course, along with an abundance of laser blasts, but what I really enjoyed was using the synthesiser to create unusual ambient effects, such as the one we're going to put together here. Being a long-time science fiction film buff, I rejoiced in these otherworldly sounds. I crafted everything from cosmic collisions to bleeping, burbling laboratory effects – and all the points in between. This sort of sound is ideal for film or game sound effects or just for exercising your sound design chops.

>Step by step Building an unusual ambient effect



1 > You can make the sorts of effects that I've described with just about any decent analogue synth. My preference is always going to run to the modular instruments for sound effects, so I'm using KarmaFX Synth (karmafx.net) to create my weird, burbling effect. Load it up in your host and call up my **BlankSlate** patch, on the DVD.



2 > This patch consists only of an output stage, with no generators or modulators. Obviously, we need some modules to make any sort of sound at all. I can't think of a better place to start than with an oscillator. Right-click in a blank area, select **Add module** and choose the **Osc 1** module from the list of **Generators**.



3 > Move the new oscillator (Generator1) to the upper-left area of the GUI. The **Sawtooth Waveform** is fine. Crank the **Freq** knob all the way down. That's going to be very low, but we're not out to make a musical sound. When I create sounds like this on my modular system, I often don't use any sort of keyboard control at all.



4 > Let's add a filter module. Right-click on a blank area and choose the **Moog** filter from the **Filter** section of the **Add module** menu. Next, route the oscillator into the filter: right-click the filter module's title bar and select **Generator1** (our oscillator) as the **Input** for that module. A patch cable will appear to indicate that the modules are now connected.



5 > Next, right-click the Amplifier module's title bar and select **Filter1** as the **Input**. You may need to trigger the synth from your keyboard controller to hear the sound; it's a fairly boring sawtooth wave. Now, let's get the filter in on the action. The default **Lowpass** mode is fine for our patch. Crank the filter's **Cutoff** knob all the way down.



6 > We're going to push the filter's **Resonance** knob up to a value of about **85** or so. You'll hear a little effect, but not much, since the **Cutoff** value is so low. There's not a lot going on in this patch yet, and we need to introduce some modulation. Right-click an empty area, choose **Add module** and select an **LFO** module from the **Modulator** category.

Scot Solida



Scot bought his first synth over a quarter of a century ago. A synthesist, sound designer and audio engineer of international repute, he's provided factory presets for many of the music software industry's most acclaimed synths, samplers and drum machines, not to mention the **cm Studio**. On rare occasions, he manages to find time to make records for Beta-lactam Ring Records under the name **Christus** and the **Cosmonauts**.

RECOMMENDED LISTENING

BEBE AND LOUISE BARRON, *FORBIDDEN PLANET* SOUNDTRACK

For otherworldly electronic ambiances, it's pretty hard to beat the soundtrack to this classic 50s film. The Barrons created the very first electronic soundtrack for film using primitive electronic devices (often of their own design). The results are eerie, often unsettling and entirely original.

EDGAR FROESE, *AQUA*

This 1974 solo LP by Tangerine Dream main man Edgar Froese creates an aural representation of its title using the analogue instruments of the day. Bubbling and burbling, it trickles and percolates across the 17-minute title track and three other slices of sonic surrealism. Akin to the earliest Tangerine Dream albums, there's a lot of the VCS3 here - always a good thing in my book!

PRO TIPS

CONCRETE MIXTURE

You can reap much inspiration from found sounds and samples. Try using recordings of a dripping tap or other household sounds, like food items being smashed or stirred.

UP TO SPEED

If you do decide to use found sounds, be sure to play with the pitch and time controls of your sampler. I still enjoy tracking sound effects to tape and playing them back at half-speed for weird background noises.

GET LOST!

Grabbing an unfamiliar instrument and chucking the manual in the bin can be the best way to churn out unusual sound effects. Beginners will often stumble blindly onto something cool that you would never have thought of!



7 > Let's patch the LFO into the filter **Cutoff**. Right-click the **Cutoff** knob and select **Modulator1** as the **Input** for that knob. You'll hear only the slightest effect, since the LFO's default values are minimal. Turn the LFO's **Rate** up to around **75** or so. Ah, that's better! Now, select a **Sawtooth Waveform** for the LFO.



8 > Now, turn the LFO's **Amount** knob up to around **35** or so. That's sounding very liquid and bubbly already! As you can hear, the LFO is opening the filter's cutoff in a sort of ascending rhythm. However, it's a bit too predictable. We need more modulation! Right-click a blank area below the LFO and add a second LFO module.



9 > Let's use this new LFO to modulate the **Rate** of our first LFO. Right-click the first LFO's **Rate** knob and select **Modulator2** (our second LFO) as the **Input** for that knob. Nothing much will happen until you turn some knobs on the second LFO. Try pushing the second LFO's **Rate** knob up to around **27** or so.



10 > Now the modulation rate of our first LFO is somewhat less predictable. Let's make it a little more dramatic by increasing the second LFO's **Amount** to around **63**. Our sound is getting quite soupy now! Change the second LFO's **Waveform** to a **Saw** wave and click the **Invert** button to flip the wave's polarity.



11 > I still think it's too predictable, so I add another LFO. Let's connect this one to the first LFO's **Rate** knob, too. Set the third LFO's **Rate** to a sluggish **15** (0.1Hz) and then push the third LFO's **Amount** knob up to **53** or better. Now there should be an element of chaos as the second and third LFOs battle for control over the first LFO's rate.



12 > This sound is pretty evocative, but you can keep adding to the patch as you see fit. I add a fourth LFO and use it to slowly modulate the **Rate** of my second LFO. I also pump the whole thing through a delay and a reverb for an added sense of space. You can find an example of my patch on your **cm DVD**: it's called **Glurp.cm**

MAGNETIC MAN

Production veteran Artwork shares his thoughts on the dubstep supergroup's mainstream success – and how they made the album that got them there



➤ **It's now over a decade since dubstep first started rattling the car windows and ear drums of South East London. But for most of those ten or so years, the sound remained doggedly and defiantly underground. Though there were certainly hits (think of Burial's Mercury-nominated *Untrue* album, or Skream's *Midnight Request Line*), packed-out club nights and superstars, dubstep seemed reluctant to step into the mainstream.**

It's not hard to understand why. Remember when Goldie became the poster boy for drum 'n' bass? All of a sudden he was on the receiving end of a big-money record deal, hit singles and fans across the nation. And as had been expected, the scene immediately turned on him, with many of his fellow producers accusing him of selling out. The same was bound to happen with any act that took dubstep to the next level.

And, sure enough... "As soon as *I Need Air* became a hit, we knew we'd get slated," admits Arthur 'Artwork' Smith, who along with fellow Sarf Londoners, Skream (aka Oliver Dene Jones) and Benga (Adegbenjo Adejumo) makes up so-called dubstep supergroup, Magnetic Man. "But what can you do? Refuse to let certain radio stations play your music? Refuse to play live shows? When Magnetic Man came together, the idea wasn't to become pop stars - but we did want people to listen to our music. And that's exactly what happened. Some might see that as selling out, but I don't think we compromised our principles and we certainly didn't purposely make music to become well-known. We weren't chasing success - we just tried to make a good album. A bloody good album!"

Magnetic Man's self-titled debut is certainly that. Many electronic albums do little more than pack fillers around the hit singles, but Artwork, Skream and Benga have bravely attempted to create a musical whole that is much more than the sum of its individual parts. From the slick, soulful sound of tracks like *I Need Air* and *Getting Nowhere* (featuring vocals from Angela Hunte and John Legend) to the brutal *K Dance* and the growling wobble of *Anthemix*, it's a brilliant snapshot of the dubstep scene.

Arthur seems genuinely chuffed with the way the album has been received. "How can you not be?" he grins. "A Top Five album, front cover of the *NME*... it's madness. The whole of the last 12 months has just been mental."

From old-school to frontline

Despite making a living on music's cutting edge, Arthur got his first break at a decidedly old-school studio in Croydon called FOR. "I was the tea boy," he remembers. "Just a spotty young kid who loved music. There was an Atari 1040 sitting in the corner, but most of the time, bands would be working with guitars, amps, Fostex 16-track tape machines. Computers and music didn't seem to belong together."

So, what changed all that? "I suppose it was the introduction of the Atari Falcon that made us

all realise things were changing. It was a digital recorder. No tapes! It was all in the computer and you could mess around with it like a sampler. It was the start of the revolution; you just knew it was all going to explode. You could tell that the computer was going to be the guitar of 21st Century. Every kid would want one and start bashing out tunes in their bedroom."

Like so many budding producers, Arthur's first studio setup was based around the Atari 1040, with sampling handled by a Roland W-30 workstation. "Some kids want to be rock stars, but I dreamed about being a producer," he says. "I loved getting stuck into a tune: building up the drums, searching for sounds. Once I got my first Mac and Logic, there was no stopping me."

"Pro Tools was also around at the time, but it was ridiculously expensive. The only people that could afford a proper Pro Tools rig were the big-money guys. Y'know... proper, professional musicians. Logic put that technology in the hands of people like me: it was affordable. Almost overnight, I'd gone from the Atari and sampler setup - I'd got a couple of Akais by then - to full-on Mac and Logic. The change was immense. They were two completely different worlds."

Loyal to Logic

Arthur has stuck with the Logic and Mac combination since those early days. "A lot of the time, your studio setup is just down to what you know and what you're comfortable with. I like Logic because I've been using it for years - I know what I'm doing and I can work quickly. I've tried other systems but, somehow, Logic still seems the most user-friendly. It seems the most... logical! I'm not saying my way is the only way. I don't want to get into a fight with anyone about this! I can fully understand why someone will argue for Cubase or Ableton. Skream uses Logic and a Mac, but Benga is a PC man, and he puts his tunes together on FruityLoops."

So Arthur wouldn't recommend his setup over any other? "I know a lot of people say this

A hidden live show

"The live thing was really how Magnetic Man got started," explains Arthur. "We'd all seen how massive the vibe was at clubs like FWD>> when there was a DJ performing, so we wondered if we could do something live."

"We didn't want to make a big thing about 'Skream, Artwork and Benga's live show', though, so we decided to do it anonymously. We literally played our shows hidden behind a white sheet. Unfortunately, it went down so well that it became very difficult to hide our identities. Everybody wanted to know who Magnetic Man was!"

"In terms of technology, it was Ableton Live that allowed us to put together a stage show. We saw what people were doing with it and we thought, 'This could work. We can put tracks together and actually play them on stage... like a band.'

"We have three Macs on stage - Benga had to have his arm twisted, but he finally gave in. There's one with the basslines, one with top lines and one with the drums. In effect, each computer is a player; a member of the band. If you're in charge of the drums, you listen to what the song is doing - listen to what the other guys are doing - and you make your bit fit in with the song. You can drop things in and out, EQ, change sounds. I suppose you could even do a drum solo, if you wanted!"

"I don't think we compromised our principles, and we certainly didn't purposefully make music to become well-known. We weren't chasing success - we just tried to make a good album"

in *Computer Music*, but making good tunes isn't about what program you're running or which computer you've got. It's all about ideas. A good idea will work in Cubase, Logic, Ableton or FruityLoops - it doesn't matter. When Benga and Skream first started making tunes, they were using a PlayStation 1. After that, they had a cheap PC with a couple of plug-ins, but we still signed them to Big Apple Records, because they had



Magnetic Man (l-r: Benga, Artwork and Skream) first performed anonymously on the underground scene

good ideas. We weren't going to turn them away because they didn't have the latest equipment!"

Looking beyond the obvious

Big Apple is the now-legendary record shop that once acted as the lynchpin of the whole dubstep scene in the UK. Not only did Arthur hang out there, but he persuaded the owners to turn the upper floor into a studio. "That way, the record shop and the label could be self-contained," he explains. "We could put the tunes together upstairs and go straight downstairs to play them!"

The shop was also where Arthur first met the young Skream and Benga, who both went on to play key roles in the development of the dubstep sound. "We'd known each other for years before we decided to start working together. The fact that all three of us were used to working on our own has probably influenced the way we work as a band. There is no central Magnetic Man studio - each member has their own setup and tracks are electronically passed around South East London.

"As I said, Benga is on a PC with FruityLoops, but me and Skream have more or less got the same setup - Mac and Logic. Mine's a quad-core tower system with Logic... er, actually, I don't know what version it is. I know I haven't updated or upgraded either my software or the

"Benga and Skream are real bassheads. They get deep into the whole sound and the science of it"

computer for about 18 months. Once we got stuck into the album, there just wasn't time."

Magnetic Man might have been born and bred in South London, but work on the album started in Cornwall. "We went and locked ourselves away in this big, old place in the country. We had a PC running Fruity Loops for Benga, and a Mac with Logic for me and Skream."

Was that it? "I've got loads of other software on the Mac, but, I'll be honest with you, I don't really use most of it. If I want to bang down an idea, I always turn to Native Instruments' Massive and Maschine. And you can't really go wrong with anything by Rob Papen. Massive is just... well, it's Massive, innit? It does the business. I don't get too bogged down in bass, but Benga and Skream are real bassheads. They get deep

into the whole sound and the science of it. Those kiddies are obsessed."

Ask him how Magnetic Man get their basslines, though, and, for the first time in the interview, Arthur gets a bit cagey. You get the distinct feeling that he's not too keen on giving away all the trade secrets. "Basslines? You just play around until you find something that works."

And that's it? "Well... I guess the key is looking for synth sounds that no one else is using. When you pull up Massive, there are certain 'bass' sounds that everyone will pick up on. What I've noticed with Benga and Skream is that they'll go for the synth sound that is completely wrong for bass - a lead sound or a weird FX noise. Then they tune it down, get into the filters, stick a big fat sine wave underneath it and come up with a bassline that'll blow your head off. Most important of all, it will be a sound no one else has even thought of. If you go for the obvious, your song will sound obvious. Go for a sound that shouldn't work and you will get a bassline that is all your own."

Up, up and away

When it comes to drums and drum programming, Smith is full of praise for Native Instruments Maschine. "Apart from a keyboard, this is the only controller of any sort that I've got linked up to the Mac. EQ, effects... I do it all on screen with

a mouse. But for the drums, you can't beat that old-school drum machine feel. Start tapping away on those pads and you get a real instinct for the rhythm. The drums are vital for the music we're making. Get them right and you're going to save yourself a lot of hassle. It's all about swing - getting the right mix between the machine feel and the human feel. Loops automatically add that swing, but we tend to use programmed drums, so we have to really think about what we're putting down."

Arthur doesn't think you need a huge amount of complexity to create a good drum part, though. "Do you need 50 hi-hat patterns? Of course not - one good one will do the trick. Beef up your kicks and snares, but don't try to make everything too dense. Dubstep needs space; it needs air. If you're not sure about a certain kick or snare, take it out; keep it minimal. At every stage, ask yourself: what is that sound bringing to this track? Make sure every sound counts."

2010 may have been a busy year for Magnetic Man, but it looks like 2011 will be even more hectic. "The live side of things is really full-on," says Arthur. "There are so many festival shows! People have been asking us if we've started work on a follow-up album, but we haven't had a chance. And, to be honest, that's not the way we work. There is no big plan - we're just doing our thing, taking it one step at a time. We're enjoying ourselves, and people seem to be enjoying the music... and that's all that matters, really." **cm**

Big Apple Records

Anyone with even a passing interest in dubstep will know the name Big Apple Records. Beginning life as a hardcore, house and rave record shop in Surrey Street, Croydon, it eventually provided a crucial focal point for the emerging dubstep scene.

"Everybody - and I mean *everybody* - used to hang out at Big Apple," explains Arthur. "People didn't go there just to buy records: they were there to meet, to talk, to exchange ideas, to see what everyone was listening to. I've often described the shop as the University Of Dubstep. Young kids could go there and meet established DJs and producers. They could play their tunes, ask for advice... they could actually say to someone, 'What gear do I need? How did you get that sound?'"

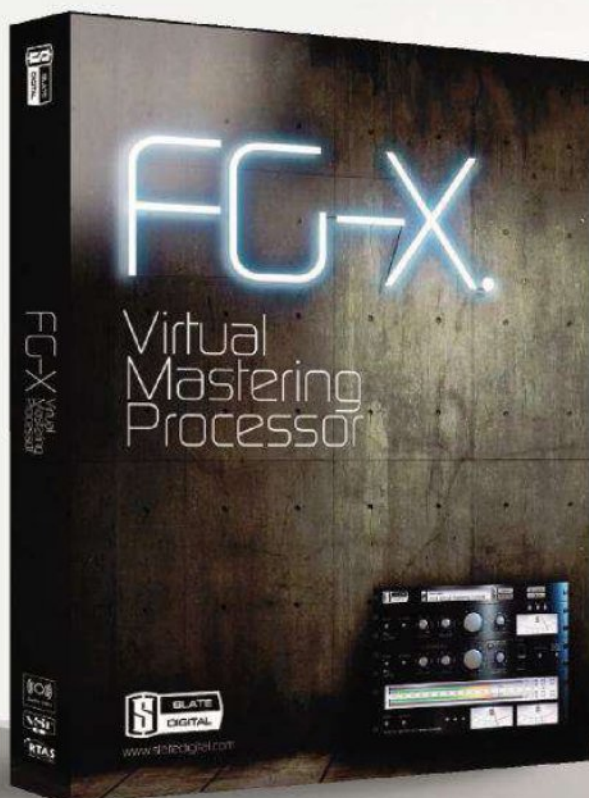
"And the great thing was that everybody was on the same level. If you went down there on a Friday, chances are that you'd see Plastician, Skream, Benga, Horsepower, Kode9, Chef, El-B and Digital Mystikz. But there were absolutely no egos! If some 15 year

old came in with a great tune, we would all make a fuss. Big Apple was all about nurturing that talent; helping each other; making friends."

Sadly, the shop was forced to close some time ago, and although it briefly reopened as Mixing Records, the shutters were finally brought down last year. "I still have to go past it every week, and it

"People didn't go to Big Apple just to buy records: they were there to exchange ideas"

really makes me sad," sighs Arthur. "It was our home - where it all happened. Yeah, I know the internet means you can talk to people all over the world, but there is something about being in the same room as your peers. Talking, taking the piss, having a laugh and learning about music. I really miss it."

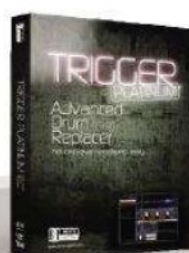


FG-X a revolution in LOUD.



Computer Music: **10/10 Performance Award** ★★★★★
 Music Radar: **Plugin Effect Of The Year 2010** ★★★★★
 Future Music: **Platinum Award** ★★★★★
 Sound on Sound: **Editor's Choice Award 2011** ★★★★★
 Pro Audio Review: **PAR Excellence Award 2010** ★★★★★

More from Slate Digital



Trigger
Computer Music:
Editor's Choice Award



VCC
Coming Soon...



Available at: Studioexchange, Dolphin Music, Absolute Music, Production Room



SUB6 Distribution
www.sub6distribution.com



0845 481 8149

Mixing and Mastering • Logic Pro 9 • Ableton Live 8 • Pro Tools 9 • Max/MSP
• EDM • Songwriting • Music and Sound for Video Games • and more

Produce finished tracks!

In-depth, quality courses for everyone

All 6 week courses
£399
one day a week

"This is the school London has been waiting for"
Norman Jay MBE

"The EDM course looks awesome!"

Anthony Middleton, **Audiofly**

Our tutors have worked with: Janet Jackson, Trevor Horn, Danny Tenaglia, Universal, Get Physical, Take That, EMI, Lady Gaga, Pet Shop Boys, Busta Rhymes, David Bowie, U2, Kylie Minogue, Massive Attack, Soul II Soul, Tricky, Bjork, Madonna, Spice Girls, Booka Shade, Roni Size, George Michael, Tiga, Rizmcs, Simple Records, Gamma, and many more

GARNISH
SCHOOL OF SOUND

020 7682 1082

www.garnishschool.com

info@garnishschool.com



manchester midi school

CELEBRATING 10 YEARS INNOVATION IN MUSIC TECHNOLOGY TRAINING

MUSIC PRODUCTION & DJ COURSES

Produce, engineer, remix and perform your music.

Learn at your own pace with creative freedom and as much individual tuition as you need.

- Unlimited studio time (7 days a week)
- Small classes (day or evening)
- Ex-students have worked with:
Mark Ronson, James Brown, Dizzie Rascal,
Lily Allen, Missy Elliot, Amy Winehouse,
Busta Rhymes, Pacha, Goodgreel,
Jeff Mills, DJ Zinc...

FREE
WEEKEND
TASTER
COURSES
MONTHLY

midischool.com

0161 833 4722



EditorsKeys™
WWW.EDITORSKEYS.COM

UNLEASH YOUR TRUE POTENTIAL

The all new dedicated editing keyboards for
Pro Tools, Cubase and Logic

compatible with:

PC +



Available now for an
introductory rate of **£69.99**.
Usually **£99.99**

Get yours now

www.editorskeys.com

\$2097

of PSP Audioware plug-ins up for grabs

Win a TotalPack, EffectsPack or the brand new N₂O!



COMPUTER music > competition

We've got a real corker for you this issue: PSP Audioware are giving away three incredible prizes.

Our third-place prize winner will receive the brand-new **PSP N₂O** filter plug-in which scores 9/10 in this very issue. Turn to p106 to find out in detail just how good it is.

Second place will be blessed with a **PSP EffectsPack**, which contains five plug-ins to the value of \$479. **N₂O** is in there, as is powerful delay effect **PSP 85** (9/10, **cm158**), not to mention the mighty **PSP 608MD**, **Lexicon PSP42** and **EasyVerb**.

The lucky lad or lass who comes first will see their studio endowed with the **PSP TotalPack**, worth a whopping \$1439. It contains the **EffectsPack**, **MixPack2** (10/10, **cm127**) and **StereoPack**, as well as analogue-style compressor/limiter **VintageWarmer2** (10/10, **cm112**) and EQ bundle **sQuad** (9/10, **cm138**). Also included are the equally excellent processors **MasterQ**, **MasterComp**, **Neon**, **NeonHR**, **Xenon** and **oldTimer**. What a prize!

HOW TO ENTER

To enter, send a text to **87474** containing: the keyword **PSP**, 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/cm163**. Entries must be received between **March 9 2011** and **April 6 2011**, and only UK residents aged 18+ may enter.

The question

The chemical N₂O is known as...

A. Solid merriment

Text: **PSP A** your.email@address.com

B. Laughing gas

Text: **PSP B** your.email@address.com

C. Liquid mirth

Text: **PSP C** your.email@address.com

TERMS AND CONDITIONS By entering this competition you are agreeing to receive details of future offers and promotions from Future Publishing Limited and related third parties. If you do not want to receive this information, please text the word STOP at the end of your message. Texts will be charged at £1.00 plus your standard network tariff rate. The winners will be drawn at random from all entries that answer correctly between 9/3/11 and 6/4/11. Winners will be notified within 28 days of the closing date of the competition, and will then be sent their prize free of charge, to a UK delivery address that they must supply. Only UK residents aged 18 and over may enter. No employees of Future Publishing Ltd or any company associated with this competition, or any member of their close family may enter. Prizes are as stated and no alternatives, cash or otherwise, are available. Future Publishing Ltd accepts no liability for any loss, damage or injury caused by any prizes won. Publicity may be given to any competition winners and/or entrants and their names and/or photographs printed. The editor's decision is final and no correspondence will be entered into. Where prizes are offered on behalf of an associated company, these prizes are provided in their entirety by these associated companies. Future Publishing Ltd cannot be held responsible for any failure to provide prizes as specified and all enquiries relating to such prizes will be referred to the associated companies. All entries must be received by the closing date. No purchase necessary. Copies of competition entry forms and winners' list are available by written request from Future Publishing Ltd, 30 Monmouth Street, Bath, BA1 2BW.

FIND YOUR VOICE

with the brand-new Computer Music Special. 100% focused on vocals, it's everything you need to produce better synthetic, sampled and recorded vox with your home setup



GET IT NOW!

Computer Music Special 46 is available from selected WH Smith, Barnes & Noble, Chapters and independent newsagents or myfavourite_magazines.co.uk

cm/reviews

The latest computer music gear tested and rated!



90 STEINBERG CUBASE 6

Multitrack audio quantisation, amp simulation, drum replacement and more added to this ever-popular DAW



96 AUDIO DAMAGE PHOSPHOR

For those who speak geek, retro digital additive synthesis; for everyone else, mental sounds galore



104 PSP AUDIOWARE N2O

The classic Nitro filter plug-in is overtaken by this high-octane multieffects successor

This month

- 94__ Steinberg Cubase 6
- 98__ Audio Damage Phosphor
- 100__ Cableguys Curve
- 102__ Sonic Charge MicroTonic 3
- 104__ iZotope Stutter Edit
- 106__ PSP Audioware N2O
- 108__ Mini Reviews
- 112__ **cm** Recommends

Our promise

We bring you honest, unbiased appraisals of the latest computer music products. Our experts apply the same stringent testing methods to all gear, no matter how much hype or expectation surrounds it.

What the ratings mean

- 1-4__ A seriously flawed product that should be avoided
- 5__ This product's problems outweigh its merits
- 6__ A decent product that's only held back by a few flaws
- 7__ Solid. Well worth considering
- 8__ Very good. A well-conceived and executed product.
- 9__ Excellent. First-rate and among the best you can buy
- 10__ Exceptional. It just doesn't get any better than this!



Awarded to products that challenge existing ideas and do something entirely new



A product has to really impress us with its functionality and features to win this one



If the product exceeds expectations for its price, it will receive this gong



In the opinion of our editor, the best product reviewed in the magazine this month

FOLDER TRACK

Click the '=' icon to enable Track Edit Groups and edit all contained tracks as one

TEMPO TRACK

This tempo map was generated using the new Tempo Detection system - it follows the audio just below it

MULTITRACKED AUDIO

Because these clips start and end in the same place, they can be selected with one click using Track Edit Groups

INSPECTOR

Fast access to the selected channel's properties

MIDI TRACK

We used the Convert Hitpoints to MIDI feature to create these notes from the kick drum track

TEMPO DETECTION PANEL

Works on any audio longer than 7 seconds, with options for adjusting the results if they're not quite right

VST AMP RACK

Here shown in the condensed view - the arrow button at the top expands it to full size

LANE-BASED COMPING

Clicking a grayed-out clip makes it active at that point - we've comped three takes into one 'perfect' one



Steinberg Cubase 6



£508

PC

MAC



System requirements

PC Intel/AMD dual-core CPU, 2GB RAM, Windows 7, 8GB hard drive space, USB port for eLicenser

Mac Intel CPU, 2GB RAM, OS X 10.6, 8GB hard drive space, USB port for eLicenser dongle

> It's a household name in computer music circles, but for those who don't know what Cubase is all about, we don't mind telling you that this DAW is a real all-rounder, being a one-stop music production package for recording, editing, sequencing, mixing and mastering in any genre. It comes with virtual instruments (drum machines, synths, ROMplers, etc) and an extensive collection of effects.

Windows 7 is the only Microsoft OS supported this time around. However, the 32-bit version of Cubase 6 worked perfectly for us under XP32 and Vista 64. The 64-bit version didn't work, but that's fair enough considering they're unsupported OSes. On the Mac side, there's finally 64-bit support in OS X.

Steinberg have posited Cubase 6's drum editing features as its headline addition, so we'll start there. There's multitrack quantisation and drum hit replacement (aka triggering). Both rely on the hitpoint detection system, which is much more accurate in v6. It's still a doddle to operate: move a slider to adjust the sensitivity and Cubase puts a marker wherever it thinks there's a drum hit. It's not as accurate as, say, Slate

Digital's Trigger (a dedicated drum triggering plug-in), but it's arguably more convenient, and you can easily move, add and delete markers until you're happy. You can then generate MIDI containing notes for each hit, complete with velocity, then pump that into a drum instrument, for drum replacement/augmentation.

Phase too

The multitrack audio quantisation slices audio at the same point on all tracks (to preserve phase coherency), quantises it, and applies crossfading to cover gaps. You can 'key' the quantisation to certain tracks (eg, kick and snare) and give each track a priority. The results are good, especially when using a minimal crossfade time to avoid artifacts on cymbals. It doesn't use real-time 'elastic' timestretching or anything you couldn't do by hand, but this does mean you can easily make extra edits, which can save your bacon with dodgy playing that won't quantise neatly.

Those who work with multitrack audio will appreciate the elegance of these new features. The simplicity of the drum replacement in particular is refreshing. Cubase does seem a

“The new tempo detection option works like a dream”

little disjointed, however, in the way it divides audio editing between the multifaceted Sample Editor and main Project window. For years, the Sample Editor has offered an awful lot of audio manipulation power, but it can be hard to figure out how to best tap into it.

How fast?

The new tempo detection option works like a dream. It takes a rhythmic audio clip and creates a bar-by-bar tempo map. If the algorithm runs up against a part it can't suss out, the tempo map ends there, but you can chop the audio into sections and analyse them separately.

Cubase finally has a decent comping system for putting together the best bits of multiple takes. It uses Cubase's Lanes system - you simply click a clip in a Lane to make it the active one at that point. You can also use the Range Selection tool, and this works like the 'swipe' comping in some other DAWs. Clips in any Lane can be auditioned by Shift-clicking, but it seems you don't hear any insert effects applied, which makes it useless in some situations, such as when using amp simulation plug-ins.

Back to multitracked audio, and there's a new feature named Track Edit Groups, whereby clicking a clip in a Folder Track also selects all other clips that start/end at the same point, so you can edit all channels 'as one'. It's easier than multiselecting or using grouping, and more powerful than moving/resizing via the Folder Track because you can perform *any* operation. Note that the new comping system leverages Track Edit Groups to enable multitrack comping.

The built-in timestretching routines were seeming a little, well, stretched, but now you get



This is Steinberg's first serious stab at amp simulation since Warp VST - remember that?

Sweet rack

It's de rigeur for DAWs to come with a pro-looking guitar amp simulation, and Cubase has caught up with the Joneses with the tediously titled VST Amp Rack. It offers seven amp heads and cabs (modelled on classics from Marshall, Fender, et al), two blendable virtual mics with seven positions, and 16 effects that can go pre- or post-amp.

We found parameter handling a little awry, and eventually realised that the plug-in's Master output control (which should affect only the level) and the amp's Master knob (influencing tone *and* volume) are 'cross-wired' internally, so each controls the other's parameter. This bizarre slip-up leads to patches restoring at the wrong volume.

Of the effects, you can't set the dry/wet mix for some (eg, chorus, phaser), so you can't use them subtly. We especially like the rip-roaring fuzz box and meaty octaver, though.

As for the sound quality, it's average by today's standards, which is to say that it sounds fine but doesn't have the realistic roar of the best amp sim plug-ins. The cabinet simulation is our favourite aspect, with plenty of variety and a lack of annoying resonances.

While VST Amp Rack needs more work, and the tone isn't awesome, it does slot into the mix neatly, giving solid - if unspectacular - results. It's CPU-friendly, too, which could be useful in a heavy mix.



On the left, this is about as deep as HALion Sonic SE's voice editing gets; up top, detecting and editing hitpoints in a drum performance; and down below, VST Expression 2 now incorporates dynamics

zplane's proven élastique algorithms. We've encountered these in numerous other apps, and they sound as good as ever in Cubase (the pre-existing Drums algorithm is still sometimes your best choice for percussion, though). One gripe: these algorithms seem to be unavailable to the Project Editor's 'resizing applies timestretch' option, which is something we use all the time.

If you're not into recording and audio editing, there's still plenty here for you. VST Expression 2 introduces useful dynamics markings, but far more exciting is the all-new Note Expression, covered in the boxout. New for automation and MIDI controller lanes are pop-up tools for scaling, moving and skewing the curves - how did we managed without them? You also get an Inspector in the Key Editor (for quantisation, transposition, etc), simpler Quick Control assignment and more, all of which offer appreciable smoothing of workflow.

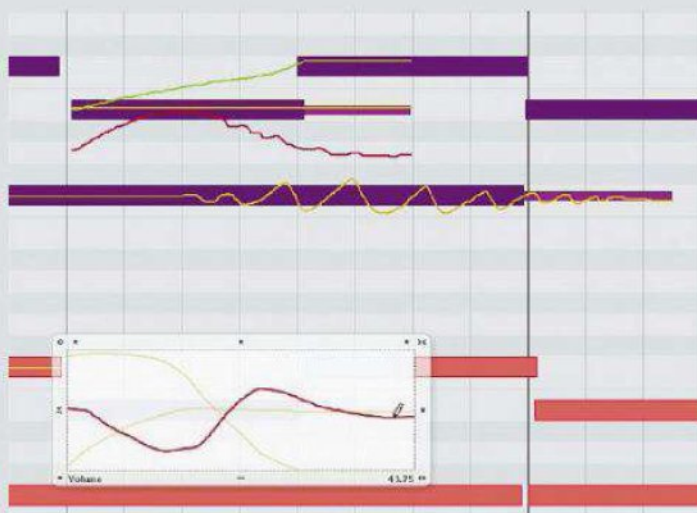
Going instrumental

Cubase's instruments are slightly lacklustre compared to, say, Logic's or Sonar's. Aiming to remedy this is HALion Sonic SE, which supercedes the HALion One ROMpler, offering all of its sounds and more, with a sound engine that utilises both samples and synthesis. It has over 900 patches, and while it's a superb sound source, there's no in-depth patch-editing power. As it stands, then, Cubase still doesn't have a proper sampler, which is odd considering the drum replacement functions (you could use Groove Agent One, but it's rather rudimentary). And the only instrument with a competitive synthesis engine - HALion Sonic SE - is basically a preset machine with knobs on. Presumably the idea is that you'll fall in love with the sound and pay up for the full HALion Sonic (cm156, 8/10).

The LoopMash loop-wrangler reaches v2, with some new MIDI performance options. We still can't see any serious producer using it.

So, a lot's been added, but where is Cubase lacking? It still doesn't have undo for mixer operations, which we're pretty tired of. The window-based interface is also considered clunky by some. And while Cubase is great for mixing, there hasn't been much advancement in that area this time. The existing mixing plug-ins are pretty workmanlike, and there's nothing to compare to, say, Sonar X1's sonically excellent Pro Channel. We'd also like to see further mix-friendly functions, such as freezing at the group channel level and ganging effects parameters across multiple channels, which would be ideal for amp sims on multitracked guitars.

Obligatory wish-listing aside, we're really impressed with this update - Steinberg even had time to smarten up and clarify the interface. There's a well-rounded balance of workflow tweaks, interface polish, shiny new plug-ins and



Note Expression in use - the colour of each curve signifies its parameter

Express yourself

Despite all the innovation in music technology, the piano roll editor has barely progressed. But here come Steinberg to shake things up with Note Expression. Double-click a note and an overlay pops up, enabling you to draw in curves for any VST3.5 parameter or MIDI CC - each note can have its own such curves. Curve data can be snapped to horizontal or vertical (eg, semitone) positions, scaled, and extended beyond the end of the note (eg, to manipulate pitch during the release phase). And when you move a note, its curves move along with it - this aspect alone is invaluable. You can also record MIDI as Note Expression data.

Tracker users have had per-note programming since the beginning, and they'll tell you that while it's liberating and logical, it's unlikely to revolutionise your music. The real value is that, for many operations, Note Expression easily beats traditional automation/CC lanes on flexibility and convenience, and sidesteps their limitations too.

To do things outside of the MIDI spec - like bending notes in a chord - you need to use a VST3.5 instrument, and this is currently found only in Steinberg products such as HALion Sonic and the bundled SE version. Still, at least there's a real incentive for developers to support VST3.5 now.

forward-thinking features, making for an update that'll appeal to beginners, pros, newcomers and existing users alike. You even get two hours of informative, easy-to-digest video tutorials. And crucially, it's a stable release - something that new Cubase versions haven't always been.

All in all, Cubase 6 reasserts Steinberg's reputation for innovation while still delivering plenty of no-nonsense improvements. cm

Contact info@steinberg.de
Web www.steinberg.net
Info Upgrade from Cubase 4/5, £126
Cubase Artist 6, £253

Alternatively

Cakewalk Sonar X1

cm160 >> 9/10 >> £379

PC-only DAW with a fresh interface and superb channel strip

Apple Logic Pro 9

cm143 >> 10/10 >> £417

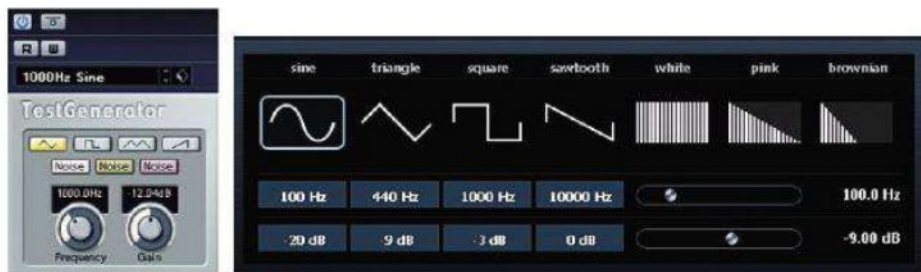
Mac-only DAW that's overflowing with features, plug-ins and content

Verdict

For Comprehensive, powerful package
Note Expression is awesome
Smart audio editing enhancements
élastique timestretching algorithms
Halion Sonic SE sounds great...

Against ...But is basically a preset bank
VST Amp Rack could do with more work
Still no mixer undo or sampler

An all-round update for an all-round great DAW, combining sensible additions and tweaks with splashes of real innovation



Several of the plug-ins that were stuck with the old-style graphical interface have been brought up to scratch. Above, you see the Test Tone Generator in its former (left) and current (right) guises. Functionally, it's identical

9/10

Play Live



LAUNCHPAD

THE ABLETON LIVE CONTROLLER

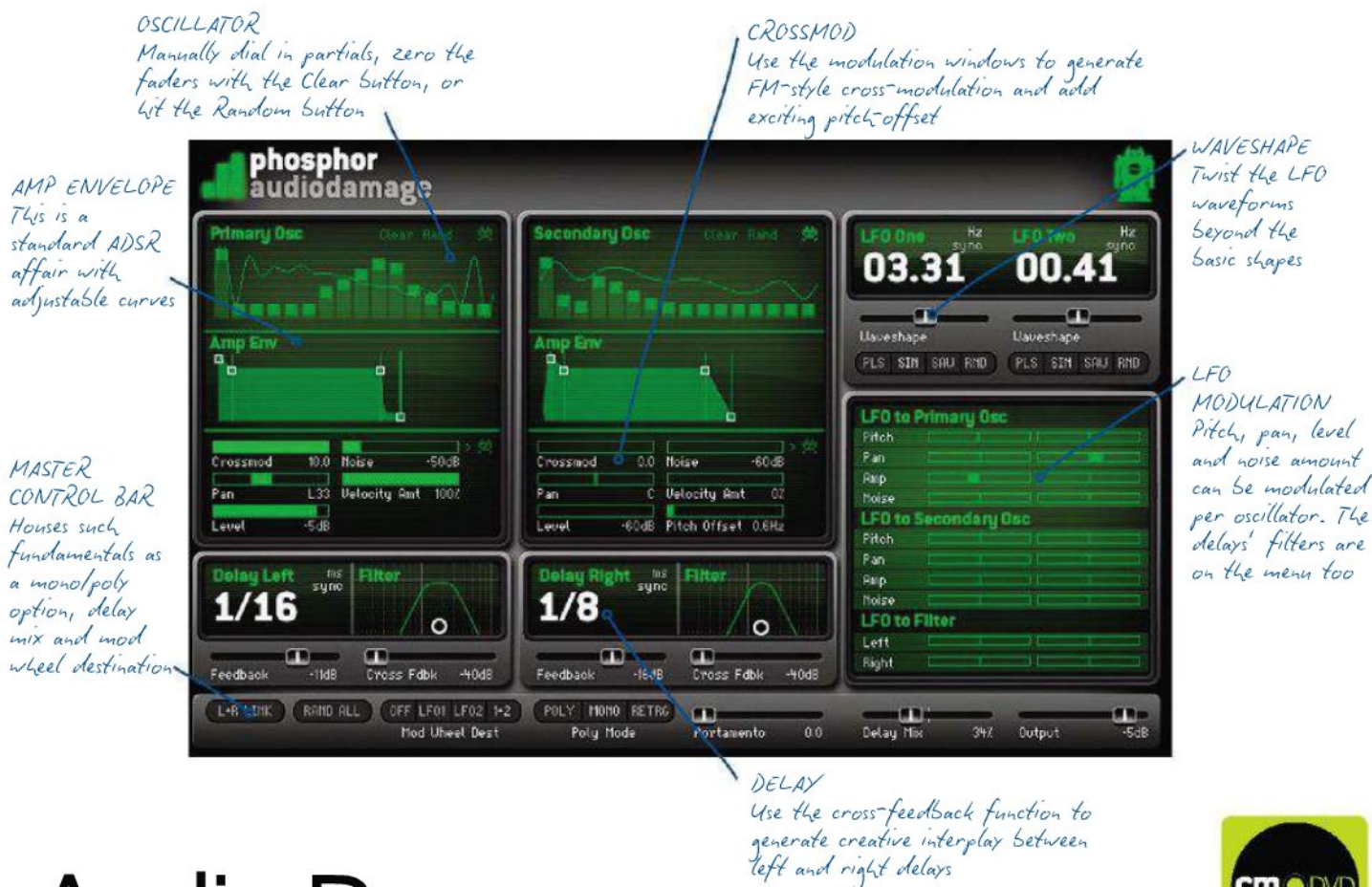
'Playing' Live is so much more than just launching clips.
Find out how 64 buttons can put Ableton completely at your fingertips, visit:

www.novationmusic.com/launchpad

DESIGNED AND DEVELOPED BY



novation®



Audio Damage Phosphor \$59

PC MAC



This oddball instrument pays homage to a piece of computer music history, the alphaSyntauri. Can it add to additive synthesis?

System requirements

PC Windows XP/Vista/7 (32-/64-bit), VST host

Mac OS X 10.5, AU/VST host

> Off-the-wall plug-ins are par for the course for Audio Damage, so it's hardly surprising that their very first 'proper' synth is based on a vintage model that was pretty peculiar in its day and only seems more so nowadays.

The alphaSyntauri was perhaps ahead of its time, requiring, as it did, a computer to run - specifically, an Apple II. Released in 1979, it could play up to 16 notes via a set of synthesis cards installed in the computer, with a software front end for editing patches and more.

Like the alphaSyntauri, Phosphor uses additive synthesis as its sound source. This is covered in more detail in *Partial to partials* opposite. In a nutshell, though, we're talking two oscillators, each with 16 partials. One of the nice touches in this section is the waveform display, giving a visual representation of the result of what is naturally a dizzying number of permutations.

There are a number of clever features that aren't standard soft synth fixtures. One is the ability to adjust the curve of the attack, decay and release segments of the envelope. Another is the Vintage button, which switches the sound quality of the oscillators between a lo-fi mode

(complete with harsh aliasing to mimic the sound of the original device) and a cleaner one, which makes a huge difference to the sound. A similar vintage option is available to the noise generator, giving plain old white noise. If you don't dig that, flip the switch and you'll hear gritty digital noise that responds to note pitch, akin to old video game systems.

Getting cross

Audio Damage's recent Axon instrument featured frequency modulation, and this appears in Phosphor too. Oscillator 1 can modulate the frequency of oscillator 2, and vice-versa. In fact, you can make them both modulate each other at the same time, known as cross-modulation. Cranking this up and enabling the Vintage mode gives you waveforms you're unlikely to get any other way, lifting Phosphor above and beyond a vanilla additive sound.

LFOs come next, with two on offer that can modulate pitch, pan, level or noise amount for each oscillator, as well as the delay line lengths. LFO waveforms are pulse, sine, saw and random, and they can be further warped with the

"Whether Phosphor is being used for fake bass guitar plucks, FM bells or wonky leads, it's unmistakable"

Waveshape slider. The simplicity of the LFO section belies some nice touches, while the malleable waveform system is best explained by the manual, which you'll find on the **cm** DVD.

The remaining section is the stereo-filtered delay. This will be recognisable from a number of other Audio Damage plug-ins, enabling tempo-synced or manually-set delays for left and right channels, each of which has its own filter section that's applied to the delayed signal. The filters are a combination of high- and low-pass, which can act as either, or be combined to create band-pass filtering.

The presets ably demonstrate how well delays work with the types of sounds Phosphor offers. However, the plug-in falls foul of one of our pet peeves: the lack of a master effects off control. You have to turn off the delays each time you change preset to hear the dry sound.

Control-wise, that just leaves some global options, two of which are a portamento control, and the ability to set the destination for the modulation wheel (LFO1, LFO2, both or neither).

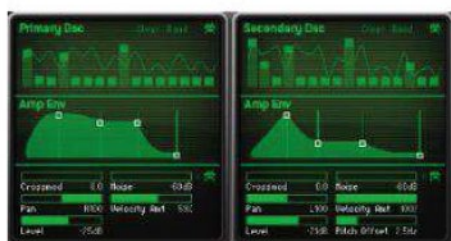
If you find inspiration lacking, there are buttons to randomise the oscillator partial sliders or even the entire synth, and both can turn up some terrific results.

Spirit of 79

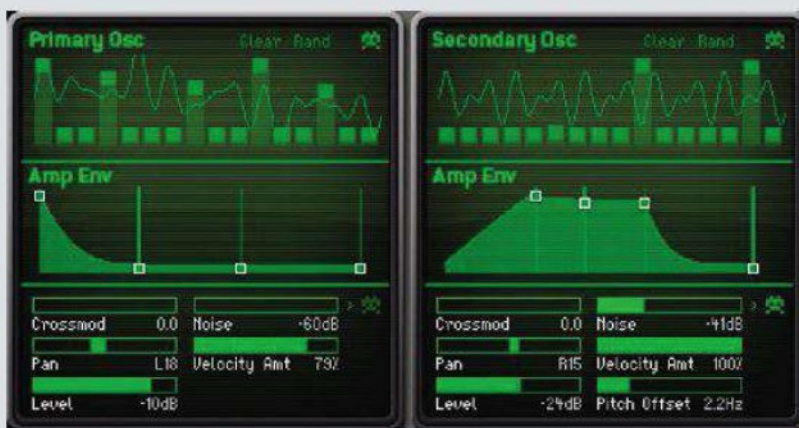
In use, Phosphor sounds simply stunning. While going through the presets we found ourselves playing a succession of very familiar riffs from a variety of genres, with the signature motifs from *I'm In Miami Bitch*, *Knight Rider* and *Scarface* all inadvertently falling under our fingers. It's not that the presets are exact recreations, though – they just capture their spirit, be that a tonal quality or simply the way that the envelopes and portamento respond.

Phosphor conjures a surprisingly wide range of sonic textures, covering dusty pads, glimmering bells, disgusting bass noises, 80s digital keyboard preset-alikes, and, at extreme settings, downright disturbing, freaked-out FX.

Classic old samplers had a way of making things sound beautifully and organically digital, no matter what kind of sound you'd sampled, and that's the vibe that permeates Phosphor – it takes the typically crisp and clean sounds of



Note that the curve of each segment of the envelope can be adjusted, giving a quicker or lazier response



The faders up top set the levels of each oscillator's partials, resulting in the waveforms shown

Partial to partials

Additive synthesis is one of those terms that strikes fear and confusion into many uninitiated producers and musicians. But in many ways it's very simple indeed. The subtractive synthesis that we know and love offers basic oscillators that produce harmonic-rich tones, then processes them with filtering to remove (ie, subtract) harmonics, thus shaping the sound, a bit like how a sculptor removes material from a block of stone to create a complex shape.

Conversely, additive synthesis starts with nothing, and introduces the harmonics needed for the desired sound. This is done by synthesising each individual harmonic (or 'partial'), then adding them all together. These harmonics are just sine waves. A sine wave takes place at a single frequency

only, and as you may know, any sound can be described as a sum of sine waves of various frequencies, amplitudes and phases. Additive synthesis, if complex enough, can theoretically create waveforms of any shape. It could be something conventional, like a saw wave, but the real fun is in making mental noises that you simply couldn't produce any other way.

If you think you've never heard additive synthesis in the wild, think again. Pipe and electromagnetic organs work on exactly the same principle of taking partials, and adding as many as are needed to generate one complete, complex and stunningly rich sound. An organ's drawbars are just like the partial sliders in synths such as Phosphor.

additive synthesis, puts a sneaky FM twist on it and encrusts it all in a shell of antique digital dirt.

Experienced synthesists may find themselves craving a more flexible architecture with features like modulation envelopes, LFO phase controls, dedicated filters, and even things we usually take for granted, like oscillator tuning controls (you can offset them by up to 10Hz for cross-modulation antics, but that's all).

Phosphor won't be everybody's cup of tea, then, but we absolutely love it. It isn't the most complex or versatile soft synth by a long chalk, but it has one thing going for it that many modern synths don't: unmistakable character. It boasts bags of personality, and whether it's being used for fake bass guitar plucks, FM bells, gnarly bass noises, sci-fi pads, 'poorly computer' FX or wonky leads, it's unmistakable – and we love it for that. Its distinctive tone makes it a dream for cutting through busy mixes.

Anyone looking for a truly original-sounding synth will struggle to find anything more character-packed than this. Take it for what it is and you'll be amazed at how much mileage you can get out of something so simple. **cm**

Web www.audiodamage.com
Contact info@audiodamage.com

Alternatively

112dB Morgana
cm133 >> 9/10 >> €39

A sampler, not a synth, that mimics the sound of vintage digital gear

Waldorf PPG Wave 3.V
cm99 >> 9/10 >> £119
Emulation of a classic 80s digital synth, with a famously gritty tone

Verdict

For Authentic 80s digital sound

'Vintage' options

Wide range of sounds

Randomise buttons

Unique character

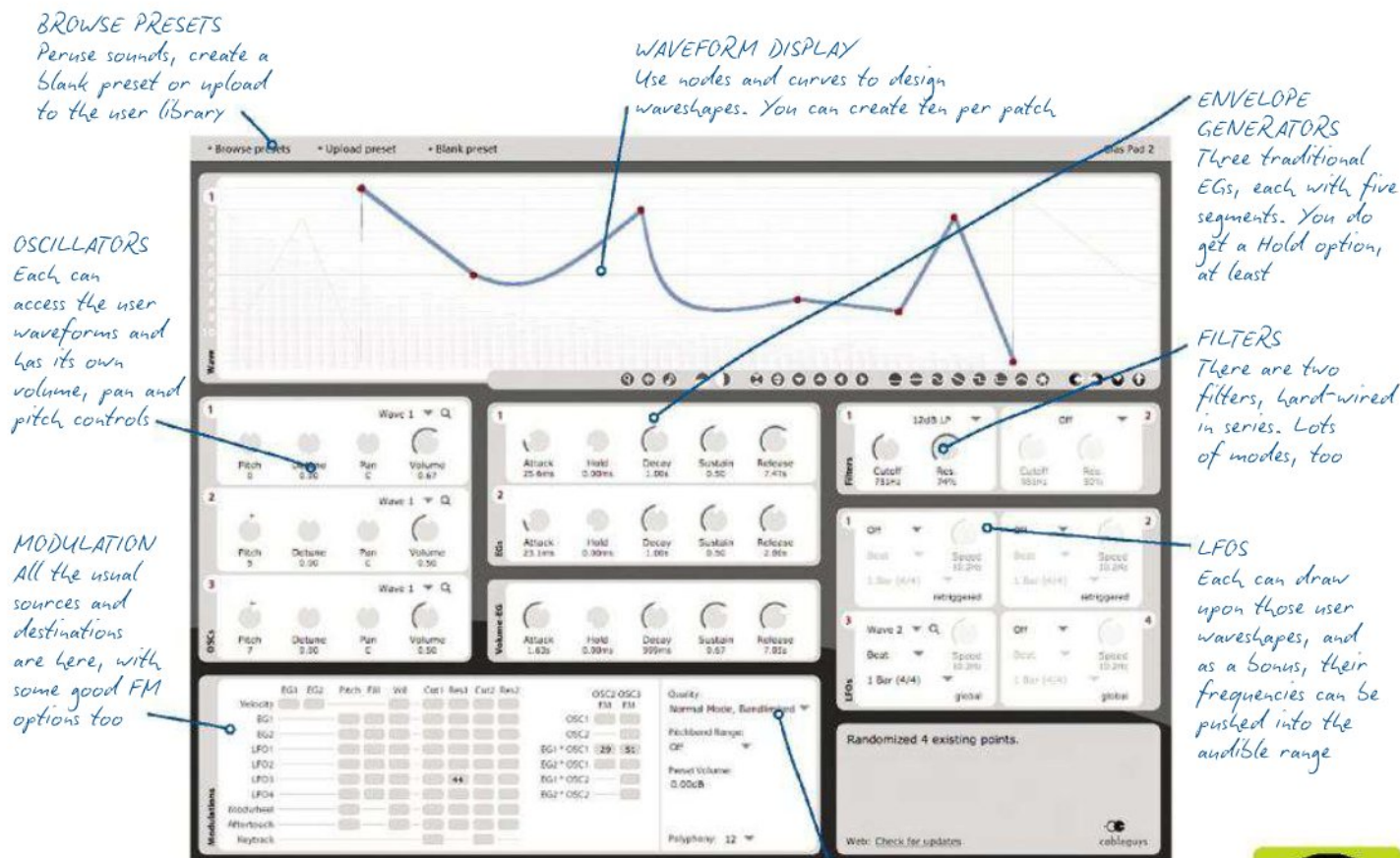
Trademark Audio Damage stereo delay

Against Basic synthesis architecture

No global delay off control

A thoroughly unique – and very Audio Damage – synth with a tone that's all its own

9/10



Cableguys Curve \$159

PC MAC



This quirky synth finally goes commercial, but does it have what it takes to coerce the coin from current users?

System requirements

PC 2GHz CPU, Windows XP/Vista/7, OpenGL graphics card, VST host

Mac 2GHz Intel CPU, OS X 10.5, AU/VST host

> Appearances can be deceptive. At first glance, Curve looks like a generic subtractive synth - but get past the austere exterior and you'll find a treasure trove of inspirational features waiting within this plug-in. Take, for example, the oscillators. There are three of them and each provides the expected selection of controls: pitch, detune, pan and waveform selection. However, instead of the typical handful of squares, saws, sines and so on, Curve offers a custom waveform generator, which occupies the top third of the GUI.

Custom waveforms can be drawn using a 'nodes-and-curves' arrangement similar to those found on multi-segment envelope generators. Nodes can be added or deleted, up to 20 per waveform. The wave's partials are displayed in light gray behind the curve. It's a fun and intuitive way to draw in waveshapes, though it might seem a bit fiddly at first.

A collection of buttons below the waveform display enables you to zoom in on the wave, change its position along the horizontal axis, increase or decrease levels as a group, and select from a bunch of pre-rolled 'classic' wave

shapes (sine, square, saw, etc). You can also take snapshots of the waves, which can be copied and pasted between any of the available slots. Any patch can access ten different waveforms, and those waves are saved per-patch. Not bad!

There are five quality modes for the oscillators, and overall the fidelity is great. The waves can take some serious punishment from fast modulation rates, with aliasing only apparent at the most extreme settings. You can also reduce the quality setting for some deliberate PPG-esque aliased grunge.

Putting on the squeeze

Two multimode filters are onboard, each with only two controls (cutoff and resonance, notch). There are ten modes from which to choose, including 6dB, 12dB and 24dB responses, with variations on low-pass, high-pass, peak and notch filters. The filters are hardwired in series, and that brings us to one of Curve's limitations: signal routing. We wish we could route the three oscillators through one or both (or none!) of the filters as we see fit, rather than being forced to obey a fixed path. Fortunately, some of these

"What looks at first to be yet another subtractive synth is in reality a semi-modular hybrid powerhouse"

limitations are compensated for in the modulation department.

Odds 'n' mods

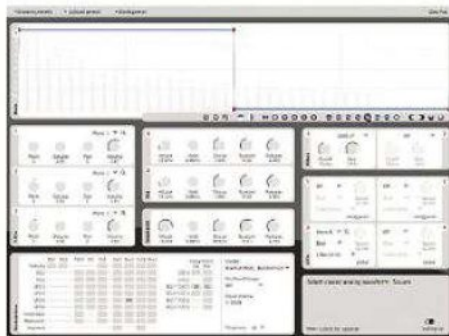
Parameters can be modulated by a number of sources, including the usual velocity, aftertouch, key-tracking and mod wheel messages. There are a trio of envelope generators onboard, all of which are of the five-stage AHDSR variety (the H being a 'hold' segment). One of the three envelopes is dedicated to volume, while the other two are available to any modulatable destination. The envelopes are run-of-the-mill but they get the job done.

Curve's LFOs offer some compensation for the pedestrian envelope generator design, and are the key to some of the sequenced presets in the library. On the surface, the four LFOs look like any others, with the ability to sync to host and a speed control. However, they draw upon the same waveforms available to the oscillators, meaning you can draw in some pretty wild custom shapes. The waveform display offers a note grid with snap-to-function, a feature that makes it easy to create musical and rhythmic passages. Additionally, when they're set to a fixed frequency, the LFOs can be cranked up to audible rates, making an ideal arrangement for bizarre modular-style sounds. To top things off, LFOs 1 and 2 have a Note option, where the LFO's frequency is determined by the incoming MIDI note values. Any of the four LFOs can be synced to the host tempo.

Modulation routing is addressed with an EMS-style modulation matrix. Mod sources are arranged vertically, and destinations are laid out horizontally. Ten sources can be bound to any of nine destinations. As well as this, there's a dedicated matrix for patching oscillators 1 and 2 and the envelopes into oscillators 3 and 4 for a bit of FM mayhem.

Grading on the curve

Our experience with Curve was not entirely without issue. When syncing the preset browser to the online library, we were met with a dialog



If you really need that familiar old sawtooth or square, Curve has buttons on the dashboard to summon them



You can share patches with other Curve users from within the synth itself

Community service

Cableguys have put a lot of emphasis on their intention to involve Curve's userbase in its ongoing development. The synth comes with a substantial package of presets, but users are encouraged to use the built-in browser to download more sounds from the online user library. At the time of writing, that amounts to 608 additional presets covering a wide range of styles. Of course, being a user library, the sounds can be hit-and-miss - but a good number are excellent. This isn't the first time a developer has encouraged patch sharing among its users, but Cableguys have made it especially easy to upload and download patches.

In a similar community spirit, Cableguys have decided to make feature requests and bug reports public for all to see and contribute to. The idea is that Curve's growth will be propelled by the desires of its users as much as those of the developer. While they suggest that not every wished-for feature may be granted, they fact that they're so open about the instrument's development is promising. At the very least, the most requested features and fixes will get bumped to the top of the to-do list. Again, these guys aren't the first to do something like this, but we applaud their intent to keep Curve's development in the public eye.

box that suggested we were using an illegal version of the plug-in (which we weren't, obviously), following which, most of the patches in the library were cleared out. Fortunately, the diligent developers tracked down and crushed the bug post-haste - within an hour of reporting the issue, in fact. That speaks volumes about the developers' resolve.

We like Curve - we always have. You see, for many years, the beta version was available as a free download - and that may well turn out to be the problem. Curve could be a hard sell for Cableguys. Because it's been freely available for so long, some users might not be easily convinced that it's worth the price of admission. On top of that, new users might be hard to persuade, given that Curve's best qualities are not obvious at first glance. That's too bad, because what looks at first to be yet another subtractive synth is in reality a semi-modular hybrid powerhouse that can knock out typical analogue-esque tones just as easily as it generates thoroughly modern, digital tones full of motion and interest. If you tend towards rich, complex timbres, Curve is well worth a look. **cm**

Web www.cableguys.de
Contact contact@cableguys.de

Alternatively

Native Instruments Absynth

cm145 >> 8/10 >> £179

Classic semimodular with custom waveshaping and a whole lot more

Cakewalk Z3TA+

cm56 >> 9/10 >> £69

Offers custom waveshapes for both oscillators and LFOs

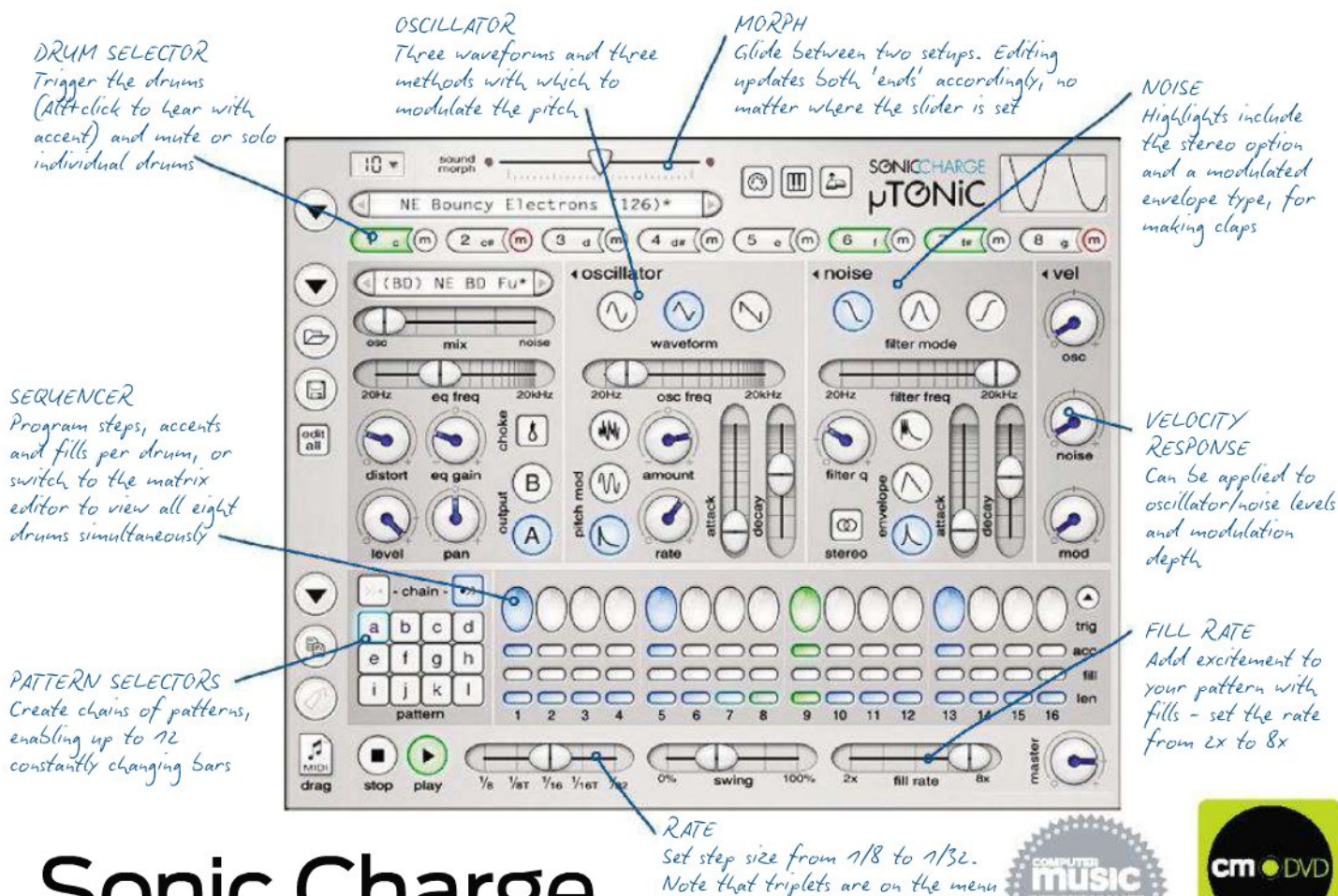
Verdict

For Flexible custom waveforms
Excellent sound quality
LFOs share custom waveforms
Growing user library
Developer encourages user community

Against Signal path a tad inflexible
Envelopes are limited compare to LFOs

More than meets the eye, Curve will appeal to those seeking a slightly different take on modern synthesis

8/10



Sonic Charge MicroTonic 3 \$119



It's been five long years since this acclaimed drum synth last saw a proper update. Can it still beat the opposition?

System requirements

PC 1GHz Pentium 4, Windows XP/Vista/7, VST host

Mac 1GHz PPC/Intel CPU, OS X 10.4, AU/VST host

> This eight-channel drum machine from the creator of Reason's Malström synth has been chugging along for quite a few years now, and it still has a great reputation among enthusiasts and pros alike. So, what's so great about it, and does version 3 offer up any fresh incentives?

Let's start with the main interface. You get a synthesis module for each drum, and unlike many drum machines - where you get different controls for, say, kick and snare drum modules - each module in MicroTonic is identical. We love this! However, it can make things seem cramped at first: there's a lot of information packed into a relatively small GUI, and the software only lets you look at one drum at a time.

The synthesis engine in MicroTonic is simple: each drum voice is built on an oscillator and a noise generator. The former can use a sine, triangle or saw wave as its source, and its pitch can be modulated by an envelope, LFO (which actually goes up to 2kHz) or random source. The noise generator runs through a filter (low-, band- or high-pass with adjustable cutoff and resonance) and has a stereo mode to add space to your sounds. Both sections have a simple

attack/decay envelope, though the noise generator's one has three shapes: linear, exponential and a special one for clap sounds.

The output of the oscillator and noise generator are mixed (you can set the balance), after which you can apply EQ and distortion. Pretty much any type of electronic drum/cymbal sound can be created with MicroTonic.

Rock to the beat

You have to know what you're doing to be able to dial in a particular type of drum sound, but it's worth persevering with the software because you only have to learn the synthesis controls once and you're off. There's real appeal here for producers looking for an alternative to sample packs and Roland drum machine emulations.

There's a familiar step sequencer, with buttons for step, accent and fill. The steps can represent values of eighth-, 16th- or 32nd-notes, with triplet values for the first two. The sequencer can send MIDI data, enabling you to control other virtual instruments. A new feature is the matrix grid, which lets you view all eight drum parts at the same time - this is most welcome. Up to 12

"Some of the sounds that can be achieved are mindblowing"

patterns can be stored and arranged in one preset, and you can chain them together to create multi-part patterns.

You can disregard the sequencer entirely if you like, using MT3 purely as a sound module. There's also a great option that let's you play any drum sound up and down the keyboard in pitched fashion, making it a tasty bass synth. Another lovely touch is the Alt+click function, for auditioning an accented drum on the trigger pads. As some of the sounds can vary wildly with accent, this makes a lot of sense.

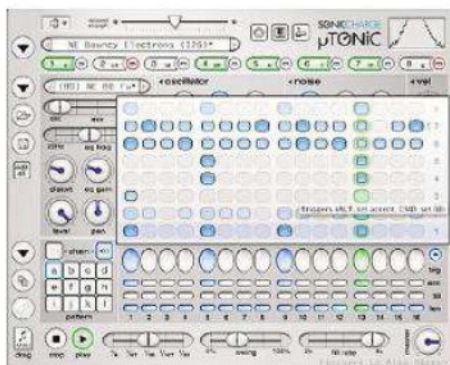
The Edit All function is another one that seems obvious when you think about it. When active, twiddling a control on one drum module will adjust that parameter on all unmuted modules by the same amount. Then there's the MIDI drag button, which enables you to drag the current sequence out of the interface and directly into your sequencer as MIDI. While not unique to MicroTonic, this feature is surprisingly rare in virtual drum machines and sequencers.

One of the more underwhelming features is the new Morph function, which enables you to smoothly transition between two separate sets of drum sounds via one slider. It will have its uses, and some will love it, but it's not the kind of thing we'd use too often. It would be good for glitchy fills, and useful if you need to change the decay of drums for a tighter, 'gated' effect.

Other sundry additions include a choke option (makes drum pads mute each other), pitchbend over two octaves and the option to cut off a drum sound when the MIDI key is released. The new features, then, are largely smart improvements and workflow enhancements rather than sweeping changes – see the manual on the **cm** DVD for a rundown.

Small but mighty

Despite all the additions, we do have a few things on our wish list. One is a global fill button that affects all drums, in addition to the buttons for individual drums. Another nice touch would have been some kind of output compressor/limiter. The option to use a MIDI keyboard to record notes and have them snap to the nearest step, MPC-style, would have been great too.



Keep track of every part of your pattern at once with MicroTonic's new matrix editor



You can have 16 full programs loaded at once, and switch between them via MIDI

A pattern is emerging

One of the best things about drum machines like MicroTonic is their ability to mix and match patterns and drum sounds. It's always fun to take a sequence designed for an R&B kit and apply it to a techno kit, and vice versa. With MicroTonic 3 you can take things even further, as not only can you load patterns and drum banks, you can also save individual drum sounds for the eight drum slots.

In terms of factory content, the sequences on offer range from excellent and useful to standard drum machine factory bank fodder. It's the

drum kits and in particular the drum sound presets that really shine though. There are a huge range of drum hit presets, all sorted by category, which you can scroll through at your leisure. Just be sure to set aside a bit of time, as there are a lot to audition!

And not only do these large banks constitute a useful creative resource, they also serve as a masterclass in MicroTonic sound design: by scrolling through and looking at the settings for each, you get a great starting point for every type of sound you might want to make.

Features and functions aside, though, by far and away the most impressive thing about MicroTonic is its sound. The percussion sounds that can be achieved using synthesis alone are mindblowing in their richness and complexity. You'd have to go a long way to find 'pure' kick samples with as much weight and punch. But perhaps it's unfair to single out the kicks for special treatment, because whether it's snares, toms, hats, cymbals, or general percussion you're after, MicroTonic can easily stand up to absolutely anything else you might find out there. What's more, its elegant synthesis system makes it more flexible than the vast majority of beat machines.

Overall, MicroTonic 3 is a fantastic-sounding drum synth with a very distinct and useful sound and a creative approach to drum sound design. Producers in any electronic genre will appreciate the wide sound palette, and those for whom drum programming isn't instinctive will love the range of patterns included. On either basis it represents excellent value for money. And for existing registered users, it's essential, being a free upgrade. **cm**

Web www.soniccharge.com
Contact via website

Alternatively

Audio Damage Tattoo

cm150 >> 8/10 >> \$79

Synthetic drum machine with some interesting touches of its own

Audio Realism ADM

cm121 >> 8/10 >> €95

Roland TR series emulator that loads samples too

Verdict

For Huge range of sonic possibilities
Powerful sound
Great drum presets
Versatile sequencer
MIDI keyboard mode

Against No output effects

Not a huge update, but then MicroTonic was already – and continues to be – one of the best beatboxes money can buy

9/10



iZotope Stutter Edit \$249

PC MAC



Legendary producer BT teams up with iZotope, but has he arrived at the club only to find that all the cool kids have left for the after-party?

System requirements

PC Windows XP/Vista/7 (32-/64-bit)

Mac OS X 10.5.8

> Electronica legend Brian Transeau - better known as BT - has used and abused the 'stutter edit' technique on a decade's worth of albums, and for some time his secret weapon has been a plug-in of the same name. His collaboration with iZotope sees Stutter Edit finally become a commercially available product.

This MIDI-controlled effects plug-in works by stuffing incoming audio into a buffer and repeating snippets of it in various ways. Further processing modules can be applied: there are gating, panning, filtering, stereo filtered delay, and bit-depth/sample-rate reduction. Each MIDI note will trigger what iZotope call a "gesture" - essentially a preset combination of effects settings and associated patterns. There are numerous tempo-syncing features, so the resulting mayhem will lock up perfectly with your track. The user interface is unmistakably iZotope and easy to navigate.

BT in a box

Stutter Edit is easy to get going, although you do need to route MIDI into it to make it work. Anyone with a basic grip of their DAW's routing will have

no problems, and iZotope provide a DAW-specific guide within the comprehensive help documentation for those who need it. There are hundreds of presets from the likes of Richard Devine and BT himself, so it really is a case of plug and play.

We had a couple of hours of self-indulgent fun running tracks through the plug-in and messing with the pitch and mod wheels. By default, these control the global filter (a DJ-style combined low-pass/high-pass affair) and starting point in the gesture. This was all without touching a single control on the front panel. Using even the simplest loops as a starting point, it's possible to go wild with the gestures, and the results are instantly musical.

Once you get into editing the gestures, the software becomes more than just a novel curiosity. Each module has 'split' sliders for its available parameters (eg, delay time for delays, bit depth for the bitcrusher), and while these can be set at fixed positions, the real fun is had by setting a start and end point. When you hit a MIDI note, the parameter glides smoothly from beginning to end, then starts over. It needn't be

"Stutter Edit comes with some ace presets, but it feels too pricey"

a plain linear transition from minimum to maximum, as there's a setting for curve shape. Each effect can work in a stereo linked manner or with separate settings per channel.

We couldn't resist running three instances of Stutter Edit in series to see how it would hold up - this resulted in a complex sound with smooth transitions. Much of what Stutter Edit does could be done manually in any DAW with some extensive audio chopping and effects routing, but that's nowhere near as simple and fun.

Matrix revolution

There are plenty of 'glitch' plug-ins on the market, but Stutter Edit's Stutter Matrix is one of the features that sets it apart. It enables you to restrict the Stutter module to just the slice sizes that you want to use. You could set it to just eighth-notes and 16th-notes, for simple rhythmic fills; or you could allow only the fastest settings, for crazy IDM-esque buzzing. You can even use slice sizes that correspond to musical notes by clicking on a virtual keyboard - exploit this to create melodies and arpeggios.

The Stutter module can transition smoothly between each possible slice size, which can cause the slices to drift out of time (or key). To this end, there's the Quantize module, which will cause the Stutter module to snap to the specific rhythmic/note values specified in the Stutter Matrix. It offers a number of patterns for traversing the range of values, too. Very cool!

As outstanding as all of this one-finger stuttering business is, it's frustrating that there's no option to assign MIDI CC controls to any of the sliders. This means that to create variations on a gesture, you have to manually set up separate patches or play the plug-in 'live' whilst trying to ride the faders with the mouse. While we appreciate that the point in the plug-in is that it handles most of the manipulations for you, not



The preset manager displays the key layout for both Stutter and Generator patches in a separate window



The Generator section has the same style of controls as the main panel, making it nice and easy to understand and navigate

Talkin' bout my Generator

So far we've only talked about the Stutter gestures. However, each MIDI note can also be assigned to trigger a Generator sample loop. These are a mixture of hits and looped noise textures that play back on top of your track (rather than muting it, as the Stutters do). Again, everything is tempo-synced, the difference here being that you can have the gesture automatically stop at the start of the next bar (or one, two or three bars after that), making it perfect for build-ups.

The Generator has its own pop-up editing window, and it offers its own selection of split sliders for setting start/end points for its parameters.

Its got its own effects, too: filtering, delay and sample-rate reduction.

We found that the Generator works especially well with sweeping pads and strings, as it can be used to add a little sparkle to the end of a phrase while it's being stuttered.

We would love to be able to load our own audio files into the Generator, but sadly that feature seems to have been overlooked - at least for the moment. It's also a little annoying that the Gain slider's lowest setting is -20dB, so you can't create risers/fallers that fade in from total silence. iZotope reckon that future updates should see these issues laid to rest, however.

being able to manually intervene is a massive oversight that would've made the package a more formidable production and live tool. iZotope say that they're considering adding such functionality, so here's hoping.

Stammer jammer

Aside from those obsessed with composing a BT sound-a-like, who would find Stutter Edit useful? It's a tough one, as the package sits between two very distinct camps. DJs and live performers will find the gestures and tempo-synced automation fantastically simple for adding spice to their mixes. On the flip-side, most studio producers will be able to replicate the type of effects here manually without too much trouble. The lack of automation is a big oversight for studio use.

If we'd seen this package a few years ago, our mind's would've been blown. We can't deny that Stutter Edit is simple to use and has some ace presets, but it feels too pricey for a package that only adds a couple of new twists to proceedings. That said, everyone should give the demo a try - if only for the insane pleasure of st-st-stuttering-ing-ing-ing the hell out of everything. **cm**

Web www.izotope.com
Contact izotope@izotope.com

Alternatively

Sugar Bytes Artillery 2

cm122 >> 7/10 >> \$199

MIDI-controlled 'effects keyboard' with plenty of modules

Audio Damage Replicant 1.5

cm111 >> 10/10 >> \$49

Easy beat-slicer/looper with fun randomisation function

Verdict

For Easy to use

Perfect for DJs

Clean interface

Great Generator

Instantly musical

Against A little pricey for what it is

Lacking in automation/MIDI control

Can't load custom sounds in generator

Stutter Edit is the Rolls Royce of glitch effects, guaranteeing that your freaky transitions get from A to B in style

8/10

MODULATORS
LFOs, envelope followers,
ADSRs and step sequencers

GLOBAL PANEL
Manage presets, preferences,
routing and modulation from
the Global panel

OPERATOR SELECTOR
Select the Operator to edit.
There are corresponding
buttons for Modulators



ASSIGNABLE KNOBS
Take real-time control over
any parameter with the
eight assignable knobs

LEVEL METERS
Keep an eye on input
and output levels

FORMANT
Just one of the 19 modules,
this one lets you morph
between two vowel sounds

PSP N₂O \$179

PC MAC



They wowed us with their original turbo-charged filter,
Nitro – but is this pimped sequel from PSP a mod too far?

System requirements

PC Windows x32 or x64 (XP Service Pack 2, Vista or 7)

Mac Mac OS X 10.5 or later

> Released in 2004, PSP Nitro is one of the forgotten heroes of the filtering world. Based around a series of four modulators that could each control your choice of operators (fancy filters and phasers), it could conjure up absolutely mental sounds. But despite its simple premise and intuitive layout, many overlooked it. Considering how good it still is, it's a crime that it hasn't attained universal classic status.

2011 sees the arrival of its revised, supercharged successor, N₂O. Still based on four modulators, the number of types has increased. You now get a 16-step sequencer, an LFO, a signal-following envelope and a level-triggered ADSR, each pretty powerful, even extending to independent controls for left and right channels.

The operator list has also swelled, offering modules for gain, a wide range of filters (such as comb, formant and Moog), phaser, delay, lo-fi (bitcrusher), pitchshifting, distortion, panning, compression, stereo manipulation and more.

Lost for words

Words can't quite describe how having four connected but independently modulated effects

of stunning quality can mangle and enhance an audio signal. But we'll give it a go anyway: 'brilliant' and 'awesome' fit the bill.

One thing we should make clear is that anybody seeking analogue-style warmth should look elsewhere or use N₂O in conjunction with some other source of heat (such as PSP's excellent VintageWarmer2). The sound is decidedly digital and clinical, even when it's making stuff sound brilliantly bonkers. The same goes for an increasing number of creative plug-ins these days – and indeed the production aesthetic of most current popular genres – so that's in no way a criticism.

This much processing can wreak havoc on signal levels, but N₂O has that covered with input and output monitoring, plus an output limiter based on algorithms from PSP's superb Xenon mastering limiter.

In addition to the routing and modulation pages covered in *Ah, routage...* opposite, the last major feature of N₂O is its assignable knobs. In addition to the Wet/Dry control (essential for live modulation), there are eight configurable knobs, which can be routed to just about any

"N₂O can be either an overtly creative effect or a stylish but functional one, making it an essential bargain"

parameter you like (or more than one). These can in turn be bound to MIDI controllers, making it an incredible live performance proposition.

What else do we need to know? Well, the most important thing is the sheer range of effects you can achieve, making N₂O useful for countless applications. If you have a musical part that lacks bite, presence or character, there's something here for you. If you want to add a creative rhythmic effect like gating, look no further. If your vocal isn't cutting through the mix - again, N₂O has your back. And if you want some real-time mix-processing mayhem, then it'll sit beautifully on the master output.

Everyone's a winner

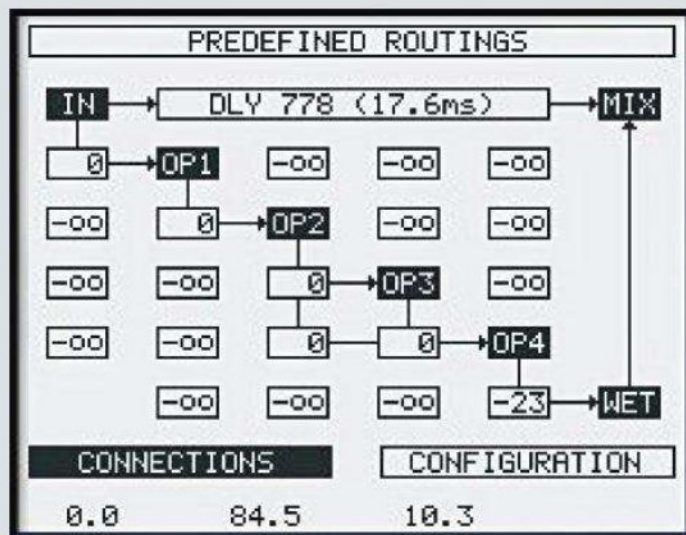
There are very few people to whom we wouldn't recommend N₂O. Even rockers with a fetish for guitar pedals will be blown away by the combinations and power on offer, and their producers will savour the modulation options. Hip-hop heads will love what it can do to basslines and samples, and dance freaks will leap at the chance to mash up their breakdowns.

N₂O is, crucially, also perfect for novices and hardcore programmers alike. As we describe in *Ah, routage...*, the dizzying number of routing combinations can make your head spin, but the large and exquisitely well designed preset collection makes N₂O fun for all. If you're very much into the meat and potatoes aspects of production, it won't be such a boon; but we suspect that if you give it a chance, you'll find N₂O influencing your productions for the better.

If we have a criticism, it's that the GUI is a little stingy size-wise, considering how much information is packed in. It continues the PSP tradition of imitating old school hardware interfaces, in this case the monochrome LCD screens of 80s and 90s digital hardware. Some love this; some hate it. We think a more modern interface would make it even more friendly and less fiddly, but it certainly doesn't put us off.

It should also be said that none of the individual effects modules are entirely groundbreaking (none claim to be), so don't expect a whole new paradigm in sonics.

N₂O is almost the perfect update. It builds on its predecessor's feature-set, heavily refines the



Each of the nodes is like a 'tap' that can let through your specified amount of signal

Ah, routage...

One of the most spectacular things about N₂O is the sheer power that it offers in terms of modulation and routing. The central modulation matrix will be familiar to most of us. The idea is simple - set your modulation source and destination on each row - but seeing something on this scale outside of a soft synth is pretty unusual. Put simply, almost anything can be routed to anything else, and multiple destinations are a possibility.

Furthermore, the Envelope Detector modulators themselves can take their input from a variety of sources, rather than just the plug-in's input. This

includes directly from other operators or even an external sidechain input.

Finally, there's the Routing section, which enables you to control the signal path running through N₂O. At first glance it can be a tad intimidating, but it comes with a bunch of preset routings to get you started. As well as feeding each operator into any of the subsequent operators (or straight to the output) in any amount you like, you can also feed an operator back to itself or any lower-numbered one. There are also mid/side and polarity inversion options tucked away in the Configuration sub-panel. Phew!

interface, comes packed to the gills with a variety of diverse, demonstrative presets, and is hugely versatile, offering something for almost anyone. Whether placed on a vocal to spice things up, a guitar to distort it, a synth pad to create a choppy riff or simply the master output to get some global glitching on the go, N₂O will bubble up to near the top of your list of go-to plug-ins. It's got the ability to be either an overtly creative effect or a stylish but functional one - and that makes it not just a pretty smart buy, but one you'll really get your money's worth from. **cm**

Web www.pspaudioware.com
Contact via website

Alternatively

Audio Damage Kombinat

cm129 >> 10/10 >> \$49

Ideal for single channels and great for sound-mangling

Sugar Bytes Effectrix

cm126 >> 8/10 >> \$129

Offers rhythmic, modulatable glitch effects - great on complete tracks

Verdict

For Highly versatile

Huge range of effects

Sounds awesome

Good metering

Output limiter

Against Slightly cramped GUI

A great update of a classic effect, N₂O is yet further evidence to support the theory that you can't go wrong with PSP plug-ins

9/10



PSP have squeezed an awful lot of functionality - some might say too much - into N₂O's compact LCD-style displays

cm mini reviews

A rapid-fire round-up of sample libraries, ROMplers and more

Intua

BeatMaker 2 £12

Web www.intua.net

Contact contact@intua.net

Format iPhone/iPod 3+, iPad, firmware 3.1.2

Following the initial novelty of making music on a phone, we're now slightly jaded. We want 'serious' features like effects, quantisation, timestretching, automation, mixing, MIDI and straight-up good sounds. BeatMaker 2 offers all of these, providing a sequencer, two types of instrument (a drum machine and a sample-based synth with a large and varied preset bank) and a mixer.

Sounds can be recorded in from the mic or pulled from your iTunes library; swing can be added; the mixer looks great; tracks/MIDI can be uploaded direct to SoundCloud or exported; and you can swap audio pasteboard clips to and from iOS. And that's just for starters.

BeatMaker 2 is going squarely up against the superb NanoStudio (9/10, [cm156](#)), but it's hard to say if one eclipses the other. For example, NanoStudio offers up a true synthesiser with sample playback to boot, while BeatMaker has



only a (well spec'ed) sampler. But then BeatMaker doesn't restrict the number of instrument tracks available – it's limited only by your hardware.

BeatMaker also trumps NanoStudio's two fixed (but fairly flexible) effects per instrument, with your choice of any three out of a roster of ten. But the interfaces are generic slider-based affairs, which doesn't inspire creativity or excitement, whereas NanoStudio's have a

characterful 'custom built' aesthetic and entice you to twiddle their knobs.

BeatMaker 2 isn't perfect. It doesn't replace your proper studio and we did experience a few quite irritating hang-ups and glitches (which we hope are ironed out soon). However, you can certainly have plenty of fun with it and create some very pro-sounding results.

8/10

Domestic Cat MIDI Touch £10.99

Web iosmidi.com

Contact info@iosmidi.com

Format iOS 4.2 (iPad-only)

We've been singing the praises of Apple's iPad as a remote controller for the studio constantly since its release. We even dedicated a full feature to that very subject not too long ago, and there have been a number of remote apps released since. Most are dedicated to a particular use (ie, controlling a DAW's transport), but MIDI Touch is one of a small number of apps that enable you to roll your own controller interfaces using sliders, knobs, buttons and other widgets. The app does not require the use of a desktop program; all of your control surfaces can be cobbled together right on your iPad. This takes the guesswork out of the process by giving you the most practical canvas on which to work.

As the name suggests, MIDI is the order of the day here. MIDI Touch works over Wi-Fi or with a MIDI interface connected via the Camera Connection Kit. As always, if you intend to use Wi-Fi, you'll get the best results by using a dedicated network. If you want to go wired, you can find a list of compatible interfaces over at iosmidi.com/devices.

MIDI Touch is pretty simple to use. In Edit mode, all of the available widgets appear in a dock and can be dragged into your interface. The widgets can be aligned on a grid, and you're able to choose from three different sizes. You can label each, assign the appropriate MIDI Channel and CC number and adjust min/max values. You can also make use of vertical sliders, knobs, buttons, drum pads and X/Y controllers. What you won't find, though, are horizontal sliders. Bummer. We would also love to see the ability to add simple text, boxes and outlines similar to those found in TouchOSC.



Despite these missing features, MIDI Touch does the job it purports to do, and it does it well. It is particularly useful for quick 'n' dirty designs, such as when you need to have a few of the most important knobs on a synth handy. It's well worth the outlay for the MIDI control freak.

8/10

Sample Logic Cinematic Guitars £265

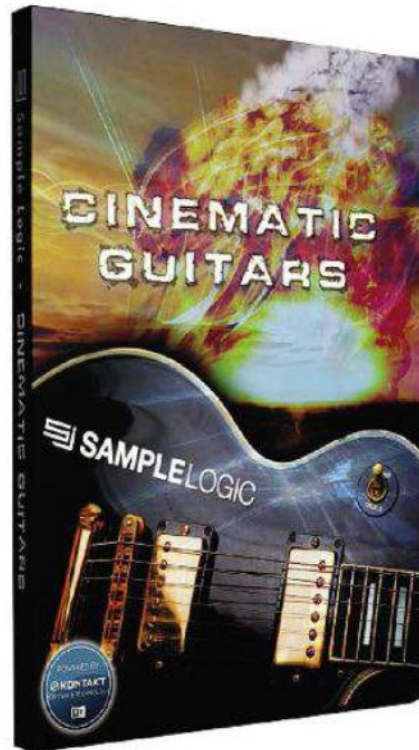
Web www.timespace.com
Contact Time+Space, 01837 55200
Format Kontakt 4 Player

It's a sign of a great sample library when within minutes of loading it up, you're inspired to write new tracks. Sample Logic's Cinematic Guitars is so comprehensive that after a while, we were reaching for its patches not only to emulate guitars, but for all sorts of other things too. The pack contains 1050 24-bit patches of sublime sounding guitars, but that's not all: they've also been morphed into pads, metallic hits, arpeggiated synths and everything in between. The merciless Fender-benders at Sample Logic have cruelly crucified their poor axes in order to create the most awe-inspiring soundscapes imaginable.

The Kontakt-powered multis are the superstars here: they're excellent for auditioning the sounds, with well thought-out names. Renowned TV and video game composers have also contributed their own multis, and Sample Logic have included a fully-featured effects board and cabinet emulator to process the samples inside Kontakt.

Cinematic guitars is outstanding, and a must-buy for anyone looking to bring heavyweight guitar processing into their soundtracks.

9/10



SoniVox Broadway Lites

£389

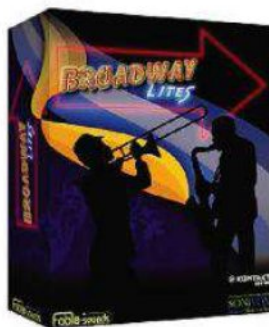
Web www.bestservic.de
Contact mail@bestservice.de
Format Kontakt 4 Player

Want a brass/winds library that you can simply pick up and play? Broadway Lites ain't it. Before managing to get anything even remotely realistic out of this keyswitch-based package, we had to trawl through pages of articulations. SoniVox have designed an innovative switching system with multiple keys allowing for variations of playing techniques. It's tough to master, but at least it's consistent across all the patches.

You get 15GB of saxes, trumpets, trombones and clarinets. All are recorded clean and sound a little "Casio keyboard" without some decent effects added. With a little reverb and compression, the solo instruments cut through the mix with precise detail. The legato and round-robin multisamples can't be faulted. The multi-patches aren't so great, and are more suited to live playing with a backing track to hide the faults.

This is a niche library with limited appeal, so prepare yourself for some technicalities in the documentation and a pretty steep price. If you don't mind the homework and some workarounds, though, Broadway Lites provides decent solo clout for brass completists.

6/10



Simple Is Beautiful DrumTrack HD 1.1 £5.99

Web simple-is-beautiful.org
Contact support@simple-is-beautiful.org
Format iPad, iOS 3.2 or later

DrumTrack HD is, ahem, a "padded out" version of the developer's iPhone/iPod touch app. It's packed to the brim with more than a dozen kits plucked from various classic and not-so-classic machines. Users can create their own kits by bringing in their own samples. Thankfully, choke groups are supported – a must for realistic hi-hats.

Patterns are programmed using the familiar grid-based GUI. You can adjust velocity, tuning, start/end offset and pan position per step and reverse the sample in a step, if that's what floats your boat. You can set pattern length and time signature and add up to two of the four included effects: delay, filter, crusher and saturator. Effects can be attached to one of two sends or strapped across the master bus.

Patterns are easily arranged into a song by dragging and dropping, and a mixer is included. DrumTrack HD is, well, beautifully simple. There is a lot of power here, but you won't be left scratching your head. Well worth the meagre asking price.

8/10



Soundware round-up

Original Music

Offbeats and Accents £20

Web www.original-music.co.uk
Contact admin@original-music.co.uk
Format WAV, AIFF, REX, MIDI, SDII

Offbeats and Accents is a pack of live-recorded drums, offering 64 loops with 72 one-shots. The playing is good and the sound is dry, acoustic, tight and cold. Tempos clock in at 67.5, 120, 135 and 167bpm, and it sounds like the same kit was used throughout. Everything is basic, the idea being that you add your own mixing effects, since you get the multitracks too. Unfortunately, hamfisted noise gating with a far-too-fast release time has ruined the kick drum. In the loops, this manifests as occasional weird pops/thuds, and why it's been applied at all to the multitracks is beyond us. The rawness of some loops could make it good breakbeat fodder, but if you're looking for inspiration or polish, you won't find it here.

5/10



Sonokinetic

Voices of Israel £50

Web www.timespace.com
Contact Time+Space, 01837 55200
Format WAV, Kontakt

Sonokinetic have made a name for themselves with novel yet useful sample libraries such as Trailer Voice and Carousel Fairground Organ. Voices of Israel is yet another curveball. Spread over 1300 files, it covers chants, poems and songs from traditional Jewish music, beautifully provided by vocalist Hadass Pal Yarden. Though it might seem incredibly niche, the high quality and range of sounds provided mean that it could slip into any genre from ambient to house, with Kontakt instruments and 'Western Improvs' helping it adapt to more modern scenarios. For anyone working with library music, the quality here will more than justify its place on your hard drive. Specific, but superb.

9/10



Wave Alchemy

Tech House & Minimal £40

Web www.wavealchemy.co.uk
Contact via website
Format WAV, Acid, REX 2, HALion, Kontakt, EXS, SFZ, Stylus RMX, NN-Xt, Battery

Another month, another house pack - but when it's done as well as this, we're not complaining. Wave Alchemy assure you that only the finest kit went into the production of these 1340 samples, such as a Korg MS-20, Moog Voyager and Elektron Machinedrum. The results are thick, fat and tight, with each drum loop professionally polished. The 'top' loops are a fine way to layer swing and detail on top of kicks and snares, while the FX are high quality and high energy. The musical lines are a tad dated, but for tech drum loops, this is a gold mine.

9/10



Puremagnetik

PM-70 \$15

Web www.puremagnetik.com
Contact info@puremagnetik.com
Format Kontakt, Ableton Live Instrument, Logic

The Yamaha CP-70 is the stuff of legends, being one of the most revered and sought-after electric pianos, as heard on countless classic records. Sadly, its price tag has meant that it's remained among the musical elite. To save you a few bucks, Puremagnetik have gone and created a multisampled instrument that costs just \$15. Across seven instruments, they explore the traditional to the unconventional and everything in between. We tried the Ableton Live version and it sounds fantastic - rich and expressive, with plenty of control via the macros. Keep up the great work, Puremagnetik!

9/10



Zero-G

The Paradise Sessions £61

Web www.timespace.com
Contact Time+Space, 01837 55200
Format WAV, Apple Loops, REX 2, EXS24, Kontakt, NN-Xt

Spread over 35 construction kits, this is Zero-G's take on groovy, soulful, funky, laid-back house. Each of the kits' full mixes is split up into its stems, giving you direct access to the individual loops. Unfortunately, this Rhodes-filled, 'bar grooves' sound is dated at the best of times - and although the collection is packed to the rafters with material, we're sad to report that not much of it ever goes beyond tired cliché. What's more, the price is much too high considering the average production and fairly haphazard content. Unless you're one of those DJs who performs with a conga player, you're not going to find much inspiration here.

5/10



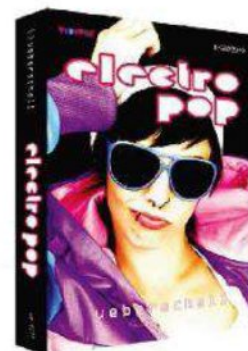
Ueberschall

Electro Pop £89

Web www.bestservic.de
Contact mail@bestservice.de
Format PC/Mac, AU/VST/RTAS/standalone

After downloading Elastik Player 2 - v1.5.2 comes on the DVD, despite needing v2 for activation - just load up the Electro Pop soundbank and you're ready to go. The samples, as expected from Ueberschall, are modern, high-quality and fairly interesting, but again we're left wondering why we have to use the Elastik Player to get to them. Stylistically, rather than the sound of the club, this pack is all about the sound of the club's influence on the charts. Spread over 983 samples, it's a style that not many others are covering - so if you're desperate for Gaga and Guetta construction kits, you'll have to brave the Elastik Player to get at them. **cm**

7/10

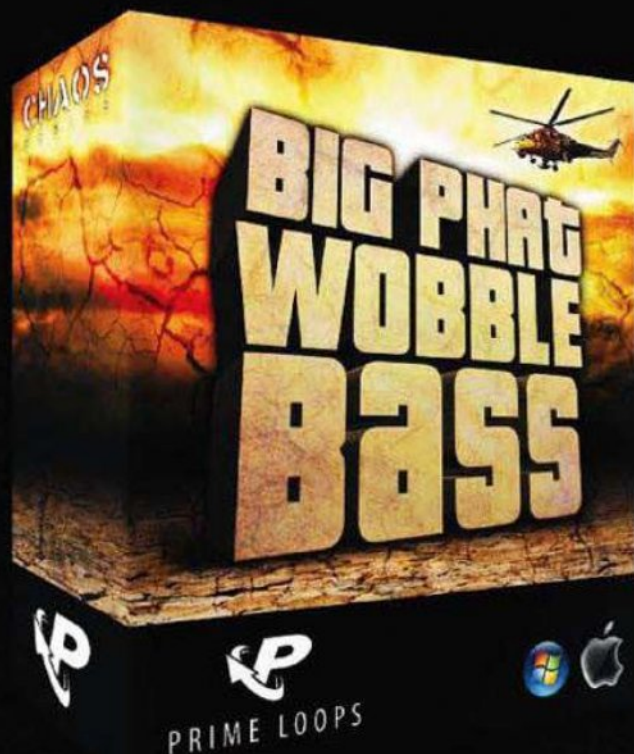




PRIME LOOPS

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



BASS FOR YOUR FACE!

Oh my gosh! You already know that London-based sampling dons Prime Loops constantly deliver top notch material, but this dubstep sample pack is simply off the scale. Send your needle straight into the red and get completely crushed by the biggest, heaviest, wobbiest dubstep basslines ever produced!

This is that official infamous wobble bass sound that everyone's talking about. Are you ready to destroy car stereos and flatten every club to the ground? Then this one's for you!

£17.95



HARDER FASTER LOUDER

Prepare yourself for "Harder Faster Louder" - the ultimate motherload of maximal madness that goes beyond EVERYTHING you've ever heard before! What are you waiting for? Fasten your seatbelt, push the throttle fully forward and feel the adrenaline!

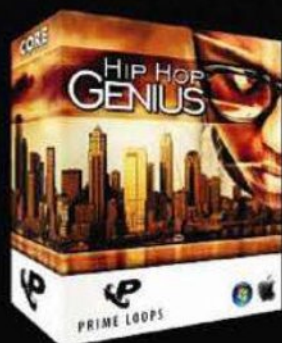
£24.95



DUBSTEP ARENA

Feel your heart go boom as you enter the "Dubstep Arena", a sweat-soaked showcase of the sickest halfstep beats, dramatic tranced-out chord build-ups and fat wobbly bassline devastations you've ever added to your library.

£21.95



HIP HOP GENIUS

Are you ready for a full truckload of genius beats and breaks from the heavy side of the street? We're bringing you straight-up hip hop vibes ready to roll in the club, keeping heads nodding from the first bar to the last.

£17.95



TRIP FANTASIA

Prime Loops are proud to announce "Trip Fantasia" - a fine selection with over 450Mb of evolving ambient textures, mind-bending chill-out atmospheres and intricate IDM soundscapes!

£14.95



Over 6500 music producers can't be wrong...
Join us @ [facebook.com/primeloops](https://www.facebook.com/primeloops)

www.primeloops.com

cm/recommends

The best new gear from the last three issues...



**Cakewalk
Sonar X1** £379 PC/MAC

Rating 9/10
Reviewed **cm**160
Contact Roland UK, 01792 702701
Web www.cakewalk.com

What is it? A PC DAW with a lineage stretching back more than two decades, now refreshed with a totally new interface that dispels previous criticisms of it being fiddly and obtuse to operate. Anyone who was previously turned off by Sonar's interface owes it to themselves to give it another go. Offering further enticement is the new channel strip, ProChannel, offering superb EQ, compression and saturation.

Verdict "More than a mere reskinning, X1's GUI truly revitalises Sonar's workflow, while ProChannel gives it a huge sonic boost"



**FXpansion
Geist** £189 PC/MAC

Rating 9/10
Reviewed **cm**161
Contact via website
Web www.fxpansion.com

What is it? It's been a long time coming, but here we have the spiritual successor to FXpansion's popular sample-based drum machine, Guru. Geist sports a fresh interface and totally rewritten code, with new features such as direct sampling, retrospective recording, a song mode, new effects, a brilliant 2GB sound library, and tons more.

Verdict "Geist is one of the best virtual drum machines around and will more than satisfy those who've been waiting patiently for a Guru sequel"



**Vengeance-Sound
Philta XL** £40 PC/MAC

Rating 9/10
Reviewed **cm**162
Contact info@vengeance-sound.de
Web www.vengeance-sound.com

What is it? A dual filter plug-in designed with the dance musician in mind, Vengeance-Sound have thought of pretty much everything here. Features include low- and high-pass filters that work in a band-pass or notch arrangement; slopes adjustable up to 96dB/oct; syncable LFOs and envelopes; distortion, bitcrushing and ring modulation; and plenty more. It's more than the sum of its parts and it sounds bloody great, too.

Verdict "Philta XL lends further credibility to Vengeance-Sound's status as lords of the dance scene. It's a certified banger!"

What we've been using this month



Ronan Macdonald
Editor

Has a Cubase/Logic-style iPhone DAW arms race begun between NanoStudio and BeatMaker? Intua Audio's splendid BeatMaker 2 certainly makes it look that way. Your move, Blip Interactive!



Lee du-Caine
Deputy Editor

I've become an insatiable 'six addict' of late due to my rekindled infatuation with Steinberg's big, beautiful DAW. With Cubase 6's mountain of new features, there's simply more to love.



Tim Cant
Multimedia Editor

Voxengo's Marvel GEQ and its handy mid/side processing capabilities have left me slack-jawed, transfixed and drooling in awe this issue. Sadly, no one else on the team noticed the difference.



Caity Foster
Production Editor

Every month I spend without a piano is a hard one. Happily, the Symphony Pro app has skipped to my rescue. Now I can compose to my heart's content, even when I'm too lazy to get out of bed! **cm**

WHAT DOES YOUR BUSINESS NEED MORE?



TEN GOOD REASONS TO LEASE COMPUTERS FROM HARDSOFT

- 01 Have the equipment you need in 2-3 days without paying the full cost price
- 02 Offset costs against your tax bill
- 03 Up to 22% cheaper than some of our competitors
- 04 Own equipment at the end of the lease for just £39 plus VAT
- 05 Inclusive of 3 years support & warranty
- 06 We say yes to credit when others say no
- 07 Established for over 25 years
- 08 We can install & project manage your new system
- 09 Option to renew after 18 months getting all new IT and keeping the original
- 10 Authorised Reseller for Apple, Sony, HP, Toshiba, Adobe and many more

13" MACBOOK PRO



MAC PRO



5x MAC NETWORK & SERVER



Subject to Status. Business users only. Prices based on 3 years lease with direct debit payments taken monthly or quarterly. Prices exclude VAT.

CALL NOW FOR A QUOTE
0844 330 8693
OR VISIT OUR WEBSITE
WWW.HARDSOFT.CO.UK

HARDSOFT
COMPUTERS



Authorised
Reseller

SAVE UP TO 40%

ON AN OVERSEAS SUBSCRIPTION TO **COMPUTER music**

WHY SUBSCRIBE?

- Pay less than the shop price
- Never miss an issue or free DVD
- 13 issues per year delivered to your door



EUROPE

Subscribe for only **£79.99** per year

www.myfavouritemagazines.co.uk/cmueu

NORTH AMERICA

Subscribe from only **\$29.25** per quarter

www.imsnews.com/computermusic

REST OF THE WORLD

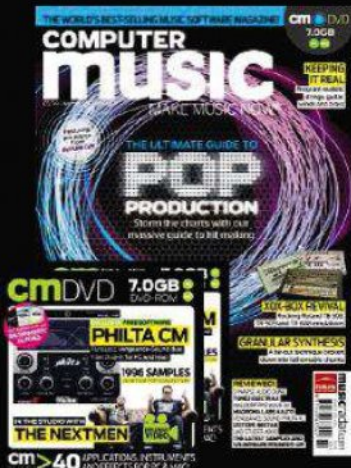
Subscribe for only **£99.99** per year

www.myfavouritemagazines.co.uk/cmurow

Terms and conditions: You will receive 13 issues per year. Minimum subscription term is 12 months. If at any time in the first 60 days you are dissatisfied in any way please notify us in writing and we will refund all un-mailed issues.

Back issues

Your chance to order any issues of *Computer Music* that you may have missed over the last six months...



Issue 162 March 2011

- Vengeance-Sound Philta CM and 1996 pop samples on the DVD
- The Ultimate Guide to Pop Production
- Software xOx-box Revival
- Going with the grain
- Producer Masterclass: The Nextmen
- Synapse Audio Dune, Tone2 ElectraX, Madrona Labs Aalto, iZotope Nectar and more reviewed



Issue 161 February 2011

- 1000 Loopmasters samples and 2037 UK Garage samples on the DVD
- Unplugged! Acoustic production guide
- Korg iMS-20 for iPad guide
- Extreme Freeware
- Producer Masterclass: John B
- Avid Pro Tools 9, FXpansion Geist, Flux IRCAM Spat, UA EP-34 Tape Echo and more reviewed



Issue 160 January 2011

- Reverberate CM and 2003 Acoustic samples on the DVD
- The cm Guide to Sonar X1
- Super Synth Me
- Extreme Sidechaining
- Producer Masterclass: Charles Webster
- Apple GarageBand '11, LinPlug MorphoX, Rob Papen RP-Delay and more reviewed



Issue 159 December 2010

- Synapse Audio Plucked String and 1952 Old-Skoool Rave samples on the DVD
- Dubstep vs DnB, featuring videos from five top boundary-hopping producers on the DVD
- Make Killer Riffs
- Producer Masterclass: Dom Kane
- Steinberg Wavelab 7, Ableton Amp, ProjectSAM Symphobia 2 and more reviewed



Issue 158 November 2010

- Magix Samplitude 11 Silver and 2000 Upfront House samples on the DVD
- Orchestral Extremes tutorial
- Small Wonder: Guide to NanoStudio
- Spectral Editing audio manipulation feature
- Producer Masterclass: FunTCASE
- URS Classic Console Strip 2, PSP Audioware PSP 85, Novation Dicer and more reviewed



Issue 157 Autumn 2010

- Intelligent Devices Slip-N-Slide CM and 2017 Remix Toolkit samples on the DVD
- This is the Remix tutorial
- Finger-drumming for beginners
- Gating and analogue warmth
- Producer Masterclass: S.K.I.T.Z Beatz
- Flux IRCAM Tools Trax, Voxengo HarmoniEQ, Audio Damage Axon and more reviewed

To order, call

0844 848 2852

or visit

www.myfavouritemagazines.co.uk

>Your questions answered

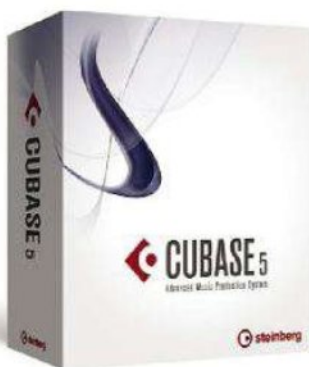
Q&A

Stumped by a sound that you just can't quite nail? Hungry for a shiny new piece of kit to plump up your studio? Or having trouble working out how to use that new plug-in properly? Holla for help with an email to cmhelp@futurenet.co.uk

Flawed logic?

Question A while ago, I started producing music, having spent ten years as a DJ. I chose Cubase 5 over Logic because I have a good network of friends that use Cubase products, which is great to pick up tips from. However everyone that I speak to that uses Logic says it has a far superior sound to Cubase. One even went as far as saying if you gave him four tracks to listen to from each suite, then he could pick out which were made on Logic! Is this really such a difference in the software, or are these people talking bollocks?

Jason Willans



Cubase 5 doesn't process raw audio any differently from Logic, but its built-in instruments and effects have their own distinct sound

COMPUTER music QUESTION OF THE MONTH

The Sample Boutique
Loopmasters
www.loopmasters.com

The writer of our *Question of the Month* will receive their choice of two Artist Series sample libraries courtesy of Loopmasters. www.loopmasters.com

Answer By saying that Logic has a superior sound to Cubase, the implication is that there is some difference in how their audio engines deal with unprocessed audio and mix it together.

This isn't true. The digital summing in most DAWs gives identical results (the exceptions being the likes of Propellerhead Record and Harrison MixBus, which feature additional code that's used to colour the sound). A common mistake is to think that one DAW sounds 'wider' and 'bigger' than another. This is most often caused by those DAWs using different default pan law settings. When set to the same pan law, they will sound the same.

There are differences elsewhere in the software that can have an effect on perceived quality, however. The biggest difference sound-wise between Cubase and Logic is in the included instruments and effects. Logic's bundled plug-ins are arguably superior to Cubase's, and perhaps it's the sound of these that your friend thinks he can identify. However, if you're using the same audio, instruments and plug-ins in Logic and Cubase, you simply wouldn't

be able to tell the difference. As our *Producer Masterclass* series has shown, while the majority of electronic music producers are Logic-based, the rest get equally great results from other software, including Cubase, Live, Pro Tools and Reason. Choosing a DAW is really more about which one suits your workflow.

If you're unhappy with any aspect of Cubase's included plug-ins, we suggest that you seek out some third-party alternatives - there are endless examples available - and spend your time concentrating on perfecting your sound design and mixdown technique rather than listening to questionable software naysayers.

Sort out my samples

Question I'm getting sick of trawling through all my samples when I'm trying to find a certain type of sound on my Mac. Is there any software that I can use to label or tag my samples, without resorting to batch renaming?

Domonic Holt

Answer As a Mac user, you're lucky enough to be able to use the excellent sample-organising application AudioFinder. You'll be happy to hear that it includes tagging functionality; see the





When you're recording a large group of musicians, you need to use several mics and thus require a high-quality interface that can handle them all

Tagging samples with AudioFinder walkthrough, right, for a quick guide to getting the most out of this very useful feature.

A real-life chorus

Question I've been asked to record a church choir and really need some advice on how to get the best out of the basic setup that I have available to me. I have two mics: an SM58 and an AT3035. I'm using Logic Pro and have a US122 interface available as well.

The organ itself is a modern electric organ, which is hooked up to a small eight-channel mixer, and there are 40 choir members. I've heard a previous recording that someone had done within the church, and have concerns regarding the amount of reverb within the building: it seems to make the recording very muddy in terms of making out the words the choir are singing. From the research that I've done, it doesn't look like it's possible to remove reverb after the fact.

I've got a budget of £300 to buy some additional gear if that would help.

James Brown

Answer Recording a choir is a serious undertaking, so we asked **cm** contributor and live recording specialist Tim Oliver to give us his input. Take it away, Tim...

"I would use the £300 to hire an eight-mic channel interface such as a MOTU 8Pre or 896, and as many extra microphones as it will cover, including two pairs of good quality condenser mics. Examples of microphones I would consider include the Schoeps CMC6 with MK4 or MK5 capsules, and AKG C414s. Use the 414s on stage, ideally above the action, and the Schoeps as ambient mics.

"Find the best position for the Schoeps that balances the natural acoustic with the direct

voices. Find a position for the AKG 414s that best captures the group as a whole. If there are 'lead singers', use the Audio Technica for a spot mic on them. Plug the mics directly into the MOTU interface, avoiding cheap mixing desks.

"You can record the organ via the desk into a line input on the MOTU to add immediacy to the ambient recording if necessary. Use the SM58 for the vicar's introduction.

"For the mix, start with just the Schoeps channels. Subtract lower mids with an EQ if it's muddy, as you say. Bring in the stage mics to a level that brings in the detail and focus, and then add spot mics if necessary."

Thanks, Tim. Hopefully that will help you succeed in your your mission, James. Good luck!

Video scavenging

Question Are there any sites that I can use to obtain video clips and images for the purposes of creating a video to accompany my own music?

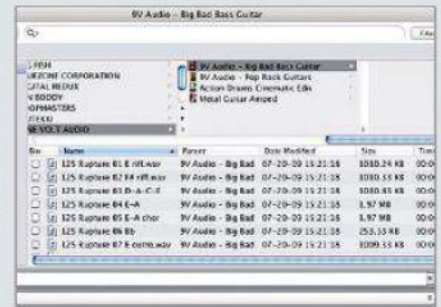
Greg Mitchinson

Answer There are plenty of places online from which to download public domain footage and images that you can use to create music videos without having to pay licensing fees. May we suggest that you start with the Copyright Free and Public Domain Media Sources page at people.uwec.edu/koroghcm/public_domain.htm. Here you can find a collection of links to copyright-free media, grouped in categories such as 'Military', 'Animals, Fish & Insects' and 'Weather'.

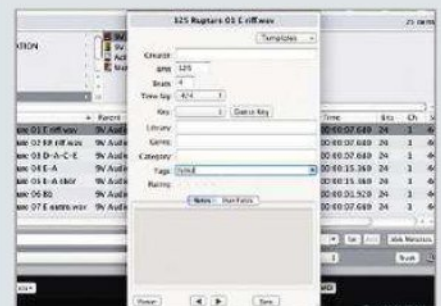
Another useful site for video is the Internet Archive's Moving Images library at www.archive.org/details/movies. For images, you can start at Wikipedia's public domain image resources page at en.wikipedia.org/wiki/Wikipedia:Public_domain_image_resources.

> Step by step

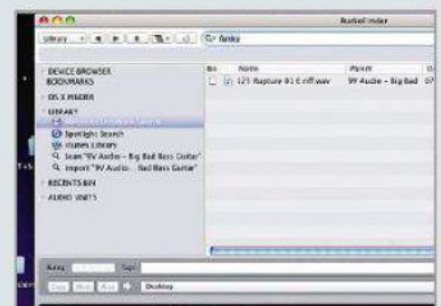
Tagging samples with AudioFinder



1 > Start by opening up AudioFinder from the **Applications** menu. You'll be presented with AudioFinder's browser. Locate the samples you want to tag using the folder icons in the top panel. The contents of the currently selected folder will be displayed in the panel below, which includes useful details such as sample rate, bit depth and sample length.



2 > To tag a sample, click it to highlight it, then hit the **Show Metadata** button. In the Metadata window, click the **Editor** button. About halfway down this window you'll see a **Tags** field. You can enter any descriptive tags that you want attached to the sample here. Click the **Save** button to save the tags.



3 > In the panel on the left, expand the **Library** menu and select **Metadata Database Search**. You can now use the search field at the top centre of the AudioFinder interface to search and filter results using the tags that you've added. Perfect!

"The biggest difference sound-wise between Cubase and Logic is in the included instruments and effects"

> Step by step

Exporting MIDI from FL Studio



- 1 > Start by saving your project. This is very important because in order to export FL Studio tracks as MIDI, they need to be disconnected from their virtual instruments - and there's no way to undo this! Once you've saved, select **Macros»Prepare for MIDI export**.



- 2 > This will change all the virtual instrument tracks in the project to MIDI out tracks. If you want to do this to just one virtual instrument, you can right-click it in the Pattern windows and select **Insert»MIDI out**. Either way, the next step in the process is to select **File»Export»MIDI File**.



- 3 > Enter a filename and click **Save**. You'll be presented with the **Export** menu; click **Start** to save the MIDI file. If you want to hear the track again to make a change, you can reconnect it to a virtual instrument by right-clicking in the Pattern window, selecting **Replace** and picking an instrument.



Serato's free download of Scratch might seem like a bargain, but unless you already have a mixer, controller and Rane interface, using it can get pricey

Note that some of the materials you will be linked to on these sites have usage restrictions, so be sure to read them before using the resources in your videos.

AlphaCM walkthrough to the right for a step-by-step guide to making a version of this sound that you can use in any host.

Get your MIDI out

Question Incm157, S.K.I.T.Z Beatz created MIDI in FL Studio and then exported it to use in Logic. I want to do something similar, but how do I export MIDI from FL Studio?

Jamie Carpenter

Answer Exporting MIDI from FL Studio isn't quite as straightforward as you might hope - but it can be done! See the walkthrough *Exporting MIDI from FL Studio* for a three-step guide to creating MIDI files.

Faking it

Question Is there any way to use the Synthesiser instrument from energyXT 2.5 Core CM Edition in another DAW? Alternatively, can you show me how to construct the Melody preset in one of the synths in the CM studio?

Steve Edwards

Answer Unfortunately, it's not possible to use energyXT 2.5 Core CM Edition's Synthesiser in other hosts. However, it's certainly possible to emulate its sound using a different instrument. See the *Recreating energyXT's Melody patch* in

An itch to Scratch

Question I have Ableton Live, and I've installed the update that allows for Bridge between Live and Serato. I downloaded Serato Scratch and loaded both applications to use alongside each other. Additionally, I believe that a Rane product such as mixer or interface needs to be used. I am looking to use a DJ controller/mixer in one with Live and Serato Scratch alongside my Novation Launchpad. What controller will do this and do I need a Rane interface? I am after a reasonably priced controller and interface that will be practical for taking on the road. At present, I use an Alesis MultiMix Firewire with my Mac to do my production work.

Carl Hutchinson

Answer You will indeed need to use a Rane interface to use Serato Scratch - either an SL1, SL3, SL4, Sixty-Eight, TTM 57SL, or an MP4, which has been discontinued. You'll also need a controller of some kind. You can use any CD or vinyl player thanks, to the software's timecode discs, and while two such decks are more traditional, you can also use a single one and switch it between the virtual decks. It's also worth noting that some DJing hardware, including various Numark, Pioneer and Denon products, can work with Serato via USB, though

"While the Scratch software itself is free to download, using Serato technology is by no means cheap"

a Rane interface is still required. You should also remember that if you're not using one of the Rane products that doubles as a mixer (ie, the Sixty Eight, TTM57 SL or MP4), then you're going to need to supply your own.

As you can see, while the Scratch software itself is free to download, when you factor in the cost of the Rane interface, plus a DJ controller and mixer solution, using Serato technology is by no means cheap. Even if you opt for the cheapest SL-1 interface (RRP £580 plus VAT, though it can be picked up for as little as £399) and a budget CD/mixer package, you'll be looking at spending well over £1000. If you're indeed prepared to splash serious cash then you could pick up Pioneer's budget DJing package, which includes two CDJ 350s, a DJM 350 mixer, a PRO 350 FLT flightcase and a pair of HDJ 500-K headphones for £1449.

An alternative to a traditional DJ controller that you might be interested in is the Pioneer DDJ-S1, which combines two hardware



Our **cm** edition of the energyXT DAW features a cracking synth, but it's exclusive to the software

controllers and a mixer in a single unit. For a relatively cheap £1099, it's a lot less costly (and heavy!) than a traditional controller/mixer combo, plus it doesn't require any extra Rane hardware. The catch is that it doesn't launch in the UK until March, and on top of that, its special version of Scratch - the ludicrously-titled Itch -

isn't Bridge-compatible just yet. However, Ableton assure us that Itch support will be coming at some point in the future.

If that still seems expensive, your best bet is probably forgoing Scratch altogether and doing everything in Live, perhaps with a MIDI controller such as the Novation Nocturn. This typically costs £69, and can be used in conjunction with the Launchpad to crossfade between tracks and control effects.

Crackle and pop

Question How do I get that Deepchord (aka Stephen Hitchell and Rod Modell) 'crackle' dub sound using field recordings and synths? When I try it myself, I can't seem to mix them properly and fall short of achieving a wide stereo image, such as on the album *Lumin*. Any advice on how to achieve that sound, or something similar

> Step by step

Recreating energyXT's Melody patch in AlphaCM



1 > Load up AlphaCM in your DAW. To get a sound approaching energyXT's **Melody** patch we're going to use one sawtooth and one square wave oscillator. These will be filtered by a low-pass filter with a fast envelope and run through a touch of chorus and reverb. Start by selecting the **Z_Init** patch.



2 > We want the first oscillator to play just a sawtooth wave, and the second oscillator to play just a square, so set both their **Balance** knobs to **A**. Turn up the **Mix** knob slightly so we get a little more of oscillator 2. The sound needs some pitch modulation, but the synth's LFO is currently synced to **Off**. Change the LFO sync to **Off**.



3 > Set the LFO's **Frequency** knob to just before 1 o'clock, and set the first line of the modulation matrix to read **LFO1 0:52 Main Pitch**. This tells AlphaCM that we want to the LFO to modulate the pitch of both oscillators, which gives the sound a pleasing vibrato.



4 > The real key to this sound is the filter envelope. In the Filter section, turn the **Cutoff** all the way down and put the filter envelope **Depth** to just before 3 o'clock. Set the **Sustain** to between 2 and 3 o'clock, and the **Decay** to just before 10 o'clock.



5 > Getting these filter parameters spot on is essential to getting the right feel, so refer to the **AlphaCM Melody.fxp** patch in the **Tutorial Files\Q&A** folder on the **cm** DVD if you're not sure. Next, activate AlphaCM's Chorus effect by turning up the **Wet** knob, and copy the settings shown here.



6 > The original energyXT patch has a little reverb on it. AlphaCM doesn't have built-in reverb, but there are a couple of suitable effects in the **cm** studio. Add **ReverberateCM** as an insert effect on AlphaCM's channel and select the **Delicate Hall** preset. Turn the **Dry/Wet** level down to **0-8dB**, and you're good to go!

to Burial's soundscapes would be great. The DAW I use is Ableton Live.

Paul Schoenherr

Answer

There are various different ways to get a wide stereo image, including modulation effects such as chorus, doubling tracks, 'stereoisers' effects, mid/side processing, the Haas technique and, of course reverb, mastery of which is essential if you intend to create Deepchord or Burial-esque soundscapes. See *Creating wide stereo soundscapes in Ableton Live* for a guide to using some of these effects.

As for creating crackle noises, we asked Theo Krueger – the creator of such crackle-centric VST effects as Vinylator and Input Vinylator – for his thoughts on the matter.

"The first thing that comes to mind when thinking of creating crackle noises – apart from my plug-ins – is the SFX machine (www.sfxmachine.com). This has a crackle

generator among other professional effects. The parameters are also tweakable to help you to get the sound you like.

"One solution that has worked for me is adding the noise from Vinylator into the composition and then slightly reducing the overall quality of the audio in order to make the crackled signal blend in the mix.

"Another way is to record as much noise from a record as you can (perhaps from between the songs), crossfade that to create a larger track and then loop the whole recording and simply have it playing in the background.

"Other plug-ins you can try include iZotope Vinyl from www.izotope.com and Milli Vinyl from spyro.mediashift.net/kianglabs."

Thanks, Theo, but tell us – how does the crackle synthesis algorithm in your plug-ins actually work? "The crackles are from a recipe that I cannot share, since that would take away all of the mystery!" Bah! Never mind – you can

hear Theo's music and learn more about his plug-ins at www.theodorkrueger.com.

Miaow!

Question

I want to do my own DJ ident to introduce myself at gigs. I was thinking of something along the lines of: "Scratching up the dancefloor, it's DJ Kitty in the mix!" The thing is, I don't know much about vocal effects. I want to get a big, 'in your face' vocal.

Ebert Pansegrouw

Answer

A successful DJ ident needs to be loud, clear, and have plenty of impact. In the walkthrough *Creating a DJ Ident*, we explain how you can use a number of music production techniques to get a jingle that will sound professionally produced and hopefully leave a lasting impression on your audience.

> Step by step

Creating wide stereo soundscapes in Ableton Live



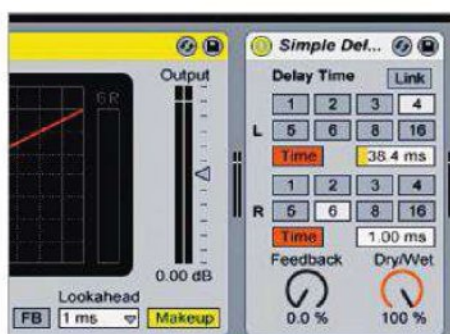
- 1 > The first thing you're going to need for your soundscape is some source audio. You'll find a pad noise – **Atmosphere.wav** – in the **Tutorial Files\Q&A** folder on the **cm DVD**. Drag this onto an audio track in Live.



- 2 > Add a Ping Pong Delay and turn up the bandwidth, **Dry/Wet** and **Feedback** levels to the settings shown here. You can turn everything up to full if you wish. Keeping the **Dry/Wet** level at 50 or lower helps to keep the original audio at the front of the mix, so it depends what sort of feel you're going for.



- 3 > Next, add a Reverb. Set the **Quality** mode to **High**, the **Dry/Wet** to around **50%** and turn up the **Decay Time** to around **12** seconds. This whacking great reverb gives us that soundscape feel, but without compression it trails off a little too quickly. So, add a Compressor and set the **Threshold** to about **-23dB**.



- 4 > This combination of delay, reverb and compression will make a source sound of a few seconds result in nearly a minute of reverberation. To make the stereo effect wider, add a Simple Delay, set the **Dry/Wet** to **100%**, turn the sync for both the left and right channel off, and set delay one to **50ms**.



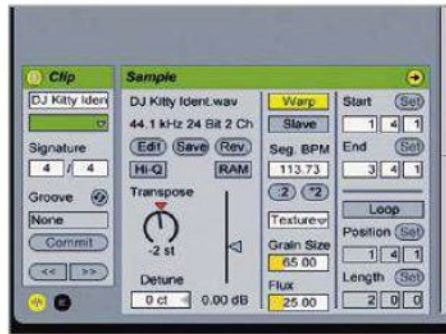
- 5 > That's nice and wide, but what if you're still lusting for crackles? No problem – add Live's Vinyl Distortion effect to the start of the effect chain. Turn the **Tracing Model** and **Pinch** sections off, and turn up the **Volume** of the Crackle generator to **0.50**. The intensity of the crackle effect can be controlled with the **Density** knob.



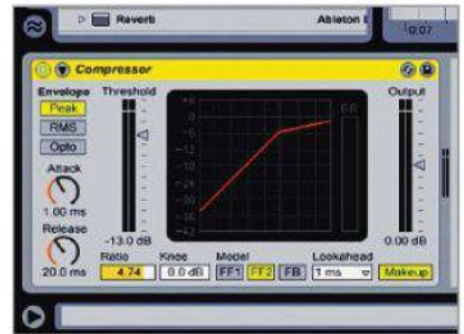
- 6 > There doesn't need to be any audio on the channel for the Vinyl Distortion to produce crackles, and you can generate bursts of noise by automating the effect's **Device Activator** button. To make a more dynamic effect, try adding an Auto Filter set to band-pass mode after it, and automating the filter **Cutoff** level.

> Step by step **Creating a DJ Ident**

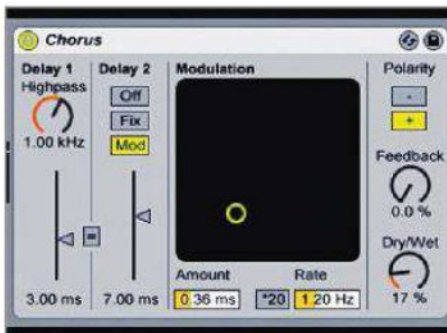
1 > To start, you'll need your vocal line. You can either record this yourself using a good quality mic and an audio interface you have to hand, get a generous friend to do it, or, if you're really desperate, use text-to-speech software. Load the recorded vocal into your DAW - we're using Ableton Live here, but any DAW with decent effects will do.



2 > To give the vocal a deeper sound, we pitch it down a couple of semitones. You might want to try a few of the pitchshifting/timestretching algorithms - in this case, we find that Live's **Texture** mode works the best.



3 > The vocal needs to be as loud and clear as possible, so we want to compress it, but not so much that it sounds distorted and loses definition. Add a Compressor effect to the audio channel and set the **Threshold** to **-13dB**, with the **Ratio** at a little under **5**.



4 > Next we need to add some ear candy to make the vocal sound slicker and more produced. Add Chorus, Frequency Shifter and Auto Filter plug-ins - in that order - to the effect. Use the same Chorus settings that we have here. The processing isn't drastic, but it helps to give the sound some warmth and stereo width.



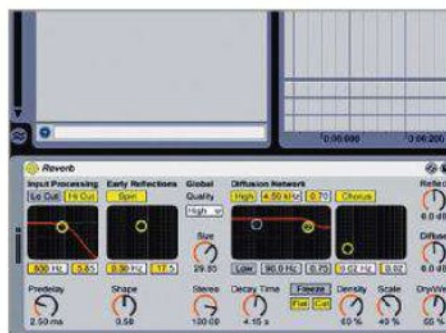
5 > Automation is a great way to add movement and interest to a vocal. Automating the **Fine-tuning** value of the Frequency Shifter creates some excellent, sci-fi/radio-style effects. Create a curve, as we have here, making sure that the movement of the effect enhances rather than overwhelms the vocal.



6 > Put the Auto Filter in **Notch** mode, and automate the frequency **Cutoff**. This sounds like a phaser effect, but because you can control the specific frequency that it affects, you can dial it in to complement the words being spoken. Sweep the **Cutoff** between **2.6kHz** and **400Hz**, as shown.



7 > Take some of the low end off the vocal with a low-shelf EQ band. You might as well high-pass everything below **50Hz**, just to be on the safe side. The vocal is a little dry, ambience-wise, so add Feedback Delay and Reverb, in that order. Next, add another Compressor to keep the volume level consistent and up-front.



8 > The vocal is now sounding slick and polished, but we need some sound effects to back it up, starting with a big boom. Add a kick drum sample to a new audio channel - you can find one in the **Tutorial Files\Q&A** folder on the **cm DVD**. Add a large Reverb, a Compressor, and an EQ to roll off the sub bass below **50Hz**.



9 > For the final touch, find a synth with a noise generator and a self-resonating filter, such as Albino 3. Create a sweep with the filter, and run the synth through delay and reverb to create a big disco laser effect. Group the effects, and add a sidechain compressor that ducks the group's volume when the vocal kicks in. Job done! **cm**

cmfocals

SYNTH WAVEFORMS



A preset and a patch to go with this article are in the Tutorial Files folder

You can't make sounds without soundwaves, so understanding what makes them tick (or tock, hum or buzz) is the key to synthesis



➤ If you've had even the briefest dalliance with a synthesiser, you'll have encountered the word 'waveform'. It's the first stage in a synthesiser's signal path, generated by its oscillator(s). Some are simple, while others are very complex indeed. Understanding how waveforms work and knowing which can be used to produce specific sounds is the first step towards mastering synthesis and sound itself.

What exactly is a waveform? Well, any sound at all! Sound is simply the vibration of air, and the humble sinusoid (or 'sine') wave is the basis of every other waveform - all sounds are made from heaps of sine waves. The lowest and loudest of these is called the 'fundamental', and our ear uses it to determine the root pitch of a given sound.

The character of the sound is determined by other sine waves at lesser amplitudes and frequencies. These are called 'partials'. Partials that have a mathematically integral relationship to the fundamental are called 'harmonics', while those that do not are known as 'inharmonic'. Each of these partials changes in amplitude, phase and pitch over time. Even relatively simple natural sounds are made up of hundreds, even thousands, of them.

Riding the waves

Traditional synthesiser sounds are less complex. Most analogue synth oscillators provide a handful of waveforms, including square, sawtooth, triangle and pulse waves. As you know, each of these is made up of a collection of sine waves piled together. However, the typical analogue synth is 'subtractive',

"The humble sine wave is the basis of every other waveform"

meaning that the waveform itself is relatively static and the various frequencies (partials!) are chipped away by the instrument's filter.

Other instruments take different approaches. Some enable you to build the waveform up by drawing in partials, before spitting the results through a filter. Others are purely additive, giving complete control over each partial and its constituent amp, phase and pitch envelopes.

Let's take a look at a few ways that waveforms are used in modern sound design, and even have a go at building our own examples, partial by partial.

> Step by step Looking at different waveforms



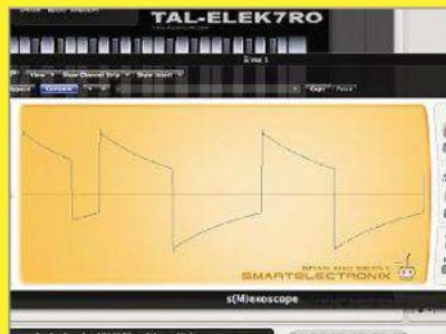
1 > Let's look at some common waveforms. You need a synth with sine, square, saw and triangle waves, and an oscilloscope - we're using TAL-Elek7ro (kunz.corrupt.ch) and Bram's s(M)exoscope (bram.smartelectronix.com). Select the synth's **Default** setting and choose a **Sawtooth** wave with no filtering. Use the 'scope's **Time** knob to zoom in.



2 > The sawtooth wave is one of the more complex analogue waveforms on this synth. It's buzzy, brash and very full. Next, select the simplest wave: **Sine**. Play that one on your synth and use s(M)exoscope's **Freeze** function to freeze a snapshot of the wave. The overall shape will be like the one shown here. This sound is basic, with no harmonics in there to excite the ear.



3 > Select the **Triangle** wave to take a close look at it. A triangle wave should look like its name suggest: a series of positive and negative triangles. Analogue synths rarely produced perfect waves, however, and TAL-Elek7ro's developer may have had this in mind when providing this decidedly warped variation. You can still hear that it's a mix of sine and sawtooth, though.



4 > Finally, select the **Pulse** wave. Play it and take a look at it. It's unusual in that the negative and positive cycles aren't matched. Notice the synth's **PW** knob: this adjusts the pulse width. Turn it up until the positive and negative cycles are matched. It's now a square wave! Again, the shape isn't perfect, but that's in-keeping with an analogue synthesiser's square wave.

LFOs

All sounds might be made up of waveforms, but not all waveforms necessarily produce a sound. Most synthesisers, samplers and some effects processors have something called a low frequency oscillator (LFO) onboard. You may already know that this is the function that causes some aspect of the sound to 'wobble'. Its most common use is for tremolo or vibrato effects, and on its own it doesn't make any sound at all - it modulates other bits that do make sound.

Normal oscillators do make a sound by themselves, though. The reason an LFO doesn't is simply because it produces waveforms that cycle at frequencies below the audible range. Many famous hardware synthesisers made no distinction between audio-ranged oscillators and LFOs - they were one and the same, with maybe a switch or knob to shove the rate down into sub-audio territory.

LFOs generally sport the same waveforms as their audio-generating brethren. Sine, square and sawtooth are often included, as well as noise or random waves. So, an LFO applied to an amplifier stage in a synthesiser can provide your ear with a pretty good idea of exactly what makes up an audio rate waveform. You may already know that a sawtooth is buzzy and ballsy, but if you produce one with an LFO, you can plainly hear its waveform ascending gradually and then slamming back down suddenly, only to start the climb all over again.

> Step by step Understanding subtractive synthesis



1 > Let's use this particular combination of synth and oscilloscope to get to the root of subtractive synthesis and how it works on our waveforms. As we've already suggested, all waves are made up of simpler waves. We can see a concrete example by selecting TAL-Elek7ro's **Sawtooth** wave and using s(M)exoscope's **Time** and **Amp** knobs to zoom in on it.



2 > In subtractive synthesis, we use filters to chip away at a waveform's partials. This is usually done dynamically over a period of time, using envelopes, LFOs and other modulation sources. However, if we simply crank the filter **Cutoff** knob right down, we can immediately see that it reduces our complex sawtooth wave to a basic sine wave.



3 > Now let's try the opposite effect. Select the **Sine** wave for Oscillator 1. Adjust the 'scope's **Time** and **Amp** knobs so that the display clearly shows a number of cycles. Now, select a **Pulse** wave for Oscillator 2 and slowly fade that oscillator into the mix, paying attention to the oscilloscope's display. We've now got something a little more complex than either of the original waveforms.

Which wave when?

So, which waveform should you use when crafting a sound? Well, each has its own specific characteristics that make it particularly applicable to certain tones. Even the humble sine wave has a place, perfectly suited as it is to smooth sounds. It excels at woofer-shaking sub-bass tones and, as our walkthrough shows, makes a great source of effects.

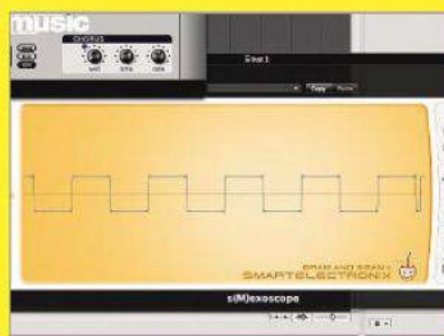
The slightly-less-basic triangle wave is good for many of the same things, plus whistling leads, flutes (add a bit of noise) and other simple tasks.

The square wave is awesome for creating hollow lead sounds, woodwinds and the ever-popular 303 bass. A bit of pulse width modulation gives it an edge.

The sawtooth wave is the most versatile of them all, as, with a bit of filtering, it can do all of the above. It also makes a great starting point for cutting leads, balsy basses, fat brass and buzzy string sounds.

While the noise waveform may seem limited, it has a lot to offer, too. It makes a superb modulation source, for starters. When used as an audio signal it's great for enhancing attack transients at the beginning of a sound, fizzy hi-hats or rattling snares. And of course, it should be your first stop for wind, surf and helicopter effects. Don't overlook 'tuned noise' effects, either: these are easily achieved by assigning your synth's filter to your keyboard controller and pushing a bit of noise through.

> Step by step Pulse wave modulation



1 > Dynamically modulating a waveform can have very dramatic effects, and pulse width modulation is the most ubiquitous technique. Let's use it to create a cool, shifting timbre. Fire up a synth that features PWM; we're using LinPlug's AlphaCM, from the **cm** Studio on the DVD. Fire it up and call up the **Z_Init** preset patch. You'll need your oscilloscope, too.

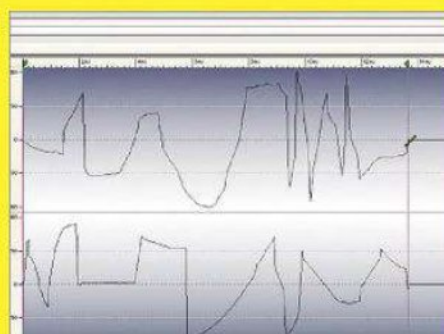
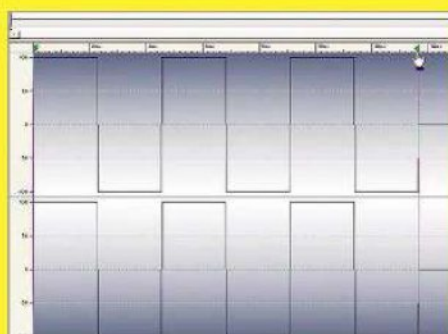
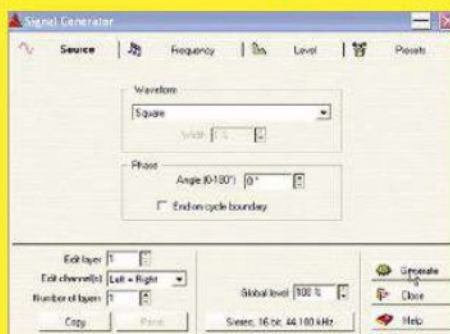
2 > Adjust the **Mix** so that only Osc 2 is sounding, and crank Osc 2's **A/B** balance all the way to A. Turn the filter's **Cutoff** all the way up, so as not to interfere with the sound. Play and hold a note, watching the 'scope as you do so. AlphaCM should be producing a familiar square wave. There are no dedicated pulse waves in this synth, but it doesn't need them.



3 > AlphaCM doesn't have a dedicated pulse width knob, but we can use its modulation matrix to assign it to a source. Click the left side of the top-most slot in the matrix and select the **Filter Envelope** as source. Drag up on the numbers in the middle to set the mod amount to **1.0000**. Click the right side of the mod slot to assign **Osc 2 Symmetry** as the mod destination.

4 > Let's set up that filter envelope. Turn the **Attack** segment up to the 2 o'clock position; ditto for **Decay**. Set **Sustain** to 11 o'clock. Now, play and hold a note, watching the scope and listening to the sound. The waveform will morph from a square to a pulse with a very narrow negative cycle and then back a little. The sound will get thinner and more brittle as it does so.

> Step by step Drawing waves in an audio editor



1 > We're going to use an audio editor to generate a waveform, then customise it with some freehand drawing. Not all audio editors have this ability, but Wavelab does, so we'll use that one. Fire it up and find the **Tools** menu. Select **Audio Signal Generator**. Tell it to make a square wave, and adjust a few parameters.

2 > Now we've got a huge pile of square wave cycles. You can play it to hear what it sounds like (mind your volume - ours is loud). That's really more than we need, so select all but the very first bit and crop it down to just a few cycles. Zoom in to get a good look. Drop in loop start and end markers and play the file to make sure it loops smoothly. Adjust the markers and sample start and end as needed.

3 > This could make a fine source of basic waves for, say, a sampler. However, we want to create custom waves. Select the pencil tool and try drawing some crazy shapes in both the right and left channels. Makes sure that both waves start and end on zero crossings (the centre line). This will cause them to loop smoothly. Now, have a listen to your handiwork!

> Step by step Exploring additive synthesis



1 > All complex waves are made of simpler waves. We have, up until now, been using subtractive synthesis to explore our waveforms. Let's try the opposite approach: additive synthesis. KarmaFX Synth (www.karmafx.net) features an easy-to-use additive oscillator, so let's use that one. Fire it up and load the **BlankSlate** preset from the **cm DVD**. Leave **s(M)exoscope** in place.



2 > This patch is stripped of all but the output modules, so we need to add an oscillator. Right-click a blank area and select the **Generator** category from the **Add Module** menu. Choose the **Additive** generator. It will appear in the patch. Now, right-click the title bar of the Amplifier module and select **Generator1** as the **Input** for the Amplifier. They'll be cabled together.



3 > It won't make a sound until you play a note, and then the sound will be constant. So right-click and choose an **ADSR** module from the **Modulator** category. Right-click the Amplifier's **Amp** knob and choose **Modulator1** as the input for that knob. Next, crank up the ADSR's **Sustain** knob. You can now trigger the sound from your keyboard. Select **Sine** in the Generator's **Waveform** menu.



4 > There's our old friend the sine wave. Look at the upper-right corner of the Additive generator, to the **Monics** knob. Turn it down to **16 Harmonics** (this figure will be shown in the parameter display on the left side of the module's GUI). Now, look for the three oval-shaped buttons in the upper-right, and click the middle one. A thick vertical bar will appear in the big display area.



5 > The vertical bar represents the amplitude of the first partial. This is the fundamental, and determines the pitch of the sound. We already know that a single partial equals a sine wave. Play a note and look at the scope in the Amplifier module (or in **s(M)exoscope**) to see that this is indeed so. Now, use your mouse to draw some random partials into the Additive generator's **Magnitude** display.



6 > Play and hold a note and watch the 'scopes. As you can see, the waveform becomes more complex. You should also hear more harmonic content. Experiment with more partials at different levels. We're only using 16 partials, so there's a limit to the complexity we can achieve, but you should get the idea. Now, remove all of the partials by drawing across the bottom of the **Magnitude** display.



7 > Draw in the second partial at full magnitude. Notice that you still get a sine wave, but this one is twice the pitch of the original fundamental. Next, listen to only the third partial; this one is a seventh higher in pitch than the second. All of the partials have a mathematically integral relationship to the fundamental, so they sound harmonic. If you could draw the 'in-between' partials, they'd be dissonant.



8 > Now let's do something really cool. Draw in every other partial (the odd numbered ones), each successively lower than the one before it, with the fundamental being the loudest. It might take a little practice, but keep adjusting them and playing the sound. Pretty soon you'll see a shape very similar to an analogue square wave. That's because square waves are made up of only odd-numbered partials.



9 > OK, if it's that easy to make a square wave, it can't be too difficult to make a sawtooth waveform, right? Indeed not! A sawtooth wave consists of every partial, each a bit lower in amplitude than the one that precedes it. Again, the fundamental is the loudest. Try drawing a shape like this in the display, and you should be able to achieve the familiar raspy buzz of the sawtooth wave.

Further reading and listening

Beaver and Krause
The Nonesuch Guide to Electronic Music

This was a landmark recording when it was released back in the mid-60s. Chock full of just about every imaginable synthesis technique of the day, *The Nonesuch Guide* was produced by the pioneering duo of Paul Beaver and Bernie Krause. Strictly an academic affair, it comes with a superb 16-page booklet featuring detailed discussions of waveforms, modulation, filters and even the complete score to the only 'proper' piece of music in the set.

Hermann von Helmholtz
On the Sensations of Tone
 Or, more properly: *On the Sensations of Tone as a Physiological Basis for the Theory of Music*. In the early 1800s, a French mathematician named Fourier came up with the idea that any sound could be broken down into a number of simpler waveforms. However, the theory couldn't be proven until decades later, when Hermann von Helmholtz devised his Helmholtz Resonator, used to identify the constituent sine frequencies that make up a sound. Helmholtz's *Sensations* is deep reading, particularly for the modern investigator. It's a classic, and even inadvertently influenced the invention of the telephone.

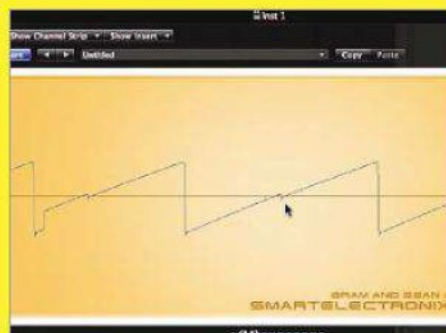
Wendy Carlos
Secrets of Synthesis
 This 1987 CD is a primarily spoken-word instructional lecture on synthesis, starting with the basics and working through additive synthesis and vocoding. Carlos punctuates proceedings with examples from her own back-catalogue, providing a 1:1 reference for the techniques discussed. It's somewhat difficult to obtain these days, but copies do turn up on the second-hand market and are well worth seeking out.

Anthony Ashton
Harmonograph: A Visual Guide to the Mathematics of Music
 The harmonograph is a 19th-century mechanical contraption that can create geometric images using a number of pendulums, and it was used to (among other things) reveal patterns hidden in music and sound. The concepts pertaining to the physics of frequency and sound are explained with ease, and the maths is accompanied by gorgeous images derived from the device. It even tells you how to build one of your own.

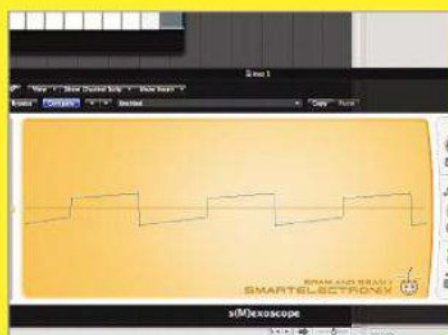
> Step by step Sub-oscillators, resonant sines and noise effects



1 > Many analogue-style synthesisers provide additional sound sources in the shape of sub-oscillators, self-oscillating filters and noise generators. TAL-Bassline (kunz.corrupt.ch) has all the features necessary to explore all of these functions. Fire up it's default sound. We'll start with the sub-oscillator.



2 > On the surface, sub-oscillators aren't too exciting, usually producing a square wave at a lower pitch than that produced by the main oscillators. Check it out: play a note with the default sound. The sawtooth wave and sub-oscillator are both cranked up in the synth's mixer. It sounds like we're hearing a beefy sawtooth, but as the s(M)exoscope reveals, there's a notch in the waveform.



3 > Play and hold a note, while at the same time reducing the amount of sawtooth wave in the TAL-Bassline Source Mixer. As you can see, the square shape becomes more prominent as the volume of the sub-oscillator overtakes that of the main oscillator. Try experimenting with different wave levels and sub-oscillator ranges to create interesting wave shapes.



4 > Once you've finished playing with the sub-oscillator, crank the **Pulse**, **Saw** and **Sub-Osc** sliders all the way down in the Source Mixer. Now there's no sound at all. No problem! Go to the filter section (VCF) and turn the **Resonance** all the way up. While you're at it, bring the **Cutoff Frequency** all the way down. Now, play and hold a note.

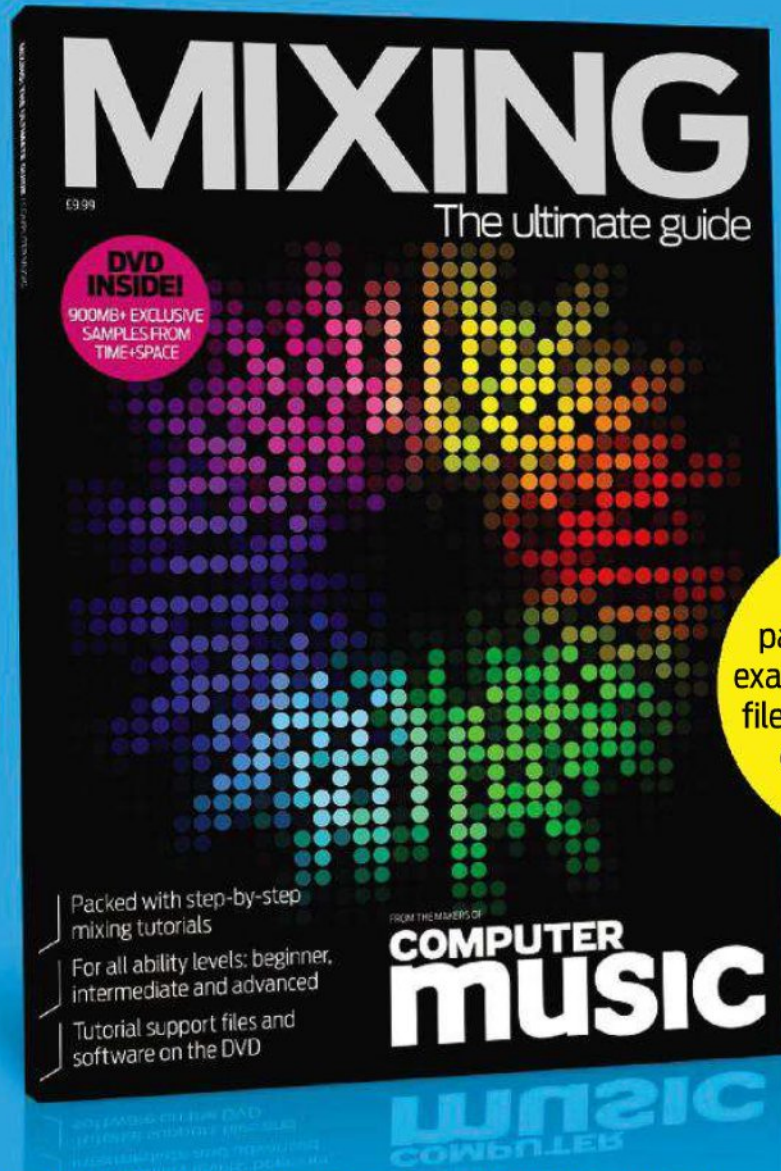


5 > That high-pitched whine is a sine wave being produced by the filter itself. This ability can be used for unusual effects. Reduce the value of the **Env** slider in the VCF section. Turn the **Mod** slider up nearly all the way. Now, set the Envelope's **Attack** and **Decay** to almost full, and the **Sustain** and **Release** about halfway. You'll hear the frequency of the sine being modulated by the envelope and the LFO.



6 > Let's take a quick look at how noise can be exploited. Noise is all frequencies at all amplitudes, simultaneously. Reduce the filter's **Resonance** to below the halfway point (it'll stop self-oscillating), and bring the **Noise** all the way up in the mixer. Play and hold a note, watching the oscilloscope. The high-pitched whine has been replaced by the whoosh of filtered white noise, which is always good for special effects. **cm**

ESSENTIAL READING FOR ALL MUSIC PRODUCERS



Includes DVD
packed with audio
examples and tutorial
files, **PLUS** 900MB+
of Time+Space
samples!

EVERYTHING YOU NEED TO MAKE BETTER MIXES



The fundamentals of mixing
laid bare, from setting up, to
effects, automation and more



In-depth masterclasses to
take you beyond the basics
and boost your creativity



Learn new tricks and
techniques with our 'Ear
Candy' quick guides

ON SALE NOW!

Available at Borders, WHSmith and all good newsagents, or buy online at myfavouritemagazines.co.uk

COMPUTER music cm software village

To advertise please email leon.stephens@futurenet.com or phone +44 (0) 1225 732236

SUGAR BYTES



Sugarbytes

Web: www.sugar-bytes.com

Email: info@sugar-bytes.de

Sugar Bytes GUITARIST is the complete software guitar solution. With hundreds of riffs, chords and tones included, GUITARIST always provides the guitar sound that you are looking for. Explore the possibilities of the inbuilt sequencing system and create stunning guitar tracks within seconds!

Expert Sleepers



Expert Sleepers

Web: <http://expert-sleepers.co.uk/>

Email: info@expert-sleepers.co.uk

Expert Sleepers Spectral Conquest (Mac/PC, VST/AU), reviewed in CM156, offers realtime and scriptable manipulation of a sound's frequency spectrum. From the review: "very responsive" "very pleasing to the ear" "enormous amount of potential" "vast flexibility ... easy spectral manipulation" "CPU-friendly"

cm Classifieds

To advertise please email leon.stephens@futurenet.com or phone +44 (0) 1225 732236

Catch Our DJs
every month at
THE GALLERY

STRIP BACK

STRIP
BACK



Authorised Training Centre

GET OUT OF THE BEDROOM AND INTO THE MAIN ROOM

Subbass DJ Academy is one of the UK's leading course providers for students looking to make it in the music industry. Students attending the Subbass courses can take full advantage of our industry connections. We have had more students signing to labels than anywhere else, and tracks made by students on the courses are often aired at the UK's top clubs.

We run monthly events in one of the world's biggest clubs, where our DJs get the chance to play alongside their heroes.

Subbass tutors are all well known producers and DJs giving you valuable insight into the industry and helping you move forward with your career.

Music production courses

3 month, 1 month, Weekend and Evening crash courses available. Apple authorized training courses, Logic and Ableton Live entry level to advanced.

DJ courses

Basic to Advanced including: Full DJ Course, Weekend and Evening courses, Digital DJing, Ableton Live and our Urban Music course.

Professional course tutors

Graeme Lloyd (Gallery, Stripback Records)
Peo Haggström (Nocturnal, Global Underground) John Taylor (Punx Soundcheck)
Dave Parkinson (Happy Mondays) and
Paddy Freeform (Universal Vibes)

Contact: 02074047080/info@subbassdj.com
Website: www.subbassdj.com

UK'S PREMIER
CREATIVE MEDIA COLLEGE



**Are you ready to produce tracks
for commercial release!**

**ENROL
NOW!**

BA/BSc (HONS) AUDIO PRODUCTION*

ELECTRONIC MUSIC PRODUCTION

LIVE SOUND CERTIFICATE

SHORT COURSE PROGRAMME

Ableton Live - ProTools - Logic Pro - Secrets of Mixing - Music Theory

**validated by Middlesex University*



UK CAMPUSES : GLASGOW / LIVERPOOL / LONDON / OXFORD

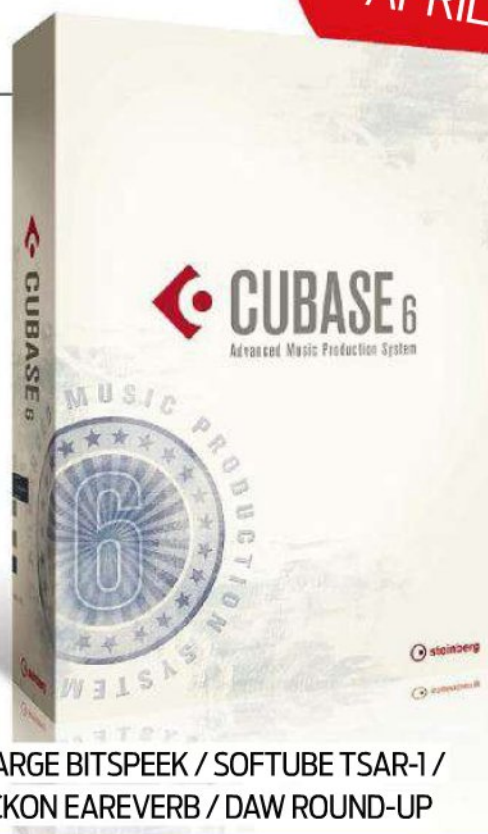
www.saeuk.com

Next issue **cm**/164

ON SALE
WEDNESDAY
APRIL 6

CUBASE 6 **UNCOVERED**

Steinberg's latest DAW is bursting with innovation and high-end functionality. We explore Cubase's brand-new features and show you how to push it to the creative limits



REVIEWS NI TRAKTOR KONTROL S4 / OVERLOUD TH2 / SONIC CHARGE BITSPEAK / SOFTUBE TSAR-1 /
NOMAD FACTORY MAGNETIC / EASTWEST THE DARK SIDE / EARECKON EAREVERB / DAW ROUND-UP

cmDVD



EXCLUSIVE FREE SOFTWARE!

ALCHEMY PLAYER CM

Special **cm** edition of Camel Audio's supercharged sample-based synth for PC and Mac, complete with a diverse library of 250 patches

ROYALTY-FREE SAMPLES!

EXPERIMENTAL SOUNDSCAPES

Mind-altering textures, movements and sonic journeys

PLUS! HIP-HOP PRODUCTION ESSENTIALS / *PRODUCER MASTERCLASS*: CYANTIFIC / MASTERING PITCH AND TONALITY /
HOW TO BUILD YOUR OWN LOOPS / SUB-BASS MADE EASY / **cm** FOCUS: 80S POP / THE GO! TEAM INTERVIEWED

MDRUMMER 4

Your ultimate drum machine

MDrummer 4 is more versatile, faster than ever and now even easier to use thanks to it's brand new redesigned interface. New drumset and rhythm generators provide endless inspiration for composers, and the extremely complex yet intuitive virtual drummer, speeds up the workflow for producers. Experienced users will enjoy a huge set of features that others can only dream of. So download our FREE version today for Windows and Mac and turn your dreams into reality.



Samplers & synthesizers...

MDrummer provides advanced samplers and multisamplers for acoustic drums, but also various synthesis techniques for electric drums and sound effects. This includes the ultra-versatile hybrid synth MSynthesizer4NN and the unbelievable MSubSampleSynthesizer, which will generate literally thousands of drum sounds for you. MDrummer can also analyze and import sample collections whether you get them from your magazine DVD or download from the internet.

More than 7GB content, plus the generators...

MDrummer comes with a huge library of acoustic drum multisamples, rhythms, loops, effect presets and other resources. That is more than 16000 files! If that's not enough, MDrummer will generate both drumsets and rhythms for you - total originality with just a click of a button. It will even generate separate drums and effects... it's like having terabytes of data!

Play any style with the incredible virtual drummer...

MDrummer contains a state-of-the-art virtual drumming engine providing any style you can imagine. Creating the perfect drum track for your song is then quick and easy allowing you to change the style later if you desire. You can also jam with MDrummer or command him in realtime. And don't worry if there is not a style that fits your needs. Using the new rhythm generator you can have your style right away!

24 pristine quality effects at your disposal...

You can add any number of effects to any drum, to any of the master outputs, and to both send channels. This includes equalizers, compressors, reverbs, distortions, and even a harmonizer. MDrummer can also randomize the effects. With many of the effects being included in our acclaimed mastering and creative series, you can rest assured that both the audio quality and usability is of the highest quality.



www.meldaproduction.com

Parts or systems...



Scan 3XS Performance SP15

"A solid audio laptop that has it where it counts – in the performance department. The powerful CPU and a modern 64-bit system cope with whatever you throw at it"

Reviewed by MusicTech, November 2010



Scan 3XS Performance SP17

"The 3 S's of Scan 3XS stand for Specification, Service and Satisfaction, and judging by this latest model they have once again achieved this goal."

Reviewed By Martin Walker

Sound On Sound Magazine, September 2010 issue. **SOUND ON SOUND**

we've got it covered.

Supplier of performance hardware and pc audio workstations

Scan 3XS Performance SP15

The USA's finest PRO audio laptop exclusively in Europe, only from Scan Computers.

- 15" ADK 1Q AR ProAudio Notebook
- Intel® Core™ i7-640M processor
- 4M Cache, 2.66 GHz
- 320GB Seagate ST9320423AS Momentus 7200
- 4GB (2x2GB) Corsair DDR3
- Texas Instruments Firewire & Wi-Fi options available

Intel® Core™ i7 Processor. Intel's best processor.

Hardcore multitaskers rejoice. The Intel Core i7 mobile processor family delivers maximum processing performance in response to peak demands. You'll fly through everything you do on your PC— from playing intense games to creating and editing digital video, music, and photos. With Intel® Turbo Boost Technology and Intel® Hyper-Threading Technology, you get intelligent performance when you need it most.



Don't buy hardware without Scansure protection. 28 day installation damage insurance www.scan.co.uk/scansure



Scan Finance. Buy now, pay 10% deposit & spread the cost over 36 or 48 months when you spend £300 (inc vat) or more.