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In the studio

NI Maschine+

Hands-on preview

Recording Drums

Must-have masterclass

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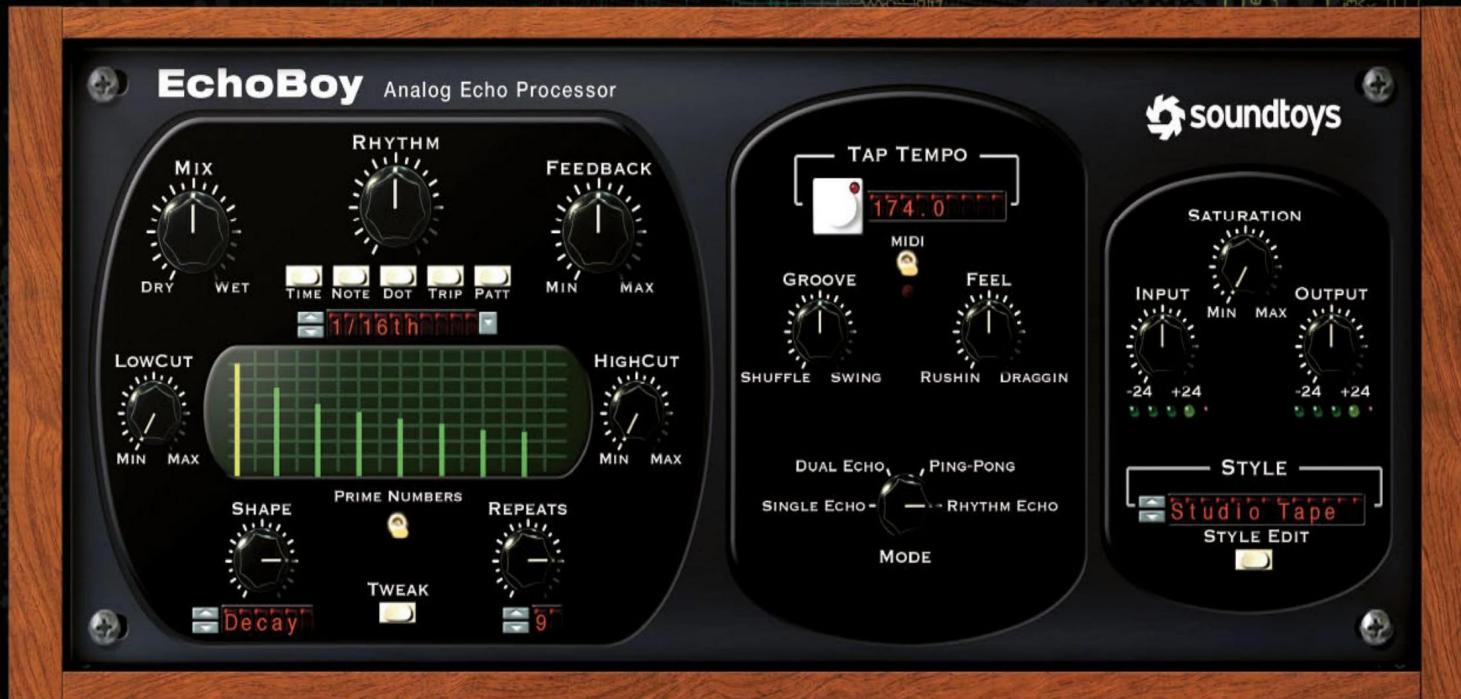
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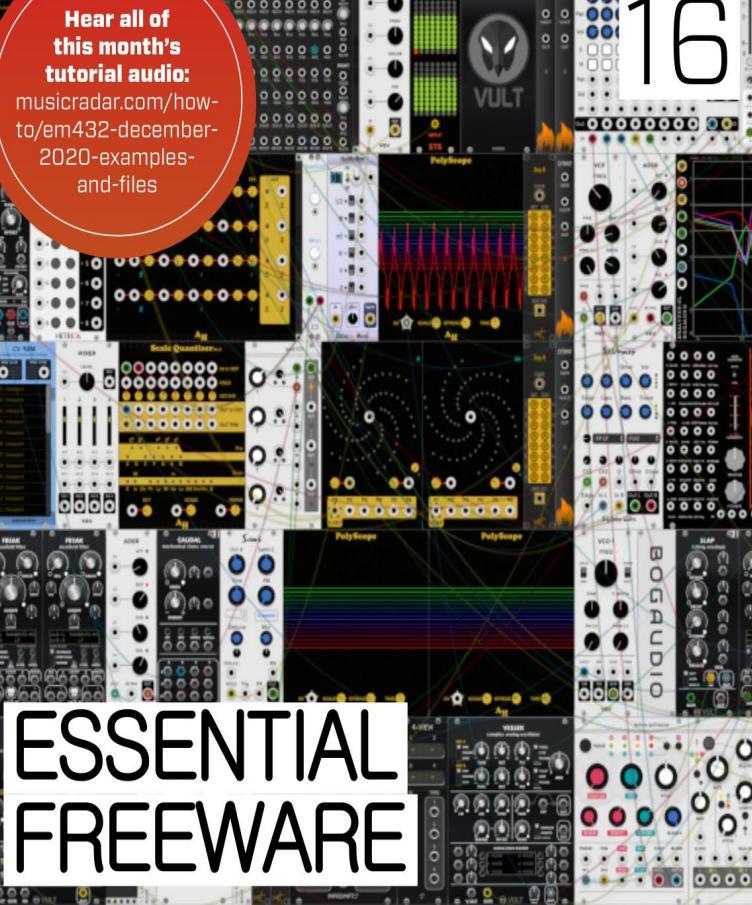
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VERSION 2.0 UPDATE

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# Something for nothing

On a day-to-day basis we're conditioned to believe that nothing comes for free, but when it comes to music production there's actually a whole host of excellent tools out there that can be had for nothing. Whether you're after analog-styled synths, experimental effects, workhorse EQs and compressors or modern beatmaking tools, it's entirely possible to kit out your virtual studio without opening your wallet.

Sounds too good to be true, right? Music software has a long tradition of quality 'freeware' releases though, and there are a multitude of reason developers might offer up plugins for free. In some cases, free plugins are cutdown or older versions of contemporary paid plugins, released to offer users a taster in the hope they might move up to the more advanced version in the future. Other freebies are designed to help developers with

the research or development of other future projects. A lot of the time too, freeware plugins are simply created as passion projects or labors of love. While you might be asked to give up an email address in exchange for some of them, we've kept our selection to instruments and effects that come without any hidden strings or costs attached

In this issue's guide we've rounded up some of the best synths, beatmakers and effects, but we've limited ourselves to the plugins themselves. However, should you need a DAW to host these, there are plenty of unpaid options here too. Check out Tracktion's excellent Waveform Free, Bandlab's revived version of Cakewalk or Akai's recently launched MPC Beats for some surprisingly powerful free tools.

What are you waiting for? Get downloading and making music!



**SI TRUSS**  
EDITOR

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**CONTENT****Editor**

Si Truss [simon.truss@futurenet.com](mailto:simon.truss@futurenet.com)

**Content Director, Music**

Scott Rowley [scott.rowley@futurenet.com](mailto:scott.rowley@futurenet.com)

**Art Editor**

Steve Dawson [steve.dawson@futurenet.com](mailto:steve.dawson@futurenet.com)

**Production Editor**

Jem Roberts [jem.roberts@futurenet.com](mailto:jem.roberts@futurenet.com)

**Editors at Large:** Francis Preve, James Russell

**Contributors:** Andy Jones, Francis Preve, Scot Solidia, Rob Redman

Jerry Kovarsky, Dave Clews, Michael Ross, Joe Rossitter, James Russell, Ronan Macdonald, Jon Musgrave, Bruce Aisher

**FUTURE MUSIC GROUP BUSINESS****Advertising Director**

Jonathan Brudner [jonathan.brudner@futurenet.com](mailto:jonathan.brudner@futurenet.com)

**Advertising Director**

Mari Deetz [mari.deetz@futurenet.com](mailto:mari.deetz@futurenet.com)

**Advertising Director**

Jason Perl [jason.perl@futurenet.com](mailto:jason.perl@futurenet.com)

**Advertising Director**

Scott Sciacca [scott.sciacca@futurenet.com](mailto:scott.sciacca@futurenet.com)

**MANAGEMENT****Chief Content Officer**

Andrea Davies

**Commercial Finance Director**

Dan Jotcham

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# NEW GEAR



## First look: Native Instruments' new standalone beatmaker, Maschine+

A standalone version of Native Instruments' Maschine beatmaking platform has long been rumored – particularly in light of Akai's decision to take the MPC range back out of the box – and now it's here. Maschine+, as it's known, is a pad-based groovebox that can be used with or without a computer.

This is a Maschine that's been a long time coming. NI tells us that it had a proof-of-concept prototype as long ago as 2014, but only now has it created a product that it's happy to put on release. We've got our hands on one, and ahead of a full review next issue, let's take a look at how it works...

### A familiar face

From the outside, Maschine+ looks strikingly similar to the Maschine MkIII, but under the hood it's a different story. NI has packed an Intel Atom quad-core processor into the device, along with 4GB RAM and 32GB of internal storage. What's more, as befits a product that's designed to be used away from your studio, it comes in a seemingly robust anodized aluminum case.

All audio I/O and other connectivity is positioned on the back of the device. The mic input has more gain in comparison to previous Maschines, and dual USB ports mean that you can plug in both a class-

compliant MIDI keyboard and separate audio interface if you wish (this then replaces the built-in I/O).

At launch, only NI audio interfaces will be supported, but compatibility with third-party models may be added later on if the demand is there.

Maschine+ runs on an optimized Linux-based OS and ships with a carefully selected bundle of software built in. This includes not only the 8GB Maschine Factory Library (this contains sounds, drum kits, instruments, patterns, projects, sliced loops, Bass Synth and NI's five Drum Synths), but also some classic NI plugin synths: FM8, Massive, Monark and Prism.



You also get selections of Reaktor and Kontakt factory instruments, along with the Retro Machines vintage synth collection. The Raum and Phasis effects are supplied, too.

Then we come to the Maschine+ Expansions. Five of these – Deep Matter, Lilac Glare, Solar Breeze, True School and Velvet Lounge – are included, and you also get a voucher for two additional Maschine+ Expansions of your choice. More than 70 of these will be available at launch, with more to follow.

What's more, if you already own a Maschine Expansion that's compatible with Maschine+, you won't have to buy another license – you should just be able to transfer it straight over to the hardware.

#### Take it away

And this is where things start to get really interesting; because Maschine+ is WiFi-capable, you can set it up and download content without the need for a computer. NI describes it as like having its Native Access authorization system built into the hardware – you even have the option of registering Expansions on your phone by scanning a QR code that appears on one of NI's two color displays.

It's worth noting that, while the factory library is installed to the internal eMMC storage, all Expansions and your projects have to go on an SD card. A speedy 64GB card comes supplied, though you can replace this with a card of up to 1TB in size,



so long as it's fast enough. What you can't do at this stage is load any third-party content into your Maschine+, and only certain NI plugins can make the jump across. We're assuming that more NI software will be added in the future, but it remains to be seen if you'll ever be able to use synths and effects from other developers when in standalone mode.

Speaking of which, as well as being playable on its own, Maschine+ can also be used in three other guises. Controller mode turns the hardware into a standard controller for the Maschine software; Storage mode enables you to transfer content between the hardware and your computer; and MIDI mode gives you a freely mappable controller.

As you might expect, projects created in standalone mode can be loaded into the desktop Maschine software, and you can also send projects from the desktop to the hardware. The main caveat here is that, if you've used plugins that aren't supported by Maschine+ in standalone mode, the tracks that use them won't play, so you'll have to find alternative options.

#### The stage is set

Obviously, being standalone, Maschine+ has significant potential as a performance device, and there are a couple of features that emphasize this.

Firstly, there's support for Ableton Link, the syncing technology that's built into many iOS apps and some desktop software. This opens up a multitude of jamming possibilities, and even the option

of using two Maschine+s on stage. Then there are 128 MIDI presets, each designed to work with a specific hardware synth. These are designed to make your synths feel as if they're built into Maschine+; hook one up and you can sequence it and tweak it just as if it were a plugin.

#### A template for the future?

All of which adds up to a product that, while answering some of the questions about what NI would do with Maschine next, also throws up a few more. If Maschine+ is a success – and, based on what we've seen so far, we have every reason to believe that it will be – there's no reason why a standalone, synth-stuffed Komplete keyboard couldn't be created. Such a device would surely have stage keyboard players salivating, and pose a serious threat to the likes of Korg, Yamaha, Roland and Nord.

We'll save our final verdict for a full review, but from our first few days with Maschine+ we can confirm it certainly lives up to the promise of having the full Maschine workflow in a standalone device. Whether that portability is worth sacrificing the convenience of third party plugins and simple DAW compatibility will likely be a matter of taste. If NI continue to add more of their own effects and instruments, this has the potential to be one of the most powerful standalone instruments on the market.

Maschine+ will cost \$1,299 and should be in shops by the time you read this.



# THIS MONTH IN SOFTWARE

Some of the biggest software packages on earth receive an update, but some out-of-this-world new ideas have surfaced too

## **Native Instruments goes back to Guitar Rig as it announces Komplete 13**

Having skipped an update in 2019, Native Instruments has announced a new version of Komplete, its chunky collection of software products.

Komplete 13 adds some of NI's biggest releases of the past couple of years, and includes a surprise update to Guitar Rig, the company's suite of guitar amps, effects and cabs.

Guitar Rig 6 Pro promises an overhauled interface, new amps, new effects and Intelligent Circuit Modelling. The last 'full' update was way back in 2011, so a new version wasn't really on our radar.

Intelligent Circuit Modelling is "a machine-learning technology that can provide greater realism when emulating classic hardware." In Guitar Rig 6, it's used to power a range of boutique and vintage amps.

Komplete 13 also adds several instruments, Kontakt libraries and effects, too. It'll be available on 1 October in the following formats: Komplete 13 Select (\$199); Komplete 13 (\$599); Komplete 13 Ultimate (\$1,199); and Komplete 13 Ultimate (\$1,599). Obviously, the more expensive versions come with more content.

Guitar Rig 6 Pro will also be available on its own on 1 October priced at \$199/£179/€199.

*MusicRadar*



## **Reason Studios' Frikction is an expressive string synth that "simply sounds real"**

For its latest Rack Extension, Reason Studios is stepping into the world of strings – specifically, physically modeled ones. Frikction Modeled Strings is designed to put you in full control of your string instrument – whether that be a violin, viola, cello, bass or something that you create yourself.

You can dictate everything from the shape of the instrument to the way it's played, right down to the specific finger placement and bow pressure. And all, we're told, with no complex setup.

"The magic with Frikction is how great it feels to play it," says Mattias Häggström Gerdt, Reason Product Manager. "With just a regular MIDI keyboard, you can easily conjure up incredibly emotive performances – both with violin instruments and strings yet unheard."

Frikction Modeled Strings works not only in the standalone version of Reason (version 10.1 or later), but also in other DAWs via the Reason Rack Plugin. It

costs \$99, but you can download a 30-day trial version if you want to test it out.

Find out more on the Reason Studios website.

*MusicRadar*

## **iZotope's RX 8 is here and ready to "solve the unsolvable in audio"**

The hi-tech audio cleanup experts at iZotope have announced RX 8, the latest version of their audio repair and enhancement software. Designed for anyone who needs to clean up any kind of audio, this contains a slew of new restoration tools.

There are three versions of the software – Elements (\$129), Standard (\$399) and Advanced (\$1,199) – and the feature set depends on which of these you go for.

"Since we first released our flagship RX product, additional years of research and innovation in machine learning have allowed us to continue to provide the industry with timely solutions to audio repair issues that were previously impossible," says iZotope Principal Product Manager Mike Rozett.

iZotope has also announced the RX Post Production Suite 5, which includes RX 8 Advanced, Dialogue Match, Neutron 3 Advanced, Nectar 3 (with Melodyne 5 essential), Insight 2, RX Loudness Control, Relay, Symphony 3D and Stratus 3D by Exponential Audio, and Tonal Balance Control 2, plus a one year all-access pass to Groove 3, a video training tool. The regular price is \$1,999.

Find out more on the iZotope website.

*MusicRadar*

## **Make a Statement with Softube's simple new EDM plugin lead synth**

Designed to complement its Monoment Bass plugin, Softube's new Statement Lead synth puts the focus on creating EDM, D&B and house lead sounds, and all with the minimum of production fuss.

Although it's designed to be beginner-friendly, Softube assures us that Statement's sounds are based on carefully recorded and processed sounds from "rare and expensive" hardware synths, putting them at a high standard, and there are drive, reverb, delay, multiband compression and spatialisation effects, too.

Of course, an instrument like this needs a decent selection of presets, and we're assured that there are no fillers among the 150-plus that you'll find here. Use them as they come or as starting points for further tweaking.

Find out more on the Softube website. Statement Lead has a regular price of \$99, but you can purchase it for \$89 until 1 October.

*MusicRadar*



Softube's Statement Lead complements their Monoment Bass plugin



A synth with satellite modulation sources

### The moon-powered Quadrivium synth plugin sounds out of this world

Space, the final frontier... no longer the case in the world of synthesis. Meet Quadrivium, a softsynth that uses orbital data from 12 moons as modulation sources.

As far-fetched as it seems, it looks like the best way to create spacey synth soundscapes and other-worldly drones can be found in the satellites surrounding the four gas giants in our solar system.

12 moons surrounding Jupiter, Neptune, Saturn and Uranus are the subjects of Giorgio Sanristoforo's latest software-based synthesizer. The sound-artist and developer, who also brought us the Berna 2 and other softsynths inspired by the cosmos, uses orbital data to modulate oscillators, filters and delay.

The information has been taken, hour by hour, from 1 January 2020 and will continue through to 1 January 2030. We don't have much more to go on except for a comment, posted by Giorgio himself, instructing one viewer to check out his website next week where more will be revealed.

*MusicRadar*

### "Forget presets": Sonible's smart:reverb plugin promises to listen to your sound and create a custom space for it

With a lot of reverb plugins, your starting point might be a preset indicating what kind of space it might be designed to recreate, but Sonible's smart:reverb takes a rather different approach. This AI-powered processor promises to 'listen' to your sound and then create a custom-tailored reverb for it.

You can analyze your source material with a single click, and the plugin will then design a suitable reverb from scratch. This is designed to fit the "spectral and temporal characteristics of the input signal," potentially helping to eliminate the likes of disturbing resonances or muddy reverb tails.

You can tailor the sound of the reverb on a matrix that's labelled with descriptive properties. This intuitive and simple control method is joined by a

detailed interactive view, which lets you adjust the frequency and time-dependent decay rate as well as the spread and other parameters.

This isn't Sonible's first foray into the world of AI-powered processing, of course: the company has already released smart compressor and EQ plugins.

You can find out more and download a

demo of smart:reverb on the Sonible website. It runs on PC and Mac in VST/AU/AAX formats. It's available for €129.

*MusicRadar*

### There's more to Audified's one-knob VocalMint Compressor plugin than meets the eye

Although it only has one knob on it – and not much else, to be frank – Audified's VocalMint Compressor plugin actually contains three pre-tuned compressors (plus an analog-style valve stage) that are specifically designed to work on vocals.

Inherently simple to use, VocalMint gives you a "virtual signal chain" that comprises a smash compressor, valve compressor and multiband compressor. Collectively, these are designed to resolve problems related to the human voice.

The valve circuit adds some subtle EQ shaping, too – not enough to get in the way of your own EQ processing but enough to make the track sound more open, apparently – and you can also open up the interface to gain access to a few more controls.

VocalMint Compressor runs on PC and Mac in VST/AU/AAX formats and costs \$79. There's a demo you can download, too; head to the Audified website for all the details.

*MusicRadar*

### Algoriddim's Neural Mix Pro music player lets you separate vocal, drum and instrument tracks so that you can sample them in your DAW

Having previously added its Neural Mix technology to its djay app, Algoriddim has now released Neural Mix Pro, a standalone music player and editor for Mac that promises to let you separate instruments and vocals in any song and export the individual tracks so that they can be used in your DAW.

This "real-time music source separation" tech clearly has massive potential for those who want to grab samples and create remixes, though you'll need to consider the legal implications of doing this. A browser enables you to sort and select tracks, and there's also a Loop Editor so that you trim your audio to perfection.

It's also possible to change the key and tempo of songs that you play – zplane's élastique Pro V3 engine is built in – and to isolate and mute individual instruments. This could give the software potential as a backing track tool for musicians to play along to.

"We've created Neural Mix Pro to add a new creative dimension to the repertoire of producers, DJs, and musicians of all skill levels," said Karim Morsy, CEO and Co-Founder of Algoriddim. "It's designed to let anyone explore and edit music in unprecedented ways and we can't wait to see what artists create with this AI-powered music tool in their hands."

Hip-hop legend Pete Rock, meanwhile, said: "Neural Mix is incredible! It does so many things I wished for in my early years of DJing and now it's a reality."

You can download Neural Mix Pro for free from the Mac App Store. All features are unlockable for \$50.

*MusicRadar*



# Newfangled Audio PENDULATE

**O**ne recent soft synth release stood out above all others recently – not least because it was free. Newfangled Audio's first foray into synths, Pendulate is distributed by Eventide, as is the paid-for version Generate, over the page.

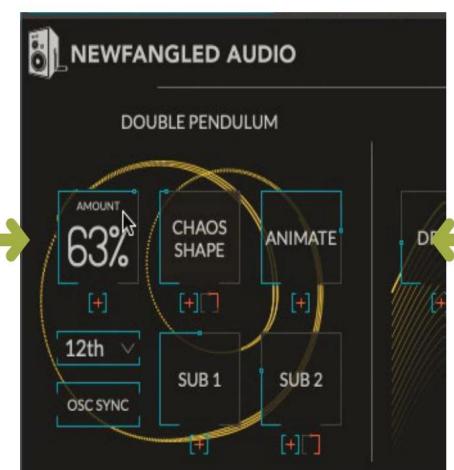
Pendulate takes its oscillation inspiration from the physics of a double pendulum – a

theoretical setup where a pendulum dangles from the end of another pendulum, with the oscillation of each feeding back into the other one's movement. When used as an oscillator source, the idea is pretty functional, but by turning up Pendulate's Chaos sliders, you can introduce more real-world unpredictability to the signal.

The signal runs through a West Coast-style combo of a wavefolder and a low-pass gate, and there's modulation on tap for most parameters thanks to envelope and LFO signals running along the bottom. We give you an intro to Pendulate below, before turning to its commercial sibling Generate on the next page.

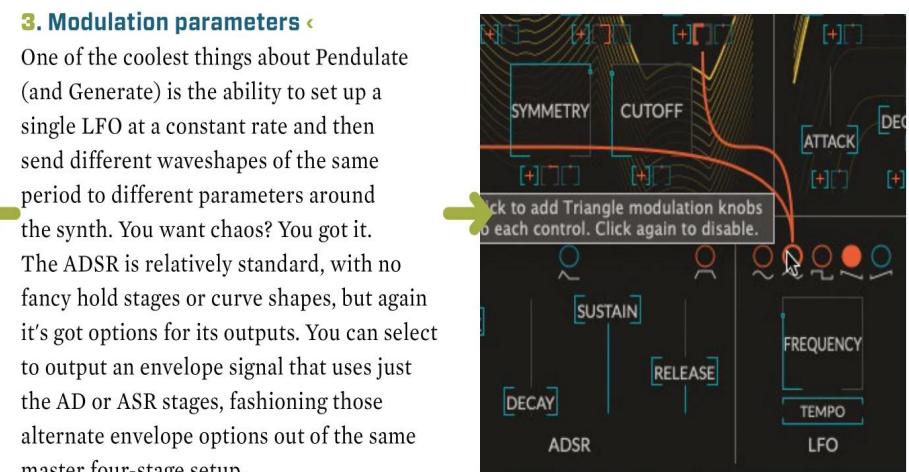
## 1. The dragon of chaos

Pendulate's Double Pendulum oscillator can be found on the left of the synth, emulating that double pendulum as an audio waveform. Turning up the Chaos Amount brings more instability to the sound, feeling like a distortion effect to all intents and purposes. The Chaos Shape parameter takes things even further, determining the type of process applied to the waveform, making things even wilder and more resonant. This is a synth that's specialized in all-out distorted tones. Thanks to the Lissajous visualization, you get a sense of what your changes are doing.



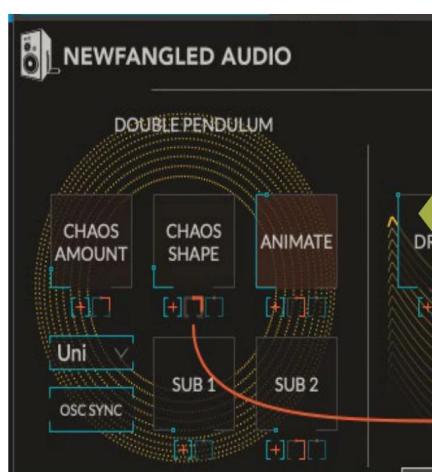
## 3. Modulation parameters

One of the coolest things about Pendulate (and Generate) is the ability to set up a single LFO at a constant rate and then send different waveshapes of the same period to different parameters around the synth. You want chaos? You got it. The ADSR is relatively standard, with no fancy hold stages or curve shapes, but again it's got options for its outputs. You can select to output an envelope signal that uses just the AD or ASR stages, fashioning those alternate envelope options out of the same master four-stage setup.

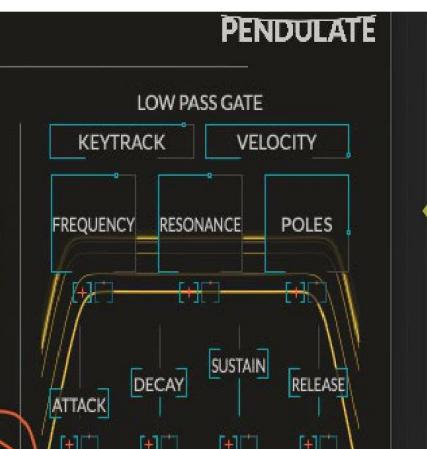


## 2. Other oscillator parameters

There are also two sub oscillators, playing one and two octaves below the main note. These help encourage more stability in any sound that's been 'chaos'ed' beyond a certain point. There's an Osc Sync function that runs the "chaotic generator" at a frequency relative to the notes being played. In practical terms, switching it off gives you purer tones. Finally, the Animate function acts somewhat like amplitude modulation, increasing the effect of your chaos. This 'animation' can be set to positive or negative values.



## PENDULATE



## 4. Wavefolder and Low-Pass Gate

Pendulate's Low Pass Gate gives a West Coast flavor to the synth. Familiar controls like cutoff Frequency, Resonance and Keytracking make things simple in-use, and there's a dedicated ADSR envelope too. Poles can be set in decimals up to 3.0. The Wavefolder completes the Buchla-style circuit duo, with a nice tasty Drive control, number of Folds and their Symmetry, and a Mix parameter for blending. All of these controls are ripe for modulation from the lower half of the synth.

# ...and GENERATE

The commercial half of this synth pair, Generate houses new choices of oscillator algorithm, of which the 'Double Pendulum' is only one. The Wavefolder section also has a choice of algorithms and the ability to switch in an analog-modeled VCA. Another difference between the two synths is that Generate adds

in a set of effects (EQ, Chorus, Delay and Reverb), and performance controls like Mono, Legato, Poly, Unison and Voice settings to give you plenty more to play with. The additions combine to be more than the sum of their parts, of course.

Again, Generate has a very specific sound – a distorted, raspy quality that would be

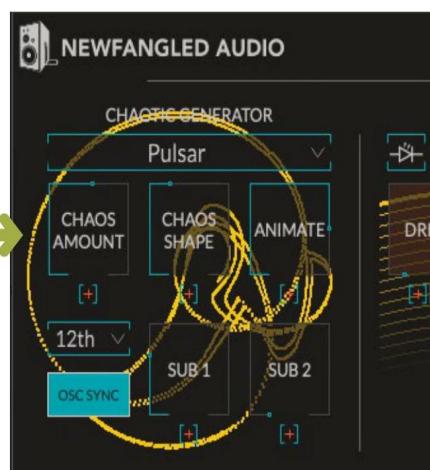
great for lead and bass work in many up-front genres, although more subdued tones are still possible here.

When considering the two, it's possible that Pendulate will be all you need, but for even more flexibility and sonic coverage, Generate's got a laudable price tag of \$99. You can grab either at [newfangledaudio.com](http://newfangledaudio.com)



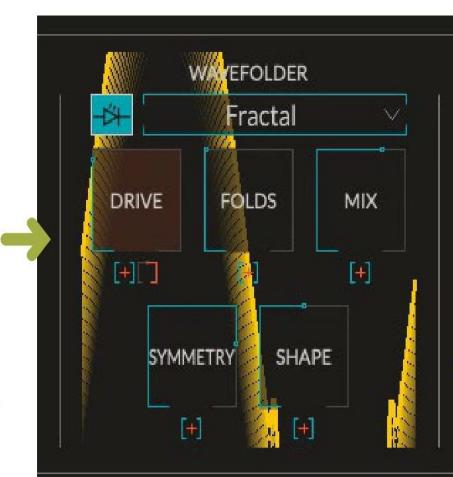
## 1. Oscillator algorithms

The first and major difference about Generate, compared to Pendulate, is its larger choice of oscillator functions. That Double Pendulum is now joined by four other models, each equally dirty and fuzzy, but with its own spin, keeping the same characterful drive. The controls you get over all these oscillator types remain the same, although the Chaos will have a different sonic consequence depending which one you've chosen. The Osc Sync also tends to have far more effect over these oscillator types than it did on the Double Pendulum.



## 2. Wavefolder types

Three choices of wavefolder circuit – 259, Animated and Fractal – let you change how the signal is distorted and controlled once the oscillator sounds have been generated. Using the various settings, you can get a tighter sound that feels more useful for getting some common synth staples such as plucks and, dare we say it, keyboard-esque tones. The button to the left of the type selector lets you kick in an analog-modeled VCA rather than a clean, slightly more sterile digital model. The results are subtle, but welcome in this particular setup.

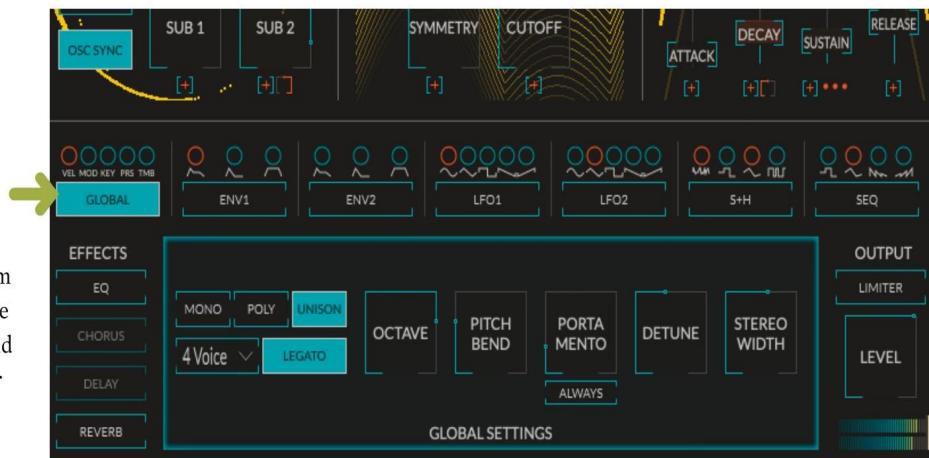


## 3. Generate's effects

Generate users will find a suite of four effects – EQ, Chorus, Delay and Reverb – to give their patches more depth and character. Each of these has its own combine on/off and mix controls, and the parameters you'd expect from the plugins. Given the sound of Generate, Delay and Reverb are where it's at, but the Chorus can curtail the brashness nicely. One thing missing here is the ability to modulate the effect parameters with the comprehensive load of mod sources, though. On output, there are Limiter and Level controls to finalize your creations.

## 4. Modulation options

Generate doubles the number of LFO and Envelope sources to two each – each with multiple outputs – and adds plenty more sources, including Sample and Hold, Sequence-style shapes, and retains Global sources like Velocity, Modulation, Key etc. Each of the modulators you'll recognize from Pendulate are suddenly more comprehensive here too – LFOs have Pulse Width, Phase and Sync options, and that Sequencer modulator can be set up using sliders for eight individual steps.



# 12 essential freeware synths

Stock up your hard drive with killer instruments and effects without spending a dime with our essential guide to the best freebies the internet has to offer. First-up we've a dozen must-have freeware synthesizers....



## 01 DISCODSP OB-XD 2

Mac/PC, 32/64-bit

We'd stress that this list is 'in no particular order', so this number one does not actually mean 'the best', but

DiscoDSP's faithful emulation of Oberheim's iconic OB-X is certainly up there with the top tier of freeware synths. Sonically, this can sit alongside the most convincing analog emulations on the market. OB-Xd builds on the design of the original too, adding a blendable multimode filter and chorus, reverb and delay effects into the mix. A must have!

[discodsp.com](http://discodsp.com)

## 02 GREEN OAK CRYSTAL

MAC/PC, 32/64-BIT

Almost as old as this magazine's editor, Green Oak software Crystal has, like Synth1 after it, been a mainstay in the freeware music scene for many a year. And it's easy to understand why... at least once you look past those aged looks, as it still sounds very good.

With a relatively simple operation but powerful LFO and modulation sections, it's easy to get something complex out of Crystal. And not a synth to be pigeonholed particularly, you can also get some pretty varied sounds out of it too. Crystal has also made a great (but sadly not free) transition to the iOS platform).

[greenoak.com](http://greenoak.com)

## 03 MATT TYTEL HELM

PC/MAC/LINUX, 32/64-BIT

Some freeware has been around the block a few times... and looks like it. Not so Matt Tytel's Helm. With the kinds of looks, graphics, movement and click and drag pointers found on newer synths, this looks anything but free, but most certainly is. The synth features a great little step sequencer, some nice LFO options and some superb (and easy to use) effects which help take its sound up a level or two. Great looker and a great sound.

[tytel.org](http://tytel.org)



"When I look back upon my life, it's always with a sense of shame, I've always been the one to blame..."



## 05 VCV RACK

pc/Mac/linux, 64-bit

Now this is the synth - actually entire modular system - taking the freeware world by storm. Developed over the last few years, it's an open source modular environment, complete with dozens of add-ons developed by many developers, making it one of the most exciting, and complex free systems out there. Look out for another entire feature on it soon.

[vcvrack.com](http://vcvrack.com)

## 04 NUSOFTING SINNAH

MAC/PC, 32/64-BIT

Another sleek and up-to-date interface, Sinnah is a relatively modern piece of freeware, but has a slightly different take on synthesis. It has a single oscillator, albeit one with five shapes to choose from, and an envelope to tweak. However, a 'resonant delay network' replaces the expected filter and once you start tweaking everything, you realise that the sound is as difficult to categorize as the overall synth architecture. It therefore sits within the more unusual box of freeware in our studio, but is all the better for it.

[nusofting.nusofting.com/](http://nusofting.nusofting.com/)

## 06 DIGITAL SUBURBAN DEXED

PC/MAC/LINUX, 32/64-BIT

Yamaha's DX7 is undoubtedly a classic synth, but boy was it fiddly to program! Thankfully, these days we have Dexed, a free recreation of the DX7's 6-operator FM synth engine in handy plugin format, with a far easier-to-use interface. You can even import and export your favorite DX7 patches too, and share patches with modern FM tools such as FM8 or Digitone.

[asb2m10.github.io/dexed/](http://asb2m10.github.io/dexed/)

## 07 TAL NOISE MAKER

PC/MAC, 32/64-BIT

Togu Audio Line have been making great plugins for many years now and were one of the earliest

flagbearers for the freebie. Their Elek7ro specialised in sharp percussion and cutting basses and Noise Maker is a new and improved version of that synth, featuring effects (including reverb and delay) and loads of presets that cover a lot more bases (and, indeed basses). We're pretty sure TAL will be appearing in later pages of this feature too, such is their girth of quality.

[tal-software.com](http://tal-software.com)


TAL - Togu Audio Line - have two decades of experience making both paid-for and free plugins. Very nice too

## 08 ACOUSTICA NIGHTLIFE

PC, 32-BIT

One that breaks all of our rules from the off; it doesn't work on a Mac and is only 32-bit. Other than that, it's great! No, the real reason this makes the cut is that it's one of the best bombastic dance freebies out there. Okay, it might be dance music from a few years back - dubstep included - but we all know a few tweaks can update it. So if your machine's old, give this a go, you won't regret it.

[acoustica.com](http://acoustica.com)

## 09 STAGECRAFT INFINITY

PC/MAC, 64-BIT

One of the newer and more unusual synths in this roundup, Infinity promises lots of features that other synths here can't deliver, including MPE (Multidimensional Polyphonic Expression) support for extra expression and a sample-based synthesis engine that helps it deliver a wide range of sounds, some acoustic, some electronic. The only catch is you might want to increase its library with paid-for additions, but there's plenty you can do without doing so.

[stagecraftsoftware.com](http://stagecraftsoftware.com)

## 10 FUTUCRAFT KAIRATUNE

PC/MAC, 32/64-BIT

Kairatune is an out and out electronic music producer's dream freebie, and ideal for dance music of all genres. It can cover your leads, basses, arps,



pads and beats and is "designed for musicians rather than engineers" so relatively easy to get to grips with. It wears its heart on its sleeve - and is damned good at what it does.

[futucraft.com/kairatune/](http://futucraft.com/kairatune/)

## 11 ICHIRO TODA SYNTH1

PC/MAC, 32/64-BIT

No freeware synth roundup would be complete without this mainstay of the free world, a synth that has popped up many a 'best of' list since its release back in the 18th century. Synth1 takes some of its features from the mighty Nord Lead 2 and while it might look antiquated, it sounds great, will run in modern DAWs and is still, incredibly, supported by its developers (albeit not in English). Still essential.

[daichilab.sakura.ne.jp/index.html](http://daichilab.sakura.ne.jp/index.html)

## 12 TYRELL NEXUS 6

MAC/PC/LINUX, 32/64-BIT

Amazona and u-he teamed up to produce this synth back in 2010 but updates have kept it fresh and able to run in up-to-date DAWs. 580 presets are easily enough to demo its power and it's a worthy inclusion.

[u-he.com](http://u-he.com) and [amazona.de](http://amazona.de)

# 12 GREAT FREE BEAT MAKERS

From kick designers to full-on drum machines we have all your beat-making needs catered for, free!



## Manda Audio **MT Power Drum Kit 2**

Mac/PC, 32/64-bit

Many freeware drums are understandably electronic in scope, but if you want a real rock feel, look no further than this. "Choose from thousands of rhythms and compose your own accompaniments," they say. And you can! [powerdrumkit.com](http://powerdrumkit.com)



## Sampleson **Analog Drums**

Mac/PC, 32/64-bit

If it's the more liquid sound of analog you're after, then Sampleson have a good stab with Analog Drums, which features 18 sounds, six pitch-adjustable, with kick and snare having Click, Delay, Tone and Snap controls respectively.

[sampleson.com](http://sampleson.com)



## AudioSpillage **MiniSpillage**

Mac, 64-bit

TS-808 (below) is PC only so now Mac fans get a Mac-only classic in the form of MiniSpillage. The easy UI offers bass drum, wood drum and hi-hat options, each with different generator methods for very flexible results. [audiospillage.com](http://audiospillage.com)



## Native Instruments **Urban Beats**

Mac/PC, 32/64-bit

Included as part of NI's free download package Komplete Start, Urban Beats is a simple and easy-to-use tool providing quality stock drum loops, sliced breaks and ready-to-go grooves. It's simple, but stylish and full of useful sounds. [native-instruments.com](http://native-instruments.com)



## Synsonic Instruments **BD-909**

Mac/PC/Linux, 32/64-bit

Just before we hit the 808 (below) there's just time to cover another Roland classic, the 909, in the form of this diminutive plugin from Synsonic. However, you only get the kick drum emulation, but it is the best kick of all time, right?

[synsonic-instruments.com](http://synsonic-instruments.com)



## Dopekitz **Rupture Lite**

Mac/PC, 32/64-bit

Rupture is a 16-track virtual drum machine complete with five drum kits (West Coast, Tribeca, Ever 1da, Crunk'd 2.5 and Danger Drumz) with which you can program and route parts to individual output channels. Flexible and fun. [dopekitz.com](http://dopekitz.com)



## Tactile Sounds **TS-808 Drum Machine**

PC, 32-bit

It may not look like the best plugin here but TS-808 delivers some mean, classic drums in the style of the classic TR-808, beats behind many a classic dance tune over the last four decades. TS-808 delivers some fine emulations. [pluginboutique.com](http://pluginboutique.com)



## Distocore **Bazz:Murda**

Mac/PC, 32/64-bit

This is designed for kicks of the hard side, so could be the most important free app you download today... if you are the target 'hardstyle, gabber, hardcore, terror, uptempo or speedcore producer'. Hard indeed... [distocore.net](http://distocore.net)



## Bedroom Producers Blog **Cassette Drums**

Mac/PC, 32/64-bit

And now why not a take on ALL Roland's classics? This has three plugins in one: Cassette 606 VST, 808 VST and 909 VST with samples from the original Roland and then resampled from a cassette deck for more warmth. [bedroomproducersblog.com](http://bedroomproducersblog.com)



## Beatskillz **Beat Factory Drums**

Mac/PC, 32/64-bit

Beat Factory Drums is another simple but useful beatmaker. It comes stocked with 10 genre-themed sampled kits leaning heavily towards hip-hop, trap and dubstep. Editing is basic but gets the job done. [beatskillz.com](http://beatskillz.com)



## Teragon Audio **Kickmaker**

Mac/PC, 32/64-bit

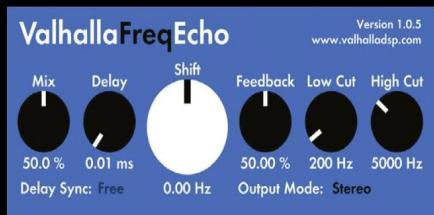
With four oscillators dedicated to the kick, this plugin might focus on one beat sound but this 'narrow but deep' philosophy pays dividends when you hear the thumping results. [teragonaudio.com](http://teragonaudio.com)



## Studio Linked **Drum Pro**

Mac/PC, 32/64-bit

Drum Pro is for producers who make everything from hip-hop to dance and has 20 kits sampled from nine classic drum machines. Yes, it is designed to tempt you to buy more, but comes with enough samples and tweaks for great beats. [studiolinked.com](http://studiolinked.com)



One of the most popular plugins we've ever given away!

# 12 OF THE BEST FREE REVERBS AND DELAYS

Now it's time to focus on freeware reverb and delay effects. As ever, it's a varied bunch, but we think you'll find something whatever your needs, be they extraordinary ambiences, delays aplenty or just gentle shimmers for your mix...

## 01 VALHALLADSP VALHALLA SUPERMASSIVE

Mac/PC/linux, 32/64-bit

ValhallaDSP makes some of the best reverb and delay plugins going, with the likes of ValhallaRoom, ValhallaDelay and

Vintage Verb all essential tools and excellent value at \$50 a pop. The developer has a great line-up of freeware too - Space Modulator is a must-have creative modulation effects. SuperMassive is Valhalla's best freebie yet though. It sits in the space between delay and reverb, specializing in extreme, drawn-out effects and all-out ambient madness. It's the kind of plugin that can completely reinvigorate sounds.

[valhalladsp.com](http://valhalladsp.com)

## ValhallaSupermassive

Version 1.0.0  
[www.valhalladsp.com](http://www.valhalladsp.com)



Protovverb is free, yes, but do donate your findings so we can all benefit

## 02 VALHALLADSP FREQ ECHO

MAC/PC, 32/64-BIT

Another quality freebie from Valhalla, Freq Echo is a little older and less stylish looking than SuperMassive, but it boasts just as much sonic power. The effects engine here combines analog emulated delay with a frequency shifter that can send repeats spiralling off into the stratosphere or down into oblivion. The results are great for dub-like effects, eccentric sound design and moments of 'ear candy' to spice up your tracks. Delay times can go right down to 0.01ms too, making it as great for subtle chorus and flanging as it is for extreme effects.

[valhalladsp.com](http://valhalladsp.com)

## 03 VOXENGO OLDSKOOLVERB

MAC/PC, 32/64-BIT

It's pretty fair to say that a lot of freeware is more about sound than looks and, fortunately, while Voxengo's OldSkoolVerb might be old school in terms of UI, it also has a lovely classic feel and vibe. (And actually, while we're at it, since the last time we looked at it, it's now available in four colors including our favourite above, so, you see, developers are taking looks seriously!). It's an



You want old skool? This is old skool. Or school.

algorithmic reverb and you get plate reverb, room and hall sounds which Voxengo say are 'best suited for non-percussive and soft-attack sounds like vocals, piano and pad sounds' but actually sound pretty good on a lot of other mix parts too. Also available in blue, sand and black.

[voxengo.com](http://voxengo.com)

## 04 BALANCE AUDIO TOOLS TEUFELSBERG REVERB

MAC/PC/LINUX, 32/64-BIT

Teufelsberg Reverb is a convolution effect based on a set of impulse responses recorded in the listening tower at Teufelsberg, a former Cold War era base for the NSA, used to listen in on Eastern Bloc communications. That history alone is a nice touch, but crucially the resulting effect is impressive even if you disregard the background spiel. There's only 6 IRs and a basic set of controls here, but the plugin can still go from tight, rattling and percussive echoes through to lush drawn out reverb and spacious ambience. There's a handy A/B function too, for comparing reverb treatments. As well as being free, Teufelsberg Reverb is fully open source too.

[balance mastering.com](http://balance mastering.com)



Dirty, dubby or clean, TAL's Dub 2 does it all...

## 06 TAL-DUB 2

32/64-BIT - PC/MAC  
32-BIT ONLY

Tagu Audio Line is back again, and this time with a simple but very effective dub delay that can be as dirty as you like, in a vintage way, thanks to a 4x oversampled distortion stage on the plugin. Direct and basic controls allow you to get to the heart of your delays, along with modulation for added flexibility.

[tal-software.com](http://tal-software.com)



Proverb is free, yes, but do donate your findings so we can all benefit

## 07 U-HE PROTOVERB

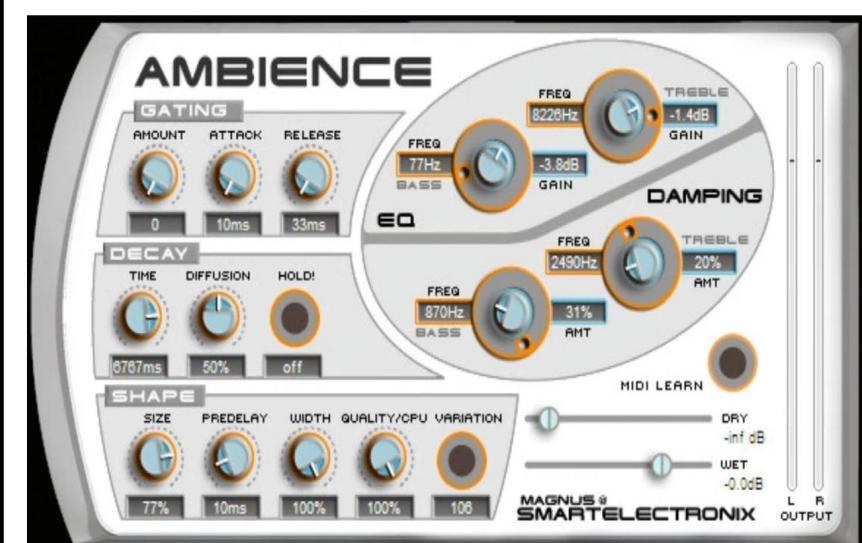
MAC/PC/LINUX, 32/64-BIT  
u-he developed this plugin as 'researchware' –

essentially freeware to encourage the production community to get involved in its development as much as possible. They describe it as doing the opposite of most algorithmic reverbs in that rather than avoiding resonances, it builds up as many as possible to model a room, resulting in 'a very natural sounding reverb'. Users are encouraged to share their presets so it's a kind of global effort, which we love.

[u-he.com](http://u-he.com)



TAL's Reverb 4 can go deep with its reverbs – for free!



Smartelectronix's Ambience is a bit different... if you want it to be

## 05 SMARTELECTRONIX AMBIENCE

Mac/PC, 32/64-bit

Ambience can be a beautiful-sounding reverb, and it can also be a quite unusual one. With features including Gate and Hold you can literally stop your reverb in full flow. It's not exactly natural, but it's a bit of a bonus if you like experimenting. And of course, you don't need to go there if you don't want to, and can just explore the lush presets and more natural side of Ambience.

[smartelectronix.com/](http://smartelectronix.com/)

## 08 TAL REVERB 4

MAC/PC, 32/64-BIT

TAL's second entry in just this list alone sees their reverb take the spotlight and, again, it's the simple but very effective approach that draws you in. You get Size, Diffusion and Predelay controls and a Modulation section plus a bunch of presets. It's a great-sounding, if basic, reverb but, with these extras, certainly stands well above many DAW reverbs.

[tal-software.com](http://tal-software.com)

## 09 HY PLUGINS HY DELAY 2

MAC/PC, 32-BIT

This is an earlier version of HY's outstanding paid-for HY Delay 4 (itself just \$48) and features a single delay, decent filter options and lots of other useful parameters. You can get everything from relatively clean delays to some great lo-fi effects, so it's well worth a download.

[hy-plugins.com](http://hy-plugins.com)

## 10 VOXENGO TEMPO DELAY

32/64-BIT - PC/MAC 32-BIT ONLY

Another great freebie from Voxengo (again, in four colours) and this one is more than just a stereo delay. It gives you rhythmic echoes that sync to your BPM and two multimode filters and tremolos allow for experimentation.

[voxengo.com](http://voxengo.com)

## 11 SURREAL MACHINES MICROFUSE

MAC/PC, 32/64-BIT

This hybrid reverb/delay plugin is another basic but highly usable tool which lets you produce everything from very neat delays to atmospheric ambience, and all for the price of a certain magazine.

[surrealmachines.com](http://surrealmachines.com)

## 12 MUTOOLS MUVERB

32/64-BIT - PC/MAC 64-BIT ONLY

MuVerb is part of MuTools' large MuLab download – a complete ecosystem of music making – but also available as a single download and a great 'verb for ambient and chilled genres. Indeed their whole suite is worth a look.

[mutools.com](http://mutools.com)



MuVerb is just one of a vast range of MuTools

# 12 CREATIVE EFFECTS

Forget your subtle reverbs, compressors and delays, these are as creative as instruments...



Melda Production

## MBitFun

Mac/PC, 32/64-bit

Described as 'a serious tool for extreme distortion lovers' MBitFun breaks your audio down into low bit rates and then uses a variety of processes to control multiple parameters. Difficult to understand but huge results!

[melpadproduction.com](http://melpadproduction.com)



Audio Damage Fuzzplus

## FuzzPlus3

Mac/PC, 32/64-bit

FuzzPlus 3 steps away from its perhaps guitar-effect roots with a great resonant filter modelled on that of the Korg MS-20 for huge swirls of distortion. It's not at Audio Damage's website but you can still download it from...

[vst4free.com](http://vst4free.com)



Tritik

## Krush

Mac/PC, 32/64-bit

A classic in the freeware community, Tritik Krush delivers lo-fi, driven effects with a great modulation section and an analog-modeled filter for more control and dynamics. There are presets a-plenty to demo its great sound.

[tritik.com](http://tritik.com)



Blue Cat Audio

## Phaser

Mac/PC, 32/64-bit

Designed more to emulate vintage phaser hardware, Blue Cat Audio have built enough modern twists into Phaser to bring it bang up to date so you can explore far more creative textures and territories.

[bluecataudio.com](http://bluecataudio.com)



Inear Display

## Rgressif

Mac/PC, 32/64-bit

Where once we all hankered after a top-quality sound, Rgressif concentrates on degradation, and features a multimode filter, distortion, sample rate reduction and bitcrushing. Your audio doesn't stand a chance...

[ineardisplay.com](http://ineardisplay.com)



Michael Ourednik

## Argotlunar

Mac/PC/Linux, 32/64-bit

Michael Ourednik's Argotlunar is a granular processor used 'for creating surreal transformations' by smashing audio into grains and processing them with a variety of effects. Dramatic and big.

[mourednik.github.io](http://mourednik.github.io)



Audioblast

## Instalooper

Mac/PC/Linux, 32/64-bit

It might well have been designed for live looping but Instalooper is equally at home mangling and blending loops anywhere and is great for breathing life into any kind of loops, but particularly effective on drums.

[audioblast.me](http://audioblast.me)



Hvoya Audio

## Ribs

Mac/PC/Linux/iOS, 32/64-bit

Ribs is another granular effect with which you can 'glitch, scratch, filter, destroy and reconstruct sounds in many different ways'. It has several modes like Beats, FX, Notes and Simple, making it hugely flexible for a freebie.

[hvoyaaudio.itch.io](http://hvoyaaudio.itch.io)



Audiothing

## Filterjam

Mac/PC, 32/64-bit

Another freeware classic, this time a monster multi-band resonant filter that specialises in ringmod-like sounds, all behind a not-so-monster interface. With just a few controls, you'll be amazed at how deep and dirty any sound can be. [audiothing.net](http://audiothing.net)



Alex Hilton

## A1 TriggerGate

Mac/PC, 32/64-bit

Designed for producing the dynamic rhythmic effects found in house, dubstep, trap, and hip-hop, TriggerGate goes a few steps further with enough features and onboard effects to go to gated areas you thought were locked.

[alexhilton.net](http://alexhilton.net)



Stagecraft Software

## Autofilter

Mac/PC, 32/64-bit

It's the automation that takes Autofilter into more creative territory than a normal filter, and it's the looks that also land this plugin a top 12 place. It looks and sounds every bit a pro...

[stagecraftsoftware.com](http://stagecraftsoftware.com)



Native Instruments

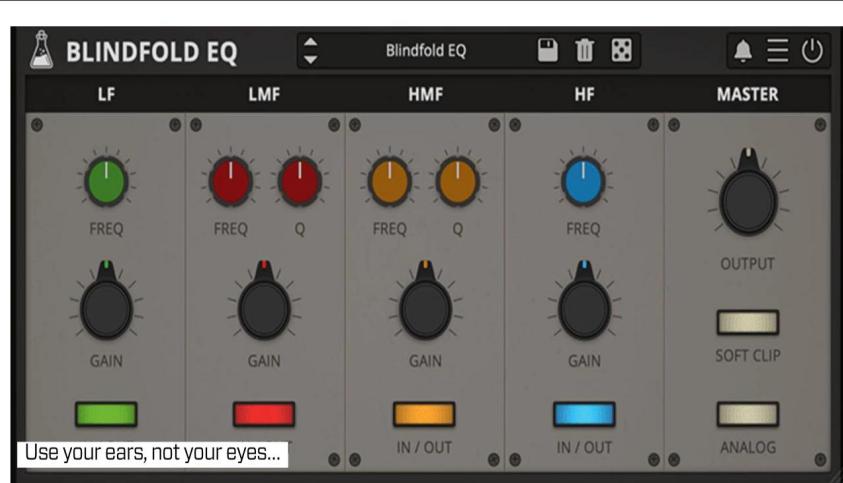
## Supercharger

Mac/PC, 32/64-bit

Another plugin from NI's Komplete Start bundle, Supercharger is an analog inspired tube compressor that's best when pushed to extreme levels to add grit, warmth and punch to your sounds. [native-instruments.com](http://native-instruments.com)

# 5 OF THE BEST FREE EQS AND FILTERS

EQs and filters can be used at both ends of the mixing realm, from subtle nudges to enhance certain frequencies to dramatic filter sweeps to create great riffs, beats and breakdowns. Here are 12 killer freebies



## 01 AUDIOTHING BLINDFOLD EQ

MAC/PC, 32/64-BIT

We just love the philosophy behind this EQ, inspired by a quote from Matt Wallace in Sylvia Massy's book *Recording Unhinged* that says, "if you have no idea of what frequency you are boosting or cutting, it doesn't matter what the number is. It matters how it sounds". So there are no numbers on AudioThing's Blindfold UI; just use your ears...

[audiething.net](http://audiething.net)

## 02 IGNITE AMPS PTEQ-X

MAC/PC, 32/64-BIT

Ignite Amps' PTEq-X doesn't just recreate one classic Pultec piece of hardware but three, along with, Ignite say, "some circuit improvements and additional features to increase its versatility". It takes on the original MEQ-5, HL3C and PEQ-1A Pultec hardware, accurately capturing the character of the overall Pultec sound with some aplomb. There are nicely controlled, beefy lows and filled out highs, and some say - us included - that this might well be the best plugin out there that doesn't cost you a penny.

[igniteamps.com](http://igniteamps.com)



Not one but three Pultecs... for now!

## 03 DDMF COLOUREQ

MAC/PC, 32/64-BIT

After the excitement of our opening salvos, this looks like a slight lull in proceedings - DDMF ColourEQ is not emulating hardware, nor telling you to break the rules. But it does deliver a no-nonsense sound and approach, meaning that it could quite possibly be the one EQ you turn to the most, just to get things done without any fuss and bother along the way. The very definition of 'workhorse', then...

[ddmf.eu/freeware](http://ddmf.eu/freeware)

## 04 BRAINWORX BX\_SUBFILTER

MAC/PC, 32/64-BIT

Brainworx make great plugins, of that there is no doubt. They are a company that work to model the very components the original hardware was made of, so when they release a freebie... well grab it. You'll have to register at Plugin Alliance to get this but it's worth it. Subfilter features tools especially for refining sub-100Hz frequencies, and with controls for Tight Punch, Low End and Resonance could well be the best free plugin out there when it comes to controlling your bottom end.

[plugin-alliance.com](http://plugin-alliance.com)

## 05 2ND SENSE AUDIO 2S EQUALIZER

MAC/PC, 32/64-BIT

We like any plugin where the developer says "we believe everyone can use it without learning", and 2S Equalizer certainly looks to fulfil that brief. It's a parametric EQ with simple Gain, Q and Cutoff controls that will have you shaping your sound with precision in no time. Just what it says on the tin.

[2ndsenseaudio.com](http://2ndsenseaudio.com)



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# SYLVAN ESSO

By Si Truss

## The US synth-pop duo tell Si Truss how a new studio, a love of modular and touring as a 10-piece band inspired their new LP

**W**hen Amelia Meath and Nick Sanborn formed electro-pop outfit Sylvan Esso in 2013, Meath was performing with her traditional folk vocal trio Mountain Man and Sanborn was creating Flying Lotus-esque electronic grooves as Made Of Oak. Despite these disparate seeming backgrounds, the duo's musical tastes and ambitions clicked pretty naturally, resulting in a pair of attention-grabbing albums – 2014's *Sylvan Esso* and the Grammy-nominated 2016 follow-up, *What Now?*

Much like synth-tinged pop luminaries like Robyn or Christine and The Queens, Sylvan Esso are at their best when pairing infectious dancefloor grooves with rich, emotive motifs underpinned by a hint of tonal ambiguity. That contrast has never been more clear than on their third LP *Free Love*, released this month, which pairs the optimistic pop of tracks like 'Ferris Wheel' or 'Rooftop Dancing' with a more sedate, reflective side.

The album comes hot on the heels of a new live album and film, titled *With*, documenting the band's 2019 tour, which saw them expand from an electronics and vocals duo into a full 10-piece band featuring members of Wye Oak, Hand Habits and Mountain Man. FM caught up with the duo via Zoom to find out about that tour, Sanborn's newfound love of modular, and how a new studio has helped the pair – who have been married since 2016 – separate their home and creative lives.

### **When did you do most of the work on the new record, was it finished before the current pandemic hit?**

**Amelia Meath:** We were just going into mixing when the real lockdown happened. We took an emergency plane home on March 17th or something like that. We'd been in LA mixing with BJ Burton...

**Nick Sanborn:** We went out to get groceries and it was just pandemonium. We were like, 'let's get on a plane, we can do this from home.' Then there was a lot of tweaks made over the first month or two of lockdown.

**AM:** We got home and at first we were too sad to do really anything.

### **We guess that it all rather messed up your release plans?**

**AM:** Oh yeah, we'd had a really beautiful rollout planned for it.

**NS:** A bunch of festivals, a lot of touring.

**AM:** Releasing music now does feel oddly amazing though.

**NS:** It feels a lot different to before, in a way I totally did not expect, and it's actually been very positive for me.

**AM:** Just being able to put something out into the world.

**NS:** Right before this we put out a live record, and originally we felt that was just going to be a fun thing to put out as a warm-up to announcing the album, but it's ended up being this entirely different, more rich thing than I think it would have been otherwise. Because it arrived right when we didn't know when we'd all be able to be together again.

### **Are we right in thinking you set up a new studio ahead of this new album?**

**NS:** We'd had our studio in our house for years, and when we were working on our previous record there was a point when it became kind of an emotional liability to have it in our actual home. It was something that made the whole process feel daunting.

**AM:** We'd just never stop.

**NS:** We decided we wanted to try moving our studio to its own house. We found this little tiny rental in the middle of the woods, which was really cheap, and we moved everything in there just to see how it felt. We had that set up for about a year and a half, and in that time we made a bunch of stuff there, but there was something also like six different records from friends of ours made that probably never would have gotten made if that place hadn't existed to do it.

**AM:** Well, they probably would have got made eventually, but they would have been a lot more expensive [laughs].

**NS:** We got to a point with that space where we felt like we'd need to change and soundproof it, but it was just this little rental place. So we started looking for a place we could actually buy and turn into a studio of our own. We looked for a long time – well over a year – thinking that the items on our wishlist didn't exist. Then eventually we just randomly stumbled on this perfect place that's way out in the middle of the woods.



## Was *Free Love* made from start to finish in the new studio?

**AM:** No, actually we recorded everything in the small 'B' room, which will eventually be a mixing room, because the main 'A' room was still being built for almost the entirety of the record. There's a lot of sawing going on in the background of the album, a lot of really fun auxiliary sounds [laughs]. We hadn't soundproofed that B room yet. We do have one amazingly soundproofed, giant room now...

**NS:** ... But the little smaller room is where we made the entire album. We did the whole thing assuming that at any moment they'd be done with the main room so that we could move in there, but then we finished the whole record before that.

**AM:** I have a theory that we're just never going to get to make a record in a normal space. I know I'll be recording vocals in closets until the day I die.

## What's your writing process like as a duo, do you always work on tracks together?

**NS:** It used to be pretty separate, but over the years it's grown so that we now work on songs together pretty much all of the time.

**AM:** There's always that initial point, where one of us will get an idea, and that usually happens alone, but we're at the point where Nick can be jamming on something and I can write over it.

**NS:** Amelia will often bring in songs that she's written on her own, just acapellas she's written while running by herself or something. But everything else that we do happens pretty much fully in tandem now. That development has been really rewarding.

**AM:** We never do that thing where you'll loop

now it feels like we can really hear each other on that shared plane of language.

## Are you always on the same page in terms of what you want the sound to be like?

**AM:** No [laughs], but I think that's because we don't have a specific 'sound' for our band. It's not like we can pull up a template or... what are those things the kids are making these days?

**NS:** A Splice pack?

**AM:** Yeah! There's not something where we have a set bass sound or specific set of drums or whatever.

**NS:** I think one thing we really got out of doing that live record was the realization that if we make something, it will naturally sound like Sylvan Esso. That was quite a freeing thing, that loosened up the production constraints of this new album pretty radically for me.

**AM:** We've worked out that we always know what feels right for a track.

## Particularly on this latest record, you're walking a fine line between being all-out pop and offering your fans something more abstract. Do you ever find yourselves having to course correct?

**AM:** If you go too far one way or the other it makes things feel disingenuous.

**NS:** I think that's the main guiding light for us. It's about the feeling of something; you can just tell when you've strayed into dishonesty at both ends of the scale. I think every time something feels a little too on the nose or too much like something someone else would do, those are the things we try to pull back from and think how we can redirect the song in a way that feels more unique, or more like 'us'.

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**“Everything that we do happens pretty much fully in tandem now”**

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a part and listen to it over and over. We'll listen through the emotional rollercoaster of what we've created already, hit stop and try and work out exactly what needs to come next. Nick has a beautiful depth of electronic understanding, when it comes to how to make many different sounds – and I'm great at feelings [laughs].

**NS:** The production is very much a shared effort nowadays, because over the years we've developed this language where Amelia can describe what she's trying to do in a musical moment or a specific sound design idea, and

**AM:** It's actually quite a nice gauge really – we know that it isn't going well for us if we feel like assholes. We had that with Runaway, which is one of the last tracks on the record. We kept trying to find the ending of it and every time we would do something new it would sound... gross.

**NS:** It sounded like theater; just completely fake. It almost doesn't matter what the production is like or what genre a track ends up in, the guiding light is just whether it feels true, like a real honest thing.



## Gear-wise, what did you use most prominently on *Free Love*?

**NS:** I guess the biggest shift is that there's a lot more modular on this record. Pretty much every track either started from, or includes a heavy amount of modular sampling, which is a whole world I got into a couple of years ago. It just opened up this way for me to be surprised by my own instrument. It remains extremely inspiring though.

**AM:** It's been really lovely watching Nick transition from Ableton to using these modular pieces. Before you were using a loop-based



program to create music, but now you've taken all the bits you actually liked from that approach and you're using them outside the computer. With things like the [Make Noise] Phonogene – things that use looping but have all these ways you can touch or shift the sounds. It's like you've remade the process. As someone working with you who only responds to the sounds themselves, it feels like all of a sudden you have more of a living, breathing weirdo to work with.

**NS:** I think the whole thing is that I've come out of the box a lot more, in DAW terms.

Everything now feels like it starts outside of the computer and the computer has turned into more of a tape machine. It's been like a trip to the chiropractor – it's like I was locked into this thing and everything was stiffening up, but this has cracked all of my joints. Now I feel like everything is a whole lot looser and a little more off-the-grid. It's more surprising to me now too; I feel like I can really have a conversation with myself with this new setup.

**So there aren't many software instruments on this record?**

**NS:** Don't get me wrong, I still use things like the Arturia bundle pretty heavily.

**AM:** There's still some synth flute somewhere on the record [laughs].

**NS:** That stuff is still definitely there on the record, but used more like a problem solver than the foundation that would have inspired me to create a track.

**In terms of the modular stuff, what are the key modules you're working with?**

**NS:** A lot of the Make Noise stuff. They're here in North Carolina with us. When I got into



modular I really wanted to focus the instrument on experimental sampling, so right out of the gate I was using the Phonogene. That was the basis for a bunch of tracks – ‘Frequency’, ‘What If’ to name two – which came from Phonogene and OP-1 sampling sessions. Then when they came out with the Morphogene, well that opened up a whole other layer around the same ideas. The Mannequins/Whimsical Raps Just Friends module, that was a big thing on this record too. All the Monome stuff too, I’m a big user of that. Those three companies were probably the ones that opened the most doors on this record and helped me to think about things in a new, freeing way.

**How does the recording process work for you both? Do you write and demo tracks and then go back and record them, or do you more usually just capture it as you go, and keep recording?**

**AM:** Once we’re writing a song, we’re working on the final product. The scratch vocals tend to become the main vocals just because nothing else is as honest or interesting-sounding as those first takes.

**NS:** You’ve always recorded them right after you’ve written it, so the emotion of the lyrics is so fresh. You get this really accurate take of, like, the true version of it. We keep having this dream that next time we make a record we’re going to create multiple versions of stuff and

we’re going to demo things out, but it just never happens.

**AM:** It’s really confusing to our label. Sometimes we’ll really veer off course. We do sometimes make multiple versions of tracks, but usually we’ll hate them so much that we’ll just get rid of everything. With this last record, we did a thing where, whenever we got really stuck, we’d take everything away and just leave the vocals, then we’d just rebuild around that.

**NS:** It’s like, we’d wander down the wrong path and find we’re eight or nine bad decisions into a thing. We’d need to just mute everything that bugs us and we’d end up with something like, just the kick drum and the vocal. Doing that can be freeing though, it’s nice.

**Let's talk about the With tour – what was the idea behind putting that live band together in the first place?**

**NS:** We'd done a 'band' thing before, as a way to help us remember what the emotional center of those songs was. We did it right after we'd finished our second record – that's always a point for musicians where I think you can't properly listen to the thing you've just made any more. So we put this band together as a way to refresh those songs for ourselves, and it was so fun. Ever since then the idea of doing a full tour has been kicking around. It was great though, the whole process opened up the very idea of what our band is for me, in a way that I didn't expect.

**AM:** Meg who plays guitar in the band told me they were all like, 'I think we've opened up a

**NS:** 'Synth world' was me and two other people.

**AM:** We'd divide the main parts up and then be, like, 'Okay, who can handle this weird little noise here?', and spread those bits out based on whoever thought they could do it at the time.

**NS:** It was kind of interesting trying to figure out what parts of each song were going to remain essential as we rearranged them. That was tough to predict and changed a lot as we went on. Things like a weird little elevator bell noise; figuring out that that was actually an essential thing only came from playing the tracks through and realizing we were really missing it. It was kind of tough trying to find those essential pieces while also making sure that the other people in the band felt the freedom to suggest things.

**"It was fun to go from being an elaborate version of a DJ, to a member of the band"**

positive portal in that band' [laughs]. It was magical though; we got to tour on this really fun level of having so many people that it felt like summer camp.

**NS:** Personally on a nuts-and-bolts musician level, it was really fun to go from being, essentially, a very elaborate version of a DJ, to actually being a member of the band. I had a table of electronics and a couple of synths and that let me feel like an electronic musician in a totally different way. It was cool like, being at the Walt Disney Theatre and playing a Hyve touch-plate synth, or a Landscape Stereo Field at the LA Philharmonic. It just felt cool to be able to bring those instruments to those different places.

**Did that setup allow you to improvise a little more?**

**NS:** Oh yeah, we had no backing tracks so everything was as loose as we wanted it to be. Especially things like the opening track 'Come Down', or 'Sound' or 'Free' – those could really change night to night depending on the feel of the room.

**Was it challenging to rearrange those mostly-electronic tracks for live musicians?**

**NS:** We started by dividing tracks into parts and seeing who could play what.

**AM:** We had two people whose jobs were just to cover bass and ethereal synth clouds.

**AM:** When we were originally conceiving the project we'd envisioned it kind of like a 'fancy Sylvan Esso', so we booked to play in these nice fancy theatres. The thing is, when we came to play these sit down shows, the band fucking ripped – it was like the funkiest, weirdest thing. It was much bigger than we expected, like a true band of freaks really going for it. Everyone was up dancing every night in these fancy-ass chairs. It was so fun.

**Do you think that project changed the way you wrote the songs when it came to your new album?**

**NS:** It's taken us even further from the idea of having a 'formula' for writing songs, yeah. Especially some of the songs on the new record, it feels like they can now truly come from anywhere.

**AM:** I think what it did was give us more confidence in our abilities to make exciting musical decisions. I think it validated some of our weird musical decisions too, although sometimes for us 'weird' means being more mainstream.

**NS:** I guess it feels like it gave us permission to do stuff. Gave us confidence to quit worrying about the small stuff.

**AM:** It scrubbed some of the imposter syndrome away; we got to be band leaders and for once it wasn't just you and me staring at each other and wondering what to do. ■

**AM:** It also leads us to make some really weird decisions, like the bass hit in 'Frequency'. Or all of the weird little bells we put in there. That's the fun part where we just talk about songs in terms of pop energetics; like this needs to swoop up here, or we need a little energetic question mark here. We'll end up putting an elevator bell in or something. We didn't realize how truly strange the way we write songs is before we got the With band together and tried to teach them all of our songs. We had all of these seasoned musicians looking totally confused at us.

**NS:** Nothing makes you realize your own strangeness like having to teach your idea to someone else.

## THE ART OF SYNTH SOLOING

# Some Old Skool Funky Sax

Two of the most influential OG soul and funk sax players provide us with this month's inspiration.

By Jerry Kovarsky

We're continuing our look at sax players to get some fresh ideas for our playing. These two players were defining influences that took soul and created funk in the late '60s, through the '70s and beyond.

#### Maceo Parker

Maceo Parker first came to prominence playing with James Brown, a position he held on and off over three decades. He can be heard on stone-cold hits such as "I Got You (I Feel Good)", "Cold Sweat", "Poppa's Got A Brand New Bag", and "Sex Machine". He also played with Parliament on seminal funk classics like *The Clones Of Dr. Funkenstein* and *The Mothership Connection*, and has toured/recoded as a leader for many years now.

**Example 1** comes from an album Parker released in 1970 under the name Maceo & All the King's Men titled *Doing Their Own Thing*. The title song features Maceo riffing on a B-flat minor seventh chord for a bar and then being answered by the horn section. It's a medium-tempo deep pocket cut full of easy-to-grab licks for your study.

He uses the B-flat blues scale the whole time, and always starts with a rhythmic pick-up for each phrase. However, each riff is different, and locks in perfectly with the steady sixteenth note groove that help propel great funk playing. The notes marked with the X note head are actually barely heard.

**Ex. 1.** Some of Maceo Parker's riffs on the title tune from *Doing Their Own Thing* (1970) showcasing his influential funk style.



**Ex. 2.** Two more phrases from Parker's playing on "Doing Their Own Thing".



**Ex. 3.** The opening of Maceo's solo from "P-Funk (Wants To Get Funked Up)" from *The Mothership Connection*.



**Example 2** comes from the same tune, featuring two more riffs. The first is a bit more melodic, and provides a nice break from the blues scale. The second riff is more pentatonic, and ends with a fast descending flurry of notes. Be sure to listen to the tune to get a sense of how he articulates each phrase, and uses subtle downward bends (called drop-offs) to make his lines more expressive.

Moving to his work with Parliament, **Example 3** comes from a tune entitled "P-Funk (Wants To Get Funked Up)" from their 1975 classic album *The Mothership Connection*. Maceo gets a solo section in the tune, and he really shines. Again using the blues scale (this time in B), he plays phrases that could have been for a horn section. I especially like the phrase he plays going into bar 4: a colorful flurry of notes up and then a bluesy bend from below into the lower F-sharp. I notated it here as an F bent up into the F-sharp, but you can also try pre-bending down a half-step — playing the F-sharp and bringing the bender back to position.

**Example 4** features more great ideas, and pay attention to bar 3, where he finishes his phrase and then goes down low to play that A up into B figure. This sounds like funk horn section writing where a baritone sax does this to set up the key center: think Tower Of Power. The following line that goes through bar 4 is hard to play – you'll need to work on that bend!

Let's check out one more –

**Example 5** comes from a tune called "Pass The Peas", a funky instrumental that was released in 1972 by the J.B.'s – basically the James Brown band at the time, only without the bad mother. Maceo first covered it on his 1992 release *Life On Planet*

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"Wilton Felder had a huge, warm sound on tenor sax, and played with earthy soulfulness"

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*Groove*. Played on a D7 with a sharp ninth it's another great source of funky licks.

#### Wilton Felder

Wilton Felder is a Texas-born sax and bass player who is most well known for being a founding member of the Crusaders. He had a huge, warm sound on tenor sax, and played with a blend of earthy soulfulness and jazz influence. The Crusaders recordings from 1971-2 onward are a great source to draw from for funky, soulful tunes and playing. **Example 6** comes from the album *The 2nd Crusade*, released in 1973. They redid a tune called "Tough Talk", which they had released earlier as the Jazz Crusaders, but this time they slowed it down, with a greasier feel that really brings out the blues in their playing. Felder opens with a blues lick, and then throughout this chorus

**Ex. 4.** Another phrase from Parker's solo on the classic Parliament jam.

**Ex. 5.** Maceo's energetic riffing on "Pass The Peas" from his album *Life On Planet Groove* (1992).

**Ex. 6.** Wilton Felder shows how to play the blues on "Tough Talk" from the Crusaders' *The 2nd Crusade* recording.

he keeps working the crush of notes between the 4th, flat 5th and natural 5th found in the blues scale (B-flat, B-natural and C in the key of F). In bar 10 when the chords move down chromatically, he uses the C blues scale (with the added major 3rd/E) to keep it bluesy and not worry about "making the changes."

For some additional listening it's worth investigating the tune "I Felt The Love", from the Crusaders album *Free As The Wind*, released in 1977. Here, Wilton's solo shows how to work the blues scale melodically, and develop your ideas so as not to sound like you're just stringing together blues licks. Notice how crisply and rhythmically he plays, digging into the groove of the tune. ■

## EASY GUIDE

# Modal harmony

Following last month's breakdown of tonal harmony, Dave takes us through the looking glass into true jazz theory

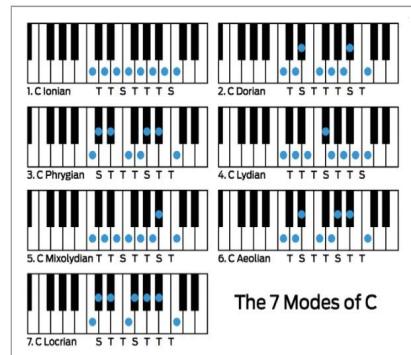
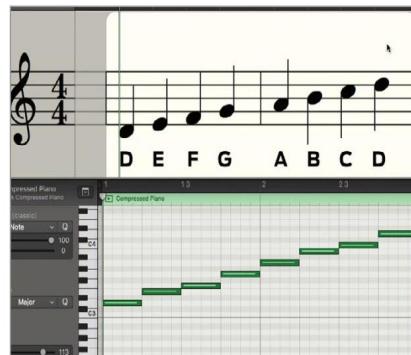
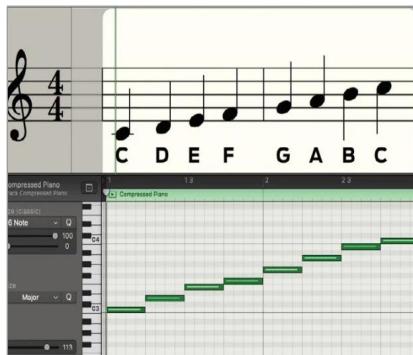
Last month, we had a look at the basic inner workings of tonal harmony and how chord progressions actually progress. In this issue's Easy Guide, we're going to examine a different approach: modal harmony.

In contrast to tonal harmony, where there's a definite hierarchy of chord types, with the tonic at the top, followed by dominant and then predominant chords, when dealing with modal harmony, this hierarchy goes out the window,

as there's no such harmonic function involved. We saw last time how tonal music mainly uses just major or minor keys, also known in 'mode speak' as the Ionian or Aeolian modes. In contrast, modal music doesn't just exploit major and minor keys, it uses all of the seven available modern modes – not just Ionian and Aeolian, but Dorian, Phrygian, Mixolydian and all the rest – as possible keys. (See previous issues for a breakdown of modes and their uses).

Modal harmony's lack of harmonic function means that there's no particular function assigned to specific chords. Although there is still a tonal centre, the chords don't need to feel like they have to resolve to that tonal centre – you're free to play any chord in any sequence you like, without worrying about having to resolve to anything. Sound confusing? Let's get on and take a closer look at the basics of modal harmony.

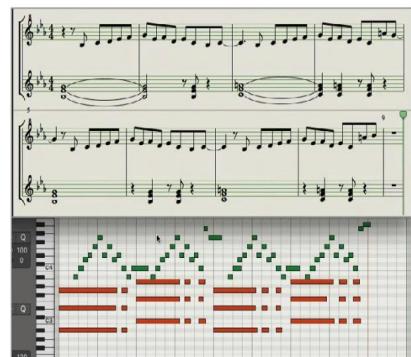
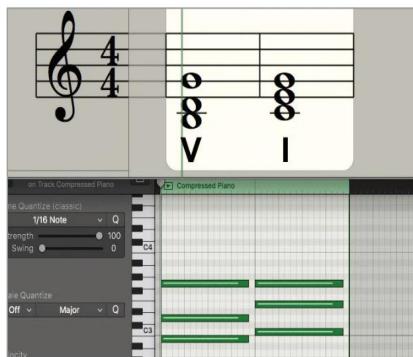
## Step by step Exploring chord progressions based on modal harmony



**01** To get our heads around modal harmony, we first need to understand exactly what a mode is. Let's have a refresher: here's the C major scale, played from C to C on the white notes of the keyboard – C D E F G A B and C. The particular pattern of intervals between the notes that make this a major scale is known as the first mode – the Ionian mode.

**02** If we were to play this scale from a different starting note – eg, D to D – the pattern of intervals would be different, resulting in a different-sounding scale or mode. This second mode is called the Dorian mode. What you end up with is effectively a natural minor scale with a raised sixth. Because we've started on the note D, this scale is D Dorian.

**03** Here's a diagram of the seven modern modes and their names: Ionian (aka Major), Dorian, Phrygian, Lydian, Mixolydian, Aeolian (aka Minor), Locrian. It describes the notes in each mode when played from a C root note, clearly showing the different patterns of intervals between the notes that give each mode its own characteristic sound.



**04** There's no harmonic function in modal music, so one of the main rules to bear in mind is that you can't use a dominant chord to establish the tonic like you can in tonal music. For a tune to have that definitive 'modal' sound, creating a specific sort of floating, disconnected ambience, the dominant-tonic resolution, aka V-I cadence, is a big no-no.

**05** There are other techniques that can be used to infer the tonal centre. For example, you can repeat the mode's root note to 'bend the ear' towards accepting that as the tonal centre. If you're in C Dorian, say, and want to establish C as the tonal centre, make sure the bassline or left hand part is centered on that note, as shown here.

**06** With the tonal centre now indicated by a persistent, repeated root note in the bass, we can reinforce the modal nature of the tune using a technique known as alternating triads. This means playing two adjacent triads over the mode's root note, with a melody containing notes from the mode over the top. But how do we know which chords to play?

## Recommended listening



**MILES DAVIES,  
So What?**  
This must be a cornerstone of modern modal jazz, from a true jazz pioneer

► [bit.ly/MDsowhat](http://bit.ly/MDsowhat)



**HERBIE HANCOCK, Cantaloupe Island**  
That famous piano riff acts as an ostinato, providing the backbone to this iconic modal jazz masterpiece

► [bit.ly/HHcantaloupe](http://bit.ly/HHcantaloupe)

## Pro tips

### 'Trito' not use tritones

When trying to give your project a 'modal' sound, try to avoid using the tritone interval (six semitones) in your chords. The tritone is one of the main components of the dominant seventh chord, which in turn is one of the main ways the V chord is voiced in a tonal progression. A chord containing a tritone interval sounds like a dominant chord about to resolve to the tonic – the very movement modal tunes intrinsically shy away from.

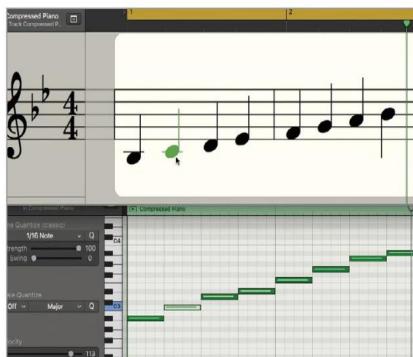
### Repeat business

Another way to establish a tonal centre, without going down the tonal route and making things too obvious, is to use an ostinato – ie, a repeated sequence of notes – over your modal chords. This can take the form of a riff or an arpeggio, or simply two alternating chords, or even simpler still, a repeated drone on the tonic note. Basically, anything that repeatedly hammers the idea of the tonal centre into the listeners' ears.

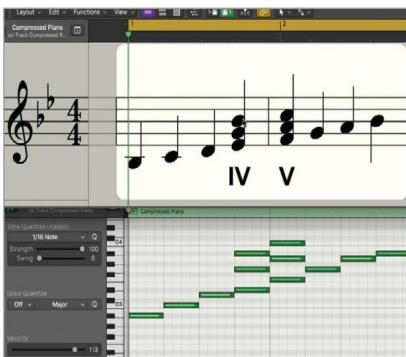


**By Dave Clews**

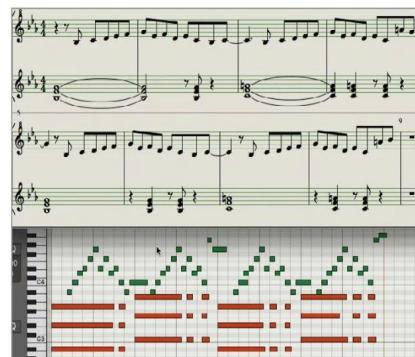
Over the course of his 25-year career, Dave has engineered, programmed and played keyboards for numerous artists including George Michael and Tina Turner



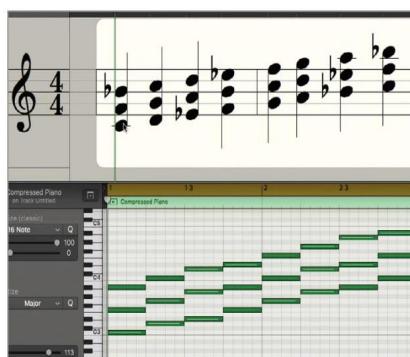
**07** To find out, we first have to work out the source scale for the mode we're using as the key. Each of the seven modes is derived by playing a major scale from a note other than its root, so which one is C Dorian derived from? Since Dorian is the second mode, we need to find the major scale that has the note C as its second degree: Bb major (Bb C D Eb F G A Bb).



**08** The two triads we need will be the two major chords built off the fourth and fifth notes in the source scale. So if this scale is Bb major, the two chords are IV – Ebmaj (Eb-G-Bb) and V – Fmaj (F-A-C). Between them, these contain six of the seven notes in the Bb major scale, making them the most likely pair of triads to work in this mode.



**09** Since C Dorian is the Bb major scale played from C to C instead of Bb to Bb, we can use these two triads to harmonize most of its notes. The note that doesn't fit – D in this case – will most likely fit the parent scale's I chord – Bbmaj. So here's our C Dorian example with its repeated C in the bass, alternating Eb and F major triads, and the same C Dorian melody over the top.



MODE / KEY	ROOT NOTE	SOURCE SCALE	4TH TRIAD	5TH TRIAD
C IONIAN	C	C MAJOR	F	G
C DORIAN	C	Bb MAJOR	Eb	F
C PHRYGIAN	C	Ab MAJOR	Db	Eb
C LYDIAN	C	G MAJOR	C	D
C MIXOLYDIAN	C	F# MAJOR	Bb	C
C AEOLIAN	C	Eb MAJOR	Ab	Bb
C LOCRIAN	C	D# MAJOR	Gb	Ab

**10** The table above shows all of the source scales, IV chords and V chords you'd need to use the alternating triads technique in all seven modes based on the root note of C. When you compare the different modes using the same root note like this, it really highlights the distinct feel and sonic character of each of the varieties.

**11** So, we've seen that you can make modal tunes out of chords built using tertian harmony – notes stacked up in third intervals. It sounds more modal, however, if you use quartal chords – notes are stacked in fourth intervals. Here's the set of quartal triads diatonic to C Dorian – all note pitches stacked in fourths, taken from the notes in the C Dorian mode.

**12** This final version of our example tune uses the same bass and synth melody, but this time with quartal chords over that C bass. Of the diatonic quartal triads available, we've used the V (G-C-F) and IV (F-Bb-Eb) chords in an alternating pattern, as shown. Strictly speaking, the chords would be labeled Fsus2/C and Ebsus2/C respectively.

## BLAST FROM THE PAST

# Yamaha CS-80

It may not have been the most popular or beloved of the classic polysynths, but Yamaha's wild and wooly CS-80 was nevertheless a heavyweight champion

**P**olyphony was something of a holy grail for the synth makers of the late '70s.

Weened on a meagre diet of monosynths for nearly a decade, synthesists longed for a workable way to play polyphonically – that is, with chords. There were a few string machines, but these were paraphonic, employing octave dividers to produce multiple pitches and then running the lot through a single filter and VCA.

For many, Sequential Circuits' Prophet-5 was the answer to their polyphonic prayers, offering five-voice polyphony and instant recall of user patches. A huge seller, the slick and elegant Prophet-5 received a lot of attention in the press and graced many a stage.

Yet Yamaha had been there first. Let loose in 1976, the bulky, garish CS-80 was the antithesis of Sequential's Prophet. A huge Tolex-covered enclosure housed a front panel festooned with brightly-colored rocker switches and paddle levers that looked as if they'd been pulled from one of the company's home organs.

A closer look reveals the power lurking beneath, with a trap door concealing Yamaha's answer to patch recall: four nearly-complete

miniature copies of the front panel. 22 brightly colored switches allow access to presets, including an instantly recognizable brass sound.

For the serious synthesizer aficionado, the CS-80 offered two complete and independent signal paths, each consisting of an oscillator routed into a pair of filters (one low-pass, one high-pass) and ADSR envelopes. You could also create two completely different patches, one layered on top of another.

Thanks to a staggeringly complete set of performance features, even the presets could be tailored. Polyphonic aftertouch responded in a natural, musical way to the player's pressure on the keys. Oh, and the keys were velocity-sensitive to boot. It's a keyboard that has rarely been bettered and proved to be a major selling point to players desiring more than the limited note on/off of other synths.

And then there's the ribbon controller, spanning over half the length of the keyboard, allowing you to, say, touch the felt ribbon near the top and swoop down the whole length of the thing, taking your oscillators' pitch with you.



Mind you, the oscillators might just do that entirely on their own – the CS-80 may be the most notoriously cantankerous synthesizer ever made. It went out of tune when transported, or when the temperature changed – and it changed every time you turned the thing on! Though many famous players hauled 'em out on tour, the wisest CS-80 owner left it safely at home in a temperature-controlled studio. Thankfully, the few virtual incarnations alleviate this most troublesome aspect of the mighty CS.

What does it sound like today? Think Vangelis' *Blade Runner* and you've got a pretty good idea. Other users included Eddie Jobson ('Alaska'), Jean-Michel Jarre, Toto (on 'Africa' and 'Rosanna'), and Ultravox. ■

## Three expressive CS-80 emulations



### Arturia CS-80V \$99

One of Arturia's earliest emulations, the CS-80V (VST/AU/AAX) has matured into a superb package with plenty of extras to bring more power into play, including a superb modulation matrix that offers 13 sources and a whopping 38 destinations. Chorus, tremolo and delay effects have been added, as has an arpeggiator. A powerhouse performer.



### Memorymoon ME80 \$40

The sole commercial competition to Arturia's CS-80V, Memorymoon's ME80 offers all of the features of the original. It was initially built with SynthEdit but has since graduated to full 64-bit native code for both Windows and Mac users. If you happen to own Acoustica's Mixcraft Pro, you already have this beauty in your plugins folder.

[www.memorymoon.com](http://www.memorymoon.com)



### Ma Lord CeEs80 FREE

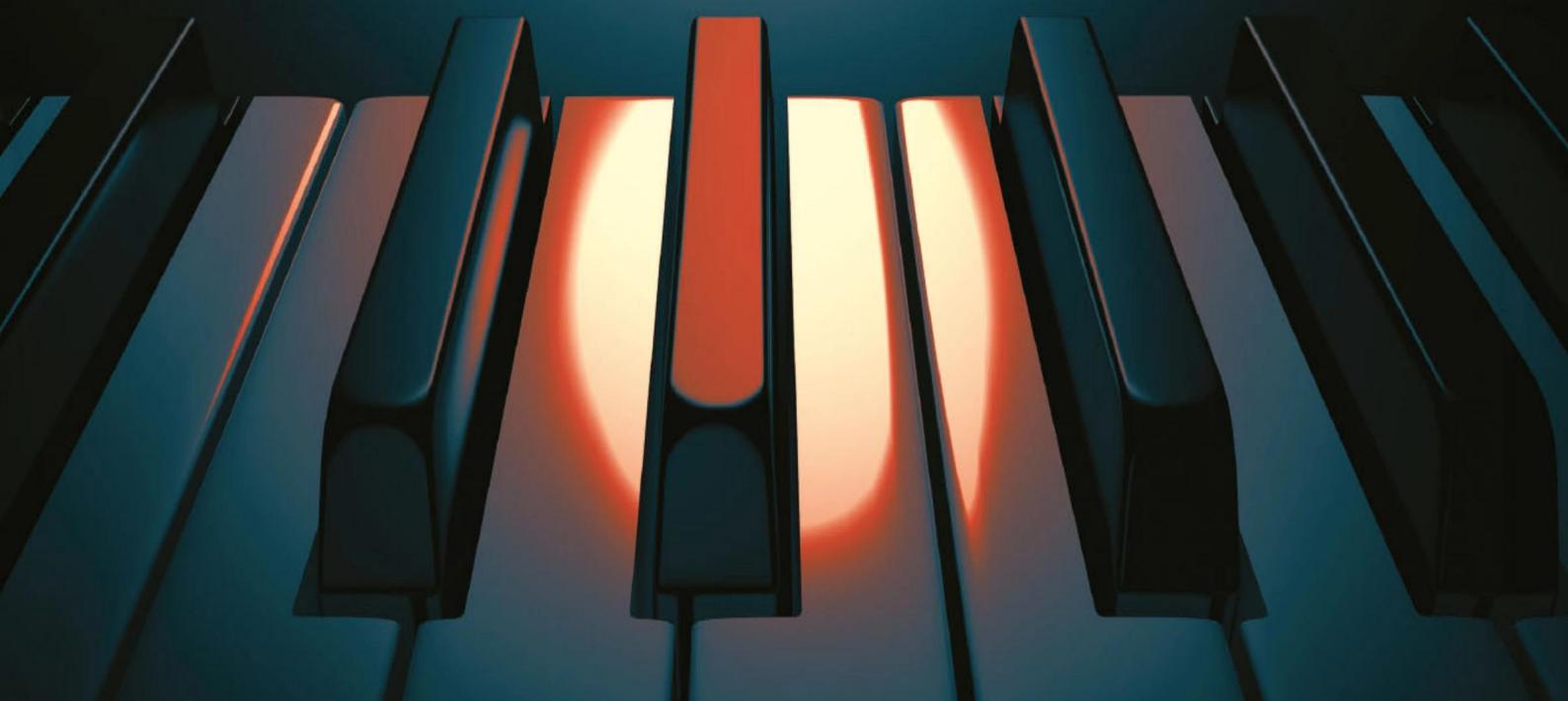
Reaktor users can get a taste of the CS-80 experience with this recreation found in the Reaktor User Library. It may not have faux wooden panels or rocker switches, but it does recreate the entire signal path of Yamaha's legendary synth, making it a cinch to create some of the sounds made famous by the real deal.

[bit.ly/CeEs80](http://bit.ly/CeEs80)



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Korg

# SoundLink MW-2408 Hybrid mixer

\$1,550

korg.com



By Si Truss

## Strengths

- + Analog channel strips are excellent in terms of both sound and functionality
- + Digital effects are flexible and sound great
- + Sub groups, mute groups and aux channels are flexible and well-designed

## Limitations

- Digital I/O is basic
- No onboard recording

These new hybrid mixers boast some serious design pedigree, but do they live up to their heritage?

**K**org's SoundLink mixers were unveiled at NAMM 2020 alongside the Wavestate, SV-2 and ARP 2600 and it says something about the clout of the names involved that they weren't entirely overshadowed by such a hype-hogging lineup. Any musician with an interest in mixing tech will know Greg Mackie's name though, and the fact that he and equally-notable, former Trident designer Peter Watts have had input into Korg's latest consoles was always guaranteed to turn heads.

In an intro to the manual, Mackie describes the SoundLink designs as combining "analog's instant control... with the power of high-quality digital where it counts". What that amounts to is a mixer design that combines fully analog channel strips with digital DSP based on Korg's existing effects technology.

There are two models in the range, the 24-input MW-2408, on review here, and the MW-1608, which has an identical feature set but reduces the total input count to 16. Here, the 24 channels are divided evenly into eight mono and eight stereo all of which have XLR mic and 1/4-inch TRS line inputs on the rear. The '08' in each model's name is derived from the four stereo sub groups, complete with eight 1/4-inch outputs.

Each mixer channel is equipped with one of Peter Watts' newly-designed HiVolt preamps, which Korg touts as "low noise, high headroom", and they certainly deliver excellent quality, bearing in mind the mixer's price point – which is equally true across both the mono and stereo channels. Beyond this, each of the mono channels is equipped with a switchable high-pass filter, fixed at 100Hz,



## PROCESSING POWER

On the digital side of things, the SoundLink mixers pack 16 customizable send effects, along with dynamics and EQ processors. The 16 effects are fairly conservative in their design, sticking to a variety of classic reverb, delay and modulation effects, some with analog-like 'warm' variations. Sticking to the classics is no bad thing though – nobody needs wacky DJ effects added to an analog mixer, and everything included here is excellent quality. There are 30 user slots too, for saving tweaked versions of the standard presets. The EQ, meanwhile, has two modes, a 9-band 'wide' setup and 31-band 'narrow' version for homing in on specific frequencies. On the dynamics front there are hard or soft compressors and a limiter, each of which can be freely applied to the master or aux outputs. Finally, the mixer also includes a spectral analyzer for the master output, which is a really nice addition.

plus a one-knob compressor. This latter feature is a nice touch, great for controlling dynamically inconsistent vocals and, in our tests, good at beefing-up unpredictable, modulated synth sounds. There's a handy indicator light showing when the compressor is engaged too.

Each channel has an EQ section, but these differ slightly between the mono and stereo types. The mono channels each have fixed position high and low shelf EQs, along with a mid EQ sweepable between 250Hz and 5kHz. The stereo channels, meanwhile, keep the same high and low EQs but instead have two fixed position mid EQs.

Beyond these differences, and the lack of compressor and HPF, the remaining elements of the stereo channels are identical to their mono counterparts. All channels have four aux sends – by default two are pre-fader and two post-fader, but can be switched to be all pre-fader. Then there's an FX send dial, pan control and mute and pre-fader listen switches. Each channel is also equipped with a channel fader, bus assign switches for routing output and -20dB and overload indicator LEDs.

While Korg are pitching these at a variety of users – the manual has setup suggestions for churches, conference centres, live bands and recording – they were clearly designed with musicians and musical engineers in mind. On the recording front, the mixers offer a Musician's Phones feature that makes it exceptionally easy to set up musician-specific monitor/headphone mixes using the aux channels. The inclusion of sub groups is a really nice touch at this price point too – handy for studio jams and live mixing.

Live engineers and electronic performers will appreciate the four customizable mute groups, great for switching between multiple band setups or elements of a varied live set.

Equally useful, we found, is the ability to save and recall presets for a variety of mixer elements, including the mute groups, effects and EQ, feedback suppressor assignments and Global Scenes, which recall all digital settings at once.

From a musician's perspective – in particular an electronic/studio musician – there is a lot to like here. They look great, with a smart 'pro' aesthetic and solid build quality. In sound and functionality terms, the analog channel strips are great to work with. I've tried a mix of ambient pads and delicate guitar as well as aggressive analog drum machines and gritty acid synths and at both ends of the spectrum it was pleasingly easy to get a nicely balanced, musical mix. The digital side of things is very nicely set up too, with everything easy to access and minimal menu diving needed.

My one slight disappointment is the lack of either a full audio interface or onboard recording, both of which are features found on many comparably priced – and cheaper – mixers. There is a USB port on the rear, which can act as either a single stereo input or output, allowing digital input to channel 23/24 or output of the master L/R channel.

Having the digital input is a nice touch, particularly as it allows for a mobile device to be incorporated alongside a more traditional setup. From a studio musician's perspective though, the lack of additional digital outputs is a bit of a shame. Ideally it would be good to have the option to output at least the master out and individual sub groups.

As it stands, as great as those sub groups are for studio use, you'll need to own an additional 8+ input interface in order to take advantage of them. For many this won't be a problem – and even factoring this in, these are still excellent mixers at this price point – but it is worth bearing in mind. ■

## THE ALTERNATIVES



### TASCAM Model 24

**\$838**

Considerably cheaper, and with full digital I/O, but lacking the SoundLink design pedigree and key features such as sub group mixing

[tascam.com](http://tascam.com)



### ALLEN & HEATH ZED 22FX

**\$709**

For the price these offer good track control, effects and digital I/O but lack the depth of Korg's SoundLink designs

[allen-heath.com](http://allen-heath.com)

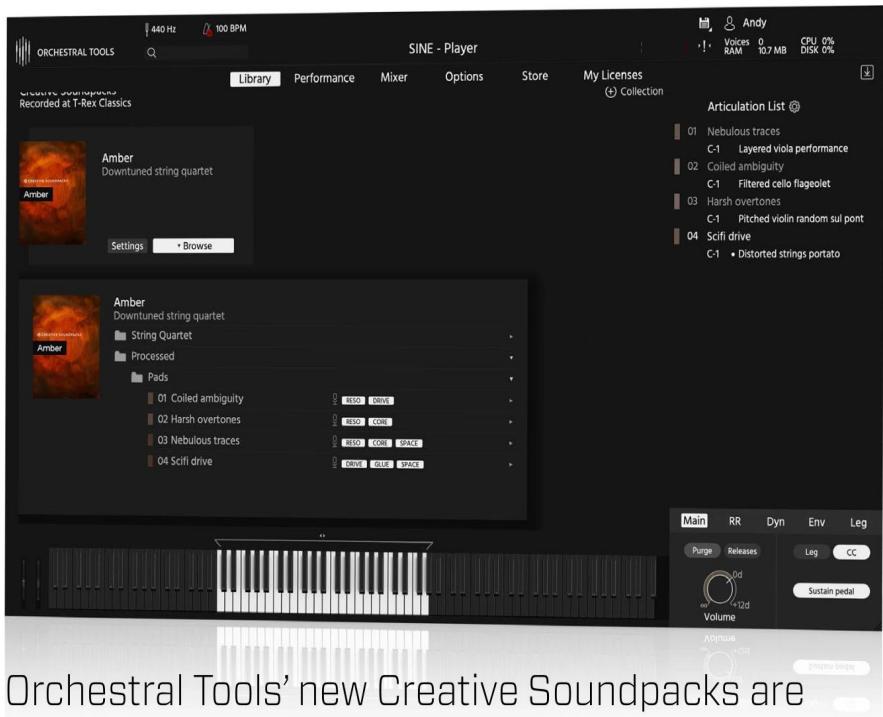


### SSL SiX

**\$1,417**

Like the MW-2408, the SSL SiX is built on some serious analog design pedigree, albeit with a considerably smaller design

[solidstatelogic.com](http://solidstatelogic.com)



## Orchestral Tools Amber

\$175  
[orchestraltools.com](http://orchestraltools.com)

By Andy Jones

### Strengths

- + Free SINE is a great player
- + Loads of atmosphere
- + Simply inspirational
- + Quality of the audio recordings is second to none

### Limitations

- We did have some issues getting to grips with SINE but the videos explain everything well

Orchestral Tools' new Creative Soundpacks are more than sample packs – they run in a player that gives Kontakt a run for its money

Orchestral Tools' award-winning Metropolis Ark collections supply everything from bombastic orchestral parts for trailers to deep and epic sounds, while Junkie XL Brass is their 'artist' title, a collab with the famous composer and producer. But how do you fancy some Orchestral Tools manoeuvres on the cheap, and a free player to go with them? These creative Soundpacks are just that: distinctive, themed sounds that run within OT's new SINE Player that you can download for free. It's a kind of easy-to-use Kontakt player with neat OT touches within which you can download individual parts and presets of the Soundpacks, or the whole lot. You can load them up and play, with extra mixer and dynamic controls and more. Yet importantly for many of us – mainly those who might have been put off by the knowledge bar to entry required for some orchestral libraries – you don't need to know much (indeed anything) about an orchestra to get the best from them.

We're focusing on Amber which provides "a left-of-center sound; a compelling string quartet that gives your music an unconventional and vibrant quality". It is the most expensive of the three packs, the others being Arbos (for natural world percussion) and Babel ("soft vowels, elegant textures, unexpected vocal patterns").

You first download the SINE player which runs standalone or in your DAW and then choose which presets from categories within the pack to download which, with Amber, can be up to a total

of 8GB. You get different mic positions and other variations to download and you can do this by instrument (titled more directly as Violin or Cello, or more descriptively as things like Sci-Fi Drive) or by type.

Then simply load up and play articulations – which are automapped to certain keys – via the virtual keyboard or your own controller.

### Drama from up north

Anyone familiar with the kinds of soundtracks that have been dominating everything from games like *The Last of Us* to Scandinavian 'noir' crime dramas will love Amber. It's a sound that can be melancholic in its understatement, barely shimmering, or then developing into heart-tugging string-based drama, as the revelation of the murderer or the death of the main protagonist you didn't expect takes place.

Presets like Nebulous Traces from the Pads section will have you thinking you're some kind of successor to Thomas Newman scoring *Shawshank* or Zimmer 'doing' *Interstellar* and all of them will have you reaching for your DAW to compose with or add ambience and sweeping emotion to any existing pieces.

Sure there's work to be done with SINE – there are surely features to be added – but what OT are capable of filling it with is sublime. These recordings are second to none and the emotion and detail that is invested here is undoubtedly. Incredible sounds, incredible value. ■



**Roland**  
**A-88MKII**  
\$999  
[roland.com](http://roland.com)

By Andy Jones

**Strengths**

- + Excellently playable keyboard
- + Graded action with escapement
- + Compact footprint and not too heavy
- + MIDI and USB connectivity
- + Simple, powerful new controller panel
- + MIDI 2.0 support

**Limitations**

- Controller section layout

Finding the right controller keyboard is very personal, but Roland's latest is both feature-packed and potentially future proof...

Roland's full size piano action MIDI keyboard controller, the A-88, has many fans and rightly so as the action is excellent and the ivory touch key finish feels great. Nevertheless, time marches on and with almost a whole decade on the clock a refresh was clearly on the cards. And now the result is with us: the A-88MKII.

**First impressions**

88 key controllers are by nature long and if you throw in a weighted piano action, they're heavy too. However, much like its predecessor the A-88MKII is shallow front to back, has a reasonably low profile and has a modest controls section to the left. So, the overall footprint is reasonably compact, which is good news if you're trying to accommodate it in a studio environment or transport it to a gig. At just over 16kg it's also not unreasonably heavy.

The MKII's control section to the left of the keyboard has been completely overhauled. This is quite obvious when you power it up (USB bus powering is supported) as the new backlit pads and knobs (eight of each) spring into action. Gone are its predecessor's Roland-specific features such as support for Roland's

Supernatural modules and D-Beam, and the overall feel is far more universal.

The pads operate in three modes – Program Change, CC and Note – and are arranged as 16 banks which can be easily recalled using the arrow keys and Shift button. In Note mode pads respond to touch pressure, and in CC mode can be momentary or latching. Meanwhile the knobs are regular travel rather than continuous encoder style. There are a few further options including two assignable control change buttons (S1 and S2), Transpose and Octave selectors, as well as playing Velocity Curve (six presets) and an onboard arpeggiator. Pitch bend and modulation are handled by a combination lever, and the keyboard can operate in up to three layers or three split zones.

Some onboard settings such as MIDI output channel can be made onboard using keyboard keys (there's a legend just above them). Other settings including the pad functions and backlight colors are primarily made using the new app. There is some overlap between the two which can lead to a bit of head-scratching at first. Either way, panel settings including the selected pad bank, octave, layer settings, arpeggiator and so on can be saved as one of

**“It’s not ground-breaking in its controller features; but the piano action is class-leading”**

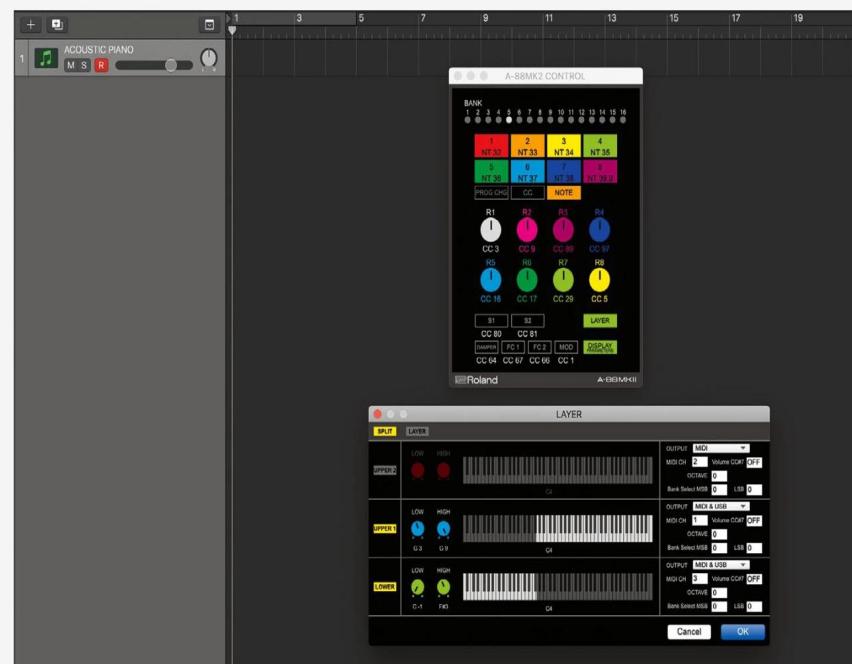
eight Snapshots which are stored even when you power down. Overall we think the layout may have worked better with the knobs at the top, and the combination pitch bend modulation stick won't appeal to everyone. That said, they've squeezed a good number of features into a small space.

A-88MKII's connections are on the back panel just behind the control section. It has one USB-C connector, MIDI in and out. Using its Split/Layer options you can specify whether MIDI, USB or both are used for each split or layer. This is handy if you're using DAW-based and hardware synths at once. In terms of pedal control you have one damper and two foot control inputs, so it's compatible with Roland's RPU-3 piano style triple pedal unit, their EV-5 expression pedal, and their DP range as well as more generic damper pedals. The A-88MKII ships with two USB cables (Type C to Type C and Type C to Type A). As mentioned the keyboard is USB-powered, but you can use an external PSU, although this isn't included. Last but certainly not least, the A-88MKII is MIDI 2.0 ready.

#### How does it play?

The original A-88 uses Roland's PHA-3 Ivory Feel-G weighted keyboard. However, since then their whole digital piano range has been overhauled and the latest design (PHA-4) comes in three versions – standard, premium and concert. The A-88MKII uses the PHA-4 Standard action but don't be fooled. This is still a great design, with ivory-feel keys, 3-sensor key detection and key-specific progressive hammer action. This means the keys feel heavier lower down and lighter higher up but the change is gradual. The keyboard also incorporates escapement, which replicates the real piano feel when the key is pressed halfway down.

This all adds up to an excellent feel that really captures the nature of a real piano as you play. The ivory finish, more satin than shiny,



#### App support & MIDI 2.0

The A-88MKII Control (PC/Mac) app has plenty of options. First up, you get graphical editing of the Layer/Split settings so it's much easier to visualize what's going on. Next, you can modify the CC assignments for the pedals and the modwheel, and also the function of the two control change buttons (S1 and S2), which can act as either control change or program change buttons. Finally, you can edit the pads and control knobs including backlit color settings. With three categories, 16 banks of eight pads and CC options for the knobs that's quite a few potential parameters. Options include MIDI learn for note assignments and latch and monetary function for CCs. The app makes setting things up easy.

Talking of MIDI, the A-88MKII is one of the first to be MIDI 2.0 ready (and indeed Roland's first 2.0 'board). This new version of MIDI allows more channels and a greater resolution for various parameters, and also enables hardware to communicate better with software – VST3 and MIDI 2.0 will supposedly be best of friends.

helps finesse key finger contact and with six Velocity Curve settings (from light to heavy) it's easy to find a playing response that's both comfy and works with the MIDI instrument you're triggering.

Despite its improved controller section, the A-88MKII is not that groundbreaking in its controller features. However, the piano action

is class-leading at this price point. Given that this isn't the sort of unit that anyone is going to change that regularly, it's also great to be future-proofed with MIDI 2.0 support.

Overall, the A-88MKII is very capable and competitively priced update, but it's winning feature is it's an absolute joy to make music with – worth the wait. ■

#### THE ALTERNATIVES

##### NATIVE INSTRUMENTS Komplete Kontrol S88 Mk2

**\$1,085**

Full integration with the NKS patch system and a weighted hammer action with aftertouch

##### KAWAI VPC1

**\$1,669**

Delivers arguably the best piano controller experience available



The A-88MKII controls section has seen an overhaul





**Klevgränd**  
**Spinn**  
\$50  
[klevgrand.se](http://klevgrand.se)

By Si Truss

### Strengths

- + Great for adding varying movement across multiple frequency bands
- + Reverb and amp effects add weight and space
- + Great-looking UI

### Limitations

- Multiband setup could be better implemented
- It's a shame there's no modulation for global speed setting

Does this Leslie-inspired modulation effect sound as cool as it looks? Let's take it for a spin...

The latest effect plugin from prolific Swedish developer Klevgränd, Spinn is a multiband modulation processor loosely inspired by the rotating design of Leslie rotary speakers. As with those classic speakers, the core idea behind Spinn involves emulating the effect of passing sound through a rotating device in order to produce a Doppler effect, resulting in variations in volume and pitch.

Spinn's design uses four 'rotors' – aka modulators – each of which deals with its own frequency band. There are a trio of crossover switches placed between the rotors, each with three settings for adjusting the frequency range of each band. Each rotor then has a selection of controls dictating the speed, depth and movement of its modulation. The Size parameter affects how pronounced the Doppler effect produced by each rotor is, while the Mod parameter controls the depth of filter and gain modulation applied for each band.

As with classic rotary speakers, Spinn has both Fast and Slow modes for altering the global speed of all four rotors. What's interesting about Spinn's design is that speed settings can be adjusted for each of the four rotors individually, for both Fast and Slow modes. Because of this, the name of these two global modes is a little misleading – it's possible to set any rotor to run slower in Fast mode and faster in Slow mode, and vice versa. As a result, it's possible to create cool effects where, for example, high frequencies modulate rapidly whilst low frequencies churn at a slower rate.

Other per-rotor settings adjust the acceleration and deceleration speeds for each rotor as it moves between Fast and Slow modes. There's also a velocity tool, which can apply modulation to the speed based on the level of the incoming audio.

Beyond the four rotors, Spinn also features global reverb and amp sim modules. The reverb has three selectable room sizes plus a dry/wet control. The amp has a three-band EQ, two selectable 'tube' modes – clean and hot – plus a drive control.

Spinn is a neat, well-designed modulation tool capable of adding lots of depth and interest. As with most Klevgränd plugins, the UI looks great, and you'll likely find yourself getting lost in the spinning rotors – but this can be turned off to save CPU power/prevent hypnotism.

It's not without minor bugbears. While the multiband switches offer some flexibility over the positions of the four bands, it's not flexible compared to, say, the sliders in Output Thermal or Cableguys Shaperbox. Moreover the visual representation of those bands is a little lacking – a spectrum view or at least positional sliders would help visualize crossover points better.

Also, it's a shame there's no internal modulation source for the global Fast/Slow/Off dial. Spinn is at its most fun when you begin to adjust acceleration/deceleration speeds and hop between different modes and, while you can automate changes from your DAW, it would be great to have an LFO or automation tool to program those changes automatically. ■



**Arturia**  
**AudioFuse Studio**  
\$999  
[arturia.com](http://arturia.com)

By Simon Arblaster

### Strengths

- + Flexible signal routing
- + Dedicated reamping channels
- + Bluetooth-equipped
- + Great bundled software

### Limitations

- Pre-fader listen only available for one channel at a time without using software



The prolific French developers' latest audio interface promises high flexibility

**I**t feels like Arturia's AudioFuse Studio has been a long time coming. We first saw the Studio version of the Grenoble-based firm's audio interface at the Winter NAMM show back in 2019 and that was two years after we reviewed the original AudioFuse – announced two years before that. But despite a whole five years elapsing, the AudioFuse range still feels like fresh territory for Arturia.

The desktop unit features four Discrete Pro preamps fed by four front-mounted mic/line combi ports. Meanwhile, channels 5 to 8 are served by TR ports around the back, with channels 5 and 6 also giving you the option of phono ports. And the analog inputs don't stop there: the unit is equipped with four line-level inserts on the first four channels. In terms of outputs, channels 1 to 4 are reserved for two sets of speaker outputs, while 5 and 6 double as aux outs but can also be switched for reamping guitars and effects. Returning to the front of the unit, we see two headphone channels each with two source selections, volume controls and both 1/4 inch and 3.5mm sockets.

As for connectivity, the Studio does not disappoint. You get double the ADAT ins/outs to handle eight channels up to 96kHz sample rate. We find the same three-port USB 2.0 hub as the smaller AudioFuse interface and 3.5mm MIDI I/O with DIN plug breakout cables. There's also Wordclock and SPDIF coaxial connections and the unit is rounded off with a Bluetooth receiver featuring aptX and AAC support.

Fresh out of the box and we were immediately impressed with the inclusion of cables, something many companies scrimp on. Signal flexibility and extra features aside, at the heart of any interface is the sound and you'll want it as accurate as possible, which the Discrete Pro preamps deliver. Our old ears couldn't detect distortion even at higher volumes and the transparency lets you add your own colour – catered for in the form of the Creative Suite plugin bundle. The four preamp channels each have phantom power, pad and phase invert options, generous metering and individual pre-fader listen buttons. These only let you hear one channel at a time, though it would've been nice to be able to hear all four.

Flexibility-wise, the Studio delivers on all counts. The AudioFuse Control Center software lets you get under the hood and configure all the routing options to your project's needs with ease, including the ability to loopback the main mix, or either cue mixes. Bluetooth is a great touch, especially with the option to route the signal into your DAW and not just studio monitors. The AudioFuse Studio also features a Control Center launch button and every control adorning the unit is also accessible within the software. While it might seem to slot in between the other two AudioFuse interfaces on paper, in size and I/O count, the Studio costs a little more than the 8pre, making it the flagship model in the range. But that price point is fully justified with its rich set of useful features, flexible signal routing and quality preamps. ■

# Baby Audio Parallel Aggressor

\$29  
[babyaud.io](http://babyaud.io)

By Jon  
Musgrave

## Strengths

- + Core algorithm for great flavor
- + Very useful auto gain feature
- + Simple mixer with solo option to balance parallel chains and dry signal
- + Decent tweaking & coloration options
- + Great price

## Limitations

- No mute option for faders



Parallel processing is a great way to capture the flavor of heavy processing and this new plugin wants to make it easier than ever before

**B**aby Audio is an LA-based boutique software developer with a handful of plugins, including Comeback Kid, which is highly flexible delay with in-built transient shaper, tape saturation and modulation, and Super VHS, which is a multifaceted tape saturation and noise effect. Last year they released I Heart NY, a flavor-filled black box-style parallel compressor designed to quickly inject some classic Stateside punch and colouration into your sounds. Emboldened by the success of this simple plugin, their latest release, Parallel Aggressor (AU, VST2, VST3, AAX) sticks with the parallel concept – see right – but ups the ante, extending it to two separate processing chains.

## Parallel Lines

Parallel Aggressor's two processes are compression (Spank) and saturation (Heat) which alongside the original dry signal are balanced using a 3-fader mixer. This includes a handy solo feature so you can listen to each individual element, although you can't mute the faders, which would have been handy. Much like with I Heart NY, the specifics of each process are hidden and you simply use the respective knobs to set the intensity of

the processing. However, unlike on I Heart NY, you get four Style settings for each process and these provide additional tailoring to expand the basic effect.

Spank is very similar to the I Heart NY effect but with improved sound quality and signal detection. The four style options are transient shaping (Extra Punch), more aggressive effect (Extra Smack), fixed low-cut for the sidechain, and a mono option. Heat meanwhile uses an optimized version of their Super VHS tape saturation algorithm. The style options add more distortion (Extra Hot), add mid-range bite (Tone) and apply high and low-pass filtering at 150Hz and 7.5kHz respectively.

You can use any combination of Style options and the buttons appear in signal flow order, so it's clear for example that the Heat filters are applied to the post distorted signal.

Finally, in addition to an overall Output level (+6dB to -24dB) to help you stay on top of levels, there's an Auto Gain option that sets the combined processed output level so it roughly matches the original input level

It's always quite interesting to analyze what's happening with a plugin, and unsurprisingly we can see on the analyzer that

**“It really comes into its own for proper coloration of beats, basses and beyond”**

the Heat effect adds odd harmonic distortions. These are further enhanced by the Extra Heat setting, which adds quite obvious high frequency harmonics. Maybe less expected is that the Spank effect also adds some 3rd harmonic distortion. Either way, Parallel Aggressor is clearly doing its best to color your sounds.

### Hit It

Each effect is applied using a simple intensity dial and you get some good visual feedback from both knob halos which change thickness and also from the semicircular meters on the left and right hand sides of the plugin. Parallel Aggressor's default setting loads up with the dry fader at 0dB, each effect fader at -10dB, and the amount set to 50 (it has a 0 to 100 range). So, if your input signal is reasonably healthy, it's quite possible this will already be coloring your sound, and we found the fader solos really useful to ascertain what was happening.

Clearly you can use Parallel Aggressor however you like – with some care – and if the source audio is suited it can add a bit of flavor to the master buss. However, it really comes into its own for proper coloration of beats, basses and beyond. On kicks, for example, the basic Spank setting quickly livens up a lackluster sound, but adding in the sidechain filter allows you to really hammer it without it pumping. Throw in the Extra Smack effect and things get really colored. Adding in some of the Heat effect then enhances the high frequencies, and you've got a massively transformed sound. The same technique works for snares and we found it really easy to get snappy snare sounds, often blending in just a little of the dry signal to retain the attack. On more

### Double Trouble

Parallel processing is a tried and tested, long-established mixing technique that was developed to more accurately combine a processed dynamics signal (often a compressor) and dry signal. It allowed us to take advantage of the coloration created by driving the processor hard, but at the same time retain some of the characteristics of the clean uncompressed signal.

Conceptually it's a simple enough idea, but in practice could eat up channel space and eventually some hardware designers introduced dry/wet mix blend options to streamline the process. Software developers have expanded on this idea and Parallel Aggressor offers a 3-path topology with multiple processing stages in two of the pathways.

This clearly goes beyond the simple New York compression emulated in their I Heart NY plugin, and is maybe more akin to multifaceted mastering processors. However, in the spirit of making it a creative rather than functional tool, Parallel Aggressor is incredibly simple to use with the individual compression and saturation parameters hidden or handled

automatically. This means you can focus on using the various modifiers to tweak the overall sound, blending it all to taste using the onboard mixer.



ambient sounds such as drum kit room mics, it's fun using more pumping compression, and the saturation can really dirty up a lackluster sound and give it some character.

Looking further afield we had success with various bass sounds including DI'd electric bass and synth basses, and the Heat effect also benefited various other synth sounds and worked really well on electric piano. For these uses the high and low-pass filters are really useful, and although you may want to

tailor the sounds further with your own EQ, it's impressive how much you can achieve with this one plugin.

### Conclusion

Setting up your own parallel processing is very flexible but the setup can be a pain and managing the various levels tricky. What we really like about Parallel Aggressor beyond the great sound, is the ease of use. Overall, Parallel Aggressor serves up its own ready rubbed coloration offering just enough in the way of tweaking to keep things interesting. ■



Choose from three different plugin shading schemes

### THE ALTERNATIVES

#### WAVES Scheps Parallel Particles

**\$129**

Two pairs of parallel processors provide bite, thickness, air and sub

#### SOUNDTOYS Decapitator

**\$199**

If you're after saturation flavour this plugin is an absolute must-have and is modeled on some classic hardware



Erica

# Synths Fusion System II

\$2,291

ericsynths.lv



By Rob Redman

## Strengths

- + Solidly built
- + Lots of patch points
- + Lots of analog warmth and growl

## Limitations

- You can't get the sterile clarity of other units
- Delay effect is not what you might have been expecting

The Latvian brand is back with three new vacuum-packing modules. Let's take the new system for a spin...

**F**ollowing in the tradition of many Erica Synths modules and full systems, the first thing you notice with the Fusion 2 is the solidity of the physical object. It ships in a 104hp skiff, with textured end cheeks and, although the case is thin bent metal, it feels tough enough to give you confidence for live work.

The fascias similarly show typical Erica Synths stylings, reminiscent of something you might see in the prop cupboard of a B-movie about a mad scientist. Knobs and switches all feel robust, with good resistance and the patch points are well seated.

Erica Synths has a history with aggressive modules that pack a punch but nothing as yet has quite the degree of warmth and grit as these new offerings. Fusion isn't a new thing to Erica, however they have adapted, upgraded and evolved the concept so that sound designers can access a new palette of possibilities.

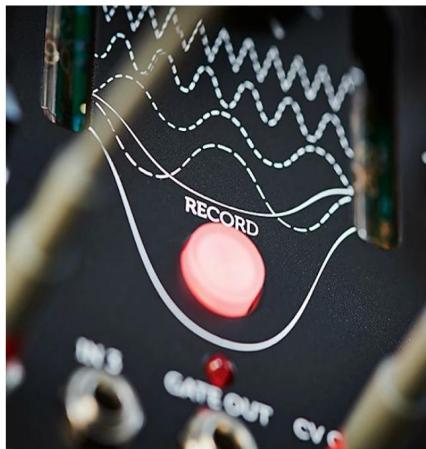
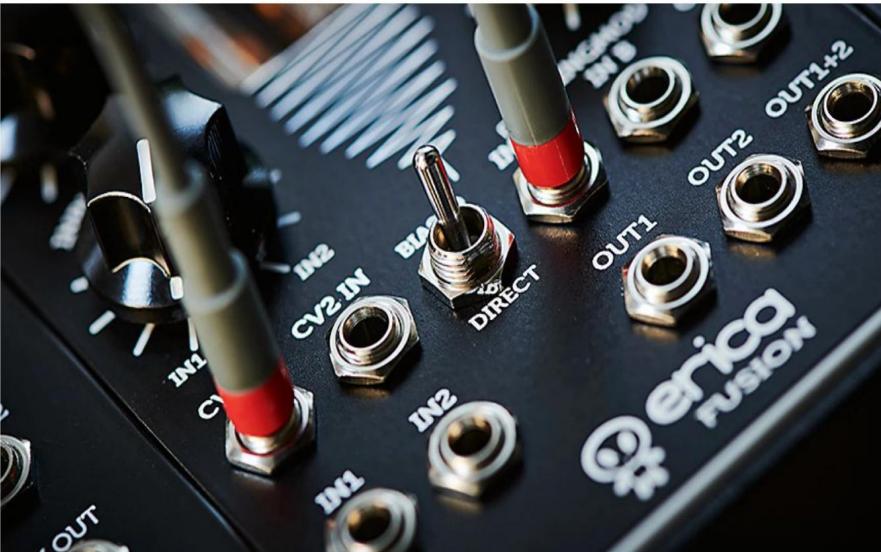
Let's look at this in terms of individual modules in the context of a complete system – as that's how many people will buy them, with the skiff and power supply as a package.

For many, the journey starts with oscillators, in this case two single voice, three waveshape, Fusion VCO 2s. These have the tools you might expect, such as volts per octave and audio inputs, as well as CV jacks that include separate outputs for the -loct sub and triangle waves and an input for modulating the pulse width. If that was all that was in place it would be a fine VCO,

however Fusion 2 VCOs have a bucket brigade-based short delay driving the detune effect, which sounds wide and glorious (or subtle if that's your thing). They've also embedded a Valve into the circuit, visible through a cutout on the fascia, nicely lit by an orange LED for that vintage glow. It looks cool and sounds better. The more you engage the Tube Crunch control, the more grit is invoked. Further personality can be added by cranking the FM knob, which also sets an upper level when using CV.

Sitting between the two VCOs is the Filter module, a 24dB valve/vactrol-based circuit, that also includes a buffered mult and a three-channel mixer. Sweeping the filter presents a less wild result than you might expect, although the resonances scream into self oscillation. The trick here is the big button. Pressing this starts the module recording your control voltage changes, so you can preserve mod setups. As a creative tool, this is inspiring as well as downright fun, which sound design tools should be. It should be noted that audio range mods aren't applicable here due to the limitations of vactrol circuits.

Jump the second VCO to land on the modulator module, a larger device that is home to multiple mod sources. Two looping envelope generators (with a manual trigger button) kick things off, their attack, on, delay, off rotary controls. These are both unipolar



and bipolar together, with CV control over the decay time. These twin EGs are core to the module; however, the fun begins with the clockable sample & hold section, that means creating melodic drones and pitched textures is a breeze, although there is no quantization on offer, so you might want to think about an external solution to that. It's based on the module's noise source which has its own output and sounds great; more red noise than white. Patch points are in abundance, across the lower part of the fascia (nice to see them grouped for control access when cable clutter can block the way).

The combo VCA/Waveshaper/Ring-modulator, has two miniature pentode valves on show. This module operates in two simultaneous circuits, allowing you to patch dual CVs for the amp. In practical terms you can use the frequencies of VCA and ring mod as waveshaping systems, giving you complex and versatile intuitive sound design options, all with the added juice of the analog drive that is the hallmark of the Fusion system.

Last in the skiff is the flanger/delay/vintage ensemble effects module. If you have ever

used a delay or flanger unit you probably have certain expectations but you need to put them aside, as this unit will not fulfil them.

What this module does offer, on the other hand, is add breadth and movement to your sound. It has settings for long/short delay and a wet/dry mix. There are also rotary controls for CV level when patched and fed back. This all sounds quite simple and it is but that doesn't do justice to what can be achieved with this unit. If you've heard a vintage Roland vocoder with the ensemble effect engaged, you'll have an idea of what this does. It adds a phaser type motion and width to the incoming audio, to which you can add tube grit, as this Fusion 2 device also has an analog tube circuit.

Any of the modules in this system could happily find a place in someone's Eurorack system. They really make sense as a complete setup like this though and I highly recommend it to anybody with a hankering for a more warm output. The possibilities for drive abound, as do options for modulation and all in a package that delivers on aesthetics as well as tone. ■

## THE ALTERNATIVES



### MAKENOISE Tape & Microsound Music Machine

**\$2,581**

Though not quite aimed at the same usage, this system comes in at a similar cost. Its variety of modules play well together and offer a wide range of sound sculpting tools. The plus here is the sampler and Maths.

[makenoisemusic.com](http://makenoisemusic.com)



### ALM Busy Circuits System Coupe

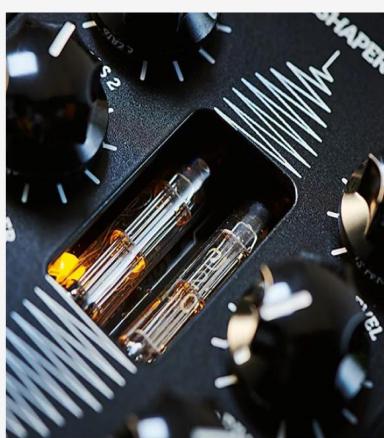
**\$2,452**

ALM are the creators of some very popular modules, some of which (looking at you Pamela's New Workout) make their way, in special edition clothing, to this 84hp skiff. Like the Make Noise option, this is rammed with sound sources and modulation as well as a sampler. Its sound is crystalline, crisp and clear.

[busycircuits.com](http://busycircuits.com)

## MACHINE WARMTH

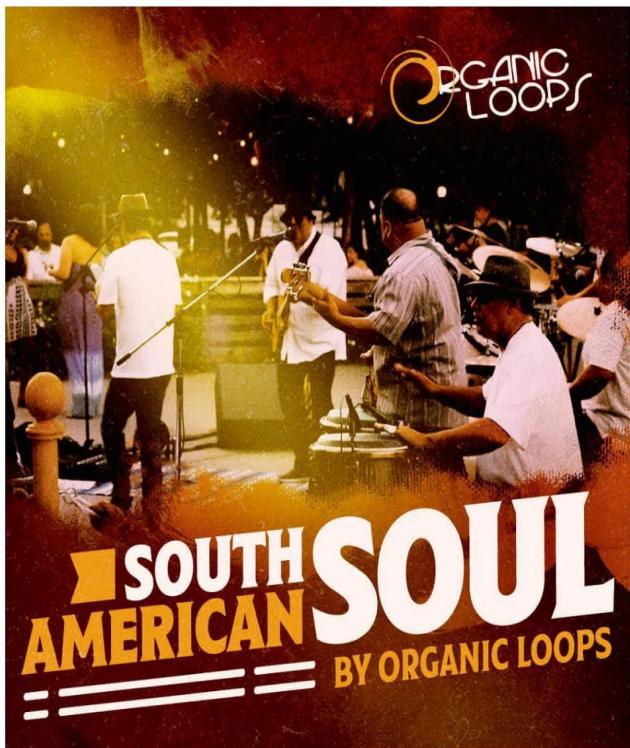
The Fusion modules employ valves as part of the circuit and this adds a rich warmth to the signal that some love. Valves introduce subtle variation into a circuit, where fluctuations can add some 'life' that digital components typically don't. An integral part of the Fusion sound is that they can be overdriven easily, for characteristic Erica punch and growl.



**Organic Loops**

# South American Soul

\$25.60



Whatever the weather, your music could always benefit from a splash of sonic sunshine. Enter the Organic Loops crew, who are on hand to take your beats 'south of the border' with their current colourful collection of sounds and samples.

Sunshine and salsa abound in this 453MB set of Latin loops and loveliness. In the modestly priced pack you'll find groovy electric and synth basses, tough drums, and extra fruity percussion that'll have your toes tapping in no time.

It's salacious stuff, designed to get you hot under the collar. Lifting and layering any of these rhythms into your projects will surely inject some much needed life into any rigid 4/4 arrangements.

Speeds range from 115-134BPM, and will sound mucho grande in everything from the likes of tech house to reggaeton.

Roy Spencer



**Singomakers**

### French Space Disco \$38

The Singomakers posse has boldly gone all "Space Disco: The Vinyl Frontier" with its latest release, and it's out of this world. Their stellar set of interplanetary samples combines the cosmic slop of vintage P-Funk and Euro-synth LPs with the robot rock of classic early 2000s French touchers like Daft Punk and Justice – and the results are as fierce as a Vulcan's neck pinch, and twice as tight as Kirk's girdle. It rockets along at 110bpm, with song-starting vocal and vocoder licks, Chic-sounding guitar strumming, Bootsy-licious bass, and a great range of dynamic and punchy drum loops.

Très bien, throughout, and MIDI files and sampler patches sweeten the deal. Blast off!

Roy Spencer

[loopmasters.com](http://loopmasters.com)



**Sonic Collective**

### Electro Swing \$7.99/mo

You couldn't swing a poi at a festival a few years back without hitting at least one electro swing band member. Say what you like about this mash up of gypsy instruments, art deco jazziness, hip-hop drum loops and full blown jungle tear ups, but it certainly gets 'em dancing.

If you want to rewind back to that time, or keep it alive, then you can't go far wrong with this tip-top set of live playing from some real talents of this occasionally maligned genre.

Recorded in a high-end studio, the 200-odd loops on offer will give you plenty to go off – from silky clarinet toots, and brassy sax honks, to jackin' house drums, and slinky nu-disco rhythms – it's pure knees-up business.

Roy Spencer

[splice.com/sounds/](http://splice.com/sounds/)  
[sonic-collective](http://sonic-collective)



**Sample Magic**

### Indie Chill \$7.99/mo

The same team that struck gold with their 'Chillwave' and 'Ambient & Chill' titles have gone back to the well to draw up more of those woozy, lo-fi, melodics that bedroom beatmakers can't get enough of. Again, the position to adopt as you scroll through the samples is borderline horizontal, but to keep things fresh this time there are far more guitars, fuzz, and shoegaze glimmers to broaden the palette.

The laid back indie sounds have a strong DIY aesthetic, but are recorded in via a considered audio chain so the loops have a crusty dustiness to them, and polish where needed. At 1.9GB, you get everything from arresting one shot sounds to shimmering multi-bar dreamscapes to play with.

Deeply recommended.

Roy Spencer

[splice.com](http://splice.com)



**Audiotent**

### Arch Standard: \$34

The arch deacons of openness over at Audiotent have been working up quite the bank of synth samples for all you guys and gals. This 107-strong batch pays tribute to the Matriarch synth – Moog's mother of a machine, famed for its unique vibe, and beautiful-sounding oscillators.

Saving you the princely sum you'd have to stump up to buy your own, you get to flip the lid on a lovely loop library, covering boss basses, cool chords, and all the lead lines you could ever hope for.

Each one is a joy to screw with, or sit back and admire. And if fiddling is your thing, plump for the Deluxe edition of this sample pack, and you can go buckwild on the 107 MIDI file folder, bundled with that, too. Cheers!

Roy Spencer

[audiotent.com](http://audiotent.com)

# The easy guide to Recording drums

Inject real life into your tracks by recording a real human drummer (no jokes, please) playing actual drums! Follow our walkthroughs and you'll see how easy and effective it can be

**R**ecord drums? Why would you bother when it's so easy to simply launch Superior Drummer or BFD, bash out a quick beat on the keyboard, hit the quantize button and get stuck into recording everything else? It's certainly true that some of these virtual drums/drummers sound awesome, and offer a mind-boggling choice of sounds and patterns. Not only that, but they don't argue, and they don't issue demands for payment, writing credits or bowls of M&Ms with all the blue ones taken out – so it's effectively a no-brainer, right?

Well, here are some other things that those pieces of drum software – and all the rest of them – don't do. They don't know how your song goes; they don't have ideas; they don't have a background

of musical influences; they don't know how to make your songs come to life; and they don't sound unique. If you've ever spent hours trying to program a fill that sounds right, or hi-hat parts that groove, or grace notes on a snare, or a convincing crash-ride, then you'll know that for all their amazingness, these superb virtual instruments require a lot of work to produce some completely lifelike results.

But isn't recording drums a total nightmare? No, that's a myth – recording drums is actually surprisingly easy. Admittedly, it's often the sound of a badly recorded kit that makes an otherwise great track sound like a 'demo', but if you follow some simple rules, you can avoid the pitfalls. Of course, a big, posh recording studio

would make things easier, but we're going to assume you haven't got one of those and show you how to turn your DAW into a drum studio with nothing more than a basic set of microphones, an eight-channel audio interface, an extra set of headphones and a splitter box.

Apart from the recording gear, the drum kit and the room, there is, of course, one more vital component: the drummer! If your drummer's not up to scratch, all your efforts will have been wasted. There's no point listening to a great recording of something crap – but there's definitely a point in listening to a crap recording of something that's great! So make sure your drummer is experienced, knows how to tune their kit, hits well and consistently, and can play with a click.

# Preparing to record

When setting up a recording session, the first thing you need to sort out is the room in which the drums are going to be recorded. The question is: live or dead? If you're making a rock track, you'll need a 'live'-sounding room or an adjacent live-sounding room where you can put ambient mics. If there's a rug on a wooden floor, get rid of it – drums always sound better on a hard surface. For a dry, disco-sounding kit, you'll need a 'dead' room, like the lounge or bedroom, where soft furnishings help to calm the sound.

A good drummer will know how important it is to get the kit sounding right. Freshly tuned, new heads will have a crisp attack and make the drums nice and loud. Loud drums make the room sound better and don't get drowned out by

cymbal wash. A common mistake people make is over-damping the drums in pursuit of a dry, 70s type of sound. Bear in mind that lots of top-end resonance and room ambience gets absorbed in the mix by guitars – especially in rock music. Over-damping also makes the drums quiet, so easy does it! Keep a selection of blankets, pillows and bricks around to help get the kick drum right. Try and keep some life in the sound; don't muffle it so much that it sounds like a cardboard box. Use the dampening to just shorten the sound.

Before you hit the record button, you need to prepare your session. Working with a sprawling production featuring 20 tracks of backing vocals and tons of plugins will mean complications down the line. By printing or bouncing down the

key elements as new audio files, you can unload all plugins from the session. This will prevent latency problems, so that the drummer will hear everything right in his headphones and there won't be any complicated latency compensation processes happening in the background.

You should aim to end up with a few bounced 'stems' – guide drums, bass, guitars, keys, vocals. Make sure they all start on bar 3 or later, so that you have at least a couple of bars of count-in. The click or guide drum loop can be MIDI-triggered or printed as audio. These few tracks then need to be turned down to around -15dB – this will leave plenty of headroom for the click to be clearly heard by the drummer over the backing track and the drums.

## Step by step 1. Getting the spot mics right



**01** Once you've got your kick sounding good, put a dynamic cardioid mic, like the AKG D112 shown here, inside it. The closer it is to the beater contact point, the punchier a sound you'll get – 5–6" away is about right, at a 45° angle to the batter (top) head. A small boom stand is ideal for this.



**02** This next step isn't essential, but is well worth trying. Take another mic (dynamic or condenser) and place it outside the kick – this results in a more rounded and meaty sound. Don't get any closer than 5–6" to the skin, though. Weight both kick drum mic stands with bricks so they don't flop around.



**03** Use a dynamic cardioid mic, like this Shure SM57, for the snare batter head. Try to have it looking in and down onto the center of the head. You'll need to keep it outside or near the edge of the drum so that it doesn't get in the drummer's way, but this will sound better anyway. As an alternative, try having the mic looking horizontally across the snare.



**04** Again not essential, but a mic under the snare can help to bring out the rattle of the snares, as well as improving the fatness of the overall sound. If your overheads are good, you may end up using more of this in the mix than the top snare channel. If your audio interface has a phase reverse button, activate it for this mic's channel.

# Overheads

The most important microphones in our whole setup are the two overheads, which basically record the whole kit sound. Ideally, you'll have a pair of large diaphragm condenser mics on tall stands two or three feet above the kit and about four feet apart. These are a 'spaced pair' of omni-directionals or cardioids. Omnis will give you more of the room sound, while cardioids achieve more focus.

Although this setup is common practice and can sound great, it's not actually the easiest to get right, and it can also sound terrible. The main problem is phase – you need to ensure that the sounds from your drums get to all of the overheads at roughly the same time. The more mics you use, the more complicated the phase

relationships get and the less focused the sound can become, leading to a loss of punch and low frequencies in the recording.

Google the XY, ORTF and MS overhead miking techniques, all of which give very different sounding results – and all with just two condenser mics. Experiment to find out which suits your kit and room.

## The Glyn Johns method

Mega-producer/engineer Glyn Johns has recorded many of the greats. Here's his quick and economical kit miking method, which has become something of a standard over the years:

- > Overhead 1 (cardioid condenser, panned left) is about 4-6" above the floor tom, facing the

hi-hats across the snare.

> Overhead 2 (cardioid condenser, panned right) is about 2-3" above the kit, pointing down between the toms and snare.

> Snare spot mic.

> Kick spot mic.

Room mics, bottom snare mic and second kick mic are all optional. This method does depend on having a great-sounding kit and room, though, so it could be a bit unflattering to a home setup.

Below we're going to use the two-mic overhead technique that's become known as the 'Recorderman'. It involves quite a close mic placement, and minimizes the room sound in the overheads. Here's how it's done...

## Step by step 2. Getting the ambient mics right



**01** For overhead 1, mount a large diaphragm cardioid condenser (if possible) looking down on the snare drum from a height of roughly two drumsticks. This is a starting point that can be adjusted to tweak cymbal and room spill. This technique will give a tight sound, focused on the snare – to tighten the sound further, you could set a hyper-cardioid pattern.



**02** The second condenser (OH2) looks directly at the snare over the drummer's right shoulder. To set the distance, make a loop of string starting at the center of the kick, going up to the top overhead mic, looping round your finger, and then down to the middle of the snare. Keep the snare end in position and bring your finger back towards the second mic.



**03** In a dead or bad-sounding room, the ambience won't be great, but it's useful to set up an ambience mic some distance from the kit anyway, as we'll see later. Even better is putting a mic up in an adjacent space that's bright-sounding, like a bathroom, kitchen or corridor. This signal can be delayed to create the illusion of size.

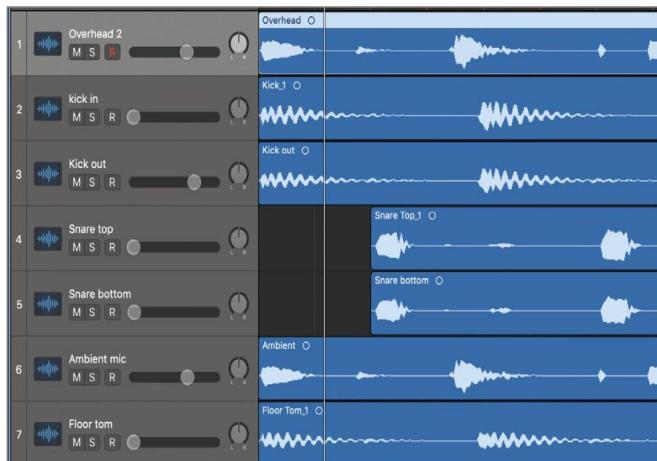


**04** Even though we'll be getting most of our sound from the overheads and kick mics, it's a good idea to put dynamic mics on the toms in the same way we did the top of the snare. If nothing else, these can be used to trigger tom samples if your tom sound isn't that great.

## Step by step 3. Getting a great recording



**01** Plug the mics into your audio interface. The overheads go to inputs 1 and 2 and will need 48v phantom power (unless you're using ribbon mics – in which case, don't touch that switch!). Kick in and out go to inputs 3 and 4, while snare top and bottom go to 5 and 6. The ambient mic (hopefully a condenser, so requiring phantom power) goes into 7, and the floor tom mic into 8.



**03** Once your levels are sorted, it's a good idea to run a test take to check for silly mistakes and any uninvited hum, hiss, clicks or crackles. You can also use the test recording to check the phase of the mics and ensure a fully fat sound on playback. Even though the theory of phase is complex, the practice is easy...



**05** Next, turn down the kicks and bring up the overheads, panned center. Try inverting the phase of one of them. If the overheads sound fatter with just one channel phase inverted, leave it like that. Bring the kicks back in and blend them with the overheads. Change the phase on both the overheads now, and leave them set at wherever the kick sounds fattest.



**02** Get the drummer to beat the hell out of the kit. They always play louder on the actual takes, so don't worry about getting too hot a signal – having the highest peaks spike at around -5dB is a good target. There's something to be gained from clipping, but not on the way into the interface – keep it clean.



**04** Now, insert a trim or gain plugin into each of your eight drum channels. Bring up the first kick mic, followed by the second. When the two are balanced, try inverting the phase on the second kick channel (the left/right Phase Invert icons). Leave the button set where the sound is best.



**06** Balance in the top snare mic and switch the phase to whichever setting sounds fattest with the kick and overheads. Bring up the bottom snare mic and set the phase to the opposite of whatever the top is set to. Repeat this process with the floor tom and ambient mics. This is quick 'n' dirty, but now you're ready to record.

# Quiet studio, please

You should now be ready to press the record button, safe in the knowledge that you have the sound of the drums completely nailed. Of course, there's a whole bunch of stuff to do post recording to turn the raw drum takes into a mixed kit, but we'll cover that in future features. First, though, we have to make sure we record everything we need. There's nothing worse than putting up your drum recordings, long after the drummer has packed up and left, only to find that the bottom snare mic hasn't recorded or that your middle section has click track from the headphones spilling all over it. That's why a test take is important; here are a few tips on how to get the most out of the session.

## Get lots of takes

If possible, use folders or playlists to keep your takes sorted, and make notes as you go as to what each take was and why you did it – “Take 4, felt beater instead of wood”, “Take 9, keep hats closed”, etc. You may find it best to edit different takes together to capture the perfect overall performance.

## Record single hits

After you're done, record individual hits of each drum at different volumes. Allow plenty of time for toms to ring and cymbals to decay. These backup components can then be used to help you repair almost anything after the event – invaluable for moments when the

drum stool creaked or a motorbike went by and ruined an otherwise perfect take.

## Prepare to build a mix

Once you've got your recordings, you need to get the drums sounding killer in the mix, so get the session organized. Work with your stem session to start with, then bring the rest of your multitrack back in. Organize the key elements of the mix into auxiliary busses, and bring them all down to -10dB. As a rough guide, your kick drum should be metering between -12 and -7dB. This kind of setup will leave you with loads of headroom to build a punchy drum sound without clipping your master outputs.

## Step by step 4. Setting up a rough live mix



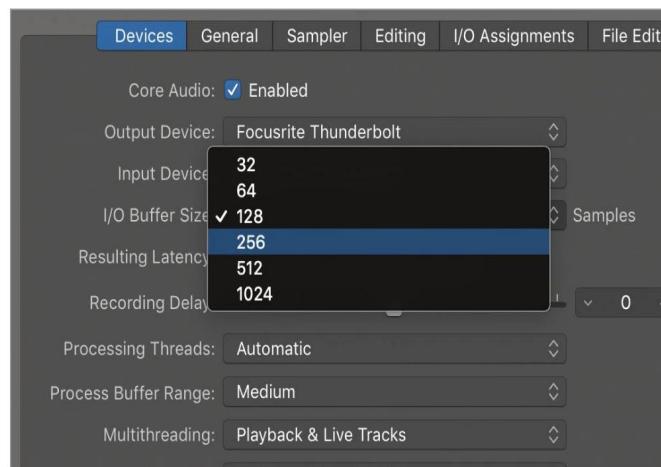
**01** Although you won't create your final drum sound until the mixdown, you'll need to get your mix half-decent for recording. Here's some CPU-friendly advice to help you get it right. Create two auxiliary sends and returns from the ambience track. Insert a delay plugin over the first return and set the L and R Delay times to 30ms and 60ms.



**02** Next, insert a room reverb over the second aux return set to around 0.6s Decay time. Compress this and add a harmonic distortion (we've used the Phat FX again). This artificial space will help the kit sound more ‘finished’ while you’re tracking – and a more exciting sound will make your drummer play better.



**03** Take your individual drum channels and the two new aux returns and set their outputs to a new bus. Create a new aux return for this bus and call it ‘Kit master’. This is your main drum channel. Now create two or three more busses and returns for the rest of your recorded track stems (guitars, bass, vocals, etc.).



**04** You should now have five or six ‘master’ faders, making it easy to create a good working balance and hear the drums properly in context. You can also create a separate sub-mix for the drummer by adding aux sends to the master faders and routing them discretely to the headphones output. To minimize latency, keep your audio interface buffer size as small as possible.

# Drum recording tips

## Skins, sticks and beaters

It's much easier to get volume, clarity and brightness from a new set of drumheads. If possible, get them on, tuned and 'played in' a day or two before the session. Different types of head give different types of sound: single-ply heads are bright with less sustain (jazz/pop); two-ply heads are deeper and more controlled (rock/metal); coated heads are warmer in tone (disco/'70s). Your choice of sticks or hotrods and felt or wood kick drum beaters will also have a big effect on the sound of the kit. Get close to the sound you want before you think about microphones!

## Tune up

This should be the drummer's responsibility, yet it's more often than not the engineer or producer who realises that the drums sound wrong and knows what to do about it. Here are a few tuning tips and things to check if you're having problems. Check that the head diameter is exactly right (fractionally larger than the drum) and that it's mounted perfectly centrally. Always make tension adjustments in opposite pairs to avoid forcing the head off-center. Seat the head by applying gentle pressure with your palm to the centre, and then tune out any new wrinkles that may appear.

## Bottom heads on toms

Wherever there are two heads, there are three possibilities. If you tune the bottom (resonator) head of a tom to the same pitch as the top (batter) head, you'll get a purer tone with more sustain – perfect for jazz and its derivatives. If you tune the resonator lower, you get a slight pitch drop-off and less decay – great for rock. Tuning the resonator higher shortens the decay further, which can be great for close miking. A good starting interval for the difference in pitch between heads is a minor third – ie, three semitones either way.

## Front head on the kick or not?

The front (resonator) skin on the kick drum is important for creating a good, meaty tone. Jazzers love it, and most rock/poppers have a hole cut in it to allow microphones and dampening material (a small blanket, say) to be placed inside. For metal styles, where you're mainly looking for click and thud, you may as well just remove the front head so that you can get a mic right in on the beater point.

## Tighten the kick drum

It's possible to create a little kick drum chamber using blankets, duvets or even a coat. These are draped over the kick drum, and any microphones are placed in and in front of it. Use a couple of small mic stands to hold the blankets up. The chamber prevents spill from the cymbals and snare getting into the kick drum mics, making

it easier to boost the high frequencies at the mix stage and thus enhance the 'clickiness' without adding harshness from the cymbals.

## Playing to a click

If you're tracking to an existing recording, your drummer will need to be able to play to a click track. The best drummers are able to sit exactly on the click, but tend to flow around it in order to create a better feel. Recording to a click makes it much easier to edit between drum takes at a later stage. If the whole band is tracking together, it's best if only the drummer gets the click. Using a little beatbox or percussion groove usually makes a better 'click' than an actual click, and will also spill over into the microphones less.

## Prepare the click for gaps

Prepare for stops and gaps in the song by automating the level of the click in the drummer's headphones. During the stops, lower the volume so that there's no click spill into the drum mics from the headphones. If you're recording the whole band, it's also a good idea to send a click to the other players at that point, so the drummer doesn't have to count everyone back in. This will save lots of painful editing and remedial work later on.

## Get a crappy mic

Tape recorders used to come with built-in condenser or electret microphones. Put one of these old machines into record/pause mode and

take the output into your DAW for an exciting, super-crunchy sound. Sometimes, rubbishy old battery-powered mics can sound good too. Put these types of mic in a place where they can hear the whole kit. The corners of the room can offer interesting results – experiment!

## Record without cymbals

Recording a kit in a difficult space without ideal equipment can be a fruitful and rewarding experience, but you might still feel that your results sound amateurish. One of the classic drum sound problems is too much cymbal spill. This happens in the best of studios, and when it does, the pros just record the crashes afterwards. That way you can bring up all the exciting roominess of the drums themselves in the mix, then blend in perfectly recorded cymbals afterwards. As long as they share the same bus compressor no one will ever know (although your drummer will hate playing without cymbals).

## Essential gubbins for a trouble-free drum session

Moon Gel, for damping; 3-in-1 oil, for squeaky pedals; a drum key, because the drummer will forget theirs; an adjustable spanner, for ratty stands; gaffer tape, for holding stuff; masking tape, for attaching damping materials and the like; empty cigarette packets and J-Cloths, for that 70s sound; blankets; stage weight or sandbag; and Japanese cooking chopsticks – surprisingly great for tom parts! ■

Your trusty oil and adjustable spanner – music-making equipment doesn't get much more analogue than this





# ADDITIVE SYNTHS

What are they, what do they look like and what do you need to get started with using them?

**A**dditive synths are one of the less commonly discussed varieties of synth plugin, often overlooked in favor of subtractive, wavetable or FM synths. These are all based on the principle of either starting with a waveform and filtering away harmonics, or generating new harmonic waveforms by modulating one with another. Once comfortable with basic subtractive and FM synthesis, it's time to go back to basics and build waveforms from the ground up.

Fast Fourier Transform (FFT) theory states that any audio signal, no matter how complex, can be broken down to a series of sine waves. In theory, you can recreate any waveform with the right combination of sine 'building blocks'. Pile up sine waves (ie, harmonics) at related harmonic integers at different amplitudes, and you end up with familiar waveforms. For example, start with a simple 100Hz sine as the fundamental frequency, then stack up more sine waves at odd-integer harmonic intervals from the fundamental (ie, one at 300Hz, another at 500Hz) to create a basic 100Hz square wave. Take that same initial 100Hz sine and add sines at odd- and even-integer multiples of the fundamental (200Hz, 300Hz, 500Hz, etc) and you've created a sawtooth wave. This process of adding together so-called 'partials' to create more complex waveforms is the basis of additive synthesis.

Things get more timbrally interesting once you mix in additional sine

waves at inharmonic intervals from the fundamental, modulate the amplitudes of these harmonics over time, alter the phase of individual sines in relation to each other, and mix in noise for additional bite.

Interestingly, Hammond and pipe organs used a rudimentary form of additive synthesis: several pipes would output sine-like tones to create the classic 'organ' sound. Aside from organ and bell sounds, additive synths can generate highly complex timbres – think ambient pads, dissonant drones and beyond.

In software, synthesizing and modulating hundreds of individual sine oscillators is CPU-intensive compared to other types of sound generation, and dialing in all these individual partials could be fiddly. However, most modern additive softsynths hide this complexity behind familiar subtractive-style interfaces, and offer useful visualization features. A good one is NI's Razor: instead of drawing in individual harmonics and settings, you shape the tone with 'regular' oscillator controls, filters, effects processors, etc, which alter partial interaction at the harmonic level. Reduce filter cutoff, say, and Razor reduces the amplitude of upper partials to dull the tone; crank up a delay effect, and Razor rhythmically modulates partial level. This collective processing of individual harmonics results in uniquely 'sharp', high-fidelity sounds.

Let's break down the basics...

# QUICK TIPS

**1** One of the best ways to create unique additive timbres is by modulating the amplitude of different partials over time. Combine with gentle phase modulation for a typically rich additive-style pad.

**2** Additive synths are ideal for designing simple sub bass tones, as you can slightly raise the third and fifth harmonic level and give a pure sine a tickle of midrange presence to work on smaller speakers.

**3** Live's Operator synth is most known for its FM capabilities, but open an Oscillator tab and you can design waveforms on a 64-partial display.

**4** If using a non-additive softsynth with four plus oscillators, try combining pure sines at different intervals, then modulate each sine's amplitude and pitch for familiar timbres.

## Six of the best partial-packing softsynths



### Native Instruments RAZOR \$68

NI's powerful Reaktor-based instrument boils down complex additive synthesis into a subtractive-style interface, helping the creation of cutting-edge, aggressive timbres.



### Apple Alchemy

Now bundled with Logic Pro, Camel Audio's uber-instrument offers additive modes alongside VA, formant shaping, spectral/granular sampling and more.



### Image-Line Harmor \$164

This CPU-efficient, two-layer additive synth, again, has familiar subtractive-like controls and expert visualization. It also lets you turn images into audio, and resynthesize audio files.



### AIR Music Technology Loom II \$100

This semimodular weapon lets you choose one of 34 partial-processing modules to load in slots, then blend variations using the Morph Pad.



### u-he Zebra 2 \$238

Very much a 'workhorse synth', u-he's four-oscillator instrument can do it all: wavetable, subtractive, FM, and additive! Simply draw harmonics in the lower Wave Editor.



### Audio Damage Phosphor 2 \$59

Based on the alphaSyntauri, a vintage digital hardware additive synth, this can run in either classic lo-fi or hi-res modes, and features a dual delay section with filtering.

## Additive basics with Serum

Own Xfer's powersynth? You can try additive synthesis straight away

Although primarily known as a wavetable synthesizer, Xfer Serum also allows you to stack up simple sine waves from scratch, making it a fantastic entry point into the world of additive sound generation. At the top of Serum's Wavetable Editor sits the FFT Area. The top row of vertical bars represent waveform harmonics, or 'frequency bins': the far left bar is the fundamental frequency, and the bars to the right represent the related harmonics. Octave intervals (2x, 4x, 8x the fundamental frequency) are grayed out. Simply click and drag a bar up to set that harmonic's amplitude. Using the bars underneath, you can also alter each harmonic's phase position. Proper additive synths (like the ones above) offer more control over harmonic modulation, but Serum's waveform display helps you visualize the blending of harmonically-related sine waves, and how small changes can greatly affect timbre.



Click Osc A's pencil icon to open the Wavetable Editor. The FFT Area is at the top. Click and drag up the leftmost frequency bin to set the amplitude of a sine wave at the current note's fundamental frequency. The resulting waveform is seen in Serum's display.



You can also drag up a bottom bar under a harmonic bin to alter the sine's phase - ie, position over the course of one wave cycle. Do this to our sine wave, and you'll see the wave cycle's position change. But this won't have much effect on the sound until we add more sines...



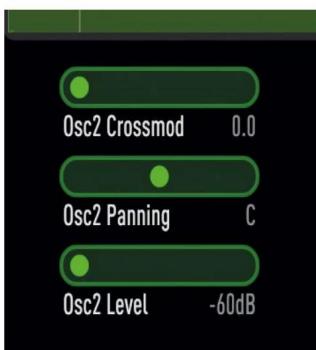
Click and drag up in other frequency bins to draw in other sine waves at intervals to the fundamental. See and hear how the original sine wave's shape changes and complexifies as more harmonics come in. Change the phase of different harmonics to further manipulate timbre.

# Additive adventures with Phosphor 2

This alphaSyntauri emulation is a fun, simple softsynth. Let's use it to create an ambient pad.

## 01

Starting with Phosphor 2's default preset, we'll turn Osc 2's Level down to minimum so we can focus on the first oscillator. While we're setting things up, let's mix in the synth's onboard Delay to give our patch a touch of ambience. Now let's move to the Primary Oscillator...



**02** Hit its Ctrl tab and switch to the classic alphaSyntauri 16-partial mode. For added retro crunch, we'll toggle its Space Invader icon, then hit the Clear button to reset all partials to minimum. Dragging up the far left of the 16 dots now raises the amplitude of our fundamental sine wave.



## 03

This simple sine is pretty boring, so going from left to right, we'll drag up the other partials at different amplitudes. Notice how partial levels can greatly affect the waveform's timbre, and introduce noticeable grit into the signal.



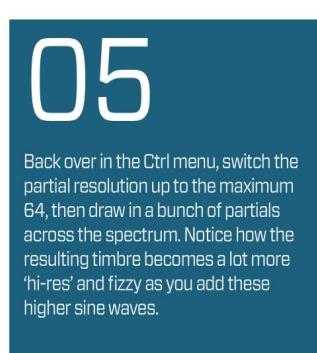
## 04

To familiarize yourself with the types of timbres you can create, head to the oscillator's Ctrl menu and choose from the preset waveform settings (Sawtooth, Triangle and Square). We drag partials up and down to create a fluttering bell-like sound.



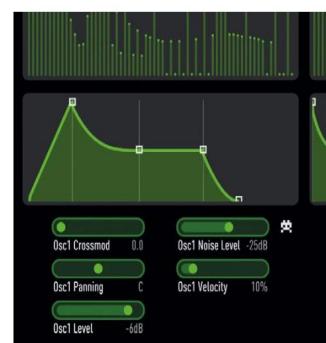
## 05

Back over in the Ctrl menu, switch the partial resolution up to the maximum 64, then draw in a bunch of partials across the spectrum. Notice how the resulting timbre becomes a lot more 'hi-res' and fizzy as you add these higher sine waves.



## 06

For floaty flavor, we'll adjust our pad's onset over time via the Amp Envelope, and mix in some lo-res dirt by raising Osc 1's Noise Level. We'll also modulate Osc 1 Amplitude via a Pulse-shaped LFO, giving our pad a bubbling quality. From here, we can blend in Osc 2 and refine the patch.





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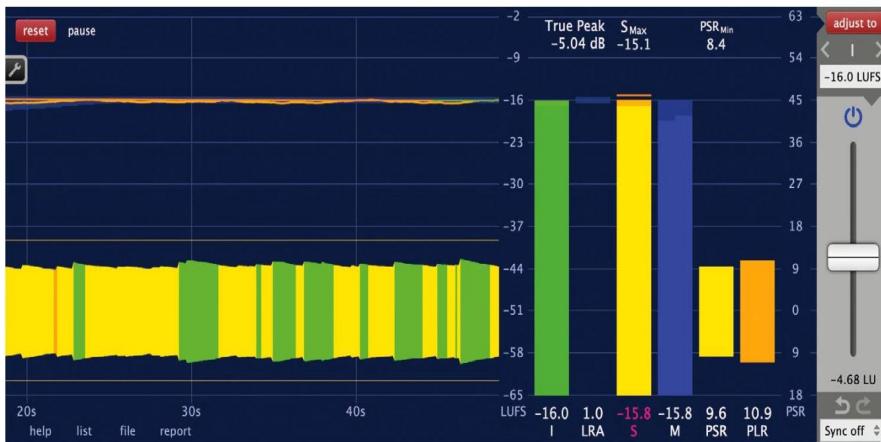
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# Visual analyzers

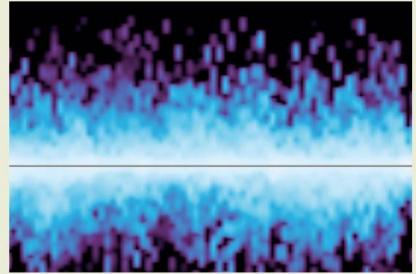
Map loudness, stereo, frequencies and more with these mix-interrogator plugins



## Klangfreund Multimeter \$59

Multimeter is a fairly broadcast-focused analyzer, but one that lets you get a great view of your signal's loudness. If you're trying to get with the new-school measurements of LUFS and True Peak, you can consider it a trusty ally. The left-hand main meter displays your peak to short term level ratio, which turns green when at ideal levels, or other colours when the range is too hot or cold. Peaking marks and red lines on Multimeter are retroactive, meaning that if you change the setting of the output level slider, you can make all the red you've previously encouraged go away – or bring it all back if you push things too far. Multimeter brings together six rule-of-thumb measures of your audio's fit-for-purposeness, recording them over time and even letting you check the measurement at any previous moment. It's great when technical knowledge is of the essence.

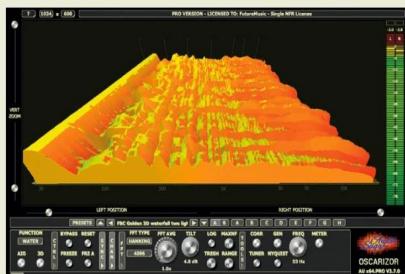
[klangfreund.com](http://klangfreund.com)



## BlueLab Panogram \$40

As well as visualizing the power of your audio between left (top) and right (bottom) sides, Panogram can act as a stereo widener (or narrower) and a pan control too. That widening doesn't have to stay restricted to already-stereo material – you can use Panogram to widen a mono signal, which it does effectively on a variety of audio sources. To control visualization of the spectrum itself, you get a choice of six color schemes, plus Brightness, Sharpness and Contrast to refine the view. There are three preset interface sizes here. It's a cool way to see the stereo content of your audio over time, with a stereo readout, not an instant goniometer-style display. But with Panogram's ability to visualize the stereo space, another feature becomes possible: by clicking and dragging anywhere on the display, you can draw a box to solo a certain part of the stereo image, meaning that you can, theoretically, isolate mono material that's been panned within a stereo mixdown. In practice, this ability is impressive, though for even better results, combine it with other separation tech. Using the Freeze (and playback) function in Panogram is a helpful way to spend some time making sure you've got the right vertical size for the best possible separation. Panogram is innovative and effective in its remit, and even a great piece of kit for a remixer or bootlegger.

[bluelab-plugs.com](http://bluelab-plugs.com)



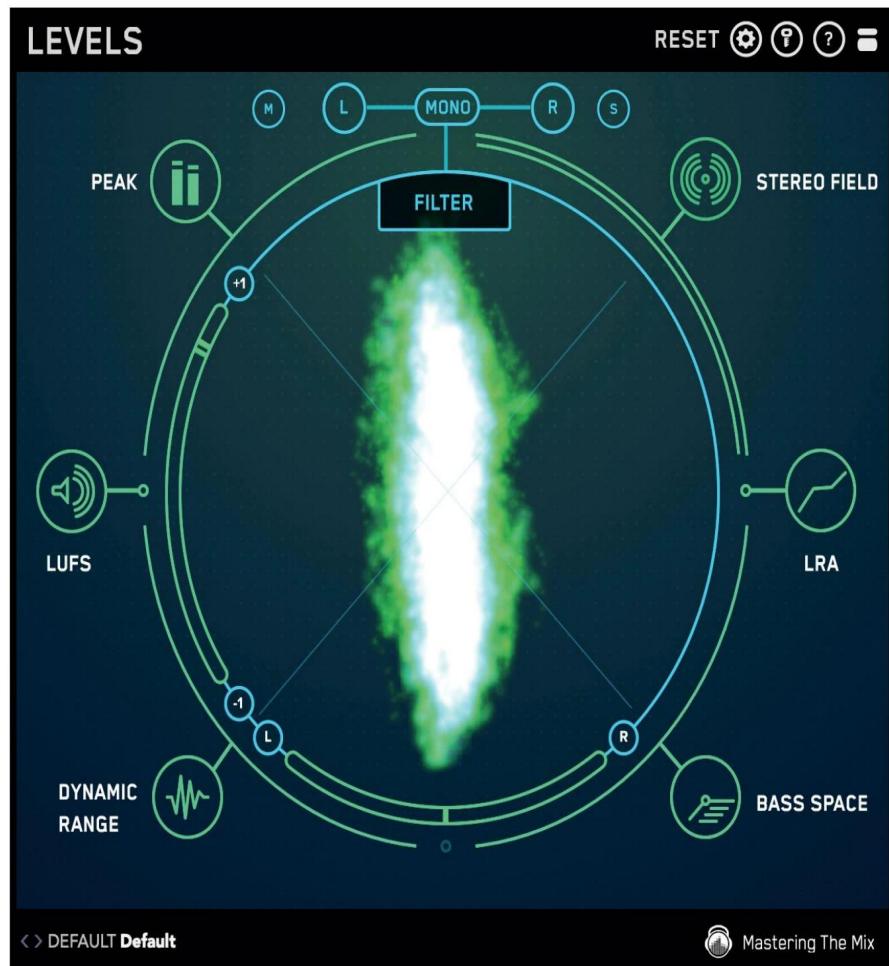
### Sugar Audio Oscarizor 3 \$63

'Visual' is absolutely the word with Oscarizor - the ludicrously configurable plugin can display a classic spectrum analysis, goniometer and correlation view, LED meters, oscilloscope, waterfall spectrum, and even an instrument tuner view. What's remarkable here is the amount of customization you can give to the readout, with control over its 3D view, zoom level, coloring, and even virtual light source options. For example, you can 'tint' two virtual lights over the readout and change the color of each. Another feature of Oscarizor is its multichannel capability - you can display several signals at once to compare or monitor together.

Customization is available for coloring of the sent and received channels in each instance. As you'd hope, Oscarizor has vector graphics, so it's resizeable to your liking.

Having such customization over the view is impressive, but whether or not it's actually very practical is another question. We can't fault the work that's gone into giving the user the option to view, say, the frequency spectra of four tracks from the inside of a cylindrical waterfall, but we doubt how often Oscarizor 3 will be used to its fullest in production contexts. If you want the visual analyzer that can interrogate your tracks from all angles - literally - then this particular plugin could be for you.

[sugaraudio.com](http://sugaraudio.com)



## Mastering The Mix Levels \$63

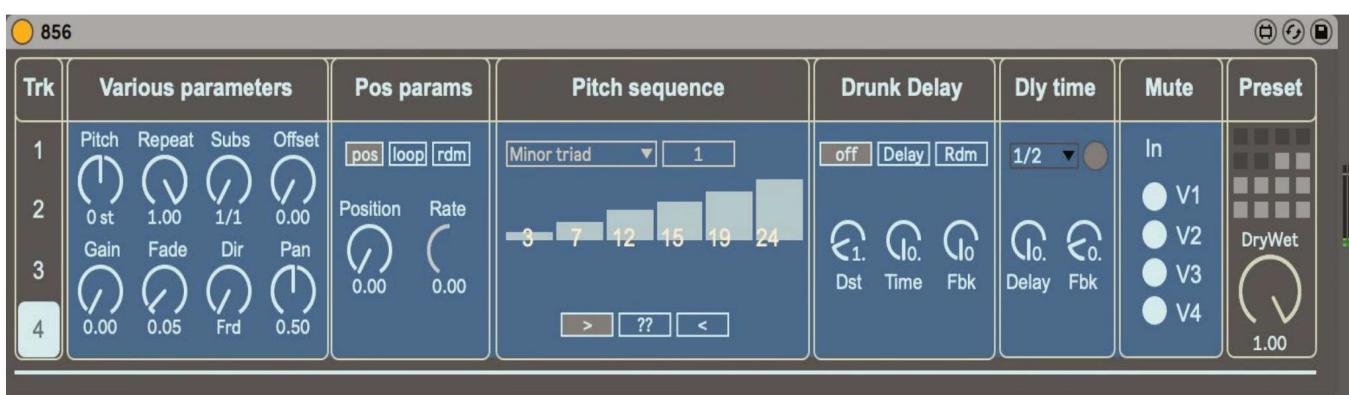
Adding Levels to your master track, you'll immediately start to get feedback on your track's shortcomings and overabundances, as its six mode selectors turn red or green to tell you how on-track that particular mode is. Said modes are LUFS, Peak, StereoField, LRA, Dynamic Range and Bass Space, and global functions include a mono checker and mid/side auditioning. Dive into any one of the six to get more info about your signal: Stereo Field offers a goniometer, correlation meters and a filter for checking the image of particular ranges; LUFS gives short and long-term loudness readings; Bass Space can advise where in the low end your kick and bass will fit best. Levels represents an intelligent set of tools that you need to check for every track before releasing it - and all within context, as you can measure up to mix style, broadcast and mastering references like YouTube etc.

[masteringthemix.com](http://masteringthemix.com)

# Oldtoy 856

A Free Software Take On An Expensive Pedal

By Michael Ross



**M**ontreal Assembly's 856 for Zellersas in pedal (don't ask me what it means), is a looper which allows playback of three-layered copies of a single recording. Each layer can be manipulated in various ways. Portions of each loop can be played back in various rhythms and at different pitches.

Though offered by the people who created the well-respected Count to Five, this pedal didn't quite inflame interest in the same way, possibly because it is big, expensive, and complicated. The 856 Max for Live plugin by Oldtoy, on the other hand, is free, and less complicated, though only marginally so.

It also only vaguely references the pedal that inspired it. For starters, though the software device can perform some of the same functions as the hardware, it appears that it affects the signal pre-loop rather than post. There is a button labeled Loop, but as far as I can tell, it does not actually loop your audio input, nor could I perceive what any of the buttons or knobs in this section did. Unfortunately, there is no manual or video tutorial available.

The Pitch Sequence section is the most intuitive and works well. You can choose a variety of major and minor scales, octaves, and such. It also allows you to choose the number of steps up to eight. In the first section, Gain seems to control input and output levels simultaneously, Repeat sounds like it determines the length of the sample, Subs subdivides it for stutter effects and controls the speed of the sequencer. Offset is as labeled,

each separately. If you start looping with the delay, 856 will continue to overdub as you play, there is no way to kill the input signal to a specific track. You could, however, place the plugin on a separate track or effect send and then kill the input to the whole thing.

Don't let my caveats discourage you from checking out this amazing plugin. With a little experimentation I was able to turn the 856 into more than an effect – it became an instrument. I connected a

Korg nanoKONTROL 2 to Live and, with four sliders setting each track's gain, and another four to control the individual delay feedback settings, I was able to create amazing, evolving soundscapes. I might

set the sequencer for one track to an octave up, another to an octave down, add a minor scale sequence to the third, and an octave and fifth the fourth track. Each track might also have its own offset, subdivision and delay settings. Running from there into a long reverb on full wet was ambient heaven.

Frankly, if you have Ableton Live and Max for Live (Live 9.7.1 OSX 10.12) and play modern guitar, there is no reason not to download 856 and immediately start creating with it. ■

**"There is a button labeled Loop, but as far as I can tell, it does not actually loop your audio input, nor could I perceive what any of the buttons or knobs in this section did"**

Fade affects the attack, Dir sets the sample forward or reverse, and Pan is, well, you know.

Looping is possible, post-processing, in the Dly Time section, where you can set the feedback all the way up and the four affected signals will loop rather than fade away. This delay syncs to the host. The Drunk Delay is apparently a shorter delay that can create cool comb filter and lo-fi room effects.

Unlike the pedal, you can create four discreet tracks, not copies, and manipulate

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# School of X

Danish musician and producer Rasmus Littauer has spent much of the past decade behind the drums for acts such as Mø and Major Lazer. Recent years have seen Littauer focus his attention on his own project, School of X, resulting in the self-produced debut album *Armlock*. We caught up with Littauer to talk influences, creativity and more.

## When did you start making music?

I grew up outside of a town in Denmark called Aarhus. I have three brothers, two musicians (Yangze and Simon Littauer). They work with complicated synths, modulars and algorithms. I think this scientific way of looking at music made me want to do it differently, but I've been really inspired by their approaches; they're the main reason I started making music. I started playing drums aged 5 using my parents' friend's sunburst Pearl kit. It had high-pitched toms and small Paiste cymbals – a true '90s kit. I've been playing drums since with Mø, Asteroids Galaxy Tour, Major Lazer, Liss etc. Back in the late '90s I was mostly into the Beatles and Stones but also technically demanding drumming like Tower of Power, Dave Weckl and that kind of style.

## Tell us about your studio

I have a space with my great old friends William Asingh (Vera) and Nick Labajewska (Vasco). We have a room each in a small beach house but it's right on Nørrebro in Copenhagen. I love the area and have lived there for 12 years; two years in this studio – I go there every day when I'm not touring. My setup is simple, built around audio recording mostly. I'm not a huge synth geek so I try to have a workflow that's as intuitive as

possible. I have my Ludwig kit from '68 miked all the time (MD421s, Coles 4038, 441s, AE2500 and others.) They all go into my UAD X interfaces. I use the Unison Neve 1073 preamps and usually try and play the drums as lightly as possible for recordings. I think it has more energy when playing like that, funny enough. I also have a Gibson SG, Les Paul, Strat, Höfner violin bass and a Mustang bass, which are my favorites in the studio, plus I enjoy my Juno-106 and Prophet '08 a lot. I only use a few plugin synths. My favorites are the G-force M-Tron and also the Arturia Lab.

## What DAW do you use, and why?

I use Logic for writing, producing, mixing and recording. For other things, like live work, I use Ableton, which has a few smart functions that don't exist in Logic. I go back and forth. Since I program very little, Logic makes sense for me.

## What one piece of gear in your studio could you not do without?

When I go to residencies and do music, I try not to bring the same things every time, to see what the new circumstances bring me. I'm totally

addicted to my drums in the studio. I often build a song around a groove so I'd definitely not be happy without that. I'm addicted to guitar too; my Fender Strat or Martin 000-15.

## What was your latest studio purchase?

The SoundToys complete bundle has changed a lot for me. I've always liked them a lot but I kind of went all in now. Favorites are MicroShift and Decapitator, but they are all amazing. Pan Man is a plugin that people don't realize that they need.

## What gear would you love to own?

I've always wanted a super slim recording setup. I like the idea of bringing whatever I can have in a backpack and being able to record quality vocals whether in a hotel, the countryside or in my studio. But recently I've been wanting to get a great chain for vocals. I asked Chris Tabron who mixed my past two albums and he recommended something versatile, so right now I'm looking to get a Chandler LTD-1 and a Distressor. I've been wanting to get the Shelford Channel from Rupert Neve too as it has a great distorted sound.

## When approaching a new track or project, where do you start?

I'll have a melody recorded in my memos or I'll start making a chord progression. Then I usually pick up a bass or drums. It can also be the other way around. I'll have waves of recording lots of things and deleting. I try to kill my darlings. It's important to tell yourself that there will be slow, less productive hours in creativity but it's all part of getting where you wanna go.

## What are you currently working on?

Three very interesting projects – my next solo album as School of X, then I'm going back to my childhood house with my two brothers to start making music as a group. Lastly I'm spending seven days in Red Bull studio in New York with Icelandic musicians Kaktus Einarsson and Jon Atli, my brother Yangze, Chris Tabron and NY bass player Spencer Zahn, then to Reykjavik to write with Kaktus and Jon Atli later too. ■

## SCHOOL OF X'S ESSENTIAL TIPS

### Mute to find if your track works

If you can't crack a song, try muting every element except for the main chord instrument and vocal. You'll realise whether the problem digs all the way down to the songwriting.

### Stay focused on your own idea

Keep your focus in your own mind and

thoughts and ideas, and make an effort not to get too affected by other people's music. I also think that finding inspiration in anything else other than music can actually be a really positive thing.

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