

Peavey ReValver 3

Peavey's ReValver lets you play through a catalogue of classic guitar amps in virtual form — and if that's not enough, you can design your own from scratch!

Paul White

At first glance, ReValver appears similar in concept to other popular guitar modelling software: it lets you choose your own combination of amps, effects units and speaker/mic setups to turn a DI'd electric guitar into a fully produced studio recording. However, it goes much deeper than its competitors in allowing users to modify or create amplifiers from scratch by combining individual tube stages, tone stacks, power supplies and so on. For the really tweaky folk out there, you can even open up the circuit schematics for the individual stages and adjust the component values!

So let's get the basics out of the way first. ReValver MkIII currently offers 65 sub-modules based on popular amplifiers, stomp boxes, studio effects and speaker cabinets. It can run in stand-alone mode with very low latency or it will work as a conventional native plug-in on both Macs and PCs: at the time of writing, AU and VST plug-in formats are supported, with RTAS coming soon. In plug-in mode, the latency depends on the buffer size set in the host software. Though a Mac G4 is quoted as the minimum spec to run the program effectively, a G5 would be more realistic; on either platform a relatively up-to-date OS is required (Mac 10.4.x or Windows 2000/XP or later) and a 1GHz processor is considered the absolute minimum. Using ReValver in stand-alone 'live' mode on a PC requires ASIO, MME, WDM or DirectSound support, while on a Mac it seems happy with pretty much any Core Audio compatible interface. Authorisation is via a code that locks operation of ReValver to the system drive



Amp Modelling & Design Software For Mac & PC

of the host computer. Should you upgrade your hardware, a new license file can be downloaded through the Peavey web site, or via the included Activation Tool.

For best results, the electric guitar needs to be plugged into a high-impedance input, such as an interface with an instrument input option or an active DI box plugged into a standard line input. ReValver can operate at high sample rates and 24-bit input is recommended, but you don't have to use the higher sample rates, as critical areas within the plug-in use upsampling anyway to avoid aliasing when modelling non-linear functions such as tube distortion.

Because ReValver can use a lot of processing power, it offers two quality modes, one for producing your sound while recording and a higher-quality mode for use while mixing. Mixdown mode uses 64-bit processing with 4x oversampling, which takes around five times more CPU overhead than the normal mode. DAWs with freeze functions may be able to work around problems encountered in this mode with older or slower computers.

ReValver Front End

Visually, ReValver follows the well-tested paradigm of a studio rack into which

individual modules can be placed; right at the top is a section for setting input and output levels, complete with LED indicators. You'll also find the preset save and load functions in this area. A signal splitter module allows users to set up two parallel processing chains, which can then be recombined, much like Line 6's Pod Farm dual mode, and there's no restriction on the order in which modules can be placed, though some configurations clearly make more sense than others. A conventional setup would start with stomp boxes connected in the same order in which you might use the real things, then the amp and speaker, possibly with the addition of studio effects such as delay or reverb. Studio effects can go right after the power amp — unlike in the real world, where the high signal level would toast them!

Adding modules to the rack is simply a matter of clicking on the lower part of the window over the message 'Click for new module here', at which point you get a choice of module categories, with a submenu listing the modules within the chosen category. You also see a brief description of each module. Modules may be dragged into a different order or bypassed completely, and can be either mono or stereo, as appropriate to your setup (Reverb and Delay are always stereo). Signal flow is from top to bottom, and newly added modules always appear at the bottom, so you need to drag them to the correct position in the chain before proceeding.

Amp And Effects Modelling

This being a Peavey product, it should come as no surprise that many of the amps on offer are Peavey models, though you also get all the thinly disguised 'usual suspects' from

the other leading amp companies. When you call up a complete amplifier, you get both the preamp and power amp, though you can switch or tweak any of the stages if you want to create your own hybrid. Amongst the Peavey amps are the 6505, the 6505+ with its extra preamp tube, the ValveKing, the Classic 30, the JSX and the Triple XXX. As for the Fox ACS45, I'll leave you to guess what that is based on, and the same for the Sheriff overdrive pedal, for that matter! Then there's the 62 BluesMaker, the ACM 900 and the HomeBrew PP2 low-power, push-pull amp with two channels and a British-style tone section. If the names don't give the game away, the graphics provide the extra clues! In fact, the list of amp modules, preamps and speaker/mic combinations is too long to include in its entirety, so you're unlikely to run out of options for experimentation, especially when you consider that you can switch modules and tone stacks within amplifiers.

There's also a big range of stomp effects, and while these may be presented as rackmount objects, the colour scheme and control layout usually gives a big clue as to what they are based on, though in the case of things like the popular bright green overdrive, the designers have added a few more controls to make them more versatile. All the essentials are here: overdrives, chorus, compression, limiting, slow attack, octavers, treble boosters, flangers, wah and so on, usually with several choices of model.

A big factor in making a modelled guitar sound 'real' is the speaker cabinet and miking setup, which Peavey realise using convolution, based on impulse responses taken from real cabinets and mics set up in real studios. Two quality modes are offered for the convolution process, so that those with slower computers can use less CPU overhead, and I have to say that the list of speaker cabinets and mics is impressively large, though some ribbon mic options would have been welcome. You can load in your own short impulse responses as WAV files to create new cabinet presets, but there's so much choice already that you may never need to. On top of that, you can also choose purely modelled speakers/mic setups that use less CPU overhead than convolution and allow you to step outside what would normally be available in the real world. In this case you get to choose the box size, the type of speaker and mic, and the mic position.

When it comes to studio effects, there are eight-band and three-band parametric equalisers, a graphic equaliser, two stereo

Alternatives

While products such as Line 6's Pod Farm, IK's Amplitube, Overloud's TH3, Softube's Vintage Amp Room, NI's Guitar Rig and Waves' GTR take a similar approach to combining amp and speaker models, there's no other product I know of that lets you delve in at component level.

reverbs, a phaser, a noise-reduction module that uses filters over four bands to make the process as unobtrusive as possible, a stereo width enhancer, a channel delay with independent left/right channel controls, and even a VST host module that lets you drop a third-party plug-in into the signal chain at any point you choose, though there doesn't seem to be an Audio Units equivalent. There are also compressors, including a tube model, and a convolution reverb that uses impulse responses taken from real spaces or real hardware, and includes a very realistic-sounding spring reverb as well.

Comprehensive level control is included, and of course there's a guitar tuner, in this case showing strobe and meter displays at the same time. A further tuner mode includes six strobe tuners working simultaneously, each attempting to lock onto a specific string pitch in conventional tuning, but I found the larger display of the conventional tuner rather more useful. You also get a frequency analyser that lets you see the tonal spectrum of your finished sound as you play.

Rolling Your Own

What I've described so far in terms of selecting and adjusting models isn't that far removed from what some of the competition is offering, at least in general concept and operation, but where ReValver really scores is in the way it allows the user to modify the design of the modules themselves. Not all modules can be tweaked — tone stacks, for example, can be swapped, but not changed — but tube stages and power supplies can be adjusted in a very sophisticated way that allows users to give reign to their amp-design fantasies without the risk of electrocution or solder burns. You can even change the tube power-supply voltage and the amount of rectifier sag. Some knowledge of electronics is required to do this in a way that might give a predictable outcome, but unlike the real world, you can't break anything by just trying things to see what happens, and if you really mess up, you can simply restore the model to its default condition.

Tweak mode is selected from a module-related menu or by pressing a module's '+' button, and shows circuit

SOUND ON SOUND

Peavey ReValver 3 £179

pros

- Easy to operate at all levels.
- Convincing amp and speaker sounds.
- Excellent depth of editing right down to component level.

cons

- Some window actions are slightly irritating, as you can't move or change anything in other windows when Tweak mode is active.

summary

ReValver combines the familiar with the unique, so whether you want instant-gratification amp modelling or the ability to go into full anorak mode, this ingenious piece of software should keep you happy.

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► schematics, along with controls for adjusting component values and general circuit behaviour. The Tweak window also shows icons for special tools that can be used to check on how your circuit is performing, including a frequency analyser, oscilloscope, THD analysis and the ability to save an impulse response or IR. IRs can be used to capture any linear process such as an equaliser, reverb or speaker cabinet, so you can capture the sound of certain ReValver modules or bring in (short) third-party IRs for use within your creations.

The tube stages can be tweaked in two ways, which Peavey describe as Physical and Non-physical. Physical changes let you adjust actual component values and the tube bias, whereas non-physical changes alter certain tonal characteristics without changing the actual circuit, and do what may not be possible in real life. You can choose between a range of triode or pentode tubes, and as you select the same type of tube, you can swap out the tubes within a circuit. Individual tube models have properties such as gain and linearity, and you can adjust some tube characteristics, as well as changing capacitor and resistor values within their support circuitry. Then you can check the outcome using your ears and the analysis tools provided. You have to hit the Apply button to make changes take effect, so you can't actually listen while you vary a component value, but this is probably a necessary limitation to save on processor overhead.

You can get in very deep here, as changing capacitor values changes the frequency response of a stage, and then there's the Miller effect to take into account, which effectively multiplies the (anode) plate/grid capacitance in a triode by the gain of the stage. The larger the series input resistor feeding the grid, the longer the grid capacitance takes to charge and discharge, so you get a low-pass filtering effect. Pentode and tetrode tubes are less affected by Miller capacitance because of the effect of the additional screen grid.

And then there's MIDI. When ReValver is used as a plug-in, many of the controls can be automated in the usual way, but in stand-alone mode you can set up MIDI parameter control from an external hardware device, so you can adjust all the available knobs, faders and switches. Any MIDI assignments are stored along with presets when you save a patch. A MIDI event can be assigned to an on-screen control by right-clicking on the target control, then selecting MIDI Learn, at which point you are

prompted to activate the controller on the external MIDI device. If you delete a module, the mapping is automatically cleared.

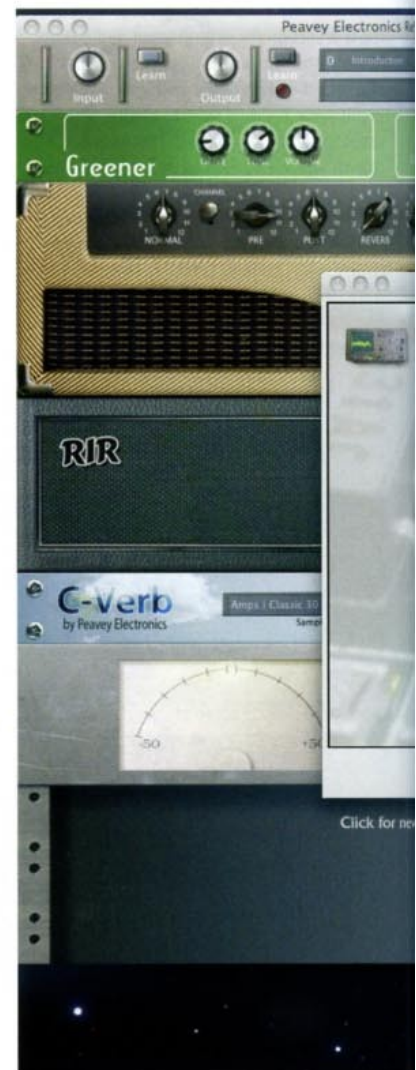
Operation

If you plan to use ReValver in the same way as other amp modelling plug-ins, operation is very intuitive and the results are rather impressive. The amps really do sound genuine and very 'up front' with a good dynamic response to touch; the convolution speaker cabinets help massively in this respect, as they make the amps sound as though they are being recorded in a real room. Even without going any deeper, you can cover the whole gamut of conventional guitar tones from clean, through blues and crunch to outright filth, and that's before you start to add pedals. Those challenging part-dirty blues sounds come over really well, but just as in the real world, you have to work at the amp controls and mic/cabinet settings to get them just how you like them.

Helpful roll-over information boxes come up when editing or selecting from menus, but occasionally these obscure the list of items you're trying to select from, which can be a touch frustrating. Another minor irritation is that when you're in Tweak mode you can only move the window you're currently working in and not others that may be open. Similarly, you can't bypass any effects or make other changes to the setup in your rack until you have left Tweak mode. On the whole, ReValver was very stable in my system, though I did manage to make it quit once by designing a speaker cabinet where the box was smaller than the speaker I tried to put in it!

As someone who has built tube amplifiers in the past, I really appreciated being able to see and adjust the component values around the individual stages, but I would have appreciated being able to call up a schematic for the entire amplifier. Furthermore, the phase-splitter stage in a push-pull amp is shown as two separate plate-follower stages (anode followers), rather than as how it would actually appear in a real amplifier.

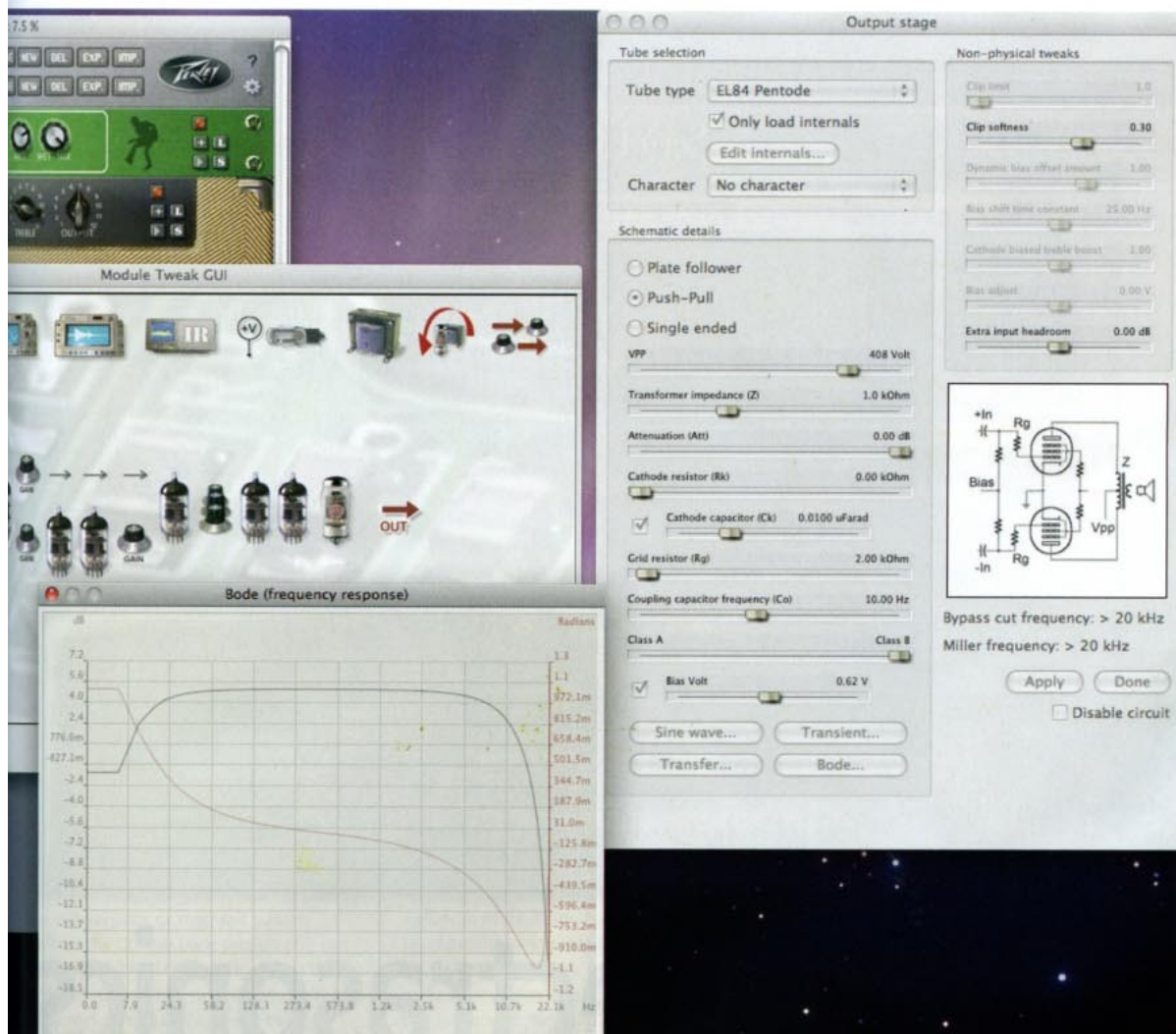
A nice touch is that the negative feedback around the power stage can be adjusted, which changes both the distortion and, in some amps, is an integral part of the presence circuit, but again I couldn't get in to see the circuit or change components — there's just a dialogue box that lets you change the amount of feedback and its phase. The adjustments that can be made to the power supply are quite extensive: you can choose tube or solid-state rectifiers,



ReValver offers unique scope for redesigning elements of your virtual guitar amp, including the ability to swap valves out and change component values, and provides tools for analysing the results.

adjust the voltage and determine how the power supply sags under load and how quickly it recovers. You can also open a separate page to allow you to pre-EQ the signal in the preamp stage. Again, this doesn't show components but instead lets you approach the problem from the perspective of a traditional equaliser, which will be much easier for most users to manage.

All the stomp and studio effects work much like their hardware counterparts, with the convolution reverbs being particularly impressive. You can't get inside to change



these devices at circuit level, but in Tweak mode you still get the analysis tools to help you figure out what they are doing.

ReValving DAWs

Ultimately, you can approach ReValver on a number of levels, and given its cost and the limitations of some of its competitors, it scores well in all areas. As an easy-to-drive plug-in for DAWs, it offers some of the most convincing amp simulations I've heard, and there's so much tonal variety on offer that many users will probably never need to go into Tweak mode. It offers adequately low latency for live performance in stand-alone mode and there are numerous presets covering all genres to get you started.

For those interested in the workings of

tube amplifiers, the Tweak mode takes you in far deeper than anything I've encountered before and lets you change all those subtle little details that make different amplifiers behave the way they do. It stops short of a full component analysis of the entire amplifier, but you can add or subtract tube stages, adjust resistor and capacitor values, change tube characteristic, switch tone stacks and influence the properties of power supplies and output transformers. Having tools such as oscilloscopes (which actually shows a snapshot of the input and output waveforms rather than a dynamic display like a real scope), spectrum analysers, THD measuring tools and so on is hugely educational, as is the ability to display the frequency and impulse characteristics

of your amplifier. The modelling is close enough that amp designers could use it to predict the effect of component changes before actually trying them, and though you don't get to see the full amplifier schematic, the capabilities of the Tweak mode are extraordinarily powerful. Even if you don't want to look at the insides of virtual tube amps, ReValver is great value as a modelled guitar recording system, and if you want to see what's under the hood, it's really the only game in town. **EOS**

information

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