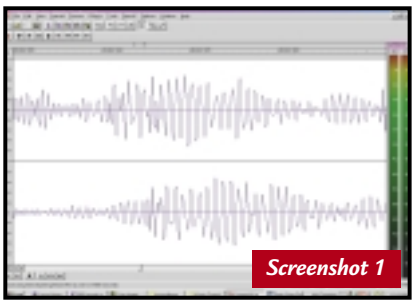
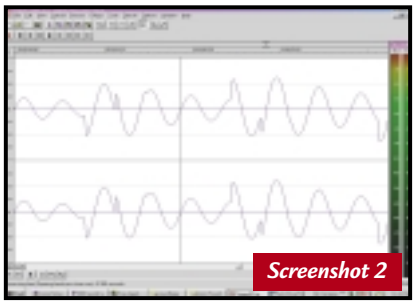
Squiggle with glee

Niall Magennis tows the line with digital audio and checks out the latest VST plug-ins on offer.

These days I seem to spend a lot of my time staring at squiggly lines. No, I haven't given up making music in favour of some weird minimalist form of painting, it's just that digital audio involves lots of topping and tailing of samples to either loop them seamlessly, get rid of unwanted noise and clicks or just to make them more economical in terms of storage for sound fonts or whatnot.

So this month I decided I'd have a look at sample editing and some of the tricks you can use to knock your audio into shape. You should find these hints useful whether you are converting your vinyl collection to CD, creating soundfonts, or just knocking up a few samples for your web page. The techniques are all the same, no matter what audio format you use or what resolution the samples were recorded at.


Screenshot 1

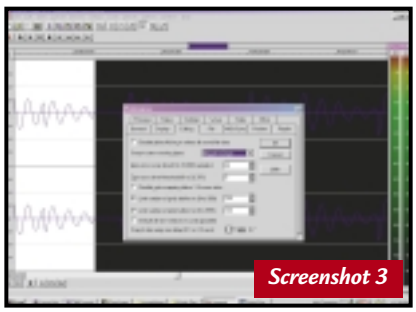

Screenshot 2

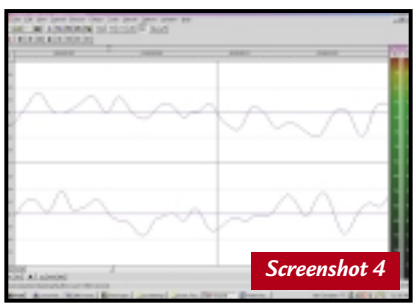
One of the first lessons you won't be able to avoid learning, is that an edit on a piece of audio should almost always take place on a point where the wave form dissects the zero crossing line.

Wavesforms basically look like a series of rises and falls above and below this line (see screenshot 1). To make sure your audio doesn't produce a nasty digital click or pop at the start or end of your edit, you have to edit those points so that they cut at the zero crossing point (screenshot 2). Even if there is a fade-out on the end of the sample and the volume is very low at that point, cutting across a non-zero crossing point can create an annoying click.

Some higher-end packages automatically jump to the nearest zero crossing point to where you place the pointer, to avoid this type of mistake (screenshot 3). Others, such as Cool Edit 2000 have an option that nudges the cursor forward or backwards to the nearest zero crossing point.

Unfortunately, stereo files complicate this matter even more, because here you are really dealing with two parallel samples and if you cut one in one place you have to cut the other at the same place even if it is not on a zero crossing point (screenshot 4). There are two tricks to get around this problem. The first option is only valid when you don't need to loop a sample. In this instance, to get rid of the click you can apply an aggressive fade-out of just a few milliseconds. Soundforge has a graphic fade option that allows you to be extremely precise in your fades (see screenshot 5), but most audio-editing software allows you to control fade-outs in some way. Sometimes it is called Envelope, as is the case with Cool Edit. This will leave your .wav file clean at the


Screenshot 3


Screenshot 4

Reasons to rejoice

Propellerhead Software has already brought us two stunning music applications in the form of Recycle and Rebirth 338, but it looks like it is going to do it again with Reason, its recently announced studio-in-a-box software package.

Reason presents the user with a virtual rack into which you can place a whole range of devices from virtual synths, samplers, effects, mastering boxes, mixers and the like. You can even turn the rack around with a click of the mouse to reveal all the routings between the different devices, and of course you can re-route everything by using virtual cables. It's also possible to load up multiple instances of each device so that you could be running seven samplers, three synths and a couple of effects boxes. Neat.


Reason from Propellerhead Software is touted as a studio-in-a-box package

Reason isn't set for release until around the middle of this year, but it has a pretty reasonable price tag of £249, and it looks like Propellerhead is going to deliver something a bit special.

VST instruments

I'm a big fan of old Seventies and Eighties analog synths, but then so are many other people and this means that the price of classic vintage gear has gone through the roof. Whereas in the late Eighties you could pick up a Roland 303 and 909 from a car boot sale without breaking a £20 note, you'd be pushed to find the pair for under a grand now.

Luckily PCs have come to the rescue, first in the form of standalone programs like Rebirth from Propellerhead Software and more recently in the guise of plug-in instruments for sequencers.

These latest software synths use the VST 2.0 standard from Steinberg, which means they cannot be used as standalone programs – only inside sequencers and audio applications that support VST plug-ins. Software with VST 2.0 support includes Cubase, obviously, but also Emagic's Logic. And although Cakewalk doesn't have native VST plug-in support you can still use VST plug-ins through an adaptor such as the one available from www.fxpansion.com. This now has support for VST 2.0 instrument plug-ins, although there are still some midi timing issues to be resolved.

Here's a list of sites where you can download VST instruments:

Atom from **www.muon-software.com**
This was the first free VST instrument. It is an eight-voice polyphonic synth with a 24db resonant lowpass filter.

SC MonoOne from **www.multimania.com/scdevelop/syntha.htm**
This is a monophonic synth with two oscillators. It's completely free, but a polyphonic version is available as part of a plug-in bundle for £25, if you order from the website.

Stylophone from **www.sparque.co.uk**
It's the opportunity you've always wanted – to be Rolf Harris, virtually.

CESsynth1 available from **www.cferrari.dial.pipex.com**
This is an analog synth with dual VCOs, dual VCAs and a resonant fourth order VCF. Unfortunately this was written for Logic and so it doesn't yet work correctly in Cubase VST – notes hang when you turn the plug-in off – but the author is keen to fix this bug.

SC MonoOne is a free monophonic synth

Gakstoar from **www.linplug.de**
This is a commercial program costing $70, but the only restriction on the demo version is that you can't save the patches you create.

Screenshot 5

end, with no non-zero crossing jumps.

If you have to loop a sample and your audio editor has a built-in loop tuner – use it. It'll save no end of grief. A loop tuner shows you a magnified view of the start and end loop points, and allows you to shift each loop point independently of the other so that you can match up each side on their zero crossing points.

Sometimes finding the zero crossing point is not enough and the loop will sound unnatural. If this happens you'll have to resort to crossfading. This is especially true when you're trying to loop stereo sounds. These can sometimes be awkward to loop, because the waveforms in the two channels are different, and what is a good loop point for one channel may not be for the other.

Most loops jump abruptly from the end of the loop back to the start, but with crossfading, the computer makes a gradual transition by fading out one end of the loop as the other fades in. You can then save the results as a new file. Usually you should try to keep crossfades as short as possible, otherwise the sound during the crossfade may seem unnatural.

Screenshot 6

Sometimes it's not the loop that is the problem, but the fact that the sample is in mono when all the rest of your samples are in stereo. One of the easiest ways to give a mono sample a stereo feel is to make a copy of the mono waveform and then paste it into both channels of a blank stereo .wav file. Next paste a tiny amount of silence at the start of one side of the stereo file (screenshot 6). This will delay one side of the sample and give your audio a wider stereo image. This technique is best used for synth sounds or unnatural atmospheres as it can sound strange when applied to natural material.

CONTACTS

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