The great mixing debate

Now that our song is tracked, it's time for a mixing session with a difference...

On the CD

Test your ears! Go to **Tutorials/Track** and listen to our mix produced with a pro setup, and our Reason-only mix. Can you hear £20K's worth of difference?

As we enter the mixing phase of our Reason *Studio Session*, we're going to take the opportunity to touch on an issue that has sparked much debate between dedicated Reason-only users and those who use Reason to augment another DAW setup. To wit: can a mix produced entirely within Reason measure up to one produced using a higher-end application? Or, as one **cm** forum user (see p26) posted: "Is it possible to produce a release-quality track entirely within Reason?".

Opinion on the subject is fiercely divided. Some users complain that Reason has a clearly identifiable sound, while others rightly point out that this is not necessarily a bad thing. Some lament its lack of support for favoured third-party plug-ins, while others appreciate the benefits of its all-in-one nature. And with so many other factors influencing the release-ability of your finished mixes, it all leaves many Reason users wondering if they should invest in another DAW for mixing their Reason tracks, or if their dissatisfaction with their current mixes might be down to other things…

And we've all heard stories about some acclaimed producers – Liam Howlett being probably the most well-cited example – having produced albums "entirely with Reason", but as pros are also renowned for being very guarded when it comes to revealing their studio tricks, we tend to take that kind of information with a liberal pinch of salt.

Experimental mixing

So, just for fun, we decided to carry out a controlled experiment, the results of which should lay this subject to rest – at least in our own minds! Here's the deal: first, we're going to mix the track we created in the first part of this *Studio Session* (see p6), using just our Reason 4 setup. In typical **cm** style, we'll take you step-by-step through the process in a four-page tutorial.

When that's finished, we're going to mix the same track again, this time using the crème de la crème of mixing rigs: a state-of-the-art Pro Tools system with the finest D/A and A/D converters money can buy, and a pile of top quality outboard and plug-ins. The difference in price between the Reason setup and the Pro Tools rig could buy you a tidy Jaguar XKR or put down a deposit on your first home, but it's results we're interested in. We'll compare the two mixes and find out if the sonic capabilities of Reason 4 are up to the mark, and if this ever-evolving software studio stalwart is capable of knocking out release-quality sounds that can make you a hit without having to sell one of your kidneys.

To keep the experiment fair, we'll control several variables. The mixing environment, monitoring setup and mix engineer will remain constant. We'll be mixing the same track in both setups, working with the source material we created on pp6-15 using the Reason Factory Sound Bank. Our 'artistic' objectives will remain the same for each mix, so at the end we'll be drawing our conclusions based purely on the sound quality of the results.

Our test mix-meister is Steve Evans, a Bath-based artist/producer. Steve is a fierce Pro Tools diehard and with nothing to lose or gain from the experiment, it will be interesting to see what he makes of the mixing experience within Reason. **cm**

Mixing with Reason

REASON SETUP

Propellerhead Reason 4
Apple Mac Pro
Digidesign 192 I/O
Prism ADA8 I/O
Spendor SA500 monitors
KRK V7000 monitors
KRK RP10S subwoofer
Denon domestic hi-fi
Mackie Big Knob monitor controller

▲In the mixing ring: how will Reason 4's mixing engine stand up to the mighty Pro Tools? We'll see!

One of the criticisms made about earlier versions of Reason concerned its sound. Some people said it was a little dull or woolly, and that you could recognise a Reason track from a mile away because of it. Reason 4 boots all those old ideas into touch with its improved audio engine and sequencer.

One popular myth states that if a piece of software employs 32- or 64-bit 'floating point' processing, it's impossible to overload. Whilst this type of processing has benefits, it doesn't guarantee to combat your own malpractice when it comes to gain structure and EQ.

Get into the habit of adding compression and EQ modules after your Reason devices, and ensure that the signal stays at its optimum level throughout the chain (ie, as loud as it can be without the loudest parts overloading an input or output meter anywhere in the chain). The Reason mixer only offers a broad top and bottom EQ for 'topping and tailing' the sound, so your tonal shaping has to be done prior to the mixer. If you have the computer muscle, the MClass EQ is excellent, and the smaller EQ modules are great for simple filtering.

Reason 4 has a full-spec MIDI sequencer and you can use a hardware controller to get hands-on – although we aren't using one for our Reason mix here. We *are* using a great monitoring setup and great I/O, which won't improve Reason itself, but will enable us to accurately hear what's going on.

◀Our producer Steve Evans keeps his Mac Pro in a separate room for noise isolation – standard practice in pro studios

▲The quality of the A/D conversion won't be an issue with either of our mixes today – we're using the acclaimed Prism ADA8 for both

Mixing is...

BALANCE AND PANNING
Try to find a good average level and position in the stereo picture for each musical ingredient that makes up the track – most importantly, the vocal, or whatever's playing the top line.

FINDING A COMPROMISE
Your mix needs to sound good on a variety of systems. A proper bass-heavy mix might rock your world on a big set of monitors with a subwoofer, but might sound dull or even distorted on normal speakers. The trick is to flick between systems. Sort out bottom-end shapes on the big ones, if you have 'em, and balance on the small ones. Check out how it sounds in the car, too.

BEING RUTHLESS
Just because you made it doesn't mean it's best for your mix, so identify and remove any unnecessary material. It's easy to over-egg the pudding when left to your own devices. Get an informed second opinion – bouncing ideas is usually helpful.

SOUND SHAPING
Each sound does a job within the mix, so give each one the correct treatment for its role. Know your genre – have you really listened and studied? If so, you'll know whether your vocal should be super-compressed and dry, or warm and dynamic with a dash of plate reverb. Maybe your drums should be roomy; maybe they should be distorted. Whatever the treatment, keep each element in its own territory, or your mix will be a mess.

TROUBLESHOOTING
Correct any technical or frequency-related problems – they won't just disappear. If the cones on your small monitors are bursting out of the cabinets when the bassline comes in, the chances are it's either too loud or it needs filtering to remove very low frequencies. Just like very high frequencies, these extremes can't be heard, yet they steal energy from your mix, or distract from the music (eg, an over 'essy' vocal). You need the speakers to be working efficiently.

Getting the Pro Tools mix down

PRO SETUP

Apple Mac Pro
Digidesign Pro Tools HD
Digidesign 192 I/O
Prism ADA8 I/O
Spendor SA500 monitors
KRK V7000 monitors
KRK RP10S subwoofer
Denon domestic hi-fi
Mackie Big Knob monitor controller
Mackie MCU Pro controller
2x DBX 165A vintage compressors
Audioease Altiverb
URS dynamics and EQ plug-ins
Waves Imager plug-in
Waves L3 Multimaximizer plug-in

▲ We'll be using the Mackie Control Universal Pro for total hands-on mix control

▲ These DBX vintage compressors will also be playing a part in tweaking our mix to perfection

The modern advantage

Over the years, the mixing process has evolved with technology and today it's almost indistinguishable from the recording or creation/programming processes.

Let's compare this with the traditional method of mixing that was in place 20 years ago. In the 80s, material was recorded onto tape, it – and additional sounds from outboard FX and sequencers – was fed into a mixer, and a mix was created, possibly automated (if you were in a very posh studio), and recorded onto a stereo mastering machine. Once you left the studio that mix was gone, and if you needed to recreate it you'd have to go back to the same studio with your recall sheets and computer disks and attempt to return the whole studio to the identical state. Believe it or not, you could get quite close!

To even attempt to emulate the current style of mixing would have required you to leave the song on the desk until you'd mixed it. Effectively this would give you what was known as a 'board mix', and interestingly, it would often be the case that these mixes, created at the same time as the recordings, would be more raw and exciting than the mixes painstakingly built at a later date. (As they used to say, 'release the demo!'.) In theory, the studio would then need to be locked up and left in its current state forever, so if you ever wanted to tweak the mix, you could pop back in, make your adjustment, and print it off.

Creating music in Reason or any other DAW enables this entire process to occur naturally, because the mix develops while you work and informs further creative decisions as you go, while still providing the opportunity to return at any point to any stage in its development.

Secret weapons

Nothing will improve the sound of your mixes, no matter what gear you use, as much as:

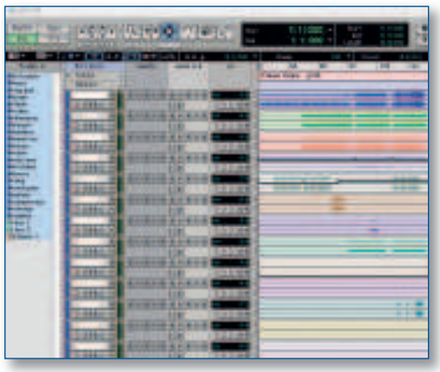
- Practise
- Well-produced source material
- Well-recorded vocals and instruments
- Knowledge of gain structure
- Making critical comparisons with other mixes
- A good monitor setup
- Listening in different environments

Before we begin laying down our Pro Tools mix, let's be absolutely clear about one thing. Pro Tools is a very different type of application to Reason. It has a wealth of features, including complex audio management functions, latency management, hardware insert delay compensation, multiple hardware I/O and bussing management… and the list goes on. Pro Tools dominates the professional audio world, and is available at many price points and with its own hardware. It's a beast of a system and we're not attempting to make a comparison between the two packages. In fact, with the use of ReWire technology, Reason is a valuable resource to many Pro Tools users seeking instant sonic gratification. (ReWire enables you to bring Reason device outputs up your DAW channels – ie, straight into Pro Tools – and target Reason's devices as if you were targeting soft synths or devices within your own DAW.)

What we *are* trying to determine here is whether the Reason sonic engine is ballsy, big, bright and spacious enough to stand shoulder-to-shoulder with music created on the most high-end system out there. We're concentrating on the sound, and ergonomics.

Many producers mix 'in the box'. This means that all mixing and processing occurs within the software, and the 'sound' of the software (if there is

such a thing) arrives at the speakers via some kind of digital-to-analogue conversion. Logic users, for example, would claim that Logic sounds different to Pro Tools, and the maths would support that claim. In this instance, we're using a Prism ADA8, widely acknowledged to be the best there is.



IMPORT

1 To start off, we export each element of our Reason track as an audio file and import them all into a new Pro Tools session. We need to ensure a good level at the Reason mixer before export, as this will make the most of the 24-bit sound engine (quiet sounds could suffer a little in detail). This is done without the effects we originally used from our two Reason 'house reverbs', as we'll recreate those later.

ORGANISE

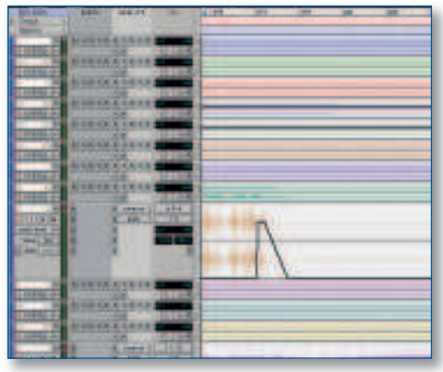
2 The audio channels in Pro Tools are organised into groups (drums and perc, basses, orchestra, lead sounds and effects). These can be groups purely for visual purposes, or groups that are sub-mixed to their own internal bus, possibly for shared treatment. Alternatively, they can be VCA groups, where the faders are linked for control purposes. These groups, different views, song position locators, selections and plug-in windows are all assigned to markers in the locator window, making navigation around the whole arrangement effortless.

SUBSTITUTE

3 We call up two instances of Audio Ease Altiverb 6, a convolution reverb that accurately reproduces the sound of actual rooms and gear. We use an EMT 140 plate and a roomy setting called **Allaire sunporch**. We use a hardware insert for a pair of real DBX165A compressors, slaved together as our stereo mix bus compressor. This signal comes back into the digital domain via our Prism converter, and the mix EQ is handled by a URS 7-band EQ based on a Neve model.

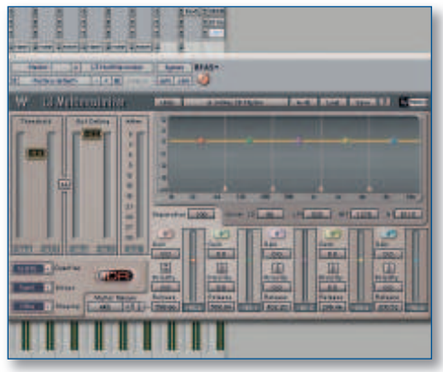
BALANCE

4 Balancing doesn't take long as we're using our Reason mix as a reference, and there was a minimum of volume automation in the first place. We use the Mackie Control Universal Pro to quickly get the faders into the right position, and then A/B the mixes until the starting positions for each sound are right.



AUTOMATE

5 The volume rides are recreated, as is the automation of the reverb splash into the last section. The subtle difference in the sound of the various applications is causing some sounds to have a different flavour in the mix, and an exact match for certain moments is difficult to achieve.



MASTER

6 The MClass Stereo Imager wasn't used on the Reason mix but a Waves Imager plug-in seems to warrant inclusion on the Pro Tools version. The MClass Maximizer is replaced by a Waves L3 Ultramaximiser. The soft clipping function of the DBX compressors and the multiband action of the L3 enable the mix to be made quite a bit louder in Pro Tools than it was in Reason without audible distortion occurring, or the dynamics of the track suffering too much.

EXPORT

7 Now the track is bounced down internally, so the posh I/O doesn't matter quite as much now – it's simply audio file against audio file.

Mixing requires...

▲ **Invest in some quality monitors if you want pro-sounding mixes – they'll reveal sonic flaws that a hi-fi setup won't**

A RELIABLE LISTENING ENVIRONMENT
If your room is boomy at a particular frequency, you'll end up instinctively reducing that frequency in your mix so that the sound is well balanced in your room. This means your mix will be missing a certain amount of this frequency. A tonally balanced room that's not too live is ideal – and hard to find!

GOOD MONITORS
If there are problems with your mix, good monitors will reveal them. A pair of crap hi-fi speakers is an asset in terms of hearing the mix in its destination environment, but it will not reveal clicks and high-end distortion, or low-end information. Get a set of reputable studio monitors for critical listening.

CRAP MONITORS
In addition to your critical listening monitors, you should test your mix on monitors that represent the systems your music is likely to be played back on. Again, that pair of crap hi-fi speakers is valuable for re-creating the likely listening environment for your mix – even very small systems with the 'bass boost' on can be a good reference for comparing your mix to the competition.

MONITOR SWITCHING AND CONTROL
Switching between monitors should be effortless and the volumes should be reasonably close in order to make useful comparisons. Otherwise, by the time you've gone round the back to unplug cables and turn your amp down, you'll have forgotten what you're listening for.

THE RIGHT TOOLS
EQs, dynamics processors, effects… these are your biggest allies when mixing. Powerful and musical EQs will give you tonal control. Compressors and limiters are essential for keeping sounds in their place. Reverbs and delays help create artificial space between the speakers, and chorus, phaser and tremolo effects help produce subtle motion in sustained sounds. You need all of the above to create a half-decent mix.

▲ **A device that enables you to switch effortlessly between monitors will save all that scrabbling around on the floor**

▲ Steve's certainly not about to give up his Pro Tools rig, but he wouldn't be without Reason either

Summing up

So, with both mixes in the bag, it's time for a reckoning. What does mix producer Steve make of the results? "The Pro Tools mix has the edge for me," he says, "but not by much. It's a little brighter, more open, a bit more 3D and has a lower extension in the bass, but… not by much!

"The law of diminishing returns comes into play here," he notes. "To squeeze the very last drop of quality from a setup requires increasing effort and expenditure. The difference can be very small. In this instance, a good mastering engineer could bring the Reason mix to sparkledom too – it would certainly be good enough to release. Some 'golden ears' might be able to tell the difference, but who cares about that at 4am on Sunday morning?"

So, it looks like the answer to our original question is a resounding 'yes!'. Check out the two mixes for yourself, if you haven't already – they're in the **Tutorials/Track** folder on the CD – and see if you don't agree.

Now, just before we go… we know we said we weren't going to make any direct comparisons between the two systems, but just out of curiosity, we can't resist asking Steve, as an self-confessed Pro Tools die-hard, how he'd rate the mixing process itself using each setup. "Pro Tools wins on ergonomics, the ability to use third-party plug-ins, its hardware inserts, its navigation – especially locators, markers and views, and the sound of its internal bussing. The Pro Tools system has the muscle, and so it should have at the price!," he admits frankly.

"Reason wins on the quality of the toys included – although a pitchshifter or complex delay would be a welcome addition. The ability to get a vibe quickly, its mobility, the fact that there's no hardware dependency, the excellent preview in place facility, and, of course, the price, make it a really competitive program. As an addition to my usual system I couldn't do without it. When it comes to an 'in the box' music machine, Reason dumps on the pro rig from a very great height!"

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From the cm forum

ROBPARRY POSTED THE QUESTION:
Reason: is it enough to produce a track for release? I just use Reason on its own… What I produce isn't the 'sound' that I hear on trance music that's released… is this because of Reason alone, or can better EQing and compression do the trick? Is it worth sticking with Reason or should I move on and learn a whole new platform like Cubase or summat to get a professional finish?

DAGNAMSKI REPLIED:
Depends how good you are at using it. It's normally not what but how.

VIRUS RESPONDED:
I'm listening to an album right now that has some tracks coming straight out of Reason. I think it's accepted that Reason is best used ReWired into another host for mixing down, but it's entirely possible to make release-quality music without any other software.

DELPHINE WROTE:
It's not an app which many people would consider using all by itself for getting the best possible sound; obviously it lacks so many things. That's not to say you can't get a pro-sounding track using it and nothing else, just that a lot of people would choose to ReWire or mix with an app with plug-in support. You can do a lot of good things with Reason, though, because of the way in which you can route audio. I just don't think mixing down is one of its strong points at all.

NEMMO COUNTERED:
Some people can sing and make a tune. Yeah, Reason is good enough.

DOGBOY73 OFFERED:
I ReWire Reason to Tracktion 2. That works really well. If there were some reason that I couldn't then exporting the audio for use in Tracktion would be an option, but I prefer using ReWire so I can tweak things in Reason at any time.

NEMESIS69 SAID:
It all depends on how you use it. Since you've started with Reason you should stick with it – no point jumping about with other programs if you can't even appreciate one. Personally, I find using Reason a breeze, and I find it professional enough to handle a fully finished track.

DOGBOY73 CAME BACK WITH:
Another thing I would add with regard to producing a complete track in Reason is that to get the best out of it you have to put more in, ie, don't rely on the Factory Sound Bank Refill alone for resources. You could source some high quality sounds and build your own sample sets.

D-MUD SAID:
I do almost everything in Reason these days. I then export each track as .wav and import it to Cubase, where I can mix better. I tend not to use acoustic instruments in Reason, but anything else is as good as you can get.

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