MIXING IN THE BOX

When you've finally finished tracking and the focus turns to digital mixing, where do you start?

Text: Michael Carpenter

▶Mixing… anyone who's ever committed something to tape (or hard disk) and then recorded something alongside it, eventually has to 'mix it down' in order to listen to it in the car, on the MP3 player or the tape deck. Like every aspect of the recording world, the process of mixing has undergone extreme and radical changes over time. The most recent revolution has seen many people abandon the conventional analogue mixing console in favour of computer hardware, mixing directly within their DAW of choice – a process often dubbed mixing 'in the can' or 'in the box'.

Some people have taken to this method like ducks to water, many of them moving across from the analogue domain, bringing with them their considerable mixing skills and working methods. Yet, for many, this 'new' process is by no means a walk in the park. Mixing in a DAW often proves far more complex and confusing than it first appears. There are so many variables, so many options, so many approaches – and all of them reversible – that mixing can quickly become chaotic and haphazard without a firm 'vision' to guide you through. Perhaps by now, it's high time we established some guidelines to help us through the minefield, to help make the best of this approach we call 'mixing in the box'.

NO VERSUS

Before we dive headlong into this discussion, I want to make it plain that this article isn't going to become a rant on the pros and cons of mixing in the box versus mixing on a traditional console. If you're looking for a discussion of that nature, you're going to be disappointed. That argument is about as useful as 'PC vs Mac', or 'Beatles vs Stones'. Mixing both 'inside' and 'outside' a computer has pros and cons too numerous to mention here. Some of you perhaps are lucky enough to have a *choice* between working on an analogue console or a Digital Audio Workstation, and anyone in this luxurious position probably know these strengths and weaknesses better than most. This article, meanwhile, is mainly aimed at the majority of *new* DAW users learning to mix in the box for the first time, and professional and semi-professional engineers trying a *different* approach.

Personally, I've mixed in both the analogue and digital domains over the years, but these days I'm firmly entrenched in the 'mixing in the can' camp, having decided, at least in this phase of my career, that mixing in the box is the way to go.

TOOLS OF THE TRADE

Ultimately, making music should be about getting the best results we possibly can with what we have at our disposal – regardless of whether we're making records in our bedroom or The Caribbean. And in respect of this fact, one of the first points I'd like to make before we even begin is that the things we surround ourselves with in our studios are *just tools*. Great music is made by your ears, your brain and your hands (and feet). *You* make the music and despite what the 'latest & greatest must-have' tools might suggest, you're *not* a slave to their functionality or subservient to *their* working methods. You're only ever limited by your creativity and this is something we would all do well to remember, especially when we hit the inevitable speed humps along the way.

PEELING OPEN THE CAN

While this relatively new way of mixing has opened up a whole new world of possibilities in recent years, it's also brought with it some problems that traditional analogue mixing rarely experienced. The most glaring blight on contemporary recording methods is the lack of decision making. People nowadays seem to record and record and leave much of the decision making 'til mix time. So the first thing we need to address here is *making decisions* and *managing files*. Let's get cracking.

Whenever I'm sent a session to mix, I always encourage the artist or producer to give me a *finalised* mix file, rather than one that includes all the 'alternate takes' or extra things that 'I might just want to see if I can use'. Before you start mixing, it's time to be brutal. If you've been carrying all your 'alternate' drum takes around with you since the first day of recording *just in case* – and haven't listened to them since – now is the time to consolidate (or render) the drums tracks and delete old takes. Similarly, if you've been recording with four mics on a guitar but are comfortable with the sound through one in particular, it's time to lose (or at least submix) those other channels. If you *know* you only want tambourine in the choruses but you played it all the way through regardless, *just in case*, now is the perfect time to chop it up. And if you've just put down a bunch of fruity 'ideas'… it's time to commit to them

(or not), and decide *once and for all* what will ultimately comprise your mix. If we're going to mix this puppy it's time to work out what's 'in' and what's 'out'! (I recently received a session that had a ridiculously large amount of inactive tracks that took me five hours to reorganise into a manageable mix condition. By the time that was done, I'd had enough and had to come back to it fresh another day.)

MIX PREPARATION

Within the pages of this very magazine, we've all read articles that feature some of the biggest mixing names in the world. The commonly recurring theme amongst many of these articles is that the engineers often don't start mixing until the session file (or tape) is in a *decisive* and *manageable* fashion. Many of the choices about what's 'in' and what's 'out' have been made *before* the mix sessions begin – not all of them, mind you, but *nearly* all of them. This is largely a hangover from the analogue tape era, of course, where most recordings were limited to 24 tracks (or occasionally 48). Back then, when a song was mixed, all the recorded channels were laid out on a console in a manageable way. Moreover, if an instrument was on tape, that sound was almost certainly *meant* to be in the mix. The 'limitations' of track count were such that all the musical arrangement and instrumentation decisions were made conclusively *throughout the recording process* – this was almost second nature to anyone raised on analogue tape.

Nowadays, with the advent of digital recording and 100+ channel counts, a mental shift has taken place. People are developing the habit of making all their musical decisions later, under some grand assumption that this is invariably a better approach, and one that always produces a superior outcome. But does it? Has piling up all the decisions about arrangement and performance until the end of the recording session really been proven to produce a better musical outcome? And when, pray tell, will this burgeoning pile of decisions be made? During the mixing process? Certainly not. The reality is that this so-called 'approach' of putting everything off until later is, in some part, an unfortunate side-effect of the digital format.

No wonder people find mixing in the box so difficult… they never give themselves the chance!

So, if you're mixing inside a DAW for the first time, heed some of the working methods of the past and decide what's 'in' and what's 'out' *before* you start mixing – it will save you more grief than you realise. Be brave, be decisive and make your sessions manageable.

LAYING IT OUT

The next small (but important) step is to set up your mixing session in a clear and logical manner. As many mixing engineers have often discussed, your mixing board should be laid out in an intuitive way, whether it's virtual or not. By this I mean; develop a pattern of where things sit on the mix window, one that's personal to *you*. I tend to lay things out in the way they were recorded – generally speaking – with the rhythmic foundations on the left of the mix window (drums, loops, percussion) and the remainder of the rhythm section (bass, rhythm guitars/keyboards) to their right. Musical colours (lead instruments, hooks) follow on somewhere in the middle and the all-important lead vocals (and backing vocals) about two-thirds of the way across the mix window. Finally, global effects returns and the master fader bookend the far right-hand-side of the 'console'. This works very well for me, only taking about five minutes *at the start of a mix session* to setup. After that, I never have to go searching for things again. The order of things isn't important – my studio partner puts lead vocals on the left and master faders wherever he likes – it's more about where *you're* comfortable placing things, so that you don't have to go searching for something when you're working. It should be as intuitive to your style of mixing as you can make it. Don't have a *mixing style* yet? No worries, just organise your channels in the meantime so that all the guitars are together, all the voices are together and like-instruments aren't scattered to all corners of the mixer.

While you're arranging your mix window, if you have certain buses and effects you use as starting points on every mix, take two minutes to set them up *before* you start. Shove your drum submix next to the drum channels and route

Clear and concise: The mix window on this ProTools file makes good use of colour. Note the 'like-instruments' grouped together into clearly defined areas, to prevent against 'searching eyes' syndrome.

Level meters and a basic spectrum analyser plug-in can work wonders for gauging tonal imbalance in a mix.

them appropriately. If you have a dedicated effect, like a particular guitar delay, for example, set that up next to the guitar track. Set up your delays and reverbs so that when it's time to attend to them, you're tweaking rather than 'plugging in'. If you have plug-ins you always use, load them up and bypass them. It's not that this saves a lot of time, necessarily – none of this takes much time to do – but it really does help the session flow when things are already in place. It means less thinking and more listening.

RULE BOOK?

One of the best things about mixing in the box is that there is great potential for radically inventive mixing. There's no traditional way to do things, as such. You can certainly approach mixing the way you would on a traditional board, but a smart mix engineer would only use that as a starting point. With pretty much every parameter of every channel and plug-in automatable these days, you can literally try anything. And you can't really blow up a channel, fry a compressor or wear out the tape. There are, however, some general guidelines you should keep in mind.

GAIN STRAIN

Many people would disagree, but gain structure is *still* vitally important in the digital domain. To that end, try to resist pushing things 'into the red', either by overloading the output of plug-ins or by overloading buses (unless of course you *like* that sound – which I'd find hard to believe). All DAWs have a gain plug-in to help reduce the output of cumulative insert plug-in action. And with plug-ins themselves, I always find it handy to keep the level of the effected sound similar to that of the bypassed version. This stops the channel level from getting out of hand, and makes comparing sounds much more manageable and informative. But the biggest crime is committed at the master bus output. Now, smarter men than I have been debating the effect of the master output level for a long time now. I'm not going to weigh into that here, except to say that I have always had very pleasing results by getting things pretty close to 0dB at all times. All DAWs have a way of checking how close you're getting to the digital ceiling, so be vigilant while you're mixing. It's okay to give your master fader a dB or two boost or cut, but if you find yourself having to crank (or cut) your master level by 6dB or more, then you really need to look at how you've managed your levels across the whole mix.

Speaking of which, I'm finding a basic spectrum analyser plug-in and faux VU meter plug-in to

AN ALTERNATIVE MIX LAYOUT

Andy Stewart: When I'm mixing 'in the can' I organise tracks quite differently to the way Michael has described. By the time my DAW files are ready for mixing, the order in which things are placed bears virtually no relation to the order in which things were originally recorded. This is partly due to the fact that I no longer have a set order for recording anything, and partly because I've long since abandoned the concept of mixing from 'left to right'. (This is obviously my personal preference – which works for me but may not bear any resemblance to someone else's approach.) These days, a mix is very open-ended to begin with, and I'm just as likely to start mixing the vocal first, as I am the drums.

One thing I'm fairly fastidious about is the arrangement and placement of 'like instruments' into coloured groups. So, for instance, all the guitars in a mix file will invariably be colour-coded, say, blue, while all the vocals might be green or orange. The colours aren't always the same – vocals might be red on one song and brown on another – but 'like instruments' always nestle together somewhere on the mixer, and all share a common colour. This becomes especially helpful when I'm tired or mixing for long hours. I have a motto that says: 'something only works ergonomically if it still works at 2am'. So when I'm tired and trying to finish off a mix, the last thing I want to be distracted by is searching for that stray percussion loop that's accidentally hiding in amongst some rhythm guitar parts. When all the instruments are gathered together in colour-coded areas *as part of the mix preparation*, it's much quicker to find that drum loop if you only have to search for it amongst all the other 'red' channels. So I'll always gather guitars from wherever they ended up during the tracking phase into one area on the mixer and associate them by colour. That way, at 2am, I'm not having to read the tiny writing at the bottom of the channel strips to work out what's what. Rearranging things like this also helps me familiarise myself with the instrumentation and guides me as to what instruments might demand the most creative (or restorative) attention.

Another thing I like to do with a DAW mixer is arrange it a bit like an SSL console, with VCA masters in the middle and the master fader immediately to their right, again all colour coded. Generally drums, basses and (occasionally) guitars are situated to the left of these master faders, with vocals, BVs and master effects returns to their right. But, of all these tendencies, the only thing that is *always* the same for me is the position of the main vocal fader: always under my right hand in the analogue domain, and on an SSL that usually means the first channel strip immediately to the right of the master fader. In a DAW mix window it's the same: immediately to the right of the master fader.

One last thing I always try and maintain is the discipline of having all my sub-grouped and/or paralleled drums, vocals etc immediately to the right of whatever channel (or channels) is feeding them. This is harder to manage in the analogue domain, of course, because you can't always predict what you'll want to treat this way beforehand, but in a DAW I always place that hammered stereo drum return immediately to the right of the kit, or that highly compressed vocal immediately to the right of its supply channel. I also like to organise various parts within a group of instruments in the order in which they appear in the song (from left to right). So for instance, if there are five guitar parts, I'll try and put the ones that chime in first on the left of the collection, and the outro guitar that voices last, on the right… but not always!

be more and more vital with every mix. Learn to understand what these plug-ins are telling you and see the benefits they can bring to your mix. For example, solo any instrument and see what it's doing below 100Hz on the spectrum analyser. If you're acoustic guitar is bouncing around at 60Hz, a simple hi-pass filter will help clarify your mix substantially. And good virtual VU meters, calibrated correctly to actually reflect what's happening on your master bus, will show you activity that your ears or speakers may not be picking up. If lots of the action on the VUs happens when the kick drum strikes, then maybe you're pumping too much bottom end into your mix.

One other thing – remember to always consider the adverse affects of plug-in latency. If your DAW doesn't have automatic latency compensation, the results can be poor tone, weak dynamics and an unstable stereo image. Find out how your DAW displays the numeric value of each channel's accumulated plug-in latency and keep an eye on them. Remember, a 64-sample latency on a snare drum is going to *radically* effect the phase of your relative drum tracks, and hence, your sound!

AUTO-MATIN

The next point involves automation. Here again, everybody has a different style or approach; none of them 'right' or 'wrong'. Some people are comfortable 'mixing as they record', and this can be a really powerful approach, with the final mix then amounting to little more than a fine-tuning process. Others prefer to work 'old skool' and start their mixes afresh. But for mine, automation is so readily available and so easy to use that I suggest diving right in with it. When I'm mixing I prefer to establish a general balance and get more specific with automation later. But early on in proceedings, when I'm going through sounds, I'll sometimes hear something that I know needs immediate attention; maybe there's a snare drum hit that jumps out or a distractingly loud note on a piano. If so, there's no harm in taking 10 seconds to put a little volume ride over it. Or you might find that the lead vocal is consistently too loud in the choruses and take a moment to put a quick, broad automation dip across it that you can fine tune later. The thing about mixing in the box is that once you get used to how *you* work, this sort of thing can be *very* quick and help keep you focused rather than distracting you from the important things that can make good mixes into first class ones.

FINISHING OFF

The final point I'll make about virtual mixing is to learn to actually commit to a finished mix! One of the worst side effects of mixing in the box is how easy it is to tweak – and tweak… and tweak! Try to keep some perspective and ensure the changes you're making to the mix are actually producing a difference, and that you're not just fiddling. If you're up to draft 15 on that latest mix, you're probably more than 10 drafts too far gone! Certainly, make changes as you hear your mixes in the real world, but don't over-mix your tracks. Learn when a track is really cooking and sign off on it. And remember, just because it's easy to open up your session yet again and turn the hi-hat up 0.3 of a dB in the 3*rd* verse, doesn't mean you should!

Hopefully there are some guidelines here to get you thinking about how you manage your future digital mixing sessions. I've consciously tried not to talk specifically about how to mix – smarter, more talented men than I have written *lots* of articles about mixing techniques. Just remember to push yourself and be as creative as you can. I've heard truly talented mixing guys pull incredible mixes with only stock plug-ins, and those with every plug-in under the sun never finishing things to a releasable level. So get in there, understand what you hear, stay out of the red and make amazing mixes. We've never had better tools at our disposal than now! ■

Michael Carpenter mixes in the box at his Love Hz Studios in Sydney. You can send him an email at **info@mcarp.com**. Plug into the studios website at **www.lovehzstudios.com.au** or bus over to **www.myspace.com/lovehzstudios** to hear some of his work.