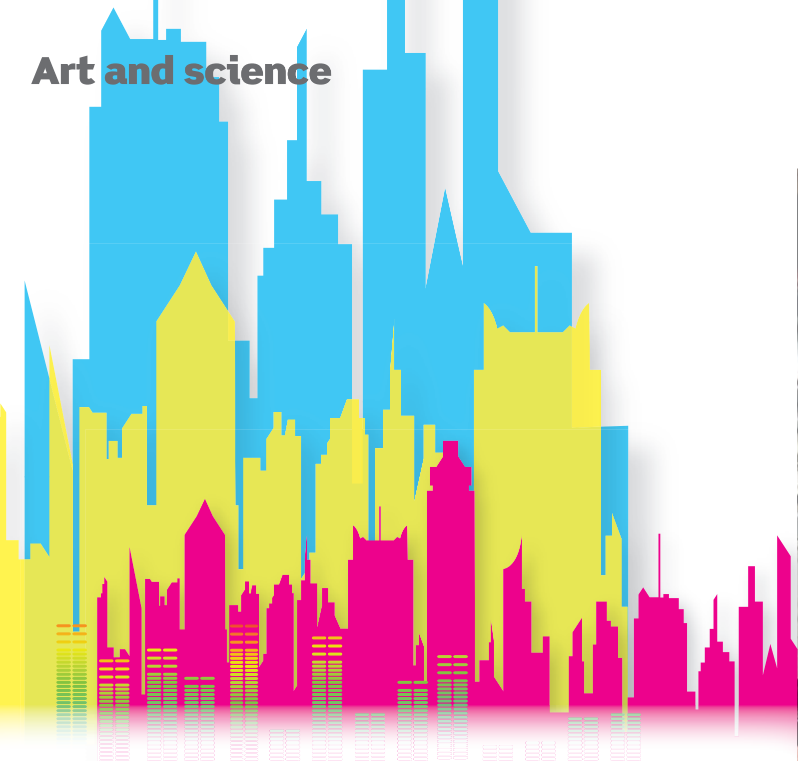
The art & science of mixing

Before we get hands-on with the myriad mixing techniques presented throughout this cm Special, we need to take a moment to think about what it is we're doing – and, indeed, why



In the bad old days, a mixing desk like this would set you back the price of a house

The old school of music production wisdom says that no matter what gear and software you throw at a track, if it was crap to begin with, it can only ever be better-produced crap. The moral? A good tune that is badly produced is ultimately more worthwhile than a bad tune produced well.

Except that these days that's not strictly true. While we would never advocate releasing a string of exquisitely produced but mediocre songs, the fact is that in today's climate, people simply won't stand for badly recorded music. And the secret to producing music that sounds as good as it can is simply good mixing.

Over the next few pages, we're going to warm up to our subject by taking a look at what mixing entails, what makes a mix 'good' and what types of mixes there are. Then, over the course of this magazine, we will examine the techniques in question and see how they're applied. Let's get things started.

What is mixing?

It's all well and good saying you're about to do a mix, but what does that actually mean, and what's the best way to go about it? At its simplest level, mixing involves balancing the elements of the music so that they're both individually present and making the best contribution they can to the overall track. At its most complex, it can involve replacing elements and sounds, restructuring or editing the track and sculpting both the individual and overall sounds using automation and a multitude of effects. Either way, some elements will end up being quite audible while others won't, and in some cases you may have to change levels at certain points to achieve your objective.

A useful analogy is to think of a mix as being like a city skyline. When you look at it, you pick out different specific landmarks (Empire State Building, Millennium Wheel, Eiffel Tower) that identify that skyline, and in fact, most cities have a number of such tall and distinctive landmarks. But if any one of these were to stand on its own, without the backdrop in which it sits, it would just be a building.

One of the most powerful mixing tools ever devised

> "THE AIM IS TO CREATE A COHERENT YET EXCITING AND DISTINCTIVE SONIC LANDSCAPE"

On the mixing landscape, some of these elements will be the landmarks; others will make up the backdrop

And so it is with a mix. It's a sonic landscape, with backdrops, highlights and some parts that lie in between. And the aim when you're mixing is to create a coherent yet exciting and distinctive sonic landscape. But how do we know what that consists of?

What makes a good mix?

The strange thing about mixing is that it's highly subjective in terms of preference, but highly objective in terms of quality. Most engineers and producers will be able to agree about whether or not something is 'well produced', but might not agree as to whether it is sonically to their individual taste.

In this respect, it's probably easier to define a 'bad' mix first, and there are a number of common failings. For example, one key

element, such as a bassline, might be overpowering the others to the point where it obscures them. The balance of the sounds might be skewed. The vocals might be inaudible. There might be hiss. It might be too trebly and hurt your ears. The levels of individual elements might fluctuate so that they're audible sometimes, but not consistently. You might not be able to make out individual parts or elements. It might be too bass-heavy and dull. Or it might be really boxy. Or clinical. The list goes on!

So that's bad, which means that clear-sounding musical parts that can be distinguished from one another (when required), and that allow you to hear what's going on, thus demonstrating each element to its full potential, while combining to form a pleasing, exciting and consistent whole, are good. Okay, so it's not exactly a catchy definition, but you get the idea.

But if good isn't good enough, and you aspire to greatness, you need to go a little further. Each sound must not just be clear, but sound great and stand up in its own right. The mix should encompass great sounds, taken from right across the frequency range. Bass should feel weighty and punchy, highs should sound exciting and smooth, the mid-range should be warm and musical. There should be interesting variation throughout, whether in energy or arrangement. And all of this is before we even start looking at the variations between genres. But to pull it all back to our skyline metaphor, the aim is, undamentally, to understand which elements are the backdrop, which are the landmarks, and which are powerful distractions and complements to the main landmarks, and then present each as such.

Why is it important?

So, that's what makes a good mix. But why should you care? Well, simply, because people will appreciate your music more if you do, and will probably overlook it if you don't. You may wonder whether Joe Public possesses the skills to critique your masterpiece, and obviously most of the Joes out there don't. But as producers or engineers, it's vital to remember that normal people don't hear music the way we do. We are anoraks, trainspotters and geeks. We don't hear a complete song, we hear a melody, harmonies, basslines, beats, reverb, delay, filtering, panning, levels, arrangements. For us, a song is the parts of its sum. We might hear a track and think, "Great melody, but you can't hear it properly," or, "It would be great if only there was some separation between the lead parts". Normal people just won't do that. They will have a sense that something doesn't sound right, and won't have the inclination to wonder what, potentially dismissing an otherwise great track.

And of course, the bar is much higher now. Technology has put

> "DON'T BE AFRAID TO PUSH BOUNDARIES, BUT AT THE SAME TIME BEWARE OF MAKING YOUR MIX TOO GIMMICKY"

Keeping your perspective

Getting a good mix can involve many specific techniques, but maintaining an overall perspective can be difficult. Yet in many respects this is the key to getting it right. Here are some hot tips to keep you on the straight and narrow.

1 Take some time to set up your mixing environment. If you're going to achieve consistent mixes, you need a predictable space. Position your monitors properly (at ear level and not too far apart). Try to reduce the room ambience (having lots of stuff in the room can help with this). Finally, try to reduce visual distractions (dimming the lights can be a good trick).

2 Vary your monitoring levels. Once you get into the minutiae of your mix, it's easy to work for ages without even thinking about the monitoring levels. Try working for short spells at different levels (say, quiet, medium and loud). Each will offer you a different idea of the balance, giving you a better overall picture.

3 Avoid mixing by committee. Artist and band input can be very useful, but at the start of a mix give yourself a few hours at least to mix on your own. It's much easier to try things out without interruption, and during the first few hours you'll be fresh and able to get the basics sorted out.

4 Take a break. Mixing can be quite an all-consuming activity, and time will tick by without you noticing. Force yourself to take a break and rest your ears, as the more tired your hearing gets, the less productive you'll become. Also, try to avoid mixing for 14-hour stretches as you'll just end up with a 'studio hangover' the next day.

5 Use different monitors. It's good to have at least one alternative monitoring option in your studio, but this doesn't have to be a pair of expensive monitors. Consider computer monitors or a portable stereo. Alternatively, buss down a work-in-progress mix and listen to it in different environments such as a car, in the kitchen or on an MP3 player.

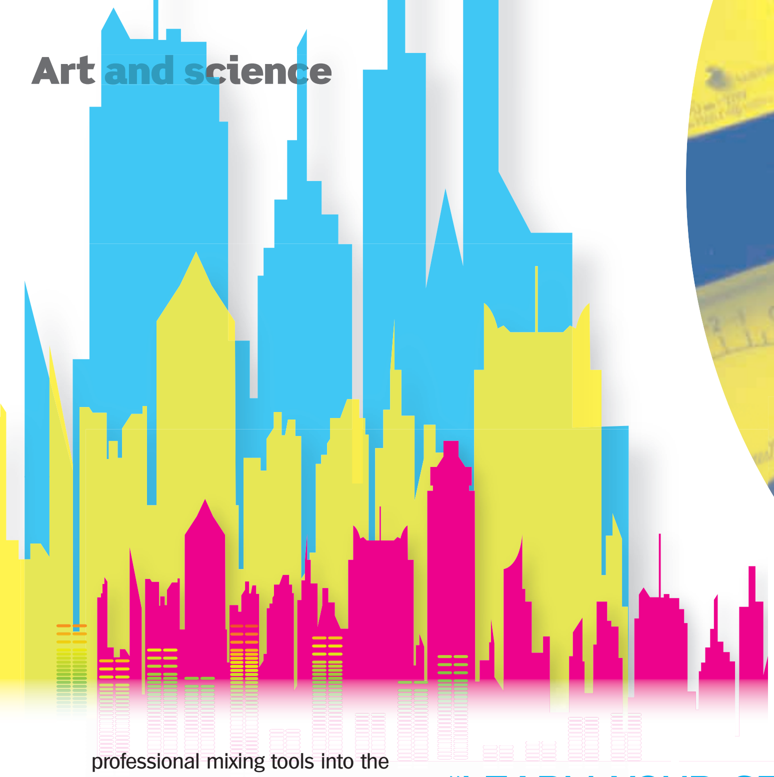
6 Compare and contrast. If you're aiming for the sound of an existing track or artist, line up some examples in your arrangement window. This way you can quickly switch between your mix and theirs and play spot the difference. With a bit of practice you'll soon recognise how the various frequencies of their production slot together.

7 Beware of extremes. Music software includes such an array of powerful tools, it's very easy to go way too far. As a rule of thumb, if you find yourself applying large amounts of the same kind of EQ to everything, then it's quite possible you're not hearing things properly. Be aware of what you're doing and take time to re-evaluate if necessary.

8 Trick yourself by doing something else. At times it can be useful to not 'listen' but just 'hear' the track you're mixing. Leave the door ajar, go and make a cuppa, generally distract yourself and see how the track sounds up against some real life interruptions. For vocal tracks, this can really help with vocal levels.

9 Phone a friend (or email them an MP3). If you think your mix sounds rubbish, be brave and play it to someone else. It's surprising how levelling other people's opinions can be, and their objectivity may spot something glaringly obvious. Who knows, they may say it sounds amazing.

10 Don't get wasted. It may sound boring, but booze and drugs do all sorts of strange things to your hearing. You'll probably be wasting your time if you mix when you're on one.



professional mixing tools into the hands of anybody with a Mac or PC, and on a scale that even reasonably equipped pro studios couldn't dream of as recently as the late 90s. So the modern world is now full of well-produced and mixed music, meaning that a badly mixed track sticks out like a sore thumb, even if it's not obvious to the untrained ear why.

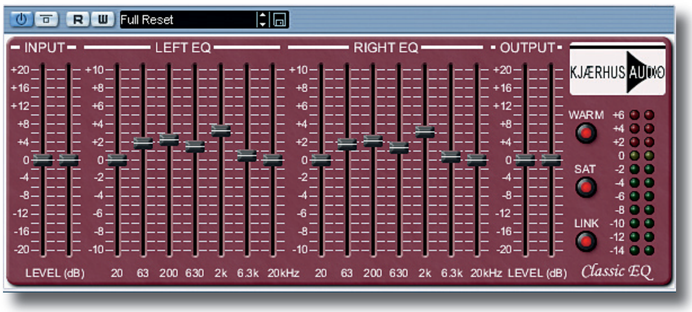
Can I achieve it?

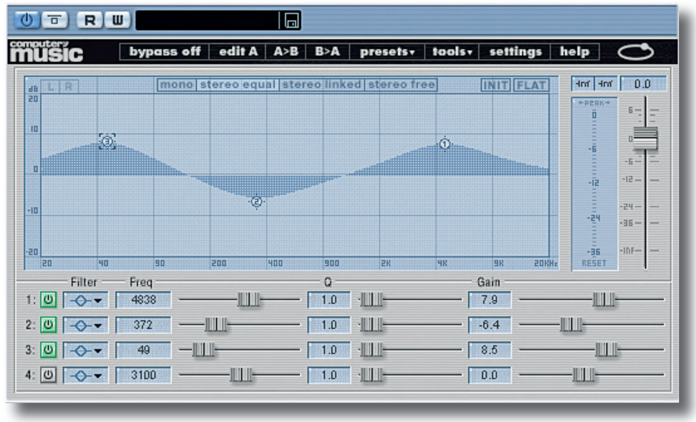
But can you really achieve such professional results using just a computer? Put simply, yes. There's no reason why mixing a track in a computer should be any different to mixing it on a mixing desk. However, our computers are so flexible, at times it's akin to being in a technology sweet shop, and the temptation for a good troughing can be strong. Don't be afraid to push boundaries, but at the same time beware of being too gimmicky. Popular music is littered with tracks that overused the latest gizmo, and often they don't weather well. If you want your track to have legs, concentrate on the fundamentals and use the latest technology to enhance rather than destroy your music.

"LEARN YOUR GENRE INSIDE OUT AND ASPIRE TO EMULATE THE BEST EXAMPLES AS CLOSELY AS POSSIBLE"

Finally, it's often said that you can fix things in the mix, and with today's gadgetry it's certainly tempting. But if something sounds rubbish at the recording stage, it'll most likely still sound rubbish when you try to mix it later, and that means lots more work. Not only that, but as we've established, a mix is the sum of its parts (and then some), and while some mediocre sonic cracks can be papered over (see our *Fix It In The Mix* tutorial for more on this, starting on p26), the more of them there are, the more people will be able to perceive the joins.

Of course, the more tracks you mix, the more you'll learn what can be fixed at the mix stage, and how many parts you can get away with on one project before the whole thing starts to suffer too much.





▲ Tools like these fine EQ plug-ins can help fix bad recordings in the mix, but that approach involves a lot more work for the producer

Genre and context

Another key aspect of mixing that comes from experience is knowing about the variations in context and genre. While a good clear mix is always going to be a good clear mix on any system, certain environments lend themselves well to certain types of mixes. An obvious example is club music,

where bass and treble are prized while midrange is ear-splitting, and often really good club music will be mixed specifically for play on 50kW systems. Pop music, on the other hand, might have the vocals and other mid-range elements mixed very high so that they stand out, particularly when heavily limited for radio and TV play. Ultimately, it's up to you to learn your genre inside out and aspire to emulate the best examples as closely as possible.

And there are technical differences to be aware of, too. A multichannel 5.1 mix, for example, has certain pre-determined requirements (not least a six-channel master). But even the humble stereo mix could find its way onto vinyl or a mono radio broadcast as well as CD or MP3. Equally, for any mono playback (radio included) the summing of the left and right channels can have unpredictable results if there are big phase inconsistencies between each side. The most likely outcome will be a balance different to the one you spent hours perfecting, as phasing at certain frequencies causes certain sounds to cancel themselves out.

Process and procedure

So how should you approach a mix? Well, some people mix as they go, without even thinking about it, and this is probably the most common method with very production-driven music (most electronic music, for example). Others might leave it until last, or even get a separate engineer or producer to handle mixing duties. Whenever you tackle the mixdown, though, you can have a great deal of fun with it, and it can be used to transform a track.

But ultimately you must remember that mixing is a process, with a very specific outcome. Within certain boundaries, that outcome is in your hands, and the fact that mixing styles have changed over the years is testimony to the fact that things evolve through experimentation and imagination. But if you want other people to take your mix seriously, it has to conform pretty much to what they're used to hearing, albeit with your own personal twist. With this in mind, your fundamental question should always be: Does it sound like a record/CD/MP3 to a passer-by? Or more specifically, does it sound like the tracks you like and admire in your chosen genre?

Sum of the parts

If all of this sounds deceptively simple so far, that's because it is. But so is riding a bicycle or swimming, once you know how! Your first task on the path to great mixing is to form a pretty clear idea of what you're trying to achieve. Once you've done that, you can benefit from all the tricks and techniques we're about to show you, and achieve that perfectly formed sonic skyline.

"AVOID MIXING BY COMMITTEE. GIVE YOURSELF A FEW HOURS' HEAD START, AT LEAST, TO MIX ON YOUR OWN"

Before we start, though, a word of advice, and yes, it's another metaphor. Of every other art, pastime and profession practised by man, we reckon the closest thing to a mix engineer is a sculptor. When you mix a track, you're shaping it, chipping away, here and there, to transform the raw mass of material in front of you until it matches what you have in your head. So as long as you have a clear idea in your head, some decent raw materials, the right tools and the skills and experience to make your material match your conception, then an exquisitely sculpted mix is inevitable. **cm**

Get the message

Not many successful session musicians can claim to have made the lateral leap to in-demand mix engineer. Fraser T Smith is one of the exceptions, so we thought we should ask him about the secrets of great mixing.

"Space, depth, clarity, punch and excitement, but more importantly, the ability to convey the message of the song to the listener," he begins. "I try to remain pretty faithful to what's already there – I assume that [*the clients*] have already sweated over each decision and just want me to enhance what's there. If something's not working, though, I'll always offer suggestions."

And despite differences in style, he thinks these principles transcend genre. "Obviously the immediate skills required to mix a drum 'n' bass record are different from mixing the Moscow Symphony Orchestra, but the principles are the same."

Fraser's DAW of choice is Pro Tools, as he explains: "At any point the phone could go and there's an A&R man wanting the snare turned down by 2dB, for example. Within Pro Tools, I can turn this around in five minutes… I find the automation and overall sound incredible, and 7.2 offers more features than a £100,000 SSL."

So, after all that, how does he know when his mix is ready to go? Simple: "I get to the point where I'm able to zoom out of the thousands of tiny things going on in the mix and just vibe on the song."

Check out Fraser T's work on a variety of upcoming projects, including Kano, Jamelia, Mutya, Plan B and new artist Jonas

Conveying the song's message to the listener is ultimately the most important goal of mixing, according to Fraser T Smith, who has achieved success as a mix engineer working alongside many top acts