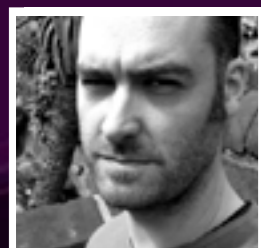


Mastering basics

Following a few simple step-by-step objectives will help anyone taking their first steps in mastering. Mark Cousins outlines the essentials.



BIOGRAPHY

Mark Cousins is a composer of production music for BMG/Zomba. His work has been used on BBC, ITV, Channel 4 and Five.

Although some unscrupulous, self-seeking audio engineers might try their hardest to perpetuate the myth that mastering is some form of dark art practised only by a few highly skilled individuals, it can, in fact, be broken down into a number of achievable steps, each with its own clearly defined objectives and techniques. Rather than being scary and complicated – like the proverbial brain surgery or rocket science of popular metaphor – effective mastering is something that we can all engage in, enabling our recorded output to match the loudness and sheen of a commercial release.

As with most things in life that require a little learning and perseverance, half of the battle is knowing where to begin, so in this feature we're going to take a look at the basics of mastering, dividing the task into its key stages and seeing how we can use our existing equipment (a DAW, a few plug-ins and some CD authoring software) to create a finished master.

Ideally, mastering should always follow the mixing stage, and although it might be tempting to immediately apply some sweetening EQ, compression or limiting across the main stereo outputs of your DAW, this kind of practice should be avoided at all costs. Of course, if you need to deliver a pre-release mix – or, indeed, get a better understanding of how the mix might behave once it's put through a mastering compressor – then it's fine to use this 'quick fix' approach to mastering. However, if you want to be really objective, always master after the mix.

Dithering

Arguably the first step in mastering, therefore, is to render the finished mix as an audio file. The simple rule is that quality counts, so ensure that your finished, exported file is at the highest quality (rendered at least at 24-bit, 44.1kHz resolution). Don't leave any processors applied to the stereo buss and, most importantly, ensure that there's no unnecessary peaking or distortion. You'll also need to ensure that the duration of your bounce isn't too short –

leave a bar or so pre-roll to ensure that the start point isn't corrupted, as well as a few bars post-roll so that reverb tails and suchlike aren't cut off in their prime.

One area that seems to confuse beginners and more seasoned engineers alike, though, is the process of normalizing a master, either as the final mix is being rendered (some DAWs give you the option to 'Normalize after Bounce') or as an additional process during mastering itself. Assuming that you're applying some form of level modifier later on (a compressor, limiter or even an equalizer) it isn't important to normalize your source recording. Indeed, given the fact that every gain modification can degrade your audio to some extent, it should always be the aim to refrain from any form of unnecessary or unwanted treatments. It may sound like a hideously well-worn cliché, but it's true to say that in just about every area of audio editing, less is more.

Listen hear

Once you've assembled your masters, it's worth spending a little time listening to them, identifying any faults (wobbly bass, for example) as well as establishing how you'd like to flatter the sound with additional signal-processing treatments. As is the case with every part of the

recording process, a clear goal or set of sonic objectives yields far better results than simply 'stumbling' upon the right settings.

Master mind

Signal processing in mastering generally centres on three types of processing: EQ, compression and limiting. Of course, it isn't essential that your master is subjected to all three, but it's almost certain that even the best mix will need some degree of tightening in these three key areas.

Load your stereo mix file into a spare track in your DAW and start to experiment with the key signal-processing elements one by one, ensuring that each fits

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into the puzzle in an appropriate way. The equalizer will, of course, correct the timbral qualities of your track, both by removing (or taming) unwanted frequencies, as well ▶

PRE-MASTERING

Any signal processing that you apply during the mastering process is technically known as pre-mastering. In a professional mastering suite, for example, pre-mastering is performed as the tracks are recorded into the DAW that the production master CD will be created from. Any fades, therefore, are applied after the masters have been run through compression, EQ and so on.

STEP-BY-STEP How to effectively apply equalization to your masters



1 It's a good idea to take a proper break from mixing your tracks before you spend time critically listening to them in preparation for the application of EQ. Start by using a spectral or FFT analyser to help identify timbral properties of your track, as well as instruments that might be too prominent in the mix.



2 Most tracks suit some level of subsonic control, both to tighten up the bass and to utilise the dynamic range as effectively as possible. Use a high-pass filter to roll off below 20–30Hz (although you'll need a good set of monitors to establish any negative side effects of this action).



3 Now move through the principal frequency areas of your track, adjusting the equalizer as necessary. Start with some broad 'sweetening' boosts. In this case we've applied a shelving equalizer to apply a boost below 80Hz, although if the overall mix is bass-heavy, this might be better as a cut.



4 Another 'sweetening' boost has been applied, although this time to the top end of the track to increase presence and air. For each track you master, try to establish the most appropriate frequency for a top-end boost. Sometimes it might be as low as 8kHz or even as high as 16kHz.



5 Now we turn our attention to some of the timbral problems in the track. In this example we've had to attenuate some of the low mids around 200Hz to remove muddiness that is glaringly evident in the original mix. A relatively wide Q value has been used to keep the results broad.



6 In cases where the timbral problems in your track relate more to a specific instrument rather than a broad range of frequencies, you'll need to use a tighter Q value. On this track, the snare was slightly too prominent, so we've used a small dip around 3kHz coupled with a narrow Q.