

Mixing Tips and Tricks



First, read all the articles on this web site!

Here's one of the secrets of the mixing engineers

To avoid squashing, if it doesn't sound loud enough to your ears, turn up the monitor! If you find that you've been forced to apply limiting or compression just to keep the meters from overloading, then you've been going about this backwards. Instead, turn down your individual mix levels several dB, then get rid of any compression you were using to "protect" the 2-mix. Now your mix is at a lowered meter level, so turn up your monitor gain to arrive at the same loudness--only this time it won't sound squashed. Leave the monitor at that position as you continue to mix (mark it so you can get back to it).

In 24-bit recording you can make a perfectly good mix that peaks between -3 and -10 dBFS with no loss of quality, in fact, with improved quality. So if the mix gets too loud by your ears, then turn down the elements that are too hot in the mix instead of turning down the monitor again, with no fear of mixing "too low". In other words, a high monitor gain gives you less temptation to overcompress. High monitor gain does not necessarily mean high monitor output from the speakers--it means that the mix level had to be lower. For example, visit the [CD Honor Roll](#) and check out the great-sounding Lyle Lovett selection, which is close to the dynamics of a raw mix. Notice that in order to listen to it, you have to turn up your monitor gain. That's approximately where your monitor control for a dynamic raw mix should be sitting (within 4-6 dB) before mastering. Obviously, a lot of today's hypercompressed masters would require turning down the monitor, but we're trying to show you how not to ruin the record in the mix stage (and hopefully not in the mastering, either!).

Know thy monitors

But even when you do, never be fooled. Take your mixes around and listen to them on several other systems that you know; then go back into the control room and if they do not translate, try to adjust your mixes in the areas where they do not translate. HOWEVER, be aware of the extremes. If it sounds reasonably good in a car, for example, don't be tempted to turn up the highs for the car or it will screech (horribly) EVERYWHERE else. First of all, in the mastering we have much more experience in knowing how far to go and make sure that a recording is not made bass-shy just because it sounds boomy in a naturally-boomy car, for example.

Always mix to the highest possible wordlength

Even if the source tracks are 16-bit! Do **not** sample rate convert. When you're ready to bounce or prepare files, please see our [guidelines](#) page for suggestions on making file names and file types.

Track important instruments in stereo

In the days of 8 track you had to be very careful about allocating tracks. But those days are gone. You have enough tracks to splurge now! So there's no reason to conserve on tracks during the tracking stage. The stereo image and depth of your final product will be determined by your skill in mixdown at using delays, reverberation, effects, and your skills in tracking, how you tracked your instruments. Try to make a plan beforehand of how your soundstage might look, where the instruments might be placed. Realize that it probably will not hurt, and probably will help to record your important instruments in stereo.

For example, even a pair of bongos that are destined to be on the right side of the soundstage will sound better if one bongo mike is panned full right and the other somewhat right of center. This is because the ear decodes the natural space and delays picked up by those microphones, actually enhancing their definition in the mix (if the room acoustics are good).

Another example: Electric guitar. Capture the direct to one track. Capture the output of the loudspeaker with a close mike to another track. Capture the medium distant sound of the speaker bouncing from the

walls of the room with another mike. Listen to the combination of these sources panned to different places, and also listen in mono to make sure you have not created phase cancellations. By using stereo miking and natural room acoustics in the tracking, and possibly artificial delays and good stereophonic reverberation in the mixing, your mix will sound richer and deeper. Not everything should be tracked in stereo, but don't skimp on elements that will increase the depth and space of your recording. Of course you will need a foreground, middleground, and background in the mix, but it's a lot harder to create a location and space for an instrument if you had only recorded it in mono.

In the mixing, use artificial reverberators that enhance depth and space and do not sound flat, plastic or "cheesy." Use artificial delays to locate instruments in space, not just simple panners.

Levels

Try to not exceed -3 dBFS peak on a peak meter on the highest peak of the mix. Low levels are perfectly acceptable in a 24 bit system. Once you see that the highest peak is in the range of, say, -10 dBFS to -3 dBFS, then from that point on, if you can hear it, the low level passages are ok. Preserve dynamic range! Assume that if anyone is going to ruin the master, let it be me (the mastering engineer). If the mix sounds good, then soft passages automatically are NOT too soft. Of course, if you think a soft passage sounds too soft in the mixing, then of course try to fix that during the mixing. But these can easily be dealt with and often more efficiently in mastering, as we have the context of the album in mind.

If you have a VU meter, use it. With a sine wave, adjust it so 1 kHz, 0 VU is equal to -20 dBFS on the peak meter. Use the VU, ignore the peak, and you'll start making better mixes.

Vocal levels

Do make a lead vocal up (1/2 or 1 dB, you be the best judge) version. Do it NOW before you forget. It's a lot easier to do it NOW than to discover in the mastering that you should have. Occasionally do a vocal down (1/2 or 1 dB) version if you think it may be useful; then again, it only takes 3 minutes to do a vocal alt version when you're in the heat of mixing, but it takes forever to try to fix it in the mastering if you forgot.

Original sources, please

If at all possible, deliver a generation that is as close to the original as possible. If it's on CD ROM, then cut a CDR directly from your hard disc files. Speed of cutting? Try to use Taiyo Yuden or other reputable blanks, and cut at 4X to 8X speed. These will PROBABLY produce the best results. Murphy's Law: Allow for Murphy. Do not ASSUME that all the files will transfer successfully over here and that the CD-ROMs you have cut are perfect. Allow for the possibility that on the very last minute of the very last hour of the very last day, we may have to go to a backup CD-ROM, or you may have to cut another, because of some error or other problem in the transfer. Do not paint yourself into a corner. Make backups. Do not destroy or erase any source hard disc at the origination studio until the mastering has been completed.

When, Why, and How to Make Stems

I've definitely reached the conclusion that the less compromise you can make in the mastering process, the better the result. Let's say you have an otherwise great mix, but which has too little bass instrument, too much kick, and the lower midrange is a little bit muddy. This is a potentially bad (not lethal) combination for mastering and if the client has time, I recommend a remix.

However, in situations like the afore mentioned, when time is tight, I have also asked the client for stems, and the results have ALWAYS been better than if I had mastered from the combined two-track. Next the question comes of whether to remix the stems without mastering processing in line or to try to mix/master in the same path. If it were a 40 track mix, I'd definitely mix first, then master, but with 3 to 6 stereo stems, I find that I can get the best results mixing and mastering at the same time; the result produces the best results and the least compromise. For example, the mastering processing is going to affect the clarity of the midrange and through "slop" will probably leak down into the bass region, hopefully for the better. But in the case of this lopsided mix I just cited, the mastering processing could easily make one range better

while making the other worse.

So, if mixing without the mastering processing, I may even try to take that into account, but if mixing with the mastering processing in place, I have it all in context at one time in the ideal acoustic of the mastering room.

Is this heresy? It's certainly a dangerous technique if placed in the wrong hands. You can end up with a less than ideal mix or less than ideal master if the mastering engineer does not think holistically. But if placed in the hands of an experienced mastering engineer, I think mixing from stems while mastering can produce the very best product. Separating out the bass instrument into a stereo stem with otherwise a mix minus, and sometimes separating out the vocal the same way can reduce the number of calls for a remix, I am convinced.

In other words, the lines between mixing and mastering have never been black and white. There has always been a gray area, and this method of mastering from stems grays it out even more!

The main purpose in this discussion was in the context of suggesting having a separate mastering engineer do the mastering from the stems, not in having a complete mixdown/mastering in one step.

If I am asked to both mix and master a project; if I am fortunate enough to do the mix from scratch in the mastering environment, then I probably would mix direct to 2 track without stems. I might run stems as a safety only; an ounce of prevention is worth a pound of cure. On that note, I note that with digital technology, a single 10 second mistake can cost a whole day of makeup! We don't need no stinkin' backups :-)

But I digress...

So, if I were mixing in the mastering environment I would probably just mix to 2 track WITHOUT MASTERING PROCESSING. But if I were mixing in a typical mixing environment, I would try to mix to stems if possible WITHOUT MASTERING PROCESSING.

What I'm saying is that although there is a gray area between mixing and mastering I don't advocate trying to combine the two processes when mixing completely from scratch. I only say that it is possible to do a good (better) job if you are the independent mastering engineer on the project and you receive stems instead of full mixes.

Click here to see what other engineers had to say on the subject of [Compression in Mixing](#).

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