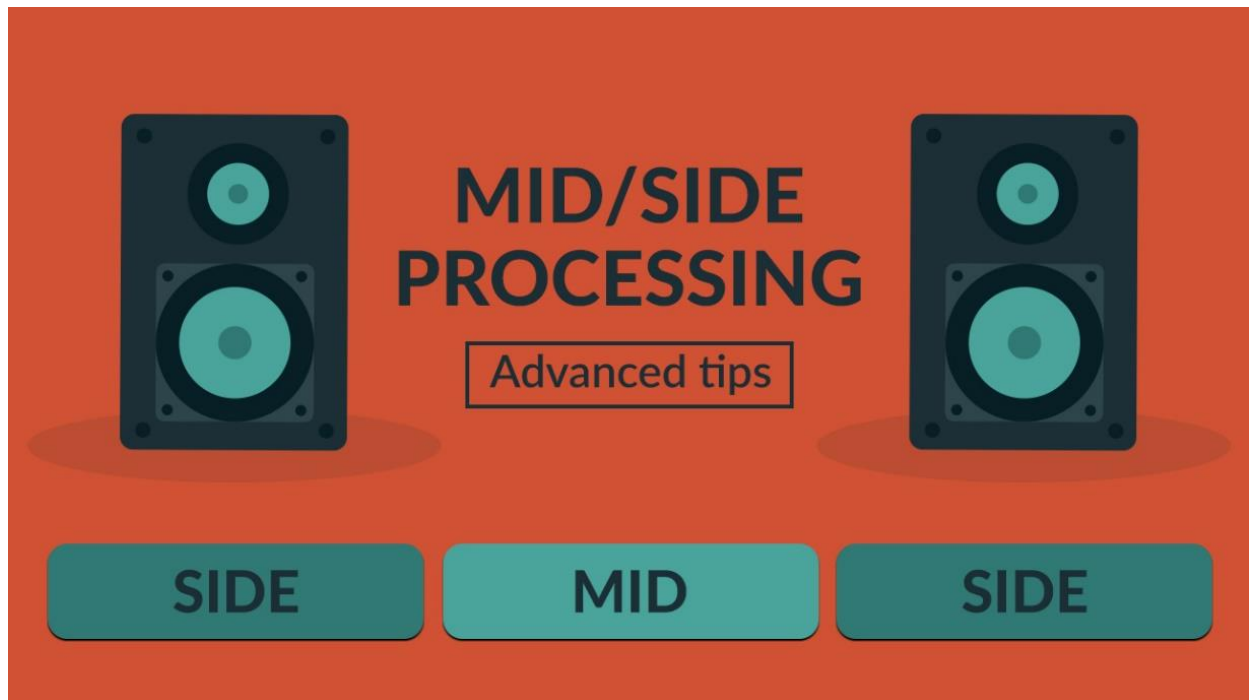# Mid-Side Processing for Pros:
10 Advanced Tips

Learn how to EQ and compress your mid and sides separately for an enhanced stereo image: add width, clarity and other creative effects for mixing and mastering with 10 advanced mid-side tips.

In a previous article, we took a look at the very basics of mid-side processing – a technique that allows you to think about your sound field in terms of what's coming out of the middle versus what's coming out of the sides, as opposed to just left and right.

This advanced guide will cover our top 10 tips for using mid-side (MS) processing during both mixing and mastering.

1. Use M/S EQ to polish the lead vocal

On the most important element in any song – the lead vocal – careful MS processing can make any vocal wider and more "three-dimensional" while still keeping it tightly focused.

For example, producer/engineer Billy Bush (Garbage, Jake Bugg) typically inserts a [Waves/Abbey Road RS56 equalizer](#) on both the vocal channel and the vocal effects return channels, setting it to MS mode. "I turn up the sides and roll off a lot of the low end – 6 dB of a shelf at 256 Hz – all of which I'm putting back in on the mid channel," he explains. "Also, on the sides, I'm adding a lot of the top end that I'm taking away from the mid. So I'm effectively EQing the midrange information to be right in the center, and all of the high-frequency information to kind of be pushed and hyped on the outside. To me, that's where you get a real sense of **three-dimensional sound**, because the vocal goes wider than it normally would."

On occasion, he exaggerates the effect by following the RS56 with the Waves [S1 Stereo Imager](#) plugin to widen the stereo image even further.

The reasoning behind this approach, according to Bush: "When you bring up the high-end information in the sides and keep the mid and low end focused in the center, the high-end detail pulls the listeners' attention subtly to the outside of the stereo field, giving the impression that the sound is wider. By keeping the mids and low end centered, you make sure that the mix stays **punchy** and **mono-compatible**. This works particularly well with stereo reverbs, delays, backing vocals and anything that is panned wide."

In [this video example](#), from 1:48 to 2:30, you can hear Billy Bush comparing the subtle differences in width and dimension that the mid-side EQ processing adds to his lead vocal. To hear it in the context of the song, navigate from 4:05 to 4:20. In the example, note that he uses the same mid-side separation on his vocal track as well as its effects buss and A/Bs them on and off together.

2. Mono the bass for an overall tighter sound

It's accepted as standard practice that low-frequency instruments such as kick drum and bass are to be kept in the center of the stereo field. This started back in the day of early stereo vinyl records, where a preponderance of low end panned off-center could cause the phonograph needle to literally bounce right out of the groove, resulting in skipping. But there's another good reason, and it has to do with the fact that the human brain finds it very difficult to locate, or *localize*, the source of bass frequencies, so it's fairly trivial to pan them anyway.

For that reason, many mastering engineers use high-pass (low cut) filters to **remove the low end from the sides channel** as a matter of course. (The exact frequency they choose varies according to the content; in some cases, it will be as low as 100 Hz, in others as high as 700 Hz.) This ensures that the very lowest frequencies in the mix are all **sharply focused** and in **mono** – something that almost always helps tighten up a flabby mix, and also helps to ensure better results when compressing the overall mix afterwards.

3. Add ambience to a finished mix

MS processing gives you the ability to slightly adjust the ambience of the finished mix. That's because any reverb or room sound **almost always lives exclusively in the sides channel**. So when you raise the level of the sides, the mix will also start sounding more "wet."

You can enhance this further still by EQing the sides channel to boost the highs. By doing this, the reverb appears **wider** due to the distinctive frequency content in the stereo field and its added presence.

4. Apply MS to effects busses for wider, cleaner effects

Try inserting an MS-capable equalizer such as the Waves [Scheps 73](#) or [Abbey Road RS56](#) into your reverb send or returns and scoop out the low-mid frequencies and/or roll off the low end on the mid channel only. This will prevent the reverb from adding any center mud to "wet" sounds.

Alternatively, you can boost the high frequencies on the sides channel, thus increasing the clarity of the reverb by making the effected sound brighter. You can do the same thing for any effect, including delay or even modulation effects like phasing.

5. Rebalance drum overheads with M/S EQ

If you've done any drum recording, you know that the overhead mics are really a capture of the overall kit. They grab not only the cymbals, but also some snare, toms, and hi-hat as well. There may be times when you'll want to **manipulate the balances** within the overheads without depending on close mics to do so.

By separating the overheads into mid and sides channels, you can effectively **rebalance the original capture** in a way that's more favorable to the overall track:

- With the judicious application of compression to just the mid channel, you can reduce the snare level while preserving the cymbals.

- If you want to keep a touch of kick and the low end of the snare and toms present in the overheads, but there's too much room ambience, do some low-end attenuation or midrange boosting (or both) to just the sides channel for a tighter drum sound that sits well in the overall mix.

- Conversely, if you want to enhance the room sound captured by drum overheads, apply a small high frequency boost to the sides channel.

6. Use automation to tie movement to the song arrangement

Mixing is about **continual change** as the music unfolds, and using **textural contrast** to keep things interesting from start to finish can really step up a track's impact. MS processing can be a very effective way to add extra width and power to certain sections within a song. For example:

- You can automate the sides channel to slowly lower in volume as a verse builds into the chorus (thereby subtly narrowing the stereo field for the listener), then bring the sides back to full level when the chorus hits, thus dramatically opening up the width of the soundstage.

- Alternatively, you can add a bit of compression to the sides channel to bring it further out to the front of the mix during the chorus or bridge.

And don't just leave MS automation for the master channel – experiment with it on all your elements and groups of sounds to achieve interesting stereo effects. For example, if you increase the volume of a guitar buss's sides channel only during the bridge, the guitars will sound bigger and wider than they do during the rest of the song. The same technique can be used on backing vocals, synth pads, and many other instruments.

7. Create "kill" ducks

Try using the overall mid channel – or a specific center-positioned instrument such as kick or snare – as a sidechain input to a stereo compressor with a MS matrix, like the Waves dbx® 160 compressor/limiter, affecting the sides channel, or to a sub-buss of instruments (such as guitars) panned out to the edges.

This will yield an almost three-dimensional stretching of the sound field. Taken to an extreme, this can even be used to create a "kill" ducking effect – a second layer of pumping that effects only the wider instruments. Mind you, this is a very specific effect and not always appropriate… but certainly fun to experiment with.

8. Compensate for fold-down issues

It's normal for the balances to change when listening in stereo versus listening to a **mono fold-down**, as will occur in clubs, restaurants, stores, and a variety of common playback systems, including smartphones. If the change is subtle, it's no big deal, but other times it can be quite apparent, with some elements fuzzy or even missing completely.

The solution? Use MS processing. If, for example you find:

- The low end is clean and clear in stereo, but a little blurry or phasey when folded down to mono, that's an indication that the problem lies in the sides content, so try some low shelf attenuation on that channel.

- The center content loses some presence when listening in mono, in which case a midrange boost in the mid channel should solve the problem without skewing the balances. The goal is to have a nice width when you're listening on a good stereo system yet ensure it still sounds good on lesser playback systems.

9. EDM, meet MS

If you're working in the synth-heavy electronic dance music (EDM) genre, mid-side processing offers a wealth of creative possibilities. Here's one trick you can try when using an MS-enabled equalizer such as the Scheps 73 plugin:

- Try compressing the low end / sub (200 Hz and below) of the mid channel to add punch (set the attack time to roughly 12 ms to allow transients through and the release time to roughly 60 ms, depending on the track).

   At the same time, roll off a little low end and a little mid-high harshness in the sides channel.

   Then, compress the low mids in the sides channel with a very fast attack and no makeup gain to create a little extra space around the kick drum, which will give it a bigger presence in the overall mix.

The goal here is to get the sides channel even and controlled, with nothing popping out – i.e., very limited dynamic range.

Here's another thing you can try:

- For the lead synthesizer in your EDM track, try sending the signal to two aux channels via a stereo sub-buss, with Waves Center inserted on both channels.

   Set one aux channel to center only (i.e., sides turned all the way down) and the other, sides only (center turned all the way down). Once you've got the lead synth separated like this, then you can insert other plugins or effects on each channel separately.

   For example, you can use the Waves OneKnob Driver plugin to add distortion to just the Center while simultaneously using the OneKnob Brighter to brighten the sides only, or use OneKnob Filter to add a sweep to the synth in either the Center or the sides. By automating these processes, you can avoid having the same loop going continuously throughout the entire song; instead, you'll get all these different effects coming in and out. This will serve to add variety and interest to your track.

This effect is shown in this video example. Listen from 2:16 to 4:34, where various OneKnob processing options are tested on the mid and sides busses using this split mid-side buss setup. Keep in mind that, even with the Center plugin inserted, when the mid and sides channels are played at their exact original volume with no additional processing, the sound will be exactly as it was with no mid-side processing.

10. Get radical, be creative!

Sometimes you need to take the rule book and throw it out the window. Creative MS processing – even processing that seems all "wrong" – can help you achieve wild effects that may be perfect for the track you're mixing or mastering.

For example, use a low pass filter to remove all the high frequencies on the mid channel and a high pass filter to remove the lows in the sides channel, thus leaving only lows in the center and highs on the outside. Or try applying a broad EQ boost at around 200 Hz to the sides channel to give a vocal more body.

Another radical trick: apply severe compression (with considerable makeup gain) to your reverb returns and/or room ambience mics. This will serve to raise the apparent volume of the sides channel, thus creating a greater separation from the mid signal and therefore a much wider sound. Taking it a step further, you could even add a swirling chorus effect to the sides channel to squeeze every bit of width out of the track.

Want to get things even weirder? Try sub-bussing all your synth tracks together and apply some delay to the sides channel only; this will add depth without clouding the main content. Or try applying a stereo chorus or phaser to a mono bass track (thus making it stereo) and then apply a high pass filter to the sides channel to gradually reduce the stereo effect below a certain frequency – say 100 Hz or so. This will nicely spread the bass overall while still keeping the all-important bottom end completely in mono.

As you can see, the only limit to MS processing is your imagination!