



STOP MIXING VOCALS WRONG

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Focusing on the vocals *will* take your mixes to the next level.

They're the most important part of your mix.

Once you can mix vocals that sound professional and radio-ready, the quality and musicality of your mixes will immediately improve.

Expect to spend much longer mixing the vocals than any other instrument in the mix, though...

Sure, it's a complicated process, and there are a lot of steps involved. But every extra minute is well worth the effort.

In this ebook, I'm going to break down and explain those steps. I want to pass on everything I have learned after 11 years of mixing vocals.

Enjoy!

ROB MAYZES



Mixing Vocals That Sound Professional and Impressive

If you currently struggle with vocal mixing, I feel your pain.

Perhaps you suffer from one of the following problems:

- The vocals just sound odd.
- They sound dull, but when you boost the top end they just become harsh.
- They sound tinny, and not loud enough in the mix.
- You adjust the low end to add some warmth, but then the vocals clash with the guitars and other instruments.
- The vocals sound like they don't belong in the same space as the music.
- You can't make the music properly wrap around the vocals (while maintaining fullness and texture in the voice).

Producing vocals that sound professional, radio-ready and consistent isn't easy. It can be frustrating, confusing and disappointing. But it doesn't have to be that way.

Once you fully understand the core elements of a good vocal mix, you can quite easily mix vocals to an professional standard. Then vocal mixing becomes a fun and enjoyable experience.

With time, you will feel proud of your vocal mixes and start to trust your skills.

The process of vocal mixing can be split into the following elements:

1. Editing
2. EQ
3. Compression
4. De'Essing
5. Limiting
6. Reverb and Delay
7. Automation
8. Creative Effects

In this guide you will gain a full understanding of each of those core elements so you can feel confident mixing your vocals...

Get It Right at the Source

You NEED a good recording if you ever want to produce a good vocal mix.

If the vocals were recorded badly, you won't be able to fix it in the mix. Sure, you can do your best to salvage a bad recording, but you will never achieve a professional sound.

The quality of the vocal is decided in the recording phase. Think of it this way... *a good vocal sound is 80% recording and 20% mixing.*

If you want the vocal to have a certain sound or timbre, use microphone choice and placement to control the tone. Don't rely on EQ, because it won't work.

Spend plenty of time preparing for the recording session, and then try out a few different microphones if you can.

Make sure you are using the proper microphone placement for the mic type, and experiment with distance and height until you find a tone that sits well in the mix.

Don't skimp out on this part.

You can learn [how to record vocals to a professional standard in my popular book](#).

Editing

Comping the Vocal

Once you have an awesome recording, it's time to sit down and edit the vocal to perfection.

Modern standards of vocal production require high levels of consistency. I recommend comping a vocal out of many takes to create the perfect performance.

This may seem fake or over the top, but it's a very normal procedure. Some pop vocals will use a different take for every word. You don't need to go that far, though. Even combining the best takes for each section will improve the vocal.

Of course, if you want to maintain the original performance, that's also fine – you can skip this step.

Depending on which DAW you use, and how you recorded the vocal, the comping process will vary.

Most DAWs have a built-in system for managing takes. I highly recommend you research this and use it. Here's how it works in some common DAWs:

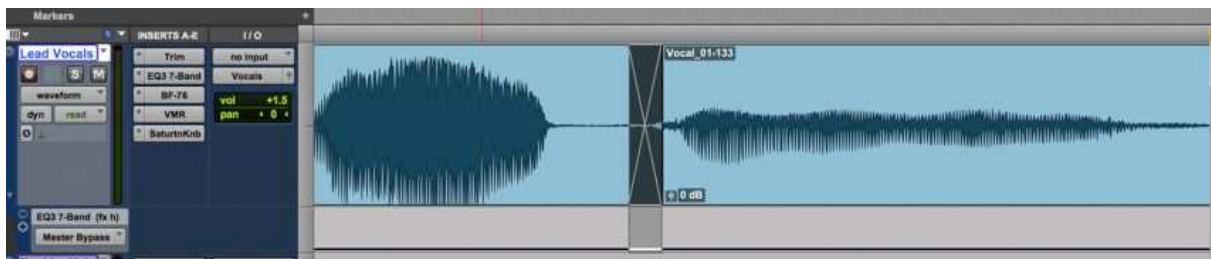
- Pro Tools: Create a new 'playlist' for every take.
- Logic Pro: Record over the top and a new take is automatically created.
- Reaper: Record over the top and a new take is automatically created.
- Studio One: Record over the top and a new take is automatically created.
- Cubase: Enable 'lanes' and 'stacked recording'.

You can learn more about vocal comping in [this video I recorded for Envato](#).

Removing Noise and Adding Crossfades

Once you have comped your vocal and are happy with the end result, it's time to go through the entire vocal track and make sure there are no clicks unwanted noises.

Sometimes comping can introduce clicks at your edit points. If this happens, add a short crossfade between the clips.



If there is any background noise between phrases, you can simply cut this out.

Some people like to remove the breaths from the vocal, but I think this completely ruins the natural emotion of the performance. My advice is to leave the breaths in.

You can also go through and fix any timing issues. Perhaps there is a phrase that comes in slightly early or late – simply move it into place.

Applying Subtle Pitch Correction

Even after comping the vocal and choosing the best take for each phrase or section, there can still be imperfections in the vocal.

That's not to say that imperfections are a bad thing – sometimes they add to the raw emotion and energy of the song.

But other times you will need to use pitch correction to fix a bad vocalist.

Tools like [Melodyne](#) and [Antares Auto-Tune](#) make it easy to apply pitch correction that is subtle and unnoticeable.

When using these tools, I highly recommend that you go through and manually correct any out of pitch notes, rather than applying automatic pitch correction.

This may take more time, but the end result will be far more musical.

You should also apply pitch correction in the context of the track, rather than with the vocal isolated.

Sometimes the other instruments aren't perfectly in tune, so you may have to make the vocal slightly sharp or flat to compensate.

The Secret Sauce: Gain Automation

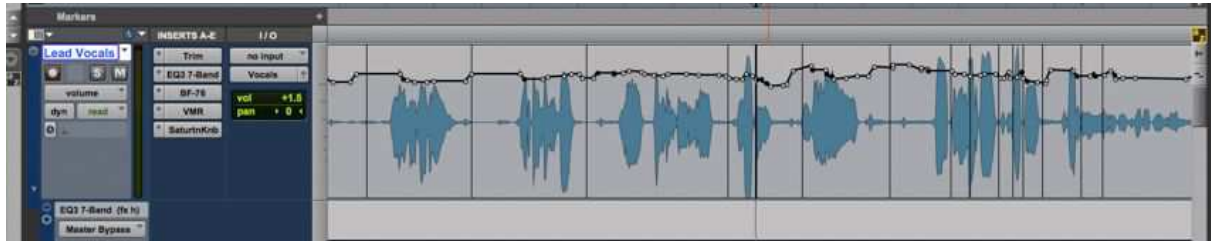
One of the most difficult things about working with vocals is controlling the dynamics.

A singer can go from a whisper to a shout in seconds. Compared to any other instrument, vocals have a huge dynamic range.

Yet modern standards of production require the vocals to be incredibly consistent. Every word needs to be audible, intelligible and loud.

This is usually done with a mixture of volume fader automation *and* compression.

Loud words and phrases are manually lowered in volume, and quiet words and phrases are manually raised. You can do this by 'riding the fader' with live automation, or by drawing in lane automation in your DAW.



This works well, but I want to show you a better option... gain automation.

The problem with volume fader automation is that it comes at the end of the channel, after the plugins. This means that the level going into your compressor and other plugins is all over the place.

Instead, if you automate the gain at the BEGINNING of the channel, the level going into your compressor will already be consistent.

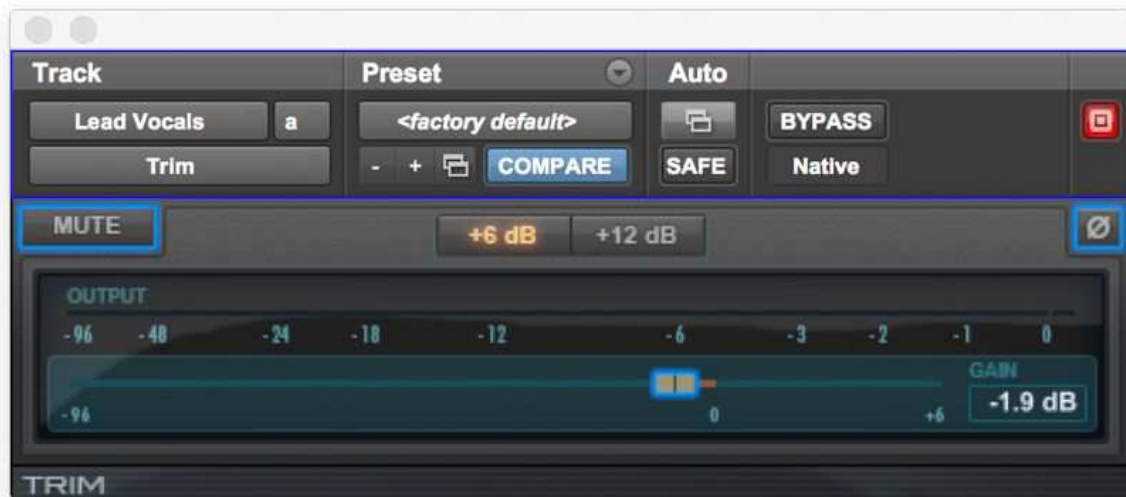
This will make it easier to adjust the compressor and help to avoid over-compression.

You can automate gain in a number of ways. Pro Tools has a great function called 'clip gain' that allows you to draw in gain automation.

Right click on a clip, go to 'Clip Gain' and 'Show Clip Gain Line'.



Alternatively, you could insert a gain plugin in your first plugin slot, and automate the level of that.



Most DAWs also allow you to cut the vocal into individual sections, and manually adjust the gain of each section.



Go through and adjust the gain of the vocal so that all of the phrases are a similar level. Take a look at your channel meter and try to make the vocal sit around -18dBFS (this is the gain sweet spot).

Depending on how much time you have, and how consistent you want the vocal to be, you could apply clip gain automation to individual sections, phrases, words... or even syllables.

The idea here is to do all the heavy lifting with gain automation rather than compression. Then you can use subtle compression to level out the vocal even more, but in a more musical and less aggressive way.

You can learn more about gain automation in my article on [gain staging](#).

Mixing the Vocal

Prepare for the Mix

By now you should have a good vocal recording that has been edited to perfection.

The levels should be pretty consistent thanks to gain automation.

At this point I recommend bouncing the vocal down to a new channel or playlist. This will help you to commit to your edit and stop you from going back and constantly tweaking.

In Pro Tools you can highlight all of the regions and use the 'Consolidate Regions' function (in the 'Edit' menu) to combine them into one tidy clip. Most DAWs have a similar function.

Make sure the vocal is clearly labelled and that the rest of the mix is organized.

Mixing Different Genres

Depending on the genre and style of music that you are working with, different standards of mixing will apply.

Here is a brief overview of how to approach the different genres:

- Pop, R'n'B, Electronic: These styles share similar traits. In general, heavy processing is acceptable and often required. Lots of top-end shimmer, noticeable effects and highly consistent dynamics are the norm.
- Hip Hop: Similar to Pop, but with less effects and less top-end. More presence and aggression in the upper mids. (Though the most mainstream of Hip Hop often has top-end shimmer more akin to Pop).
- Rock: Less top-end, more body and high mids. Vocals can sit a bit further back in the mix.
- Jazz: Approach with subtlety and taste. Avoid obvious processing and leave the dynamics mostly intact.
- Hardcore/Metal: Heavy compression (several rounds of 6-10dB gain reduction can be warranted) to make the vocals sound aggressive. Less low end, more body and high mids.

Never over-process a vocal or use effects for the sake of it.

Consider the music and the style above all else. Your mixing should be transparent and compliment the music. You're not trying to show off your mixing skills by using every trick in the book.

The 12-Step Vocal Mixing Formula

For mainstream genres that require heavy processing, I tend to use the same tools in a similar order.

Here's how it pans out for the majority of mixes:

The Vocal Mixing Formula



As you can see, there are a lot of steps involved. You have already learned about clip gain automation, and now we will cover the other steps in more detail.

You can replicate this system and then tweak it to suit your individual mixing style. It's important to develop your own systems as a mixer, but it's perfectly acceptable to model somebody else first.

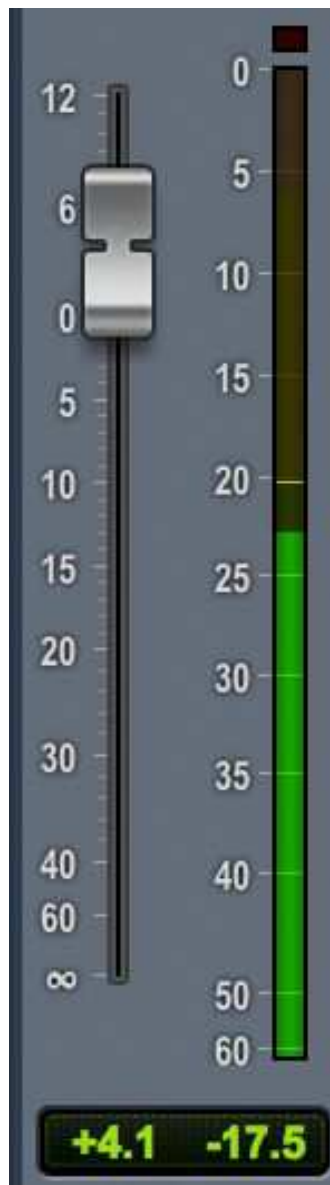
Don't try to re-invent the wheel. The most creative mixers still combine an element of replication with imagination and experimentation.

Let's break down these steps and look at them in more detail.

Gain Staging

If you automated the gain of the vocal as I recommended, it should already be sitting in that -18dBFS sweet spot.

If you didn't bother with gain automation, now is the time to apply a gain plugin at the beginning of your plugin chain and adjust it until the vocal sits around -18dBFS (look at your channel meter to find the dBFS level).



NOTE: If you are using Pro Tools, make sure the channel meter is set to 'Sample Peak' mode if you want to read the dBFS level.

Gain staging crucial step that most people overlook. You should check the rest of the mix too. Not everything has to sit at EXACTLY -18dBFS. Just make sure that nothing is near clipping and try to keep everything peaking below -6dBFS

Surgical EQ

A lot of people are unsure of whether to use EQ before or after compression. Well, I say do both.

Use EQ before compression to remove any nasty elements. Then, use EQ after compression to shape the tone of the vocal.

This way the compressor won't exaggerate any of the ugly stuff (as it has already been removed), and it won't mess with your tonal adjustments either.

Having said that, I also recommend using multiple compressors in series, rather than one single compressor. Sometimes I use two compressors in a row, sometimes I use a compressor after tonal EQ as well. The key is to experiment and try swapping around the order when mixing.

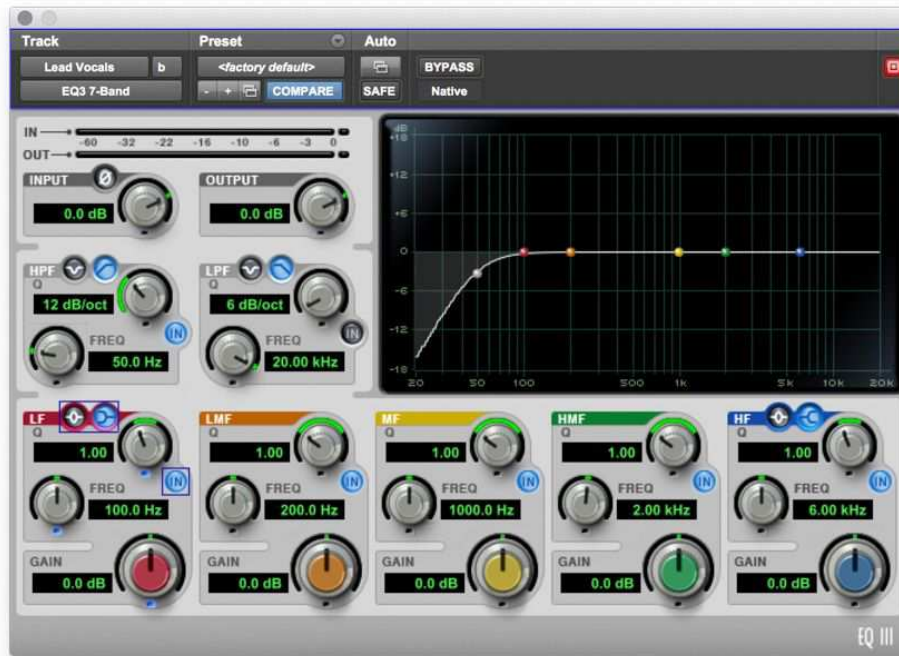
With this phase of surgical EQ, you want to hunt out any horrible room resonances and cut them out.

When recording in an untreated room, there is normally some element of frequency buildup from the room.

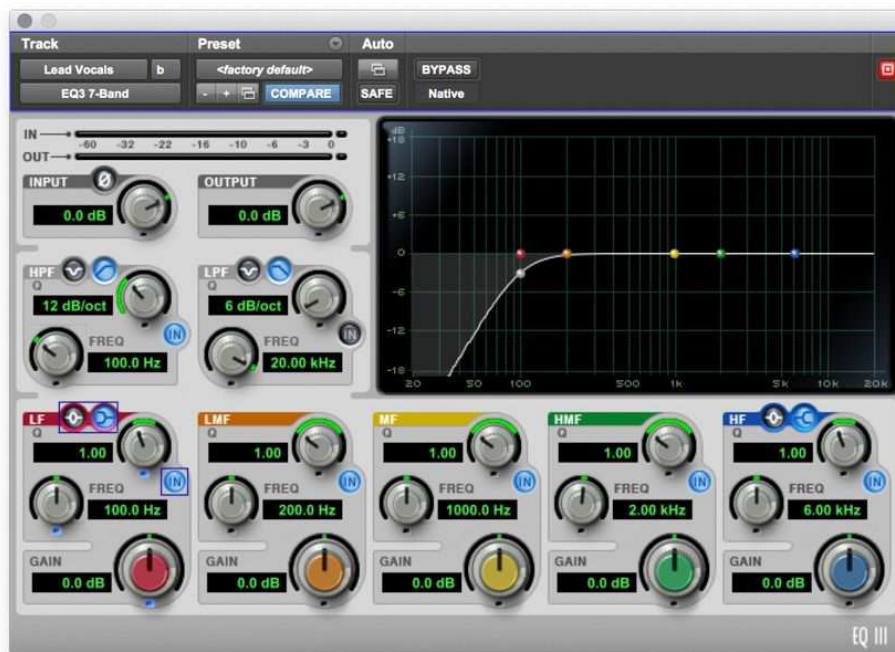
To find these buildups, you can use the good ol' boost-and-sweep technique. I don't recommend using this technique when applying tonal EQ (as it can warp your perception), but for finding problematic frequency buildups it's perfectly fine.

The next step is to use a high-pass filter to remove low end noise.

If you want the vocal to sound warm and full, I don't recommend going above 50Hz with this filter.



If it's a dense mix, try bringing the filter up to around 100Hz to help the vocal to cut through a bit more.



De'Essing (Optional)

Applying a de'esser at this point usually works best, but I also find that applying a de'esser at the very end of the plugin chain often works too.

Depending on how well the vocal was recorded, sibilance is a common issue that needs addressing. Even a light amount of de'essing will improve most vocals.

You can reduce sibilance in the [recording phase](#) by placing the microphone slightly off axis, or by using a dynamic microphone.

In the mix phase, use a de'esser to reduce sibilance. This purpose built tool will compress the sibilant frequencies only when they appear. It's a form of multiband compression.

Most de'essers have a 'listen' mode that allows you to find the sibilant frequency range. Find the problematic frequencies and then apply some list compression or 'reduction'.



Try to keep it subtle. If the vocalist starts to sound like they have a lisp, you've gone too far.

The First Compressor

As I mentioned earlier, I prefer to apply compression in several stages. This is called 'serial compression'.

Rather than using a single compressor with aggressive settings, it's better to use multiple compressors each adding a little compression. The end result is more musical and natural.

Your goal here (in most cases) is to make the compression unnoticeable. Sometimes, heavy compression sounds good (for example, in hardcore and heavy music) but most of the time you want the compression to be pretty transparent.

Your goal with this first compressor is to shape the tone.

By adjusting the attack time you can make the vocal sound more aggressive and punchy (slow attack time) or thicker and heavier (fast attack time).

Try to avoid using really fast attack times below 2ms, as this will start to put your vocal further back in the mix. You want the lead vocal to be right at the front of the mix – by using a super fast attack time you will really squash the transients and beginning of words, which will make the vocal sit further back.

Start with an attack time of around 15ms, and go nearer 5ms for punch or 30ms and above for thickness.

Aim for 2-3dB of gain reduction for most styles. There's no need to be aggressive here at the risk of over-compression unless you know what you are doing.

I find that a ratio between 1.5:1 and 3:1 works best. Set the threshold so that the compressor is engaging on pretty much every word (watch the gain reduction meter) and then adjust the ratio until you see 2-3dB of gain reduction.

You can learn a lot more about compression in [my definitive guide to vocal compression](#).



Tonal EQ

Now it's time to adjust the tone of the vocal to taste.

Keep it subtle and start with boosts and cuts of around 3dB or less. We hear voices every day, so as soon as you start to apply heavy EQ moves the vocal will start to sound unnatural.

Top end boosts are the exception to this. When mixing pop and other mainstream genres it's common to apply aggressive boosts to the top end of a vocal. This adds air and makes the vocal sound more expensive.

Use a high shelf for this rather than a bell curve, and use an analogue modelling EQ if you have one.



If you don't have a nice sounding EQ, [Slick EQ](#) is a great free plugin as is [Revival](#) (if you have an iLok).

I generally find myself adding a couple of boosts in the upper mids to help the vocal cut through the mix.



It's also common for me to apply a small wide cut somewhere around 200-500Hz to remove muddiness from the vocal.



The Next Compressor (Optional)

You can apply another round of compression after applying tonal EQ to add even more dynamic consistency to the vocal.

But for lighter and rawer genres (like jazz, acoustic and alternative rock) it might be best to avoid using too much compression.

This time you can use a slightly faster attack time to catch the peaks a bit more, but again avoid going too fast.

Aim for another 2-3dB of gain reduction, but this time adjust the threshold until the compressor only engages on the loudest syllables every few words (then adjust the ratio until you see 2-3dB of gain reduction).

Depending on the genre, you could opt for more gain reduction here. Also experiment with placing this compressor before EQ.

Again, refer to [my article on vocal compression](#) if you want to go into more depth.



Saturation (Optional)

Applying a small amount of saturation to the vocal can help it sound brighter and more exciting.

Sometimes boosting the top end with an EQ just isn't enough, and you need you use saturation to create some new harmonics on the top end.

I highly recommend Softube's free [Saturation Knob](#) plugin. Dial in some subtle saturation until the vocal sounds like it has more air and excitement.



Limiting (Optional)

Even after applying automation and compression, you can use limiting to make the vocal even more consistent.

You only want to catch the very loudest peaks that have slipped through. If the limiter is engaging once every few words, you're probably being too aggressive (although this does work for some genres where heavy processing is accepted).

If the limiter is constantly engaged, you'll cut off the transients and make the vocal sound dull and lifeless. As with using a fast attack time, it will put the vocal further back in the mix.

Adjust the gain or threshold on the limiter until it engages only on the loudest peaks. For more apparent volume, opt for a fast release time. For more subtle limiting, use a slower release time.



Applying Effects and Adding Interest

Congratulations! You have made it past the hard stuff. The bulk of your mix is now done.

By now you should have a vocal that sits well in the mix and is clear and intelligible. Every word should be loud and consistent, and the vocal should sound bright and expensive.

Now it's time to use effects to create a space around the vocal and add some stereo width.

Reverb

The current mixing trend is vocals that are up front and in your face.

For this reason, applying reverb is counterintuitive.

By adding reverb to vocals, you will put them further back in the mix and make them less intelligible. Most of the time, this goes against your aims.

Of course, for atmospheric styles or situations where reverb is used creatively, *go crazy*.

But if you want your vocals to sound modern, radio-ready and in your face, you don't need to use reverb. At all.

Instead, you can use delays to add space to the vocal and make it sound less dry, without putting it back in the mix (more on that in a second).

However, there is one way you can use subtle reverb on vocals...

By applying a very subtle, very short stereo reverb you can add stereo width and depth to the vocal.

Create a new stereo aux, send the vocal there and load up the shortest reverb you can find. Either a plate reverb or room reverb will work. Now bring up the level until you notice the reverb, then back it off a bit.

(If you aren't sure how to set up an aux channel and use sends in your DAW, look into this first. Some DAWs refer to these as 'effect sends', 'effect channels', 'bus sends' and a range of other terms.)

It won't be noticeable, but when you mute it you should notice it missing.

Delay

Instead of using reverb to add space to the vocal, use a stereo slapback delay with different times on the left and right side.

By using different times on the left and right side you are adding more stereo width to the vocal.

Use a delay of anywhere from 30ms up to 200ms. Start around 90ms on the left and 110ms on the right and experiment from there.



Make sure the feedback is below 10%, otherwise you will hear lots of repetitions. We only want one repetition on each side.

As with the subtle stereo reverb, add the stereo delay on a new aux and bring up the level until you notice the delay, then back it off a touch. Always do this with the entire mix going, not with the vocal in solo mode.

When you mute the delay, you should notice that the vocal sounds dry in comparison.

You can also use a mono timed delay to add depth and interest to the vocal. Try syncing a mono delay to the tempo of the track and using a higher feedback. This gives the classic 'echo' sound that you hear on a lot of pop mixes.

Experiment with whole note delays, half note delays and even quarter note delays.

If you want the delay to be more obvious, adjust the timing with your ear by setting the delay time manually rather than using the sync function.

A lot of people create 'delay throws' by automating the send and only adding delays on the last word of a phrase. This can add interest to a vocal and fill in the gaps between phrases.



Chorus

Another subtle effect that can be used to add depth and shimmer to the vocal is chorusing.

If you have a chorus that has a dry/wet control, you can apply it directly to the vocal. If you don't, put the chorus on a stereo aux channel instead.

Once again, bring up the volume until you notice the chorus, and then back it off.

Make sure it's really subtle. When you mute it, you will notice that the vocal sounds thinner. When you bring it back in, it will add depth and shimmer to the vocal.



The [TAL chorus](#) is a great free plugin for this application and works well on vocals.

Final Steps

Frequency Slotting

There are two more processes I often apply before a vocal is finished. The first is frequency slotting.

This is the process of creating space for the vocals in the mix by cutting certain frequencies out of other instruments, particularly instruments that compete with the vocal.

Guitars, pianos and other 'full range' instruments can reside in the same frequency range as the vocals, depending on the octave that each part sits it.

If you find that the vocal is getting covered up by another instrument, you can apply cuts to that instrument to create some more space for the vocal in the frequency spectrum.

The best place to start is to cut any frequencies on the competing instrument that you boosted on the vocal.

For example, if you boosted the vocal at 130Hz, 2.3kHz and 4kHz, yet there is a guitar that is still competing with the vocal, cut these frequencies in the guitar.

Boosts on Lead Vocal

Cuts on Guitar



You could also use a spectrum analyzer to find the prominent frequencies in the vocal, in particular the fundamental in the low mids (around 80-180Hz for males and 160-260Hz for females) and cut these frequencies on any competing instruments.



Volume Automation

Earlier on in the mix, you used gain automation to manually make the level of the vocal more consistent.

Now you can use volume automation to add more interest and character to the vocal. By exaggerating certain syllables, words or phrases, you can enhance the emotion and performance.

Try enhancing the very beginning and ends of words. The way that a vocalist leads into and tails off of a word can contain a lot of emotion.

My favourite way to apply volume automation is to shut my eyes and manually ride the fader using a physical control surface, like the [PreSonus Faderport](#).

You can achieve the same thing with your mouse (but it's never quite the same).

Alternatively, try drawing in volume automation to exaggerate important words and unique characteristics.

Advanced Mixing Techniques

There are a number of other tools, plugins and techniques that can be useful for vocal mixing.

You can use multiband compression to add more body and consistent low end to a vocal, or tame any ugly characteristics that only appear periodically.

Instead of applying compression directly to the vocal, you can also try using parallel compression. This is the process of duplicating the vocal and compressing the duplicate, while leaving the dynamics of the original vocal intact.

When you have instruments competing with the vocal, you could use sidechain compression as well as frequency slotting to make more space for the vocals in the mix.

These three compression techniques are covered in more detail in my [vocal compression guide](#).

Mixing Backing Vocals

Your aim with backing vocals is to make them sit nicely underneath the lead vocal and support it, without distracting from it.

While the lead vocal should always be panned dead center, I recommend panning backing vocals hard left or hard right.

Try compressing them more aggressively to make them sit well in the mix. Use a fast attack time (below 2ms) to make them sit further back.



You can also use noticeable reverb on vocals to put them further behind the lead vocal.

There's no need to go through and manually control the levels with gain automation or volume automation. Instead, you can use heavy compression to control the levels as this will make the process much faster.

Conclusion

It may seem like there are a lot of steps involved in mixing a lead vocal part... and to be honest, *there are*.

Expect to spend more time on the vocals than any other instrument. They're the most important element of your mix (unless, of course, it's an instrumental) so make sure you treat them accordingly.

Remember, though, that a lot of the processes that I have shared with you in this guide are optional. Sometimes, all you need is some light automation, compression and EQ. For some genres, such as jazz, even compression and automation is unnecessary.

Other times heavy processing is needed, and it can take quite some time.

As you continue learning how to mix vocals you will become much faster at applying these processes and trusting your gut instinct, so just keep practicing.

Thanks for reading!

Over the next few days I'll be sending some exclusive videos your way, so keep an eye on your inbox.

Recording Vocals at Home

Before you leave, I want to make something very clear...

A bad vocal recording will never sound 'professional' or 'studio-level', even if you are the best mixer in the world.

You know how to mix a vocal to a pro standard now...

But what about the recording phase?

How do you record vocals at home that sound like they were recorded in a multi-million dollar studio?

[Here is the answer.](#)