

The Perfect Vocal Chain

and other vocal recording hacks revealed

Thanks so much for downloading this Recording Revolution guide!

In this guide, you'll be taught the vocal techniques we've discovered at the Recording Revolution over 10 years of teaching home studio owners how to record stellar vocals from home.

We've also teamed up with pro vocal coach Chris Liepe to teach you what he calls the "Perfect Vocal Chain" - a recording chain that makes it easy to get professional vocal recordings.

If you've ever thought that you needed more gear, more plugins, more acoustic treatment to get the vocals you wanted in your mixes and productions...

This guide is here to remove the myths, lies, and confusion around this sensitive subject.

The truth is: almost any basic home studio with a microphone and DAW has as much flexibility and power as a professional music studio today.

This guide will show you how to unlock that power in your home studio, and start getting amazing vocal recordings.

But a warning: keep an open mind as you read this guide.

We'll be debunking some of the classic audio engineering wisdom in this guide, and might say some things that go against the recording and mixing norm.

That's because this entire guide is built to give you the knowledge you need to start getting polished, professional-standard vocals from your home studio, without the expensive audio gear or studio around you.

We'll cover the equipment, we'll cover the gear, mic position, placement... *everything*.

So let's dive into creating your Perfect Vocal Chain...

The Perfect Vocal Chain: Your Microphone

You do not need to empty your bank account to get great vocal recordings.

You don't need a vintage tube microphone, or a thousand dollar audio interface to have something of a professional standard.

When it comes to microphones, you need either a **large diaphragm cardioid condenser**, or a **dynamic microphone**.

Which one to go for will depend on your recording situation, and the genre of music you make.

If you are in a place where you don't have much outdoor noise leaking into your room, go for a condenser microphone as they're more sensitive to picking up audio.

If you're singing in a genre of music with softer style vocals like country, folk, or acoustic, a condenser will be great for that.

But if you're recording in a city apartment with noise from the street or cars leaking into your room, a dynamic microphone will help you reduce that noise from being captured in your vocal recordings.

And if you're singing a genre of music that requires louder, powerful vocals like rock, pop, or metal, a dynamic microphone will be able to handle a higher volume level with ease.

For condenser microphones, there are options like the Rode NT1-A (\$229) or the Audio Technica 2020 (\$99).

For dynamic microphones, there is the classic Shure SM7B (\$399), or the go-to dynamic microphone SM57 (\$99).

Even budget microphones like the Behringer C-1 (\$35) will capture high quality vocal recordings with ease.

There is only one real caveat to budget microphones: there can be harsh higher frequencies on cheaper condenser microphones.

If you're recording a single vocal track, you may not notice it - but remember that the more you use a microphone, *the more of the microphone's frequency pattern you will be capturing.*

If you end up using a cheap microphone repeatedly for lead vocals, backing vocals and more, that can cause mix issues down the line.

This doesn't mean a cheap mic means a bad mix, it's just something to keep in mind if you're working with budget equipment.

The Perfect Vocal Chain: Your Interface

What's an audio interface?

It's a device that takes the audio information that your microphone captures, and converts it into digital information your computer can process and use inside your Digital Audio Workstation (Pro Tools, Ableton, Logic Pro, etc).

A basic audio interface like the Focusrite Solo (\$159) will give you a high-quality preamp to work with, for a fraction of what a top-level interface might cost.

There are also more budget options like the Behringer UMC22 (\$49) , or higher end options like the SSL 2+ (\$279) that can work well for a home studio environment.

Now there will be people online who say you can't create a hit record without a mic preamp and interface that costs thousands of dollars...

And there will be kids like Billie Eilish and her brother Finneas that create a hit record with an AT2020, a cheap interface and mostly stock plugins in Logic Pro.

So don't ever think that budget gear can't create compelling, commercial music.

So once you get your microphone and interface sorted (*don't forget the mic stand, pop shield and XLR cable!*), it's time to move onto the really crucial stuff... *your room, and mic position.*

The Perfect Vocal Chain: Your Room

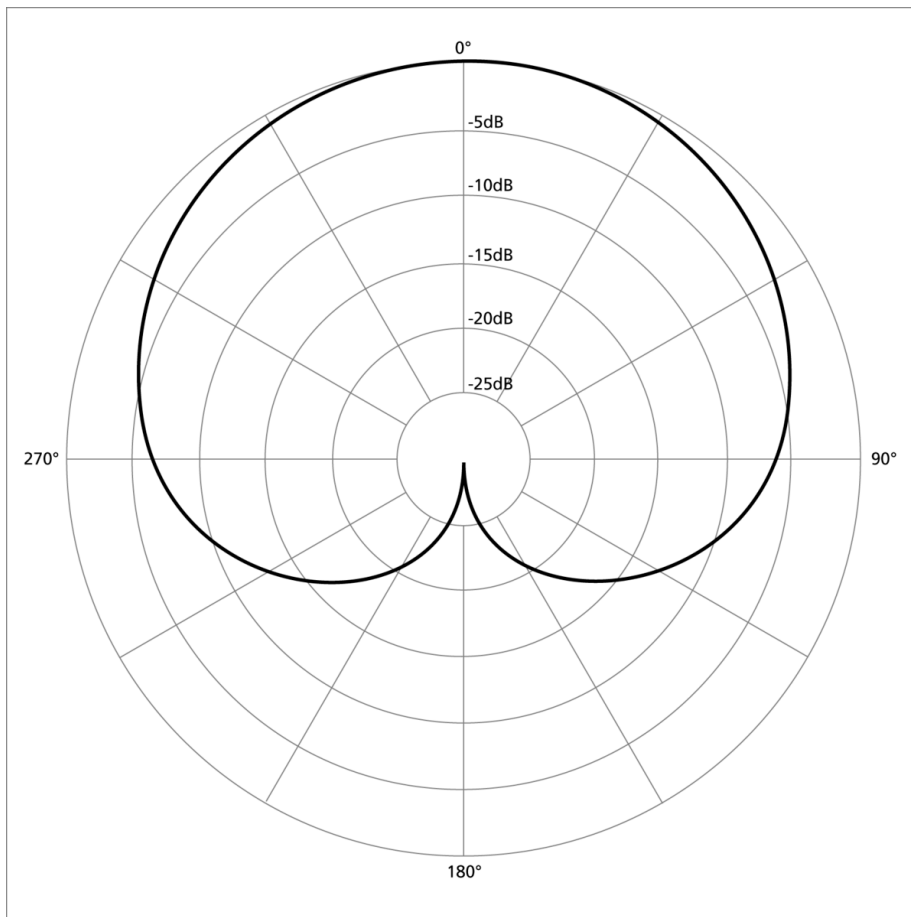
Do you need a perfect room to get great vocals?

What about acoustic treatment, or vocal isolation booths?

Nope.

Remember the cardioid microphones we talked about earlier?

This is where they really shine.



This is a picture of how the cardioid pattern picks up audio information.

See how it rejects what's behind, and to the side of it?

Use the back of the microphone to reject any sound reflections, and remember that the closer you sing to a microphone, *the less it can pick up from other sources.*

So if your room isn't perfect - place your microphone in the centre of your recording room to reduce reflections, and work with the distance of your singing to the microphone to get a high quality vocal captured.

There's also budget acoustic treatment options like:

- Recording your vocals in front of a closet full of clothes, to recreate a vocal booth
- Using big pieces of furniture like a bookshelf or couch to reduce acoustic reflections
- Hanging up blankets to help absorb any room noise

The Perfect Vocal Chain: Your Mic Positioning

You could have the best vocal chain set up and ready to record, but if you don't know how to work a microphone when recording, you'll struggle to get the pro-level vocals you're looking for.

The human voice is very dynamic instrument. In a song, you can go from a whisper to a full out belt, and you've got to try and capture that all at a level that doesn't overdrive your microphone and clip the recording.

How do you do that?

You work the mic.

In general, you want to sing about 6-12 inches away from your microphone, with the capsule of the microphone pointing at you, placed around the height of your mouth and nose.

But if you're singing a softer section of a song, move closer to the mic.

If you're singing a louder part of a song, move further away.

This is a skill that takes several vocal recording sessions to get, but once you understand this - your vocal recordings will be more levelled, there will be more emotion and character to your recordings, and your mixes will thank you for it.

The Secret to A Perfect Vocal Chain: Recording with Compression & EQ

There is a huge myth in audio that you want to record a track as clean as possible, with hardly any effects being committed to the recording unless it's an instrument like electric guitar, or a synthesizer.

This myth is one of the biggest things stopping you from getting great vocal recordings.

Why?

Because if you can shape your vocal recordings with the plugins inside your DAW...

It saves you time, energy and effort when editing, producing and mixing your own vocal recordings into a finished mix.

On top of that, recording with the right compression and EQ is a skill that will level up your home recording and mixing skills, and give you true confidence that you're making music of a professional standard.

What is EQ?

Using an equalizer allows you to shape the sound of a recording - from boosting its higher frequencies, to adding bass, removing any ringing or harshness, it's an essential tool of recording and mixing.

What is Compression?

Using a compressor allows you to shape the dynamic volume of the recording - it helps bring out the lower volume parts of a recording, and reduce the volume of higher volume sections. You simply can't get a great vocal recording without using compression.

How to set up EQ and compression in your DAW, to print with your vocal recordings:

(These basic instructions should work inside any standard DAW, from Logic, Pro Tools, Ableton, Studio One, FL Studio etc.)

Inside your DAW, you need two tracks - one audio track, one aux/bus track.

The bus track should have the input from your audio interface's preamp.

From there, assign the bus track's output, to be the input of the audio track.

Now enable recording on the audio track, and use the 2nd track for monitoring your own vocal recording levels.

Now, use the first track to use compression and EQ plugins to shape, and create your perfect vocal chain.

This immediately allows you to swipe the same concept of an analog EQ and compressor in a pro studio's recording chain, in the comfort of your home studio... saving you thousands of dollars in the process.

Here's what that looks like inside Logic Pro and Pro Tools, two of the most popular DAWs today...

How to create the Perfect Vocal Chain in Logic Pro:



The screenshot on the left is what the end result should look like in your main mixer window.

Here's how you get there:

To create a bus track in Logic Pro, it's a little more complicated than Pro Tools.

However, it only takes a few minutes to do.

First, create a new track (use the keyboard command, Command key + Option key + N key), and select the Output of the new track to be a bus track.

Once you've done that, a bus track should appear in the main mixer window (press X to open it).

From there, change the bus track output to be the input of your microphone preamp (in this case, it's Input 1), and the output to be Bus 1.

Once you've created that track, reroute your original track to have an input from Bus 1, set up your EQ and compression on the vocal bus track, and you're ready to start recording vocals.

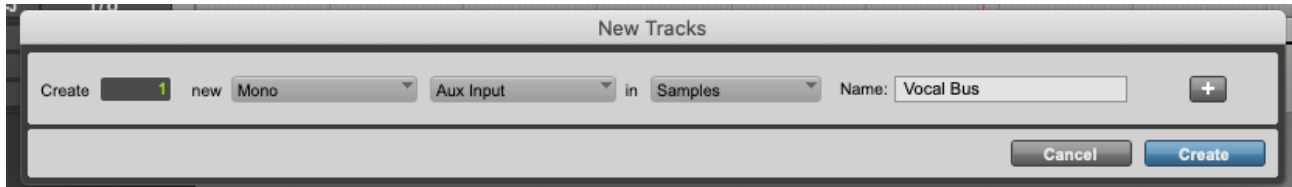
In Logic, you can use the stock Channel EQ and Compressor plugins to EQ and compress your vocals as they're being recorded as a starting point.

There's also the Vintage EQ collection that gives you emulations of classic studio gear to EQ your vocals with, and you can experiment with the various types of compressors inside the stock Compressor plugin after you've gotten used to recording with EQ & compression.

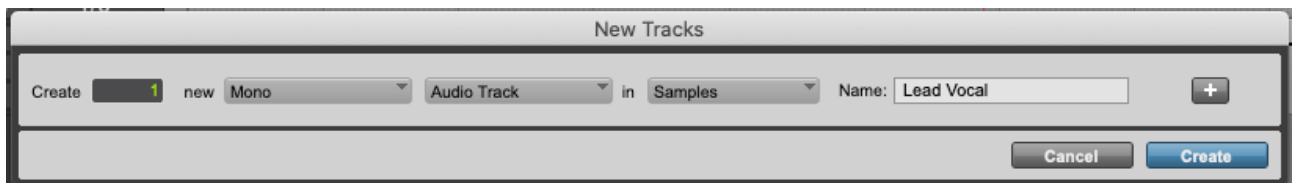
Here's what it looks like in Pro Tools:

In Pro Tools, create a new project and start by using the keyboard shortcut **Shift + Command key + N** to open up the **New Track** window.

First, create a mono Aux Input track:



Then create another audio track:



Then, assign the Aux Input track to have the mic input of your audio interface as the input, and the output of the input to be a bus track (make sure it's mono when doing this).

Then, assign the input of the Audio track to have the input from the bus track, add the EQ and Compression plugins you want to the bus track, and your vocal chain is set up.

Here's what that will look like finished:



The Vocal Bus is getting input from the audio interface, and its output is into Bus 1. The Lead Vocal track is getting signal from Bus 1, and sending it to the stereo out of Pro Tools.

You can easily start with the stock 7-band EQ and Dyn3 Compressor, and use the BF-76 when you're more confident using a compressor.

Now that you know how to setup a basic vocal chain inside your DAW to run your raw recordings through EQ and compression, it leads us to the question:

How do you record a vocal with EQ and compression?

How to record a vocal with EQ:

There are some moves you can use to instantly get a better vocal recording with an EQ going into your DAW.

Here's the EQ cheatsheet for vocals:

- **Use a high pass filter (HPF), and filter out up to 80-120hz on your equalizer.** This immediately removes any sort of bass noise or sounds you don't need in a vocal recording at all
- **Use a high shelf EQ, and boost 1-3 db from 10-15khz.** This gets your vocal to start sounding crisp, sizzly and polished on the top end. It'll help your vocals cut through the mix, and have that pro-sizzle you hear on records today.
- **Use a single EQ band, and cut 1-3 db from in between 1-5khz.** The midrange of a person's voice can sometimes be harsh, so take an EQ band, boost it by 10db, and search around in your voice to hear where your voice might sound unappealing - a small dip in that region works wonders for even the best vocalists on the planet.
- **A presence boost (1-3 db) around 5-10khz can work very well too, but use it carefully.**
- Finally, can add body to a vocal by boosting around 100-250hz in general. If overdone it'll make your vocals boomy, but done lightly it will give your vocal tracks more body and thickness in the mix.

Note something about all these moves: they are subtle, non extreme moves.

When you're recording with EQ, it's not about drastic cuts and becoming super surgical. Rather, it's about helping place your vocal correctly in the mix, and sweetening it to sound as good as it can going into your DAW.

How to record a vocal with compression:

Done correctly, recording with compression will give you tracks that don't clip, have good dynamic range, excitement, and a consistent tone across your recordings.

But how does a compressor work?



Below is your stock Logic compressor - any stock compressor in your DAW will have settings similar to this.

A compressor is simply a tool in recording and mixing that turns down the volume of a signal based on its ratio of compression (the higher the ratio, the more volume it reduces), and it is activated by the threshold the compressor is set to.

The main things to know in order to use a compressor properly are:

Threshold - the volume level at which a compressor activates

Ratio - how much volume the compressor reduces (the higher the ratio, the stronger the reduction. 2:1 ratio means 2db of gain reduction for every 1db above the threshold, 4:1 means 4db of gain reduction for every 1db and so on.)

Attack - how quickly the compressor reacts to the threshold being activated

Release - how quickly the compressor releases its compression on the audio source

While there are no rules to recording with compression, use these guidelines to have gentle compression on your vocals that make your recordings match a professional recording chain:

- **Start with a soft ratio** (2:1 to 4:1 is recommended)
- Aim for 2-3db reduction on the compressor's meter, and test the compression by singing at your loudest volume. *The compressor should not fire at low singing volumes at all.*
- **Set a slow attack** (30-50ms), **and a fast release** (5-20ms) - this ensures that the compressor doesn't immediately turn down loud recordings, and smooths out the overall dynamics of your vocal tracks

Note to beginners: If you're currently struggling to understand these things and think "*Oh man, this recording thing might not be for me*", don't worry.

It takes a while to learn a new skill, and besides understanding how EQ and compression work, you've got to learn how to hear what they're doing to your recordings to really use them well.

But follow what's inside this guide, and you'll already know more about EQ and compression than most home studio hobbyists.

How to hear compression in vocals (beginner listening hacks):

EQ is much easier to hear on vocals as a beginner - if there's a top boost, a recording starts sounding brighter, crisper, more attention grabbing. Too much bass boost? It gets boomy and muddy.

But how can you hear compression?

Fact is: it can take a while for you to start hearing compression on vocals, but the easiest way to start hearing compression is to visualize how it affects sound.

When you compress vocals, you're bringing up the soft parts of a vocal, while reducing the louder parts of it.

You're practically squeezing an audio signal so it's more level. So the more compressed a voice is, the closer and more upfront it sounds. And with extreme compression, everything is brought up to a similar level, making a vocal sound hyped up and aggressive.

So start paying attention to these things when you listen to vocals on records of today to begin hearing compression:

- **How far away does the vocal sound?** If a vocal sounds like it's got reverb on it, but yet somehow, every word sang feels up close and in your face - that is compression at work
- **What details of the vocal can you hear?** If you can hear little mouth noises, breathing, vocal squeaks, while the loud sections of the vocal sound balanced - *that's heavy compression*
- **Does the vocal sound unnaturally close in your speakers/headphones?** *That's compression*

Pro tip: You can also try listening for compression on any TV show, or movie that's been released in the past 20 years.

If you're watching a film scene where the characters are in a shot far away from the camera, yet their voices and words are clear, crisp, and jumping out of your speakers/headphones?

That's compression at work.

Gain staging: How loud should your vocals be?

When you're setting up to record vocals, you'll have to tweak the gain levels on your interface to ensure you're capturing audio a good level.

In general, your vocal recordings should be peaking at -5 to -8 db on the track meter in your DAW at most (-10 to -15 works as well).

This is where another recording myth needs to be broken: *you do NOT need to record your tracks close to 0.0db on the volume meter to get a great recording.*

Back in the day when people used to record audio to tape, you had to record loudly in order to reduce the tape noise.

Plus, with old-school recording consoles and equipment, driving an audio signal into overdrive would sound pretty great!

This has completely changed with digital equipment today.

If you clip and overdrive a digital audio signal, it just sounds nasty, harsh and amateur.

Keep your vocal recordings from clipping, and you'll have much better recordings than running things hot.

Why recording with EQ and compression is hardly talked about...

In today's online audio world, everybody's chasing the newest trend, the newest plugin, and while there are so many great tools one can use to get great mixes today...

Recording with EQ and compression is a skill that takes time to develop, and was something that audio engineers would *quietly do* in the studio back in the day while the artist was recording their vocals.

It's one of the real secrets of recording and mixing.

Why?

Because a great recording makes mixing much easier, and *getting a great mix starts in your recording stage*.

First, you've got to capture a great performance.

But if you're capturing that performance with the right compression and EQ into your DAW - there is much less to do to make the raw vocal track work inside your mix afterward.

If you follow the guidelines given in this PDF, and use your ears when you're tweaking your vocal chain, you won't go wrong.

Are all EQ and Compression plugins created equally?

There are tons of plugin companies who give emulations of old-school EQs and compressors that come extremely close to what they sound like in real life.

And there's plenty of newfangled plugins that can handle all your compression and EQ needs these days.

However - none of that matters if you don't know how to use EQ and compression properly.

Here at the Recording Revolution, we're huge believers of using stock plugins to get mixes that sound Radio Ready.

So if you're not familiar with EQ or compression, here are links to some of our resources to better understand them, and start using them properly inside your DAW:

Compression:

[Using Compression On Vocals For Beginners](#)

[Mixing With Compression Playlist](#)

EQ:

[Graham's Vocal EQ Preset \(3 Steps\)](#)

[Mixing With EQ Playlist](#)

Wanna see the Perfect Vocal Chain in action?

The best way to see how using the vocal chain we're teaching you today is to hear it in action.

We've got a video for you from vocal coach Chris Liepe where he shows you how he sets up a vocal chain with EQ and compression going in, and tweaks it to get vocal recordings that are mix ready from the get go:

[Perfect Vocal Chain Workflow by Chris Liepe](#)

You'll see what you've read today in full action.

From how to EQ a vocal, to using compression to level out volume and give a good dynamic level to a raw vocal recording, it's all inside this tutorial.

It's also a sneak peek from his paid course with the Recording Revolution, Perfect Vocal Takes, and it's our little gift for you for reading this far into the guide.

Conclusion

We hope you've enjoyed this in-depth dive into vocal recording, creating a Perfect Vocal Chain, and how to set up a vocal chain inside your DAW to record with EQ and compression to get mix-ready vocals right from the start.

Where should you go from here?

Well... don't let this information stay inside this guide.

You're likely already on your computer - why not open up your DAW, set up your microphone, and try out what you've just learned?

You'll be cementing in the lessons of this guide, and taking huge steps to getting better vocals today.

So what are you waiting for?

Open up your DAW, and start crafting your Perfect Vocal Chain today :)