HOW TO USE WAVES PROCESSORS TO CREATE DAZZLING VOCAL AUDIO EFFECTS

CAUTION!

Be sure to exercise good posture while working at a computer for prolonged periods of time. Frequent stretching is necessary to prevent body structural problems such as arthritis or stenosis from occurring.

Refrain from listening to loud music for prolonged periods of time. If you take your headphones off and your ears are ringing it's too loud. As an audio engineer your ears are priceless. Listening to loud music for prolonged periods of time causes permanent damage to your hearing.

Do not work in a dimly lit room. This causes your eyes to dilate and allows more of the computer monitor's radiation to burn your eyes resulting in headaches, nausea, etc.

Author takes no responsibility for any damages caused to yourself or others as a result of reading this instruction manual. **READ AT YOUR OWN RISK**.

CONTENTS

Automation, keeping your levels good through the chain, ducking, sidechain

Before you Begin

This manual is intended to provide you with an understanding of how to use Waves processors to obtain audio effects found in popular music today. Although it is recommended that you use Waves processors in conjunction with this manual, the effects(or plug-ins) that you will learn are standard and available by other manufacturers. If you should decide to use this text with another audio plug-in manufacturer you may not have the exact instruction that you are looking for as this manual is specifically written for Waves processors.

You can use Waves audio processors in conjunction with any standard multitracking program. If you are having problems getting your Waves plug-ins to show up inside your multitracking program, consult the user's manual for your multitracking program.

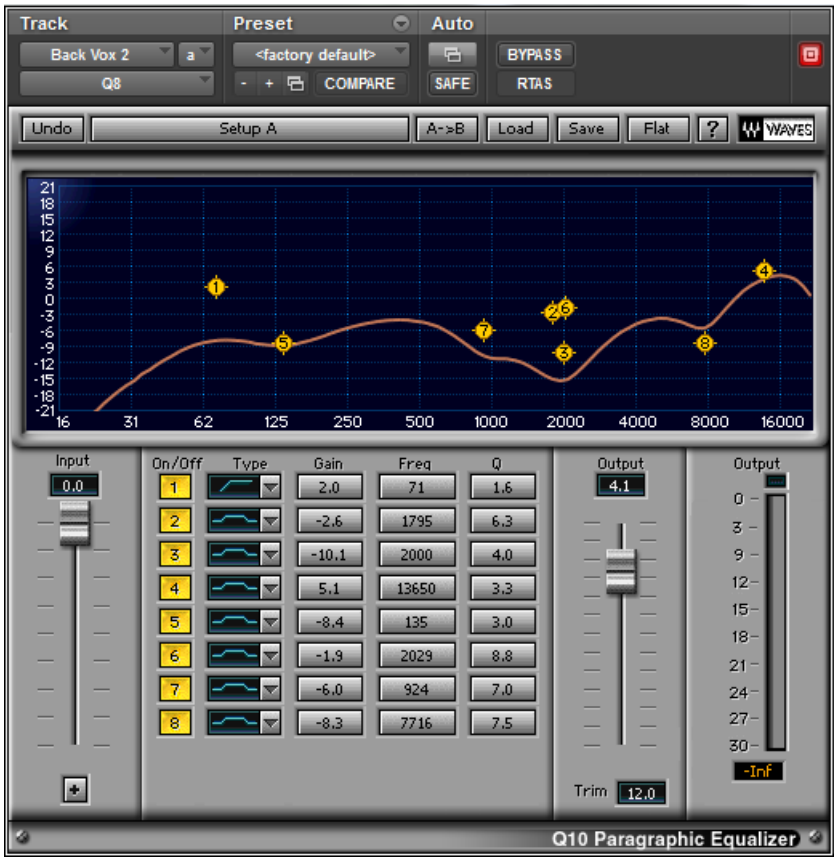
GETTING STARTED

Open a session with a vocal track with your multitracking program.

The words plug-ins, inserts and effects are used interchangeably.

Parametric EQ

This is the standard Waves© equalizer.



Equalization is the first effect that you put on any track. It comes in 4 flavors: EQ2, EQ4, EQ6 and EQ8. EQ2 has two bands. EQ8 has 8 bands. The screenshot above is EQ8.

In the studio, equalization is used to raise or lower amplitude of certain frequencies to bring out the life of the instrument or remove unwanted audio artifacts such as low frequency rumble or any number of unwanted sounds.

Controls:

- Bypass
- Save
- Load
- On/Off
- Type
- Gain
- Frequency
- Q (bandwidth)

Add EQ8 Waves plug-in into your inserts for a vocal track.

Remove any unnecessary low end. Most of the time you can't even hear this low end, but when you have 30 tracks playing simultaneously the effect can be cumulative. The solution is to strip every track of any unwanted low end. You will not need to do this for bass guitar or certain drums such as kick or toms. However, just because you don't want to remove the low end completely on some tracks doesn't mean that they won't require low end adjustment.

HIGH PASS/LOW PASS FILTER

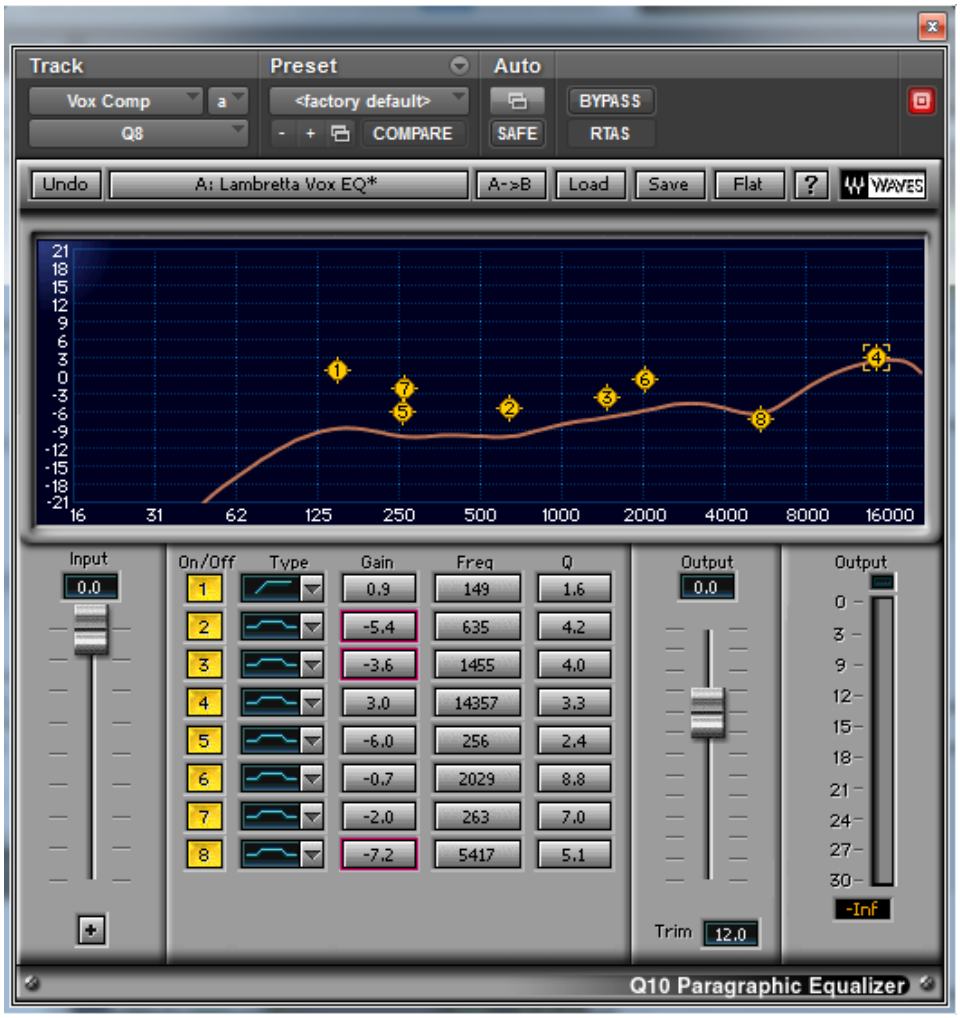
Low end can be stripped from any track using a bell filter or a high pass filter. I prefer a high pass filter. For band 1, click on the "Type" control and switch to "High Pass". Now click and drag from inside the "Freq" box and change the value to 125Hz. A low pass filter works similarly with respect to high frequencies instead of low.

Say there's still a bit too much low end in the vocal track as it sounds a bit muffled. Now use a bell filter to tidy up the low end a bit. *A common mistake here is to add high frequencies*. You actually want to remove frequencies to fix this problem. A few frequencies may still need boosting, and a little boosting is okay, but keep in mind whenever you boost a frequency you introduce noise. Always try and remove frequencies first before adding them.

BELL FILTER

A bell filter is what is used for the majority of equalization. Notice the "Type" box already shows a bell filter by default. For band 2, change the gain from 0 to -5. Now change the frequency of band 2 to about 180. Now you may want to adjust the "Q" a bit to widen the range of frequencies band 2 affects. Change the "Q" from 7 to 5 and see what happens in the graphical representation. Play around with these settings until you don't hear any unwanted low frequencies. Every microphone has a unique frequency response, and every singer is different. You will need to make adjustments until it sounds good to you.

Apply the bell filter to any other frequencies in need of adjustment. The microphone I like best for male vocals, the Pacific Pro Audio LD1, doesn't pick up high frequencies as well as I would like it to. What I do to fix this is bring down the frequencies that don't need boosting and boost the highs a few decibels(dB):

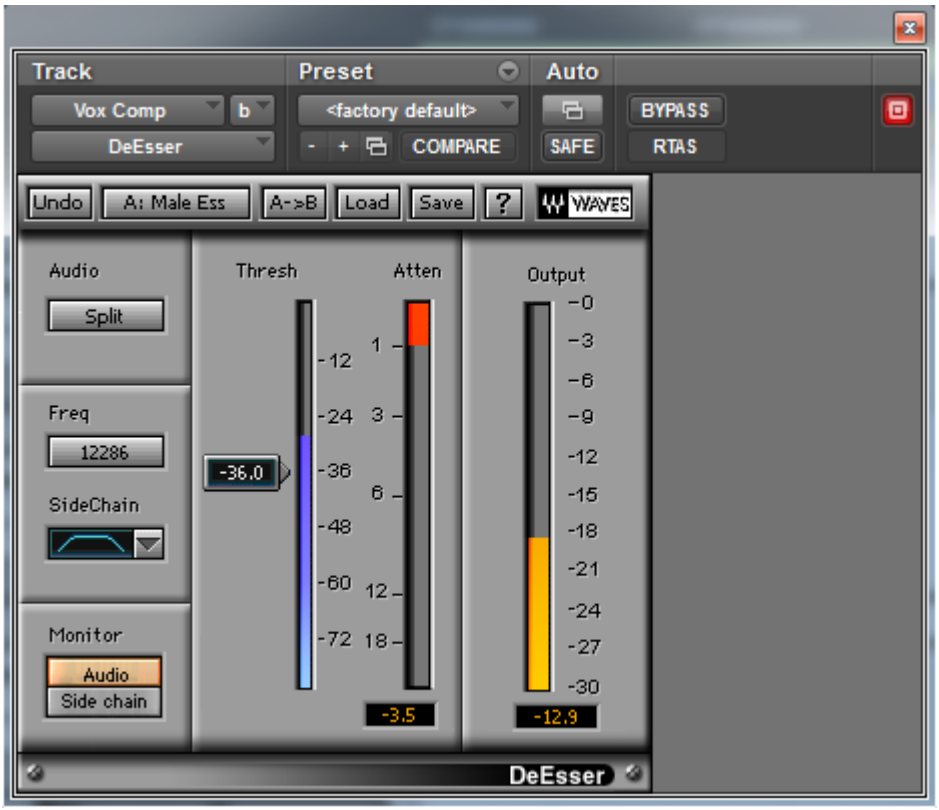


Compression/Limiting

A compressor levels out the peaks and valleys in a waveform. It lowers the amplitude of any waveform above a certain amplitude. This allows you to make quiet parts audible without making the loud parts louder. Without compression pops and clicks in a funk bassline would be quite painful at nominal levels. A little compression can also spare you hours of volume automation work on a vocal track.

DeEsser

I like to follow EQ on a vocal track with a form of compression called a DeEsser:



The letter “S” always sounds much louder than anyone wants it to when pronounced into a microphone. An accepted way to deal with this is to cut the amplitude of the “S” frequencies when those frequencies rise above a certain amplitude. This enables you to leave those frequencies present in between esses as opposed to removing them altogether throughout the whole track with equalization.

Controls:

- Bypass
- Save
- Load
- Frequency
- Threshold

Add Waves DeEsser plug-in to the inserts for your vocal track. Place it immediately following the EQ8.

Play a 4 – 10 second clip of some vocals with esses on repeat. Your esses should appear a bit too loud. If they don't I suppose it is possible that a DeEsser isn't necessary, but for main vocals I always use a DeEsser.

Bring the threshold to about -36. Threshold is the point of loudness at which the "S" frequencies begin to drop. The lower the threshold, the more "S" frequencies get removed.

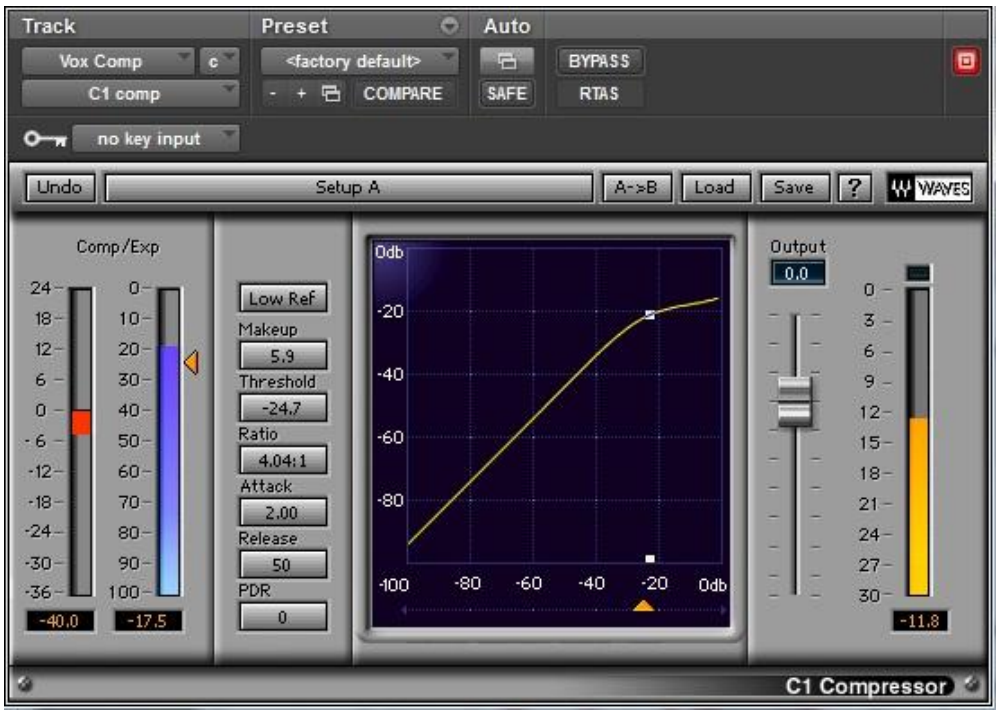
Notice the *attenuation* meter. Attenuation is what is *removed*. Every time an "S" goes through the DeEsser the attenuation meter will show how much of the "S" is removed.

With your esses still on looped playback, move the frequency somewhere between 7,000 and 12,000 Hz. Move the frequency around and watch the attenuation meter. Find the frequency value that shows the most attenuation. This is your "S" center frequency.

Now you can increase or decrease the threshold until the esses sound natural.

C1 Compressor

There are over a dozen compressors in the Waves Mercury Bundle©. Many of them, such as Renaissance Vox, have had controls removed for easier functionality. The C1 compressor has no such functionality removed:



Controls:

- Bypass
- Save
- Load
- Makeup
- Threshold
- Ratio
- Attack
- Release

You may not need any compression at all if there's just one other instrument such as a piano or guitar involved and the singer is consistent enough. It isn't until multiple instruments being played simultaneously before quiet parts of the vocals get drowned out.

For vocals, set the ratio to 4.00:1. "Ratio" relates two values about the threshold: input level above the threshold, and output level above the threshold. A ratio of 4:1 means that if an input signal is 4dB above the threshold, the output signal will be 1 dB above the threshold, effectively reducing the peaks in a waveform. Consider this:

Threshold = -20dB

Input signal = -12dB

Output signal = -18dB

Another way of looking at ratio is to consider a 4:1 ratio as something that removes 75% of whatever goes above the threshold.

Next set your threshold to somewhere between -15 and -25. The lower your threshold the flatter your waveform will get.

If this were drums or bass you would want the value for "attack" to be considerably lower. For vocals the default value of 2.00 works.

Lastly, adjust your "Makeup". Implementing the compression settings thus far has turned down the loudness level of your vocal track considerably. "Makeup" adds gain to compensate for the volume drop. Slide the "Makeup" fader up until your vocals sound natural in the mix.