

# Compression Chart & Cheat Sheet



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**Compressor:** An audio processing device that reduces the dynamic range of a signal or in other words reduces the difference between the softest and loudest part of the signal. The main controls are...

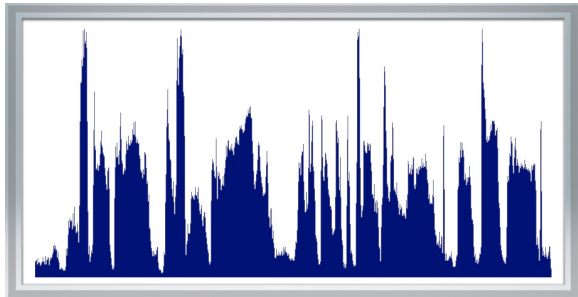
**Threshold:** Where the compressor kicks in and starts to reduce the gain

**Ratio:** What ratio of Gain Reduction is employed (Example - 2:1 will halve the signal above the Threshold)

**Gain:** How amped up is the resulting signal after the gain has been reduced

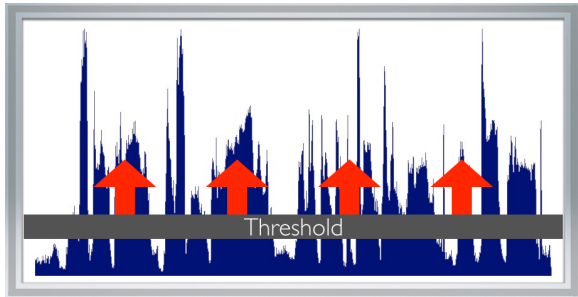
**Attack:** How quickly the Compression kicks in

**Release:** How quickly the Compression lets go of the signal



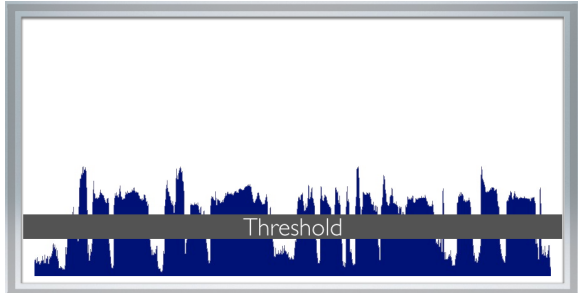
**Figure 1: Original Signal**

In this diagram, you can see the waveform of the original signal with large peaks. Clearly much of the signal is only as half as loud as the peaks. We cannot turn this up because the peaks will go into the red and we'll get distortion.



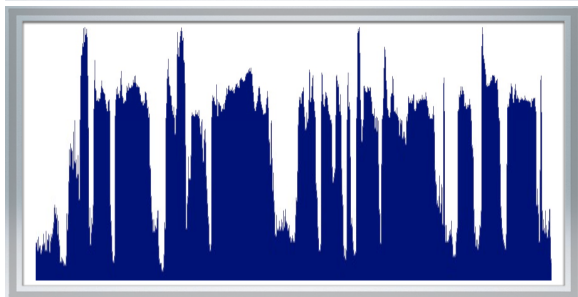
**Figure 2: Setting the Threshold**

When we lower the Threshold down onto the signal, only the peaks that stick their heads out above the Threshold will be compressed. All the other signal that does not meet the threshold will be unaffected.



**Figure 3: Setting the Ratio**

Once the Threshold has been set, the a compression ratio is set which is expressed as a ratio. A 2:1 or two to one ratio means that any signal that exceeds the threshold will be reduced by half. For example 6 dB above the threshold will be reduced down to 3dB or a half of that level. In this example we have a 4:1 ratio. See how the peaks have been drastically reduced allowing us to amp up this "compressed" signal.



**Figure 4: Using the Makeup Gain**

Once the signal's dynamic range has been squashed, we can then "amp" up the resulting signal with the make up gain.

Note how much more "dense" the signal is versus the original signal in Figure 1. If this were a vocal, the breathiness in the lower level parts could compete with the louder passages.

## Compression Guidelines:

Because each instrument and track is different in terms of the playing style and recording levels, it's impossible to create a perfectly accurate listing of Compression settings. This table should give you a good starting point.

I almost hesitate to place "recipes" on this sheet but so many people have tried to pin me down so here goes ;)

Instrument	Ratio	Notes
Vocal	2:1 to 8:1	Lower threshold until peaks show up. Medium attack and release.
Soft Vocal	2:1 to 4:1	To gain "breathiness", lower threshold more than usual.
Rock Vocal	4:1 to 8:1	Higher ratio and speed up the attack to "crush".
Kick	4:1 to 10:1	Lower threshold to bring more of the "body" of kick up.
Snare	4:1 to 10:1	"Crush" snare hits to help raise side-stick up in the mix.
Toms	4:1 to 10:1	Start with instant attack, then slow down to catch initial transients.
Bass Guitar	2:1 to 8:1	To gain "string noise" lower threshold more than usual.
Bass Guitar (Slapped)	4:1 to 10:1	Higher ratio and faster attack times tame a slap bass.
Acoustic Guitar	2:1 to 4:1	Requires a more gentle compression, lower the threshold for fingerpicking
Electric Guitar	4:1 to 10:1	Speed up the attack for Satriani style compression
Electric Guitar (Distorted)	No Need ;)	Already Compressed. All the distortion has reduced you to a square wave.
Piano	4:1 to 8:1	Slow down the attack to get the piano to bite through the mix



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