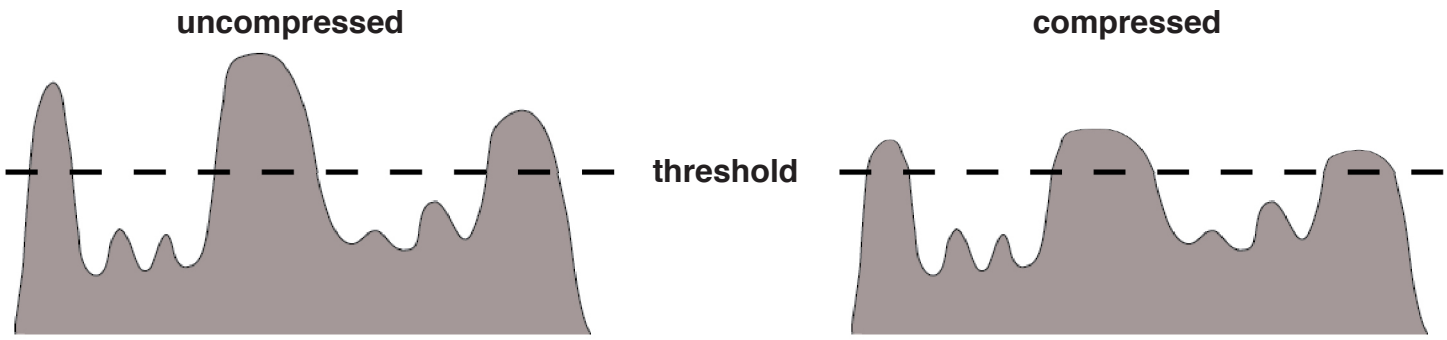
THE COMPRESSOR

14 Feb 2013

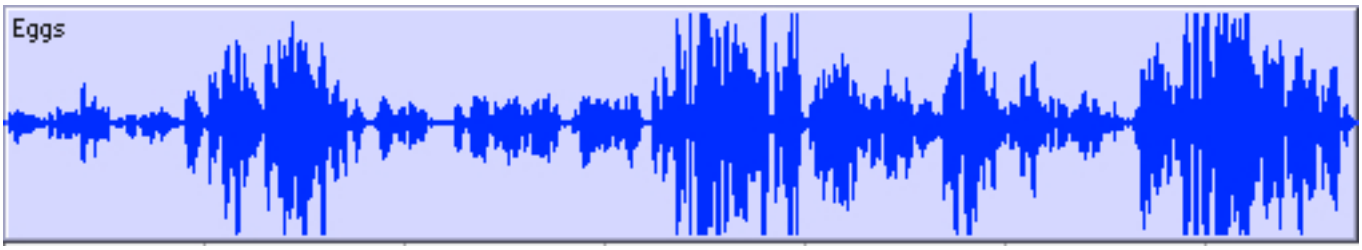
PREP:
Drag the "**files for week 5**" from the server to a local scratch drive. Launch ProTools and open the *local* copy of "**files for week 5**".

A **compressor** is a tool for controlling the *dynamic range* -- the difference between the loudest and softest parts of a sound or series of sounds. Used properly, **compression** is a great way to prevent distortion and improve intelligibility, clarity, and consistency. But too much heavy compression can do more harm than good.

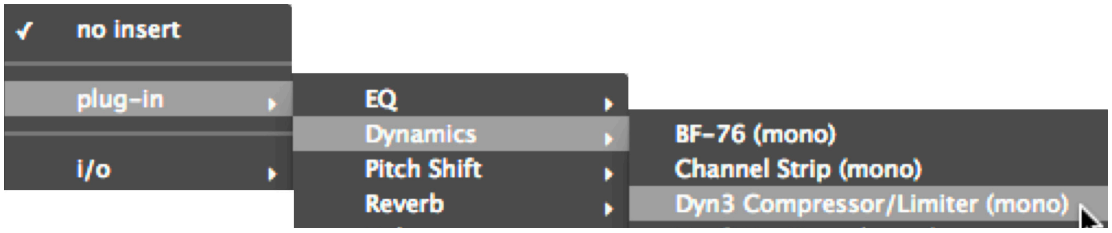
So how does a **compressor** work? There's a volume (that can be set) called the **threshold** (the dotted line). Any sound whose volume is above the **threshold** gets turned down. Sounds whose volumes are below the threshold are not affected.

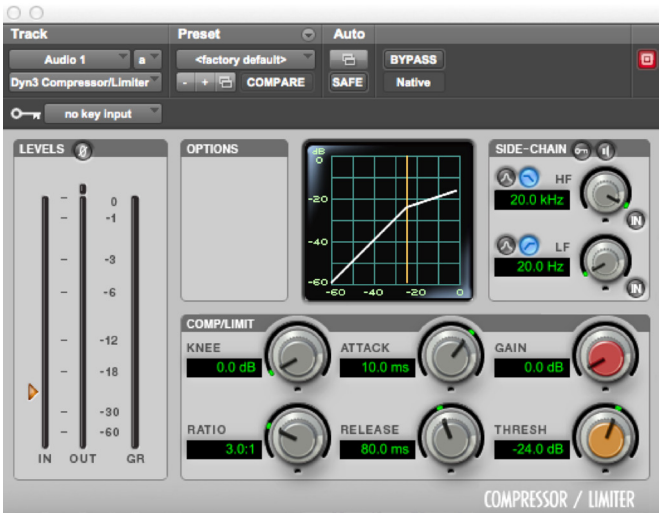


Here's a real-world example: Solo the "*Eggs*" audio track and listen to it. The volumes of the voices range from very soft to very loud. You can even tell just by looking.

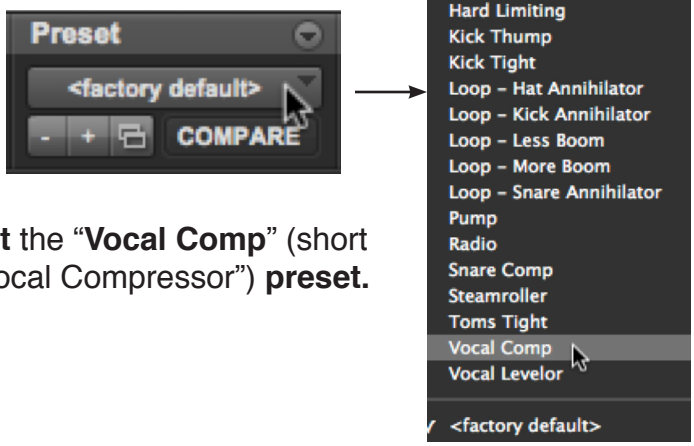


You could spend a LOT of time automating the volume to make the soft parts louder and the loud parts softer, OR you could **insert** a **compressor**.

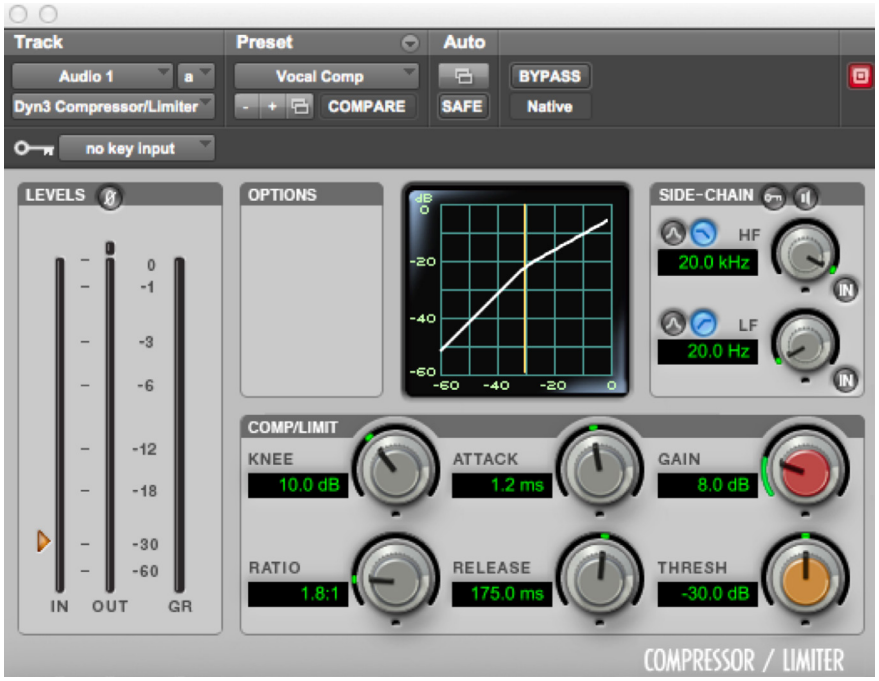




Click on the "**<factory default>**" button to get a list of **presets**.



Select the "**Vocal Comp**" (short for "Vocal Compressor") **preset.**



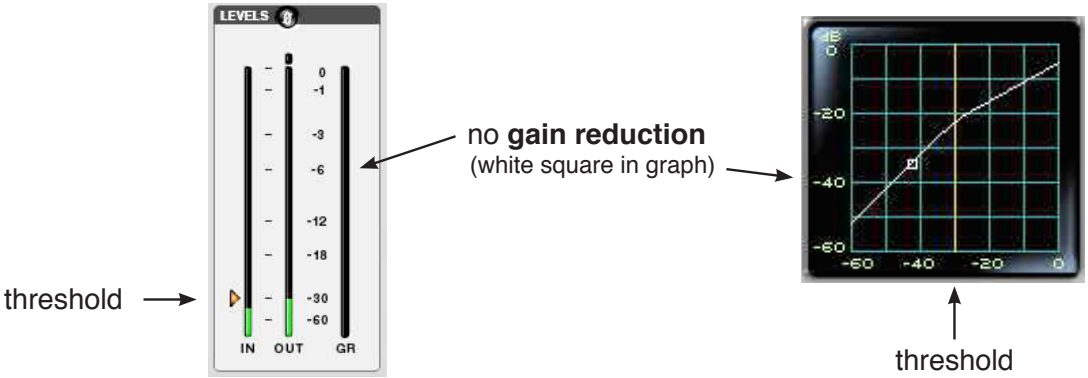
A quick look reveals that this has different settings than "**<factory default>**".

The two most important settings are **THRESH** (short for "**threshold**") and **RATIO**.

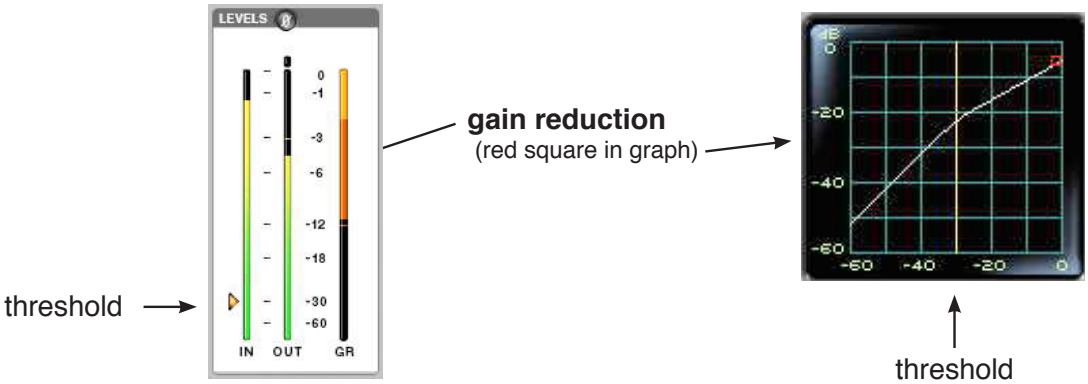
If the **threshold** is set very high, nothing will get turned down, and there's no point in even having a **compressor**. If the **threshold** is set very low, everything will get turned down. (There are cases where this is appropriate, but our voice example is not one of them).

The **ratio** determines how much turning-down (**gain reduction**) happens to sounds above the **threshold**. A **ratio** of **2:1** means that for every **2 dB** of volume above the **threshold** coming in, there will be **1 dB** of volume going out. The higher the **ratio**, the more **compression**. This can be seen on the graph in the **compressor** - as the **ratio** is increased, the more the line to the right of the **threshold** marker approaches horizontal.

When a sound's volume is below the **threshold**, there is no **gain reduction** (the **GR** meter), and its output is not reduced. This is visilbe in both the **LEVELS** panel and in the **graph**.

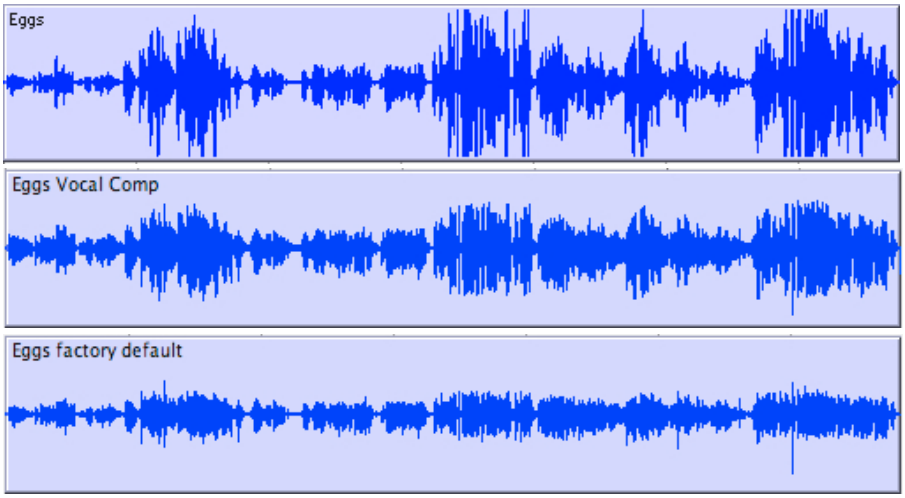


When a sound's volume is above the **threshold**, **gain reduction** is applied (in other words, it's turned down), and its output is reduced. This also is visilbe in both the **LEVELS** panel and in the **graph**.



Whenever there's a lot of **gain reduction** going on, the overall level will be lower, and it may be necessary to turn the whole thing back up some. This is done with the **GAIN** control. In the "**Vocal Comp**" **preset** the overall volume is turned up 8 db.

Here's a comparison of **"Eggs" uncompressed**, then **compressed** with the "**Vocal Comp**" **preset** and the "**<factory default>**" **preset**.



Bottom line: it's all about how it sounds. Try other **presets** on the same audio and listen to the differences, taking note of the settings of the individuals controls.