

A dark, atmospheric photograph of a DJ performing at a club. The DJ is seen from the back, wearing a black cap and a dark jacket, with their hands on the turntables. The background is filled with the silhouettes of a crowd of people dancing. The overall mood is energetic and professional.

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How To: Compression Basics

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Compression is a vital part of the production and mixing process, but all the talk of dBs and ratios can make your head spin. Our man from Point Blank walks us through the basics.



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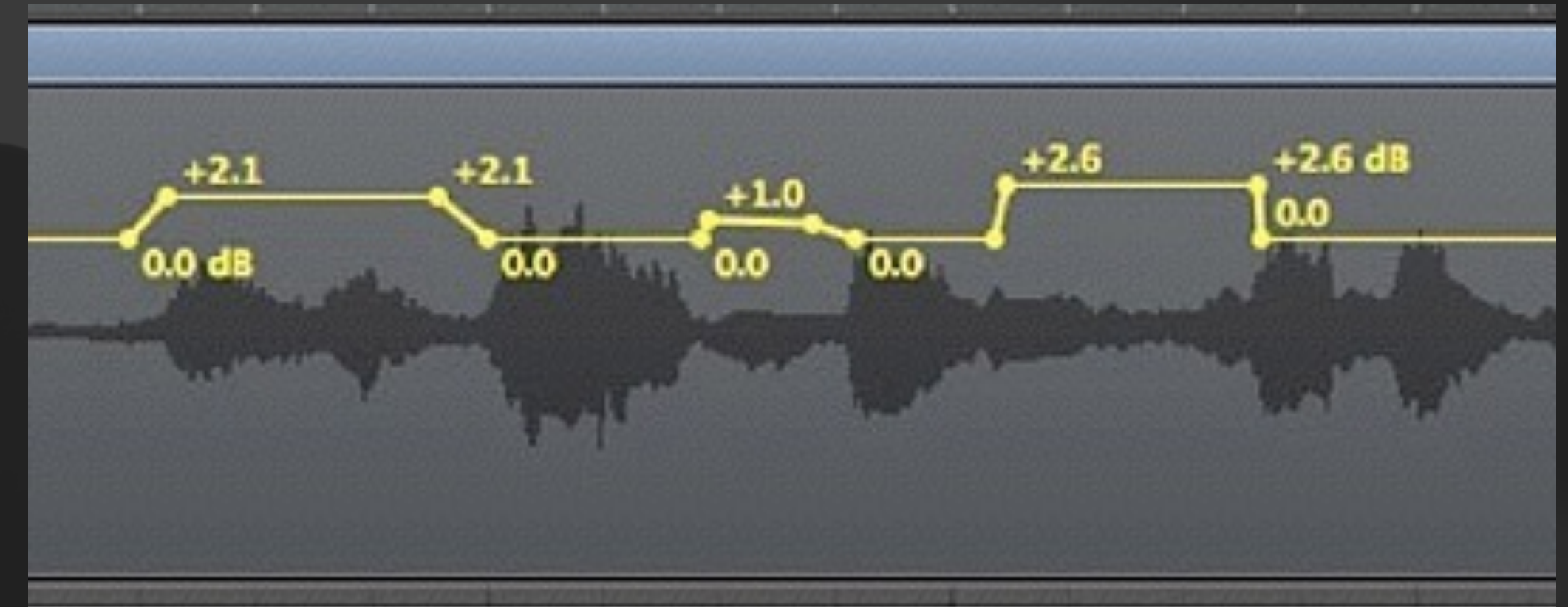
- What does a compressor do?
 - A compressor's job is to reduce a sound's dynamic range. The dynamic range of a sound is the difference between the quietest and loudest moments. If you want a more even level overall you 'squash' it using a compressor. How much you squash is up to you.



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Put simply, a compressor is an automatic volume control. To put this in perspective, it's good to look to the past when early recordings were made. In order that a singer could be heard above the music being recorded, an engineer would sit at the mixer and 'ride' the volume of the singer. If they were singing too loudly they would turn the volume down and if they were singing too quietly they would turn the volume up. Doing this by hand is long winded but some people these days still do it by using automation – the image to the right displays how this might look.

A compressor works in a similar manner but requires the user to set a level that it will start working at, a setting known as the threshold. If the volume goes above this level then the compressor automatically turns the volume down. How much it turns the signal down by is determined by another setting, the ratio.



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- **Threshold and Ratio**

- If you want to learn compression, the threshold and ratio are the two most important controls: in fact on some hardware units these are all you'll find. There are different schools of thought when it comes to operating them; some set the ratio first and then adjust the threshold, while others set the threshold then adjust the ratio. Neither is right or wrong – in fact a combination of both often works nicely.



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- **Threshold**

- This is a volume level (measured in negative dBs) that when tripped will let the compressor know it should start working. If your signal goes above the threshold it will then be turned down. The amount it is turned down by will depend on the ratio.



- **Ratio**

- This lets you set by how much the signal is turned down once it goes above the threshold. If you want it to be turned down a lot then choose a high ratio. If you want it to be turned down by a small amount, you go for a shallow ratio. Think of this control as the strength or amount of compression (in fact some compressors label it this way).
- If the ratio is set to 10:1 or above, then the compressor starts acting as a limiter and if the ratio is infinite:1 we describe it as hard limiting (where the signal never goes above the threshold). In recording, mixing and mastering, a limiter is used to stop the signal from going above zero dB.



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- **Attack and Release**

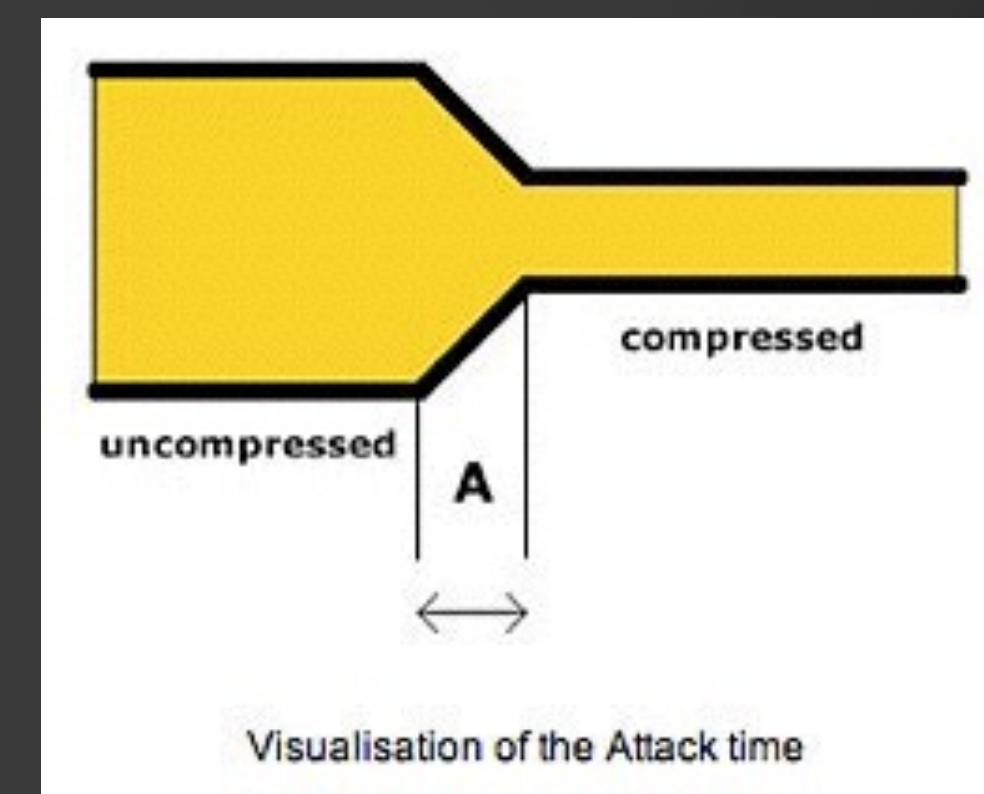
- The attack and release controls determine how quickly compression kicks in – Once the signal goes above the threshold and how long it takes to bring the signal back to the normal level when the signal dips below it again.



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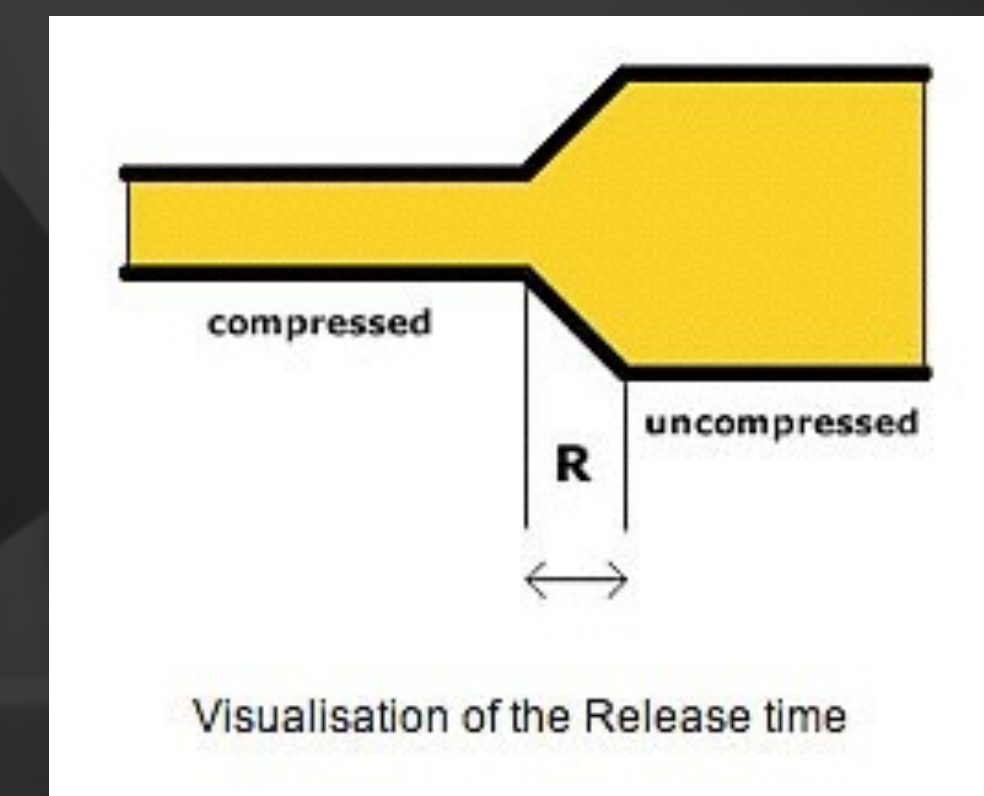
• Attack

- This is the time in ms that the compressor takes to bring the volume down once the signal goes above the threshold. It doesn't just jump the signal down in a straight line; it fades it down. Use the attack to control the dynamics of the sound you are working on. To reduce the energy of transients go for a fast attack (below 10ms) or, to increase the energy of them, go for a slower attack (from somewhere about 50 ms onwards)
- So in plain english: If you want to reduce the 'punch' of an element in your track, go for a fast attack. If you want to increase the 'punch' of an element, go for a slower attack.



• Release

- Release is the time it takes for the compressor to return the level back to normal after compressing the signal. Think of this as the time it takes to turn the volume back up. If the ratio is set to 10:1 or above, then the compressor starts acting as a limiter and if the ratio is infinite:1 we describe it as hard limiting (where the signal never goes above the threshold). In recording, mixing and mastering, a limiter is used to stop the signal from going above zero dB.
- Too short a release time and you will hear pumping and breathing – rapid volume fluctuations that some people don't like to hear. This effect – the Daft Punk / Eric Prydz style 'breathing' – is popularly used in house music as an effect (it can be emphasized further through the use of a side-chain triggered by the kick). Too slow a release however and the compressor will squash the volume down for too long – resulting in less energy in a sound or complete track.



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