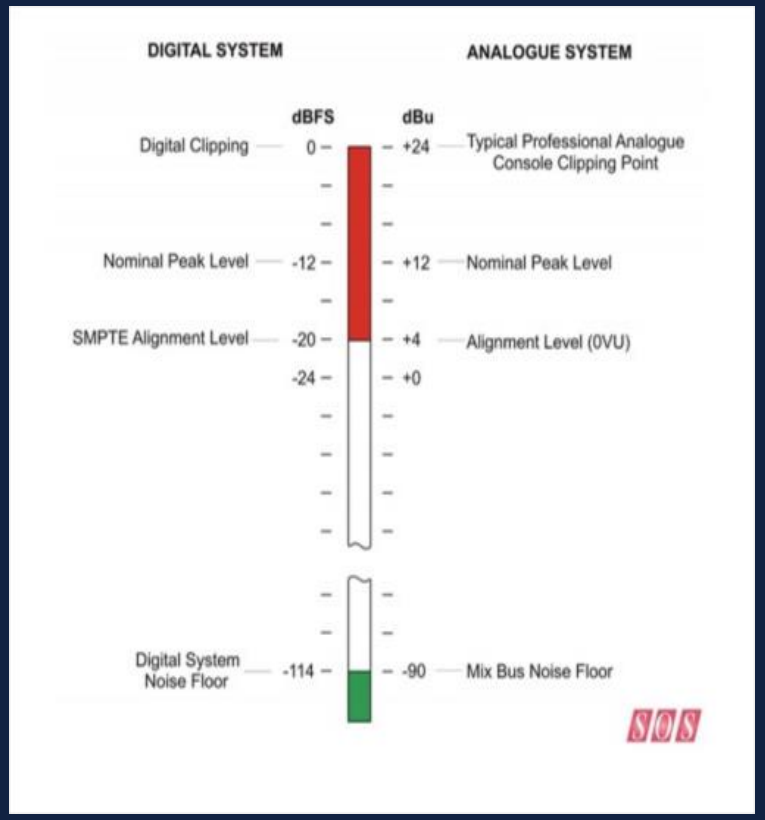
Recording Levels



In your 24-bit DAW session, you can record your tracks with average levels in the neighborhood of -20 dB, with peaks between -8 and-10 dB, and you'll still get full fidelity, but will leave plenty of headroom

Target Levels

Dialogue
-6dBFS

Foley
-18dBFS

Music & Ambience
-20 dBFS

DAW Bounced Assets
-6dBFS

Playback Loudness

Console: -24 LUFS (+/-2) // -1dBFS (Max) // >8LU and <20LU
Handheld: -18 LUFS (+/-2) // -1dBFS (Max) // >6LU and <16LU
Mobile: -16LUFS (+/-2) // -1dBFS (Max) // >6LU and <16LU

Loudness (aka Perceived Loudness) which is measured in Loudness Units Full Scale or LUFS (same as LKFS as of 2011). This value is an average of all of the loudness of the game up to that point of measurement and gives an idea of how loud your game is overall, on average. These are absolute measurements and use a specific mathematical formula that gives an objective number to what the perceived loudness of something is so we can compare it other things and make changes based on findings. LUFS is directly related to Decibels (dB) so lowering something 5 dB will also lower it's LUFS value by 5.

Loudness Range or LRA which is measured in Loudness Units or LU (also directly related to dB just as LUFS is). This value shows what the range of loudness in your game is (for example an LRA of 0 means that the loudness levels never change throughout and an LRA of 25 means that between the quietest and loudest moments in your game there is a 25dB difference.) To avoid extreme events from affecting the overall result, the top 5% and the lowest 10% of the total loudness range is excluded from the LRA measurement (to allow for silent moments or big booms without obscuring the results).

True Peak aka dBTP/dBFS stand for Decibel True Peak and Decibel Full Scale. Without getting too deep into the science inter-peak samples and digital audio, these values allow us to find the "true" peak of an audio file that may not be seen/heard if the peak is skipped over in the down/up-sampling processes of different systems. This is a different measurement that Sample Peak. Limiting by using dBTP/dBFS for reference (say to -1 dBTP) gives you a more accurate peak reference and allows you to be more confident of it's 'true' peak. The ideal situation is that the audio will not go above 0dBFS no matter the system someone is listening on or the compression codec used. Going above 0dBFS causes distortion from the peaks getting cutoff (like when you play something too loudly on small speakers).

Source: Jay Fernandes - http://www.fernaudio.com/what-is-all-of-this-loudness-nonsense-about

When creating assets, leave headroom. • Put a compressor on the master bus • Compressor ratio/threshold will give total control over dynamic range • Make-up gain will give control over final level • Do rough pre-mixes throughout production • Don't worry too much about levels during production. Do a final loudness pass at the mix stage (once content complete)

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