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Master Faders Versus VCA Masters

In the previous lesson, you learned that Pro Tools software (excluding legacy Pro Tools|HD systems) uses 64-bit floating point summing to provide extensive headroom when mixing signals, and to allow for large gain changes to any channel without a loss of resolution. You also learned that Master Faders scale the levels of buses and outputs. So, how are these concepts used in a real mix?

When to Use Master Faders

In Pro Tools, although internal buses are 64-bit floating point at the summing point and 32-bit floating after and between inserts, any audio path to an interface output represents a return to 24-bit fixed point. When you are using stem mixing, you need to be aware that any of your submixes could be clipped when sent to a bus, resulting in a clipped signal at the input of the Aux Input channel. Pulling down the fader on the Aux Input will only result in a quieter (but still clipped) signal. With the new design of the Pro Tools mixer (used by all Pro Tools systems with the exception of HD TDM), the potential to clip the input to a bus is greatly reduced, making this much less of an issue for Pro Tools|HDX, Pro Tools|HD Native, and host-based systems when compared to legacy Pro Tools|HD systems.

How to Determine When a Submix Is Clipping

You will be able to see if any of your submix stems are clipping if you use a Master Fader. The Master Fader's track meters will give you a true reading of the input level of the Aux submix channel. Also, be aware that plug-in clip indicator lights are for plug-in outputs only. This means that if there are any plug-ins on an Aux Input track, the top plug-in will be the point at which the signal arrives, but it will not light red to indicate clipping on the input bus. Instead, a plug-in's clip indicator measures clipping on output only. In addition, an Aux track's metering will only show post insert metering, so often a clipped bus routing to the Aux track will not be apparent in the Aux Input's track meter. Therefore, the only way to determine if the input bus of an Aux Input track is clipping is by the use of a Master Fader.

Tip: As an alternative to viewing a Master Fader track in order to check for clipping, you can instead click the Maximize button in an audio track's Output window to view an additional output display that shows the overall sum level of all tracks in the session that are routed to the corresponding output path. This is the same metering as on the Master Fader and is very useful if you do not need to scale the audio levels.