
SP2016 REVERB

User Guide

Eventide[®]

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1.1 About This Product

Thank you for your purchase of the Eventide SP2016 Reverb plug-in. This product contains reverb algorithms from the legendary SP2016 multi-effects unit plug-in format. For over 40 years, innovative effects like these have made Eventide an industry leader, and we are proud that they continue to be in demand today.

SP2016 Reverb features:

- Recreations of the Eventide SP2016 Stereo Room, Room, and Hi-Density Plate algorithms
- Reverb parameter controls including Predelay, Decay, Diffusion, and a unique Position control
- Low and high shelving filters
- Intuitive, easy to use GUI

We'll get into more depth on the product soon but, before you forget, please take a few minutes to register online. This helps us keep you informed of any important software updates, and any special offers that may only be available to registered users.

2.1 About Reverb

Creating a reverb algorithm is part art and part science.

The science bit is all about the naturalness of the sound – whether the simulation convincingly conveys the feel of a real room. Some digital reverbs don't have the horsepower to run a sufficiently complex program to achieve naturalness. Without enough processing power, the effect will suffer from low echo density or unnatural density growth with time or comb filter effects, etc. As Einstein is alleged to have said “things should be as simple as possible, but no simpler.” This principle certainly applies to reverb algorithms.

The art of reverb algorithm design begins with simulating a room that actually sounds good. Needless to say, rooms that sound awful exist in the real world. The structure of the reverb algorithm combined with the choices of delay lengths, interconnects, filter placement, early reflections, etc., all contribute to the overall sound. The final element of the art of reverb design is the designer's choice of the ways in which, and the extent to which, the artist/engineer/producer is permitted to modify the effect. What are the parameters and what do they do?

The degrees of freedom available to the designer guarantee that no two (sufficiently complex) reverb algorithms will sound the same. Each will be unique. There are a number of popular digital reverberators for good reason. Each has a distinctive sound; each has a particular set of possibilities. The SP2016 reverbs have attracted a loyal user base because of a particular blend of art and science. They sound natural. They sound distinctive. And, while they allow the user to vary the effect dramatically, the controls can't be set in a way that will create an unnatural sounding effect.

The algorithms naturally simulate every aspect of the sound of a real enclosure – from the complex early reflections, to the natural way in which the echo density increases with time, to the smooth Gaussian decay of the reverb tail. It's a powerful simulation that lends itself to parametric control.

2.2 Control Overview

Operating the plug-in is simple and intuitive: drag the sliders up and down to adjust the parameters. You can hold down the Option (macOS) or Alt (Windows) key prior to click-dragging the slider to have the slider move more slowly, giving you a finer degree of control over the parameter. The parameter value for the control is displayed underneath the slider and is updated in real time. You can also click on the displayed value and use the keyboard to enter a value.

The controls are divided into five main sections: Status, Levels, Parameters, EQ, and the Preset Bar.

2.3 Status



BYPASS	Mutes the input and output of the reverb.
LED DISPLAY	Shows the currently selected algorithm as well as the current value of a slider when dragging.
PROGRAM	Selects the current algorithm. SP2016 Reverb features three reverb algorithms, Stereo Room, Room, and Hi-Density Plate. Each algorithm is available in two versions: Vintage and Modern. The Vintage algorithms are modeled on the original SP2016's algorithms and hardware, and feature a lower bit-depth than the modern versions. The Modern algorithms are brighter, more diffuse, and use a higher bit-depth.



The POSITION, DIFFUSION, and EQ controls are disabled for the vintage Hi-Density Plate algorithm because they were not present in the original SP2016 algorithm.

2.4 Levels



INPUT

Controls the input level to the plug-in, the range is between $-\infty$ dB and +10 dB. The INPUT control can be used to attenuate the input so as not to overdrive the reverb and produce distortion. Like most audio gear, and digital gear in particular, you want to keep the input gain as high possible while still keeping the reverb from being overdriven into distortion as indicated by the LIMIT LEDs at the top of the meters. This control affects the input level for the wet and dry signals.

OUTPUT

Controls the output level of the plug-in, the range is between $-\infty$ dB and +10 dB. This parameter sets the signal level after the mix control.

KILL

The KILL button is a quick way to remove the input from the reverbulator so that you can listen to the tail (reflections) caused by your input. The button lights up when it is depressed, so that you can tell that the input is interrupted. This button also kills the dry signal to the mix.

MONITOR

Switches the source for the meters and LIMIT LEDs. The illuminated arrow indicates the active source; the left and right arrows correspond to input and output, respectively.

PEAK METERS

The PEAK METERS show the peak level of the signals at the input or output of the plugin.

LIMIT

The LIMIT LEDs illuminate when the peak amplitude of the input or the output has exceeded 0 dBFS (also known as digital clipping or overload) on the Left or Right channels. The LEDs will remain lit until you clear them; click either LIMIT LED to clear Left and Right channels. The LIMIT LEDs display the overload indicator for the currently selected mode (Input or Output). If you are monitoring the input and want to see if the output has clipped, simply toggle the MONITOR button. If the LEDs illuminate (or stay lit if the input has also clipped), the output has clipped.

When Output is selected for the monitor, the LIMIT LEDs also illuminate when the internal reverb “matrix” is overdriven into digital clipping. This may—and usually will—occur even if the PEAK METERS are nowhere near their maximum level indication. Digital clipping will also commonly occur if the DECAY slider is at its longest setting, or if you add gain at low frequencies using the LOW GAIN slider. The remedy is simple: lower the input level using the INPUT slider. This is a normal operating scenario; it is not a defect.

2.5 Parameters

Mix	Controls the mix between the unprocessed input and the reverberated output. This is especially useful when some pre-delay is added. The Mix Lock button in the menubar can be used to keep the level of the Mix slider constant while you browse presets.
PREDELAY	Introduces a delay before the reverb effect. If you want to control the delay change more accurately, hold down the command key before you click and drag this slider. The SP2016 Reverb is capable of long pre-delays, up to 999 milliseconds, and these can be used to create echo effects as well.
DECAY (RT60)	DECAY (RT60) sets the time (in seconds) for a full amplitude 1 kHz sine wave to decay by 60 dB. In other words, this control sets the reverb time.
POSITION	POSITION is used to move your “listening position” from the front of the “room” to the rear. You’ll find that POSITION is one of the most useful controls in adjusting the reverb to fit your mix. A simplified explanation: it changes the mix between the early and late reflections; what actually happens in the algorithm is more complex than this, however.
DIFFUSION	DIFFUSION alters the character of your space - from the sharp reflections of flat, hard surfaces (low) to the diffused reflections from rough, irregular ones (high). The DIFFUSION control doesn’t change the decay time, but it does have an effect on the evident nature of the decay by thickening or thinning its density. Note that this can often be a subtle difference and may be difficult to hear with some types of program material and/or with long decay times. The effects of the control will be most apparent with short decays and program material with percussive attacks.

2.6 EQ

The EQ (Equalization) section provides controls for high and low shelving filters. These controls affect parameters deep within the feedback structure of the reverberator and the effect may be subtle or dramatic depending on the program material and other reverb settings such as DECAY, POSITION, or DIFFUSION. In general, the controls will have more pronounced effects at longer decay times and more distant position settings. Additionally, it's usually easier to hear the effect of changes to the high frequency controls than it is to hear changes to the low frequency controls. The KILL button can be helpful in evaluating the how the EQ is affecting the sound.

LOW FREQUENCY Sets the corner frequency for the low shelving filter; the range is from 50 to 500 Hz in increments of 50 Hz.

LOW GAIN Adjustable gain for the low shelving filter, from -8 to +4 dB.

HIGH FREQUENCY Sets the corner frequency for the high shelf filter; the range is from 1000 to 8000 Hz in increments of 500 Hz.

HIGH GAIN Adjustable gain for the high shelf filter, from -8 to 0 dB.



Boosting the low frequencies when the DECAY control is set for a very long decay time can cause the effect to "run away". You can avoid this by lowering either the DECAY or the LOW GAIN. The reverb's internal feedback is also limited to help protect your speakers.

Some users, however, may find this type of sustained feedback interesting, and the parameters and EQ can be used to steer the feedback.

2.7 Preset Bar



Located at the top of the SP2016 Reverb Plug-In, the Preset Bar lets you load and save presets, along with several other features.

When SP2016 Reverb is installed, a library of settings is placed into the <user>/Music/Eventide/SP2016 Reverb/Presets folder (Mac) or the <user>/Documents/Eventide/SP2016 Reverb/Presets folder (Windows). These presets have a **.tide** extension and can be saved or loaded from the SP2016 Reverb preset bar in any supported DAW.

In many DAWs there is an additional generic preset bar that saves DAW-specific presets to a separate location. We recommend saving your presets using the Eventide preset bar to ensure that your presets will be accessible from any DAW. You can also create sub-folders inside the preset folders, if you wish.

LOAD/SAVE Use these buttons to load and save your presets in **.tide** format.

COMPARE Click to toggle between two different settings for the plug-in. This is useful for making A/B comparisons.

I/O Lock I/O Lock allows for flexible preset browsing. When I/O Lock is on, the current input and output gains will be preserved when new presets are loaded.

Mix Lock Mix Lock behaves similarly to I/O Lock. When Mix Lock is on, the current Mix value will be preserved as new presets are loaded. This is especially useful on an effect return track where the mix should always be set to 100.

INFO Click this button to open this manual.

SETTINGS Opens a drop-down menu with various user interface settings.

- **Scaling** – Sets the overall size of the plugin.
- **Always Show Values** – Sets slider values to be displayed at all times. This setting will apply to all instances of the plugin.

We hope you enjoy the SP2016 Reverb plug-in and put it to good use in all of your mixes. Please be sure to check out Eventide's other native plug-in offerings for more unique and interesting effects.