Renaissance Reverb

Table of Contents

Chapter 1 — Introduction

Thank you for buying the Waves Renaissance Reverberator. It is designed for the pro audio user, whether in TDM or Native applications.

The Renaissance Reverb was designed to provide elegant control of a classic sound. There are a lot of processors on the market which directly emulate vintage gear, but Waves wanted to provide a tool which had vintage sound plus innovative flexibility.

We took the early reflection system from TrueVerb as a starting point, improved upon it in many ways, created a new reverb tail, then created an interface for maximum visual feedback and control.
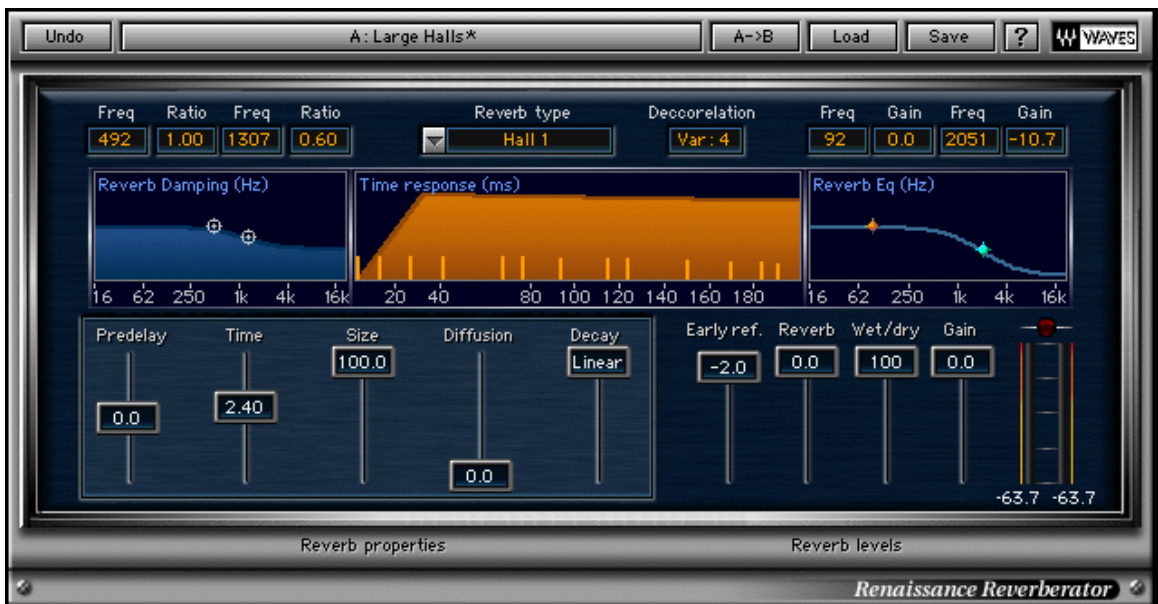
Chapter 2 — Quickstart

Basic Overview

How to use it (a general approach)

For "send" configuration, insert on stereo Aux track.
(Set Wet/Dry to 100% Wet) after loading preset.

For "thru" configuration, insert on desired track.
Set Wet/Dry to 50% wet after loading preset.

- Load a preset
- Adjust the Reverb Properties for color and flavor
- Adjust the Reverb Levels for balance of early reflections
- Tweak the EQ and Damping
- Change the Decorrelation for subtle flavor changes

The very top of the window contains the standard WaveSystem controls. Please see the WaveSystem chapter in this manual for complete information. It will make your work much more efficient! The WaveSystem is part of every software processor we make so you only have to learn it one time. Waves is unique in the industry by allowing you to control multiple parameters at the same time, and much more, so the WaveSystem is not just a lesson on how to click and drag!

The three main graphs on the upper part of the window show the time and frequency response characteristics. You can change the Damping and EQ by a simple click-and-drag on the markers.

In the lower part of the window are the nine slide controls, divided into Properties and Levels of the reverb sound.
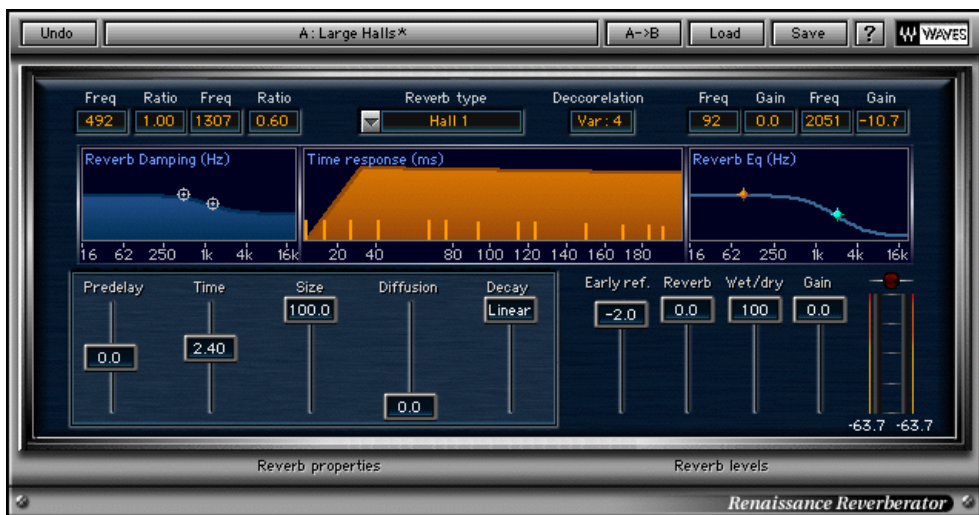
Chapter 3 — Components

Waves software processors generally have several components, or variations of the processor's capabilities, displayed in your editor's plug-in menu.

Renaissance Reverb has the full component, **Renaissance Reverb**, and a "Tail" component in your menu, named **Renaissance Reverb Tail.**

Whether you purchased the TDM or the native version, you'll have both components in your menu. The TDM full Reverb requires a full chip from a MIX card. The Tail component is compatible with older digidesign DSP Farms (aka, "Merle", or PTIII PCI farms).

The difference in the Tail component is that it was designed with older digidesign systems in mind; you can use the "Tail" component on any system, native Mac or PC, and Mac TDM if you bought the TDM package.

This smaller Tail component does not have Early Reflections or any associated controls. It is only the Reverb "Tail", and has only a few types to choose from (2 at this printing), as the lack of early reflections limits the room or hall characteristics.

Chapter 4 — The Controls

Reverb Type

[Hall 1 • Hall 2 • Room • Chamber • Church • Plate 1 • Plate 2 • Reverse • Gated • Non-Linear • EchoVerb • ResoVerb]
In the top center of the interface is the Reverb Type Control, which actually controls both reverb and early reflection behavior on a global scale. Each type, such as Hall, Room, Plate, etc., will profoundly change the sound. In a way, it's really changing the engine at the heart of the reverb. The Type can be changed at any time but with predictably large shifts in the sound.

Decorrelation

Ranges from Variation 0 to Variation 6
This controls the amount of correlation between the two channels (left and right) within the early reflections. The effect is subtle but can be very import in fine tuning the color of a sound. You can simply cycle through the variations by repeatedly clicking on the button.

Reverb Properties Controls

Predelay
Ranges from –160.0 to +160.0ms (milliseconds).
This is the typical predelay control, which offsets the reverb tail by delaying the signal that is sent to the reverb tail generator. We have an extra feature that allows for a negative predelay value, which actually delays the direct signal (dry).

As seen here:

When Predelay is negative, the button will appear red to warn you that your direct signal (the "dry" part of the wet/dry control) will be delayed.

Note that your wet/dry control must be less than 100 to hear any delayed dry signal and to see the red line in the Time graph showing the relative time and level of the dry signal, seen here:
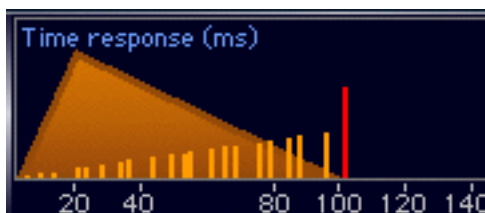
In the example shown, using the Reverse Type, the early reflections build up to about 100 milliseconds, then the tall red line just after 100 is the Dry signal. The wet/dry control is set to 50 for this example.

Time
Ranges from 0.1 to 20.0s (seconds)
This sets the standard reverb decay time of the "tail".

Size
Ranges from 1.0 to 100.0
Controls various and different parameters, depending on the Reverb Type that is selected. These could include early reflection spacing, reverb tail dimension, and more.

Diffusion
Ranges from 0.0 to 100.0
Serves as a balance control between direct and early reflections for feeding the reverb tail. When equal to 0.0, diffusion is at its lowest, as the direct signal is feeding the reverb tail; when equal to 100.0, diffusion is highest, as the early reflections are used to feed the reverb tail.

Decay

Ranges from 0.0 to "Linear"

This makes the reverb tail behave in a non-linear fashion, varying from linear at the top to the most non-linear (shortest) at the bottom. All types and presets can have a nonlinear (i.e., "gated reverb") sound simply by lowering the value of the Decay control, assuming you have the Reverb Time long enough to be gated (such as more than 1 second, we recommend 3 as a good starting point).

Reverb Levels Controls
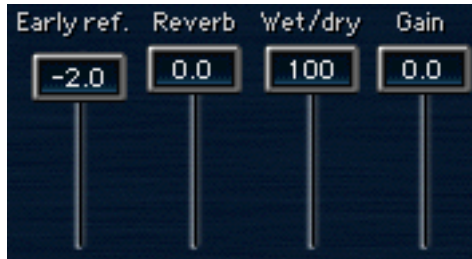
Early Reflections

Ranges from 0.0 to Off

Controls output level of early reflections.

Reverb

Ranges from 0.0 to Off

Controls output level of reverb tail

Wet/Dry

Ranges from 0 to 100

Controls balance between the dry and the wet signal (early reflections + reverb tail).

Gain

Ranges from –24.0 to 0.0

Controls input gain, calibrated in dB.

Damping Controls

Freq	Ratio	Freq	Ratio
492	1.00	1307	0.60

Low Frequency
Ranges from 16 to 1600 Hz
Controls the "knee" of where the low frequency damping begins.

Low Frequency Ratio
Ranges from 0.10 to 2.00 (multiplication factor)
Controls the progressive frequency response of the reverb's low range.

High Frequency
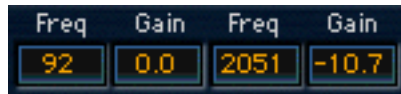Ranges from 1000 to 2100 Hz
Controls the "knee" of where the high frequency damping begins.

High Frequency Ratio
Ranges from 0.10 to 2.00 (multiplication factor)
Controls the progressive frequency response of the reverb's high range.

EQ Controls

Freq	Gain	Freq	Gain
92	0.0	2051	-10.7

Low Frequency
Ranges from 16 to 1600 Hz
Controls the "knee" of the reverb low equalization, which is "pre" to the early reflections and reverb.

Low Gain
Ranges from –24.0 to + 12.0
Simple gain control of the shelving EQ. When equal to –24.0, the filter becomes a cut filter.
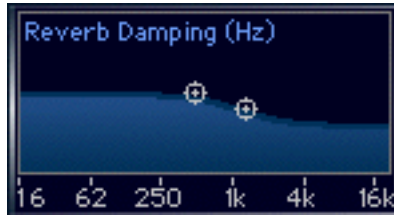
High Frequency
Ranges from 1000 to 2100 Hz
Controls the "knee" of the reverb high equalization, which is "pre" to the early reflections and reverb.
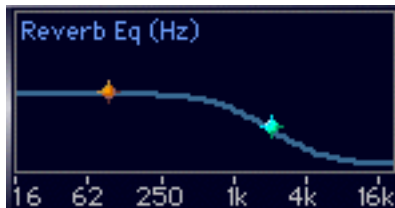
High Gain
Ranges from –24.0 to + 12.0
Simple gain control of the shelving EQ. When equal to –24.0, the filter becomes a cut filter.
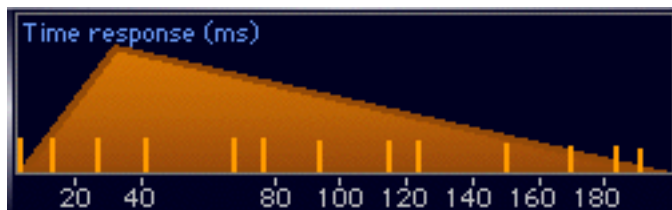
Reverb Damping

Reverb EQ

These two graphs show the damping and EQ settings and their markers can be dragged, allowing you to change two parameters at the same time.

Time Response

This shows the early reflection spacing by the small orange lines and the reverb tail by the solid orange triangular shape. The early reflection spacing is controlled in various ways depending on the Reverb Type that is currently selected; most often they are linked to the size control. They are not draggable.

Chapter 5 — Reverb Types

The Reverb Types are a core component of the very texture of a sound.

| Hall 1 |
| Hall 2 |
| Room |
| Chamber |
| Church |
| Plate 1 |
| Plate 2 |
| • Reverse |
| Gated |
| Non-Linear |
| EchoVerb |
| ResoVerb |

Halls are typically the starting point for all reverbs, emulating concert or performance halls, which are essentially just large rooms with pleasing, euphonic qualities. Smoothness of tail and frequency response, combined with esthetically pleasant early reflections, make a hall's personality and flavor.

Hall 1 – the default type of the Renaissance Reverb, designed for larger space emulation such as concert halls and larger performance venues.

Hall 2 – a different flavor of hall, with a longer sustain time in the upper mids, a longtime favorite of audio engineers, as this type of sound helps to penetrate through a mix without unnecessary cloudiness.

Room – varying in size from closets to convention centers, a "room" is in the ear of the beholder. Certainly at some point, a room could be considered a hall, but most often a room is smaller in size than a performance hall. Early reflections are stronger and less complex.

Chamber – "echo chambers" were built in studios to provide artificial reverberation, primarily before any electronic reverbs were available. A variety of microphones and speakers (at least 1 speaker and 1 mike) were placed in an asymmetrical reflective room. Chambers have a "non-room" type of sound, with a lack of strong early reflections or coloration.

Church – in general, nearly all the older cathedrals were not designed for acoustic transparency, but instead for the architectural representation of greatness and mystery. This was fine for pipe organs and choirs, but not so great for speaking voices, thereby the continued difficulty of intelligibility in some of Europe's great cathedrals. Modern churches have more acoustic design than many performance halls. This Type in the Renaissance Reverb is designed more with the European great churches in mind. Long reverb times and stronger late reflections are part of the capability of this type.

Plate 1 – the original plate reverberators were made of a thin metal sheet suspended inside a box, with transducers and pickups attached to the sheet. The speed of sound in metal is very fast, therefore the early reflections were quick and the reverb density was high. Typically the sound was bright and dense.

Plate 2 – a different flavor of plate, with controls not found on the originals!

Reverse – the early reflections are set to have increasing level with time, giving a reversal of normal decay character. For the best effect, use in a "Thru" mode instead of "send/receive"; set the Wet/Dry to 50% or so, set the Predelay control to a negative value, then set Size control so that the last reflection is just before the Direct signal. Of course to keep everything in sync, you'd have to offset all the other tracks in your session by the same amount of time as the PreDelay control, but you'll have a nice reverse on your track without having to "flip the reels over". That's for the old school who knows what this means.

Gated – as mentioned previously, the Decay control will make any Type have a gated sound, but this type also give you additional flexibility by changing several behaviors of the early reflections with a single control. As you change the Decay, the Reverb tail becomes nonlinear, but the early reflections also become shorter and change their relative levels, adding to the gated behavior.

Non-linear – most of the time, non-linear reverbs refer to gated sounds, but in this Type, we've provided for longer offsets and late reflections, allowing non-linear behavior which has louder reflections at the end of the maximum time, and very tight spacing when Size is at its minimum time.

EchoVerb – by intent, not a smooth sound. Very bouncy, with lots of little reflections and flutter echo. At the smallest size, rather edgy and ringing; at middle sizes, somewhat emulative of multiple spring reverbs; at large sizes, it is more of a diffused slap/reverb.

ResoVerb – equal early reflection spacing gives a very resonant effect, mostly due to the very fast flutter echo behavior. For a really resonant edge, push the Diffusion control up to high values. Certainly not a smooth sound, by intent.