LiquidSonics

ILLUSION

POWERED BY

Fusion-IR | Synthesis

User Guide

Applies to version 1.40 (and above)

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1. Fusion-IR Synthesis

Since its introduction in 2016 the revolutionary Fusion-IR processing technology has brought authentic reproductions of many classic reverbs within reach of music producers worldwide.

From vintage 1970's digital units to the modern classics powered by algorithms which still cannot be run in a native environment, Fusion-IR puts the sounds of the world's best reverbs within reach with an uncanny level of realism that no other convolution reproduction technique can achieve.

For decades algorithmic reverbs have used numerous variations on a basic technique – set up one or more circular delay lines into which audio is fed, pass the audio through them in various ways to disperse it, and read audio out of the delay lines at various places to create a simulation of reverberation. The basic approach has not changed much throughout the years in many (not all, but most) commercially available digital reverbs.

Whilst in some respects this reproduces the manner in which sounds reflect iteratively around a real space, it is inherently restricted by the shared processing capabilities of computer DAWs and signal processing systems in outboard equipment. Far fewer genuine reflection paths can be modelled than we would experience in reality.

Ingenious techniques have been invented to reduce tonal colouration and to randomise delay paths (reducing audible repetitions and increasing reverb density) but compromises remain. Whilst the use of various tricks such as delay line length and read position modulation can be used to great effect generating the lush reverbs we hear today, often it results in audible artefacts that are either unrealistic (such as a perception of unnatural motion) or that are typically unsuitable for many types of source material (such as chorusing on piano).

Although in many cases such approaches have resulted in the well-loved character traits of some of the more successful classic digital reverbs available, the job of a reverb designer is to look for ways to tread a new path without the need to explore such avenues of compromise.

Illusion's unique Fusion-IR Synthesis takes a novel approach using a range of cutting edge off-line reverberation generation algorithms that are impossible to implement as real-time systems and could not be reproduced without Fusion-IR's fully modulated convolution playback engine. A full complement of familiar and fully interactive reverb parameters can be used to design countless lush reverberant environments of unparalleled realism through to vintage-style classic character reverbs and plates all within a single plug-in.

Illusion synthesises Fusion-IRs on-demand without the need for a large library of sampled impulse responses using an array of advanced reverberation algorithms. From classic nonlinear and plate reverbs to natural environments including halls, chambers and rooms, Illusion synthesises an incredibly broad range of spaces that blend beautifully with drums, guitar, vocals and orchestral ensembles. It is perhaps the most versatile reverb processor available today, and its beauty truly comes from within.

2. Installation and License Activation

To install Illusion an Intel Mac or Windows PC DAW is required.

64-bit DAWs with 8 GB and above are highly recommended to minimise the impact of system memory restrictions. Approximately 100 MB of free disk space is required per plug-in format.

iLok License Manager

Before installing the plug-ins, install the iLok License Manager (http://www.ilok.com), then redeem your Illusion activation code to your iLok account. Then drag this license on to your iLok or local computer location.

Installation on Windows

The install process will request a number of file locations and the type of plug-in you wish to install (VST for most hosts or AAX for Pro-Tools). Initially select the plug-in formats required.

If you included a VST2 plug-in in your selection(s) you will be asked where those plug-ins should be installed. Typically Windows VST plug-ins are installed in one of the following locations although many options are available so you should select which is most suitable for your system.

32-bit plug-in, 32-bit Windows or 64-bit plug-in on 64-bit Windows	c:\Program Files\Steinberg\Vstplug-ins c:\Program Files\Common Files\VST2
32-bit plug-in on 64-bit Windows	c:\Program Files (x86)\Steinberg\Vstplug-ins c:\Program Files (x86)\Common Files\VST2

AAX and VST3 plug-ins are stored in standard locations, so there is no need for the installer to ask where they should be installed to.

No additional content or installations are required to use the plug-in besides iLok License Manager.

Installation on macOS

Run the Setup Illusion installer, and progress through it until asked which plug-ins to install. These are universal 32-bit and 64-bit plug-ins, but it is strongly recommended to use them in a 64-bit DAW.

3. Plug-in Overview

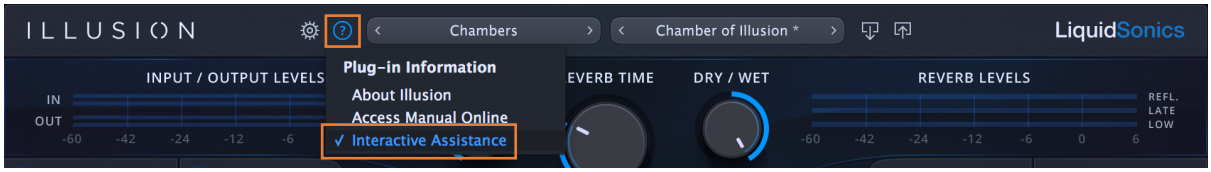
Illusion is split into the following core areas:

- Preset selection – load / save / manage presets using categories and preset selectors
- Settings – edit settings and view plug-in information
- Early reflections – define the size, level and filtering of initial reverb onset
- Late reverb – define the size, level and filtering of the late diffuse reverb field
- Echoes (late reverb) – add discrete echoes to the reverb tail
- Structure – define the pre-delay and width of the reverb
- Character – set the reverb density, reflection diffusion and low reverb boost levels
- EQ – revealed in a lower panel
- Dynamics and fidelity – revealed in a lower panel
- Centre console – spectrum analysis, early reflection presets/design and decay multipliers
- Metering – level of the input/output and reverb components (reflections, late, low)

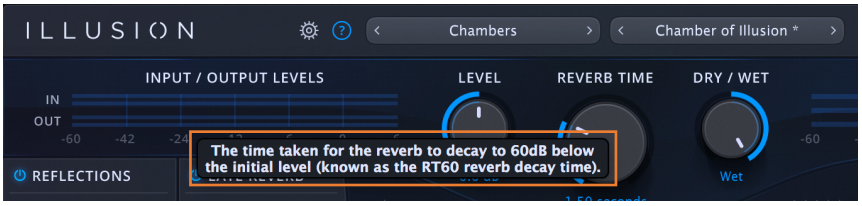
More details on the features follow in subsequent sections. For simplicity of operation some of the more advanced facilities are hidden by default but can be enabled as discussed in due course.

4. Interactive Assistance

Once the plug-in is loaded help is available within it by clicking the question mark icon.



When this mode is activated hover the mouse over a control to reveal an explanation of its function.



5. Early Reflections / Late Reverb Basic Controls

The early reflections and late reverb component controls provide the same core facilities as follows:

Level

The gain of the component

Size

Perceived size of the environment

- Early reflections: controls the spacing between reflections
- Late reverb: controls structural elements of the reverb tail that are key to the psycho-acoustic perception of an environment's size (or volume)

Flux

Controls the intensity of modulation within the component, varies between from off to 10 with the following characteristics:

- 0 (Off): No modulation at all
- 0.1 - 2.5 (Subtle): Gentle structural modulation for a subtle yet lively reverb that blends organically with the source
- 2.6 – 5.0 (Moderate): More noticeable modulation that can exhibit some effect on the level and stereo field positioning
- 5.0 - 7.5 (High): Higher levels of modulation that begin to exhibit subtle chorusing
- 7.6 - 10.0 (Maximum): Highest levels of modulation with noticeable chorusing

Roll-off and Slope

Analogue style low-pass filtering where control over filter steepness is expressed in decibels per octave. The roll-off frequency can be selected from 200 Hz to 22kHz. The filter can be bypassed at the top of the frequency range.

Power

Enable or disable a component

Further discussion relevant to the early reflections are presented in the sections discussing EQ, character, the centre console (reflection preset/design) and the optional positioning controls.

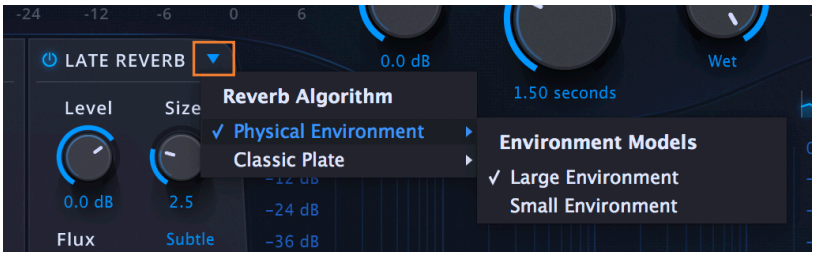
Further discussion relevant to the late reverb is presented in the sections discussing EQ, echoes, position, character and the centre console (decay time multipliers).

6. Late Reverb Algorithm

Two core algorithms are present within Illusion concerned with generating late reverberation, with variants thereof.

- Environments: for the simulation of physical spaces
- Classic Plate: for the simulation of a traditional metal plate reverbs

The appropriate reverb algorithm mode has been chosen for all presets, but this can be modified by clicking the downwards facing arrow indicated below.



The nonlinear reverb available within the early reflections section can also be used as a reverberant space in its entirety, hence acting as complete reverb in appropriate configurations (as some classic digital reverbs have done in the past).

Environments

The environment algorithm is designed to simulate the very rich and natural decays found within physical spaces in the real world. These can be tuned and structurally modified in a very convincing manner using the reverb structure and character controls (described later in the user guide).

Two variants of the environment algorithm are provided as the base structure of the space. The characteristics of small and large spaces differ quite fundamentally, so the appropriate room algorithm should be selected depending on the needs of the simulated space.

- Small: an algorithm designed to simulate small rooms and chambers which reach their peak reflection density very quickly due to the short distances between walls and other structures within the room
- Large: an algorithm best suited to halls, cathedrals and very large open spaces where reflections take longer to gather into a rich and dense diffuse reverberant field

Classic Plate

The first plate reverbs were introduced in the late fifties. A sheet of metal suspended by springs from its corners with a transducer mounted in the centre and pickups to the side, plate reverbs brought with them a very dense and diffuse acoustic signature.

Plate reverbs differ from natural spaces in many ways, but two of the most important are:

- Dispersion – sound waves at different frequencies travel through a plate at different speeds creating a distinctive whip-like sound at the onset of a plate reverb

- Damping – the mechanics of controlling a plate's overall reverb decay time cause decay times at different frequencies to vary non-linearly with the damping factor (e.g. the low frequencies in some plates begin to resonate for much longer than the highs in less damped configurations)

Due to age and construction factors all real plates tend to sound a little different. Illusion provides parameters to control the key factors described above; combined with other filtering and structural controls available within Illusion a huge palette of different plate sounds can be designed.

Dispersion

Sound travels through a plate at different speeds depending on its frequency. Similar in effect to a prism splitting light into different colours, a plate smoothly disperses sound by delaying different frequencies by different amounts dispersing it in time.

Low frequencies travel relatively slowly through the metal so are delayed more than the high frequencies dispersing the sound in a way that is unique to plate reverbs. Low frequencies can be delayed by around 10ms more than high frequencies, an effect never experienced in a real room. Simulating the delay rate of change with frequency is crucial to achieving a convincing plate dispersion tone as it is the primary cause of the characteristic whip like sound of a plate. It is especially audible with percussive material, and is very well suited to guitars and vocals.

In a real plate dispersion is largely affected by a plate's dimensions and pick-up positions, but other factors including the construction material, tension, mounting factors and so on all make a difference. For convenience this is all controllable with the 'size' parameter within Illusion. This controls the amount of perceived plate whip. Dial it back on drums and up on vocals or guitar. Plate dispersion simulation can be disabled entirely by setting the size to 'small'.

Damping

In a real plate a damper applies variable pressure to the plate. This frees or restricts its ability to resonate with the sound it is exposed to. Damping affects the decay time in different frequency bands by different amounts. A heavily damped plate (one with a short reverb time) sounds brighter than a less damped plate as it attenuates the low frequencies more easily than the highs. A minimally damped plate is free to resonant for as long as it can, and the low frequencies tend to persist for longer than the highs.

These complex multiband decay times are different for virtually all plates, which is why some sound more bassy/boomy with much more resonant low frequency tone than others. Different plate models are included in Illusion to simulate this effect:

- Coloured plates: multi-band decay times are linked to the master reverb time
    - Clear: bass extension contracts with short decays and extends subtly with reverb time; highs are only subtly tamed resulting in a bright sound
    - Sonorous: at high reverb times the bass decay is greatly extended and highs are reduced considerably for a very bass rich plate simulation at longer decay times
    - Warm: a mid-way between the clear and sonorous algorithms for warm plate tones
- Transparent plates: multi-band reverb time decay is not linked to the master reverb decay time allowing the low and high frequency decay times to be specified without the decay time affecting them in any way

- Bright: The only model in this category, and the brightest sounding of all the models because no high frequency attenuation is applied at all

The imagery below illustrates the effect described using the 'sonorous' plate model. It shows how different master decay times result in different decay times in low and high frequency regions.

A short decay time with a compressed low and high frequency decay; a maximum decay time is at the mid-point

A moderate decay time where highs are reduced and lows are approximately equal to the master reverb time

A high master decay time, low frequencies are extending well beyond the main reverb decay time to a noticeable degree

The low and high multi-band crossover frequencies of the coloured plate algorithms can be controlled using the frequency controls in the centre console. Further modification of the decay extension or contraction characteristics of the core algorithms can be made using the decay time multipliers. For instance, if the sonorous algorithm is extending the lows a little too much then choosing a 0.8-0.9x multiplier could be used to tame them a little.

<u>Use of Early Reflections / Low Frequency Reverb Components</u>

A plate typically does not have discernible reflections as it achieves a very high echo density very quickly. Some of Illusion's plate presets include early reflections for creative purposes, but for maximum authenticity the early reflections and low frequency reverb components can be disabled.

7. Late Reverb Echoes

Up to three discrete echoes can be added to the reverb tail. The echoes can be positioned in the stereo field at a given delay and level.

The delay time can be locked to song tempo by clicking the metronome icon next to the decay label.

8. Reverb Structure

Structural factors define a reverb's pre-delay and perceived width, these can be controlled as described below.

Width

The width control allows the room to be perceived as a wider, more spacious environment or at an extreme as a mono source. A maximally wide fully decorrelated true stereo space is available in the maximal position which can gradually be collapsed down to mono. The cross-feed channels (left to right, and vice versa) fade to mono more quickly than the direct feed channels.

Due to its fully decorrelated design Illusion's width control exhibits none of the typical phase issues at high width values that many other reverbs suffer from whilst maintaining good mono compatibility throughout the parameter range. Typically, true stereo spaces would be expected to use a value from 8-10.

Pre-delay

Pre-delay determines the perceived distance between the late reverb source and listener.

The pre-delay time can be locked to song tempo by clicking the metronome icon next to the pre-decay label.

Notes

To gain control over the early reflection's width and pre-delay refer to the settings section for information on how to enable an additional set of controls.

9. Character

The character controls determine the intrinsic acoustic properties of the modelled space.

Density

Controls the time taken for the late reverb's reflection density to build-up. Lower densities cause the initial tail reflections to be more widely spaced creating a lighter bodied reverb well suited to vocals or other sustained content including acoustic guitar. Higher densities are preferable for percussive content.

High values have a very rich and dense reverb character without discernible echoes and reflections in the tail useful for the simulation of furnished complex spaces or dense modern digital reverbs. Lower values have sparse, randomly spaced reflections which is useful for the simulation of large reflective rooms or early digital reverbs with low reflection density.

Diffusion

Higher levels of diffusion thicken the sound of the early reflections, lower levels create more easily discerned echoes. For percussive sounds higher diffusion reduces the 'hail storm' effect where closely spaced echoes are too easily discerned. For vocals and sustained content, a low amount of diffusion lightens the reverb maintaining clarity.

Low Boost

The level of the very low frequency reverb providing a low frequency depth and richness to the simulated space - this is especially powerful with orchestral and other bass frequency rich content, but also works well with many digital synthesisers.

The low reverb is designed to provide a very full and rich low response to shorter reverb decays whilst not overwhelming longer decays with an excess of booming low frequency content.

10.Equalisers

Clicking the down arrow at the bottom of the plug-in expands an additional panel containing 3 separate 5-band equalisers:

- Early reflections EQ
- Late reverb EQ
- Combined early, reverb and low frequency reverb EQ (master)

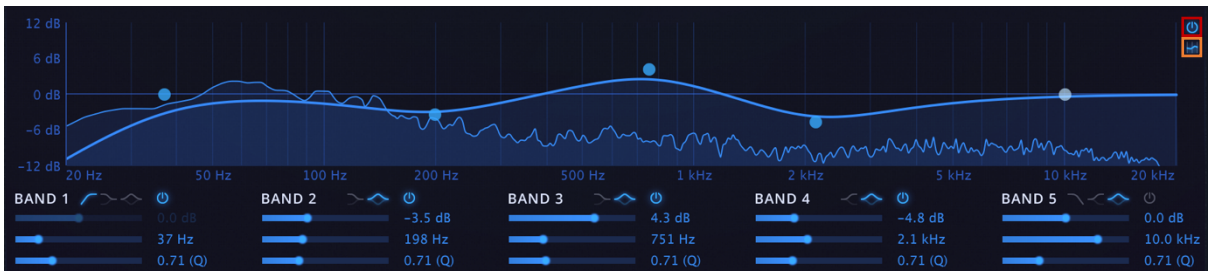
The bands can be configured as follows:

1. Low cut, low shelf, peak
2. Low shelf, peak
3. Low shelf, peak
4. High shelf, peak
5. High cut, high shelf, peak

All controls feature variable bandwidth (Q) and full frequency range control. The basic roll-off filters provided for the early and late reverbs (in the upper left panel) differ from the low pass filter type here as they are analogue style n-pole filters rather than parametric. All parametric filters are 2x over-sampled for maximum audio quality.

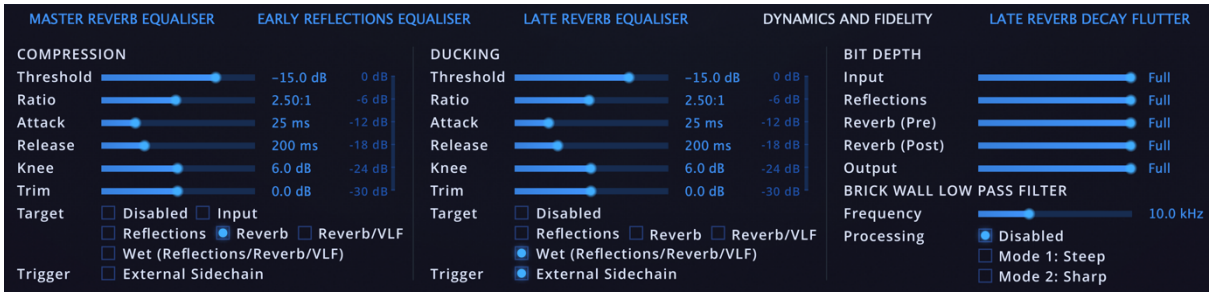
Each view can optionally be configured with spectrum analysis by clicking the spectrum analysis button (orange in the image below) or via the settings menu ('Enable EQ Spectrum Analysers' under 'Interface Settings').

A master enable/disable for each EQ type is shown in red.



11.Dynamics And Fidelity

In the lower panel you can access controls related to dynamics and signal fidelity.



Dynamics

Using compression or ducking (side-chaining a compressor inserted after the reverb with the dry signal) allows you to decrease the level in a specific part in the reverb engine. That could be the input, the entire wet signal, just the reverb, or just the reflections, or some combination. Illusion provides many compression and ducking isolation options to allow greater control over what parts of Illusion have dynamics applied to them.

Ducking just the reverb can often increase clarity of a performance during a vocal phrase because there is less competition in the mix for the vocal, but then when the singer takes a pause the reverb level can quickly recover allowing the reverb to move in to fill the space. This means much 'wetter' reverbs can be tolerated because it doesn't overwhelm the mix when the focus should be on the performer.

The trouble with just running a compressor or ducker over an entire reverb as a mixer insert effect is that it affects the early reflections as well. A well-designed reflections engine will enhance the spatialisation and realism in a crucial way, so pushing these down along with the reverb tail during a dry phrase usually isn't very good news - you can sometimes almost lose the effect of the reflections entirely and there aren't too many situations where you really want to do that.

Illusion will let you selectively compress or duck the reverb signal and leave the reflections at full volume. You will get all the benefits of the reflections, and increased clarity during phrases or busy moments in the mix by pushing down that reverb until it has the space to return.

While ducking is great for increasing clarity you can also creatively compress a reverb tail in many ways. For example by using a fairly low threshold, a large ratio value, a moderate attack and a slow release you can achieve a kind of non-linear reverb which holds steady for a period of time, before entering the release period when the reverberation has decayed below the threshold. Of course the standard fare of reducing transients that might hit the reverb and wash out in a way you prefer to suppress are all an option as well.

Compression can be applied to one of the following signals:

- Input
- Reflections
- Reverb
- Reverb + VLF (very low frequency reverb)
- Wet (reflections, reverb plus VLF)

Ducking can be applied to one of the following signals:

- Reflections
- Reverb
- Reverb + VLF
- Wet

Ducking is simply compression where the signal used to control a compressor is the dry audio source. This allows the compressor to release even when there is a lot of reverberation present in the signal. By contrast, you may wish to use a standard compressor on just the reverb to effectively shape the envelope of the reverb in a way that is not usually possible without also compromising the reflections.

You will find the standard array of controls typically associated with dynamics processors such as attack, release and knee; a gain reduction meter is provided to show how much gain reduction the envelope follower is requesting be applied to the signal.

In plug-ins loaded as VST3, AU or AAX an external sidechain can be supplied to trigger the modules.

Bit Depth (Fidelity)

Reverbs of old were often limited in their processing bit depth. That created a noisy, gritty atmosphere. That effect can now be revisited in Illusion by setting a 10 or 12-bit resolution on the inputs and outputs, but you can have some fun by taking things to extremes as well by aggressively crushing the reflections and reverb itself which starts to exhibit very dirty gate-like effects.

The bit depth can be selected down to an excruciating 6-bit through to a near-transparent 18-bit, or of course disabled entirely. The effect can be applied to any combination of the following signals:

- Input
- Reflections (applied after the engine, before the level and 5-band EQ)
- Reverb pre (applied before the engine)
- Reverb post (applied after the engine, before the level and 5-band EQ)
- Output (wet + dry)

Brick Wall Low Pass Filter (Bandwidth Limit)

Reverbs operating at low sample rates use sharp anti-aliasing filters within the audible frequency spectrum. This accounts for important part of the very characteristic tone of many early digital reverbs from the 1970s and 1980s.

A linear phase fast roll-off filter can be applied to the current preset for simulating the restricted audio bandwidth of such classic digital reverb devices.

The brick wall filter can be set between 6 to 18 kHz and has two modes. The ‘steep’ mode is a filter with a very fast roll-off but without the harsh corner frequency effects that the ‘sharp’ mode implements. If you find the very sharp filter a little too abrasive stick to the steep filter.

In versions prior to v1.2 this feature was available in a more limited capacity in the settings menu.

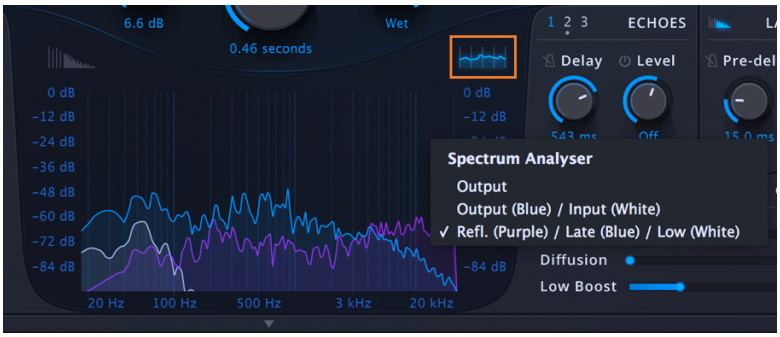
12.Centre Console

The central console visual area provides advanced editing capabilities for the early reflections and late reverb decay, as well as a spectrum analysis view.

Spectrum Analysis

The spectrum analysis view can be modified to show either the output, the output and input, or each of the reflections, late reverb and low frequency reverb components. This is accessed by right-clicking on the spectrum view itself.

To return to the spectrum analysis view (if using the reflections or decay views) click the icon shown in orange.



Early Reflections Control

Reflections simulate the immediate effects of geometry (walls) and objects within an environment. The early reflection designer allows reflection patterns to be selected, the proximity and reflectivity properties of these patterns can then be modified to simulate the reflectiveness of the material and the distance between the source and receiver.

Unlike most conventional reverb processors, the reflections processor in Illusion is designed meticulously to avoid phasing and other undesirable colourations despite it having the ability to place its reflections very closely together. Typically, when reverbs place reflections within a few to ten milliseconds apart they produce unpleasant audible side effects, but Illusion does not suffer from these adverse effects allowing it to produce idealised reflection patterns impossible to achieve in real rooms.

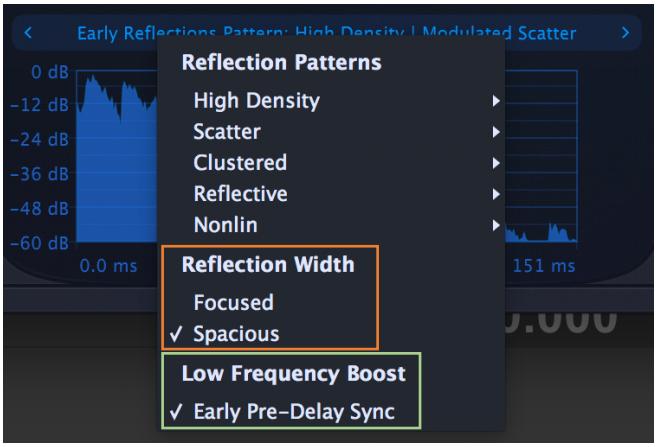
A small selection of nonlinear reverb patterns is also included.

Enter the early reflections mode by clicking the button indicated in orange.

- The spacing between reflections is affected by the size control (yellow) which creates the impression of a larger or smaller environment
- The diffusion of the reflections can be controlled (purple), please refer to the controls in the Character section for a discussion of the effect of modifying diffusion
- The reflection pattern can be selected by clicking the < > chevrons or the textual description (see the selector tool at the top of the green section)
- Reflectivity controls the decay rate of the reflection pattern; a highly reflective room will tend to have reflections that take longer to decay than a more absorptive room
- Proximity provides a degree of control over the rate and nature of the reverb attack, as per the effect moving further or closer to the source
- The reflections' position (pre-delay and pan) can be modified if these advanced editing controls have been enabled (shown in blue, see the 'early position controls' in the 'advanced controls' section of this document to enable them). By default, control over these properties is hidden as it is very easy to make poor quality selections for these values; good values have been selected for the factory presets

In the reflection selection pop-up the width of the reflections can be controlled to either provide greater focus or spaciousness (see orange below). The advanced technique employed by Illusion is not susceptible to high-width phasing or low-width stereo collapse artefacts typically associated with width processing approaches in many reverb plug-ins.

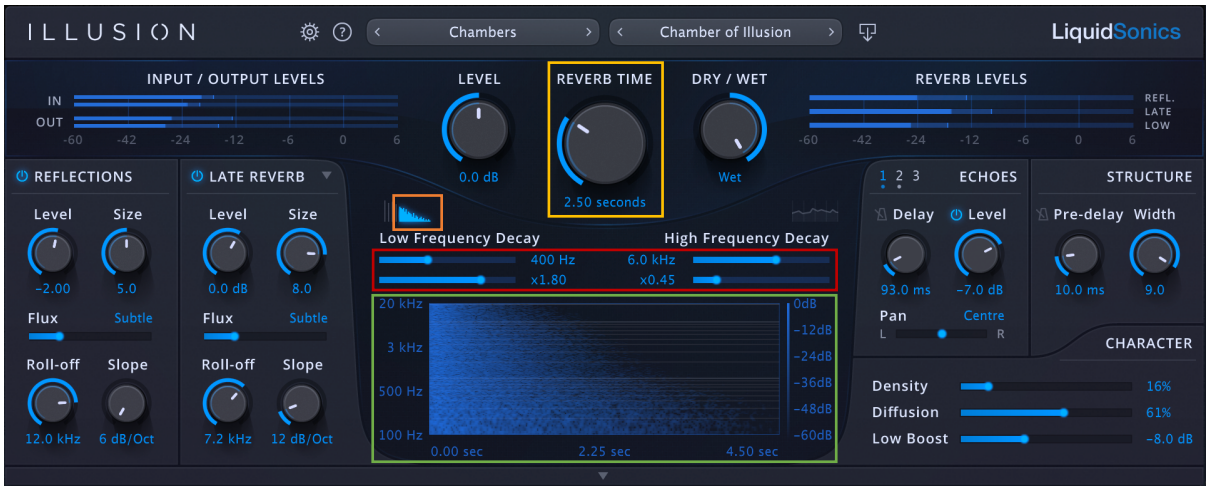
The low frequency reverb boost is typically synchronised to the late reverb's pre-delay, but can optionally be synchronised to the early reflections using the option shown in green.



Late Reverb Decay Time Multipliers

The base reverb decay time (shown in yellow) determines the time taken for the reverb to decay to 60 dB below its initial level. Using the late decay modifier controls (shown in red and revealed via the button shown in orange) allows the reverb's low and high frequency decay properties to deviate from the main decay by a proportion above and below two frequency points.

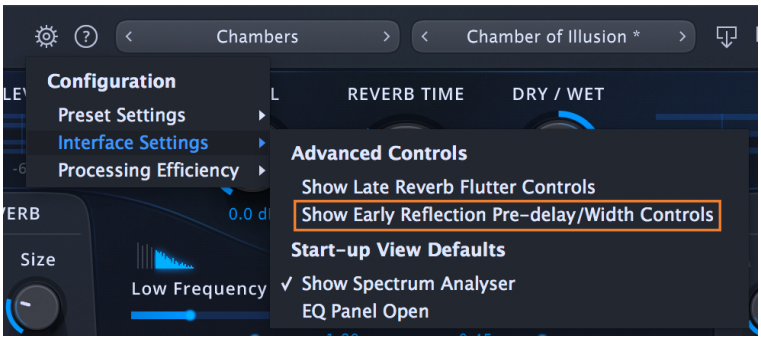
The resulting reverb decay is depicted in a spectrogram (shown in green). In the example below the low and high frequency decay times have been reduced. This has the effect of producing time-variant frequency modulation within the reverb tail where the highs and lows decay faster than the mid frequencies. This is a very common effect in real rooms where different materials affect the tone of the reverb decay considerably.



13.Advanced Controls

Early Structure Control (Pre-delay and Width)

Frequently it is only necessary to control the width and pre-delay of the late reverb component as the early reflections blend with the dry sound of the environment very naturally. Hence the structure controls (width and pre-delay) by default only operate on the late reverb component. In cases where control over the early reflections' width and pre-delay is desirable the structure controls can be enabled for the early and late reverb components individually via a settings menu option (see the orange option below).



Then by clicking the early/late icon (shown in orange below) the pre-delay and width of the early reflections and late reverb be accessed individually. The available parameters are shown below when the settings option is enabled or disabled.

Default View
(Edit late pre-delay / width)
Settings option is disabled

Early Reflections View
(Edit early pre-delay / width)
Settings option is enabled

Late Reverb View
(Edit late pre-delay / width)
Settings option is enabled

Reverb Decay Flutter Design

The flutter designer allows the reverb tail's energy density to be modulated periodically or randomly. Higher levels of flutter simulate the effects of low diffusion and density but without introducing discernible echoes or reflections as would be achieved using the 'Density' parameter (see Character section).

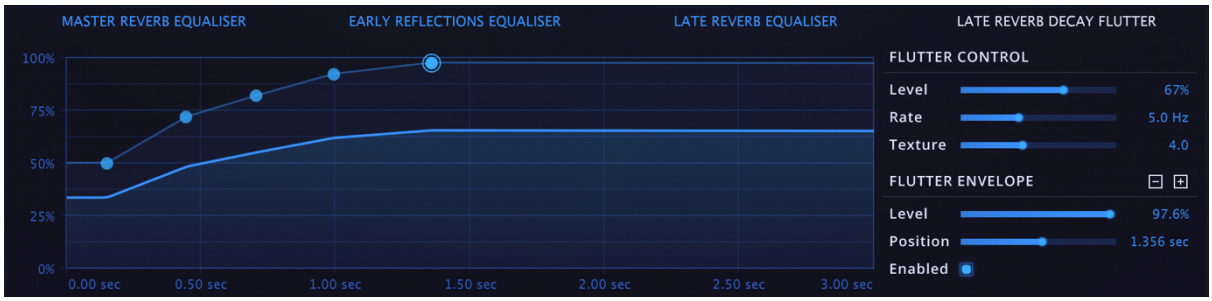
Low flutter values modulate the energy density very subtly creating a very natural liveliness to the decay. High flutter levels (above 65%) will begin to affect the stereo image more noticeably.

Texture controls whether the modulation is periodic and smooth or more random.

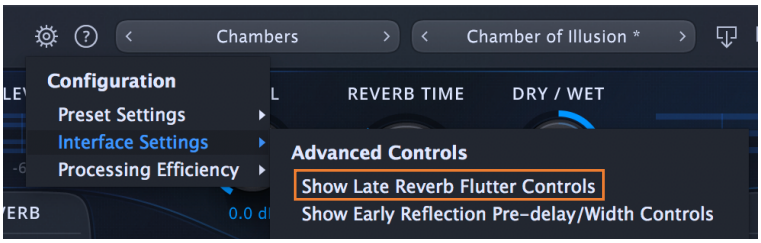
The rate determines the periodic speed of modulations.

- Low and medium levels of flutter tend suit moderate modulation rates.
- Using high levels of flutter with low modulation rates, slow flux values and higher texture values can achieve a gentle but very randomised undulating motion throughout the entire reverb tail that is especially pleasant with very large reverbs.

The flutter level control determines the proportion of the envelope trace used. This allows flutter to be supressed or enhanced in a given part of the decay. The envelope can be modified by dragging points, adding points with the + button (or double-click the envelope) and by removing points using the - button (alt-click a point to remove it).



The flutter designer is an advanced facility with its controls hidden by default. It can easily be enabled from the settings menu.



Reverb decay times are typically specified as an RT60 (the time taken to decay to -60dB from the loudest point). The envelope is shown up to the RT120 time, which is why the envelope region extends beyond the displayed reverb time. This allows envelopes to be specified some way into an extended low or high frequency decay multiplier region, or beyond the RT60 out towards the RT120.

14.Settings

Preset Settings

Initial Values / Hold Values

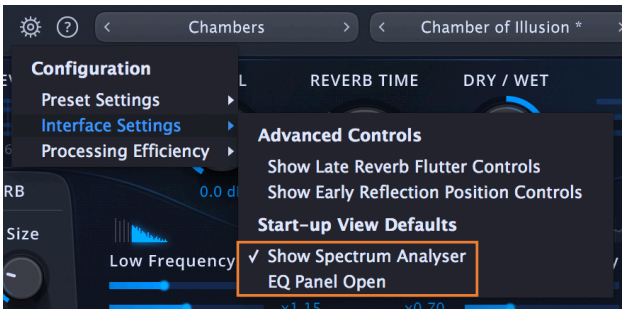
Whether presets should default to wet, or an equal dry/wet mix can be specified. Further a number of controls can be held when preset changes occur, for instance if a satisfactory reverb decay time has been found but a different tone is required the decay can be locked while other presets parameters change (shown in orange).

Late Reverb Algorithm

The late reverb algorithm for the current preset can be selected from the settings menu (this is the same as clicking the down arrow at the top of the late reverb controls section on the left side of the plug-in).

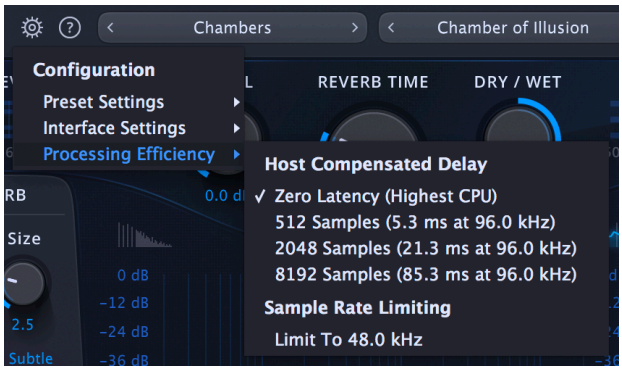
Interface

All options other than the start-up view defaults are covered elsewhere in this document. The start-up view defaults control whether the spectrum analyser or reverb designer tool are shown at start-up, and if the EQ panel is shown by default.



Efficiency

The efficiency settings allow CPU to be saved by making performance concessions.



Latency

Latency can be introduced to the processing system which reduces CPU consumption. This is reported to the host for automatic compensation. Changes to this setting are applied the next time playback begins and affects all running instances.

Sample Rate Limiting

For sample rates higher than 48 kHz the plug-in can optionally down-sample to 44.1 kHz or 48 kHz operation (depending which of those is a factor of 2). For instance, with this setting enabled a sample rate of 96 kHz will result in the plug-in running all reverb processing at 48 kHz (a 2x divider) or 176.4 kHz will result in 44.1 kHz (a 4x divider).

This option is only shown in the menu when Illusion detects the host to be running at a rate higher than 48 kHz. Depending on the host's capabilities changes to this setting may only be applied after the project is reloaded, but some hosts can support the change on the current and any other running instances the next time playback begins.

If this option is not enabled, when running at rates above 96 kHz the reverb will only run at a maximum sample rate of 88.2/96 kHz to minimise processor usage.