

LiquidSonics

CINEMATIC ROOMS
PROFESSIONAL

User Guide

Applies to version 1.20 (and above)

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1. Installation

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

64-bit DAWs are required. The plug-in is not compatible with 32-bit DAWs.

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). 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 such as:

c:\Program Files\Steinberg\Vstplug-ins

c:\Program Files\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.

Installation on macOS

Run the installer progress through it until asked which plug-in formats to install.

2. License Activation

iLok License Manager

Install the iLok License Manager version 5 or above available from the <http://www.ilok.com> website. If the version of license manager is too old it may fail to find a valid activation even if you correctly activate the licenses.

Redeem your Cinematic Rooms activation code to your iLok account and select a location to activate to. You may activate to:

- An iLok 2 or 3 USB dongle
- A local computer hard drive location
- iLok Cloud

Drag this license on to your iLok or local computer location to activate to a physical location. Or if you wish to use your license with iLok Cloud simply click 'Open Cloud Session' from the 'File' menu in iLok License Manager once you have redeemed your code.

If you are upgrading from Cinematic Rooms standard edition please refer to the upgrade guide for further activation details about the surrender of your old license during the process.

3. Supported Channel Configurations

All versions of Cinematic Rooms support the following channel modes:

- Mono to stereo / surround
- LCR
- Stereo
- 4.0 / Quad
- 5.0 and 5.1
- 7.0 and 7.1
- 7.0.2, 7.1.2
- 7.1.4, 7.1.6 *

In all x.1.z versions the LFE channel is treated as pass-through. Various asymmetric channel configurations are provided; options include mono to stereo, mono to 7.1.2, stereo to 5.1, 5.1 to 7.1, and so on.

* At the time of writing Pro Tools supports a maximum channel width of 7.1.2. In order to support 7.1.4 and 7.1.6 workflows an additional three stereo auxiliary outputs are provided by the plugin. These serve additional decorrelated crossfed audio to help improve spatialisation in the mix. In order to use these create an instance of the plugin on a 7.0, 7.1, 7.0.2 or 7.1.2 channel, create up to 3 additional stereo aux busses, and select the input for the stereo aux channels to be the auxiliary outputs of the plugin. These can be routed to objects to supplement a 7.1 or Atmos 7.1.2 bed. Given these can only be provided as outputs there is no way to pan into the .4 and .6 channels when using Pro Tools.

The auxiliary outputs are disabled by default to save CPU usage if not required. They can be enabled through the settings menu. This is a global setting affecting all instances, and requires a restart of all plugins to take effect.

In Pro Tools the 7.x auxiliary outputs are always present but can only be used when the plug-in is operating in 7.0 and up mode. Auxiliary outputs are not provided in other plug-in formats.

Full support for 7.1.4 and 7.1.6 inputs supported with the VST2 or VST3 versions depending on host capabilities.

All auxiliary stereo outputs operate in the elevation plane.

4. Supported Channel Topologies

Three surround processing topology modes are available. These can be selected from the settings menu when the channel count is 4 or more. They apply to the current plug-in instance, irrespective of the preset loaded.

Full Surround Crossfeed Propagation

Audio received on each channel produces reverb and reflections heard in its own channel and which also floods into every other channel. All crossfeed reverb is decorrelated.

This is the default option.

True-Stereo Plane L/R Propagation

The plug-in can be virtually divided into a set of true-stereo reverbs along the stereo plane lines. For instance, in a 7.x reverb this would mean the front L/R, side L/R and rear L/R become partitioned and operate independently, plus a further mono reverb for centre that is completely isolated. Audio received on the front left channel would create reverb in the front left and front right (as per true stereo processing), but would not propagate to any other channels. This could be thought of as a 'multi true-stereo' option.

All Crossfeed Propagation Disabled

The reverb algorithm can be further partitioned so that each channel is fully isolated from all others. With no crossfeed between any of the channels, this is similar to a 'multi-mono' configuration.

Centre Mute

To avoid reflections and/or reverb feeding into the centre channel the 'centre mute' options can be enabled. Audio received on the centre channel will crossfeed into other channels in surround topology mode, but the centre channel can be kept free of other processing.

Centre mute mode can be selected independently of the propagation setting. This is off by default.

5. Plug-in Overview

Cinematic Rooms is split into the following key areas:

1. Preset selection
2. Settings
3. Assistance (tool-tips / manual)
4. Reverb decay time
5. Reverb decay contouring and reverb low boost
6. Reflection roll-off filtering
7. Reverb roll-off filtering
8. Reflection definition
9. Reverb definition
10. Metering
11. Mix and level control
12. Dynamics controls (ducking, compression and gate)
13. EQ controls (5-band post-effect equaliser)

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1 REFLECTIONS **2** REVERBERATION **3**

6 **4** **7**

Reverb Time 2.25 Sec

ROOM DYNAMICS EQ

LOW BOOST BASS - CONTOUR - TREBLE

SHAPE ECHO X-FEED MOD

Depth Proximity Size Reflectivity Level Multiplier Frequency

7.5 Close 2 5.0 5.0 **8** -15.0 dB RT x 1.00 **5** 3.0 kHz **9**

Pre-delay Bloom Undulation Depth

2.0 ms 2.5 2.5 2.0

INPUT / OUTPUT LEVELS REFLECTION / REVERB LEVELS

Input L Input R Output L Output R **10** Refl / Rev Mix Master Gain Dry / Wet Mix **11**

Equal Mix 0.00 dB **10**

Amethyst Hall * CINEMATIC ROOMS PROFESSIONAL LiquidSonic

REFLECTIONS REVERB DECAY REVERBERATION

24 dB 12 dB 0 dB -12 dB -24 dB

1 kHz 3 kHz 10 kHz

8.00 kHz 6 dB / Octave

Reverb Time 2.25 Sec

ROOM DYNAMICS EQ

REVERB DUCKER REVERB GATE

Active

Threshold Ratio Knee Attack Release Trim GR

-40.0 dB 2.50:1 6.0 dB 25 ms 200 ms 0.0 dB 0 dB

-12 dB -24 dB -36 dB -48 dB -60 dB

Threshold Hysteresis Hold Close Open Range GR

-20.0 dB +3.0 dB 50 ms 200 ms 10 ms -25.0 dB 0 dB

-12 dB -24 dB -36 dB -48 dB -60 dB

Amethyst Hall * CINEMATIC ROOMS PROFESSIONAL LiquidSonic

REFLECTIONS REVERB DECAY REVERBERATION

24 dB 12 dB 0 dB -12 dB -24 dB

1 kHz 3 kHz 10 kHz

8.00 kHz 6 dB / Octave

Reverb Time 2.25 Sec **13**

ROOM DYNAMICS EQ

LOW LOW SHELF MID BAND HIGH SHELF HIGH

Cut Freq Frequency Gain Width Frequency Gain Width Frequency Gain Width Rolloff

100 Hz 500 Hz -3.0 dB 0.50 3.0 kHz 0.0 dB 0.70 8.0 kHz 2.0 dB 0.70 15.0 kHz

6. Interactive Assistance

Once the plug-in is loaded help is available within it by clicking the question mark icon and hovering the mouse over a control to view a description of its function.



Using the assistance menu it is also possible to access this manual and to bring up additional information about the plug-in such as the version number.

7. Parameter Locks

Many of the controls can be held (locked) when preset changes occur so that if certain settings are known to be set as desired the presets can be changed without affecting those parameters.

Plug-in locks can be enabled or disabled by clicking the lock icons shown next to parameter names. When locks are not enabled (shown grey) hovering over their location next to the parameter name will cause them to illuminate ready for selection.

To enable locks for all reflections or all reverb parameters, right click any parameter and select from the menu. You may also clear or set all locks using the menu.

8. Surround Parameter Editing Planes

A key feature of the professional edition of Cinematic Rooms is the ability to control almost all parameters independently in each of the stereo planes of a channel-based surround mix. This means it is possible to apply different decay times to the rear channels, filter the front channels differently to the rears or sides, or apply a delay only in the elevation channels.

When the plug-in is inserted in a surround configuration (LCR and above) click the icon shown top right to reveal the surround plane editing mode.



The header view will change as shown below to reveal the editing plane controls.



Note the following key areas:

1. The master editing view is enabled by clicking the 'Master' button. This also shows the current surround channel configuration detected.
2. Clicking any of the 'Front', 'Rear', etc plane controls changes to the appropriate surround editing plane. The number within the circle indicates the number of edited parameters in each plane. In the example we have 3 relative edits in the front plane, 1 relative edit in the rear, and no edits in the other planes.

Surround Plane Editing Concept

In the example below we show the master editing plane. We see when in master view for the front plane 3 parameters are edited since there is a 3 in the 'front' plane button.

We can see at a glance which parameters those are by observing the front edit notification icons under reverb time, bloom and reverb roll-off. (Reverberation also has the 'rear' plane icon illuminated).



Moving to the front plane view below, we see the reverb decay, bloom and reverb roll-off parameters are clearly highlighted to indicate that those parameters are deviated away from the master.



In other surround channel modes the icons reflect the available channel planes. Quad mode view (front and rear surround planes available):



5.x mode view (front, centre and rear surround planes available):



7.x mode view (front, centre, side and rear surround planes available):



Surround Plane Editing

Reverb time edits in surround planes are always relative to the master reverb time in the range 0.2x to 5x.

Other reflection and reverb parameters operate on a biasing technique similar to that of a synthesizer envelope/LFO where the master value is pushed towards its maximum or minimum value by a relative offset biasing percentage (which operates on the parameter's native range).

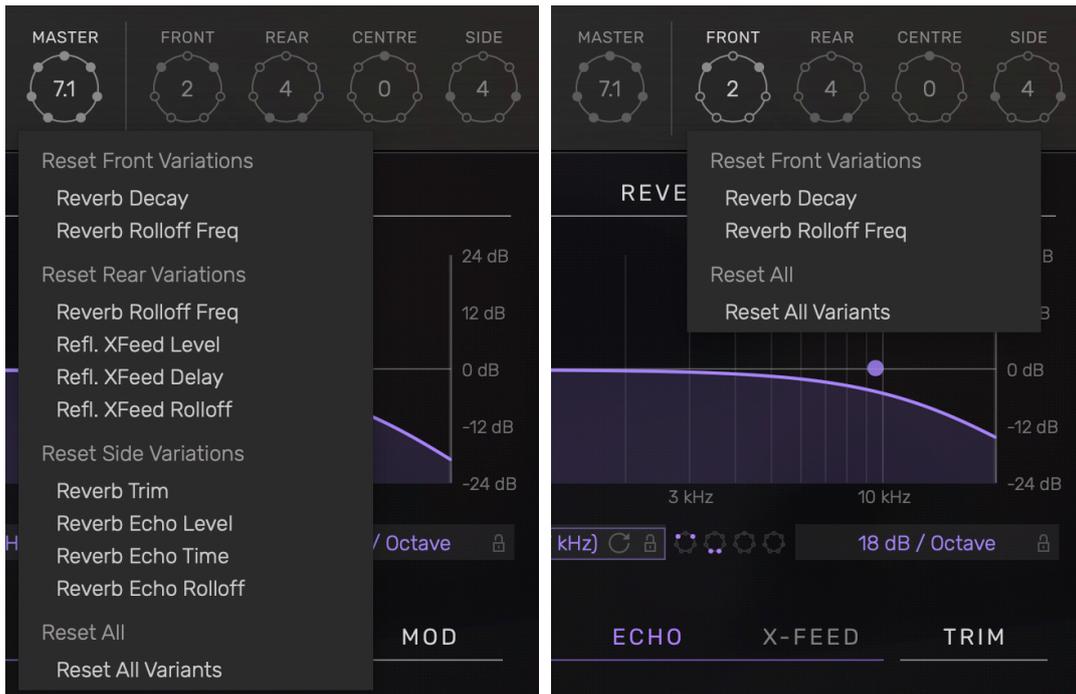
Shown in relief is a larger version of the surround plane icons which in the zoom show deviations in all surround planes (front, rear, side, centre and elevation).

Surround Plane Variant Quick View / Reset

You can quickly see what variants are active in any surround planes:

- Right-clicking the master view button will show all variants throughout the preset
- Right clicking any plane view button to show all variants within just that plane

You can also quickly reset any edits from these menus.



Surround Level Trim



The master gain dial turns into a surround plane trim control, so the level of the mixed reflection and reverb level for the front/rear/etc planes can be controlled. Further, the modulation controls for reflections and reverb (which is fixed across all planes) turn into trim controls allowing the level of the reflections and reverb to be trimmed in all surround editing planes.

Surround Master EQ

Plane editing of the master EQ is implemented via absolute rather than relative values. In the first image we see that no surround plane edits are enabled. In the front plane view all EQs are locked to the master and the controls are disabled (an example link chain is shown in orange).

All surround channels will exhibit the settings as per the master in this configuration.



In the next image we see the mid and high bands are unlinked from the master in the front editing plane, and their controls are now available for editing (see the grey box). Since two EQ bands are unlinked, we see a 2 in the front plane count (green box). In the yellow box both front indicators are illuminated so we can see edits are present at a glance.



The EQ enable light (within the tab selection button) is a global parameter that affects all editing planes. The EQ lock also in this area affects all planes.

9. Plug-in Controls Overview

A brief description of all controls is given below. The central controls region can be set to 'room definition' where the reflection and reverberation controls are kept. The 'equalisation' tab shows a master EQ that is placed across the mixed wet output.

Room Definition

Reverb Time

The time taken for the reverb to reach 60 dB below its initial level. Values from 0.2 seconds up to 45 seconds are available, and finally 'infinite' tail where the reverb does not decay.

Reverb Contour

Rooms often reverberate for different lengths of time in different frequency bands depending on the content in the room and materials of construction. The Cinematic Rooms contouring controls allow the reverb time above and below the contour frequencies to differ relative to the main reverb time. Contouring frequency can be controlled throughout a wide range of frequencies.

Reverb Low Boost

The low frequencies at the very beginning of the reverb can be accentuated using the low boost control. The length of the boost is automatically determined based on reverb time so to give a solid boost for small reverbs without overwhelming longer reverbs with excessive low end.

Reverb Pre-delay (Shape Tab)

To enhance the perception of distance the reverb's pre-delay time can be set from 0 to 500 ms, and can optionally be syned to DAW tempo.

Reverb Bloom (Shape Tab)

The time taken for the reverb to bloom to maximum energy can be controlled, allowing the perceived size of the late reverberant space to be controlled. This, in conjunction with the pre-delay, provides powerful spatial control over the late decay.

Reverb Undulation (Shape Tab)

The shape of the late reverb tail can be controlled via undulation, this control allows more space for the reverb tail to breath by reducing its very low-frequency density property.

Reverb Echo (Tab)

An echo can be applied to the reverb tail at a freely definable time or synced to DAW tempo. The level and roll-off of the delay tap can be controlled. Try using different timings in different surround editing planes with subtle echoes for some very complex surround spaces.

Reverb Crossfeed (X-Feed)

Each channel feeds reverberation into all other channels. For instance, if a signal is present in the front left of a 5.1 configuration, reverb will be heard for the signal in the front left channel and decorrelated reverb will also be present in all other channels (front right, centre, and both rear channels). This propagation to other channels is referred to as crossfeed and allows reverberation to flood naturally around the surround space.

The level, roll-off and delay of the crossfeed signal can be modified on the master or across stereo planes. By creating disparity between the direct and crossfeed signals the spatial qualities of the room are more noticeable. In a large space it will take longer for signals to propagate to other parts of the room, and those reflections will likely be filtered and at a reduced level. Smaller rooms will experience those effects to a lesser degree.

An important consequence of introducing increased disparity in the crossfeed channels is improved pan tracking. In many surround reverbs the amount of reverberation heard in adjacent/opposing channels is the same gain as the direct – as a sound is panned around the surround field there is little discernible effect in the nature or amount of reverb heard on a given channel. Introducing crossfeed disparity corrects this rather unnatural phenomenon.

Delay time for the crossfeed is in the range 0-100ms so that the effect is perceived as a spatial property of the room. For longer delays, refer to the reverb echo feature which picks up at 100ms.

Crossfeed roll-off is in series (i.e. in addition) to the reverb, fixed at a roll-off of 12 dB/oct.

Reflection and Reverb Roll-off

The equalisation roll-off control allows you to control the high frequency content of the reflections and reverb over a wide range of frequencies with a slope of 6/12/18/24 dB per octave.

Reflection and Reverb Modulation

The depth of reflection and reverberation modulation can be controlled.

Note that these are master parameters that cannot be deviated across surround planes. This control flips to a reflection and reverb trim level in surround plane views.

To enable chorusing on the modulation of Cinematic Rooms Professional just click the new downward pointing arrow in the mod section and then select a chorusing mode. This will switch the modulators into chorus mode, the following are available:

- Reflections
 - Modulation without chorusing: the same as the standard modulation mode in Cinematic Rooms prior to the v1.1 update
 - Fine: a subtle chorusing mode that affects the reflections modulator only
 - Light: Adds delay line modulation to crossfeed channels only
 - Moderate: Adds delay line modulation to all channels
- Reverb
 - Light: Adds delay line modulation to crossfeed channels only
 - Moderate: Adds delay line modulation to all channels
 - Ease-in: As moderate, but the initial portion of the reverb tail has no chorusing, and the chorusing feeds in later. Ideal for sources that are sensitive to chorusing but which can benefit from a little extra richness in a long tail

You probably don't want to use much chorusing all that often, but on the right sources like synths, vocals, guitar and electric piano it can really add an extra dimension. A little thickening from chorusing can go a long way!

Reflection Proximity and Reflectivity (Space Tab)

Select from a range of pre-defined reflection patterns and positions to control how close the reflections appear to sound from the source (proximity). Reflectivity controls surfaces properties of the space, where a low reflectivity produces an environment with high levels of acoustic damping/absorption.

This is used on conjunction with pre-delay to define how the source sits in a space.

Reflection Size (Space Tab)

Controls the spacing between reflections giving a very direct means of specifying the perceived size of the space arising from initial auditory cues.

Reflection Pattern (Character Tab)

A number of patterns are available defining spatial properties of the reflections.

Of particular note is the Nonlin U pattern (for Nonlin Uniform), which simulates the effect of nonlinear reverb algorithms where the reflection pattern definition has zero attack with a long initial hold, followed by a swift decay phase. This mode retains the acoustic aesthetic of Cinematic Rooms while providing the essential character of nonlinear algorithms found in some other hardware reverbs.

In Cinematic Rooms the hold period can be specified by the reflection proximity control, and the rate of decay by the reflectivity control. Traditionally a nonlinear room algorithm would not include a rich reverb tail so per convention the reflections/reverb mix parameter would be run fully to the left, but supplementing the nonlinear decay with a richer contemporary decay provides increased versatility.

Reflection Diffusion (Character Tab)

The diffusive properties of early reflections can be set from near-specular to very diffused. This simulates whether reflections are akin to those off hard/polished surfaces (specular) where very

little signal scatters in multiple directions, or those from softer furnished surfaces where reflections tend to scatter discretely.

Width (Character Tab)

The stereo width of the plug-in can be set from full stereo to mono. This also controls the width of the signal fed into the late reverberator for consistency.

Reflection Crossfeed (X-Feed)

See reverb crossfeed.

Reflections / Reverb Mix

Controls the balance between the early reflections and the main reverb. Biasing towards the reflections will tend to make the source sound closer to the mic, biasing to the reverb will tend to place the sound deeper within the space.

Master Gain / Trim Level

The master level of the plugin (wet + dry) can be controlled in the master plane, and in surround plane view modes the reflection + reverb mix can be controlled.

Equalisation



Low

A low cut filter at 12 dB / octave.

Low Shelf

A traditional low shelf filter with variable filter width (Q).

Mid Band

A peaking filter with variable width (Q).

High Shelf

As per the low shelf.

Rolloff

A 12 dB/ octave roll-off filter applied to the entire wet mix.

Enable

The light next to the tab name enables and disables the entire master EQ section. A lock icon next to it prevents any setting in the EQ section changing when presets are changed.

Dynamics

The dynamics feature was added in v1.2 of Cinematic Rooms Professional. It provides access to multiple dynamics processors. On the left side one of the following modes can be selected:

- Ducking
 - Reverb (late tail and VLF) ducker
 - Wet mix (reflections, VLF and late tail) ducker
- Compression
 - Reflection compressor
 - Reverb (late tail and VLF) compressor
 - Wet (reflections, VLF and late tail) mix compressor
 - Input compressor (does not affect the 'dry' signal used in the dry/wet mix)

The right side is limited to gating only, which is applied exclusively to the late reverb tail. The compression or ducker can be used at the same time as a reverb gate.



Compression and Ducking

In the compression modes (ducking, reverb compression and input compression) the output signal is reduced when it rises above the threshold value at a rate determined by the ratio. The knee controls how gradually that ratio is applied. Attack and release control how quickly the compression begins to act on the signal when it is above or below the threshold. A simple trim control is provided to allow level adjustments because a compressor can significantly affect gain.

Ducking a reverb is often used to avoid a reverb swamping the dry signal, allowing the verb to be tucked away until there is space in the mix for it to fill the space between phrases. Often this will improve intelligibility.

By ducking only the reverb (not the reflections) one retains the spatialisation effect of the early room without compromising intelligibility with excessive reverb tail fighting with the dry.

Gate

When the reverberated signal falls below the gate's threshold it is reduced in gain by the number of decibels specified by the range control. This reduction happens after the pause time determined by 'hold', and takes the time to reach the level reduction determined by the 'close' time.

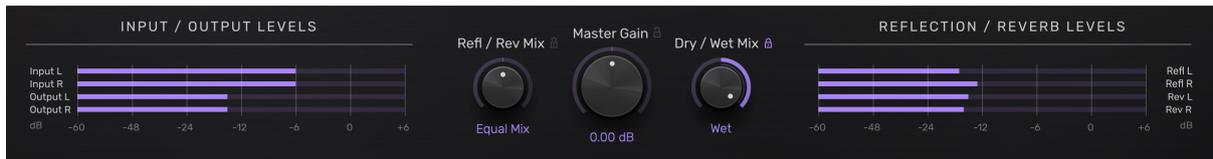
In the example below, when the signal falls below -20 dB, the gate waits 50 ms before responding, and then reduces the signal by 25 dB over a period of 200 ms.

When the signal exceeds the threshold plus the hysteresis amount (i.e. $-20\text{dB} + 3\text{dB} = -17\text{ dB}$ in this example) the gate will re-open over the time period set by the 'open' parameter (10 ms in this example).

10. Metering

Stereo Metering

When using the plug-in in stereo a combined view of in/out and refl/reverb level meters is shown.



Surround Metering

In surround views it is possible to monitor either the reflection and reverb levels, or the input and output levels. Simply select from the settings menu or click one of the titles to change the view (e.g. 'Output Levels').



11. Factory and User Presets

User and factory presets are accessed using a menu activated by clicking the preset name in the top left corner of the plug-in. Presets can be auditioned quickly by using the chevron arrows to move between them.



The A / B feature allows the user to quickly switch between two presets within the same plug-in instance.

12.Decorrelation Coding

Summary

Selecting different decorrelation coding values from the settings menu for different instances of Cinematic Rooms Professional can reduce phase issues if you have different track sources with correlated content in them with a few milliseconds delay (e.g. if a spot mic and overhead have picked up the same source).

Details – Combating Phase Issues From Multiple Source Mics

Decorrelation coding improves reverberation coexistence in a few specific troublesome situations, such as where mic bleed may be present in two or more sources resulting in delayed correlated content in various channels that could cause phase issues.

A well-designed reverb algorithm decorrelates the source from the reverberation. All channels will be fully decorrelated from one another and from the dry. This means the reverb and the dry do not clash when mixed, and all reverberation from all channels combines in the ear without phase problems.

A well-decorrelated source bears no mathematical resemblance to the original due to complete phase randomisation, yet is identical in character psycho-acoustically. Hence they sum as expected.

If a signal is overlapped with a delayed version of itself, by around 1-20 ms or so, clearly audible phase problems arise. This is because they are correlated; at various frequencies we experience cancellation and others amplification. It sounds like static flanging/chorusing (i.e. comb filtering).

It is easy to imagine a situation where two mics pick up the same source. A spot mic and an overhead could easily be picking up some amount of the same source with a delay in that danger-zone (sound travels around 1 foot per millisecond). When fed into different instances of the same reverberator, even if that reverberator is well-modulated and properly decorrelated, some phase problems can still arise.

We can illustrate the problem by example. In your DAW set up two tracks with the same source on them (a full drum kit loop will illustrate the problem well). Then add a delay to one in the range 3-8 ms. This simulates the same sources recorded by mics 3-8 ft apart. Hit play; you hear comb-filtering. Change the delay, and the peaks of the combs move around in frequency. Then add your favourite reverb to each track. Chances are it won't do much to get rid of the comb filtering. Even if all the reverb channels are decorrelated and/or modulated, it cannot do a lot about the inherent problems in the source because the two reverbs are not well decorrelated *from each other*. Maybe two very different presets from different base algorithms, or even different reverbs will produce better results, but you may not want to use different sounding artificial spaces to solve the issue given they were recorded in the same space.

Cinematic Rooms Professional has the solution. If you put it on both channels, select the same preset, and hit play you'll get the same problem – that is until you select a different decorrelation coding from the settings menu. All of a sudden, you have two acoustically cohesive signals that are *fully decorrelated from each other*. The summation of these signals is possible without any of the phase problems we previously experienced.

Generally this won't be needed, but in those specific situations where the same signal could land dangerously close to each other this feature can be a real benefit.

13.Settings

Interface Scale

The size of the UI presented by the plug-in can be selected in steps between 70% and 125%.

Preset Filter

Presets can be excluded from the drop-down menus and from navigation with the chevron icons based on their reverb time. This allows you to audition presets within restricted time ranges such as less than a half second or between 1-2 seconds. Simply select the desired upper and lower bounds from the settings menu.

Interface Metering

The meters can be set into input/output or reflection/reverb mode if the channel count is sufficient.

Surround / Stereo Plane View

Enable or disable the surround editing planes, and control their default state.

Surround Propagation

Select between the available channel processing topologies (described earlier in the manual).

Surround Centre Mute

When in surround channel modes of 5.x and greater, reverberation arriving in the centre channel can be muted to avoid conflicting with sources such as centrally positioned speech.

Mono Upmix Centre Channel

When used on a mono to x track containing a centre channel this option allows you to select whether the source is sent to the centre or used as L/R phantom centre.

Rear / Side Interpretation

Some hosts such as DaVinci Resolve provide an option to work in MPEG formats where rear and side channels need to be swapped for proper operation of the plugin. This option is saved as a global plugin configuration (rather than a session save) and is immediately active on in all instances on change.

Reduced CPU Processing Mode

The low CPU processing mode enables a range of special optimisations in the reverb and reflection algorithms that considerably reduce load on the system. It imposes a processing delay of 8192 samples (reported to the host for compensation).