

IRCAM Verb Session

FLUX:: Immersive

2/6/23

Table of contents

2	Quick Start	7
2.1	Block diagram	7
3	Time Structure Display	9
3.1	(1) Direct signal	9
3.2	(2) Early	9
3.3	(3) Cluster	9
3.4	(4) Reverb	10
4	Filter	11
4.1	(5) Low Freq	11
4.2	(6) High Freq	11
5	Options	12
5.1	(7) Decay time	12
5.2	(8) Room size	13
5.3	(9) PreDelay	13
6	Time Structure Settings	14
6.1	(10) Early Gain	14
6.2	(11) Tail Gain	14
6.3	(12) Low Damping	14
6.4	(13) High Damping	15
7	Input Output Section	16
7.1	(20) Input Gain	16
7.2	(21) Input level meter	16
7.3	(22) Output Gain	17
7.4	(23) Output level meter	17
7.5	(24) Dry/Wet	17
7.6	(25) Setup	17
7.6.1	I/O	17
7.6.2	Options	17
8	Preset Section	19
8.1	(14) Save	19

8.2	(15) Recall	19
8.3	(16) Copy B	20
8.4	(17) Preset Name	20
8.5	(18) Morphing A B	20
8.6	(19) Automation	20
9	Preset Management	21
9.1	From the Plug-in interface	21
9.1.1	A-B Sections	21
9.1.2	Save	21
9.1.3	Recall	21
9.1.4	AB Slider	21
9.2	From the Preset Management Window	22
9.2.1	Recall A	22
9.2.2	Recall B	23
9.2.3	Copy A and Copy B	23
9.2.4	Update	23
9.2.5	New	23
9.2.6	Duplicate	23
9.2.7	Edit	23
9.2.8	Delete	23
9.2.9	Export	23
9.2.10	Import	23
9.2.11	Sorting arrows	24
10	Credits	25
11	Specifications	26
11.0.1	Processing Specifications - Verb Session	26
11.0.2	Processing Specifications - Verb Studio Session	26
11.1	Compatibility	26
11.1.1	Windows - 10, 64 bits.	26
11.1.2	macOS (Intel and ARM) - 10.12 (Sierra) and more.	26

1

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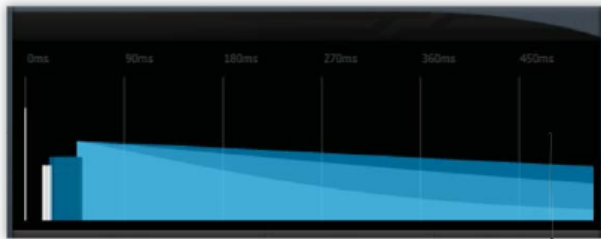
FLUX
sound and picture development

VERB Session

Algorithmic Reverberation Processor



Time structure display



Filter



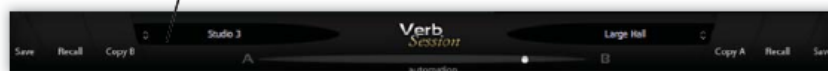
Options



Time structure settings



Input - Output section



Preset section

Plug-in Settings

Pressing the cogwheels in the main Input/Output section opens a settings window providing information about the plug-in version/build, a direct access button to the user manual, as well as setup for latency report and OSC (Open Sound Control). OSC is available in Verb Session v3 only, and is not supported in Verb v3 Studio Session.

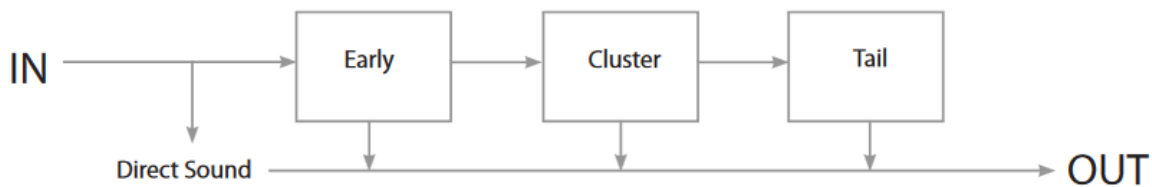
2 Quick Start

Verb is an algorithmic reverberation processor based on a recursive modular engine. As a general guideline, these adjustments will get you started quickly:

- select a preset corresponding to the general character and color you're looking for
- adjust reverberation time with the main decay time control
- change the size parameter, which is a most prominent characteristic of the room
- tweak the room filters to change tail color to one that suits your needs and taste

Controls such as Damping and Gain are relative to the current preset, they are intended to give a 'more' and 'less' access to that parameter.

2.1 Block diagram



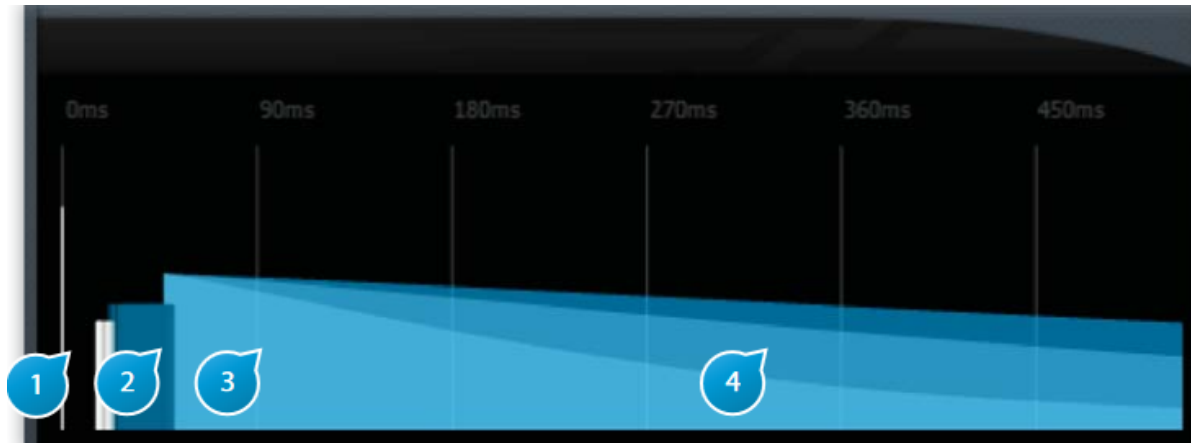
The block diagram above shows the global structure of the reverberation engine, which governs the time-structure of the reverberation tail.

- The direct (dry) signal is fed straight to the output. It corresponds to the direct sound, i.e. the direct path from the source to the listener's ears. This is always the first part of the sound that is heard.
- The input is fed in parallel to the early reflections generator, abbreviated EARLY. Early reflections play a crucial role in our spatial perception of sound, as they allow us to build a mental representation of the surrounding environment (locations and materials of the walls, floor and ceiling). These reflections vary with source position and are panned accordingly.

- The output of the EARLY stage is fed to a second generator, named CLUSTER, which is responsible for later early reflections. These differ from early reflections in that they come later and with increased density. This models a transition stage between early and LATE/TAIL generators. In a typical standard configuration, they are a component of the whole acoustic space with no particular localization in order to blend in seamlessly. You can however force them to be directive by changing the diffuseness parameter.
- The LATE/TAIL stage finally generates the reverberation tail. Acoustical analysis of this component has shown it to consist of dense material, homogeneous with the whole of the reverberated space. As with CLUSTER, the diffuseness parameter allows you to override this natural behavior.

A good understanding of this time structure and how it affects perception of sound and space is key to be able to exploit any reverberation system to its full potential and achieve the best sonic results.

3 Time Structure Display



3.1 (1) Direct signal

The grey bar at the start of the reverberation pictogram represents the direct sound send at the input of the plug-in.

In the time structure of the reverberation, it is the first element that is heard.

3.2 (2) Early

Overall representation of the early reflections distribution.

Vertical bars roughly indicate at what time locations (horizontally) and levels (bar height) these early reflections occur.

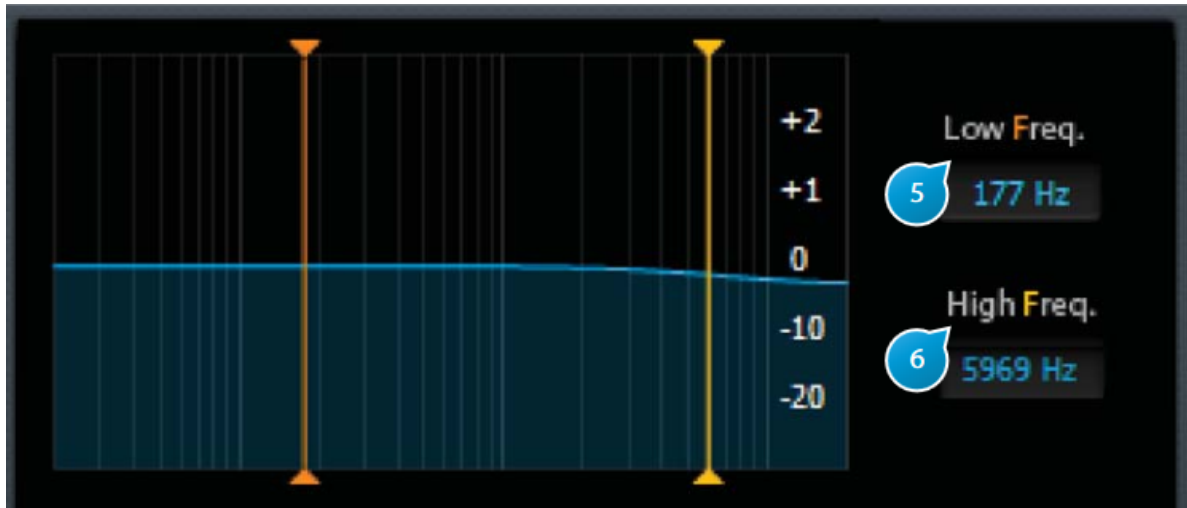
3.3 (3) Cluster

See 12.

3.4 (4) Reverb

Shows a graphical representation of the reverberation tail part of the engine. The decay curves of the high, mid and low bands, which are controlled by the decay time settings, are superimposed in different colors and can rapidly be assessed and checked.

4 Filter



This section sets the characteristics of the filter applied to the signal fed to the reverberation engine, affecting the overall frequency response, if required.

4.1 (5) Low Freq

Low-pass filter frequency cutoff of the corresponding filter section.

Value can be quickly adjusted using the mouse by clicking and holding the value box or the yellow vertical bar on the graphical frequency-response display, or exactly by clicking the value box and entering a value with the keyboard.

4.2 (6) High Freq

High-pass filter frequency cutoff of the corresponding filter section.

5 Options



5.1 (7) Decay time

This is the duration of the reverberation ‘tail’ in seconds, in other words how long it takes for the reverberated sound to vanish away. In more technical terms, this is sometimes referred to as the RT factor, which is the time at which the response of the reverberation to an input signal goes below -60dB of attenuation.

Please bear in mind that the master decay and high/mid/low controls are interactive, which means that the same audible result can be attained with different settings. This is intentional,

as this allows you to get to the result faster and in a manner suited to your personal habits. Generally speaking, it might be more convenient to adjust the master decay time using the resulting sound as a guideline, then fine tune using high and/or low decay controls and leave the mid decay at the default setting. On the other hand, if you specifically to concentrate on the mids, for example to create a ‘hollow room’ sound, it’s easier to focus on the mid decay control, leaving hi and mid decay untouched.

5.2 (8) Room size

This parameter is a meta parameter that allow you to quickly perform an homogeneous set of parameters for the early reflexions part (early + cluster). Theses part are particularly important to achieve the “room” feeling of the desired space. It adjust the time structure of the whole reverberation (early-min, early-max, cluster-min, cluster-max, reverb-start). This is a key control for quick settings, before a detailed fi ne tune with each parameters.

5.3 (9) PreDelay

PreDelay controls the time at which the reverberation portion of the effect starts to be heard, with respect to the DIRECT signal. Increasing this helps to distinguish between direct and effected sound and preserve intelligibility, especially with large decay times and room sizes which would otherwise drench the audio material in reverberation.

6 Time Structure Settings



6.1 (10) Early Gain

Controls the level of EARLY and CLUSTER contributed to the overall effect.

6.2 (11) Tail Gain

Controls the level of LATE/TAIL contributed to the overall effect.

6.3 (12) Low Damping

Adjusts low-frequency damping, for increasing or decreasing the decay of bass content with respect to the rest of the spectrum.

6.4 (13) High Damping

Adjusts high frequency content damping.

7 Input Output Section



7.1 (20) Input Gain

Adjusts the level of the signal fed to the plug-in, in dB increments.

7.2 (21) Input level meter

Shows the current level of the input signal after applying input gain, in dB FS (deciBel Full Scale).

7.3 (22) Output Gain

Used to trim the output signal and possibly avoid any overloading of the signal in the rest of the signal-chain.

7.4 (23) Output level meter

Shows the current level of the input signal after applying output gain, in dB FS(decibel Full Scale).

7.5 (24) Dry/Wet

When used as insert effect, one can dial the right amount of “wet”, reverberated signal with respect to the “dry”, untreated input signal.

The default 100-percent wet setting is mostly intended for the typical and preferred use in a send-effect configuration.

7.6 (25) Setup

Advanced settings to override default behavior, typically when using hosts that do not conform to the standards.

7.6.1 I/O

Override automatic track I/O specifications. VerbSession automatically adjusts its I/O configuration based on what the hosts reports to the plugin. Some hosts such as Logic do not report this correctly or do not support asymmetric I/O configurations In this case you have to do this manually and select amongst a number of choices of symmetric (N-to- N) and asymmetric I/O (N to stereo).

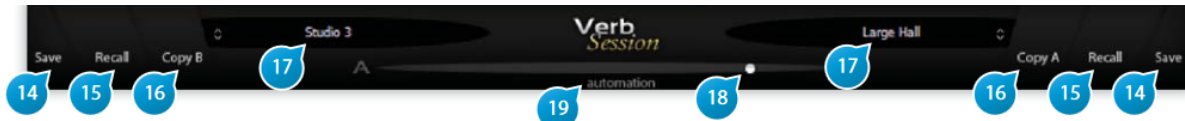
7.6.2 Options

These are best left at their default in most cases, but can be changed if required:

- Disable processing during bypass: stops processing completely during bypass. Allows to conserve CPU when using many instances and a lot of bypass on/off automation, such as fi lm or sound effects mixing. Default is off (enabled).

- Use Multi-Thread Automation: dedicate a separate thread for automation. Useful when heavy automation is present in the project to get rid of possible audio dropouts. Default is off (processing and automation share the same thread).
- Try to avoid latency as possible: minimize latency by employing minimal buffering, possibly at the expense of a little CPU overhead. Default is on.
- Report latency: report plugin latency, if any, to the host. Some hosts have difficulty coping with large latency values, in this case you can force the plugin to report zero, but you'll have to manually compensate for this for tracks to remain synced. Default is on (report true latency).

8 Preset Section



8.1 (14) Save

Saves a snapshot of the current settings for future use.

Short description and assorted comments can be provided, which comes in especially handy when sharing presets with other users, when the preset is part of a large preset bank, or to identify the author and source.

Entering a descriptive keyword is a good practice to be able to quickly sort your presets, according to character, the type of space they simulate (e.g. hall, room, etc.), and the intended usage (e.g. voice, percussion, guitar, etc.)

A preset can be locked to prevent any further editing.

To re-save your preset under a new name, open the preset manager by clicking the corresponding (A/B) preset slot, then select New, enter a name for your preset, and finally press Save.

8.2 (15) Recall

Recall the settings from the currently selected preset, overwriting any current settings of the plug-in. The sub-menu which appears allows to recall at your choice:

- all parameters
- all parameters but setup: intended for when your particular speaker configuration is different from that of the preset's author (typically stereo)
- all parameters but setup and dry/wet mix: useful in a mix setting when comparing and choosing presets

8.3 (16) Copy B

Copy current settings to the second parameter slot (B). To try out a variation of the current settings without erasing the reference, press this button, switch to B and adjust your parameters of choice, then switch or morph between A and B. When copying a preset to a slot, the morphing slider will automatically fly to the corresponding slot.

8.4 (17) Preset Name

Displays the current preset name, if any. Clicking the associated button (up&down arrows) brings up the preset manager.

8.5 (18) Morphing A B

Gradually morphes parameters from A to B slots.

The parameter set associated with the current morphing slider position can be saved as a preset. In addition, when the morphing slider is in an intermediary position, any edit made to a parameter switches the slider back to slot A or B, whichever is closest to the current position.

8.6 (19) Automation

Enabling the Automation control switch makes the morphing slider exposed and available for automation read.

When engaged, keep in mind only the morphing slider value is used for automation, and other parameter values are ignored. This behavior is intended and necessary to prevent any parameter conflicts that would otherwise occur.

As a consequence of this, you need to make sure the Automation switch is engaged when mapping the morphing slider mapped to a control surface hardware knob or slider. On the opposite, when not engaged, the plug-in will listen for any parameter automation, except the morphing slider.

9 Preset Management

9.1 From the Plug-in interface

9.1.1 A-B Sections

A plug-in features two preset sections : A & B. Clicking on the slot of a specific section reaches the shared preset bank.

From the preset management window you can select the preset you want to recall in the specific preset section.

9.1.2 Save

Save replaces the selected preset by a new one under the same name featuring the current settings. If you want to keep an existing preset without your new modifications, just select an empty place into the preset list, enter a new name for this modified preset featuring the current settings and press Save.

9.1.3 Recall

Once a preset is selected from the preset list it must be explicitly loaded into the section A or the section B by using the recall button. A preset is effective only after it has been recalled. Double-clicking on the preset name from the list, reloads the preset into the selected slot.

9.1.4 AB Slider

This horizontal slider has no unity nor specific value display. It allows to morph current settings between two loaded presets. A double-click on one side of the slider area toggles between full A and full B settings. The results of an in between setting can be save as a new preset.

9.2 From the Preset Management Window

The Preset Management Window features three preset banks:

- The Factory bank gathers presets that can't be edited by users.
- The User bank is dedicated to the users presets.
- The Global bank features presets for A, B and morphing sections. A single global preset includes A and B section content and the morphing slider position.

A Preset can directly be recalled into the preset section selected by the morphing slider position, by double-clicking on its name on the list. The preset lists can be filtered. This filter is applied to any preset information such as name, description, author, comments or key words.



9.2.1 Recall A

Recalls the selected preset into the corresponding location.

9.2.2 Recall B

Recalls the selected preset into the corresponding location.

9.2.3 Copy A and Copy B

These buttons allow to easily create a variation around a preset.

9.2.4 Update

Update the current preset with current settings.

9.2.5 New

Creates a new preset in the list.

9.2.6 Duplicate

Creates a new preset in the list based on the currently selected one.

9.2.7 Edit

Gives access to an edit window where you can change the preset's name, description and add optional key words, the author's name, etc.

9.2.8 Delete

Suppresses the selected preset.

9.2.9 Export

Saves the preset to a file on disk.

9.2.10 Import

Adds existing presets into the preset bank.

9.2.11 Sorting arrows

Moves a preset up and down in the list for sorting.



Please Provide Preset Information

Name
My Old Compressor

Description
4 ratio

Comment
Bass

Keyword
Electric bass, Kick

☒ Locked

Ok Cancel

When engaged, the preset is protected, and any subsequent modifications or edits are allowed for the original author only. This comes in handy in a multi-user configuration. Protected presets can of course still be loaded or deleted when the user logs under a different computer session.

10 Credits

Spatialisateur and Spat~ are trademarks of Ircam and Espaces Nouveaux.

Design of digital signal processing algorithms and implementation in Max: Jean-Marc Jot (Espaces Nouveaux / Ircam).

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IRCAMTOOLS SPAT, VERB

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11 Specifications

11.0.1 Processing Specifications - Verb Session

- Mono/Stereo Input/Output.
- 64-bits internal floating point processing.
- Sampling rate up to 384 kHz DXD (Pyramix and Ovation MassCore/Native).
- Sampling rate up to 192 kHz for Native (AU/VST/AAX/AAX AudioSuite).

11.0.2 Processing Specifications - Verb Studio Session

- Mono/Stereo Input/Output.
- 64-bits internal floating point processing.
- Sampling rate up to 96 kHz.

11.1 Compatibility

11.1.1 Windows - 10, 64 bits.

- VST (2.4) in 64 bit
- VST3 (3.1) in 64 bit
- AAX Native/AudioSuite, all in 64 bit*
- VS3** Pyramix 10 and more in 64 bit and Ovation 6 and more

11.1.2 macOS (Intel and ARM) - 10.12 (Sierra) and more.

- VST (2.4) in 64 bit
- VST3 (3.1) in 64 bit
- AU in 64 bit
- AAX Native/AudioSuite, all in 64 bit*