

# Reverb 4 / Reverb iOS
# Installation and user manual

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# 2 Setting up the plugin for first use

## 2.1 Installation on desktop (Windows, macOS)

Download and install the freely-available trial/evaluation versions of the plugins. This will allow you to test the plugins prior to making any purchase decisions. trial/evaluation versions can be downloaded from the ToneBoosters.com website. Trial/evaluation plugins may have one or more of the following limitations:

- Trial/evaluation versions will not store nor save settings.
- Trial/evaluation versions will show a reminder to purchase a license.

### 2.1.1 Installing the trial/evaluation plugins

- The plugins will be installed in the locations given in the table below.

| Operating system | Plugin folder(s) |
|---|---|
| **Windows*** | `C:\Program Files\Common Files\VST2\ToneBoosters\`<br>`C:\Program Files\Common Files\VST3\ToneBoosters\`<br>`C:\Program Files\Common Files\Avid\Audio\Plug-Ins\ToneBoosters\` |
| **Mac OS** | `/Library/Audio/Plug-Ins/Components/`<br>`/Library/Audio/Plug-Ins/VST/`<br>`/Library/Audio/Plug-Ins/VST3/`<br>`/Library/Application Support/Avid/Audio/Plug-Ins/ToneBoosters/` |

* If 32bit plugins are installed on a 64-bit version of Windows, the path will start with `C:\Program Files (x86)\...`

### 2.1.2 System requirements (Windows)

- Windows 7 SP1 or higher
- 32 or 64 bit host program that supports VST plugins

### 2.1.3 System requirements (mac OS)

- macOS 10.10 or higher
- 64-bit host program that supports 64-bit VST or Audio Unit plugins

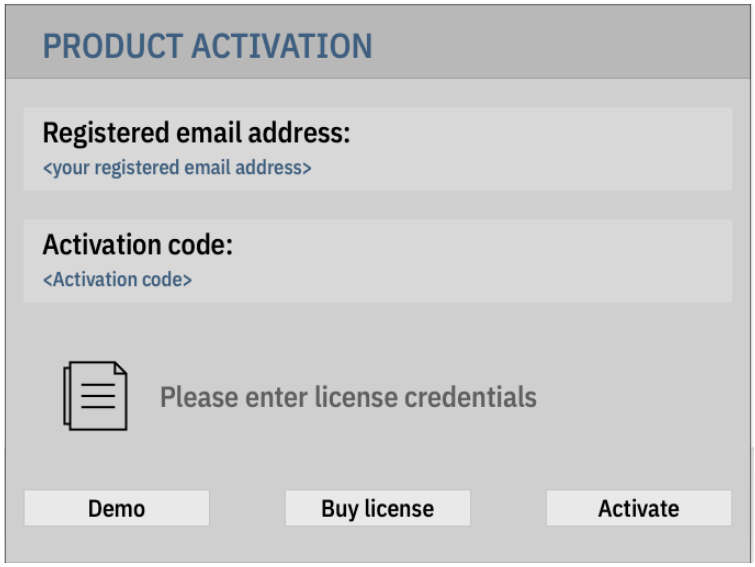
### 2.1.4 Configuring your host program

After installation of the trial/evaluation plugins, you may have to inform your host program about the presence of new plugins. Most host programs require you to provide the folder where plugins are installed.

- Consult your host program manual how to configure plugin folders. On Windows, make sure you add the following VST scan path to your host program settings:
  `C:\Program Files\Common Files\VST2\`
- Refresh and/or re-start your host program to allow it to scan for new plugins on your computer.

### 2.1.5 Activating a license

To register a plugin you can acquire an activation code in the ToneBoosters online store. The activation code is sent by email after purchase and consists of a long alphanumerical string that should be copied into the designated field when opening a plugin from within a host program. The user interface that has the entry field for your email and an activation code is shown in the figure below. Make sure that the email address entered is the same as the email address used for purchasing the plugin.




After entering your email and the activation code in the designated fields, click on 'Activate' to activate your license. Alternatively, without a valid activation code, you can try the plugin in demo mode.

#### 2.1.6 Installing plugin updates

Simply download and run a more recent plugin installer from www.toneboosters.com to update your plugins.

## 2.2 Installing on iPad, iPhone or iOS device

#### 2.2.1 Installation

Follow the instructions from the Apple App store to install the app on your iOS device. The following versions will be installed:

- Stand-alone app, compatible with inter-app audio (IAA) protocol
- Audio Unit v3 (AUv3) app extension

#### 2.2.2 System requirements for iOS devices

- iPad or iPhone; iPad highly recommended
- iPadOS or iOS version 11.0 or up
- Host program compatible with AUv3 or inter-app audio (IAA) applications

## 2.3 Multi-channel and external side chain support

Some plugins support multi-channel audio input, possibly including 5.1, 7.1, and Dolby Atmos channel-based formats. Plugins may also provide support for an external side chain input. In general, the following restrictions apply for the various plugin formats:

- VST: only mono or stereo input; no external side chain input
- VST3: can typically run up to 16 channels, and can have external side chain inputs
- AAX: can typically run up to 16 channels, and can have external side chain inputs
- Audio Unit: can typically run up to 16 channels, and can have external side chain inputs
- iOS app including IAA support: only mono or stereo input; no external side chain input
- iOS AUv3: mono or stereo input, with external side chain support.



Not all plugins will support multi-channel audio or external side chain input. Please refer to the web page of the respective ToneBoosters product to see what configurations are supported. Please refer to your host program's manual to see what channel and external side chain input configurations are supported by the host program.


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# 3 User interface common controls

### 3.1.1 Controlling Knobs and sliders

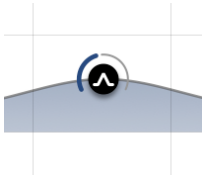
The various knobs and sliders on the graphical user interfaces (GUIs) of the plugins can be controlled by left-mouse clicks (for switches) or left-mouse drags (for rotary controls and sliders). The following key combinations apply that modify the behavior of the GUI elements:

### 3.1.2 Sliders




- Drag up/down or left/right to change the value
- Hold 'Shift' for fine-control micro edits
- Double click to reset to the default value
- Click on the numeric value to allow manual entry of values trough the keyboard.

### 3.1.3 Draggers / nodes



- Drag left/right or up/down to change the position and value
- Hold 'Shift' for fine-control micro edits
- Double click to reset to the default position
- Use mouse wheel to change the rotary value (for example the Q value)
- Hold 'Control' to allow for vertical movement only
- Hold 'Alt' to allow for horizontal movement only
- Left mouse click to activate (if supported)
- Right mouse click to de-activate (if supported)

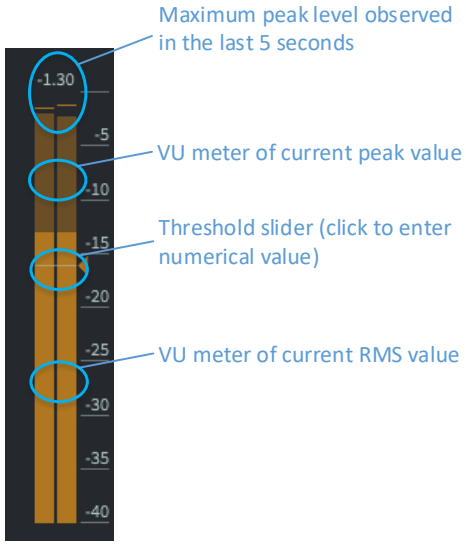
### 3.1.4 Lasso

Some plugins may provide a lasso function to select multiple draggers/nodes and move them all simultaneously. To activate the lasso, drag around the nodes you want to capture. To release the lasso, click once outside the lasso range.

### 3.1.5 VU meters

Plugins equipped with VU meters will typically show both peak and RMS levels in the same meter. The VU meters will show two segments with slightly different colors. The lower segment is the RMS (root-mean-square) value; the peak value is shown by the upper segment. Peak hold values will be shown numerically and by two horizontal lines in the meter. RMS levels are unweighted and computed with a 400-ms time constant.

Click on the VU meter to reset the peak hold value (if supported).



### 3.1.6 Tool bar

Most plugins have a common tool bar at the top of the user interface.

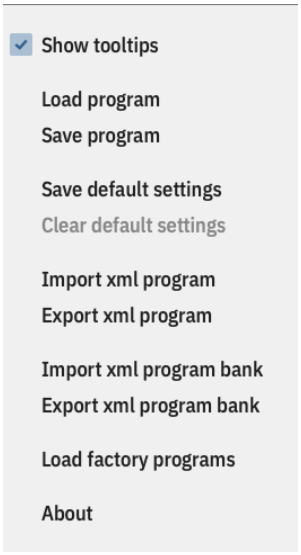



The tool bar shows the plugin version number, and will also indicate if a newer version is available. Next to the version number is the hamburger menu, used to save and load settings. The second row contains the following tools:

- **Program selector**: click to open the list of programs, or double click to edit the current program name. When first opened, all programs in the bank will come as presets which you can change individually.
- **A/B toggle** to quickly toggle between two configurations (A and B). This toggle button can be used as follows:
    - Click on the A/B toggle switch to activate configuration A.
    - Modify any plugin parameter that you would like to be set for configuration A.
    - Click on the A/B toggle switch to activate configuration B.
    - Modify any plugin parameter that you would like to be changed for configuration B.
    - You can now quickly switch between configurations A and B by clicking on the A/B toggle switch.
- **Undo**. This will undo previous changes.
- **Redo**. This will redo changes that were undone previously.
- **Copy**. This will copy all current parameter settings to the internal clipboard.
- **Paste**. This will copy the settings in the clipboard to all parameter settings.
- **Scale factor** for the user interface
    - Click to open a drop-down menu with commonly used scale factor settings;
    - Double click to enter a numerical value.
- **Color theme** for the user interface. Choose any of the supplied color themes.

### 3.1.7 Hamburger menu

The hamburger menu opens up a drop-down menu with various options.




- **Show tooltips**: enable or disable tooltips that will appear when the mouse is moved to a control and held on that position for a certain amount of time.
- **Load / save program**: open the program manager to load or save a program. The program manager includes options to rename, categorize, delete and sort programs.
- **Save default settings**: save all current programs, user interface size and color theme as default for new instances of this plugin.
- **Clear default settings**: delete the default settings; this will cause new instances to open with factory settings.
- **Import / export xml program**: import or export a program (as xml file) using the native file browser.
- **Import / export xml program bank**: import or export all programs (as single xml file) using the native file browser.
- **Load factory programs**: reset all programs to factory defaults.
- **About**: show user, computer, and audio configuration information.



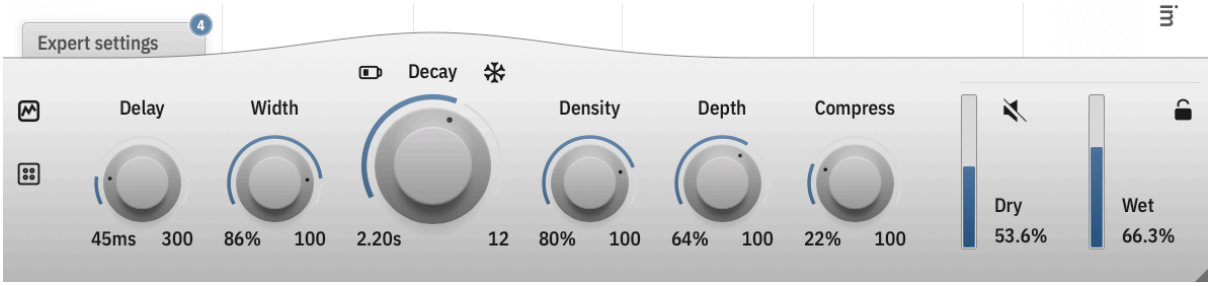
Programs and program banks are imported and exported as xml files. On iOS, not all options are available due to sandbox restrictions of the Apple iOS ecosystem. XML files are intended to be cross-platform compatible, e.g. a program (bank) exported on iOS can be imported into the desktop version of the same plugin and vice versa.


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# 4 TB Reverb 4 / Reverb iOS

## 4.1 User interface

### 4.1.1 controls area




| Control | Purpose |
|---|---|
| Decay | Adjusts the simulated room decay time. The numerical values indicate the reverberation time (T60). |
| Freeze | Freezes the reverb signal creating a continuous loop until released. |
| Density | Adjusts the density of the reverb. A higher density corresponds to a dense reverberation. A low density corresponds to a very sparse reverberation tail like random or flutter echos. |
| Depth | Adjusts the depth, e.g., the ratio between early reflections and late reverberation. A value of 100% corresponds to late reverberation only. A value of 0% gives early reflections only. |
| Dry | Sets the dry output level. |
| Wet | Sets the wet (early reflections and late reverberation) output level. |
| Width | Sets the spatial width from mono (0%) to maximum width (100%). |
| Delay | Sets the initial delay of the late reverberation. |
| Compress | Sets the amount of dynamic compression applied to the reverberation. |
| Mute dry | Global parameter to disable the dry output for all programs |
| Eco mode | Run the reverb in eco mode, for reduced CPU load |
| Analyzer | Enable or disable the spectrum analyzer, which will show the direct and reverb contributions of the output by different colors / curves. |
| Dry-wet lock | Enable the padlock button to switch to locked dry and wet level settings for all programs. Disable the button to switch to program-dependent dry and wet level settings. |
| Dice icon | Click the dice icon to apply random reverberation settings. This allows you to quickly dial in completely different reverb settings for creative exploration.<br>• LFO, modulation, gating and shimmer settings will not be changed with this feature. |

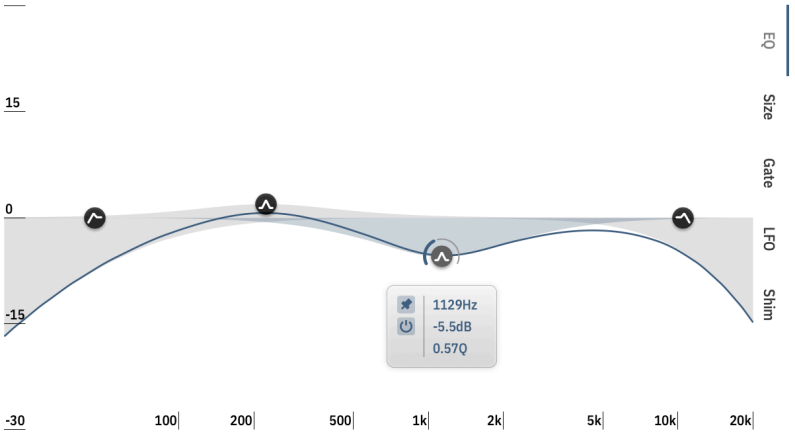
### 4.1.2 EQ tab

The EQ tab (shown below) allows you to shape the spectrum of the reverberation. The tab shows a level expressed in decibels as a function of frequency in Hz. The tab contains 4 equalizer (EQ) sections visualized by the four circles (nodes). Each section contributes to the overall frequency spectrum.

- Drag the node around to change the frequency and gain of each node.
- Use the mouse wheel to change the bandwidth (quality, or Q factor) of each node.
- There are two peaking equalizer filter, one high-pass filter, and one low-pass filter.
- Double-click on the node to reset it to its default values.

When one node is selected, a small popup window will appear that allows fine-tuning of parameter values. The small popup menu has a slider for frequency (F), gain (G), and quality (Q). Double-click on these sliders to manually enter numbers.

The solid line in the tab shows the overall curve which consists of a sum of the contributions of each individual equalizer section.




When one or more parameters of a node is modulated using the integrated LFO, the effect of the modulation is shown in two ways:

- The response curves will change over time corresponding to the modulation effect, and
- The node itself will display the frequency, gain and Q offset (if available) using disks around the node.
- The disk on the left moving up and down shows the modulation offset for the gain parameter.
- The disk at the top (moving left or right) shows the modulation offset for the frequency parameter.
- The disk on the right (moving up and down) shows the modulation offset for the Q parameter.



### 4.1.3 Decay tab

The decay tab allows one to change the decay (or reverberation time) as a function of frequency. This works quite similar to how the EQ tab operates. Drag the various nodes around to modify the reverberation time.

- The decay tab has one low-shelving filter, one high-shelving filter, and one peaking filter.
- A value of 1.0 indicates that at that particular frequency, the reverberation time is equal to the one specified by the 'Decay' control. In other words, the vertical axis represents a multiplication factor.
- A value smaller than 1.0 (say 0.5) indicates a smaller reverberation time (1.10 seconds if the multiplication factor equals 0.5). Similarly, a value larger than 1.0 equates to a larger reverberation time than the 'Decay' control.
- When one node is selected, a small pop-up menu appears for fine editing of the corresponding parameter values.

### 4.1.4 Gate tab

The 'Gate' tab allows to enable gating, peaking and ducking. In the left-top part of the 'Gate' tab, a mode selector determines the mode of this module:

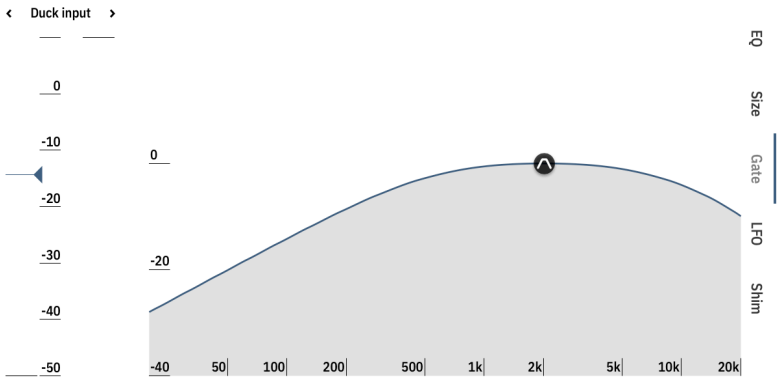
- Disabled: in this mode, the gate is not active.
- SC monitor: in this mode, the output of TB Reverb v4 consists of the *internal* side-chain (SC) input only. This side-chain input consists of a downmix of all input signals, with a band-pass filter applied to it. The band-pass filter can be modified by changing the filter response in the filter response graph.
- Gate input: in this mode, the *input* to the reverb will be gated (e.g. attenuated) when the internal side-chain level is *below* the gating threshold (see below).
- Gate output: in this mode, the *output* of the reverb will be gated (e.g. attenuated) when the internal side-chain level is *below* the gating threshold (see below).


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- Duck input: in this mode, the *input* of the reverb will be gated (e.g. attenuated) when the internal side-chain level is *above* the gating threshold (see below).
- Duck output: in this mode, the *output* of the reverb will be gated (e.g. attenuated) when the internal side-chain level is *above* the gating threshold (see below).
- Limit input: in this mode, the *input* of the reverb will be limited (e.g. attenuated) when the internal side-chain level is *above* the gating threshold (see below).

The various modes have very distinct influences on the sound of the reverberation. In general:

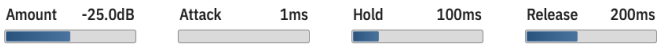
- Gating will *reduce* reverberation levels when the side chain input is relatively *quiet*. In other words, reverb is mostly audible when the side chain input is very active.
- Ducking will *reduce* reverberation levels when the side chain input is relatively *loud*. In other words, it will keep reverberation out of the way and only become active if the side chain input is relatively quiet.




The two VU meters just below the mode selector can be used to set the threshold of the gating/ducking stage:

- The VU meter on the left visualizes the detected (side-chain) input level. The slider on top of that VU meter sets the gating/ducking threshold.
- The VU meter on the right visualizes the attenuation applied by the ducking/gating mechanism.

The four sliders at the bottom of the 'Gate' tab provide means to change the gating amount, and the attack, release and hold time:



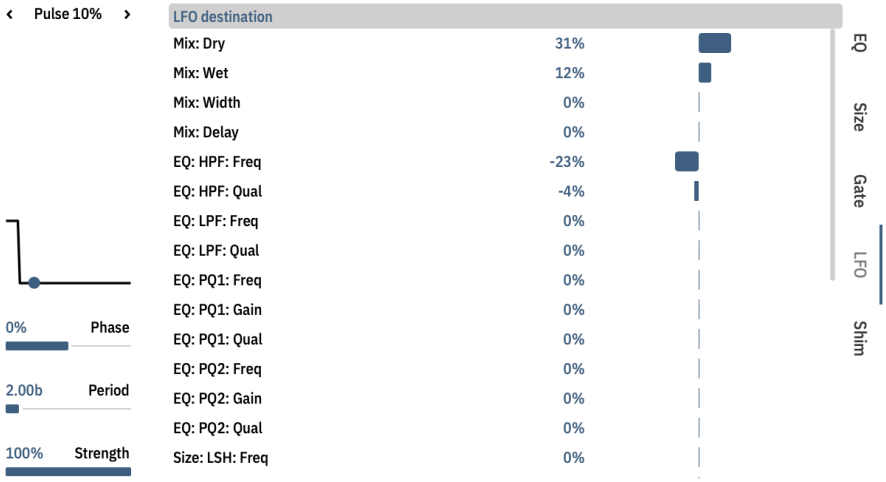

- Amount sets the maximum attenuation applied by this module. In other words, a value of -25 dB will ensure that the gate/ducking attenuation will never be below -25 dB.
- Attack sets the time the gate/ducking mechanism respond to input onsets. For a short attack time, the gate/ducker will respond quickly to onsets in the (side-chain) input.
- Hold sets the time that the attenuation is being hold constant following the attack phase.
- Release sets the time that the gate/ducking mechanism recovers from an onset when the input signal level is relatively low.

### 4.1.5 LFO tab

The LFO tab provides means to modify a wide variety of reverberation parameters as a function of time. This process is driven by a low-frequency oscillator (LFO).

- Select the LFO waveform to enable the LFO section. A wide variety of waveforms is provided.
- The graph just below the LFO waveform selector shows the waveform. The dot moving along the waveform shows the current value of the LFO.
- The phase control allows offsetting the waveform in time (forward or backward).
- Period determines the duration of one cycle of the waveform expressed in beats (if supported by the host program). If your project runs at 120 beats per minute (BPM), and the period control is set to 1 beat, the LFO will cycle through the waveform 120 times per minute.

- Strength allows one to change the amplitude (strength) of the LFO waveform.




The LFO destination table contains a list of parameters that can be modified by the LFO. In the example above, the 'Mix: Dry' LFO destination is set to 11%. This means that the dry output level is increased by 11% if the LFO waveform is maximum, and it is decreased by 11% if the LFO waveform is minimum.

- Every LFO destination can be varied in strength. A positive value in the LFO destination table will increase the parameter with an increase in the LFO waveform. Similarly, a negative value in the LFO destination table will decrease the parameter with an increase in the LFO waveform.
- There are 3 groups of LFO destinations:
    - Mix: these LFO destinations influence mixing parameters (dry, wet, width levels) and reverberation delay.
    - EQ: these LFO destinations modulate the equalizer node frequencies, gains, and quality parameters in the EQ tab.
    - T60: these LFO destinations change the T60 reverberation node frequencies, gains and quality parameters in the T60 tab.

### 4.1.6 Shim tab

The Shim tab allows for configuration of 'shimmer reverbs'. This class of reverberation algorithms integrate a high-quality pitch shifter within the reverb module itself to that new frequency components are generated as the reverb tail develops over time. This can create exceptional soundscapes and evolving reverberation progressions.

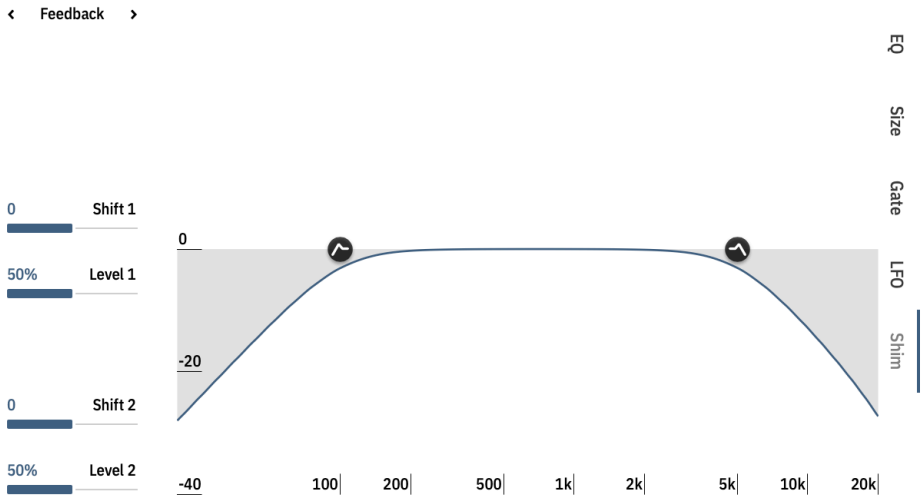
TB Reverb 4 features two independent pitch shifters shown on the left side of the GUI when the 'Shim' tab is selected. Each pitch shifter has a 'Shift' parameter, which denotes the pitch shift amount in semitones, and a 'Level' parameter, which controls the output level of the pitch shifter.

The shimmer module can operate in two modes:

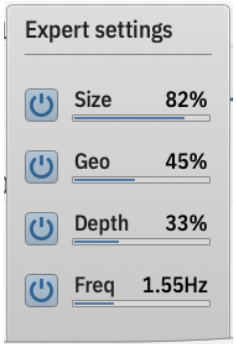
- Forward: in this mode, the input signal passes each pitch shifter only once (feed-forward topology).
- Feedback: in this mode, the output of the pitch shifter is fed back into the input of both pitch shifters to apply a recursive pitch shifting.

The equalizer graph in this shimmer mode allows to set an equalizer curve for the pitch shifters. The equalizer curve is shared (e.g. the same curve is applied to both pitch shifters).


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### 4.1.7 Expert settings panel




The expert panel allows specific settings for the room size, room geometry, modulation depth and modulation frequency. When these options are disabled, they are automatically derived from other parameters such as the decay time, the density, and others. The expert settings panel allows you to override the automatic settings.

- Size represents the size of the environment. It will influence the late reverberation modal density, and how quickly the reverberation will build up. A larger room requires more time to build up the reverberation.
- Geo(metry) determines the geometry of the environment. A low value represents an ideal, shoe-box hall or room, while a higher value represents more irregularities and cavities in the room, which cause a less regular reverberation tail. For values close to 100% and a long reverberation tail, you can even hear reverb tails from other (simulated) rooms bouncing back and forth into the reverb.
- Depth sets the modulation depth of the reverberation tail, to simulate rich, chorus-like reverberation.
- Freq sets the modulation frequency.

### 4.1.8 Multi-channel support

The VST3, AAX and AU versions of Reverb 4 can produce multi-channel output. Please ensure that the channels provided by the host to the plugin obey the following channel order:



- Left front
- Right front
- Center
- LFE
- All side, rear, and top surround channels