



# VSS3

## STEREO SOURCE REVERB

FROM THE LEGENDARY SYSTEM 6000

TDM PLUG-IN

MANUAL

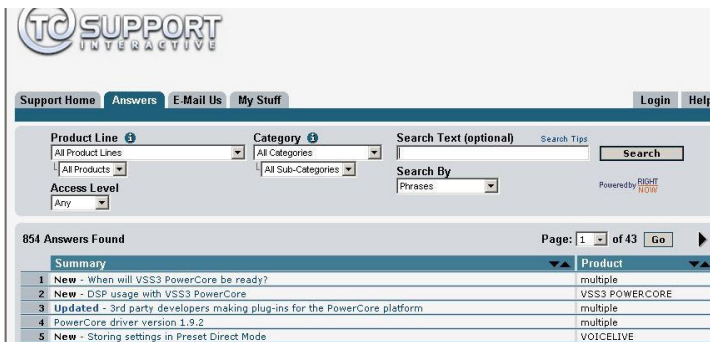
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ULTIMATE SOUND MACHINES

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# VSS3™ Stereo Source Reverb

Congratulations with the purchase of your new Virtual Space Simulation plug-in for Pro ToolsHD.

With this plug-in, you now have one of the best sounding, most versatile and easy-to-use professional reverbs for music and film/post applications available directly within your Digital Audio Workstation. Combining ultimate control of directivity in the early reflections with a transparent and harmonically magnificent diffused field, the art of reverberation is brought to a new and higher level.

The VSS™3 enables you to add the softest and cleanest ambience to your work that you have ever heard. With the wide range of presets it will give you the exact post production reverb you are looking for: The VSS™3 Reverb algorithm incorporates dedicated Early Reflection types for motion picture use, e.g. Car, Bathroom and Conference Rooms.

The VSS3 plug-in runs on Pro ToolsHD and Pro ToolsHD Accel hardware, including the Venue console, at sample rates from 44.1 kHz to 96kHz, with Pro Tools software 6.9 or higher.

Enjoy!

# VSS Introduction

## Constructing a Reverb Preset with the VSS™ algorithm

The following few paragraphs are thoughts about the usage of the VSS™ (Virtual Space Simulation) algorithm. They should be taken as guidelines rather than fact.

The relationship of Early Reflections and the Reverb tail is very important in this algorithm. Adjusting the balance between the Early Lev and the Rev Lev parameters is one of the easier ways to make a HUGE difference in the sound of your reverb!

When you start building your preset you should try this:

First turn the Rev Lev all the way down and also turn the Dry level a little down (or all the way down if you are in a send/return configuration). In a send/return configuration, push up the return level. You should now hear Early Reflections, a little of the Dry signal and no Reverb Tail.

Then begin changing the Early Type and Early Size parameters until you select a room shape that compliments the program material.

Re-adjust the wet/dry balance until it is pleasing, then bring up the Rev Lev until the tail of the reverb becomes audible. Add just enough tail to make it work together.

Adjust the Decay time accordingly.

On some presets you may choose to have very little Early Reflections or none at all.

Certain "ambience" style presets might have little or no "tail". That is up to you.

The VSS3 was designed to have the smoothest Reverb tail ever developed but it is the Early Reflections that define the "personality" of the room, so try to experiment with this relationship! By using these parameters correctly you can create a BIG sound without having a mix swimming in reverb wash.

*Note: When using small room sizes and short Decay times on percussive signals, the Reverb level and Early level must have an approx. level difference of 4dB in order to prevent a slap effect.*

## Getting the most out of the Early Reflection Patterns

Early Reflections define the actual feel of the room, where the Reverb tail is the less defined "bowl" of reflections that follows. The major part of the Early Reflection patterns of the VSS3 are simulations of existing rooms and are based on a large number of reflections (40-100), which have been processed through an advanced algorithm.

There are a number of different types and sizes covering a lot of different acoustic spaces that you need for music and post production. As the patterns are simulations of real rooms, the delay times of the first reflections are sonic and spatially "connected" to the direct signal. Using Pre Delay together with Early Reflections should therefore be considered very carefully, as the acoustic space created by the pattern tends to "collapse" if too much Pre Delay is added. If you want the well known slap back reverb effect, you should use Rev Delay on the Reverb tail instead and reduce the level of the Early Reflections.

### **Finding the right Early Type & Size for your track :**

- Select Early Type and Early Size on the Early page.
- Turn the Rev Level to -100dB.
- Turn the EarlyLevel to 0dB.
- Select an appropriate size. (Note that some sizes of the different types may overlap, e.g. Church Small is bigger than Conc Hall medium etc.)

Switch between the different types until it matches the signal and the illusion that you wish to create.

Generally it is advisable to use small room sizes for drums and perc; medium sizes for piano, guitar & horns and large sizes for vocals & strings. Large Church and Venue simulate very big rooms and can therefore be used to create an "echo like" effect if turned up loud. Many of the patterns can be used as a "Doubling" effect if the Reverb tail is not added.

### **Using the Hi Color and Lo Cut parameter on the Early Reflection-page**

Once you have selected the desired type and size you can use the Hi Color and the Lo Cut controls to filter the Early Reflections. The Hi Color parameter is an advanced Hi Cut function. Please note that in most real rooms the reflections are generally much softer than the direct signal.

Often it can be advisable to use the Hi Color parameter in the range between -4 to -9 to make the Early Reflections blend properly with the direct signal rather than competing with it. The Lo Cut filter is very useful if you want to reduce the Early Reflections in the area between 125-400Hz. Try this if the Early Reflections seem to make the sound too full.

We hope that you will enjoy working with the VSS3 !

# Global Plug-In Controls

## ***Keyboard Commands***

In most host applications, the VSS3 Stereo Source Reverb supports keyboard commands for certain functions. The following key commands are available for all plug-in parameters:

### **Key Commands in Mac OS X:**

Fine Adjust = Apple key + mouse movement

Reset To Default = Option + mouse click

### **Key Commands in Windows:**

Fine Adjust = Ctrl + mouse movement

Reset To Default = Alt + Control + mouse click

## ***Automation***

Please be aware that automation of certain parameters, like Reverb Type or the modulation parameters can cause audible artifacts.

In case you need to automate these parameters, you should take care that changes only take place in parts where no audio is sent to the plug-in.

This is especially valid for the following parameters: Early Type, Early Size, Reverb Type, Reverb Width and all parameters on the Modulation page.

## **SYSTEM REQUIREMENTS**

- Mac OS X (10.4 or higher) / Windows XP
- Pro Tools TDM 7.2.1 software (or higher)
- Pro Tools HD or HD Accel hardware
- iLok USB key
- iLok.com account and internet access required for product authorization
- System must meet Digidesign's system requirements for Pro Tools TDM systems!

## Focus Fields

You can place your own set of parameters in the 6 focus fields at the bottom of the plug-in.

Making use of the focus fields can give you a better workflow, since you will not have to switch pages all the time to find the parameters that you work with.

You can assign any parameter to the focus fields, and the focus fields are stored with the session as well as when you save your presets.

|        |                    |                     |                   |                   |                    |                 |
|--------|--------------------|---------------------|-------------------|-------------------|--------------------|-----------------|
| Assign | In Level<br>0.0 dB | Rev. Delay<br>14 ms | Pre Delay<br>0 ms | Early Color<br>-7 | Hi Cut<br>2.50 kHz | Hi Soften<br>14 |
|--------|--------------------|---------------------|-------------------|-------------------|--------------------|-----------------|

### To change the assignment:

- Press the Assign button. The Assign button as well as one of the Focus Fields will be highlighted.
- Select the Focus Field you wish to link a parameter to, by clicking on that field.
- Click on the parameter you wish to link to the selected Focus Field.
- To get an unassigned (empty) Focus Field, click again on the selected parameter.
- Once you have finished the assignments, click again on the Assign button to leave the assign mode.

## Overload Indication (O/L)



The two LEDs in the metering section, between the input and output meters, will light up in case internal DSP overloads are detected. You should lower the input level to avoid these overloads. To reset the indication, click on the O/L LED.

### Tool Tips



Each control on the plug-in user interface (UI) will show a small help text when you move the mouse over it, called “Tool Tip”. In case you do not want to have these Tool Tips showing up, click on the question mark icon on the “Main” UI page. The Tool Tip setting is kept globally for this plug-in.

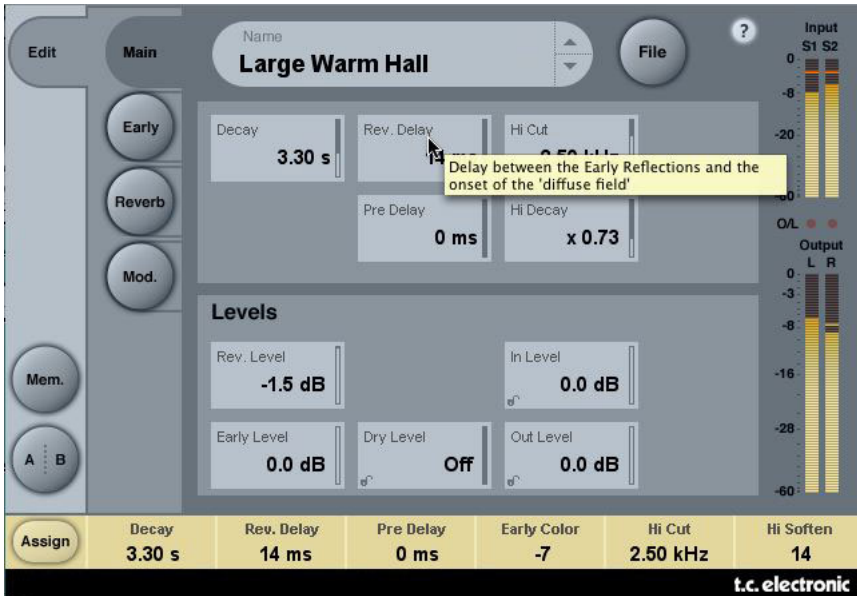


# The Plug-In Parameters

The plug-in parameters are spread amongst 4 User Interface pages. They are grouped into the most important parameters on the Main page, the parameters relevant for the Early Reflections, the Reverb Tail and finally for Modulation.

## Main

On the VSS3 Main page, we have grouped the most important parameters of the VSS3. Also, on this page you can find the plug-ins preset handling. More about the preset handling can be found in the section "Preset Handling" later in this manual.



### Decay

Range: 0.1 to 20s

The Decay time of the Reverb. Usually associated with the time it takes the Reverb Tail to decay 60dB. This is the overall Master Decay for the four band Decay parameters (found in the REVERB section below) which are multiples of this base Reverb time.

### Rev Delay

Range: 0 to 200ms

A delay to the diffuse field part of the Reverb. Adds additional time between the Early Reflections and the onset of the "diffuse field" of the Reverb.

### **Pre Delay**

Range: 0 to 100ms

A delay placed at the input of the algorithm. This parameter defines how long after the dry sound the Early Reflections and the diffuse field will begin.

### **Hi Cut**

Range: 20Hz to 20kHz

Rolls off the top end as it enters the Reverb. Used in conjunction with Hi Soften and Hi Decay to "darken" a room.

### **Hi Decay**

Multiplier Range: 0.01 to 2.5

Sets the Decay time for the High-end frequencies of the Reverb diffuse field.

## ***Levels***

### **Rev Level**

Range: Off, -97dB to 0dB

The output level of the diffuse field part of the algorithm. When Rev Level is set to "Off", the effect will consist entirely of Early Reflections.

### **Early Level**

Range: Off, -97dB to 0dB

The output level of the Early Reflections. When Early Level is set to "Off" the Reverb effect will consist entirely of Reverb Tail.

### **Dry Level**

Range: Off, -97dB to 0dB

Attenuates the Dry signal level on the output of the plug-in, thus leaving the Reverb and Early Levels unaffected. "Off" equals a "kill-dry" setting.

The lock in the lower right corner of the control will prevent this parameter from being updated by preset changes initiated from within the plug-in UI. All other actions (like preset changes and automation data from the host) will pass and re-open the lock.

### **In Level**

Range: Off, -97dB to 0dB

Sets the Input Level for the algorithm.

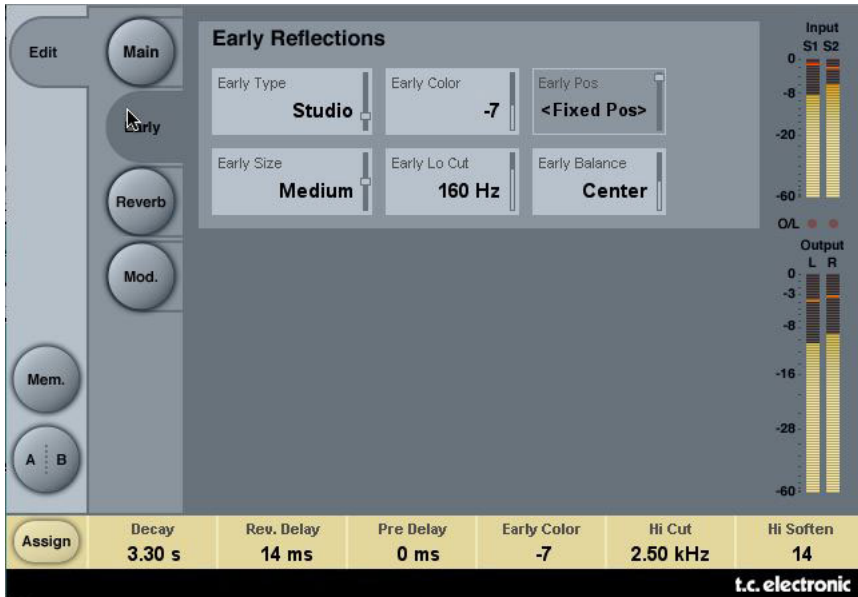
### **Out Level**

Range: Off, -97dB to 0dB

The overall Output level of the Reverb. Use this parameter to adjust the output level to fit for following effects in your host application.

# Early

On this page, you can find all the important parameters for the Early Reflections generated by the VSS3.



## Early Type

Several types are available - e.g. Airport, Bathroom, Car, Street, etc.

Pick the type that best compliments your material or best represents the effect you are going for.

## Early Color

Range: -40 to +40 (0 = default)

Adjusts the spectral balance in the high end frequencies. This is actually a simple way of adjusting a complex selection of frequencies.

## Early Pos

Here you can select between a Close and a Distant setting. This enables you to change the distance between the listening position and the source in the same Early Reflection pattern.

Please note that some of the Early Types only have one position available. The Early Pos parameter field will be grayed out and show the text "<Fixed Pos>".

**Early Size**

Range/Type: Small, Medium or Large

Changes the size of the Early Type parameter.

Some of the Early Types have only a fixed size. For these Early Types, the Early Size parameter field will be grayed out and show the text "<Fixed Size>".

**Early Lo Cut**

Range: Off, 25 to 400Hz

Sets the Lo Cut frequency for the Early Reflections.

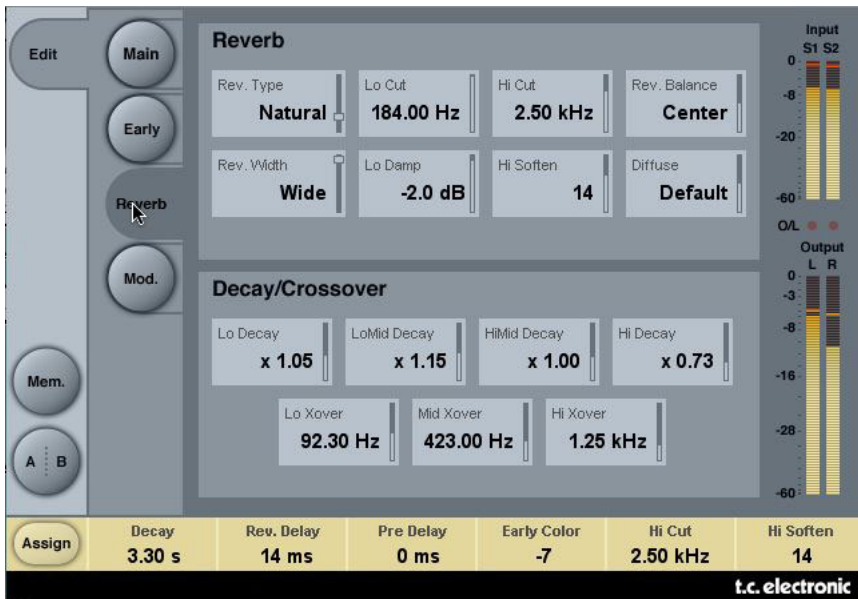
**Early Balance**

Range: -100dB R, Center, -100dB L

The left/right balance of the Early Reflections. Allows you to offset the Early Reflections from the normal center position by attenuating the Early Reflections on the right or left channel.

# Reverb

On this page, you can find all the important parameters for the Reverb Tail generated by the VSS3, including the setup of the crossover frequencies and decay time multipliers for the individual frequency bands.



## Reverb

### Rev Type

Range: Smooth, Natural, Alive, Fast, Alive Wide, Fast Wide

Adjust this parameter with the Early Level turned all the way off and the Rev Level all the way up. Change the type to get a feel of what each one sounds like.

### Rev. Width

Range: Mono, Center, Stereo or Wide

With this parameter you can change the width of the diffuse field. The Mono setting is where the left and right Reverb Tails are completely identical, the Center setting opens a bit up in the middle, Stereo is the normal stereo image width and Wide covers the outside of the stereo image.

*Note: The Rev Types Fast Wide and Alive Wide only have one width, indicated as "<Xtra Wide>" (extremely wide).*

### **Lo Cut**

Range: 20 to 200Hz

Adjustable filter that allows you to remove low frequencies from the Reverb Tail. The Lo Cut frequency can be perceived as a Threshold frequency. The cut will be performed according to the Lo Damp parameter.

### **Lo Damp**

Range: -18dB to 0dB

Sets the amount of cut in dBs. (See Lo Cut description above).

### **Hi Cut**

Range: 20Hz to 20kHz

Rolls off the top end of the signal as it enters the Reverb. Used in conjunction with Hi Soften and Hi Decay to "darken" a room.

### **Hi Soften**

Range: -50 to +50 (0 = default)

Hi Soften is a special filter used to "soften" the high frequencies of Reverb. This is not a simple Hi Cut filter but a complex set of filters working together to remove those frequencies that make a Reverb sound "brittle" or harsh. Hi Soften is scaled/linked to the Hi Cut and Hi Decay.

### **Rev Balance**

Range: -100dB R, center, -100dB L

The left/right balance of the Reverb. Allows you to offset the diffuse field from the normal center position by attenuating the Reverb Tail level on the right or left channel.

### **Diffuse**

Range: -50 to +50 (0 = default)

This parameter gives you more or less diffusion than the algorithm designer intended for the given Decay time. For optimum performance the diffusion is automatically adjusted behind the scenes whenever you change Decay times. This parameter gives you the added control to vary the diffusion around this automatic setting.

## ***Decay/Crossover***

### **Lo Decay**

Multiplier Range: 0.01 to 2.5

Multiplier for the frequencies below the Lo Xover frequency.

*Example: If the Main Decay parameter is set to 2.0sec and the Lo Decay parameter is set to 1.5, frequencies below the Lo Xover will decay for 3.0 sec. (=1.5 x 2.0sec).*

*Conversely if this parameter is set to 0.5 the Decay time below the Lo Xover point will be only 1 sec.*

### **Lo Xover**

Range: 20Hz to 500Hz

Sets the frequency at which the transition from the low to the low-mid frequencies takes place.

**Lo Mid Decay**

Multiplier Range: 0.01 to 2.5

The Ratio control multiplier for the low-mid frequencies.

**Mid Xover**

Range: 200Hz to 2kHz

Sets the frequency at which the transition from the low-mid to the mid frequencies takes place.

**Hi Mid Decay**

Multiplier Range: 0.01 - 2.5

The Ratio control multiplier for the mid frequencies. This parameter is normally set to 1.0 as it is the main parameter adjusted by the main Decay parameter. This mid-range decay control would normally be omitted, however, TC Engineers felt you could use this parameter as a fine adjustment tool to "tweak" a preset to sound just right without having to adjust the master Decay parameter.

**Hi Xover**

Range: 500Hz to 20kHz

Sets the frequency at which the transition from the mid frequencies to the high frequencies takes place.

**Hi Decay**

Range: 0.01 to 2.5

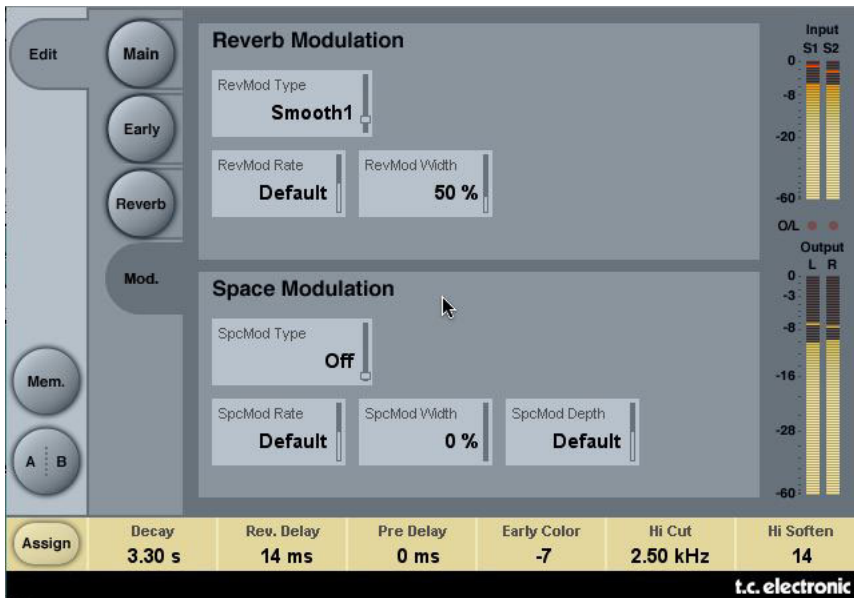
Multiplier for the frequencies above the Hi Xover frequency.

Example: If the main Decay parameter is set to 2.0sec and the Hi Decay parameter is set to 1.5, frequencies above the Hi-Xover will decay for 3.0 sec. Conversely if this parameter is set to 0.5 the Decay time above the Hi Xover point will be 1 sec.

# Modulation

The VSS3 offers intense modulation facilities and to control these, the Modulation page gives you an extensive series of parameters. All these parameters are condensed into 2 easy to use modulation sections, where you control different assets of the modulation.

The modulation part of the VSS3 has an in-built set of randomization methods. Every room in this world sounds different from one second to the next, and with the "random" feature this is perfectly simulated.



## Reverb Modulation

The reverb modulation type is a set of very complex LFO patterns that modulates various parts of the reverb, and these patterns are developed based on the many years of experience and knowledge of the TC crew.

### RevMod Type

Off, Smooth 1, Smooth 2, Perc, Wow, Vintage, Wild  
Selects the type of modulation.

### RevMod Rate

Range: -100, default, +100

Allows you to offset the speed of the LFO from the factory default assigned to each Type.



**RevMod Width**

Range: 0% to 200%

Sets the Width of the modulation.

## ***Space Modulation***

The space modulation part imitates the air movement of a room, and this is one of the things that make the VSS3 very good at simulating the complex patterns of natural rooms. You can adjust the modulation type's rate, width and depth.

**SpcMod Type**

(Off, Normal, Fast, Slow, MidFreq, Sync)

Selects the type of Space Modulation.

**SpcMod Rate**

Range: -100, default, +100

Allows you to offset the speed of the LFO from the factory default assigned to each type.

**SpcMod Width**

Range: 0 to 100%

Sets the width of the modulation.

**SpcMod Depth**

Range: -50, default, +50

Allows you to offset the amount of space modulation from the factory default.

# Preset Management

TC's comprehensive file based preset architecture makes archiving presets a simple process. This allows you to organize your presets the way you find most comfortable for your workflow, and to exchange presets with other users, no matter the platform or application. Presets are saved as discrete files on your hard drive. Once a preset is saved into the default location, it will automatically appear in the 'File' menu every time you use the plug-in. The files can then be organized into subfolders, where you can delete, rearrange or create your own sub-folders to accommodate your needs.

*NOTE: A folder will appear in the Preset File Menu if it contains at least one preset.*

## Next/Previous Presets

From the plug-in's Main page, you can directly jump from one preset to the next (or previous) by clicking on the up/down arrows right from preset name.



All presets available at the default plug-in preset location will be considered, so you could in theory reach every preset this way. Direct access to specific presets is done via the "File" button:

## Preset File Menu

Pressing the 'File' button will open the plug-in's File menu. The following options are available from the File menu.

### Loading a Preset

By selecting 'Load', you can navigate to any folder on the system that you have read access to, including any shared folder. By default, these will be loaded from the default location for VSS3 presets. Only presets located in the default file location will appear in the VSS3 pop-up preset menu.

### Naming a Preset

- Double click on the name field
- Type in the new name
- Press Enter

### Saving a Preset

By selecting 'Save', you can save your preset to any folder on the system that you have write access to, including any shared folder. By default, presets are saved to the default location for the VSS3 presets.

## Default Preset Locations

The following locations will describe where you can find the VSS3 presets. The presets are stored in a folder that is unique to each plug-in:

The plug-in's own preset handling is storing the presets in the following locations:

Mac OS X: /Users/Shared/TC Electronic/VSS3/Presets/

Windows: (System Drive):\Documents and Settings\All Users\Shared Documents\TC Electronic\VSS3\Presets\

- To delete a file, simply move it to the 'Trash' or 'Recycle bin'.
- To create a new subfolder that appears in the plug-in menu, simply create a new folder in the plug-in folder that resides in the PRESETS folder of the VSS3 default preset location.

*NOTE: A folder will not appear in the Preset File Menu unless it has at least one preset inside.*

## Converting VSS3 Presets from System 6000 and Reverb 4000

In case you are the happy owner of the VSS3 algorithm for System 6000 or the Reverb 4000, here is something to get you in an even better mood: The VSS3 plug-in is able to read your System 6000/Reverb 4000 presets.

In order to convert presets from System 6000/Reverb 4000 to VSS3, you need to store the System 6000/Reverb 4000 presets in a preset file. The file extension has to be either ".syx" (for example: MyPresets.syx) or .mid for a MIDI file.

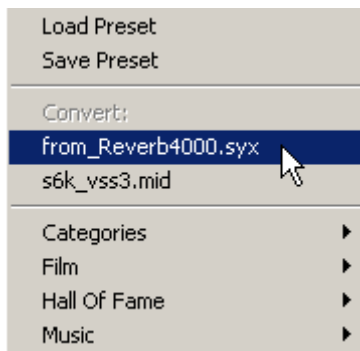
The easiest way to export System 6000/Reverb 4000 presets is to use the "export to file" function from the Icon Editor for Mac/Windows (requires version 3.5 or higher). Alternatively, you can save a bank to a floppy disk (System 6000 only) or do a SysEx-Dump to a MIDI file in your sequencer.

*NOTE: For details regarding the export of presets from System 6000 or Reverb 4000, please refer to your System 6000/Reverb 4000 and Icon Editor documentation.*

The generated SysEx/MIDI preset file needs to be placed in the default VSS3 Preset folder (at the root level; subfolders are not considered). The file needs to have either the extension ".syx" (for example: MyPresets.syx) or .mid for a MIDI file.

*Note: In case you are running the Icon Editor on the same computer as the VSS3 plug-in, the VSS3 will automatically search for preset files in the default locations for Reverb 4000 and System 6000 files. You do not need to copy the files!*

Once your preset file has been placed in the default VSS3 Preset folder, it will show up the next time you click the "File" button. At the top of the pop-up list you'll find a section called "Convert", and the name of your preset file will be listed here.



To convert your preset file to VSS3 presets, simply select the name of the preset file. The conversion will only take a few seconds and only needs to be done once. When the conversion is done, all presets from your preset file will be available in a subfolder that has the same name as the preset file had. The presets will show up in the same bank structure as on the System 6000, and presets that are not based on the VSS3 algorithm will not be converted. The preset file will disappear from the Convert section of the file menu.

## ***Compare settings with A/B Mem.***

With the A/B compare function you can easily compare different parameter settings when you work with your music.

You have two buttons: the "Mem" and the "A/B" button.



When you start working with your preset, the A/B button is grayed out. This state indicates that the settings in both memory locations A and B are identical - so there is actually nothing to compare.

As soon as you touch one of the parameters, the memory location "A" will get active, and the "A"-part of the A/B button will light up. All parameter changes will be applied to memory location "A". If you switch to memory location "B", you get back to your starting point, and all further changes will now be applied to memory location "B". Every time you press the A/B button, you will toggle between these two memory locations.

NOTE: The A/B memory locations are temporary settings only! Saving a preset (e.g. via the File button or with your session) will only save the currently selected memory location. The setting of the other (hidden) memory location will not be saved!

The "Mem" button will reset the A/B memory locations to the current setting.

## ***Locking Parameter values - using the Parameter Lock***

The parameter lock function allows you to lock the Dry Level, In Level and Out Level, from changing when you change preset.

By using the parameter lock, you can easily browse through the extensive set of presets that comes with the VSS3, without having to change the Dry Level, In Level or Out Level all the time.

To lock a parameter, simply click on the small lock in the parameter field. To unlock it, click again.

The parameter lock only affects parameter changes made with the mouse. The parameter lock does not affect automation data or preset changes initiated from the host application. These changes will always pass.

*An example:*

*You have inserted the VSS3 on a channel.*

*When you use the VSS3 as an insert effect, you would probably like the dry part of the signal to go through the VSS3, and therefore you'd probably turn up the "Dry Level".*



Now, if you try to browse through a couple of presets, using the up and down arrows on the right side of the preset name, you will see that most of the presets have the Dry Level set to "Off". In other words, the Dry Level goes to "Off" all the time - which is quite annoying.



And here comes the Parameter Lock. Simply press the small lock in the Dry Level parameter field, and the Dry Level will stay at the value that you've set it to - no matter what is saved with the preset you choose.

