NuVerb™ TDM

lexicon

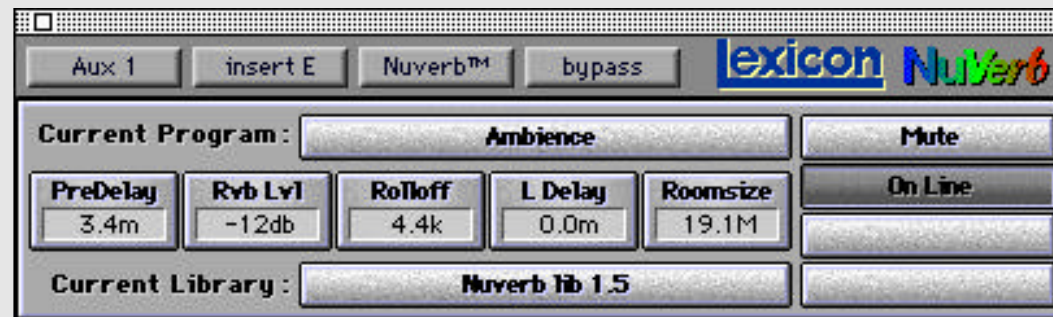*U s e r   G u i d e*

Unpacking and Inspection

After unpacking the NuVerb TDM module, save all packing materials in case you ever need to ship the unit. Thoroughly inspect the module and packing materials for signs of damage. Report any damage to the carrier at once; report equipment malfunction to your dealer.

Notice

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designated to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment OFF and ON, the user is encouraged to try to correct the interference by one or more of the following measures:

> Reorient the receiving antenna
> Relocate the computer with respect to the receiver
> Move the computer away from the receiver
> Plug the computer into a different outlet so that the computer and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:

> "How to identify and Resolve Radio/TV Interference Problems."

This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la class A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

This triangle, which appears on your component, alerts you to the presence of uninsulated, dangerous voltage inside the enclosure... voltage that may be sufficient to constitute a risk of shock.

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

This triangle, which appears on your component, alerts you to important operating and maintenance instructions in this accompanying literature.

Apple, the Apple logo, and Macintosh are registered trademarks of Apple Computer, Inc.
NuBus is a trademark of Texas Instruments
TDM and Pro Tools are trademarks of Digidesign, Inc.
NuVerb is a trademark of Lexicon, Inc.

Lexicon Inc.
3 Oak Park
Bedford, MA 01730
Tel 781-280-0300
Fax 781-280-0490

Copyright ©1995, Lexicon Inc.
All Rights Reserved.

Lexicon Part #070-10752

Printed in the U.S.A.

NuVerb™ TDM

Lexicon

U s e r   G u i d e

Table of Contents

1
Getting Started

Congratulations on the purchase of the NuVerb TDM Plug-In. We're sure you will find the new features in this software quite useful. If you've also purchased the NuVerb TDM Option, you'll be able to access a whole new level of system integration.

About the Documentation

In general, this manual should be used in conjunction with the NuVerb User Guide. Many existing NuVerb features remain unchanged and are explained in detail there. New features, with notes regarding any changes to NuVerb behavior, are given here. In addition, this manual contains descriptions of all of the NuVerb programs.

For your convenience, your software package includes an On Line version of the installation procedures and operational information contained here. An **Installer Read Me** file is also provided to alert you to any changes which may have been incorporated since this manual was printed. Please check this file first to make sure you are informed of any variations, particularly in the installation procedure.

Customer Support

Fill out and send in your product registration card immediately. As a registered user, you are entitled to telephone support, and new product information — and we want to keep you up to date.

System Requirements

The NuVerb Plug-In provides direct control of NuVerb functions from a window within other TDM-compatible software packages. The Plug-In requires:

- 1 Megabyte of free RAM
- An installed TDM-compatible software application such as Digidesign's Pro Tools
- Lexicon's NuVerb TDM Option.

If you have problems loading Plug-Ins, you may need to increase the memory allocation of the DAE. To do this, quit Pro Tools (and DAE) and select the DAE icon from the DAE folder (inside your System folder). Select **Get Info** from the **File** menu (or press Command **I**) to open the memory allocation window shown.

2

Installing the Hardware and Software

In order to get your NuVerb TDM option up and running as quickly as possible, and to avoid damage to your hardware, please follow these instructions carefully.

If you are a first time NuVerb owner, unpack the NuVerb Card and the TDM option first. Verify that you have all of the items shown on the packing list. Fill out and return your NuVerb registration and warranty cards. Please take the time now to look over the NuVerb User Guide before attempting to install the TDM option. This will be time well spent.

Make sure that the Digidesign TDM system is properly installed in your Macintosh or Digidesign Expansion Chassis before you begin NuVerb installation. If you have not yet installed the Digidesign TDM system, refer to Section B of the Digidesign TDM Bus Software User Guide for installation instructions. Once you have successfully installed your Digidesign TDM system, you can proceed with the NuVerb installation.

If you already have a Digidesign TDM system with NuVerb installed, you will need to disconnect and remove the NuVerb card(s) from your Macintosh or Digidesign Expansion Chassis in order to retrofit them with the NuVerb TDM option. Remove the NuVerb card(s) and place them in the antistatic bag(s) in which they were shipped.

The installation procedure includes:

1. Attaching the NuVerb TDM module to a NuVerb card.
2. Installing TDM-enhanced NuVerb card(s) into your Macintosh.
3. Connecting NuVerb TDM to the Digidesign TDM system via the TDM ribbon cable.

Note

Only Lexicon TDM cards can be used with NuVerb. Cards from other manufacturers are incompatible and can damage your application hardware.

Precautions

- Be sure your Macintosh is turned off and unplugged.

- Before handling NuVerb cards, NuVerb TDM modules, or other NuBus cards, discharge any static electricity that may be on your clothes or body by touching a grounded metal surface, such as the power supply case inside your Macintosh.

- Handle cards only by their edges, as you would a CD. Be careful to avoid touching the pins on the bottom edge of the cards.

- Save the anti-static bags containing your NuVerb card and NuVerb TDM module. These special bags prevent static electricity from damaging sensitive electronic components on the cards. Always store your cards in these anti-static bags when the cards are removed from the Macintosh.

- Put the anti-static bags containing the cards near your Macintosh to avoid having to walk around with a card after it is removed from its bag (and generating static electricity).

Depending on your studio setup, installation of NuVerb TDM hardware and software will probably take about 20 minutes. Please read through the entire procedure before you actually start to perform the installation.

Attaching the NuVerb TDM module to a NuVerb card

The NuVerb TDM module attaches to your NuVerb card. Only NuVerb cards with an attached NuVerb TDM module can use the TDM option. NuVerb cards without the TDM module must use the AES/EBU ports for audio input and output.

1. Place the foam from your NuVerb card package on top of a work surface next to your Macintosh. (Any flat piece of foam with similar dimensions to the NuVerb card can be used.)

2. Turn off and unplug your Macintosh.

3. Remove the Macintosh top cover and slot cover(s) of those NuBus slot(s) you've selected for installation. Although the illustrations shown here depict installation in a typical Quadra/Centris 650-model Macintosh, your installation should be similar. If you are unsure of how to open and install a NuBus card in your particular Macintosh or Digidesign Expansion Chassis, please refer to your Macintosh Owner's Guide or Digidesign Expansion Chassis User Guide.
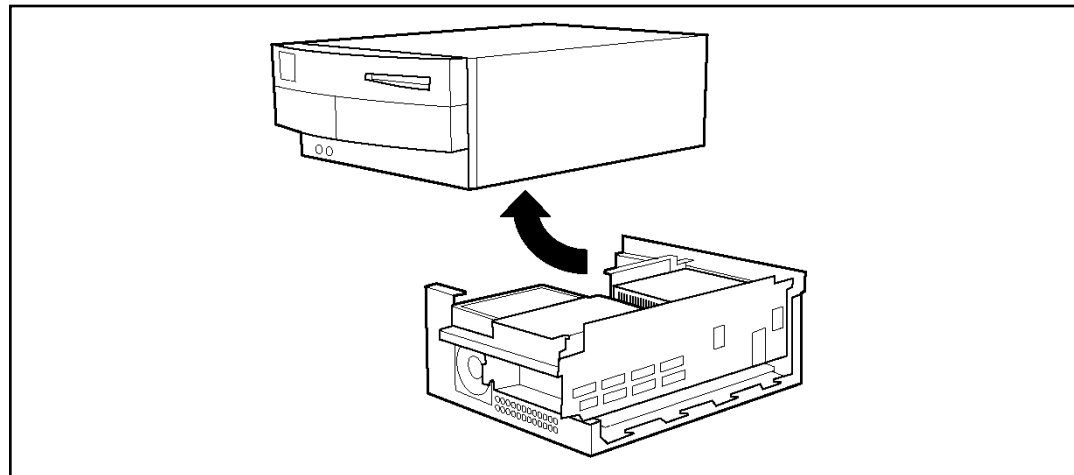
4. Touch the Macintosh power supply case to discharge any personal static electricity.
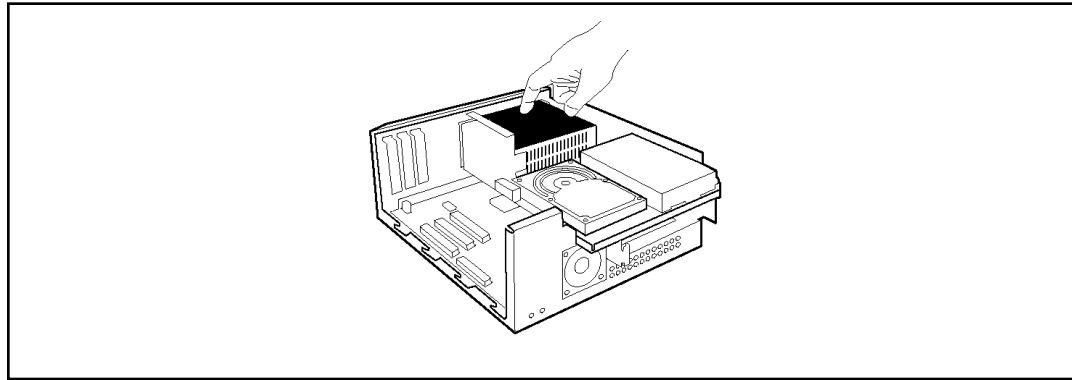
5. Remove the NuVerb card from its anti-static bag. Place the anti-static bag on top of the foam and place the card with its component side facing downward on top of the anti-static bag. Hold the card only by its edges, and be careful to avoid touching the pins on the bottom edge of the card.

6. Touch the Macintosh power supply case again to discharge any personal static.

7. Remove the NuVerb TDM card from its anti-static bag. Hold the card by its edges, and orient it so that the component side faces away from the palm of your hand.

8. With the TDM card in one hand, pick up the NuVerb card in your other hand. Orient the cards so that the component sides are facing each other. Carefully line up the black connectors at the top of each card. Firmly press them together until they are fully connected.

9. Once the cards are mated, place the assembly, with the TDM card on top, on the anti-static bag. When the cards are properly aligned, the four holes in each card (for the four screws supplied with the TDM card) are aligned.

10. Four screws (three metal and one nylon) are provided to attach the cards. Begin by inserting the nylon screw in the upper left corner, as shown below. Next, insert one of the metal screws in the top right corner. Complete the assembly by inserting the remaining two metal screws at the bottom.
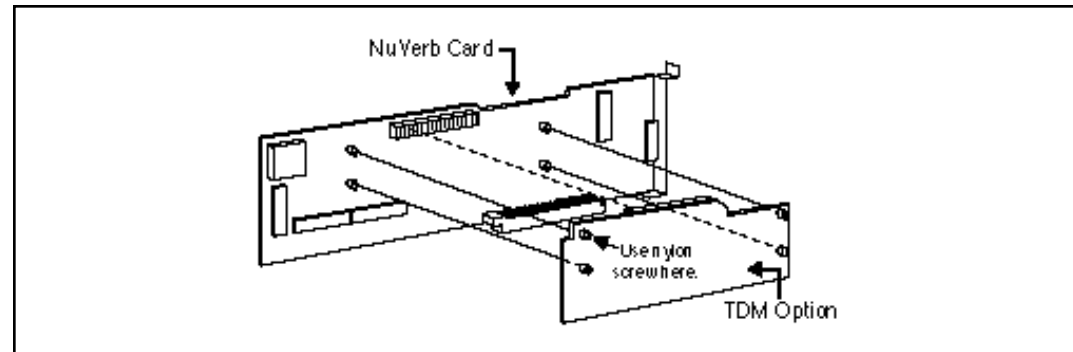
Repeat steps 4-10 for each NuVerb card with TDM option that you wish to install. Place each card assembly in an anti-static bag until you are ready to install it.

Installing TDM-enhanced NuVerb card(s) into your Macintosh

The TDM-equipped NuVerb card should be installed in the NuBus slot immediately adjacent to the last of your TDM-ready Digidesign NuBus Cards. If you are installing more than one NuVerb card, install them next to each other.

If you are unsure of the correct placement of , refer to the Digidesign TDM Bus Software User Guide and documentation that came with your cards. Also refer to the Digidesign TDM manual for proper termination of your TDM bus.

WARNING: For Power PC 7100, Macintosh IIvx and Quadra/Centris 650 Users

The TDM Option board can short against the edge of the hard drive assembly. To avoid potential damage, place non-conducting UL approved insulating tape (provided by Lexicon with the NuVerb TDM Option) as shown.
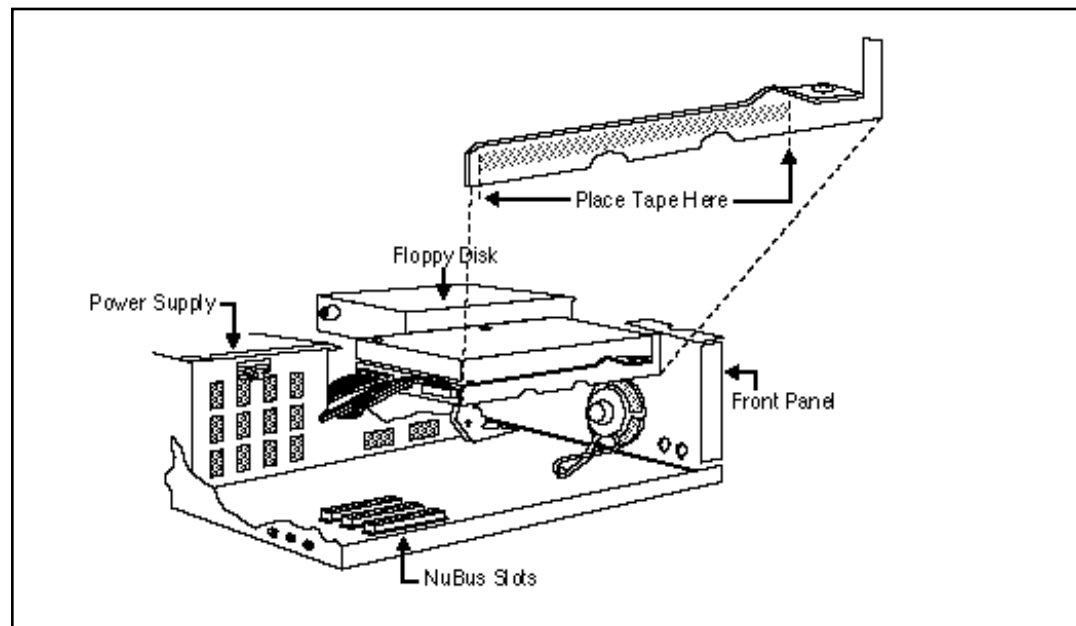
Installing the Card Assembly

1. Touch the Macintosh power supply case to discharge personal static.

2. Pick up the NuVerb TDM card assembly by the top of the metal bracket and the top of the other end of the card.

3. Align the card assembly over the slot you've chosen. Make sure that the connector on the bottom of the card is aligned directly over the slot, and that the rear edge is aligned with the tab on the inside of the back panel.

4. Place one hand along the top edge of the card and push down firmly until the card is fully seated in the slot. Do not force the card.

Repeat steps 1-4 for any additional cards you wish to install. Plug each additional card into the NuBus slot immediately adjacent to the last.

TDM Ribbon Cable

The TDM ribbon cable is used to connect NuVerb TDM-equipped cards to the rest of your Digidesign TDM system. 5-node and 12-node TDM ribbon cables are available from Digidesign dealers. You will need a TDM ribbon cable with enough plugs for each NuVerb card you intend to install as well for the rest of your Digidesign TDM system. Refer to the information provided by Digidesign for proper TDM Bus termination.

Be sure all TDM-ready NuBus cards are installed in your Macintosh or Digidesign Expansion Chassis. Connect the TDM-ready NuBus cards of your TDM system with the TDM ribbon cable beginning with the card closest to the Macintosh power supply case, or slot 1 of the Digidesign Expansion Chassis. Connect each TDM-ready card to the next available node on the TDM ribbon cable until all of the cards are connected. If you have a Digidesign terminator, it belongs in the last node of the ribbon cable. Refer to Section B of the Digidesign TDM Bus Software User Guide.

There is a notch on each ribbon cable node that fits into a slot on all TDM-ready NuBus cards (including the NuVerb TDM card assembly). Push down gently but firmly until the node is fully connected to the card. Do not force this connection. When the plug is properly seated, the two blue tabs at the top of the connector will click shut.
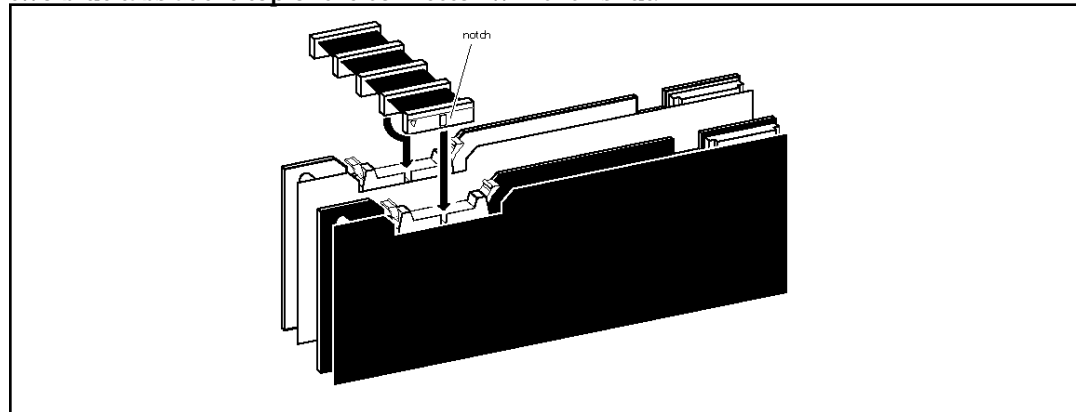
If you wish to detach the ribbon cable, push down on the blue tabs. Allow any unused nodes to remain unattached. Do not cut the TDM ribbon cable to shorten it! If you do, you will damage your TDM system.

Once you have connected your NuBus card(s) to the Pro Tools TDM system with the ribbon cable, replace the top cover of your Macintosh.

Software Installation

These instructions replace the software installation instructions in the NuVerb User Guide.

NuVerb TDM software is installed with the NuVerb Installer program provided with your NuVerb TDM system. NuVerb TDM software must be installed on the same system disk as Pro Tools TDM.

1. Insert the NuVerb Installer disk provided with your system into your Macintosh.

2. Double-click on the **Installer Read Me** file and review the latest information about your NuVerb software. This file also gives you detailed information on what new files and folders have been created, and where they are located on your system.

3. Double-click the NuVerb Installer icon. When the program opens, click **OK** to continue. When asked to select the disk on which you'd like to install the NuVerb TDM software, select the drive in which your System Folder is located. Select **Easy Install** to have the Installer place the recommended NuVerb TDM software on your startup disk. If you have a technical reason for a custom installation, select **Customize** to select only certain files to be placed on your startup disk.

4. In the Installer dialog box, click on **Install**. Follow the on-screen instructions to complete the installation. The Installer will prompt you to insert the correct installation disks.

When the installation procedure is finished, the Installer will instruct you to restart your computer. After restarting your computer, check the **Installer Read Me** text included on your floppy disk for detailed information on what new files and folders have been created, and where they are located on your system.

You will also find an On-Line User Guide for convenient access to much of the operational information found in this manual.

3

Using TDM

The TDM option makes NuVerb an integral part of your Digidesign TDM system. If you are a new Pro Tools or Digidesign TDM owner, please refer to your Pro Tools Software User Guide and/or the Digidesign TDM Bus Software User Guide to learn how to use your TDM system before trying to use the NuVerb TDM option.

If you are a new NuVerb owner, please refer to the NuVerb User Guide to learn how to use NuVerb application. The NuVerb TDM Plug-In allows fast editing of program settings, but libraries can only be built in the NuVerb application. In order to take full advantage of the NuVerb TDM option, you must be familiar with the application itself.

Opening the NuVerb TDM Plug-In

Select **NuVerb™** in the Inserts pop-up menu to open the Plug-In. The Plug-In, like the standard Pro Tools TDM Insert/Send Editor, features a Track selector, an Insert/Send selector, an Insert Type/Send destination selector, and a Bypass button. Click on any of these to activate them.

From the Inserts menu, select
Nuverb™ to open the Plug-In ...

...click here to return to
the Inserts menu.

Click and hold to pop up a menu of
programs from the current library.

Displays **insert** or **send** ID.

Click here to mute NuVerb-processed audio.

Click here to select channel.

Click here to mute all
audio through NuVerb.

Click here to activate
NuVerb control.

When multiple NuVerb
cards are installed, **Link**
appears here. (See
Using Multiple Cards.)

Five effect parameters from the
current program are assigned to the
Plug-In. Click and hold on any
Parameter box to pop up a control
fader.

Click here to select another NuVerb
library. (Libraries are created in the
NuVerb application — a default library is
located in your NuVerb folder.)

Save appears here whenever a program
parameter is changed. Pressing *option*
while **Save** is displayed, or while changing
a parameter displays **Save As ... Click to
activate the displayed Save function.**

Opening pre-1.5 Libraries

Older libraries are converted to the 1.5 format when you open them. They will open as **Untitled**, with the **Save as...** button activated to allow for immediate renaming.

Plug-In Functions

Plug-In Faders

Pop-up faders allow adjustment of five labeled effect parameters in the current program. Click on any parameter box to pop up its fader. Use the mouse to move the fader and adjust the parameter value.

Click on a parameter
box to pop up its fader.
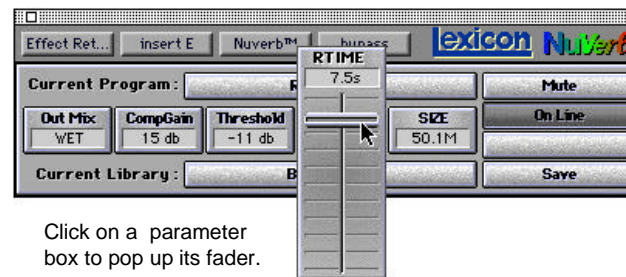
You can redefine the parameter assignment at any time, on a scrolling menu of parameters. To open the parameter menu, press Command, then click and hold on a parameter box. Continue holding down the mouse button to scroll through the parameters, which are sequentially highlighted as you scroll through them. A checkmark appears next to the currently selected parameter(s).
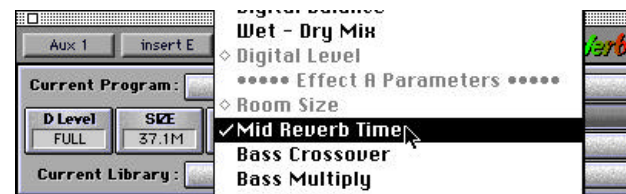
Multiple parameters can be assigned to a single fader. To assign another parameter, open the menu and scroll through the list, highlighting the parameter you want. When you release the mouse button, the menu will close and the parameter box will be relabeled **Multiple**. (Depending on the program, as many as 8-10 parameters can be assigned to the Hot Palette. You can make all assignments to a single fader, or to any combination of faders you want.) Each fader named **Multiple** will scale its assigned parameters linearly.
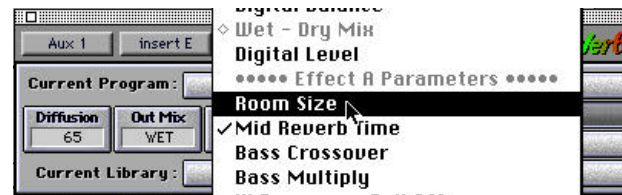
To remove a parameter assignment, highlight it, then release the mouse button. The menu will close, and the parameter box will be appropriately relabeled, depending on the remaining assignments. (If no parameters are assigned, the parameter box will be labeled **Unused**.)

Save Functions

Save is displayed as an option whenever a hot fader value is changed. Click on **Save** to store the current library (and any current program changes) to disk, replacing the old library of the same name.

If you change a program and do not deliberately store your changes, the parameters will revert to their original settings when you load a different program. You can temporarily store changes by pressing *option* while selecting a new program. The new version of the program will be stored in RAM until you quit the application and deliberately select **Don't Save Changes** (at whichpoint the original parameters will be restored) or until you click on **Save**.

Whenever **Save** is displayed, pressing *option* activates the **Save As...** function and displays a dialog box. **Mod** is appended to the file name to differentiate the new library from the original.

Using Multiple NuVerb Cards

When more than one NuVerb card is installed, **Link** will appear on the Plug-In below the **On Line** button. This control allows you to gang parameter control across cards.

When **Link** is pressed, each Plug-In fader will assume control over the faders in corresponding positions on other linked cards. To use this function effectively , you must be careful to assign faders to the locations you want linked. For instance, you could assign Mid Rtime to the first fader on the first card, and Dly Fdbck to the first fader on a second card. When you adjust the first fader on either insert, reverb time and delay feedback will respond linearly. With the ability to assign 8-10 parameters to any given fader, two linked faders can give you single fader control over as many as 20 parameters. This is a very powerful function, but it must be used with extreme caution, as linking certain parameters can cause excessive feedback and other undesireable effects.

Remember that when **Link** is enabled, *all* parameters on the linked Plug-Ins are affected. Faders which you do not want linked must be **Unused**.

When cards are linked, each parameter will exert group control over any parameters in corresponding positions on other linked cards.
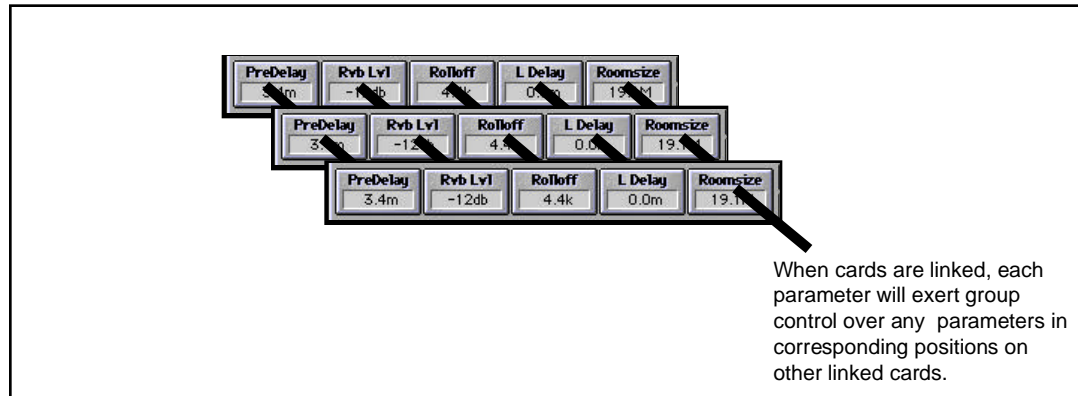
he NuVerb TDM Option Advantage

Unlike other outboard gear, the NuVerb TDM option does not use the inputs and outputs on your Audio Interface(s), leaving them free for use with other equipment.

Digital signal processing in the NuVerb TDM option uses 20-bit data paths. This permits you to employ Lexicon's PONS (Psychoacoustically Optimized Noise Shaping) program for dithering before audio signals are truncated to 16-bit sound files, or before audio is output from your digital or analog outputs. Application of the PONS program in mastering applications is discussed further in the next section.

4

Using NuVerb in Third-Party TDM Systems

NuVerb is compatible with most TDM systems such as Pro Tools, EMagic and Digital Performer. The following examples illustrate the basic steps of several general NuVerb TDM applications. The precise steps used in any given session may differ, but should be similar. When you save your Pro Tools session, any changes you have made to a NuVerb insert will be saved and recalled the next time you open the session.

Traditional Reverb or Effects Send

This setup follows the usual effects send and return mode used on analog mixers. Send controls are used to adjust the amount of signal sent to NuVerb from single tracks, and the output from NuVerb is returned to the mix outputs. This setup is optimized for applying a NuVerb program when you want individual control of the proportion of wet/dry for each of the individual tracks. The stereo image and sends level assigned to NuVerb can be independently adjusted for each track. The term "Main Mix" as used below, refers to the outputs you have selected to use for listening to your stereo mix.

TDM Mix Setup

1. Create stereo auxiliary inputs by choosing **new auxiliary input(s)** from the **File** menu. Click on **stereo input**.

2. Set the output of the tracks you want to include in the submix to **Main Mix**. Set the panning of each track as desired.

3. Configure Sends A and B on each of the tracks you want to include in the submix to **bus 1** and **bus 2**, respectively. Choose **pre** or **post** for each send. Refer to your Pro Tools manual for the differences between selection of **pre** or **post**.

4. Set the input of the stereo auxiliary input track to **bus 1-2**.

5. Set the output of the stereo auxiliary input track to **Main Mix**.

6. From the Inserts pop-up menu of the stereo auxiliary input track, select **NuVerb™**. The Plug-In will appear.

7. Click on **Select Library** and select the default library included in your NuVerb folder, or any library you have created with the NuVerb application.

8. Select the desired program from the Plug-In pop-up menu, and adjust the available effect parameters as desired.

The NuVerb Insert used as a "Shared Resource" to All Tracks in a Submix

You can apply a NuVerb insert to all tracks in a submix when you select **NuVerb™** on a stereo auxiliary input receiving the bussed signals from several tracks. In this case, the NuVerb Insert is simultaneously applied to the mixed signals of several inputs. This is useful as it maximizes the available DSP resources of the NuVerb TDM option. The following two examples illustrate the application of NuVerb as a shared resource. They are each optimized for different effects applications.

TDM Mix Setup

This setup is optimized for applying a NuVerb program with the same proportions of wet/dry for all tracks included in the submix. For example, applying a compressor and spatial EQ effects 100% wet to all tracks included in the submix.

1. Create stereo auxiliary inputs by choosing **new auxiliary input(s)** from the **File** menu. Click on **stereo input**.

2. Set the output of the tracks you want to include in the submix to **bus 1-2**. Set the panning of each track as desired.

3. Set the input of the stereo auxiliary input track to **bus 1-2**.

4. Set the output of the stereo auxiliary input track to **Main Mix**.

5. From the Inserts pop-up menu of the stereo auxiliary input track, select **NuVerb™**. The NuVerb Plug-In will appear.

6. Click on **Select Library** and select the default library included in your NuVerb folder, or any library you have created with the NuVerb application.

7. Select the desired program from the Plug-In pop-up menu, and adjust the available effect parameters as desired.

Applying a NuVerb Insert to a Mixer Channel

You can apply a NuVerb insert to one track when you select **NuVerb™** on a stereo or mono mixer channel. NuVerb will only be available to this individual channel. On a mono channel, the output will be stereo, and the pan pot display will change to show this.

5

NuVerb Program Descriptions

This section contains brief descriptions of each of the NuVerb programs, including any fader settings. Program descriptions are presented in the order in which they appear in the default library and are numbered for convenience. Descriptions of the Effects and their parameters are contained in the Reference section of the NuVerb User Guide.

Program Name	**Type**

1   IN TO OUTPUT   SINGLE

This program is a strong mastering tool. It contains the large Stereo Adjust algorithm with all settings set to zero. Stereo Adjust offers fine adjustments of level and equalization as well as manipulation of stereo width.

Faders: All faders come up unused.

2   LARGE HALL   SINGLE

Used as a great standard reference point. The hall size is big, with a gentle bloom in the reverberation envelope. The first set of pre-echoes is set to 14 and 20ms, but the levels are set to OFF. Set these levels to taste if you want to add some initial reflections.

Faders: Predelay: 0M
                          RTIME: 1.9s
                          BASS: 1.2X
                          TDCY: 3.6k
                          SPREAD: 118

3   **AMBIENCE**   **SINGLE**

A great sounding starting point. Wonderful for soloists.

Faders:	PreDelay: 2.5M
	Rvb Lvl: -12dB
	Rolloff: 4.4k
	L Delay: 0.0m
	Roomsize: 19.1M

4   **RICH PLATE**   **SINGLE**

An old standard comes back to the future.

Faders:	Predelay: 0m
	RTIME: 1.0s
	TDCY: 8.9k
	Diffusion: 73
	SIZE: 24.2M

5   **RVB ⁄ RVB 1**   **DUAL MONO**

Two independent reverberators run this dual mono program: Effect A is a relatively large room with clean acoustics. Warm yet not too much of a tail on the reverb time. Effect B has similar settings, but with a smaller room size.

Faders: A Mix: WET
B Mix: WET
RTIME: 2.4s
RTIME: 2.4s
Predelay: 6m

6   RVB∕DLY 1   DUAL MONO

This program uses a reverb algorithm and a delay algorithm. Like most Dual Mono programs, they are hard panned from one another to be used separately. Effect A is a reverb with strength and support. Sound from within a medium sized room with bright characteristics. Effect B is a powerful, trailing delay with reflections answering from deep within a cave.

Faders: A Mix: WET
                  B Mix: WET
                  RTIME: 0.6s
                  TDCY: 1.0k
                  Multiple (Delay 1 & Delay 2): 89

7   RVB∕COMP 1   DUAL MONO

This program presents a reverb preset to the left effect input/output, and a 2:1 compressor preset to the right effect input/output. Effect A is a clear and vibrant reverb with no Predelay at all. Effect B is a nice preset to add to an overall mix. You may need to adjust the Threshold parameter to make it work for the particular signal you're feeding it. Release is set to abruptly fall away after 181ms.

Faders: A Mix: WET
                  B Mix: WET
                  RTIME: 1.5s
                  TDCY: 2.2k
                  Threshold: -12dB

8   DLY∕DLY 1   DUAL MONO

This program consists of two separate delays. One in the left effect input/output, and one in the right effect input/output. Effect A has no delay unless you manipulate Feedback levels first. Effect B is a much broader delay with a slower tap time.

Faders: A Mix: WET
B Mix: WET
Multiple (Delay 1 & Delay 2 from Effect A): 5
Multiple (Feedback 1 & 2 from Effect A): 0
Multiple (Delay 1 & Delay 2 from Effect B): 19

9   DLY/COMP 1   DUAL MONO

This program presents a delay preset to the left effect input/output, and a drum compressor preset to the right effect input/output. Effect A incorporates a bit of left-right diffused delays, along with some small delay offset between left and right delay outputs. If the effect is too strong, try lowering feedback levels for delays 3 and 4. Effect B is a bit more aggressive, with 8dB of boost below the selected threshold. A quick release of 73ms snaps up the volume. As with all compressor presets, Threshold is the critical parameter.

Faders: B Balance: R-CH
                        B Level: FULL
                        Threshold: -15dB
                        CompGain: 8dB
                        Attack: 7ms

10   COMP/COMP   DUAL MONO

Two independent compressors run this dual mono program. Effect A has a Slope of 2.57:1 and a moderate Release of 142m. Effect B is similar, but with a much higher slope.

Faders: A Mix: WET
                        B Mix: WET
                        Threshold: -12dB
                        CompGain: 9 dB
                        Threshold: -11dB

11   VERB AND ECHOES   CASCADE

This is a rich reverb with a slight delay tail. With fader manipulation, you can lengthen out the delay to make a very strong, wet signal. Effect A is a split chamber reverb. With the use of SHAPE and SPREAD, this effect can create the illusion of larger spaces with a relatively short RTIME. Effect B adds a touch of delay. If the Multiples on the Plug-In are used, the effect gets much more drastic. Infinite delay is one of the many options this effect provides.

Faders: A Mix: WET
                        B Mix: 57%
                        RTIME: 2.4s
                        Multiple(Delay 1 & Delay 2): 0
                        Multiple(Feedback 1 & Feedback 2): 0

12   SLAP VERB   CASCADE

Effect A provides a faint reverb. Turn up Multiple on the Plug-In to make answering delay taps appear. Effect B is a small room reverb with abrupt reverb time. With SHAPE and SPREAD, this effect can create the illusion of larger spaces with a relatively short RTIME.

Faders: A Mix: WET
                 B Mix: 70%
                 Multiple (Delay 1 & Delay 2): 0.0m
                 RTIME: 0.4s
                 TDCY: 1.0k

13   RVB > COMPRESSOR   CASCADE

Effect A is a split chamber reverb with the Link function is set to Unlink to achieve low reverb time with a moderate Spread and large Size. Effect B is a compressor set to a dramatic 3.59:1 Slope. While compressing, it is also strongly expanding the signal. CompGain is set 9dB up.

Faders: A Mix: WET
                 B Mix: WET
                 RTIME: 0.7s
                 Threshold: -12dB
                 CompGain: 9 dB

14   GTR COMP > RVB   CASCADE

This effect provides a room with a warm tone and slight compression. Effect A is a compressor with only a 1.48:1 Slope. Effect B is a big, wide-sounding room for guitars. For heavy rock stuff, you might consider panning "in" the returns, although in this program the room output is in mono. The room is a little bottom heavy for additional warmth. Could also work well on vocals.

Faders: A Mix: WET
                 B Mix: WET
                 CompGain: 9 dB
                 RTIME: 0.5s
                 TDCY: 1.0k

15   DUCKING DELAYZ   CASCADE

The delay in this effect is set up so that the taps will pan from left to right. Adding heavy compression allows this program to produce very wild delay effects. Effect A has two taps (Delays 3 and 4), set with delay ratios of 1:2, meaning that, when one is 200ms, the other is 400ms, or when one is 359, the other is 718ms. The compressor in Effect B has a deep Slope of 3:1 and a high CompGain of 16 dB, allowing the differences in your program's dynamics to be pulled much closer together.

Faders: A Mix: WET
                   B Mix: WET
                   Delay 1: 0.0m
                   Delay 2: 0.0m
                   Threshold: -22 dB

16   COMP > DLY   CASCADE

This program has huge compression, feeding the compressed signal into a standard delay. The compressor in Effect A takes the signal and crushes it. With a high Slope of 4.25:1, this compressor presses almost all dynamics out. Effect B is a standard delay effect, defaulted to have a small Delay Time and small Feedback levels. The Multiples on the Plug-In allow you to easily change that, however.

Faders: A Mix: WET
                   B Mix: WET
                   CompGain: 11 dB
                   Multiple (Delay 1 & Delay 2): 4
                   Multiple (Feedback 1 & Feedback 2): 40

17   SPATIAL VERB   CASCADE

Provides a large, warm sounding atmosphere. Effect A contains a recital hall This medium large (44.5M) space opens sound sources beautifully. Made for string pads and voice. Effect B contains a stereo adjust effect which equalizes a high amount of bass content, adding a warm tone to the signal.

Faders: A Mix: WET
                   B Mix: WET
                   RTIME: 2.5S
                   Spatial: +4.0
                   Rotate: <0>

18   FILTERED ECHOES   CASCADE

This delay program matched with stereo adjust filters out a bit of high end, making a warm tone. Effect A is a delay effect set with a multiple of Delay 1 and Delay 2 in the Plug-In to increase delay tap time. Effect B is a stereo adjust program which cuts the Treble by 12 dB. Stereo Treble Crossover is set to 6.3k.

Faders: A Mix: WET
                 B Mix: WET
                 Multiple (Delay 1 & Delay 2): 20
                 Multiple (Bass L & Bass R): 65
                 Multiple (Treb L & Treb R): 18

19   RVB > PONS   CASCADE

Effect A is a split chamber reverb with a high Reverb Time of 36.7 seconds. Effect B has PONS (Psycoacoustically Optimized Noise Shaping) turned on and dither is set to a level of 21. Experiments have shown this to be an optimum starting level of dither.

Faders: A Mix: WET
                 B Mix: WET
                 RTIME: 36.7s
                 TDCY: 1.6k
                 Dither: 21

20   ST. COMPRESSOR   CASCADE

This Program is a good mastering tool. A gentle 2:1 Slope in compression as well as a zeroed stereo adjust lend many possibilities for an overall mix. Effect A is a cut down version of the larger Stereo Adjust program with separate Left and Right Bass and Treble on the Plug-In. You may need to adjust the Threshold parameter in the Compressor in Effect B to make it work for the particular signal you're feeding it. Release is set to fall away after 286ms.

Faders: A Mix: WET
                 B Mix: WET
                 Multiple (Bass L & Bass R): 65
                 Multiple (Treb L & Treb R): 65
                 Threshold: -12 dB

21   RECITAL ROOM   CASCADE

This program features two split chamber reverbs that provide a bright tone with a short Reverb Time. Effect A is a great general purpose reverb tail. The size is set to 28.1M (the largest value is 66.4M) so the density is rather tight. As you adjust SIZE, the Rt value will also change. If you want to unlink this natural phenomena, set LINK to Unlink. Effect B is a nice "bloomy" sounding reverb with Diffusion set at 79. Use this on most keyboards.

Faders: A Mix: WET
                     B Mix: 50%
                     RTIME: 0.4s
                     TDCY: 1.6K
                     RTIME: 2.5s

22   COMP > PONS   CASCADE

This program has a compressor with a 2:1 Slope feeding into Lexicon's own PONS. You may need to adjust the Threshold parameter in the compressor in Effect A to make it work for the particular signal you're feeding it. Release is set to fall away after 222ms. Effect B has PONS (Psycoacoustically Optimized Noise Shaping) turned on and dither set to a level of 25.

Faders: A Mix: WET
                     Multiple (Threshold & CompGain): 38
                     Attack: 15m
                     Dither: 25
                     Unused:

23   XFADE REVERB 1   CASCADE

This program is set up so that A Mix and B Mix and inversely proportionate. When Effect A is at a maximum, Effect B is at a minimum and vice versa. This functions as a smooth cross-fade between the two effects. Effect A is a fairly long reverb tail. The size is set to 58.5M (the largest value is 66.4M). As you adjust SIZE, the Rt value will also change. If you want to unlink this natural phenomena, set LINK to Unlink. Effect B is a nice "bloomy" sounding reverb. Diffusion is set to zero. Use this on most keyboards, but those with a strong point may require much more Diffusion.

Faders: A Mix: WET
                     B Mix: DRY
                     SIZE 1: 58.5M
                     RTIME: 5.3s
                     RTIME: 0.2s

24   L HALL + STAGE   SINGLE

This is the Large Hall program with the reflections of a stage added. Shape is larger here than in Large Hall.

Faders: Predelay: 0m
                 RTIME: 1.9s
                 BASS: 1.2X
                 TDCY: 3.6k
                 SHAPE: 126

25   MEDIUM HALL   SINGLE

Similar to Large Hall, but the size is not as big (29.8) and the reverb time is proportionately shorter. The same arrangement exists for the pre-echoes.

Faders: SIZE: 29.8M
                 RTIME: 1.3s
                 Rolloff: 4.0k
                 TDCY: 3.6k
                 SPREAD: 96

26   MEDIUM HALL+STAGE   SINGLE

Settings much like Medium Hall, but added reflections of a nearby stage can be heard.

Faders: SIZE: 29.8M
                 RTIME: 1.2s
                 Rolloff: 4.4k
                 TDCY: 3.6k
                 SPREAD: 96

27   SMALL HALL   SINGLE

An even smaller version, a bit denser - good for general reverb fill.

Faders: SIZE: 24.2M
                 RTIME: 0.9s
                 Rolloff: 4.4k
                 SPREAD: 83
                 R Level: FULL

28   SMALL HALL+STAGE   SINGLE

Similar settings to Small Hall, but Reverb Level is set 2dB down.

Faders: SIZE: 24.2M
                 RTIME: 0.9s
                 Rolloff: 4.4k
                 TDCY: 3.6k
                 R Level: -2dB

29   PIANO HALL   SINGLE

This is a Random Hall effect. The short reverb tail and small delay taps make this program ideal for piano.

Faders: SIZE: 24.2M
                 RTIME: 0.9s
                 Rolloff: 4.4k
                 Diffusion: 73
                 R Level: FULL

30   GUITAR ROOM   SINGLE

A Random Hall effect reproduces a practice room. With a short Reverb Time of 0.8 seconds and a size of 19.7 meters, this program is great to add body and width to guitars, especially acoustic.

Faders: SIZE: 19.7M
                 RTIME: 0.8s
                 Rolloff: 5.1k
                 TDCY: 4.4k
                 SPREAD: 36

31   GOTHIC HALL   SINGLE

Suitably large space (29.8M) filtered medium bright, as in a space made of rock and stone. A hefty sound is an understatement! Smaller sizes make beefy dense spaces.

Faders: SIZE: 29.8M
                 Diffusion: 90
                 Rolloff: 6.6k
                 TDCY: 4.4k
                 R Level: FULL

32   GATED HALL   SINGLE

If one existed, this is what it would sound like. Very diffused, strong, and abrupt.

Faders: Size: 35.5M
                 Rolloff: 4.2k
                 TDCY: 3.6k
                 SPREAD: 118
                 R Level: FULL

33   STUDIO "A"   SINGLE

This preset sounds like the "big" rooms ($125/hour).

Faders: SIZE: 23.6M
                 RTIME: 0.7s
                 Diffusion: 73
                 SPREAD: 21
                 R Level: FULL

34   WESTMINSTER   SINGLE

This is a giant, robust cathedral reverb. Beautiful for choirs and organs.

Faders: SIZE: 38.8M
                 RTIME: 3.7s
                 Rolloff: 2.9k
                 TDCY: 3.6k
                 SPREAD: 228

35   NUBRICKS   SINGLE

Medium large room size adds width and body to this program, but the extremely short Reverb Time makes the reverb appear to be somewhat gated. Good for adding a reverberant feel without muddying the sound with a long reverb tail.

Faders: Predelay: 0m
                 RTIME: 0.1s
                 BASS: 1.5X
                 TDCY: 21.2k
                 SPREAD: 111

36   WIDE CHAMBER   SINGLE

Similar size (23.6M) with a "wider" shape and spread. Pre-echoes are added for wall strength. A good starting point for pop sounds.

Faders: SIZE: 23.6M
                 Rolloff: 5.1k
                 TDCY: 4.4k
                 Diffusion: 90
                 SPREAD: 100

37   VOCAL SPACE   SINGLE

Medium Reverb Time and large Size lends this program for use with human voice.

Faders: SIZE: 32.1M
                 RTIME: 1.8s
                 Rolloff: 6.3k
                 TDCY: 2.9k
                 R Level: FULL

38   HOTEL LOBBY   SINGLE

You can hear the reflections off the floor tiles and hard wood check-in desk.

Faders: PreDelay: 1.6m
                 Rvb Lvl: -10dB
                 Rolloff: 6.3k
                 L Delay: 85.0m
                 Roomsize: 20.8M

39   747 HANGAR   SINGLE

Big, wide, open, enclosed space (31.0M). Very diffuse.

Faders: PreDelay: 45.9m
                 Rvb Lvl: 4.4k
                 L Delay: 97.8 m
                 Roomsize: 31.0M

40   PREDELAY ROOM   SINGLE

PreDelay is set to 51.0m (a maximum of 108m).

Faders: PreDelay: 51.0m
                 Rvb Lvl: -9dB
                 Rolloff: 3.6k
                 L Delay: 27.2m
                 Roomsize: 13.0M

41   GATED AMBIENCE   SINGLE

This program adds large Room Size with extremely short Reverb Time to make a gated effect.

Faders: PreDelay: 5.9m
                 Rvb Lvl: OFF
                 Rolloff: 12.8k
                 L Delay: 0.0m
                 Roomsize: 32.1M

42   LECTURE AUDITORIUM   SINGLE

This program has a Reverb Time of 1 second and a relatively small Size of 16.9M. The program reproduces the ambience of a lecture hall, where the seats mop up most of the high end.

Faders: PreDelay: 25.5m
                 Rvb Lvl: -16dB
                 Rolloff: 4.4k
                 L Delay: 13.6m
                 Roomsize: 16.9M

43   TUBBY ROOM   SINGLE

This program has a very small Room Size and Reverb Time, which recreates a small, bright sounding room.

Faders: Predelay: 5.1m
                 Rvb Lvl: -9dB
                 Rolloff: 2.9k
                 L Delay: 20.4m
                 Roomsize: 5.1M

44   SHORT AMBIENCE   SINGLE

This program features the Ambience algorithm with a short RTIME.

Faders: Predelay: 11.9m
                 Rvb Lvl: -5dB
                 Rolloff: 3.6k
                 L Delay: 22.9m
                 Roomsize: 21.4M

45   BATHROOM   SINGLE

A high diffusion of 66 and small Size recreate the sound of reflections off tile in a small room.

Faders: Predelay: 0.0m
                 Rvb Lvl: -4dB
                 Rolloff: 8.9k
                 L Delay: 13.6m
                 Roomsize: 5.1M

46   CLUB STAGE   SINGLE

Relatively large Size and Reverb Time for an Ambience program. The Rolloff of 4.4k helps achieve the effect of your source playing on a small stage at a club.

Faders: Predelay: 16.1M
                 Rvb Lvl: -12dB
                 Rolloff: 4.4k
                 L Delay: 0.0m
                 Roomsize: 19.1M

47   REC ROOM   SINGLE

This program has the physical properties of an isolation booth at a recording studio.

Faders: Predelay: 19.5m
                 Rvb Lvl: -12dB
                 Rolloff: 2.9k
                 L Delay: 0.0m
                 Roomsize: 11.3M

48   WALK-IN WARDROBE   SINGLE

No high end at all. Sounds just like the title says, with clothes and wall muffling the higher frequencies.

Faders: Predelay: 0.8m
                 Rvb Lvl: OFF
                 Rolloff: 0.5k
                 L Delay: 0.0m
                 Roomsize: 4.0M

49   HALLWAY   SINGLE

Small Size and Reverb Time achieve the sound on this program. Increase Room Size to stretch the hall longer.

Faders: Predelay: 1.6m
                 Rvb Lvl: -6dB
                 Rolloff: 3.6k
                 L Delay: 27.2m
                 Roomsize: 7.3M

50   YMCA POOL   SINGLE

Reflections bounce off tile all over this medium large room.

Faders: Predelay: 22.9m
                 Rvb Lvl: -10dB
                 Rolloff: 5.5k
                 L Delay: 48.4m
                 Roomsize: 28.7M

51   STAGE, SCORE   SINGLE

Sound from on the stage, not off it. Performance perspective is changed.

Faders: Predelay: 9.3m
                 Rvb Lvl: -10dB
                 Rolloff: 2.9k
                 L Delay: 0.0m
                 Roomsize: 25.3M

52   MEDIUM AMB.   SINGLE

Similar characteristics, but smaller sound than Ambience.

Faders: PreDelay: 0.0m
                 Rvb Lvl: -12dB
                 Rolloff: 2.2k
                 L Delay: 0.0m
                 Roomsize: 18.6M

53   DIRTY PLATE   SINGLE

Somewhat darker tone than other plate reverb programs due to a Treble Decay of 7.5k.

Faders: Predelay: 22m
                 RTIME: 1.1s
                 TDCY: 7.5k
                 Diffusion: 25
                 SIZE: 21.4M

54   DENSE PLATE   SINGLE

Delay taps are further apart which makes for deeper reflections than from the Dirty Plate.

Faders: Predelay: 6m
                 RTIME: 1.1s
                 TDCY: 10.6k
                 Diffusion: 95
                 SIZE: 19.1M

55   SALAD PLATE   SINGLE

Smaller than a dinner plate. Very bright, and somewhat thin. Medium reverb time.

Faders: Predelay: 0m
                 RTIME: 1.0s
                 TDCY: 10.6k
                 Diffusion: 46
                 SIZE: 17.5M

56   MONDO PLATE   SINGLE

Bright plate sound with medium Reverb Time make a larger plate sound.

Faders: Predelay: 22m
                 RTIME: 2.1s
                 TDCY: 12.8k
                 Diffusion: 79
                 SIZE: 134.3M

57   VOCAL JIZZ   SINGLE

Medium large Size and moderate Reverb Time lend this program for use with vocals.

Faders: Predelay: 46m
                 RTIME: 1.5s
                 TDCY: 6.3k
                 Diffusion: 46
                 SIZE: 30.4M

58   ROUND PLATE   SINGLE

Soft, but articulate.

Faders: Predelay: 22m
                 RTIME: 1.0s
                 TDCY: 8.9k
                 Diffusion: 76
                 SIZE: 25.9M

59   MINI PLATE   SINGLE

An extremely short Reverb Time and small Size makes for a small plate sound.

Faders: Predelay: 6m
                 RTIME: 0.7s
                 TDCY: 8.9k
                 Diffusion: 29
                 SIZE: 9.0M

60   DARK PLATE   SINGLE

Medium Reverb Time and Treble Decay of 6.3k give this program a dimmer, darker tone.

Faders: Predelay: 14m
                 RTIME: 1.3s
                 TDCY: 6.3k
                 Diffusion: 83
                 SIZE: 27.6M

61   LONG PLATE+EKO   SINGLE

Large Delays 1 and 2 make for somewhat of an echo effect.

Faders: Predelay: 62m
                 RTIME: 1.4s
                 TDCY: 10.6k
                 Diffusion: 73
                 SIZE: 31.5M

62   1 FRAME DLY   SINGLE

30 ms of delay at 44.1 and 48kHz.

Faders: All faders are unused.

63   2 FRAME DLY   SINGLE

60 ms of delay at 44.1 and 48kHz.

Faders: All faders are unused.

64   3 FRAME DLY   SINGLE

90ms of delay at 44.1 and 48kHz.

Faders: All faders are unused.

65   TELEPHONE   SINGLE

No bottom end....AT ALL.

Faders: All faders are unused.

66   RVB ->RVB   CASCADE

Two independent reverbs with the left input feeding Machine A and the right input feeding Machine B. Each can be used independently and, in fact, should be used that way. Pan the output of each Machine (at the console) to suit the mix. Effect A is a great general purpose reverb tail. The size is set to 27.6M (the largest value is 66.4M) so the density is rather tight. As you adjust SIZE, the Rt value will also change. If you want to unlink this natural phenomena, set LINK to Unlink. Effect B is a nice "bloomy" sounding reverb. Diffusion is set midway, so there is some good articulation at the beginning of the reverb envelope. Use this on most keyboards, but those with a strong point may require a bit more Diffusion.

Faders: Predelay: 0m
                   Predelay: 0m
                   RTIME: 3.4s
                   RTIME: 2.5s
                   SPREAD: 93

67   DYNO VERB   CASCADE

Medium Reverb Time and large Size add width to the tone. This cascade program feeds an ample reverb through a compressor with a high CompGain of 15dB. Effect A is a split chamber reverb with the Link function is set to Unlink to achieve low reverb time with moderate Spread and large Size. The compressor in Effect B is set to a dramatic 2.33:1 Slope. While compressing, it is also strongly expanding the signal. CompGain is set 15 dB up.

Faders: A Mix: WET
                   B Mix: WET
                   RTIME: 2.0s
                   Threshold: -12dB
                   CompGain: 15 dB

68 VINDALOO CASCADE

The atmosphere is created more with delay taps than Reverb Time in this program. Effect A is a great general purpose reverb tail. The size is set to 11.8M (the largest value is 66.4M. As you adjust SIZE, the Rt value will also change. If you want to unlink this natural phenomena, set LINK to Unlink. In Effect B, Delays 1 and 2 are programmable taps up to 2.5 seconds each. Delays 3 and 4 are cross feedback delay lines.

Hot B Mix: WET
  SIZE: 11.8M
  Delay 1: 0.0m
  Delay 2: 0.0m

69 DEEP CAVE CASCADE

Delay Times set at periodic intervals with ample Feedback create reflections that answer from deep within a cavern. Effect A is a great general purpose reverb tail. The size is set to 15.2M (the largest value is 66.4M. As you adjust SIZE, the Rt value will also change. If you want to unlink this natural phenomena, set LINK to Unlink. In Effect B, Delays 1 and 2 are programmable taps up to 2.5 seconds each. Delays 3 and 4 are cross feedback delay lines.

Faders: A Mix: 75%
  B Mix: WET
  SIZE: 15.2M
  Delay 1: 212m
  Delay 2: 340m

70 RVB -> COMP CASCADE

A medium sized reverb sound feeding into the EZ compressor. Great standard for electric guitars. Effect A is a big, wide-sounding room for your guitars. For heavy rock stuff, you might consider panning "in" the returns, although in this Setup the Room output is in Mono.. The room is a little bottom heavy for additional warmth. Could also work well on vocals. The compressor in Effect B is nice to add to an overall mix. You may need to adjust the Threshold parameter to make it work for the particular signal you're feeding it. Release is set to gently fall away after 363ms.

Faders: A Mix: WET
  B Mix: WET
  SIZE: 27.6M
  Diffusion: 64
  Attack: 7m

71   RVB-> STADJ   CASCADE

This program has rich reverb with a Reverb Time of 4.1 seconds. Stereo Adjust capbility in Effect B allows you to equalize it to taste, as well as manipulating phase. Effect A is a Recital Hall This medium large (44.5M) space opens sound sources beautifully. Made for string pads and voice. Effect B is a cut down version of the larger Stereo Adjust program.

Faders: A Mix: WET
                    B Mix: WET
                    SIZE: 44.5M
                    RTIME: 4.1s
                    SPATIAL: FLAT

72   RVB->PONS   CASCADE

A standard chamber reverb, set with a Reverb Time of 3.4 seconds. Effect A is a great general purpose reverb tail. The size is set to 27.6M (the largest value is 66.4M) so the density is rather tight. As you adjust SIZE, the Rt value will also change. If you want to unlink this natural phenomena, set LINK to Unlink. Effect B provides PONS (Psycoacoustically Optimized Noise Shaping) with dither set to 29.

Faders: A Mix: WET
                    B Mix: WET
                    SIZE: 27.6M
                    RTIME: 3.4s
                    Dither: 29

73   DLY ->RVB   CASCADE

Dual Delays feed a Bar & Grill. Changing A MIX will add more or less impact to the reverb. In Effect A, Delays 1 and 2 are programmable taps up to 2.5 seconds each. Delays 3 and 4 are cross feedback delay lines. Effect B provides live performances in a 13.5M Bar & Grill.

Faders: A Mix: WET
                    B Mix: WET
                    Delay 1: 0.0m
                    Delay 2: 0.0m
                    SIZE: 13.5M

74   DLY->COMP   CASCADE

A 3Voice Delay gives it's atmosphere with three taps after the original signal. In Effect A two taps (Delays 3 and 4) are set with delay ratios of 1:2, meaning that, when one is 200ms, the other is 400ms, or when one is 359, the other is 718ms. The compressor in Effect B is a nice preset to add to an overall mix. You may need to adjust the Threshold parameter to make it work for the particular signal you're feeding it. Release is set to gently fall away after 363ms.

Faders: A Mix: WET
                              B Mix: WET
                              Delay 1: 0.0m
                              Delay 2: 0.0m
                              Release: 363m

75   MIDI CHORUS   CASCADE

A delay doubler with stereo adjust. With connections to a MIDI sequencer, you can generate a chorus effect. On it's own, the Chorus in Effect A creates a doubling effect from the left and right delays. With help from a MIDI sequencer, this effect can generate chorus once it is receiving LFO. Effect B is a cut down version of the larger Stereo Adjust program. See the Application Notes provided with NuVerb TDM software for related information on virtual LFOs.

Faders: A Mix: WET
                              B Mix: WET
                              Delay 1: 0.0m
                              Delay 2: 0.0m
                              Rotate: <0>

76   SQUEEZE ME   CASCADE

A tight program, useful for very staccato instruments. Works well on snare drums. Effect A is a drastic compressor with a Slope of 4:1 and a high CompGain of 21 dB. Effect B is a basement-like space. Size is 18.0 meters, and the tonality is fairly resonant sounding. Almost trashy-sounding (low diffusion), and will certainly get so if the Rt is made longer. Explosive on snare drums.

Faders: A Mix: WET
                              B Mix: WET
                              Attack: 7m
                              SIZE: 18.0M
                              Diffusion: 33

77   COMP -> RVB   CASCADE

This has similar traits to SQUEEZE ME, but is not quite as rigid due to the lower compression value and CompGain. Good for percussion. A compressor in Effect A is a bit more aggressive, with 7dB of boost below the selected threshold. A quick release of 58ms snaps up the volume. As with all compressor presets, Threshold is the critical parameter. Effect B is the same basement-like space used in SQUEEZE ME.

Faders: A Mix: WET
                 B Mix: WET
                 Attack: 7m
                 SIZE: 15.8M
                 Diffusion: 25

78   COMP-> DLY   CASCADE

This program uses compression and slight delay to create the effect of reflections off a wall. Manipulating Feedback 2 can make the wall appear larger or smaller. The compressor in Effect A is nice to add to an overall mix. You may need to adjust the Threshold parameter to make it work for the particular signal you're feeding it. Release is set to gently fall away after 363ms. In Effect B, Delay 2 taps reflections off a wall to your right. Relatively low level on Feedback 2 assures that the effect isn't too drastic.

Faders: A Mix: WET
                 B Mix: WET
                 Attack: 7m
                 Delay 1: 0.0m
                 Delay 2: 21.2m

79   COMP-> STADJ   CASCADE

Compression feeding into a Small Stereo Adjust effect. The compressor in Effect A is nice to add to an overall mix. You may need to adjust the Threshold parameter to make it work for the particular signal you're feeding it. Release is set to gently fall away after 363ms. Effect B is a cut down version of the larger Stereo Adjust program.

Faders: A Mix: WET
                 B Mix: WET
                 ExpGain: 7 dB
                 Rotate: <0>
                 TXLR: 1.7k

80   COMP->PONS   **CASCADE**

A good program for an overall mix. Gentle 2:1 compression with Lexicon's own PONS effect. The compressor in Effect A is nice to add to an overall mix. You may need to adjust the Threshold parameter to make it work for the particular signal you're feeding it. Release is set to gently fall away after 363ms. Effect B provides PONS (Psycoacoustically Optimized Noise Shaping) twith dither set to 29.

Faders: A Mix: WET
                 B Mix: WET
                 PreDelay : 6m
                 Attack: 7m
                 Dither: 29

81   RVB->MIDI PAN   **CASCADE**

This program is a rectial hall feeding into a stereo adjust which is panned hard left. By connecting NuVerb to a MIDI sequencer supplying virtual LFO, you will hear the source pan left and right. Effect A is a large space (44.5M) that opens sound sources beautifully. As you adjust SIZE, the Rt value will also change. If you want to unlink this natural phenomena, set LINK to Unlink. See the Application Notes provided with NuVerb TDM software for related information on virtual LFOs.

Faders: A Mix: WET
                 B Mix: WET
                 SIZE: 44.5M
                 RTIME: 4.1s
                 SPATIAL: FLAT

82   MIDI PAN   CASCADE

A Small Stereo Adjust effect feeding into a gentle 2:1 compressor. Effect A is a cut down version of the larger Stereo Adjust program. The compressor in Effect B is nice to add to an overall mix. You may need to adjust the Threshold parameter to make it work for the particular signal you're feeding it. Release is set to gently fall away after 363ms. Assigning BALANCE to a virtual LFO lets you pan the effect repeatedly from left to right. See the Application Notes provided with NuVerb TDM software for related information on virtual LFOs.

Faders: A Mix: WET
                 B Mix: WET
                 Rotate: <0>
                 SPATIAL: FLAT
                 Attack: 7m

83   TUMBLEWEED   CASCADE

A bright, rolling delay sound with panning delay taps. Effect A provides Stereo Adjust with Bass boosted 6dB. In Effect B, all delay lines are set with different tap times and feedback levels, resulting in delay taps answering one another as they fade.

Faders: A Mix: WET
                 B Mix: WET
                 SPATIAL: +4.0
                 Delay 1: 21.2m
                 Delay 2: 42.4m

84   STADJ-> DLY   CASCADE

This cascade features the Small Stereo Adjust effect feeding into a 3-Voice Delay. Effect A is a cut down version of the larger Stereo Adjust program. The delay in Effect B has two taps (Delays 3 and 4) set with delay ratios of 1:2, meaning that, when one is 200ms, the other is 400ms, or when one is 359, the other is 718ms.

Faders: A Mix: WET
                 B Mix: WET
                 SPATIAL: FLAT
                 Delay 1: 0.0m
                 Delay 2: 0.0m

85   STADJ->COMP   CASCADE

Here, the small stereo adjust is all set to zero, with equalization flat. Effect A is a cut down version of the larger Stereo Adjust program. The compressor in Effect B is nice to add to an overall mix. You may need to adjust the Threshold parameter to make it work for the particular signal you're feeding it. Release is set to gently fall away after 363ms.

Faders: A Mix: WET
                 B Mix: WET
                 Rotate: <0>
                 SPATIAL: FLAT
                 Attack: 7m

86   XFADE REVERB 2   CASCADE

This program has two separate split chamber reverbs with Mix controls inverted to provide a smooth transition from a very large reverb to a small reverb via cross-fade. The reverb in Effect A has a fairly long reverb tail. The size is set to 58.5M (the largest value is 66.4M. As you adjust SIZE, the Rt value will also change. If you want to unlink this natural phenomena, set LINK to Unlink. Effect B is a nice "bloomy" sounding reverb. Diffusion is set to zero. Use this on most keyboards, but those with a strong point may require much more Diffusion.

Faders: A Mix: WET
                 B Mix: DRY
                 SIZE: 58.5M
                 RTIME: 5.3s
                 RTIME: 0.2s

87   DRY TO WET   CASCADE

This program features a multiple of A Mix and B Mix in the Plug-In that is set inversely proportionate. The function is a smooth transition from a guitar room to a recital hall. Effect A is a big, wide-sounding room for your guitars. For heavy rock stuff, you might consider panning "in" the returns, although in this Setup the Room output is in Mono.. The room is a little bottom heavy for additional warmth. Could also work well on vocals. Effect B is a recital hall This large (44.5M) space opens sound sources beautifully. Made for string pads and voice.

Faders: Multiple (A Mix & B Mix inversely proportionate): 0
                 SIZE: 27.6M
                 SIZE: 44.5M
                 RTIME: 0.7s
                 RTIME: 4.1s

88   BIG TO SMALL   CASCADE

This program features a multiple of A Mix and B Mix in the Plug-In that is set inversely proportionate. The function is a smooth transition from a tight room to a hangar-sized space. Effect A is a reverb with a small-medium Room Size and relatively short Reverb Time. In Effect B, huge Room Size and equally large Reverb Time make this reverb expansive and powerful.

Faders: Multiple (A Mix & B Mix inversely proportionate): 0
        RTIME: 1.3s
        RTIME: 7.5s
        SIZE: 27.6M
        SIZE: 60.2M

89   RVB->RVB   CASCADE

This program consists of two split chamber reverbs, making a fairly large room sound. Effect A provides a great general purpose reverb tail. The size is set to 27.6M (the largest value is 66.4M) so the density is rather tight. As you adjust SIZE, the Rt value will also change. If you want to unlink this natural phenomena, set LINK to Unlink. Effect B is a nice "bloomy" sounding reverb. Diffusion is set midway, so there is some good articulation at the beginning of the reverb envelope. Use this on most keyboards, but those with a strong point may require a bit more Diffusion.

Faders: A Mix: WET
        B Mix: WET
        SIZE: 27.6M
        SIZE: 43.3M
        Diffusion: 65

90 **WILD SPACES** **CASCADE**

A bold, reverberant room with unnatural delay taps that pan slowly from left to right. Effect A provides a great general purpose reverb tail. The size is set to 57.4M (the largest value is 66.4M). As you adjust SIZE, the Rt value will also change. If you want to unlink this natural phenomena, set LINK to Unlink. In Effect B, Delays 1 and 2 are programmable taps up to 2.5 seconds each. Delays 3 and 4 are cross feedback delay lines.

Faders: A Mix: WET
           B Mix: WET
           SIZE: 57.4M
           Delay 1: 0.0m
           Delay 2: 0.0m

91 **DARK DELAY** **CASCADE**

This program has deep bass equalization through the Stereo Adjust effect. Along with delay, this creates a dark, eerie tone. Effect A is a Stereo Adjust program with equalization catering to a warmer tone with bass boost. Delay 1 and Delay 2 taps in Effect B move the image from right to left.

Faders: Delay 1: 510m
           Delay 2: 233m
           FBK 1: 28%
           FBK 2: 33%
           unused: 42

92 **BIG SIZZLE** **CASCADE**

Combines bright equalization with mild delay. Effect A is a Stereo Adjust effect with Bass cut by 18 dB and Treble boosted 3.5 and 4.5 dB. Effect B provides faint taps from Delays 3 and 4.

Faders: A Mix: WET
           B Mix: 73%
           Balance: R+ 2
           SPATIAL: -4.50
           unused: 42

52

93   NASTY THING   CASCADE

Delays can create interesting effects when manipulated from the hot palette. In Effect A, Delays 1 and 2 are programmable taps up to 2.5 seconds each. Delays 3 and 4 are cross feedback delay lines. Effect B provides live performances in a 24.2M Bar.

Faders: A Mix: WET
                 B Mix: 63%
                 Delay 1: 42.4m
                 Delay 263.8m
                 SIZE: 24.2M

94   ROLLED NUTZ   CASCADE

This cascade features Stereo Adjust, brightening the tone by boosting the treble, and cutting bass, feeding into a standard Chamber Reverb. Effect A is a bright EQ Stereo Adjust catering to a brighter, treble boosted tone. Effect B is a reverb with a great general purpose reverb tail. The size is set to 26.5M (the largest value is 66.4M) so the density is rather tight. As you adjust SIZE, the Rt value will also change. If you want to unlink this natural phenomena, set LINK to Unlink.

Faders: A Mix: WET
                 B Mix: WET
                 Rotate: <0>
                 SIZE: 26.5M
                 RTIME: 0.2s

95   HOLD ON!   CASCADE

Huge Room Size and unnatural delay taps that move from right to left create this unusual and bizarre program. In Effect A, Delays 1 and 2 are programmable taps up to 2.5 seconds each. Delays 3 and 4 are cross feedback delay lines. Effect B provides live performances in a 65.3M barroom. With along Reverb Time as well, this is the largest bar you'll hear.

Faders: A Mix: WET
                 B Mix: 68%
                 Delay 1: 701m
                 Delay 2: 340m
                 SIZE: 65.3M

96   RVB∕RVB 2   DUAL MONO

Similar to RVB/RVB, but set up as a dual mono, rather than cascade. Effect A provides a great general purpose reverb tail. The size is set to 27.6M (the largest value is 66.4M) so the density is rather tight. As you adjust SIZE, the Rt value will also change. If you want to unlink this natural phenomena, set LINK to Unlink. Effect B is a nice "bloomy" sounding reverb. Diffusion is set midway, so there is some good articulation at the beginning of the reverb envelope. Use this on most keyboards, but those with a strong point may require a bit more Diffusion.

Faders: A Mix: WET
                   B Mix: WET
                   SIZE: 27.6M
                   SIZE: 43.3M
                   Diffusion: 65

97   RVB∕DLY 2   DUAL MONO

Left Delay and Right Delay are selected on the Plug-In. As this is a dual mono program, delay taps are only heard in their respective channels. Effect A is a good starting point for acoustic drums. This preset is slightly smaller than the standard drum chamber, but has less Diffusion. Rt is set to 1.8 seconds at mid frequencies. Effect B is a basic delay effect with moderate tap times and low feedback levels.

Faders: A Mix: WET
                   B Mix: WET
                   SIZE: 23.6M
                   L Delay : 0.0m
                   R Delay: 0.0m

98   RVB∕COMP 2   DUAL MONO

This dual mono program consists of a reverb with a 4.7 second Reverb Time and 1.88:1 compressor in their respective channels. Effect A provides a chamber shaped liked an upside down "U" with the speaker on top of the wall and a microphone on either side of the wall. The compressor in Effect B is nice to add to an overall mix. You may need to adjust the Threshold parameter to make it work for the particular signal you're feeding it. Release is set to gently fall away after 363ms.

Faders: A Mix: WET
                 B Mix: WET
                 SIZE: 31.5M
                 RTIME: 4.7s
                 Attack: 7m

99   DLY∕DLY 2   DUAL MONO

Two separate delays, with varying tap time lengths. On the Hot Palette, Delay 1 belongs to Effect A, and Delay 2 belongs to Effect B. Effect A is a delay with short tap time; Effect B is a delay with long tap time.

Faders: Delay 1: 85.0m
                 FBK 1:   25%
                 Delay 2: 297m
                 FBK 2:   22%
                 unused:

100   DLY∕COMP 2   DUAL MONO

A dramatic delay with fairly hard compression, split dual mono. Effect A incorporates a bit of left-right diffused delays, along with some small delay offset between left and right delay outputs. If the effect is too strong, try lowering feedback levels for delays 3 and 4. The compressor in Effect B is a bit more aggressive, with 7dB of boost below the selected threshold. A quick release of 58ms snaps up the volume. As with all compressor presets, Threshold is the critical parameter.

Faders: A Mix: WET
                 B Mix: WET
                 Multiple (Delay 1 & Delay 2): 21
                 Multiple (Feedback 1 & Feedback 2): 78
                 Attack: 7m

101   COMP 3:1 ∕ 3:1   DUAL MONO

Two separate mono compressors, running their own channels with the same parameters. Both Effect A and Effect B contain rather aggressive compressors, with 7dB of boost below the selected threshold. A quick release of 58ms snaps up the volume. As with all compressor presets, Threshold is the critical parameter.

Faders: A Mix: WET
               B Mix: WET
               Attack: 7m
               Release: 58m
               X Thresh: -52 dB

102   COMP 2:1 ∕ 2:1   DUAL MONO

Two separate mono compressors, running their own channels with the same parameters. Effect A and Effect B both contain a compressor which is nice to add to an overall mix. You may need to adjust the Threshold parameter to make it work for the particular signal you're feeding it. Release is set to gently fall away after 363ms.

Faders: A Mix: WET
               B Mix: WET
               Threshold: -12 dB
               Attack: 7m
               Release: 363m

103   COMP 2:1 ∕ 3:1   DUAL MONO

This program has two different compressors, each running their own respective channel. 2:1 compression on the left, and 3:1 on the right. The compressor in Effect A is nice to add to an overall mix. You may need to adjust the Threshold parameter to make it work for the particular signal you're feeding it. Release is set to gently fall away after 363ms. The compressor in Effect B is a bit more aggressive, with 7dB of boost below the selected threshold. A quick release of 58ms snaps up the volume. As with all compressor presets, Threshold is the critical parameter.

Faders: A Mix: WET
               B Mix: WET
               PreDelay : 6m
               Attack: 7m
               Release: 58m

104   EXPAND/EXPAND   DUAL MONO

This program has two different compressors, each running their own respective channel. 3:1 compression on the left, and 1:1 on the right. They both serve as expanders in this program. Effect A is a compressor with a Slope of 3:1, and 0 CompGain. The compressor in Effect B has no Slope at all (1:1), but an Expander Gain of 24 dB.

Faders: A Mix: WET
                 B Mix: WET
                 X Slope: 2.65
                 ExpGain: 15 dB
                 Attack: 7m

105   MOVE OVER   DUAL MONO

This dual mono program has a multiple of both effect's Reverb Times. They scale linearly with one another, as multiples should. Effect A is a split chamber reverb with a Reverb Time of 1.1 seconds. Large diffusion of 79 articulates this effect. Effect B is a split chamber reverb with small Reverb Time. With the use of SHAPE and SPREAD, this effect can create the illusion of larger spaces with a relatively short RTIME.

Faders: Multiple (RTIME A and RTIME B): 60
                 SIZE: 27.6M
                 SIZE: 27.6M
                 TDCY: 0.5k
                 TDCY: 0.5k

6

Appendix

Mid/Side Stereo Decoding using the Stereo Adjust algorithm

MS (Mid-Side) stereo recording uses a front-facing microphone (usually cardioid) and a coincident, sideways-facing figure-of-eight. By convention, the side microphone's positive lobe faces audience left. The Mid and Side signals are mixed in an MS matrix decoder to produce the left and right outputs of a standard stereo pair. The matrix is simple: the mid signal goes equally to both output channels. The side signal is summed into the output corresponding to the side microphone's positive lobe. The side is subtracted to the other output. The matrix decoding can be done either before, or after, recording.

With a little care, the Stereo Adjust program can perform this matrixing in the digital domain.

1. Connect the Mid signal to the right channel input, and the Side channel to the left.

2. Set the ROTATION control to maximum right.

3. Use the BALANCE control to adjust the width of the stereo signal. — If the inputs are connected normally, maximum right will produce Mid on both outputs.

Normally, the correct output is obtained by feeding Side to the left input and Mid to the right as described above. If Mid and Side are not correctly assigned before decoding, the matrix will appear to work, but the output channels will be out-of-phase. If you are using a digital source where Mid is *left*, you must correct the assignments. As the FLIP'n'SWAP control precedes the matrix decoding, if you have a digital source where Mid is left and Side is right, you can swap the channels before decoding. Otherwise, you must physically swap the left and right input data BNC s on the digital interface.

The BALANCE control precedes ROTATION so that BALANCE can vary the ratio of Mid to Side and, thus, the width of the output stereo image. Full right BALANCE produces mono. Full left is pure figure-of-eight.

If the tape has been recorded such that the Side signal has equal sensitivity from the side as the Mid has from the front, an equal BALANCE setting will yield a microphone array of optimum stereo separation. For a cardioid M microphone, the resulting array will be two hypercardioids at an angle of 109°. For an omni M, the equal mix produces back-to-back cardioids.

Note that the 11µs delay compenstation and the de-emphasis controls also precede the ROTATION control. If the tape was recorded on a recorder such as the PCM-F1, which inserts a delay in the left channel relative to the right, this control should be activated before decoding. The resulting output will have the channels synchronized in phase, as required for CD mastering. It is not necessary to de-emphasize unless a tape with no emphasis is desired.

Note also that the additional controls on the Stereo Adjust program operate *after* the ROTA-TION control, so they can be used as intended, without compromising the MS decoding. This is particularly important for the SPATIAL EQ and individual TREBLE controls.

Applying PONS Dither in Mastering Applications

TDM Mix Setup

1. Create a stereo Master Fader by selecting **New Master Faders** from the **File** menu. Click on **stereo**.

2. If you are employing the Bounce to Disk command or routing the mix to the Main Mix outputs for auditioning or recording to an external recording device, set the output of the Master Fader to the **Main Mix** output pair.

   If you are recording the mix to disk, set the output of the Master Fader to the the same bus pair as the inputs of the recording pair of audio tracks.

3. From the Inserts pop-up menu of the Master Fader, select **NuVerb™**. The NuVerb TDM Plug-In will appear.

   If you are employing other inserts on this Master Fader be sure that you select NuVerb on **insert E**.

4. Click on **Select Library** and select the default library included in your NuVerb folder, or any library you have created with the NuVerb application containing a program with PONS.

5. Select a program with PONS from the Program pop-up menu. (PONS is Effect B in the factory Cascade Programs.) Turn the OUTMIX of Effect A to DRY if you wish to only apply PONS. Adjust the Dither parameter as desired.

Placement of PONS in the signal chain

PONS is only effective when it is applied as the last DSP element in the signal chain. When using other inserts on the Master Fader with PONS, always select **insert E** to apply PONS. As Master Fader inserts are post fader inserts, this allows you to use the Master Fader to adjust the volume of the mix and employ PONS at the same time.

PONS Mastering Notes

Effect A>PONS is a particularly powerful mastering tool. For example, select RVB->PONS to add reverb to a classical music mix. Select COMP->PONS to compress a master mix for FM or TV broadcast, or for audio cassette duplication. Select STADJ->PONS to apply spatial equalization to enhance the stereo image of a master mix.

Lexicon Inc.
3 Oak Park
Bedford, MA 01730
Tel 781-280-0300
Fax 781-280-0490

Lexicon Part # 070-10752