

Pro Tools Creative Collection™

Plug-ins Guide

Version 1.0



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Part I: Introduction

Chapter 1: Introduction

Pro Tools Creative Collection™ is a set of RTAS® (Real Time Audiosuite) instruments and effects plug-ins included with Pro Tools HD, LE,® and M-Powered™ 8.0 and higher.

This guide describes the following Pro Tools Creative Collection plug-ins:

Instruments

- Boom drum computer with pattern sequencer
- DB-33 tonewheel organ simulator
- Mini Grand acoustic grand piano
- Structure Free sample player
- Vacuum tube emulation synthesizer
- Xpand² multitimbral workstation

Effects

- Chorus
- Distortion
- Dynamic Delay
- Enhancer
- Ensemble
- Filter Gate
- Flanger
- Frequency Shifter
- Fuzz-Wah
- Kill EQ
- Lo-Fi
- Multi-Chorus
- Multi-Delay
- Non-Linear Reverb
- Phaser
- Reverb
- Spring Reverb
- Stereo Width
- Talkbox
- Vintage Filter

System Requirements

To use Pro Tools Creative Collection, you need the following:

- One of the following:
 - A Digidesign®-qualified Pro Tools|HD®, Pro Tools LE, or Pro Tools M-Powered system
 - A Digidesign-qualified Pro Tools system and a third-party software application that supports the Digidesign RTAS plug-in standard
- DVD drive for Installation disc

Digidesign can only assure compatibility and provide support for hardware and software it has tested and approved.

For complete system requirements and a list of Digidesign-qualified computers, operating systems, hard drives, and third-party devices, refer to the latest information on the Digidesign website:

www.digidesign.com/compatibility

Working with Plug-ins

See the *Pro Tools Reference Guide* for general information on working with plug-ins in Pro Tools, including:

- Inserting plug-ins on tracks
- Clip indicators
- Plug-in window
- Adjusting plug-in controls
- Automating Plug-ins
- Monitoring and recording audio from instrument plug-ins
- Using Plug-in Presets

Conventions Used in This Guide

All Digidesign guides use the following conventions to indicate menu choices and key commands:

Convention	Action
File > Save	Choose Save from the File menu
Control+N	Hold down the Control key and press the N key
Control-click	Hold down the Control key and click the mouse button
Right-click	Click with the right mouse button

The names of Commands, Options, and Settings that appear on-screen are in a different font.

The following symbols are used to highlight important information:



User Tips are helpful hints for getting the most from your Pro Tools system.



Important Notices include information that could affect your Pro Tools session data or the performance of your Pro Tools system.



Shortcuts show you useful keyboard or mouse shortcuts.



Cross References point to related sections in the Pro Tools Guides.

About www.digidesign.com

The Digidesign website (www.digidesign.com) is your best online source for information to help you get the most out of your Pro Tools system. The following are just a few of the services and features available.

Product Registration Register your purchase online.

Support and Downloads Contact Digidesign Technical Support or Customer Service; download software updates and the latest online manuals; browse the Compatibility documents for system requirements; search the online Answerbase or join the worldwide Pro Tools community on the Digidesign User Conference.

Training and Education Study on your own using courses available online or find out how you can learn in a classroom setting at a certified Pro Tools training center.

Products and Developers Learn about Digidesign products; download demo software or learn about our Development Partners and their plug-ins, applications, and hardware.

News and Events Get the latest news from Digidesign or sign up for a Pro Tools demo.

Pro Tools Accelerated Videos Watch the series of free tutorial videos. Accelerated Videos are designed to help you get up and running with Pro Tools and its plug-ins quickly.

To learn more about these and other resources available from Digidesign, visit the Digidesign website (www.digidesign.com).

Chapter 2: Installation

Installing Pro Tools Creative Collection

Pro Tools Creative Collection is automatically installed when you install Pro Tools 8.0 or higher, unless you specify otherwise.

If you did not install Pro Tools Creative Collection during Pro Tools installation, you can do so at any time.

To install Pro Tools Creative Collection if it was not installed during Pro Tools installation”

- 1** Insert the Pro Tools Installer disc and double-click the Installer icon.
- 2** When prompted, select Custom Install, select the Pro Tools Creative Collection, and complete the installation, following on-screen instructions.

Removing Pro Tools Creative Collection

If you need to remove Pro Tools Creative Collection from your system, follow the instructions below for your computer platform.

Mac OS X

To remove Pro Tools Creative Collection:

- 1** Launch the Installer for the plug-in you want to uninstall.
- 2** Follow the on-screen instructions and select Uninstall from the Install pop-up menu.
- 3** Click Uninstall.
- 4** When uninstallation is complete, click Quit.

Windows Vista

To remove the Pro Tools Creative Collection:

- 1** Choose Control Panel.
- 2** Under Programs, click Uninstall a Program.
- 3** Select the Pro Tools Creative Collection from the list of installed applications.
- 4** Click Uninstall.
- 5** Follow the on-screen instructions to remove the software.


Windows XP

To remove Pro Tools Creative Collection:

- 1** From the Start menu, choose Settings > Control Panel and double-click Add or Remove Programs.
- 2** Select Pro Tools Creative Collection from the list of installed applications and click the Change/Remove button.
- 3** Follow the on-screen instructions to remove Pro Tools Creative Collection.

Chapter 3: Quick Start

This chapter takes you through the basics of inserting Pro Tools Creative Collection plug-ins onto tracks in Pro Tools, and assigning MIDI controllers to Creative Collection instrument parameters.

 *See the Pro Tools Reference Guide for instructions on how to create and access presets on plug-ins in Pro Tools.*

But, first things first, do the following:

- Launch Pro Tools.
- and –
- Create a new Pro Tools session or open an existing session.

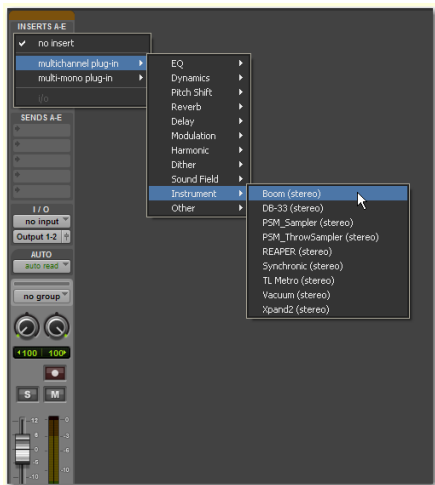
Inserting a Creative Collection Instrument on a Pro Tools Instrument Track

To use one of the Creative Collection's instruments to its best advantage, insert it on a stereo Instrument track in your Pro Tools session.

To insert an instrument plug-in on an Instrument track:


- 1 Create a new stereo Instrument track (recommended) in your Pro Tools session:
 - Choose Track > New.
 - Select 1 new Stereo Instrument track in Ticks.
 - Click Create.

2 Click the Pro Tools Track Insert selector and select one of the Creative Collection instruments.



Inserting an instrument on a stereo Instrument track

3 If needed, you can now record-enable the instrument track to enable the use of a MIDI controller to play the instrument and/or help in creating MIDI sequences within the sequencer in Pro Tools.

 See the *Pro Tools Reference Guide* for instructions on how to use the MIDI sequencer in Pro Tools.

Inserting a Creative Collection Effects Plug-in on a Pro Tools Track

To use one of the Creative Collection's effects plug-ins, insert it on an Audio track, Auxiliary input, or Instrument track in your Pro Tools session.

To insert an effects plug-in on a track:

- 1 Select the track on which you would like to insert the effect.
- 2 Click the Pro Tools Track Insert selector and select one of the Creative Collection effects plug-ins.

 See the *Digidesign Plug-ins Guide* for further instructions on how to utilize effects plug-ins in Pro Tools.

Using the MIDI Learn Function



In addition to pre-assigned MIDI controllers (such as Sustain Pedal and Volume), you can assign MIDI controllers to parameters within Pro Tools Creative Collection's instrument plug-ins for automation or real-time control from a MIDI keyboard or control surface. MIDI assignments are saved with the session.

To assign a Pro Tools Creative Collection Instrument parameter to a MIDI controller:

- Control-click or Right-click (Mac) or Right-click (Windows) the control, select Assign and choose a controller number from the pop-up MIDI CC list.

-or-

- Control-click or Right-click (Mac) or Right-click (Windows) the control, select Learn from the menu and move the desired knob or controller on your MIDI keyboard or sequencer. The instrument plug-in will set this MIDI controller to the parameter you have chosen.

Some MIDI continuous controllers are pre-assigned and cannot be learned, as follows:

MIDI CC	Function
120	All Sound Off
121	Reset Controllers
123	All Notes Off
124	Omni Off (Not used in Plug-ins)
125	Omni On (Not used in Plug-ins)
126	Mono On (Not used in Plug-ins)
127	Mono Off (Not used in Plug-ins)

To remove a MIDI controller assignment:

- Control-click or Right-click (Mac) or Right-click (Windows) an assigned control and choose Forget to remove its MIDI controller assignment.



All Pro Tools Creative Collection plug-ins have pre-defined parameter assignments for Digidesign and supported third party hardware control surfaces.

Set Min/Max

These options let you scale incoming MIDI controller data so that the chosen control does not go below or above a certain value.

This is useful, for example, when you want to keep the Cutoff control on Vacuum from going above a certain amount, but you don't want to have to pay close attention to how you move the MIDI controller knob you've assigned to it.

To set the Min/Max level:

- Control-click or Right-click (Mac) or Right-click (Windows) a control, choose Set Min or Set Max, and select the desired lower or upper limit for the current control.

Invert Range

This option lets you invert incoming MIDI controller data so that the chosen control reacts in inverse proportion to the assigned MIDI controller.

This is useful, for example, when you're assigning the drawbars in DB-33 to a set of MIDI fader controls, but you want the action to be reversed, so that the faders work like the drawbars on a physical organ.

To invert a control's response:

- Control-click or Right-click (Mac) or Right-click (Windows) a control, and select Invert Range.

Part II: Instruments

Chapter 4: Boom

Introduction

Boom is a virtual drum machine featuring a broad range of electronic percussion sounds, paired with a simple, drum-machine-style pattern sequencer.

Drum patterns can be created from scratch, or adapted from one of the included preset patterns. Patterns can be triggered and switched in real time with the mouse or using MIDI data, facilitating the rapid creation of evolving drum patterns.


Boom comes with 10 drum kits inspired by classic electronic drum machines. Each individual sound in a kit can have its volume, pan, pitch, and decay manipulated and automated in real time.

Sounds can be shaped to fit the needs of your production, and even given further animation over time using automation.

Each pattern is one bar long, with sixteen 16th-note steps. Up to 16 patterns, along with kit and control settings, can be saved with each Preset.

Operating Boom

The intuitive control layout for Boom lets you quickly get a feel for various sections within the interface. Within no time, you'll be well on your way to creating fresh and exciting new drum parts.

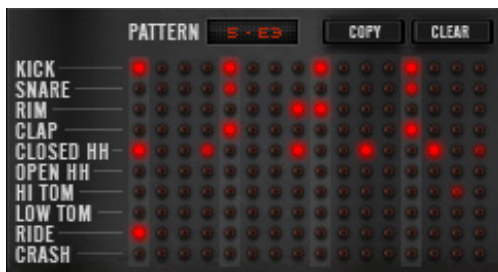
 See Chapter 3, “Quick Start.” for details on how to set up Boom in a Pro Tools session.



Boom plug-in window, main controls and sections

Matrix Display

The Matrix display provides a visual overview of the current pattern in Boom's sequencer, and is a quick way to keep track of the pattern's rhythm and velocity, as well as what step Boom is playing at any given time.



Matrix display

Each horizontal row corresponds with one of Boom's 10 instrument channels, and each vertical column represents one of the 16 rhythmic steps that make up a pattern.

When an LED in the grid is dark, no note is sequenced to play the indicated instrument on that step.

When an LED in the grid is lit red, the corresponding instrument is sequenced to play at that step. The brighter the LED is lit, the higher that step's velocity has been set.

You can click each LED directly to add or remove a note on that step. When a dark LED is first clicked, that step is set to play at high velocity. Clicking it a 2nd or 3rd time will cycle that step through two levels of lowered velocity, reducing that step's volume. Clicking the LED again will silence that step, and turn off its light. Right-clicking an LED will toggle its on-off state, preserving the current velocity setting.

The Pattern display above the Matrix shows which of the 16 patterns in the current preset is being shown in the Matrix display.

The Copy and Clear buttons above the Matrix are used to copy or erase patterns when in Pattern Select mode.

See "Creating a Drum Pattern" on page 20 and "Playing with Patterns" on page 20 for more information on using the Copy and Clear buttons.

Instrument Section

Each of Boom's 10 instruments has a set of controls that set its pan position, volume level, tuning (pitch), and decay (length).



Three instrument strips

Pan Sets the current instrument's pan position in the stereo field.

Level Sets the current instrument's volume.

Tuning Sets the current instrument's pitch.

Decay Sets the current instrument's length.

S Solos the selected instrument, letting it play while temporarily silencing the other instruments. More than one instrument can be soloed at a time.

M Mutes the selected instrument, silencing it until the M button is pressed again.

Adjuster Calibrates the sound of the current instrument in varying ways.

Sample Selector Sets the current instrument's sample (10 samples available for each instrument).

Global Controls

The Global Controls affect all instruments at once.



Global controls

Shuffle Adds a variable amount of rhythmic swing to the currently playing pattern.

Volume Controls the plug-in's overall output volume.

Dynamics Scales the difference in volume between the pattern sequencer's three possible Velocity levels.

Transport Controls



Transport controls

Start and Stop These controls start and stop Boom's pattern sequencer. When the Pro Tools transport is stopped, Boom's sequencer can play and stop freely.

When Pro Tools is playing, pressing Play on Boom's transport causes Boom to play in sync with Pro Tools.

Kit Selector



Kit Selector menu

The Kit Selector menu gives you access to the 10 preset drum kits in Boom.

The available kits are as follows:

Name	Description
Urban 1	R&B-style sounds: Fat kicks, cracking snares.
Urban 2	Variations of the above.
Dance 1	Classic club-style drums: Fat, electronic, and punchy.
Dance 2	As above, but more organic, loopy and percussive.
Electro	Electronic, noisy, distorted sounds.
Eight-0	A classic analog drum machine kit.
Nine-0	A classic analog/digital drum machine kit.
Fat-8	A more processed version of Eight-0. Aggressive and compressed, with a lot of impact.
Fat-9	A more processed version of Nine-0. Fatter and crunchier.
Retro	Classic array of analog drum machine sounds.

Speed Switches



Speed switches

The Speed switches change Boom's rhythmic relationship with the current tempo set in Pro Tools.

The switch on the left has three modes. In X1 mode, Boom's sequencer plays at the same tempo as the master tempo in Pro Tools. In X2 mode, Boom plays twice as fast. In X1/2 mode, Boom plays half as fast.

The switch on the right enables Triplet mode. In Triplet mode, Boom plays only the first 12 steps in the sequence. The last 4 steps turn grey, indicating that they will not be played.

The 12 steps play in the same amount of time Boom would normally play all 16, for the creation of triplet grooves.

Trying different combinations of Speed switch settings on-the-fly can create interesting rhythmic variations.

Edit Mode Switch



Edit Mode switch

The Edit Mode switch lets you select whether to edit the current pattern, or choose between the 16 available patterns in the current preset.

Pat Edit Lets you create and edit drum patterns.

Pat Sel Lets you switch between the patterns in the current preset.



Patterns can be selected using MIDI notes at any time, regardless of Edit Mode switch position.

Event Bar

The Event Bar is where most of the work of creating and playing patterns in Boom is done.



Event Bar, showing the 16 Event switches, in various states

In Pattern Edit mode, the sixteen numbered Event switches that make up the Event Bar each correspond with a 16th note step in the current pattern. The rhythm of the currently selected instrument is shown. By default, in an empty pattern, all of the Event switches will be dark, indicating that the selected instrument will not play on any of the 16 steps.

When an Event switch is selected, it lights to show that the selected instrument will play at that step in the pattern.

Clicking (or triggering via MIDI or a control surface) a step's switch a 2nd or 3rd time will cycle it through two levels of lowered velocity, reducing that step's volume. Clicking the switch again will silence that step, and turn off its light.

Right-clicking an Event switch will toggle its on-off state, preserving the current velocity setting.

In Pattern Select mode, the Event switches choose between the 16 patterns in the current preset.

Info Display and Setup Button



Info display and Setup button

Like all plug-ins in the Creative Collection, Boom has an Info display that shows the setting of the currently selected control.

To the right of the Info display is the Setup button, which opens the Setup page, which offers control of Boom's synchronization behavior and of the Pattern Chain function.

Creating a Drum Pattern

This section will get you started on the process of creating beats with Boom. First, you'll need an empty pattern to edit.

To clear a pattern

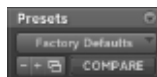
- 1 Set the Edit Mode switch to Pattern Select mode.
- 2 Click one of the Event switches to select the pattern you want to clear. For now, click the Event switch marked 1.
- 3 Click the Clear button above the Matrix display. All notes in the selected pattern will be cleared.

To create a new pattern

- 1 Set the Edit Mode switch to Pattern Edit mode.
- 2 Press play on Boom's transport.
- 3 In the Instrument Section, find the first instrument whose pattern you want to edit, and click its Instrument Name area. The selected Instrument Strip's background color will become highlighted, indicating that it is selected.
- 4 In the Event Bar, try out various rhythms by toggling the Event switches on and off.
- 5 When you have a satisfying rhythm created for your first instrument (such as Bass Drum), select the next instrument you want to add to the pattern (such as Snare Drum), and repeat the above process.
- 6 Continue adding parts until you're satisfied with the pattern.

Saving a Preset

Boom, like all Pro Tools plug-ins, can save its settings, (in this case, your drum patterns and instrument settings) as plug-in settings files (.tfx), or presets.



Preset management area

To save the pattern you've created, open the Plug-in Settings menu, and choose "Save Settings As...", choose a name for your preset, and click "Save".

Playing with Patterns

Now that you've started creating patterns, let's take a look at how to switch between and create variations of them.

To switch between patterns on-the-fly

- 1 Press Play on Boom's transport.
- 2 Set the Edit Mode switch to Pattern Select mode.
- 3 Click the Event switch marked 2. A different pattern will start to play, and its notes will appear in the Matrix display.
- 4 Press Event switch 1, and you'll see and hear your original pattern return. Make a copy of it, so that you can create a variation of the pattern.

To copy a pattern

1 Click the Copy button above the Matrix display. Event switch 1 lights up red, and Event switches 2–16 blink, indicating that they are available to receive a copy of the selected pattern.

2 Click Event switch 2. The Event Bar returns to its normal state, and pattern 1 will be copied to pattern 2.

3 If you decide before doing so that you don't want to copy the pattern after all, just press any other button or move any other control besides the Event switches, and the Copy action will be cancelled.

4 Press Event switch 2, then set the Edit Mode switch back to Pattern Edit mode. You'll see that you now have an identical copy of pattern 1 to work with. Make a simple edit to the pattern, by adding a rhythmic fill.

To create a simple fill

1 Select Snare Drum, and toggle Event switches 13–16 to on. This will give you a simple 4-note snare roll at the end of the pattern.

2 Try switching between patterns 1 and 2 to hear the new pattern and the fill you've added.



Event switches 13–16, toggled on to create a roll

Controlling Boom with MIDI


Boom becomes much more powerful when controlled using MIDI. Boom responds to two main ranges of MIDI notes:


C1–D#2 •Plays each of the instruments in the current drum kit. Used primarily when using Pro Tools MIDI or instrument tracks to control Boom, rather than Boom's built-in pattern sequencer. These mappings closely match the General MIDI standard, for ease of use with pre-existing MIDI sequences.

MIDI Note	Instrument Played
C1	Kick
C#1	Rim
D1	Snare
D#1	Clap
E1	Snare
F1	Lo Tom
F#1	Clsd Hat
G1	Lo Tom
G#1	Clsd Hat
A1	Hi Tom
A#1	Open Hat
B1	Hi Tom
C2	Hi Tom
C#2	Crash
D2	Hi Tom
D#2	Ride

C3–D#4 • Each note triggers one of the 16 patterns in the current preset, switching between them on the fly

The first set of notes lets you play and sequence Boom’s sounds directly like any other software instrument. The second set lets you switch between and create sequences of Boom’s patterns.

 See Chapter 3, “Quick Start.” for details on how to assign MIDI controllers to Boom’s control parameters.

 See the Pro Tools Reference Guide for instructions on how to use the MIDI and instrument tracks in Pro Tools.

Playing Patterns using MIDI

Much like you can switch between patterns by clicking on various Event switches, you can play and switch between patterns using MIDI data.

This lets you create interactive changes in your beat over time, and record the MIDI data so that the same sequence can be played back and edited once it’s been recorded.


To play patterns using a MIDI controller

- 1 Record-enable the Instrument track on which Boom is inserted.
- 2 Use the octave switches on your MIDI controller to make sure you have access to MIDI notes C3–C4. You may need to play a number of notes to find the right range, but once you have, you’ll notice that Boom plays a pattern each time you play a note.
- 3 If you press and hold a note, the corresponding pattern plays until you release the note.

4 If you play legato within that range while holding down the first note, Boom switches patterns, starting the new pattern at the same rhythmic step where the previous pattern left off.

This MIDI data can be recorded and edited using the MIDI sequencer in Pro Tools, letting you create complex sequences of drum patterns.

If you do not have a MIDI controller, you can use the Pencil tool in Pro Tools to create a sequence of MIDI notes to trigger patterns over time.

 See the Pro Tools Reference Guide for instructions on how to use MIDI and instrument tracks in Pro Tools to control instrument plug-ins.

Pattern Chains

Pattern Chains let you to create sequences of drum patterns in real time, either with the mouse and keyboard, or with MIDI notes.

To create a pattern chain with the mouse and keyboard

- 1 Press Play on Boom’s transport.
- 2 Switch Boom into Pattern Select mode.
- 3 Click the Event switch that corresponds with the pattern you want to start the chain with.
- 4 Hold Control on the computer keyboard and click the Event switches that correspond with each pattern you want to add to the chain.
- 5 Boom will play the patterns you’ve chosen in the order they were added to the chain.
- 6 To remove a pattern from the chain, hold Control and click its Event switch.

7 To go back to playing patterns individually, click any Event switch without holding down Control.

To create a pattern chain with MIDI notes

- 1 Press and hold a MIDI note between C3 and D3 on your MIDI controller, triggering a pattern.
- 2 Press and hold a second note in that range along with the first. A Pattern Chain will be created, and Boom will alternate between playing the first pattern you chose, and the second.
- 3 Press and hold another note, and it will be added to the chain. Boom will play all three patterns in sequence. If you hold down more notes, their patterns will be added to the chain.
- 4 If you let go of a note, its pattern will be removed from the chain. If you let go of all but one note, the chain will stop, and Boom will go back to playing one pattern repeatedly.

This MIDI data can be recorded and edited using the MIDI sequencer in Pro Tools, let you more easily create sequences of drum patterns.

If you do not have a MIDI controller, you can use the Pencil tool in Pro Tools to create a sequence of MIDI notes that can trigger Pattern Chains.



Pattern chaining can be turned on and off in the Setup Page. When off, the above keyboard and MIDI behavior does not occur.

Setup Page



Setup button

Click the Setup button to view the Setup page. It has two parameters you can set that change Boom's behavior.

Sync Mode

This sets the way Boom synchronizes with Pro Tools when patterns are triggered using MIDI notes. The modes are as follows:

Beat Boom starts playing the selected pattern from the step that corresponds with the incoming MIDI note's place in the current bar.

1/16 Boom starts playing the selected pattern from one of the first five steps in the pattern, corresponding with the incoming MIDI note's place in the current quarter-note.

Notes played on the first or third quarter note of the current bar will trigger the current pattern from step 1. Notes played on the 2nd or 4th quarter note will trigger the pattern from step 5.

Off Boom starts playing the selected pattern in sync whenever triggered by a MIDI note, without synchronizing to the Pro Tools transport.

Pattern Chaining On/Off

This lets you turn the Pattern Chain function on or off.


Chapter 5: DB-33

Introduction

DB-33 is a virtual organ plug-in that recreates the sounds and controllability of classic tone-wheel organs, and the rotary-speaker cabinets they are often played through.

Operating DB-33

DB-33's control layout has two main pages. The Play page contains most of the main tonal controls, and the Cabinet page contains the controls concerning the rotating-speaker cabinet. Once you've got a feel for the various sections within the interface, you'll soon be creating classic vintage organ sounds.

 See Chapter 3, "Quick Start," for details on how to set up DB-33 in a Pro Tools session and assign MIDI controllers to DB-33's control parameters.



DB-33 Organ page overview

Organ Page

The Organ page holds the controls that effect the tone of the organ itself. These controls are also the most likely to be manipulated while the instrument is played.

Tonewheels

Tonewheel organs are based on a system of spinning, serrated metal wheels whose motion is translated into sound by magnetic pickups. Their condition effects the overall tone of the organ.



Tonewheels control

The Tonewheels control sets the condition of the tonewheels, and even provides a couple of non-standard choices.

Tonewheel	Description
Dirty	Worn-out tone generator. Drifting pitch, leaking
Used	Like Dirty, but not as extreme
New	Brand-new tonewheels. Clean tone
Syn 1	Triangle wave, for emulating synthesized organ sounds
Syn 2	Square wave, for emulating synthesized organ sounds

Scanner Vibrato

Like many vintage organs, DB-33 features vibrato/chorus to animate the organ sound.



Scanner Vibrato controls

On-Off Turns the chorus/vibrato effect on and off.

Vibrato and Chorus Sets the chorus/vibrato effect's mode. The following options are available:

Wave Shape	Description
V1, V2, V3	Vibrato (pitch modulation) effect. Higher numbered modes offer stronger modulation
C1, C2, C3	Chorus (timbral modulation) effect. Higher numbered modes offer stronger modulation

Drawbars

The most often-used set of controls on most tonewheel organs, drawbars are used to manipulate the mixture between the various harmonics generated by the tonewheel mechanism.



Drawbars

From left to right, each drawbar controls a different part of the harmonic spectrum, ranging from low fundamentals to high harmonics.

When a drawbar is pulled out (downward), the volume of the corresponding harmonic is increased. When pushed in, (upward) it is decreased.

Key Click

Originally an artifact of the mechanical nature of tonewheel organs, DB-33 gives you control over the clicking sound made when a key is played.



Key Click control

Turn the knob to set the level of click, from zero to full.

Percussion

DB-33's percussion feature adds a short burst of additional harmonics at the beginning of each note played.



Percussion controls

On/Off Turns the percussion feature on and off.

Loud/Soft Sets the volume of the added harmonic burst.

Short/Long Sets the length of the harmonic burst.

3rd/2nd Sets the harmonic that is added, either the 3rd or 2nd harmonic.

Master Level

This control sets the overall volume level. To control the level of signal going to the rotary speaker simulation (thus affecting tonal character), use the Organ control in the Input section of the Cabinet page. See "Cabinet Page" on page 28. for more information.



Master Level control

Turn this knob to set the overall output volume. This control is set, by default, the MIDI CC 7.

Rotation Speed Switch

This control switches the speed of rotation for the rotating speaker cabinet.



Rotation Speed switch

Move this switch to the left (Slow) to set the rotating speaker cabinet to slow rotation. Move the switch to the right (Fast) for fast rotation. Move it to the center (Brake) to stop the rotation, or to slow it temporarily before switching to another speed.

The exact speed of each of the Rotation Speed switch's modes is set in the Speed Control section in the Cabinet page.

Cabinet Page

To access the Cabinet page, click the Cabinet button. The Cabinet page provides the controls pertaining to the rotating speaker cabinet and the organ's tube preamp. These controls determine the overall tone of the instrument.



Cabinet page overview

Input


The Input section contains the level controls for the external input (using the preamp and rotating speaker simulation as an effect for other signals in Pro Tools) and the organ's signal.

Increasing either of these inputs to very high levels drives the tube pre-amp harder, sometimes leading to pleasant (or not-so-pleasant) distortion.



Input controls

External Sets the volume of incoming signal when DB-33 is used as an insert effect.

 For instructions on using DB-33 as an insert effect, See "Inserting a Creative Collection Effects Plug-in on a Pro Tools Track" on page 10..

Organ Sets the volume of the tone generator signal before it enters the pre-amp. If you're hearing unwanted distortion, try turning this control down. The control is set to MIDI CC 11, an expression pedal, to emulate the volume pedal used for expressive purposes on many classic organs.

Tube Pre-Amp

The Tube Pre-amp section offers control over the preamplifier that precedes the rotating speaker cabinet.



Tube Pre-Amp controls

Character Effects the tonal balance of the signal. Turned to the left, the lows are cut, and high and midrange harmonics are emphasized. Turned to the right, lows are boosted and highs are cut.

Drive Sets the amount of gain in the pre-amp, ranging from clean to distorted.

High Cut Sets the amount of treble roll-off. Used in conjunction with the Character control (set to a low value), it creates a mid-heavy but not treble-boosted tone.

Mics

The Mics section controls the balance between the high and low-end speakers in the rotating speaker cabinet, and the stereo separation of the rotating speaker's movement.



Mics controls

Drum/Horn Controls the mix between the low-end speaker (drum) and the high-end speaker (horn).

Spread Sets the angle, and thus, the stereo response of the two virtual “mics” that pick up the organ’s signal. Fully left, the mics are placed at 90 degrees from each other. Fully right, the mics are placed at 180 degrees from each other, accentuating the motion of the signal as the horn spins.

Speed Control

The Speed Control section affects the rotating speaker cabinet’s speed of rotation, and the time it takes to change between speed modes.



Speed controls

Rotation Speed Switch A duplicate of the switch on the Organ page, it is present here for ease of testing speed modes while setting other parameters.

Slow Rate Sets the speed of speaker rotation when the rotation speed switch is set to Slow mode.

Fast Rate Sets the speed of speaker rotation when the rotation speed switch is set to Fast mode.

Acc/Dec Sets the amount of time it takes for the rotating speaker to move from one speed to another.

Info Display and Organ/Cabinet Switches



Info display and Organ/Cabinet switches

Like all instruments in the Creative Collection, DB-33 has an Info display that shows the setting of the currently selected control. To the left of the Info display are the switches that toggle the main window between the Organ and Cabinet pages.

Chapter 6: Mini Grand

Introduction

Mini Grand is a simple virtual piano instrument with seven different acoustic piano sounds to suit a range of styles.


Six selectable models of room ambience can be used to place Mini Grand's sound into an optimum spatial environment.

By familiarizing yourself with the main controls, you'll be well on your way to creating perfect piano parts for every occasion.

Operating Mini Grand

The main panel contains controls for choosing the desired piano model, type and amount of room simulation, dynamic response, and overall output level.

You can use the onscreen keyboard to audition the sound, if a MIDI controller is not within reach.

 See Chapter 3, "Quick Start," for details on how to operate and assign MIDI controllers to Mini Grand's control parameters.



Mini Grand plug-in window, with main controls

Mini Grand Main Controls

Model



This knob selects between seven different piano models that range from dark and mellow (Atmo) to bright and aggressive (Dance).

Dynamic Response



This control adjusts the response of the piano sound to incoming MIDI velocity data. Higher settings give more dynamic sensitivity, and lower settings create a more even dynamic response.

If you're using a MIDI keyboard that tends to output high velocities without much effort, turning this control down can help compensate creating a more natural feel.

Tuning Scale



This control toggles between Equal tuning, where the piano's relative pitch is normal, and Stretched, where the piano's higher notes are tuned slightly higher, so they are more in tune with the overtones of the lower note.

Room



This control switches between various room ambiences. Effects range from natural reverbs to special effects.

Mix



The Mix knob blends the desired amount of room ambience, selected using the Room knob, into the piano tone.

Level



Turn this knob to control the overall output volume of Mini Grand.

Info Display and Setup Button



Info display and Setup Button

Like all instruments in the Creative Collection, Mini Grand has an Info display that shows the setting of the currently selected control.

To the right of the Info display is the Setup button, which opens the Setup page. The Setup page offers control of Mini Grand's Eco Mode, which reduces CPU load by deactivating string resonances, and the polyphony selector, which sets Mini Grand's maximum polyphony.

Shaping Mini Grand's Sound


Mini Grand offers a wide range of tones that can fit into many genres of music. It is helpful, when familiarizing yourself with the plug-in, to try various combinations of sounds and ambience settings.

Piano Models

Model	Description
Atmo	Quiet and dark, accentuated low-mids and muted highs
Soft	Mellow and rounded, with accentuated lows and low-mids, and mellow highs
Ballad	Dynamic, but understated, warm lows
Real	Natural and dynamic, little processing
Bright	Controlled and percussive, lowered bass and low-mids
Hard	Loud, pointed, with accentuated highs, lowered bass and low-mids
Dance	Loud, aggressive and gritty, strong upper mid and treble presence, scooped lows

Room Ambiences

Room	Description
Soft	Mellow, sweet reverb
Bright	Heavier early reflections, accentuated highs
Studio	Controlled, tight ambience
Chamber	Longer reverb time with more diffused reflections
Hall	Longest reverb time, biggest-sounding room
Ambient	Few reflections, very spatial

 See the *Pro Tools Reference Guide* for instructions on how to access and save Presets within *Mini Grand*.

Chapter 7: Structure Free

Introduction

Structure Free is an RTAS (Real Time Audio Suite) plug-in for Pro Tools.

Structure Free brings the world of Structure compatible sample libraries to any Pro Tools system and delivers superior performance and reliability thanks to its direct integration with the Pro Tools audio engine. Structure Free comes with its own 600 MB sample library to get you started.

Structure Free Features

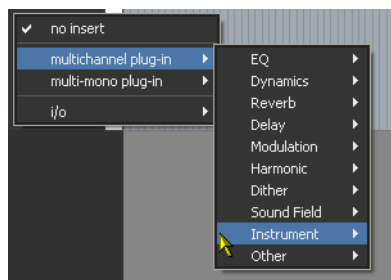
- ◆ 64-voice multitimbral sound engine
- ◆ Loads all Structure compatible sample libraries (native Structure, SampleCell, SampleCell II, Kontakt, Kontakt 2, and EXS 24)
- ◆ Full compatibility with all Structure versions (Structure, Structure LE), you can easily upgrade and still use your Pro Tools sessions created with Structure Free. You can also open sessions which originally used Structure or Structure LE with Structure Free
- ◆ Sample playback using disk streaming or RAM
- ◆ Support of all common bit depths and sample rates up to 192 kHz
- ◆ Easy real-time sound manipulation using Smart Knobs

Getting Started

The following section helps you to explore Structure Free's basic concepts with a hands-on approach. You will touch the most important functions, understand the basic concepts and make the first guided steps to get Structure Free to sound.

Loading Structure Free

- 1 Create a new stereo Instrument track in Pro Tools.
- 2 Click the track's Insert selector and choose Structure Free from the list.



Inserting Structure Free on a stereo Instrument track

Making Sound

1 If you have a MIDI keyboard available and prefer to use it, connect it to Structure Free's MIDI input, and route it to Structure Free on MIDI channel 1. If there is no MIDI keyboard available, you can play Structure Free by clicking the keyboard on screen, or using MIDI input from the Instrument track in Pro Tools.

2 Play some notes on your MIDI keyboard. If all is well so far, you are hearing a sine wave signal from the default Sine Wave Patch at the top of the Patch list.



The default Sine Wave patch

Loading a Patch

1 Click the Browser tab in the Parameter panel to display the Browser page.



Browsing for patches

2 Click your way through the folders to access the QuickStart content folder. If you chose the suggested path during installation, it is located here, depending on your OS:

Windows Program Files\Digidesign\
Structure\Structure QuickStart

Mac OS X /Applications/Digidesign/
Structure/Structure QuickStart

3 Drag the Patch named 01 Six String Guitar.patch onto the Sine Wave Patch to load it and replace the Sine Wave patch. A red frame around the patch when dragging indicates that you are replacing the existing patch with the new one. Wait until the Loading message in the display beneath the Parameter panel disappears.

4 After loading, the multi-purpose display shows a short description of the Patch, and the Parameter panel above displays its Patch parameters.

5 Play some notes and chords. Adjust the Patch volume using the horizontal fader on the Patch module in the Patch list.

Finding Missing Samples

If a loaded patch does not find its samples because folders have been renamed or moved to another location, you can use the Find Missing Samples file dialog to point Structure Free to the new location of the samples. Patches which are missing samples are indicated by a red exclamation mark symbol.



Missing samples

To find the missing samples for a patch:

- 1 In the Patch menu, select Find Missing Samples.
- 2 In the following dialog, navigate to the new sample location and click OK.

Using Smart Knobs

1 Every Patch has six Smart Knob assignments which are (in the factory content) pre-assigned to useful parameters. You can use them to easily adjust a patch to fit your session. Select the patch to display its Smart Knob assignments in the Keyboard section.

- 2 Set the Smart Knob for Delay Mix to 30%.
- 3 Set the Smart Knob for Chorus Mix to 65%.
- 4 Play some notes and chords. Set the other Smart Knobs at will.



Smart Knob

Using Key Switches

Key Switches are special MIDI notes or keys that are assigned to switch control values instead of triggering notes. For example, they can switch between different Smart Knob settings for a Patch or mute certain parts within a patch.

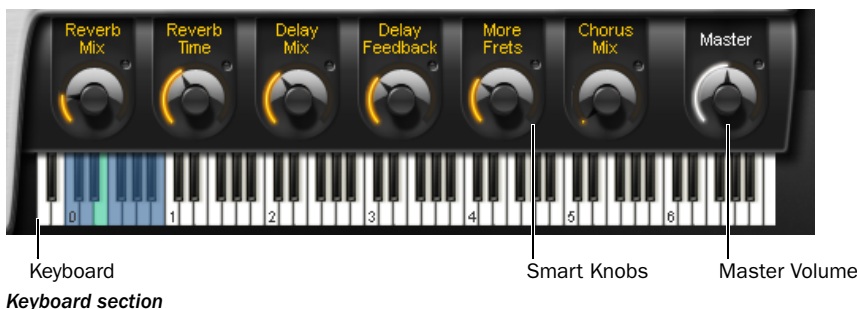
- 1 Load Patch 04 Electronic Drum Kit.patch, and play with it on your keyboard.
- 2 The different Effects in this specific Patch are not audible initially. Their Smart Knobs are assigned to Key Switches so you can mix them in by just clicking or playing a Key Switch. All available Key Switches appear blue on the screen keyboard. The currently activated Key Switch is green. After activating a Key Switch, a short description is shown in the multi-purpose display. A Key Switch does not trigger samples that are mapped in the corresponding key range.
- 3 Click the second Key Switch C#0, or play the corresponding key to add dirt to the kit's sound.



Key Switches

- 4 Try out the other Key Switches.
- 5 The synth pad patch has Key Switches too. Check them out!

Structure Free Parameters



Keyboard Section

The Keyboard section provides 88 keys for playing Structure Free, six Smart Knobs, and a context sensitive Info display, as well as the Master volume control for the whole plug-in. You can play and control Structure Free by clicking the keys, using MIDI input from a MIDI keyboard, or using MIDI data in an Instrument or MIDI track in Pro Tools. When Structure Free receives MIDI data, the keys reflect the MIDI note input.

Smart Knobs



Smart Knob

The Smart Knobs are special controls which can be assigned to one or more Structure Free parameters in the currently selected patch. These parameters can then be remote controlled at the same time by moving the Smart Knob. This comes in handy for easily designing complex sounds or quickly adjusting a patch to suit your session in terms of feel, timbre, enveloping, or any other sensible sound shaping parameter. In

Structure Free's factory content, each patch has Smart Knobs pre-assigned to important parameters. The Smart Knob can be named in the field above each knob.

Key Switches

Key Switches are special MIDI notes or keys that are assigned to controls and act as a switch. For example, they can switch between different Smart Knob settings for a patch.

Master (Output Volume)



Adjusting the Master output control

The Master control adjusts the volume of all Structure Free outputs to Pro Tools. All patches are mixed down to the Main output by default, and then output to the Instrument, Auxiliary Input, or Audio track on which Structure Free is inserted.

Info Display



Info display

The Info display above the Keyboard section is a context-sensitive text display. When you load something into Structure Free, it displays a progress bar. When loading a commented patch, it displays the Patch comment. When editing controls, it displays parameter name and value.

To display the control's current value:

- Click the control without moving the mouse.

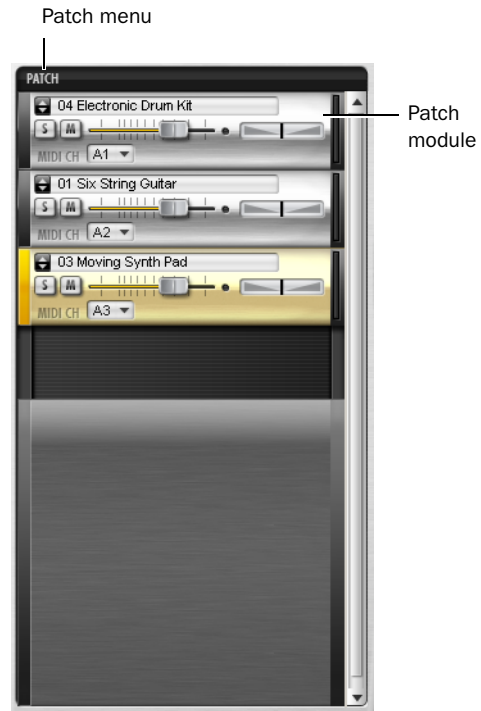
To edit the patch comment:

- 1 Select a patch.
- 2 Double-click into the Info display.
- 3 Type in your comment.
- 4 Press Enter.



The Display does not show parameter values of incoming automation, as multiple parameters in different patches could be changing simultaneously. Only values edited using the mouse are shown.

Patch List

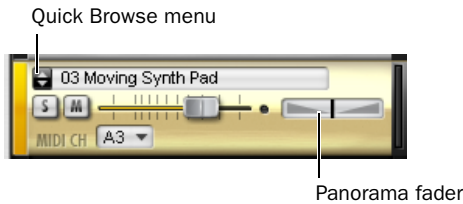


Patch list

In the Patch list on the left side of Structure Free, you can create, select, mix, MIDI-assign, route, and group patches.

Click a Patch module to select it for editing in the Parameter panel. The handle on the left of the selected patch is lit. When a patch is selected all of its parameters are displayed in the Parameter panel on the right and assorted into sub-pages.

Patch Module Controls



Patch module

Quick Browse Menu for Favorite Folders Gives quick access to the factory content folders and folders that have been added to the favorites. Click the double arrow to bring up the favorite folders menu from which you can directly select Structure Free Patches. See “Browser Page” on page 45 for more information on how to add a folder to your favorites.

Mute Button Mutes the patch.

Solo Button Solos the patch.

Volume Fader Adjusts the Patch volume.

Panorama Fader Adjusts the patch’s position in the stereo panorama.

MIDI Channel Selector Selects the channel on which the patch receives MIDI data.

Patch Menu

Load New Patch

The Load Patch entry brings up a dialog for selecting a patch that will be added below the currently selected patch in the Patch list.

Add Patch

The Add Patch submenu lets you add a new patch to the end of the Patch list. Like the Quick Browse Menu, it gives access to your Favorite folders for loading patches.

Duplicate Patch

The duplicate Patch entry adds an exact copy of the selected patch below it in the Patch list.

Remove Patch

The Remove Patch entry unloads the selected patch removing it from the Patch list.

Remove All Patches

The Remove All Patches entry clears the Patch list of all loaded patches. Click OK in the prompted security dialog if you really want to clear the whole Patch list.

Cut Patch

The Cut Patch entry copies the selected patch to the clipboard and removes it from the Patch list.

Copy Patch

The Copy Patch entry copies the selected patch to the clipboard.

Paste Patch

The Paste Patch entry inserts the copied patch on the clipboard at the end of the Patch list.

Paste Patch Parameter

The Paste Patch Parameter entry inserts only the parameter settings of the copied patch to the selected patch.

Automation Channel

Structure Free automatically assigns an automation channel to each patch, each of which provides automation for the most important Patch parameters like level, solo, mute, and Smart Knobs. In the Pro Tools plug-in automation dialog, the automatable parameters for each channel are distinguishable by the corresponding letter. For example, A Level for the Volume fader of the patch assigned to automation channel A. Automation channels are assigned subsequent to the patches in the Patch list by default. The currently selected patch's assignment is displayed in the Patch menu.

Find Missing Samples

If a loaded patch does not find its samples because folders have been renamed or moved to another location, you can use the Find Missing Samples file dialog to point Structure Free to the new location of the samples. Patches which are missing samples are indicated by a red exclamation mark symbol.



Missing samples

To find the missing samples for a patch:

- 1 Click the Patch menu and select Find Missing Samples from the menu.
- 2 In the following dialog, navigate to the new sample location and click OK.

Full Recursive Search Searches for missing samples in the specified folder and all its subfolders.

Copy Samples to Session Folder

If you have loaded patches from removable media like a CD, DVD, or over the network into Structure Free, a yellow exclamation mark symbol indicates the affected patches. Use the Copy Samples to Session Folder function to transfer the loaded samples to your computer's disk. After transferring the samples, Structure Free can load the concerned patches without requiring the source CD, DVD, or network folder.

Selected Patch copies the samples of the selected patch to disk.

All Patches copies the samples of all patches of the Structure Free instance to disk.

Session copies the samples of all patches of all Structure Free instances in your session to disk.

Loading Patches


You can load patches using the Patch menu or browser.

To load a patch from the menu:

- 1 Go to the Patch menu and click Load Patch.
- 2 In the following file dialog, locate and select a patch.
- 3 Click OK.

To load a patch from the browser:

- 1 Go to the Browser page.
- 2 Navigate to the desired folder.
- 3 Click and drag the patch file into the Patch list.

 *Patches can not be saved individually with Structure Free. The status of the plug-in can be saved as a Settings file or with the session only.*

Adding Additional Structure Free Patches

Additional factory patches for Structure Free can be downloaded from Digidesign's website (www.digidesign.com).

To access additional Structure Free patches through the Quick Browse Menu, you must manually add them to the "Structure QuickStart" folder.

To add Structure Free patches:

1 Download the Structure Free patches from the Digidesign website (www.digidesign.com). After downloading, make sure the patches are uncompressed.

2 Drag the uncompressed downloaded patches into the Structure QuickStart folder, located on your computer at the following location:

- Applications/Digidesign/Structure/Structure QuickStart (Mac)
- or –
- Applications/Digidesign/Structure/Structure QuickStart (Windows)

Main Page



A patch's parameters on Main page

After inserting Structure Free, the Main page is selected by default. Coming from the Browser page, click the Main tab to access the parameters for patches. The Main page provides easy access to all useful parameters like transposition and filter within two sub-pages. If a patch gets selected Structure Free switches automatically to the Main page.

To access the Edit sub-pages for the selected patch:

- Click the sub-page tabs in the Parameter panel.



Selecting the Edit 1 sub-page

Patch Edit Sub-Pages

Edit 1 Sub-Page

Octave Transposes the incoming MIDI notes for the patch in octave steps.

Semi Transposes the incoming MIDI notes for the patch in semitone steps.

Fine Tune Tunes the patch up and down in cents.

Pitch Bend Up Sets the upward pitch bend range for the patch in semitones.

Pitch Bend Down Sets the downward pitch bend range for the patch in semitones.

Max Polyphony Sets the maximum number of voices available for the patch.

Key Range Sets the key range in which the patch plays. You can define the upper and lower borders and a transition.

FX Send On Activates the Effect Send for the patch.

FX Send Level Adjusts the level sent from the patch to the Effect Send.

Edit 2 Sub-Page

Filter Section

Filter Type Selects a filter type.

Cutoff Adjusts the filter cutoff frequency.

Envelope Level Adjusts how strongly the filter envelope modulates filter cutoff.

Filter Envelope Section

Attack Sets the time needed for the filter envelope to reach its maximum value.

Hold Adjusts the length of the Filter envelope's Hold time.

Decay Adjusts the time for the filter envelope needed to fall from hold level to sustain level.

Sustain Adjusts the level of the sustain segment. The envelope's signal remains on this level as long as the note is held.

Release Adjusts the time for the envelope's release segment to fall to zero when the note is released. Use shorter times for an immediate closing of the filter. Longer times cause the filter cutoff to decay slowly.

Amplifier Section

Vel Sens (Velocity Sensitivity) Adjusts the envelope velocity sensitivity (range in dB between lowest and highest velocity).

Amp Envelope Section

Attack Softens the attack phase of Instruments by applying an amplitude envelope to the start of each Instrument hit. Move the control to the right to increase the time needed for the attack to rise to full amplitude.

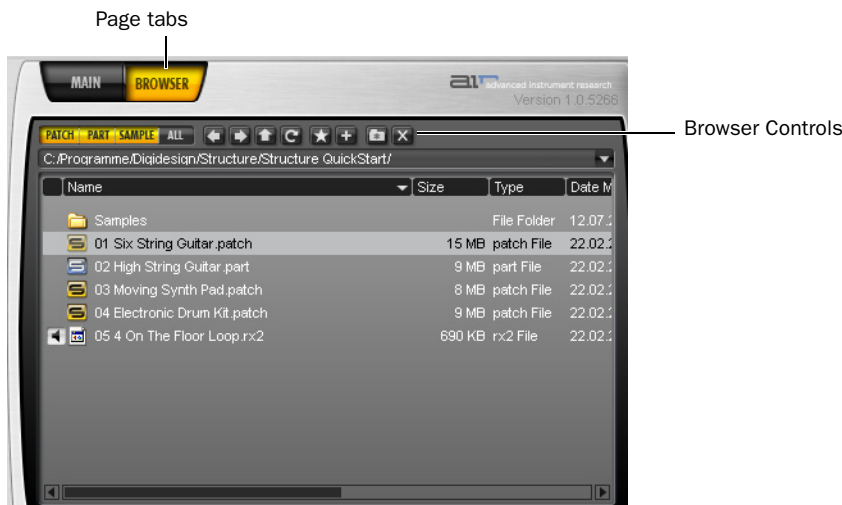
Hold Adjusts the length of the Amp envelope's Hold time at the end of the attack phase.

Decay Shortens the played instrument hits by applying an amplitude decay after the hold time.

Sustain Adjusts the level of the sustain segment. The envelope's signal remains at this level as long as the note is held.

Release Adjusts the time for the release segment to fall to zero when the note is released. Use shorter times for an immediate stop of the sound. Longer times cause the sound to fade out.

Browser Page



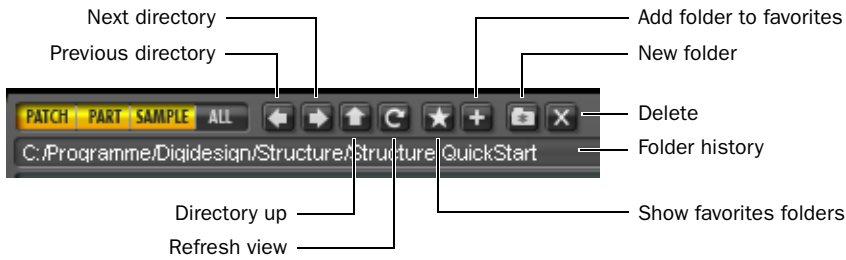
Browser page

The Browser lets you search and display the local file system. Patches can comfortably be loaded from here using drag and drop. The Browser is not supposed to be a file manager. Modifying operations like copying, moving, or deleting are not available.

Common operations in the Browser:

- Drag a patch into the Patch list to load it.
- Drag a patch onto another in the Patch list to replace it at the same position using the previous settings for MIDI input, Individual output, and Automation channel.
- Drag one or more audio files into the Patch list to load; a new patch is created.

Browser Controls



Browser controls

Patch Activates the displaying of only patches.

Parts Activates the displaying of only parts.

Sample Activates the displaying of only samples.

Show All Activates the displaying of all file types.

Previous Directory Navigates to the previous folder.

Next Directory Navigates to the next folder.

Directory Up Navigates one folder level up.

Show Favorites Shows your Favorite folders.

Add to Favorites Adds the selected folder to your Favorite folders (accessible through the up and down arrows in the patch module).

New Folder Creates a new folder.

Delete Deletes the selected file or folder.

Folder History Shows the 20 last selected folders.

Chapter 8: Vacuum

Introduction

Vacuum is a virtual analog monophonic synthesizer plug-in, with a focus on creating rich timbres with a lot of sonic control. Employing a new Vacuum Tube Synthesis method, extensive modulation routings, and a unique age-simulation section, Vacuum both invites comparison to classic synths, and has a character all its own.

Operating Vacuum

Vacuum's is styled after classic monosynths, with one control per parameter, and no menus. By getting a feel for the various sections within the interface, you'll soon be creating innovative new sounds.

See Chapter 3, "Quick Start," for instructions on how to set up and use an instrument plug-in in a Pro Tools Session.



Vacuum plug-in window, main controls and sections

VTO One and Two

Vacuum features two VTOs (Vacuum Tube Oscillators). These modules are where Vacuum’s sound originates from, before it goes through the rest of the processing chain.

Each VTO has its own set of controls, labelled “VTO One” and “VTO Two.”



VTO controls

Range Sets the octave at which the current VTO plays. This is helpful when creating sounds where the two oscillators must play an octave or more apart, and also for easily changing the range a sequence is playing in after the MIDI note data has already been recorded.

Each Range knob also has a special setting. The “Wide” setting for VTO 1 changes its Fine knob into a wide-ranging pitch control that is continuously variable up or down as many as 5 octaves. The “Lo” setting changes VTO 2 into an LFO (low-frequency oscillator). In this mode, its pitch is too low to be heard, but instead, it can be routed using the Modulation Routing section to modulate other parameters in the synth.

Fine Continuously varies the current VTO pitch up or down as much as 7 semitones. Subtle changes can create thick, detuned sounds. Larger amounts can create intervallic splits between the two VTOs, for chordal effects.


Shape Continuously morphs the current VTO oscillation between several types of wave shapes.

Wave Shape	Description
Tri	Generates a Triangle wave, with a mellow, yet slightly edgy sound. This is the first option for VTO 1 Shape control.
Noise	Generates random white noise. This is the first option for VTO 2 Shape control.
Saw	Generates a Sawtooth wave, which is brighter than Tri, and rich in even harmonics.
PW50–PW0	Generates a Pulse wave, which can be swept through a continuum between a standard, 50% on, 50% off wave and a thinner, more modulated type. Pulse wave sounds are rich in odd harmonics, with a “reedy” character.

Env 1 to Shape Controls the modulation of the current VTO wave shape by Envelope 1.

As one of the Env knobs is moved to the right, more and more modulation occurs, offsetting the value of the Shape control upward when a MIDI note is received, then down, following the envelope over time.

As the control is moved left of center, the same occurs, only the modulation is negative instead of positive, so the effect is inverted.

 Clicking the missing Drive knob will create a new patch at random.

Mixer

The Vacuum Mixer is where the signals from the two oscillators are mixed together, their levels balanced relative to one another. Also, an effect called Ring Modulation can be added, and Drive can be applied to the sum of both signals.



Mixer section

VTO 1 and VTO 2 Sets the relative volume of the two oscillators. One (or even both) oscillators can be reduced to silence, if needed.

Drive Adds a variable amount of distortion to the mixed signal.

Ringmod Adds a variable amount of the VTO 1 and VTO 2 signals, multiplied together. This is called Ring Modulation, and can create interesting metallic or abrasive effects.

Filters

Vacuum features two separate filters, one a high-pass filter (HPF), the other a low-pass filter (LPF). The sound of each filter is affected by volume of incoming oscillator signals. Lower mixer levels give the filters a clean response and a sharper resonant peak. Increasing mixer gain can overdrive the filters, adding character and de-emphasizing resonance.

Each filter has its own set of controls.



HPF controls

Cutoff Sets the frequency at which the given filter begins to “cut off” part of the signal’s frequency spectrum. In the HPF, frequencies below the chosen frequency are affected. In the LPF, frequencies above the chosen frequency are affected.

Slope Sets the curve of the filter slope. At higher settings, the slope is steeper, and more of the spectrum is cut off. At lower Settings, the slope is more shallow, and more of the spectrum is allowed to pass.

Reso Affects the filter resonance, which is the amount of signal fed back into the filter circuit around the chosen frequency. At higher values, a pronounced peak is created, which can range from a subtle “edge,” all the way to a sine-wave-like tone. At lower values, the filter simply cuts off the specified frequencies.

Env 1 Controls the amount that the filter cutoff frequency is modulated by Envelope 1. At its center, no modulation occurs.

As the control is moved to the right, more and more modulation occurs, moving the cutoff frequency up when a MIDI note is received, then down, following the envelope's movement over time.

When the control is moved left of center, the same occurs, only the modulation is negative instead of positive, so the envelope's effect is inverted.

Key Trk Sets the amount that the currently playing MIDI note's pitch affects the filter's cutoff frequency. At zero, there is no effect. At 100%, the frequency moves in direct relationship with the keys played.

This is most apparent with high Res values, as the tone created may be made to move in tandem, harmonically, with the notes that are played, thus acting almost as an additional oscillator, with interesting sonic possibilities.

Sat Adds saturation to the resonant feedback loop, changing the tonal quality of the current filter from soft to aggressive and distorted.

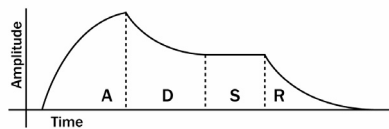
Envelopes

Vacuum has two modulation envelopes. By default, Env One modulates each filter's cutoff frequency over time, and Env Two is used to do the same to the amplitude of Vacuum's output. The envelopes can modulate other parameters, as well. See "Modulation Routing" on page 51. for more information.



Env One controls

Vacuum's modulation envelopes have four main controls, A (Attack), D (Decay), S (Sustain) and R (Release).



Example Modulation Envelope

Attack The amount of time it takes for the envelope's modulation to reach its highest point when a MIDI note is received.

Decay The amount of time it takes for the envelope's modulation to move from the top of the Attack phase to the level set by the Sustain control.

Sustain The level at which the envelope stops while the current MIDI note is held. At zero, the envelope drops to zero by the end of the decay period, whether the note is held or not. At 100%, the envelope holds at its highest point until the note is released.

Release The amount of time it takes for the envelope's modulation to drop back to zero after a note is released. This control has no effect when sustain is at zero.

Vel Varies the effect that incoming MIDI note velocity has on the envelope's destination(s) (by default Filter Cutoff for Env One and overall volume for Env Two). All the way to the left, no change in modulation occurs.

As the Vel control is moved to the right, more and more modulation occurs relative to incoming note velocity.

Modulation Routing

The Modulation Routing section gives you the ability to go beyond the default modulation routings, and get deeper into designing sounds.

There are two modulation paths, each with three controls.



Modulation Routing controls

Source Sets what signal is used to modulate the chosen parameter. The choices are:

Source	Description
Env 1	Envelope 1 modulation signal
Env 2	Envelope 2 modulation signal
VTO 1	Oscillator 1 signal
VTO 2	Oscillator 2 signal

Source	Description
LFO	The LFO controlled in the Pitch and Mod Wheel section's signal
LFO X MW	The LFO controlled in the Pitch and Mod Wheel section's signal, attenuated by the Mod wheel
MW	The position of the Mod wheel
AT	The amount of Aftertouch, if supported by your MIDI controller

Destination Sets which parameter is modulated. The choices are:

Destination	Description
Pitch	Pitch of both oscillators
VTO 1 Wave	Oscillator 2 wave shape
VTO 2 Pitch	Oscillator 2 pitch parameter
VT HPF	High-pass filter cutoff frequency
VT LPF	Low-pass filter cutoff frequency

Depth Sets the amount of modulation that occurs. At its center, no modulation will occur. To the right, modulation increases, and to the left, modulation also increases, but with reversed polarity.

Age

The Age section lets you explore the tonal effects of aging internal circuitry and years of dust and dirt.



Age controls

Drift Adds a variable amount of pitch drift to the oscillators. At mild settings, the sound is thickened slightly. At more extreme settings, the sound becomes more detuned and unpredictable, like a poorly-maintained analog synthesizer.

Dust Adds glitches and noise to the signal, emulating the worn and dusty contacts often found on older synths.

VTA

The VTA (Vacuum Tube Amplifier) section acts as the master volume control for Vacuum, and is the final place where saturation and distortion can be introduced to the signal.



VTA controls

Vol Sets the overall volume.

Shape Adds a variable amount of tube saturation to the final output signal.

Arp

The Arp section controls the Arpeggiator: a feature that creates rhythmic arpeggios when one or more MIDI notes are played and held down.



Arpeggiator controls

On/Off Turns the arpeggiator on and off.

Speed Sets the speed of the arpeggio in rhythmic values that are synchronized to the session tempo.

Speed	Description
1/4	Quarter notes
1/8	Eighth notes
1/16	Sixteenth notes
1/32	Thirty-second notes

In between each setting, there are two unlabeled settings for triplet and dotted rhythms. Experiment with different settings until you find the rhythm you want.

Mode Sets the direction of the arpeggiator.

Mode	Description
Up	The arpeggio moves up from the lowest note held. Once all notes have been played, the pattern repeats.
Down	The arpeggio moves down from the highest note held. Once all notes have been played, the pattern repeats.
U&D	The arpeggio moves up from the lowest note held. When the highest note is reached, the arpeggiator runs in reverse, moving down. Once the lowest note is reached, the pattern repeats.
RND	The arpeggiator will play through the held notes, randomly.

Pitch and Mod Wheel Controls

Pitch and Modulation wheels are the most common controllers on almost any electronic keyboard. The pitch wheel shifts the pitch up or down a specified amount, for pitch-bending effects.

The modulation wheel is traditionally used as an expressive tool. In most cases, it controls the modulation of one or more parameters using an LFO (low frequency oscillator).



Pitch and Mod Wheel controls

Pch and Mod Onscreen wheels move along with incoming pitch bend and modulation MIDI messages. They can also be clicked and dragged like other controls.

Dest Sets what parameter is modulated when the Mod wheel is moved upward.

Dest	Description
Off	No modulation occurs
Vib	Pitch is modulated, creating a vibrato effect
Wah	LPF cutoff frequency is modulated, creating a wah-wah effect
Trem	Overall volume is modulated, creating a tremolo effect

Rate Sets the modulation speed from 0.01–20 Hz.

Setup Page



Setup button

Click the Setup button to view the Setup page. The Setup page provides three controls that affect Vacuum's behavior.

Glide

The Time control sets the amount of slewing (or Portamento) applied to the pitch of the VTOs. When set to 0s, the VTOs will play as normal. When set to a higher setting, the VTOs will take the number of seconds chosen to glide up or down to the next note played.

The Mode menu provides the following options:

Off No Glide.

Held Only apply glide when more than one note is held at once.

On apply glide to every note.

Pitch Bend Range

This sets the range of the Pitch wheel, in semitones.

Envelope Retrigger

When set to On, each note played in a legato phrase will retrigger the actions of Vacuum's envelopes. When set to Off, legato notes will not retrigger the envelopes until all notes are released and a new note is struck.

Chapter 9: Xpand!2

Introduction

Xpand!2 is a virtual workstation synthesizer featuring a broad range of sound generation possibilities including multi-sampled instruments as well as FM, wavetable, and virtual analog synthesis.

Getting started with Xpand!2 is easy, especially if you are already familiar with virtual instruments or hardware workstations.

Xpand!2 is multi-timbral, providing four synthesizer slots, each with individual MIDI channel, Mix, Arpeggiator, Modulation and Effects settings. A slot can hold one of 1200 synthesizer presets, called *Parts*.

The settings of all four slots and their respective Parts can be saved as a single *Patch*. Xpand!2 comes with a set of over 2300 Patches, created by renowned sound designers. Browse through these Patches to get an impression of the versatility of Xpand!2.

💡 *Patch is another name for the plug-in settings. Refer to the Pro Tools Reference Guide for information on working with RTAS plug-ins.*

📖 *See Chapter 3, “Quick Start.” for details on how to set up Xpand!2 in a Pro Tools session, and assign MIDI controllers to controls in Xpand!2.*



Xpand!2 plug-in window, main controls and sections

Smart Knobs



The upper section of Xpand!² provides 6 controls called Smart Knobs. These are intended for adapting a preset Part or Patch to your session in terms of feel, timbre, envelope, and other settings.

The Smart Knobs are intelligently pre-assigned to important parameters by professional sound designers to make working with Xpand!² as easy as possible.

The Part selector switches (A, B, C, or D) give access to the Smart Knob parameters for the selected part.

The Easy button switches the Smart Knobs to Easy mode. In Easy mode, the Smart Knobs can address a group of Parts that are all assigned to a single MIDI channel. Specify the chosen MIDI channel in the pop-up menu that appears to the right of the part selectors.

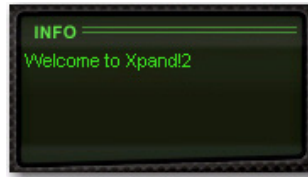
The assigned parameter is displayed in a light green field below each knob.

Level (Master Volume)



To the right of the Smart Knob section there is a master Volume control. A meter to the right of the level knob shows the overall output level.

Smart Display



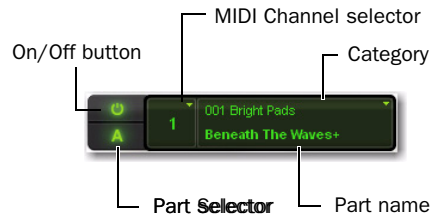
The Smart display is a context-sensitive text display. When you select a Patch or Part, it displays descriptive text about the selected item.

Part Controls

Each Part has a set of controls that address loading patches, the Part's place in the mix, and its MIDI channel.

On the right, there is a display that can show three sets of Patch Edit parameters, including advanced MIDI settings, Arpeggiator controls, and Modulation controls.

Primary Parameters



Activate or deactivate the Part by clicking its On/Off button. When the Part is activated the Part character in its center is lit.

Click the Part selector switch to select the Part, so that its Smart Knobs are displayed.

To choose the MIDI channel that the current part responds to, click the MIDI Channel Selector and select the channel from the pop-up menu.

To load a Part into the slot, click the Part Name field and select a Part from the pop-up menu.

Level



Move the slider to set the Part volume level, increasing volume to the right and decreasing to the left. The meter above shows the slot's audio output.

Pan (Panning)



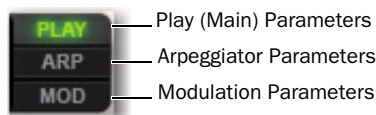
Move to the right or left to set the Part's position in the stereo field.

FX1 & FX2



The FX1 and FX2 knobs control the current Part's send amount to the effects processors FX1 and FX2.

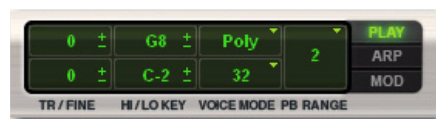
Patch Edit Parameter Switches



The Patch Edit parameter switches give access to additional sets of controls where you can edit the current patch in more detail. Click one of the three buttons to display the respective parameters.

Button	Controls
Play	Mixer, Panning, FX Sends, MIDI
Arp	Arpeggiator Settings
Mod	Modulation Settings

Play (Main) Parameters



The Play controls let you set basic parameters for the current part, including pitch transposition, keyboard splits, voicing behavior, and pitch bend range.

Tr/Fine

The Tr/Fine (Transpose/Fine Tune) section includes two different controls for transposing incoming MIDI notes. The Semitone control (the upper control) transposes incoming notes up or down in semitones. For finer control, use the Cents control (the lower control), which transposes notes up or down in cents.

Click the control and drag up or down to increase or decrease its value.

Hi/Lo Key

Use the Hi/Lo Key controls to assign Parts to different keyboard ranges. This can be useful for splitting your keyboard across different Parts. For example, Part A holding a bass sound could be assigned C-1 to B2 and Part 2 your synth lead assigned C3 to G8.

To assign a Part to a certain key range do the following:

- Click the Upper/Lower key range limit control and drag up or down to increase or decrease its value.

-or-

- Do the following:
 - Right-click the control and choose Learn.
 - Then press the appropriate key on your MIDI keyboard.

Voice Mode

The Voice Mode section controls the voice behavior of each Part. The Mono/Poly selector (the upper control) chooses between Monophonic (one note playable at a time) and Polyphonic (more than one note playable at a time) modes.

The lower control's function is different in each mode. In Mono mode, it selects the key priority (Last, First, High, Low), which defines which note is played when more than one note is played at once. In Poly mode, it selects how many notes of polyphony are available (1–64).

PB Range

Use the PB Range control to select how many semitones the given Part can be bent up or down by pitch bend controller data.

Mod (Modulation) Parameters



The Mod parameters let you easily create sophisticated modulation settings for shaping a Part. Modulation wheel and pressure (aftertouch) can be used as modulation sources.

Normally, the modulation wheel provides a periodically repeating modulation such as vibrato, and aftertouch provides a static offset to the selected destination such as volume or filter swells.

Many Xpand!² Patches and Parts have pre-assigned settings for modulation wheel and aftertouch. With the following controls you can adapt them or create your own.

Modulation Wheel Controls

Shape and Destination



Select the waveform shape for the modulation from the upper pop-up menu—an LFO waveform used to modulate the selected destination. For most waveforms there is a choice of a freely adjustable and a tempo-synchronized setting (Sync), except for “Const” and “Random.” If the pop-up is set to Const the movements of the modulation wheel will directly modulate the destination without a time varying waveform.

Select a destination for the modulation by your MIDI keyboard's modulation wheel from the lower pop-up menu:


Destination	Description
Pitch	Affects the Part's pitch.
Wave	Changes the sound in different ways, depending on the selected Part. For example, shaping waveforms, FM modulation depth, sample start point offset, detuning.
Filter	Affects the Part's filter cutoff frequency.
Volume	Affects the Part's volume level.
Pan	Affects the Part's position in the stereo field.

Rate

Move this knob to set the speed or rate of the modulation wheel's modulation. When using a synchronized shape (such as Saw Sync), the Rate control sets the speed in fixed, tempo synchronized steps. When using other shapes (such as Sine, Tri, and Saw), the LFO speed is freely adjustable.

Depth

This knob sets the strength or amount of how much the signal is affected by the modulation. Depth is a bipolar control, which means that it can be set to positive or negative values.

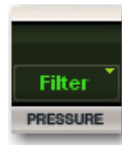
 For example, with the modulation wheel's shape set to Const and destination to Pan, moving the mod wheel up makes the signal go to the left (negative Depth value) or to the right (positive Depth value).

Pressure Controls

Many MIDI keyboards provide pressure (also called aftertouch) to generate a MIDI control signal which depends on how hard you press down held keys after the initial "note on."

With Xpand!2 you can use this control signal to modulate a number of useful controls.

Destination



Select a destination for the modulation using aftertouch from the pop-up menu:

Destination	Description
Pitch	Affects the Part's pitch.
Wave	Changes the sound in different ways, depending on the selected Part. For example, shaping waveforms, FM modulation depth, sample start point offset, detuning.
Filter	Affects the Part's filter cutoff frequency.
Volume	Affects the Part's volume level.

Depth

This knob sets how much the signal is affected by the pressure control signal. Depth is a bipolar control, which means that it can be set to positive and negative values.

💡 *For example, with destination set to Filter, applying aftertouch increases (positive Depth value) or decreases (negative Depth value) the filter cutoff frequency.*

Arp (Arpeggiator) Parameters



The arpeggiator automatically triggers the notes that are played simultaneously in pre-defined rhythmical patterns. Each Part has its own Arpeggiator.

Some Parts, such as Action Pads and Loops, automatically switch on the Arpeggiator as it forms an integral part of their sound.

On

Click this button to activate or deactivate the Arpeggiator. The Arpeggiator will trigger the input notes in the selected pattern as long as the notes are held. When the Arpeggiator is activated the button is lit.

Latch

Click the Latch button to activate Latch mode playback. In this mode, the Part's Arpeggiator will continue to play after releasing keys until playback is stopped. Released keys are only removed from the arpeggio when new keys are pressed. When Latch mode is activated, the button is lit.

💡 *When the Arpeggiator is switched on, the Sustain pedal acts as a temporary Latch switch, overriding the displayed setting.*

Mode

Click the Mode display to select an Arpeggiator mode from the appearing pop-up menu. An Arpeggiator Mode is a pre-defined rhythmic pattern that the Arpeggiator uses to trigger held notes.

Rate

Click the Rate display to select the Arpeggiator's Rate (or speed) from the list. For example "1" stands for a whole note and "32" stands for a 32nd note. Dotted and triplet timing are indicated by an asterisk (*) or "T" respectively.

FX (Effects) Parameters



Xpand!² provides two FX (effects). Send controls for each Part are located on the Mix and FX pages.

On/Off



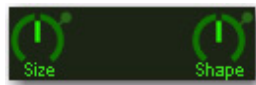
Click the button to activate or deactivate the effect. The button is lit when the effect is activated.

Type



Click the FX type display to select an effect from the pop-up menu.

Parameters 1 & 2

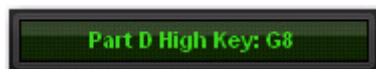


Edit the selected effect by two parameters. The parameters are varying and depend on the type of effect.

To FX2 (FX2 Send to FX1)

This control lets you send a percentage of the FX2 output signal into FX1, instead of directly to the output. At 0%, no signal is sent to FX1. At 100%, all of the FX2 output signal is sent to FX1. This is useful for cascading a delay effect into a reverb for a more ambient effect, for example.

Info Display



Info display

Like all instruments in the Creative Collection, Xpand!² has an Info display that shows the setting of the currently selected control.

Part III: Effects

Chapter 10: Effects

Overview

Pro Tools Creative Collection comes with a wide variety of effects plug-ins:

- Chorus
- Distortion
- Dynamic Delay
- Enhancer
- Ensemble
- Filter Gate
- Flanger
- Frequency Shifter
- Fuzz-Wah
- Kill EQ
- Lo-Fi
- Multi Chorus
- Multi-Tap Delay
- Non-Linear Reverb
- Phaser
- Reverb
- Spring Reverb
- Stereo Width
- Talkbox
- Vintage Filter

This chapter covers each of these plug-ins and their various controls and functions.



See the Pro Tools Reference Guide for information on using plug-in effect controls.

Chorus

Use the Chorus plug-in to apply a short modulated delay to give depth and space to the audio signal.



Figure 1. Chorus plug-in window

Rate

This controls sets the rate for the oscillation of the LFO in Hertz.

Depth

This control sets the depth of LFO modulation of the audio signal.

Chorus Section

Feedback Sets the Feedback amount.

Pre-Delay Delays the chorused signal, in milliseconds.

LFO Section

The LFO section's controls let you select the waveform, phase, rate, and depth of modulation.

Waveform Selects either a Sine wave or a Triangle wave for the LFO.

L/R Phase Sets the relative phase of the LFO's modulation in the left and right channels.

Mix

This control adjusts the Mix between the “wet” (processed) and “dry” (unprocessed) signal. 0% is all dry, and 100% is all wet, while 50% is an equal mix of both.

Distortion

Use the Distortion plug-in to color the audio signal with various types and varying amounts of distortion.



Figure 2. Distortion plug-in window

Drive

The Drive control lets you increase the drive (input volume) of the signal from 0 dB (no distortion) to 60 dB (way too much distortion!) Sometimes an increase or decrease of just 1 or 2 decibels can make a big difference on the amount and quality of distortion.

Output

The Output control lets you lower the Output level of the distorted signal from 0–100%. At 0%, no distorted signal passes through the output. At 100%, the distorted signal passes through the output at full volume.

Tone Section

The Tone controls let you shape the timbral quality of the distortion.

Pre-Shape

The Pre-Shape control lets you increase or decrease a broad gain boost (or attenuation) of treble frequencies in the processed signal. Pre-Shape is essentially a pre-distortion tone control that makes the distortion bite at different frequencies.

Set to 0%, the Pre-Shape control doesn't affect the tone at all. Higher settings provide a boost in the high end of the distorted signal (more treble distortion), while lower settings suppress the high end, with some mid-range boost, for a darker less distorted tone.

High Cut

The High Cut control lets you adjust the frequency for the High Cut filter. To attenuate the high-end of the processed signal, lower the frequency.

Clipping Section

DC Bias

The DC Bias control lets you change clipping from being symmetrical to being asymmetrical, which makes it sound richer, and nastier at high settings. The difference is most noticeable at lower Drive settings.

Threshold

The Threshold control lets you adjust the headroom for the dynamic range of the distorted signal between -20.0 dBFS and 0.0 dBFS. Rather than using the Drive to adjust the signal level relative to a fixed clipping level, use the Headroom control to adjust the clipping level without changing the signal level.

Stereo

When Stereo is enabled, the left and right channels of the incoming stereo signal are processed separately. When it is disabled, the incoming stereo signal is summed and processed as mono. The Stereo button is lit when it is enabled.

Mode

Select one of the following options for the Distortion Mode:

Hard Provides a sharp, immediate distortion of the signal.

Soft Provides a softer, more gradual distortion of the signal.

Warp Wraps the waveform back on itself for a complex distortion tone that changes quickly from soft to harsh.

Mix

The Mix control lets you balance the amount of dry signal with the amount of wet (distorted) signal. At 50%, there are equal amounts of dry and wet signal. At 0%, the output is all dry and at 100% it is all wet.

The Mix control can be used in conjunction with the Output control to find just the right balance of the distorted signal with the input (dry) signal. For example, with Mix set to 50%, equal amounts of the dry and wet signal pass to the output. You can then lower the Output control to decrease the amount of distorted signal being passed to the output until you get exactly the right mix between the two signals, and just the right overall level.

Dynamic Delay

Use the Dynamic Delay Plug-in for a delay line that can synchronize to the Pro Tools session tempo and be modulated by an Envelope follower.



Figure 3. Dynamic Delay plug-in window

Sync

When Sync is enabled, the delay time synchronizes to the Pro Tools session tempo. When Sync is disabled, you can set the delay time in milliseconds independently of the Pro Tools session tempo. The Sync button is lit when it is enabled.

Delay

When Sync is enabled, the Delay control lets you select a rhythmic subdivision or multiple of the beat (based on the Pro Tools session tempo) for the delay time.

Select from the following rhythmic values:

- 16 (sixteenth note)
- 8T (eighth-note triplet)
- 16D (dotted sixteenth-note)
- 8 (eighth note)
- 4T (quarter-note triplet)
- 8D (dotted eighth-note)
- 4 (quarter note)
- 2T (half-note triplet)
- 4D (dotted quarter-note)
- 2 (half note)
- 1T (whole-note triplet)
- 3/4 (dotted half note)
- 4/4 (whole note)
- 5/4 (five tied quarter notes)
- 6/4 (dotted whole note)
- 7/4 (seven tied quarter notes)
- 8/4 (double whole note)

When Sync is disabled, the Time control lets you set the delay time in milliseconds and seconds (1 ms to 4.00 seconds).

Feedback

The Feedback control lets you adjust the amount of delay feedback. At 0% the delayed signal repeats only once. As you increase the feedback, the number of times the delay repeats increases. At 100%, the delay doesn't repeat indefinitely, but it does last a very long time!

Note that each Delay mode produces a different feedback pattern, especially when the L/R Ratio control is not centred.

Delay Section

L/R Ratio

The Left/Right Ratio control lets you set the ratio of left to right delay times. Move the control all the way to the left (50:100) and the left channel delay time is half the right channel delay time. Move the control all the way to the right (100:50) the right channel delay time is half the left channel delay time.

Stereo Width

The Stereo Width control lets you adjust the width of the delay effect in the stereo field.

EQ Section

Low Cut

The Low Cut control lets you adjust the frequency for the Low Cut filter. For less bass, raise the frequency.

High Cut

The High Cut control lets you adjust the frequency for the High Cut filter. For less treble, lower the frequency.

Env Mod (Envelope Modulation) Section

The Dynamic Delay plug-in provides an Envelope follower that can control various parameters in real time.

Rate

Adjust the Rate control to determine how quickly the Feedback and Mix parameters respond to input from the Envelope follower.

Fbk

Adjust the Feedback control to determine how much the Envelope follower affects the Feedback amount.

Mix

Adjust the Mix control to determine how much the Envelope follower affects the wet/dry mix.

- ◆ At 0%, the Envelope follower has no effect on the given parameter.

- ◆ At +100%, the parameter's value is increased in direct proportion to the incoming signal's amplitude envelope.

At -100%, the parameter's value is decreased in direct proportion to the incoming signal's amplitude envelope.

Feedback Mode

Select one of the following options for the Feedback Mode:

Mono Sums the incoming stereo signal to mono, then offers separate left and right delay output taps from that signal.

Stereo Processes the left and right channels of the incoming stereo signal independently and outputs the processed signal on the corresponding left and right channels.

Cross Processes the left and right channels of the incoming stereo signal independently, and feeds the each side's delayed signal back to the opposite channel.

Mix

The Mix control lets you balance the amount of dry signal with the amount of wet (delayed) signal. At 50%, there are equal amounts of dry and wet signal. At 0%, the output is all dry and at 100% it is all wet.

Enhancer

Use the Enhancer plug-in to enhance the low and high broadband frequencies of the audio signal.



Figure 4. Enhancer plug-in window

High Gain

Adjust the High Gain control to boost the high end.

Low Gain

Adjust the Low Gain control to boost the low end.

Tune Section

The Tune controls let you set the center frequency for low and high-end enhancement.

Low

Adjust the Low control to set the center frequency for the bass boost.

High

Adjust the High control to set the center frequency for the treble boost.

Harmonic Generation Section

The Harmonic Generation controls let you generate additional high-frequency harmonics, which can brighten up dull signals.

Depth

Adjust the Depth control to generate additional high frequency harmonics in the signal (0.0–12.0 dB).

Phase

Toggle the Phase control to change the polarity of the generated harmonics, changing their phase relationship with the dry signal.

Output

The Output control lets you lower the Output level from 0.0 dB to $-\infty$ dB.

Ensemble

Use the Ensemble plug-in to apply fluid, shimmering modulation effects to the audio signal.



Figure 5. Ensemble plug-in window

Rate

The Rate control changes the frequency of the modulating LFO (0.01–10.0 Hz).

Depth

The Depth control lets you adjust the amount of modulation applied to the Delay time.

Modulation Section

The Modulation controls let you adjust and/or randomize the delay time.

Delay

The Delay control lets you adjust the Delay time.

Shimmer

The Shimmer control lets you randomize the Delay time, adding texture to the effect.

Stereo Width

The Stereo Width control lets you widen or narrow the effect's stereo field.

Mix

The Mix control lets you balance the amount of dry signal with the amount of wet signal. At 50%, there are equal amounts of dry and wet signal. At 0%, the output is all dry and at 100% it is all wet.

Filter Gate

Use the Filter Gate effect to chop up the audio signal into *staccato* rhythmic patterns with variable filtering, amplitude, and panning.



Figure 6. Filter Gate plug-in window

Pattern

The Pattern control let you select from a number of preset rhythmic patterns that the gate will follow.

Gate Section

The Gate controls let you adjust the Attack, Hold, and Release amounts for the Gater step sequencer pattern. At the maximum settings, the gating provides a smooth morphing effect.

Attack

The Attack control lets you adjust the duration of the attack as a percentage of the step duration.

Hold

The hold control lets you adjust the duration of the hold (or sustain) as a percentage of the step duration.

Release

The Release control lets you adjust the duration of the release as a percentage of the step duration.

Filter Section

The Filter controls provide controls for the selected filter type.

Mode

The Filter Mode selector lets you select the type of Filter.

Off Provides no filtering.

LP Provides a Low Pass filter.

BP Provides a Band Pass filter.

HP Provides a High Pass filter.

Phaser Provides a Phaser.

Cutoff

The Cutoff control lets you adjust the Filter Cutoff frequency.

Res

The Res control lets you adjust the Resonance at the Cutoff frequency.

Modulation Section

Env

The Env control lets you adjust how much an Envelope Follower affects the Cutoff frequency. Note that the Cutoff is fixed for the duration of each step, so it will not respond to a peak in the envelope until the start of the next step.

LFO Mod

The LFO Mod control lets you adjust the amount of LFO modulation of the Cutoff frequency.

LFO Steps Sets the duration of one cycle of the LFO to the selected number of steps. Changes to the Step Rate consequently affect the durations of cycles of the LFO. When set to Random mode, the level of the LFO changes randomly every step, for a “sample and hold” waveform.

Rate

The Rate selector lets you select the duration, or frequency of the Low Frequency Oscillator (LFO). The duration of one cycle of the LFO is measured in Steps.

Swing

The Swing control sets the amount of rhythmic swing applied to the chosen gating pattern.

Mix

The Mix control lets you adjust the Mix between the “wet” (filtered) and “dry” (unfiltered) signal. 0% is all dry, and 100% is all wet, while 50% is an equal mix of both.

Flanger

Use the Flanger plug-in to apply a short modulating delay to the audio signal.



Figure 7. Flanger plug-in window

Sync

When Sync is enabled, the Flanger Rate control synchronizes to the Pro Tools session tempo. When Sync is disabled, you can set the delay time in milliseconds independently of the Pro Tools session tempo. The Sync button is lit when it is enabled.

Rate

When Sync is enabled, the Rate control lets you select a rhythmic subdivision or multiple of the beat for the Flanger Modulation Rate. Select from the following rhythmic values:

- 16 (sixteenth note)
- 8T (eighth-note triplet)
- 16D (dotted sixteenth-note)
- 8 (eighth note)
- 4T (quarter-note triplet)
- 8D (dotted eighth-note)
- 4 (quarter note)
- 2T (half-note triplet)
- 4D (dotted quarter-note)
- 2 (half note)
- 1T (whole-note triplet)
- 3/4 (dotted half note)
- 4/4 (whole note)
- 5/4 (five tied quarter notes)
- 6/4 (dotted whole note)
- 8/4 (double whole note)

When Sync is disabled, the Rate control lets you the modulation rate in independently of the Pro Tools session tempo.

Depth

The Depth control lets you adjust the amount of modulation applied to the Delay time.

Pre-Delay

The Pre-Delay control sets the minimum delay time in milliseconds.

LFO Section

The LFO section provides controls for the Low Frequency Oscillator (LFO) used to modulate the Delay time.

Wave

The Wave control lets you interpolate between a triangle wave and a sine wave for the modulating LFO.

L/R Offset

The L/R Offset control lets you adjust the phase offset for the LFO waveform applied to the left and right channels.

Retrigger

Click the Retrigger button to reset the LFO phase. This lets you manually start the filter sweep from that specific point in time (or using automation, at a specific point in your arrangement). Clicking the Trig button also forces the Mix control up if it is too low while the button is held; this ensures that the sweep is audible.

EQ Section

The EQ section provides controls for cutting lows from the Flanger signal, and inverting phase.

Low Cut

The Low Cut control lets you adjust the Low Cut frequency for the Flanger, to limit the Flanger effects to higher frequencies.

Phase Invert

When Phase Invert is enabled, the wet signal's polarity is flipped, which changes the harmonic structure of the effect.

Feedback

The Feedback control lets you adjust the amount of delay feedback for the Flanger. At 0%, the delay repeats only once. At +/-100%, the Flanger feeds back on itself.

Mix

The Mix control lets you balance the amount of dry signal with the amount of wet (flanged) signal. At 50%, there are equal amounts of dry and wet signal. At 0%, the output is all dry and at 100% it is all wet.

The Mix control can be used to create an “infinite phaser” effect between the dry and shifted signals, which is always rising or always falling (depending on the direction of shift)

Frequency Shifter

Use the Frequency Shifter plug-in to shift the audio signal’s individual frequencies inharmonically, creating a unique effect.



Figure 8. Flanger Plug-in window

Freq

The Freq control sets the amount of frequency shifting.

Shifter Section

The Shifter section provides control over the direction of frequency shift, and feedback of the signal through the algorithm.

Mode

The Mode control sets the direction of the frequency shifting effect.

Up Shifts frequencies up.

Down Shifts frequencies down.

Up & Down Shifts frequencies equally up and down, and the two shifted signals are heard simultaneously.

Stereo Shifts the right channel frequencies up, and the left channel down.

Feedback

The Feedback control lets you run the signal through the pitch shifting algorithm multiple times, creating a cascading, layered effect.

Mix

The Mix control lets you balance the amount of dry signal with the amount of wet (pitch-shifted) signal. At 50%, there are equal amounts of dry and wet signal. At 0%, the output is all dry and at 100% it is all wet.

Fuzz-Wah

Use the Fuzz-Wah plug-in to color the audio signal with various types and varying amounts of transistor-like distortion.



Figure 9. Fuzz-Wah plug-in window

Fuzz

Click the Fuzz button to turn the distortion effect on and off.

Drive

The Drive control sets the level of gain in the Fuzz algorithm.

Mix

The Mix control lets you balance the amount of dry signal with the amount of wet (distorted) signal. At 50%, there are equal amounts of dry and wet signal. At 0%, the output is all dry and at 100% it is all wet.

Post Wah

The Post Wah control lets you place the Fuzz section before the Wah section, or vice versa.

Fuzz Section

The Fuzz section provides tonal and volume control over the plug-in.

Tone

The Tone control lets you change the brightness of the Fuzz algorithm.

Output

The Output control sets the overall output volume of the Fuzz section.

Pedal Min and Pedal Max Sections

Freq Sets the low (Pedal Min) and high (Pedal Max) limits of the wah filter's frequency sweep.

Res Sets the low (Pedal Min) and high (Pedal Max) limits of the wah filter's resonance.

Modulation Section

The Modulation section provides controls for the Low Frequency Oscillator (LFO) and Envelope Follower (ENV) that can be used to modulate the wah filter's sweep.

Rate

The Rate control sets either the LFO frequency, or the response time of the envelope follower, depending on the setting of the Mode control.

Type

The Type control lets you select either the LFO or the Envelope follower as the modulation source for the wah filter.

Depth

The Depth control sets the amount of modulation sent by the LFO or envelope follower.

Wah

Click the Wah button to turn the wah filter on and off.

Pedal

The Pedal control sweeps the wah center frequency up and down.

Filter

The Filter control switches the wah filter between LP (lowpass), BP (bandpass), and HP (highpass) modes.

Mix

The Mix control lets you balance the amount of dry signal with the amount of wet (wah-processed) signal. At 50%, there are equal amounts of dry and wet signal. At 0%, the output is all dry and at 100% it is all wet

Mix (Overall)

The overall Mix control lets you balance the amount of fuzz-processed signal with the amount of wah-processed signal. At 50%, there are equal amounts of fuzz and wah signal. At 0%, the output is all fuzz, and at 100% it is all wah.

Kill EQ

Use the Kill EQ plug-in to zap out the Low, Mid, or High broadband frequency range from an audio signal. This is a popular effect with DJs and is commonly used in electronic music production (especially in dance music).



Figure 10. Kill EQ plug-in window

Kill Switches

The High, Mid, and Low switches toggle their respective frequency bands on and off.

Gain

The Low, Mid, and High gain knobs control the relative volume of the three frequency bands.

Freq

The Low and High freq controls set the cross-over frequencies of the low and high pass filters. The Sweep control changes both the low and high-band cutoff frequencies simultaneously. When the high and low bands are killed, manipulating this control creates a swept bandpass filter effect.

Output

The Output control sets the final output volume.

Lo Fi

Use the Lo Fi plug-in to bit-crush, down-sample, clip, rectify, and mangle the input signal.



Figure 11. Lo Fi Plug-in window

Sample Rate

The Sample Rate control resamples the audio signal at another sample rate.

Anti-Alias Section

The Anti-Alias section provides control over anti-aliasing filters that can be used before and after downsampling to reduce aliasing in the re-sampled audio signal.

Pre

The Pre control adjusts the anti-aliasing filter cutoff applied to the audio signal before resampling. The filter is applied as a multiplier of the sample frequency (Fs) between 0.12 Fs and 2.00 Fs.

Post

The Post control adjusts the range of anti-aliasing filter cutoff applied to the audio signal after resampling. The filter is applied as a multiplier of the sample frequency (Fs) between 0.12 Fs and 2.00 Fs.

On

For a much grittier sound, disable the Anti-Alias filter. The Anti-Alias button is lit when the filter is enabled.

LFO Section

The LFO controls let you apply a Low Frequency Oscillator to modulate the Sample Rate.

Rate

When Sync is enabled, the Rate control lets you select a rhythmic subdivision or multiple of the beat for the LFO Rate. Select from the following rhythmic values:

- 16 (sixteenth note)
- 8T (eighth-note triplet)
- 16D (dotted sixteenth-note)
- 8 (eighth note)
- 4T (quarter-note triplet)
- 8D (dotted eighth-note)
- 4 (quarter note)
- 2T (half-note triplet)
- 4D (dotted quarter-note)
- 2 (half note)
- 1T (whole-note triplet)
- 3/4 (dotted half note)
- 4/4 (whole note)
- 5/4 (five tied quarter notes)
- 6/4 (dotted whole note)
- 8/4 (double whole note)

When Sync is disabled, the Rate control lets you change the modulation rate independently of the Pro Tools session tempo.

Wave

Select from the following waveforms for the LFO.

Name	Description
Sine	Provides a sine wave
Tri	Provides a triangle wave
Saw	Provides a saw-tooth wave
Square	Provides a square wave
Morse	Provides a Morse code-like rhythmic effect
S&H	Provides Sample and Hold (S&H) modulation
Random	Provides random modulation

Depth

The Depth control lets you adjust the amount of modulation applied to the Sample Rate.

Sync

Enable Sync to synchronize the LFO Rate to the Pro Tools session tempo. When Sync is disabled, you can set the Rate time in Hertz independently of the Pro Tools session tempo. The Sync button is lit when it is enabled.

Env Mod (Envelope Modulation) Section

The Env Mod section provides control over an Envelope follower that can affect the Sample Rate. This is useful for accentuating and enhancing signal peaks (such as in drum loops) with artificially generated high-frequency aliasing.

Attack

Adjust the Attack control to set the time it takes to respond to increases in the audio signal level.

Release

Adjust the Release control to set the time it takes to recover after the signal level falls.

Depth

Adjust the Depth control to determine how much the Envelope follower affects the Sample Rate.

- ◆ At 0%, the Envelope follower has no effect on the Sample Rate.
- ◆ At +100%, the Attack ramps up to the Sample Rate setting; and the Release starts from the Sample Rate setting and ramps down.
- ◆ At -100%, the Attack starts from the Sample Rate setting and ramps down; and the Release ramps up to the Sample Rate setting.

Distortion Section

The Distortion section provides controls for adding dirt and grunge to the signal

Clip Adds transistor-like distortion to the signal.

Noise Adds a buzzy, noisy edge to the signal

Rectify Acts as a waveshaper, adding aggressive, harsh distortion to the signal

Bit Depth

The Bit Depth control lets you truncate the bit depth of the incoming signal from 16 bits all the way down to 1 bit

Mix

The Mix control adjusts the Mix between the “wet” (processed) and “dry” (unprocessed) signal. 0% is all dry, and 100% is all wet, while 50% is an equal mix of both.

MultiChorus

Use the MultiChorus plug-in to apply a thick, complex Chorus effect to the audio signal.



Figure 12. MultiChorus Plug-in window

Rate

The Rate control sets the rate for the oscillation of the LFO in Hertz.

Depth

The Depth control sets the depth of LFO modulation of the audio signal in milliseconds.

Chorus Section

The Chorus section provides control over the low-frequency content and stereo width of the MultiChorus effect.

Low Cut

The Low Cut control lets you adjust the Low Cut frequency for the Flanger, to limit the Flanger effects to higher frequencies.

Width

The Width control lets you widen or narrow the effect's stereo field

Mod Section

The Mod section controls let you set the Pre-Delay amount, and the waveform of the LFO.

Pre-Delay Sets the Pre-Delay in milliseconds.

Waveform Selects either a Sine wave or a Triangle wave for the LFO.

Voices

The Voices control sets the number of layered chorus effects that are applied to the audio signal. The more Voices that are used, the thicker the effect.

Mix

The Mix control lets you adjust the Mix between the “wet” (processed) and “dry” (unprocessed) signal. 0% is all dry, and 100% is all wet, while 50% is an equal mix of both.

Multi-Delay

Use the Multi-Delay plug-in to apply up to six delay lines to the audio signal.



Figure 13. Multi-Delay plug-in window

Sync

When Sync is enabled, the Delay time synchronizes to the Pro Tools session tempo. When Sync is disabled, you can set the delay time in milliseconds independently of the Pro Tools session tempo. The Sync button is lit when it is enabled.

Delay

When Sync is enabled, the Delay control lets you set the main delay length in 16th note lengths (based on the Pro Tools session tempo).

When Sync is disabled, the Time control lets you set the main delay time in milliseconds and seconds.

Feedback

The Feedback control lets you adjust the amount of delay feedback. At 0% the delayed signal repeats only once. As you increase the feedback, the number of times the delay repeats increases. At 100%, the delay doesn't repeat indefinitely, but it does last a very long time!

From and To


The From and To controls let you feed signal from one delay Tap to another, or back to the main input, to create complex delay/feedback effects.

From

The From control sets the tap from which signal will be cross-routed.

To

The To control sets the tap (or the main input) that the cross-routed signal will be routed to.

 *If the delay time of the "To" tap is greater than the delay time of the "From" tap, then the result is "feed-forward" rather than feedback, so only one delay repeat will be heard.*

Delay Taps

The Multi-Delay provides five Taps (delay lines). Each Tap provides the same set of controls. Controls for each Tap can be edited independently of the other Taps.

Tap Controls

Each Tap provides the following controls:

Delay

Adjust the Delay control to set the length of delay for the tap, relative to the main Delay setting.

Level

Adjust the Level control to change the output level of the Tap.

Pan

Adjust the Pan control to pan the audio signal from the Tap left or right in the stereo field.

On

The On button turns the selected tap's signal on or off.

High Cut

The High Cut control lets you adjust the frequency for the High Cut filter. For less treble, lower the frequency.

Low Cut

The Low Cut control lets you adjust the frequency for the Low Cut filter. For less bass, raise the frequency.

Mix

The Mix control lets you balance the amount of dry signal with the amount of wet (delayed) signal. At 50%, there are equal amounts of dry and wet signal. At 0%, the output is all dry and at 100% it is all wet.

Non-Linear Reverb

Use the Non-Linear Reverb plug-in to apply special gated or reversed Reverb effects to the audio signal, creating a synthetic, processed ambience.



Figure 14. Non-Linear Reverb plug-in window

Reverse

The Reverse button turns Reverse mode on and off. In Reverse mode, the tail of the reverb signal fades up to full volume, then disappears, rather than fading out.

Pre-Delay

The Pre-Delay control determines the amount of time that elapses between the original audio event and the onset of reverberation.

Dry Delay

The Dry Delay control applies a specified amount of delay to the dry portion of the signal, which can create a “reverse reverb” effect, where the reverb tail is heard before the dry signal.

Reverb Section

The Reverb section provides control over the reverb's diffusion and stereo width.

Diffusion

Adjust the Diffusion control to change the rate at which the sound density of the reverb tail increases over time. Higher Diffusion settings create a smoother reverberated sound. Lower settings result in more fluttery echo.

Width

The Width control lets you widen or narrow the effect's stereo field.

EQ Section

The EQ section provides tonal control over the reverb signal.

Low Cut

The Low Cut control lets you adjust the frequency for the Low Cut filter. For less bass, raise the frequency.

High Cut

The High Cut control lets you adjust the frequency for the High Cut filter. For less treble, lower the frequency.

Reverb Time

Adjust the Reverb Time to change the length of the reverberation's decay.

Mix

The Mix control lets you adjust the Mix between the “wet” (processed) and “dry” (unprocessed) signal. 0% is all dry, and 100% is all wet, while 50% is an equal mix of both.

Phaser

Use the Phaser plug-in to apply a phaser to the audio signal for that wonderful “wooshy,” “squishy” sound.



Figure 15. Phaser plug-in window

Sync

When Sync is enabled, the Phaser Rate control synchronizes to the Pro Tools session tempo. When Sync is disabled, you can set the Rate in milliseconds independently of the Pro Tools session tempo. The Sync button is lit when it is enabled.

Rate

When Sync is enabled, the Rate control lets you select a rhythmic subdivision or multiple of the beat for the Phaser Modulation Rate. Select from the following rhythmic values:

- 16 (sixteenth note)
- 8T (eighth-note triplet)
- 16D (dotted sixteenth-note)
- 8 (eighth note)
- 4T (quarter-note triplet)
- 8D (dotted eighth-note)
- 4 (quarter note)
- 2T (half-note triplet)
- 4D (dotted quarter-note)
- 2 (half note)
- 1T (whole-note triplet)
- 3/4 (dotted half note)
- 4/4 (whole note)
- 5/4 (five tied quarter notes)
- 6/4 (dotted whole note)
- 8/4 (double whole note)

When Sync is disabled, the Rate control lets you the rate of the Phaser in independently of the Pro Tools session tempo.

Depth

The Depth control lets you adjust the depth of modulation, which in turn affects the amount of phasing applied to the audio signal.

Phaser Section

The Phaser section provides control over the effect's center frequency and number of phaser stages (or Poles).

Center

The Center control lets you change the frequency center (100 Hz to 10.0 kHz) for the phaser poles.

Poles

Select the number of phaser poles (stages): 2, 4, 6, or 8. The number of poles changes the character of the sound. The greater the number of poles, the thicker and squishier the sound.

LFO Section

The LFO section provides control over the waveform and stereo offset of the LFO.

Wave

The Wave control lets you interpolate between a triangle wave and a sine wave for modulating the Phaser.

L/R Phase

The L/R Phase control lets you adjust the relative phase of the LFO modulation applied to the left and right channels.

Low Cut

The Low Cut control lets you adjust the frequency of the Low Cut Filter in the phaser's feedback loop. This can be useful for taming low frequency "thumping" at high feedback settings.

Feedback

The Feedback control feeds the output signal of Phaser back into the input, creating a resonant or singing tone in the phaser when set to its maximum.

Mix

The Mix control lets you adjust the Mix between the "wet" (effected) and "dry" (unprocessed) signal. 0% is all dry, and 100% is all wet, while 50% is an equal mix of both.

Reverb

Use the Reverb effect to apply Reverb to the audio signal, creating a sense of room or space. Typically, you'll want to use Reverb on one of the Effect Send inserts or Main Effects inserts. This way you can process audio from multiple Pro Tools tracks, giving them all a sense of being in the same space.



Figure 16. Reverb Editor

Pre-Delay

The Pre-Delay control determines the amount of time that elapses between the original audio event and the onset of reverberation. Under natural conditions, the amount of pre-delay depends on the size and construction of the acoustic space, and the relative position of the sound source and the listener. Pre-Delay attempts to duplicate this phenomenon and is used to create a sense of distance and volume within an acoustic space. Long Pre-Delay settings place the reverberant field behind rather than on top of the original audio signal.

Room Size

Adjust the Room Size control to change the apparent size of the space.

Early Reflections Section

Different physical environments have different early reflection signatures that our ears and brain use to localize sound. These reflections affect our perception of the size of a space as well as where an audio source sits within it. Changing early reflection characteristics changes the perceived location of the reflecting surfaces surrounding the audio source.

Early reflections are simulated in Reverb by using multiple delay taps at different levels that occur in different positions in the stereo spectrum (through panning). Long reverberation generally occurs after early reflections dissipate.

Type

The Transfuser Reverb provides the following Types of Early Reflection models:

Booth Simulates a vocal recording booth.

Club Simulates a small, clear, natural-sounding club ambience.

Room Simulates the center of a small room without many reflections.

Small Chamber Simulates a bright, small-sized room.

Medium Chamber Simulates a bright, medium-sized room.

Large Chamber Simulates a bright, large-sized room.

Small Studio Simulates a small, live, empty room.

Large Studio Simulates a large, live, empty room.

Scoring Stage Simulates a scoring stage in a medium-sized hall.

Philharmonic Simulates the space and ambience of a large, symphonic, concert hall.

Concert Hall Simulates the space and ambience of a large concert hall.

Church Simulates a medium-sized space with natural, clear-sounding reflections.

Opera House Simulates the space and ambience of an opera house.

Vintage 1 Simulates a vintage digital reverb effect.

Vintage 2 Simulates a vintage digital reverb effect.

Spread

Controls the length of the early reflections.

Reverb Section

The Reverb section provides control over the stereo width of the reverb algorithm.

In Width

Widens or narrows the stereo width of the incoming audio signal before it enters the reverb algorithm.

Out Width

Widens or narrows the stereo width of the signal once reverb has been applied.

Delay

Sets the size of the delay lines used to build the reverb effect. Higher values create longer reverberation.

Room Section

The Room section offers control over the overall spatial feel of the simulated room.

Ambience

This control affects the attack of the reverb signal. At low settings, the reverb arrives quickly, simulating a small room. At higher settings, the reverb ramps up more slowly, emulating a larger room.

Density

Adjust the Density control to change the rate at which the sound density of the reverb tail increases over time. Higher Density settings create a smoother reverberated sound. Lower settings result in more fluttery echo.

High Frequencies Section

The High Frequencies section provides controls that let you shape the tonal spectrum of the reverb by adjusting the decay times of higher frequencies.

Time

Adjust the Time control to decrease or increase the decay time for mid- to high-range frequency bands. Higher settings provide longer decay times and lower settings provide shorter decay time. With lower settings, high frequencies decay more quickly than low frequencies, simulating the effect of air absorption in a hall.

Freq

Adjust the Frequency control to set the frequency boundary between the mid- and high-range frequency bands.

Cut

The High Cut control lets you adjust the frequency for the High Cut filter (1.00–20.0 kHz). Adjusting the High Cut control to change the decay characteristics of the high frequency components of the Reverb. To cut the high-end of the processed signal, lower the frequency.

Low Frequencies Section

The Low Frequencies section contains controls that affect the low-frequency-heavy tail of the reverb signal.

Time

Adjust the Time control to decrease or increase the decay time for the low-range frequency band. Higher settings provide longer decay times and lower settings provide shorter decay time.

Freq

Adjust the Frequency control to set the frequency boundary between the low and high-range frequency bands.

Reverb Time

Adjust the Reverb Time to change the rate at which the reverberation decays after the original direct signal stops. At its maximum value, infinite reverberation is produced.

Balance

Adjust the Balance control to change the output level of the early reflections. Setting the Level control to 0% produces a reverb effect that is only the reverb tail.

Mix

The Mix control lets you adjust the Mix between the “wet” (effected) and “dry” (unprocessed) signal. 0% is all dry, and 100% is all wet, while 50% is an equal mix of both.

Spring Reverb

Use the Spring Reverb plug-in for that classic spring reverb sound. Just don't kick your computer trying to get the springs to rattle!



Figure 17. Spring Reverb Plug-In window

The Spring Reverb plug-in brilliantly models its analog namesake. The analog spring reverb is an electromechanical device much like the plate reverb. The signal to be reverberated is fed to a transducer at the end of a long suspended metal coil spring. The transducer causes the spring to vibrate with the result that the signal reflects from one end of the spring to the other. At the other end of the spring is another transducer that converts the motion of the spring back into an electrical signal, thus creating a delayed and reverberated version of the input signal.

Pre-Delay

The Pre-Delay control determines the amount of time (0–250 ms) that elapses between the original audio event and the onset of reverberation.

Reverb Section

The Reverb section provides control over the diffusion and stereo width of the reverb signal.

Diffusion

Adjust the Diffusion control to change the rate at which the sound density of the reverb tail increases over time. Higher Diffusion settings create a smoother reverberated sound. Lower settings result in more fluttery echo.

Width

Adjust the Width control to change the spread of the reverberated signal in the stereo field. A setting of 0% produces a mono reverb, but leaves the panning of the original source signal unprocessed. A setting of 100% produces a open, panned stereo image.

Low Cut

The Low Cut control lets you adjust the frequency of the Low Cut Filter (20.0 Hz–1.00 kHz). Use the Low Cut filter to reduce some of the potential “boomy-ness” you can get with longer Reverb Times.

Reverb Time

Adjust the Reverb Time to change the reverberation decay time (1.0–10.0 seconds) after the original direct signal stops. Shorter times result in a tighter, more ringing and metallic reverb, such as when walking down a narrow hall with hard floors and walls. Longer times result in a larger reverberant space, such as an empty, large, concrete cistern.

Mix

The Mix control lets you adjust the Mix between the “wet” (reverbed) and “dry” (non-reverbed) signal. 0% is all dry, and 100% is all wet, while 50% is an equal mix of both.

Stereo Width

Use the Stereo Width plug-in to create a wider stereo presence for mono audio signals.



Figure 18. Stereo Width plug-in window

Mode

The Mode control lets you specify the method by which the Stereo Width plug-in will create the artificial stereo field. Choices include Adjust, Comb, and Phase.

Adjust Adjusts the existing stereo width of the signal by M-S encoding, equalizing the S component with the Low/Mid/High controls and boosting/attenuating it with the Width control, then M-S decoding back to stereo. The Delay control delays the right signal relative to the left for an additional widening effect (known as “Haas panning”).

Comb Adds artificial width to the signal by M-S encoding then adding a delayed version of the M component to the S component. This creates a comb filtering effect that shifts some frequencies to the left and others to the right.

Phase In this mode the Low/Mid/High controls set the centre frequencies of 3 phase shifters which shift the relative phase of the left and right channels, giving a much more subtle effect than Comb mode.

Process Section

The Process controls boost or cut the Low, Mid and High-frequency bands of the generated stereo signal.

Trim Section

The Trim controls adjust the perceived center/source of the generated stereo signal.

Level

The Level control sets the volume of the perceived center of the stereo signal.

Pan

The Pan control sets the position left-to-right of the perceived center of the stereo signal

Delay

The Delay control lets you specify the duration of delay used in Phase mode (0–8 ms)

Width

The Width control sets the final width of the generated stereo field.

Talkbox

Use the Talkbox plug-in to add voice-like resonances to audio signals.



Figure 19. Talkbox Plug-in window

Vowel

The Vowel control lets you choose the shape of the formant filter, by the vowel sound that is simulated (OO/OU/AU/AH/AA/AE/EA/EH/EE/ER/UH/OH/OO).

Env Depth

The Env Depth knob creates a positive or negative offset in the setting of the Vowel control, effected by the Envelope follower. At its center, the knob has no effect. Turned to the right or left of center, the Env Depth knob shifts the value of the Vowel control up or down.

When the Envelope follower is triggered, the Vowel parameter moves to its normal setting (in time with the envelope's attack), then back to the offset value (in time with the envelope's release).

LFO Section

The LFO section provides controls that let you apply a Low Frequency Oscillator to modulate the Formant setting.

Rate

When Sync is enabled, the Rate control lets you select a rhythmic subdivision or multiple of the beat for the LFO Rate. Select from the following rhythmic values:

- 16 (sixteenth note)
- 8T (eighth-note triplet)
- 16D (dotted sixteenth-note)
- 8 (eighth note)
- 4T (quarter-note triplet)
- 8D (dotted eighth-note)
- 4 (quarter note)
- 2T (half-note triplet)
- 4D (dotted quarter-note)
- 2 (half note)
- 1T (whole-note triplet)
- 3/4 (dotted half note)
- 4/4 (whole note)
- 5/4 (five tied quarter notes)
- 6/4 (dotted whole note)
- 8/4 (double whole note)

When Sync is disabled, the Rate control lets you change the modulation rate independently of the Pro Tools session tempo (0.01–10.0 Hz).

Wave

Select from the following waveforms for the LFO.

Sine Provides a sine wave.

Tri Provides a triangle wave.

Saw Provides a saw-tooth wave.

Square Provides a square wave.

S&H Provides Sample and Hold (S&H) modulation.

Random Provides random modulation.

Depth

The Depth control lets you adjust the amount of modulation applied to the Formant setting.

Sync

Enable Sync to synchronize the LFO Rate to the Pro Tools session tempo. When Sync is disabled, you can set the Rate time in milliseconds independently of the Pro Tools session tempo. The Sync button is lit when it is enabled.

Envelope Section

The Talkbox plug-in provides an Envelope follower for modulating the Formant setting. This is useful for accentuating and enhancing signal peaks in rhythmic material.

Thresh

Adjust the Thresh control to set the amplitude threshold at which the Formant setting begins to be modulated by the Envelope follower.

Attack

Adjust the Atk (attack) control to set the time (10.0 ms to 10 seconds) it takes to respond to increases in the audio signal level.

Release

Adjust the Rel (release) control to set the time (10.0 ms to 10 seconds) it takes to recover after the signal level falls.

Formant

The Formant control lets you shift the formant center of the processed audio up or down 12 semitones, changing the harmonic structure dramatically.

Mix

The Mix control lets you adjust the Mix between the “wet” (processed) and “dry” (unprocessed) signal. 0% is all dry, and 100% is all wet, while 50% is an equal mix of both.

Vintage Filter

Use the Vintage Filter plug-in to apply a modulating, resonant filter to the audio signal. Have fun with filter sweeps or give your sounds that extra-resonant aura.



Figure 20. Filter plug-in window

Cutoff

The Cutoff control lets you adjust the Cutoff frequency (20.0 Hz to 20.0 kHz) of the filter.

Resonance

The Resonance control lets you adjust the amount filter Resonance (0–100%). The filter can go into self-oscillation at high values creating a sine wave-like overtone at the Cutoff frequency.

Fat

The Fat control lets you adjust the amount of overdrive in the resonant peak. At lower settings the signal gets quieter at high Resonance settings for clean distortion. At higher settings the signal is over-driven at high resonance settings.

Envelope Section

The Filter effect provides an Envelope follower for controlling the Cutoff frequency. The Envelope section offers control over the envelope's shape and depth of modulation.

Attack

Adjust the Attack control to set the time (10.0 ms to 10 seconds) it takes to respond to increases in the audio signal level.

Release

Adjust the Release control to set the time (10.0 ms to 10 seconds) it takes to recover after the signal level falls.

Depth

Adjust the Depth control to determine how much the Envelope follower affects the Cutoff frequency.

- ◆ At 0%, the Envelope follower has no effect on the Cutoff frequency.
- ◆ At +100%, the Attack ramps up to the Cutoff frequency setting; and the Release starts from the Cutoff frequency setting and ramps down.
- ◆ At -100%, the Attack starts from the Cutoff frequency setting and ramps down; and the Release ramps up to the Cutoff frequency setting.

LFO Section

The Filter effect provides a sinusoidal Low Frequency Oscillator (LFO) for modulating the filter cutoff frequency. The LFO section offers control over the rate, depth and synchronization of the modulation.

Rate

Adjust the Rate control to increase or decrease the frequency (0.01–100.0 Hz) of the LFO. Lower settings are slower and higher settings are faster. When Sync is on, the Rate knob switches from counting in milliseconds, to rhythmic values.

Depth

Adjust the Depth control to increase (or decrease) the amount of modulation (0–100%) of the Cutoff frequency by the LFO. Lower settings create a slight vibrato (with the rate set high) and higher settings create a wide sweep of the Cutoff frequency range.

Sync

Toggle the Sync button to synchronize the LFO with the session tempo.

Mode

Select one of the following options for the type of filter:

LP24 Provides a low pass filter with a 24 dB cut-off.

LP18 Provides a low pass filter with a 18 dB cut-off.

LP12 Provides a low pass filter with a 12 dB cut-off.

BP Provides a band pass filter.

HP Provides a high pass filter.

Output

The Output control lets you lower the Output level from 0.0 dB to $-\infty$ dB.

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