



Electric 88 Piano

USER GUIDE



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CHAPTER 1: INTRODUCTION

Welcome

Thank you for choosing Waves! In order to get the most out of your Waves processor, please take the time to read through this manual.

We also suggest that you become familiar with www.waves.com/support. There you will find an extensive **answer base**, the latest **tech specs**, detailed installation guides, new **software updates**, and current information on licensing and **registration**.

Sign up at the support site and you'll receive personalized information about your registered products, reminders when updates are available, and information on your authorization status.

Acknowledgement

The Electric 88 Piano samples library was recorded and produced by Yoad Nevo at Nevo Sound Studios in London, UK.

Visit www.yoadnevo.com.

1.1 Product Overview

The unmistakable sound of the electric piano has shaped our musical landscape since the 70s. This sound changed the way we think about the piano, and it opened up many new musical possibilities. Now the sound, feel, and personality of this unique piano is available from Waves.

Waves painstakingly sampled a well-used, road-worn Mark 1 88-key electric piano to capture the nuance and detail of the original sound. The result is the Electric 88 Piano plugin and standalone application. Every element of the instrument's sound—down to its beautiful imperfections—is captured to recreate the magic realism of the original. We've gone a few steps further by integrating our high-quality studio effects and by adding unique features for tone shaping. And there's a mix section that enables you to use these tools to put your own personal stamp on this era-defining sound.

For anybody looking to grace their tracks with an electric piano full of character and soul with its own personality, look no further. The Electric 88 Piano from Waves has arrived.

1.2 Concepts and Terminology

The type of electric piano that became a pop, rock, and jazz favorite in the '70s was invented by Harold Rhodes in the 1940s. The technology behind the instrument consists of a hammer, similar to the ones in acoustic pianos. A hammer strikes a small metal rod, called a tine, that's connected to a larger tone bar, which is, in essence, a tone generator. Once struck, this tone generator vibrates, emitting a certain pitch. This vibration is turned into an electronic signal using a pickup that sits opposite the tine. The overall structure is somewhat similar to a tuning fork.

The richness of the instrument stems in part from the relationship between the tines and the tone bar. The response of the tines dominates when the tines are struck by the hammer, during the attack period of the note. This sound is bell-like. The tone bar dominates the sustain of the note. Its sounds are very sinusoidal, with varying degrees of harmonic distortion. You can control the balance between the tines and the tone bar to influence the effect: turn up the tines to create a more bell-like start and a more punchy attack, or turn them down to resemble a more mellow and worn instrument.

Electric 88 Piano is powered by WSE, the Waves Sampler Engine, a state-of-the-art multi-sample engine designed to deliver solid, high-quality performance.

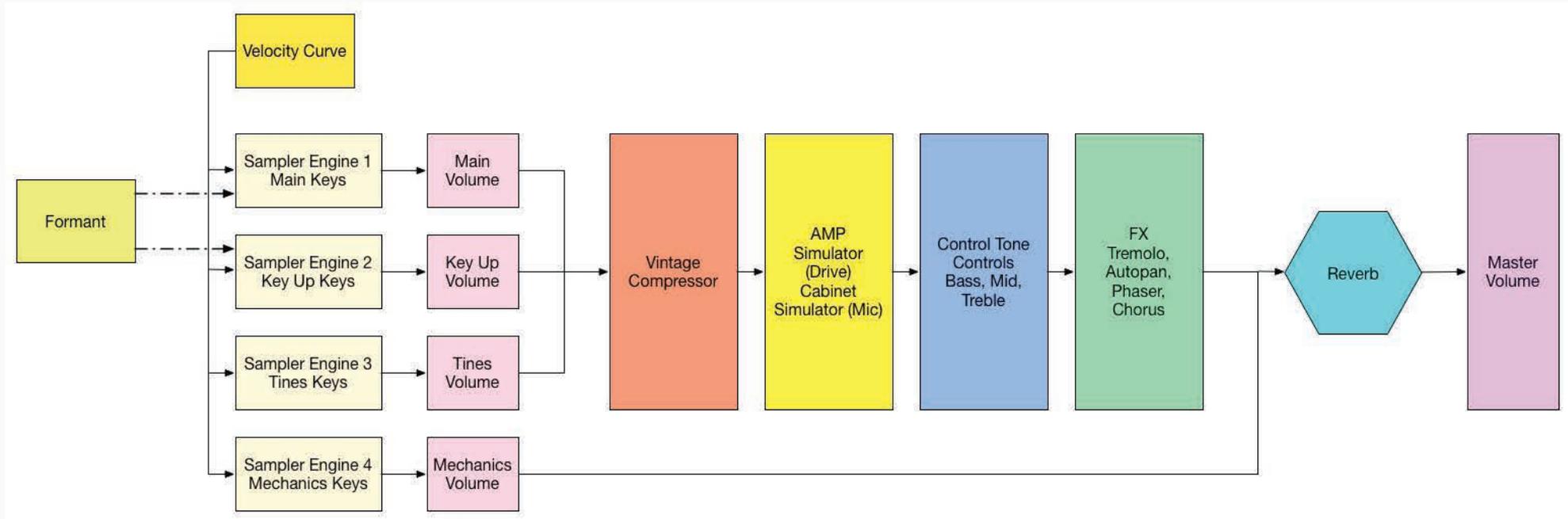
1.3 Components

The Electric 88 Piano has one component: Electric 88 Piano Stereo

Electric 88 Piano is a virtual instrument plugin and will appear under the related selection menus for virtual instruments under all supported DAW host applications.

Waves Electric 88 Piano also works as a standalone application, using ASIO (Windows) or Core Audio (Mac) drivers to play through your audio device of choice. Electric 88 Piano receives MIDI data to trigger notes and control changes.

1.4 Functional block/flow diagram



CHAPTER 2: QUICK START GUIDE

Insert Electric 88 Piano on an instrument track in your DAW or launch the standalone application. Start to play and you will quickly understand how to get the sound you want. There are two modules with which to control the behavior and sound of the instrument.

- 1 Use the top module to create and control effects such as tremolo, phasing, stereo imaging, chorus, and reverb.
- 2 Use the bottom module to control the characteristics of the keyboard and the amplifier.



Navigating the presets

Electric 88 Piano presets are managed with the WaveSystem Toolbar at the top of the window.



Use the Next/Previous preset arrow controls on the toolbar to scroll through presets. Click the Load button to reveal all presets. Saving, loading, and using Electric 88 Piano presets are discussed in Chapter 5 of this user guide.

CHAPTER 3: INTERFACE AND CONTROLS

3.1 Interface



The ELECTRIC 88 Piano interface is arranged into two sections.

Bottom: The Piano module includes tone controls, a vintage style compressor, and an amplified cabinet that was sampled with both a condenser mic and a dynamic mic.

Top: The Multi-Effect processor provides modulation effects and reverb.

3.2 Controls

3.2.1 Keyboard Control



At the very bottom there's a virtual keyboard designed to preview the sound of a note when a keyboard controller is not available. Use a mouse or similar input device. This control cannot be automated, but it will follow any MIDI input device.

3.2.2 Piano Module



Keys Section

Vel Curve

This control changes the curve of the velocity response from logarithmic to exponential.

When the control is set to 50%, the curve is linear.

Range: -50% to +50%

Initial Value: 0

Reset Value: 0

Continuous control

Formant

The formant control changes the sound character but not the pitch. Each step equals a half-tone.

This means that when set to -12, the piano sound character will be lower by one octave, but the pitch will not change.

Range: -12 to +12

Initial Value: 0

Reset Value: 0

Discrete control, 25 steps.

Mix Section

Main

The Main control is the sampled sound of the electric piano, without the mechanics and the release keys sounds.

It controls the Main samples level in the overall mix.

Range: 0–100 %

Initial Value: 100%

Reset Value: 100%

Continuous control

Tines

Tines is the sampled sound of the key tines. It controls the Tines samples level in the overall mix.

Range: 0–100 %

Initial Value: 35%

Reset Value: 0

Continuous control

Key Up

Key Up is the sound of the keys while releasing. It controls the Key Up samples level in the overall mix.

Range: 0 – 100%

Initial Value: 25%

Reset Value: 0

Continuous control

Mechanics

The Mechanics control is the sampled sound of the electric piano mechanics without the Main and the Key Up sounds.

It controls the Mechanics (thump) samples level in the overall mix.

Range: 0 – 100%

Initial Value: 25%

Reset Value: 0

Continuous control

Comp

The Comp knob mixes between the dry and the compressed signals.

Range: 0 – 100%

Initial Value: 50%

Reset Value: 0

Continuous control

Amp Section**Amp On/Off**

The Amp button turns the Amp section on or off.

Range: Off, On

Initial Value: On

No Reset Value: Alt+click does not affect the current mode of this switch.

Drive

Controls the level of the amplifier overdrive.

Range: 0–100

Initial Value: 0

Reset Value: 0

Continuous control

Mic

There are two microphone options in front of the amplifier: Condenser and Dynamic.

Initial Value: Condenser

Reset Value: Condenser

Tone Section**Bass**

The Bass control is a low shelf filter at 203 Hz, which can be decreased or increased by +/-18 dB.

Range: -50 to +50

Initial Value: 0

Reset Value: 0

Continuous control

Mid

The Mid control is a bell filter at 900 Hz, which can be increased or decreased by +/-18 dB.

Range: -50 to +50

Initial Value: 0

Reset Value: 0

Continuous control

Treble

The Treble control is a high-shelf filter at 1.875 kHz, which can be increased or decreased by +/-18 dB.

Range: -50 to +50

Initial Value: 0

Reset Value: 0

Continuous control

Volume

Controls the output gain level after plugin processing.

Range: 0–10

Initial Value: 8

Reset Value: 8

Continuous control

3.2.3 Effects Module

**FX In/Out**

The FX In/Out switch toggles all effect module sections on and off. When the FX module is again turned on, each section will return to its previous state.

Tremolo Section

Tremolo On/Off

The Tremolo button turns the Tremolo section on or off.

Range: Off, On

Initial Value: On

No reset value: Alt+click does not affect the current mode of this switch.

Tremolo Rate

Tremolo Rate provides control over Sync rates (such as $\frac{1}{4}$) or Free rates (in Hz), using the same knob.

The middle position, 12 o'clock, is the slowest Free value. Turning the knob clockwise from this position increases the rate from 0.25 Hz to 28 Hz.

When the knob setting is less than 12 o'clock, values are defined with respect to the host. Turning the knob counterclockwise increases the Tremolo rate through music note duration values related to the host's BPM: $\frac{1}{32T}$, $\frac{1}{32}$, $\frac{1}{32D}$, $\frac{1}{16T}$, $\frac{1}{16}$, $\frac{1}{16D}$, $\frac{1}{8T}$, $\frac{1}{8}$, $\frac{1}{8D}$, $\frac{1}{4T}$, $\frac{1}{4}$, $\frac{1}{4D}$, $\frac{1}{2}$, $\frac{1}{2D}$, 1, $\frac{2}{1}$.

$\frac{2}{1}$ equals one cycle in 2 bars.

Scaling: Custom.

Range: Sync $\frac{1}{32T}$ - $\frac{2}{1}$; Free 0.25–28 Hz

Initial Value: $\frac{1}{16D}$ sync rate

Reset Value: $\frac{1}{16D}$ sync rate

Continuous control

Tremolo Depth

The Depth control increases or decreases the amplitude level.

Range: 0–100

Initial Value: 60

Reset Value: 0

Continuous control

AutoPan Section**AutoPan On/Off**

The AutoPan button turns the Autopan section on or off.

Range: Off, On

Initial Value: On

No reset value: Alt+click does not affect the current mode of this switch.

Autopan Rate

Autopan Rate provides control over Sync rates that relate to the host (such as $\frac{1}{4}$), or Free rates (in Hz) that can be set independently of the host BPM, using the same knob.

The middle position, 12 o'clock, is the slowest Free value. Turning the knob clockwise from this position increases the rate from 0.25 Hz to 28 Hz.

When the knob setting is less than 12 o'clock, values are defined with respect to the host. Turning the knob counterclockwise increases the Autopan rate through music note duration values related to the host's BPM: 1/32T, 1/32, 1/32D, 1/16T, 1/16, 1/16D, 1/8T, 1/8, 1/8D, 1/4T, 1/4, 1/4D, 1/2, 1/2D, 1, 2/1.

2/1 equals one cycle in 2 bars.

Scaling: Custom.

Range: Sync 1/32T-2/1 ; Free 0.25–28 Hz

Initial Value: 1/2 sync rate

Reset Value: 1/2 sync rate

Continuous control

Pan Depth

Controls how far the panning extends from the center.

Range: 0–100

Initial Value: 33

Reset Value: 0

Continuous control

Phaser Section

Phaser On/Off

The Phaser button turns the Phaser section on or off.

Range: Off, On

Initial Value: On

No Reset Value: Alt+click does not affect the current mode of this switch.

Phaser Mix

Controls the level of the Phaser effect.

Range: 0–100%

Initial Value: 25%

Reset Value: 0

Continuous control

Phaser Rate

Phaser Rate provides control over Sync rates that relate to the host (such as $\frac{1}{4}$), or Free rates (in Hz) that can be set independently of the host BPM, using the same knob. The middle position, 12 o'clock, is the slowest Free value.

Turning the knob clockwise from this position increases the rate from 0.01 Hz to 22 Hz.

When the knob setting is less than 12 o'clock, values are defined with respect to the host. Turning the knob counterclockwise increases the Phaser Rate through music note duration values related to the host's BPM:

$\frac{1}{32T}$, $\frac{1}{32}$, $\frac{1}{32D}$, $\frac{1}{16T}$, $\frac{1}{16}$, $\frac{1}{16D}$, $\frac{1}{8T}$, $\frac{1}{8}$, $\frac{1}{8D}$, $\frac{1}{4T}$, $\frac{1}{4}$, $\frac{1}{4D}$, $\frac{1}{2}$, $\frac{1}{2D}$, 1, $\frac{2}{1}$.

$\frac{2}{1}$ equals one cycle in 2 bars.

Scaling: Custom.

Range: Sync $\frac{1}{32T}$ - $\frac{2}{1}$ / Free 0.01–22Hz

Initial Value: 0.03 Hz free rate

Reset Value: 0.07 Hz free rate

Continuous control.

Phaser Depth

The Depth control controls the Phaser feedback.

Range: 0–100

Initial Value: 53.5

Reset Value: 0

Continuous control

Chorus Section**Chorus On/Off**

The Chorus button turns the Chorus section on or off.

Range: Off, On

No reset value: Alt+click does not affect the current mode of this switch

Depth

The Depth control influences the dry/wet mix of the signal into the chorus and determines how much the module oscillator will influence the delay. The chorus engine contains four delays and four oscillators.

Range: 0–100

Initial Value: 25

Reset Value: 0

Continuous control

Reverb Section

Reverb Mix

Controls the balance between the dry and wet signal, and also controls the amount of reverb added.

Range: 0% (dry) to 100% (wet)

Default: 30%

Reset Value: 0% (dry)

Continuous control

Reverb Predelay

Controls the amount of the delay between the dry and wet signals.

Range: 20 ms–400 ms (milliseconds)

Initial Value: 55 ms

Reset Value: 55 ms

Continuous control

Reverb Time

Control the reverb time, up to 6 seconds.

Range: 0.4 sec–6 sec

Default: 2 sec

Reset Value: 2 sec

Continuous control

Reverb Damp

Increases the level of high frequencies during the decay.

Default: 0.8

Reset Value: 0.8

Continuous control

Meters**Meter Scale**

Peak meter: -30 dB to 0 dB, showing a VU meter scale calibrated for 18 dB of headroom (0 dBVU = -18 dBFS).

Split Meters

Separate left and right meter indicators.

Black: Left

Green: Right

CHAPTER 4: STANDALONE APPLICATION

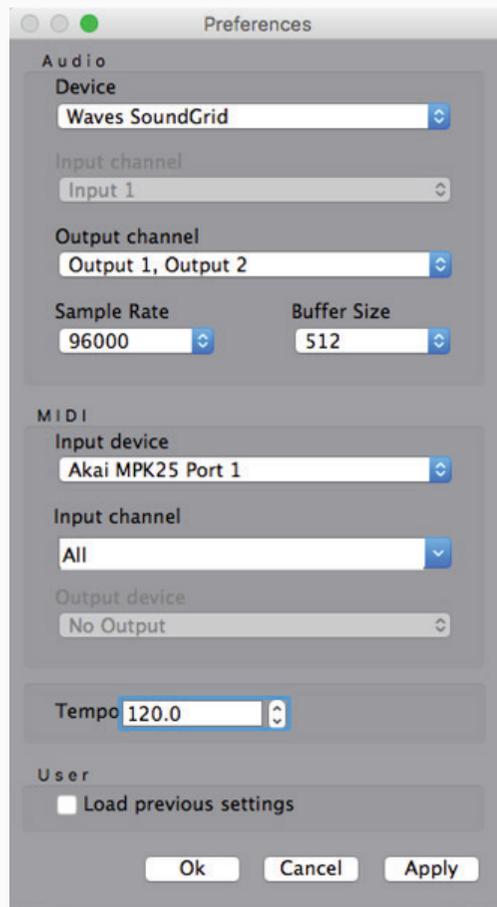
The Electric 88 Piano application can be used as a standalone instrument. It requires an ASIO driver for Windows or a Core Audio driver for Mac OS X. Opening ELECTRIC 88.exe (Win) or ELECTRIC 88.app (MAC) loads the Electric 88 Piano standalone instrument and configuration preferences dialogs.

The standalone application's menu file contains 3 items:

- **All Notes Off** Sends an All-Notes-Off MIDI command to the Electric 88 Piano. Useful in cases of “stuck” sustaining notes.
- **Preferences** Displays the preferences dialog for Audio, MIDI, and User Choices configurations.
- **Exit**

THE PREFERENCES DIALOG

The preferences dialog allows configuration of Audio, MIDI, and User choices.



Audio provides control over the following parameters:

- **Device** displays the audio devices available on the system.
- **Output Channels** allows selection of audio outputs from the selected device.
- **Sample Rate** is used to select sample rate.
- **Control Panel** (Windows) launches the selected ASIO device's control panel for selection of buffer size and latency.
- **Buffer Size** (Mac) is used to select buffer size, which determines latency.

MIDI provides control over the following parameters:

- **MIDI Input device** displays a list of available MIDI input devices on the current system. Select the MIDI device for receiving MIDI data.
- **Input Channel:** The Electric 88 Piano standalone instrument is ready to receive MIDI in OMNI mode from all channels. The MIDI channel control allows the selected MIDI device to receive MIDI input only from certain channels, as selected in the checkboxes.

User > Load Previous Settings: When checked, the Electric 88 Piano application loads with the last settings used.

When unchecked, default settings load.

CHAPTER 5: THE WAVESYSTEM

5.1 Effects Module

All Waves plugins feature the WaveSystem toolbar, which takes care of most administrative functions you will encounter while working with your Waves software. The features of the WaveSystem toolbar are the same on practically all Waves plugins,

however, Electric 88 Piano has its own set of controls that you access from the WaveSystem toolbar: see Section 5.2.2 below.

Toolbar Functions



Opens the plugin About box.

Undo

Undoes the last 32 actions.

Redo

Redoes the last 32 undone actions.

Setup A/B

Toggles between two presets, useful for comparison of parameter settings.

Load Filter

A toolbar exclusive to ELECTRIC 88 Piano that lets you specify whether certain preset characteristics should be loaded. See the next section for details.

L/R Arrows

Move to the previous or next preset.

Copy A>B

Copies the current settings to the second preset register.

Load

Recalls presets from file.

Save

Saves presets in the Waves file formats.

?

Opens the PDF user guide for the plugin you're using.

3.2 Controls

3.2.1 Keyboard Control

Factory Presets are permanent presets in the Load menu. Factory presets cannot be overwritten or deleted. When applicable, different component plugins may have different factory presets.

User Presets are user-saved plugin parameters that are saved in the Load menu as “User Presets.” Unlike factory presets, user presets can be overwritten and deleted.

Setup Files may contain more than one preset. For example, a single file can contain all the presets for a session. When you open a Setup File, all its setups become part of your Load drop-down menu for fast access. This can be particularly useful with multiple instances of a plugin in a single session. By saving all your settings in a single Setup File, they are all quickly available for every instance of that plugin.

5.2.2 Loading Presets and Setups



Click on the Load button to see the Load pop-up menu. The menu is divided into four sections. If a section is not currently available it will not appear in the Load drop-down menu.

Open Preset File... Select to open any setup or preset file, whether from the Library or your own creations.

'Filename.xps': Displays any currently loaded Setup File and its presets.

Factory Presets: Displays the default Factory Presets.

User Presets: Displays any loaded User Presets.

Load with Preset – MIDI, Arp-Seq and Tempo



The Load with Preset filter is a custom toolbar used only with Electric 88 Piano; it lets you choose whether or not to load certain preset characteristics, such as MIDI assignments, arpeggiator/sequencer settings, and tempo. When checked, these parameters are loaded.

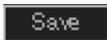
Here are some practical examples:

MIDI – You've assigned a MIDI controller knob to Electric 88 Piano's VCF cutoff. Loading the next preset will reset this parameter; you will then have redo the MIDI Learn routine in order to attach the knob to the control. However, if you uncheck the MIDI checkbox, the next preset will be loaded, but the current MIDI assignment will remain in place.

Arp-Seq – You have a bass line arpeggio that you like, and you want to test the pattern using a different sound. Uncheck the Arp/Seq checkbox, and the preset will be loaded without any associated Arp/Seq settings, leaving the pattern as is.

Tempo – You're working on an arpeggio with an internal tempo of 140. Loading presets may set the tempo to a different value, or to receive from your host. To ignore tempo settings saved with other presets, uncheck the Tempo box, and your current tempo setting will remain when loading other presets.

5.2.3 Saving Presets and Setups



Click on the Save button to see the Save pop-up menu. Four options are available. If an option is not currently available it will be grayed out and inaccessible.

Click on the Load button to see the Load pop-up menu. The menu is divided into four sections. If a section is not currently available it will not appear in the Load drop-down menu.

Save to New File...

Select this to start a new Setup file. There are two prompts - first for the setup filename, then for the preset name. You must provide a name for both the setup file and the preset. Click OK (ENTER) to complete the save. It is a good idea to create a folder in which to save several setup files for a project.

Save 'File Name' – "Preset Name"

Overwrites the settings of the loaded preset (whether a User Preset or a preset from a Setup File) with the current settings. If a Setup File is currently loaded, the name of the Setup File is displayed, followed by the name of the preset itself. If a User Preset is loaded, its name is displayed.

Save to 'File Name' As...

Saves the current settings as a new preset into the open Setup file (if a Setup file is not open, the option is grayed out). You will be prompted to give the preset a name.

Put into Preset Menu As...

Save the current settings into a User Preset that will always be in your Load menu (until deleted). You will be prompted to give this preset a name. User Presets are stored in the plugin's preference file.

Please note: Special characters (such as: !, @, #, %, ^, etc.) are not supported in preset names.

Deleting Presets

You may delete User Presets and presets within a Setup File. Factory Presets and Setup Library files cannot be deleted or overwritten.

1. Hold the Command (Mac) / Control (PC) key down.
2. Click and hold the Load button to see the pop-up menu.
3. While still holding the Command/Control key, select the preset or setup to delete.
4. A confirmation box will appear, allowing you to cancel or 'OK' the deletion.

A/B Comparison and Copying



The Setup A/Setup B button may be clicked to compare two settings. If you load a preset in the Setup B position, this will not affect the preset loaded into the Setup A position, and vice-versa.

If you want to slightly modify the settings in Setup A, you can copy them to Setup B by clicking on the Copy to B button, then alter Setup A and compare with the original Setup B.

The name of the current setup will be shown in the title bar (on platforms that support it), and will switch as you change from Setup A to Setup B.

Note: An asterisk (*) indicates that parameters have been changed since the preset was loaded.

5.3 Interface Controls

Controls can be in one of three states:

- Not Selected** The control is not the target of any user entry.
- Selected** The control is the target of mouse control entry only.
- Selected** and Active The control is the target for both mouse and keyboard entry.

Toggle Buttons

Toggle buttons display the state of a control and allow switching between two or more states. Single-click to change the control's state. Some toggle buttons have a text display that updates with the current setting; others (bypass, solo, or monitoring toggles) illuminate when the control is active.

Some plugins have **link buttons** between a pair of toggle buttons, allowing click-and-drag adjustment while retaining the offset between the controls.

Value Window Buttons

Value windows display the value of a control and allow click-and-drag adjustment, or **direct control via the keyboard**.

Using the mouse, click-and-drag on the value window to adjust. Some value windows support left/right, some up/down (as you hover over a button, arrows will appear to let you know which direction of movement that button supports).

You may also use your mouse wheel to adjust parameter values.

Using the arrow keys, click once with the mouse to select the button, and then use up/down or left/right (depending on the direction supported by that button) to move in the smallest incremental steps across the button's range (holding down the arrow keys will move faster through the range).

Using key entry, double-click on the button to open the value window and enter the value directly from your keyboard. If you enter an out-of-range number, the button stays selected but the value remains at the current setting.

Some plugins have **link buttons** between a pair of value windows, allowing click-and-drag adjustment while retaining the offset between the controls.

Sliders

Click or scroll the mouse-wheel on the slider itself or anywhere within the sliders track. The numerical value of the slider settings is displayed in a hover window above the slider path.

Hover Box

Hover the mouse over a control to display and its current value.

Multiple Control Selection

One of the most powerful features of the WaveSystem is the ability to select and adjust multiple controls simultaneously. Using the mouse, drag-select the desired group of buttons or graphic controls by clicking and holding at a point outside the controls, and form a rectangle that includes the controls you wish to adjust. Alternatively, press and hold Shift while clicking the mouse on any control you wish to link. This method is useful when you want to select two or more controls that are not adjacent to one another.

TAB Functions

TAB moves the “selected” status to the next control, with shift-TAB moving in the reverse direction.

Additionally, the Mac has an Option+TAB function for down movement and Shift+option+TAB for up movement, where applicable.

If you have several Value Window Buttons selected, TAB functions will take you through the selected controls only.

Clicking Esc or Return will return the “focus” to the DAW application.

5.4 Waves Preferences (Pro Tools only)

When launching Pro Tools, hold Shift to view the Waves plugin Preferences window. The following options are available:

- Don't use AudioSuite plugins
- Don't use RTAS plugins
- Rescan all plugins
- HUI control surface support (low resolution)
- Enable single-click text entry