

PrimalTap

Retro Delay with Freeze

User's Guide

Version 5 : For Mac and Windows



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Figure 1: The PrimalTap Control Panel and Tweak Menu

Inspired by the classic Lexicon Prime Time Model 93 Digital Delay Processor (first introduced in 1978), PrimalTap recreates and expands on the unique features and sound of this wonderful oddity of a vintage delay. The Prime Time, as you would expect, was capable of a wide range of rich delay, chorus, and flanging sounds all of which have been included within PrimalTap. But in addition to being an all around full-featured delay unit the Prime Time featured a host of unique features, some borne out of technological necessity, which really set this unit apart from the crowd.

The first of these was the Multiply control, designed to extend delay times by as much as 8 times the displayed amount. However, in the late 1970s digital technology was limited and memory was expensive, so to accomplish this extended delay, the sample rate was halved each time the delay length was doubled. This meant that at the maximum 8X multiply setting, the bandwidth was a very low-fi 1.5kHz. Turning the knob with audio playing resulted in drops in octaves, and crazy pitch effects. Over time these oddities became the character of the unit. It sounded like nothing else out there. We really like odd and character.

The other unique feature from the original was the “Freeze” control (they called it “Repeat Hold”). It was basically grabbing the delay time and looping it, with whatever was captured in it at the time. Essentially a digital tape loop. Really cool, and eventually discovered by audio experimentalist like Daniel Lanois, Brian Eno, David Byrne - you know, guys who think outside the box.

PrimalTap pulls from and expands on many features from the original hardware with two independent delay taps, a time-dividing ‘Adjust’ control and LFO for mod, mix and feedback controls, and we even modeled the very unique sound of driving hard into the original unit. Because it’s good to be able to push things too hard. That, and the sound was a totally different character than normal saturation or overdrive.

PrimalTap is more than just a simple delay plug-in to toss into your mix: it’s a dynamic and inspiring effect with real personality. It’s meant to be played with and manipulated to warp, mangle or reshape whatever goes in. So jump in and play, and if you need some hints, come back here and use this manual to guide you to the next level.



Figure 2: PrimalTap's Control Panel

FREEZE

This function is one of our favorite features on PrimalTap and we owe a great deal of credit to Daniel Lanois for turning us on to the creative potential of this feature from his use of the Prime Time hardware. The Freeze function is used to hold or 'freeze' the audio currently being processed by PrimalTap resulting in an infinite loop. When the Freeze button is engaged a red LED will illuminate and the audio data locked in the memory will repeat until the button is selected again, disengaging the effect.

The length of the "Frozen" audio is determined by the maximum available delay time based on the current setting of the Multiply control. For example, with the Multiply control set to 8X, the maximum delay time is 2048ms and the Repeat Hold function will repeat stored audio data in 2048ms increments.

The Freeze control opens up the possibility for some very unique held delay effects; experiment with engaging and disengaging Freeze at key points in your compositions.

MULTIPLY

The Multiply control is key to the unique sound of PrimalTap. This control increases the currently selected delay time time by either 2X, 4X, or 8X. Like the hardware, each time the delay time is doubled, the sample rate is halved. This also brings into play some very steep anti-aliasing filters. Essentially, every time the Multiply control goes UP, the fidelity goes DOWN.

The indicators on the top and bottom of the control denote this relationship in terms of delay time vs. bandwidth:

- At **1X** available bandwidth is at **12khz**.
- At **2X** available bandwidth halves to **6kHz**.
- At **4X** bandwidth is further reduced to **3kHz**.
- And finally, at **8X** echoes are at a very lo-fi **1.5kHz**.

TWEAK

The Tweak button activates the slide-out Tweak Menu which contains a multitude of advanced parameter adjustment options. The Tweak button will turn blue in the middle when clicked, and the Tweak Menu can be hidden again by re-selecting the Tweak button. We will discuss the Tweak Menu in-depth beginning on page 9.

DELAY SELECT

PrimalTap features two independent delay lines, A and B, signified by the large red (delay line A) and yellow (B) knobs. Each delay line can be operated in one of two modes, Time and Beat. In Time mode the LCD-style screens above the control give the delay time in milliseconds for each channel. In Beat mode, the display will list the given spacing as it relates to the current host tempo with a value range from 0.00 (no delay) to 4.00.

To switch between Time and Beat mode, click on the switch below the red LCD display for the appropriate delay line (which will read either "Time" or "Beats"). This will only change the mode for the selected channel, which means that in PrimalTap you can have one delay line synced to the beat while the other is programmed for a specific length of time. The maximum available delay using Delay Select is 2500ms.

Please note that true to the original hardware, adjusting the Delay Select knobs in real-time will introduce audible glitches and anomalies.

LINK

The Link control ties the both delay lines together so if you adjust one of them, the other turns correspondingly. Delay line A is the “alpha” and its setting will be matched for the B delay line.

ADJUST

The Adjust knob is used to modulate the delay times for both the A and B delay lines. The Adjust control is very useful in creating flange, phase, and chorus effects within PrimalTap.

The best way to approach all three controls in this section (Adjust, Rate, and Depth) is to remember that these controls are for smooth adjustments unlike the Delay Select controls which create abrupt changes to the delay lines and result in audible glitches and anomalies in the audio when adjusted in real time. This is because, as in the original hardware, altering any Delay Select parameter would require the memory location to be changed.

RATE

Rate controls the, well, rate (also referred to as frequency) of the LFO. This control is measured in Hertz can go from a slow sweep of .1Hz all the way into full audio range (up to 256Hz) for some truly interesting sonic effects not possible with the original hardware. Combined with the addition of multiple waveshapes (found in the slide-out Tweak Menu) you have a very wide palette of modulation possibilities.

DEPTH

The Depth control is used to adjust the amount of modulation from the LFO being applied to the delay lines. As the Depth knob is rotated clockwise, the amount of LFO sweep increases and more audible variation will be heard. This control varies the delay time relative to the time specified using the Delay Select controls and the Rate control. The depth control ranges from “0” (no effect) to a maximum value of “1.0” (fully clockwise) meaning that at 1.0, Depth is set to the limit of the delay modulation.

TEMPO SYNC

Tempo Sync switches PrimalTap into MIDI sync mode. Both delay lines are switched to MIDI control. Tempo Sync allows for PrimalTap to lock in with your project's tempo, or for tempo information to be controlled via MIDI.

FEEDBACK

PrimalTap's Feedback section is comprised of two sliders with which you can control the amount of recirculation (or delay feedback) being routed back to PrimalTap's input. Input drive is controlled with the first green slider labeled "In", and the two adjacent sliders control the feedback amount for the A and B delay lines individually. The color of the sliders correspond to the matching Delay Select knobs; red for red (A) and yellow for yellow (B).

Sliding the Feedback faders up increases the recirculation amount and results in added sustain, saturation, and resonance. Please note that extreme resonance settings will raise the output level emanating from PrimalTap. Caution is advised when experimenting with elevated Feedback settings at high volumes. Advanced feedback routing is possible using the options in PrimalTap's Tweak Menu (see page 9).

LOW CUT / HIGH CUT

PrimalTap features variable Low and High Cut controls (also known as highpass/lowpass filters) for eliminating unneeded frequencies. The Low Cut can be set anywhere between 0.1Hz and 1000Hz. The High Cut has a selectable range anywhere from 15kHz all the way down to 800Hz.

OUTPUT CONTROL SECTION

The Output control section is very similar to the Feedback section in that you are given three sliders; output level controls for delay lines A/B (red/yellow) as well as a dry/wet mix slider (green).



Figure 3: PrimalTap's Tweak Menu

TWEAK MENU

PrimalTap's slide-out Tweak Menu gives you control over an advanced set of parameters granting you exacting control over PrimalTap's sound. The controls in the Tweak Menu provide for an amount of customization not available in vintage hardware.

ALGORITHM

The algorithm section allows you to control how Primal Tap handles recirculated audio, greatly altering the response of the Feedback slider.

Classic: This is the default algorithm and models the original Prime Time hardware - the outputs of delay A and B are mixed together and fed back to both inputs. Because of this mixing, Classic mode has a tendency to distort easily and go into "runaway" feedback with moderate to high settings of the feedback controls.

Parallel: In Parallel Mode, the A and B delay lines are completely independent, with the output of line A feeding back into line A, and the same for B. This "fixes" the instability found in Classic Mode, and is the most "normal" of the feedback modes.

Reverb: Reverb Mode, like Classic Mode mixes the outputs of the A and B delay lines, but does it in a special way to prevent the unstable runaway feedback from happening. This mode can be used to create lush echo washes when used with long delay times and healthy doses of delay mod.

Series: In Series Mode the output of channel A feeds directly to the input of channel B, and the A and B feedback paths are independent, feeding each channel back into itself. This mode is similar to the effect that you would get if you patched two echo/delay units in series. This can be useful for creating effects like a flanged echo, or other special effects.

ALGORITHM (continued)

Criss-Cross: In Criss-Cross Mode, the feedback paths are crossed, so that the output of channel A feeds back to the input of channel B, and vice versa. This can be used to create interesting rhythmic patterns when the A and B channels are set to different delay times.

Ping-Pong: Ping-Pong Mode is similar to Criss-Cross (crossed feedback paths), except that the input signal only feeds channel A, resulting in a “bouncing” effect where the audio will first appear on channel A, then channel B, then channel A, and on and on.

ROLLOFF

Rolloff allows for the PrimalTap’s Low and High Cut filters to apply either to the entire output signal, or instead, only to the Feedback signal. Using the Rolloff for just the Feedback signal can very very useful in taming long delays or frozen delays in keeping them from overtaking the source material.

LFO SHAPE

This option gives you the ability to alter the LFO shape in PrimalTap. There are four available classic LFO waveshape options to choose from: *Triangle* (which was the only option for the original hardware), *Square*, *Sine*, and *Ramp*.

DEPTH

Two sliders (one for each delay line) allow for the depth control to be adjusted individually for delay lines A and B. These sliders determine the amount of LFO modulation applied to the signal. In other words, the Depth control is essentially determining the intensity of the modulation.

Each Depth tweak slider also features a phase invert switch.

OUTPUT PAN

The Output Pan controls are very similar to the Depth controls in that they are separate sliders for delay lines A and B with a phase in/out control for each. These controls allow for the panning of each delay line to be adjusted independent of one another.

SUPPORT INFORMATION

Now that you've taken the time to learn all about PrimalTap, have fun, experiment, and make greatness! If our plug-ins helped you take your production to the next level, let us know, we'd love to hear from you and what you were able to create with our software.

If along the way however you should run into any hiccups or anything unexpected, we offer free technical support for all registered users.

Our FAQ contains many helpful answers. you can find it at:

<http://support.soundtoys.com>

If you need further support you can find our Customer Support contact form at:

<https://www.soundtoys.com/forms/support>

You can also reach our support staff by e-mail at:

support@soundtoys.com

If neither of those options work for you, our office can be reached via telephone at:

1-800-COOL-EFX

Please have the following information available to help assist our support team:

- The product version and serial number
- The version number of your audio system (e.g ProTools 11.2.1, Cubase 8.0.5, Logic 10.2.0, Cakewalk Sonar X3)
- Your interface/hardware (e.g. Mbox Pro, Apogee Quartet, RME Fireface, etc.)
- Your computer and operating system info (e.g. MacPro OS X 10.9.5, Windows 7 SP1, Windows 8.1, etc.)
- A detailed description of the problem

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