Multitude delay workstation

WHAT IS IT

INTRODUCTION

A conventional delay constantly processes and echoes all of the audio on the input. Multitude uses gate sequencers to control sends into four individual delay lines – allowing you to activate them at precise moments in time. Want a delay only on that particular note, chord, or hit? With Multitude, you can do this. And so much more.

Multitude features a highly visualised, colour-coded user interface that has been calibrated for both indoor and outdoor lighting conditions. Thanks to extensive use of OS X Core Animation and Accelerate frameworks, it provides an unusually smooth, delightful user experience – and at the same time, efficient internal processing.

SPECIFICATIONS

– Four independent delay units with forward and reverse playback modes.
– Five gate sequencer tracks for dry input signal and four delay sends, eight separate sequences storable per preset.
– Eight simultaneous effect processors per delay unit: frequency shifter, sample rate and bit depth reducers, circuit bender, noise, multi-mode filter, saturation, and flanger. Effects can be placed before, after, or inside each delay's feedback loop.
– Two separate modulation generators per delay unit, each with 16 destinations, 8 different waveforms, adjustable chaos.

INTERFACE OVERVIEW

Gate sequences for dry
input and delay send

Gate sequence end
step handle

Dry input and
delay levels,
mute switches

Gate sequence
reset buttons

Delay A/B/C/D
edit switches and
utility functions

Current
sequence
number and
utility functions

input

delay A

delay B

delay C

delay D

multitude 1.1.0

duration 2 bars   timing normal   swing 0 %   sequence 1 2 **3** 4 5 6 7 8   copy paste 2x 4x 8x

delay A B C D   copy paste

shifter

filter

flanger

modulator one

time
3/16 note

frequency

dry/wet

type
low-pass filter

range

period
3/16 note

chaos

playback mode
forward

effects routing
post delay

distortion

sample rate

bit depth

circuit bender

noise

slope
-24 dB/octave

cutoff

resonance

saturation

intensity

speed

feedback

dry/wet

modulator two

period
1 bar

chaos

feedback

pan

Delay time, playback
mode, routing,
feedback and pan

Frequency shift
and distortion effect
parameters

Multi-mode filter
and saturation
parameters

Flanger effect
parameters

Waveform, period,
chaos parameters
for modulators one
and two

FUNCTION GUIDE

SEQUENCER

Multitude's core is a gate sequencer that works in sync with the host application's transport. The sequence speed is defined with the **duration** parameter which can be set to 2, 4, or 8 bars. The amount of steps in the sequence is changed by dragging the triangular sequence loop end handle. The sequencer can run at normal **timing** (16th, 8th, 4th notes) or in triplets (12th, 6th, 3rd notes); according to this setting, the steps are visually arranged by four or three. The **swing** parameter gradually makes the odd sequencer steps longer while shortening the even steps, producing a rhythmical "shuffle" effect. The sequencer duration, timing and swing parameters are adjusted by clicking on their values and dragging left or right.

Multitude allows to store up to 8 separate sequences within a single preset. The eight numerical buttons switch between the sequences, and the sequence number can also be automated in the host application. The **copy** and **paste** utility functions allow to copy one sequence into another. The **2x**, **4x** and **8x** loop functions repeat the first half, fourth or eighth of the sequencer steps.

MATRIX

The sequencer gate matrix defines at which moments in time the dry input signal and the delay A/B/C/D sends are active. Simply clicking or clicking and dragging turns the gate on particular steps on or off. The **x** buttons on the right of each respective row toggle between clearing the whole sequence or activating all steps. On the left of the matrix the controls for dry input level and individual delay A/B/C/D output levels are placed, as well as their respective mute switches.

DELAY A/B/C/D

This is where one of Multitude's four delay units are chosen for editing. The **time** parameter defines the delay duration in relation to the tempo, it goes from 1 bar to 128th note. The **playback mode** sets the delay playback to regular forward or reverse. The **effects routing** defines where all of the effects processors are placed: before the delay, after the delay, or inside the delay's feedback loop. The latter mode is particularly interesting since it will re-process the delay tail on and on with each feedback cycle, allowing for really dramatic results – especially when frequency shifter, filter or flanger effects are employed. The **feedback** control defines the duration of the delay tail. Finally, **pan** adjusts the position of the delay in the stereo field.

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SHIFTER

This is a classic frequency shifter effect that moves each spectral component of the input signal into higher or lower range by a fixed amount, resulting in a smooth but dissonant, metallic pitching effect. The **frequency** control adjusts the shift amount, and the **dry/wet** control adjusts the balance between the clean signal and the frequency-shifted signal. When frequency is set to a low to medium value and and dry/wet balance is 50%, it produces a very smooth feedback phaser effect that endlessly cycles down or up. Another interesting effect can be achieved when the delay routing is set to "in feedback loop" and the dry/wet parameter is set to the max – the sound will continue to go up or down in pitch as the delay repeats itself.

DISTORTION

This effect section allows to reduce the **sample rate** and **bit depth** of the signal, producing harsh, buzzy digital distortion. The **circuit bender** control adjusts the cutoff frequency of a special filter with intentionally broken internal connections; it adds really nasty, noisy distortion. The **noise** control varies the density of a shot noise generator that is mixed with the original sound.

FILTER

This module is a traditional multi-mode filter. Three **type** settings are available: *low-pass* filters out frequencies above cutoff, *high-pass* removes frequencies below the cutoff, and *band-pass* only leaves frequencies around the cutoff. The filter has adjustable **cutoff** frequency and **resonance**, plus variable **slope** steepness at -12 or -24 dB/octave – the latter making a more deep, pronouncing filter effect. The final **saturation** stage boosts the signal level and mathematically wraps its shape within 0 dB limit, resulting in a smooth but bright overdrive effect.

FLANGER

This module mixes a short feedback delay with the original signal, producing many different effects such as regular flange, comb resonator and pitch detune. The **range** control defines the base time of the flanger. Two controls adjust the **intensity** and **speed** of internal triangle wave generator. When increased, the **feedback** control makes the flange effect more pronounced, resonant; it has two different sound characters depending on negative or positive setting. Finally, the **dry/wet** control mixes the clean signal with the flanged signal. If the intensity parameter is turned down to zero, one or both of the Multitude's modulators can be used on the range parameter to sweep the flanger is more elaborate ways than simple up-down modulation.

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MODULATOR ONE & TWO

For each of the four delay units, Multitude features two dedicated tempo-synchronised modulators (a.k.a. low-frequency oscillators) that can be routed into almost any parameter. The **waveform** selector sets the modulator to one of eight waveforms: triangle, saw, square, pulse, trapezoid, notch, 3x staircase and 4x staircase. The **period** selector defines the speed of the modulator in relation to the host tempo and goes from 4 bars to 128th note. The **chaos** parameter gradually applies a random amplitude onto each cycle of the modulator.

The modulation depth of each parameter is adjusted using the correspondingly-coloured (orange or yellow) handles below each parameter slider. It can be dragged right or left to be either positive or negative – the latter effectively inverts the selected modulator waveform shape. Two modulators with different waveforms and period settings can be routed onto the same parameter to create more complex animations.