

Analog to Digital

Lush

User manual



Thank you for buying Lush.

Lush was designed as a pad synth with ambient and space music in mind, you can hear that in the presets. In the main, they are slow, eternally evolving, interweaving soundscapes.

Features

basics

4 oscillators, three with sine, saw, triangle pulse (pwm) white and pink noise waveforms each with an individual on/off switch and volume control. The 4th oscillator is a stereo sample player with 12 high quality built in stereo samples. The volume section contains a standard ASDR envelope and a main volume knob.

filter

Two four pole resonant filters with the ability to split a percentage of the output of each oscillator to each filter (filter balance). Oscillator 1 and 2 can even have the split modulated in the modulation matrix. There is a link button which means filter 2 follows filter 1 separated by the value of the offset knob. Each filter can be separately panned.

modulation

This section is the heart of Lush.

In the modulation matrix in the centre of row 2 the sources are down the left hand side and the destinations along the top. Both negative and positive values are possible, double click sets to zero.

Also on row 2 are a step input (midi gate) and a continuous graphical input which can both be synced with the clock of the sequencer in steps from 1 to 64.

In row 3 there are two syncable lfos with multiple waveforms and a random switch and a second ASDR envelope which can be assigned in the matrix.

effects

The final row is the effects section with a synced stereo delay, stereo chorus and reverb.

The major controls can be automated from midi and there is a midi learn facility to

let the user set their own controller numbers. There are 64 presets to use as starting points for your own sounds. Cpu usage is low.} Comes with pdf manual.

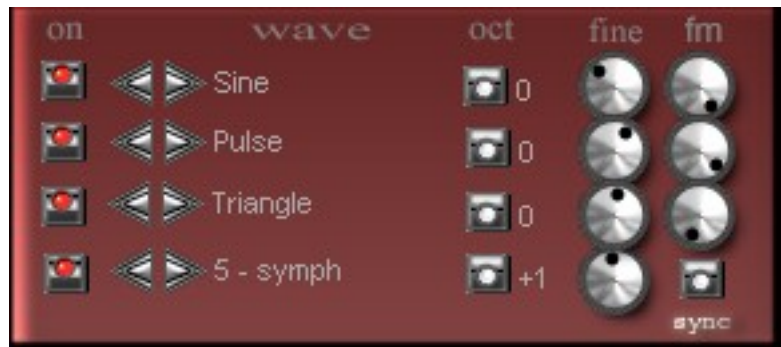
Requirements

Any PC (not Macintosh) software that can use vst instruments like Cubase, Fruity Loops etc.

Wave

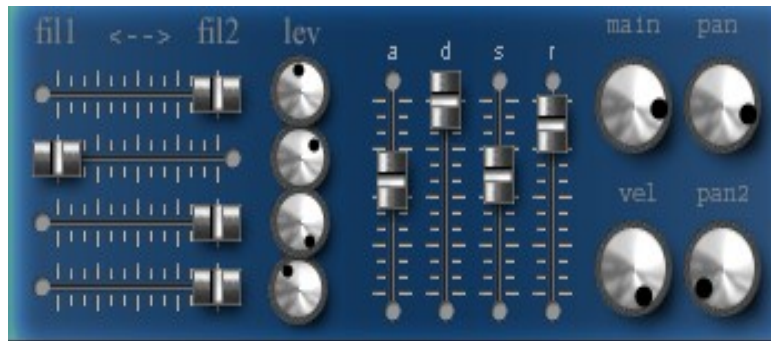
Four oscillators, the first three have sine, saw, triangle, pulse, white noise, pink noise. The fourth oscillator has selectable samples.

Columns



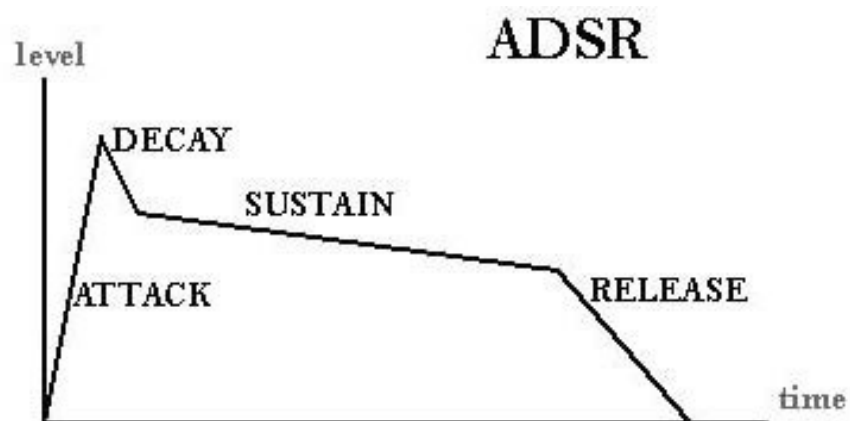
- 1) Osc on/off
- 2) Osc select
- 3) Octave select (-2.. +2)
- 4) Fine tune
- 5) FM effect (common modulator for each oscillator). In the bottom row there is a sync effect button which syncs the first three oscillators, useful for pitch sweeps.

Volume/Pan



- 1) Filter balance - determines how much of the signal goes to filter 1 or filter 2
- 2) Individual oscillator level
- 3) ADSR volume envelope - all oscillators pass through this

'ADSR' is an acronym for "Attack, Decay, Sustain, Release", the four segments of the ADSR generator's output. The ADSR generator is controlled by a control stream called a "trigger". Triggering the ADSR generator "on" sets off its attack, decay, and sustain segments. Triggering it "off" sets off the release segment.



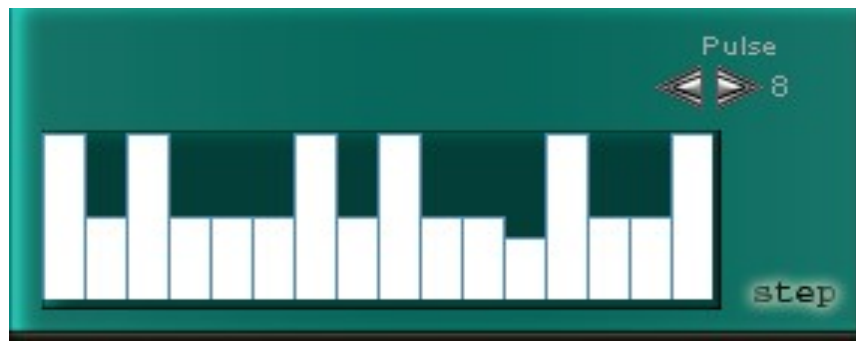
- 4) Main - overall volume, Vel velocity sensitivity.
- 5) Pan of filter 1, pan of filter 2.

Filter



- 1) Filters 1 and 2 selection, low, high bandpass, or band reject..
- 2) Filter cut off frequency
- 3) Resonance
- 4) Having link selected means the filters have identical resonance and cutoff values, filter 2 cut off is offset by the amount selected with the offset knob. The filters can have different types (low, high etc.)

Step / Gate



Gate effect with 16 steps, pulse sets tempo divisor in units of 1 bar, so a setting of 64 is 1/16th note in 4/4 time. One of the inputs to the matrix (see below)

Matrix

	vcf1	vcf2	vol	pitch	fb1	fb2	pwm	pan
step	-28							
cont	-7							
lfo1	-7						28	
lfo2	-3							98
env2	-16	79						

Modulation matrix like a modular synth with five sources and eight destinations. Values can be positive or negative and are changed by dragging the mouse up and down. Double click sets value to zero (blank).

Sources are step/gate, continuous graphic input, lfo1, lfo2, envelope 2.

Destinations are vcf1,vcf2, main volume, pitch of oscillator 1 and 2, filter balance 1, filter balance 2, pwm (only works with pulse wave), and pan (both filters).

Graphic Input

Continuous controller, shape can be drawn in with mouse. The effect repeats and the pulse sets the tempo divisor like the gate.



LFO



- 1) Tempo sync
- 2) Wave shape
- 3) Delay time before lfo begins
- 4) Random / sample and hold effect on/off.

Envelope 2



Second ADSR envelope for use in the matrix.

Stereo Delay



- 1) Delay 1,2 on/off
- 2) Volume .
- 3) Pan .
- 4) Feedback.
- 5) Tempo sync.

A tempo synced double delay modelled on the one in cubase 5.1. There are separate controls for left and right channels. Apart from the on off switch and the mix level (controlled by midi controller 6 for left, 8 for right) there is beat which sets the base delay beat to be 1/32 1/16 1/8 ☐ or ☐ of a beat and the multiplier which you multiply to get the actual delay. The values go from 1 to 8.

Example

If the beat is set to be 1/16 and the multiplier is 4 then the delay is actually $\frac{1}{4}$ of a beat. 4 times 1/16 is $\frac{1}{4}$.

Chorus

1) Feedback

2) Effect depth left

3) Effect depth right

5) Modulation frequency left

6) modulation frequency right



Reverb



1) On/off

2) Volume

3) Width, damp, size sliders.

These are the **midi controllers** for the various knobs

filter

cut1 1
cut2 2
res1 3
res2 4
offset 5

volume/pan

osc 1 level 6
osc 2 level 8
osc 3 level 9
osc 4 level 16

main vol 7
pan1 10
pan2 11

volume envelope

a 12
d 13
s 14
r 15

Oscillator

osc 1 fine 17
osc 2 fine 18
osc 3 fine 19
osc 4 fine 20

osc 1 fm 21
osc 2 fm 22
osc 3 fm 23

Lfo

delay 1 24
delay 2 25

envelope 2

a 26
d 27
s 28
r 29

delay

delay 1 vol 30
delay 1 pan 31
delay 1 fdbk 32

delay 2 vol 33
delay 2 pan 34
delay 2 fdbk 35

Chorus

feedback 36

depth 1 37
frequency 1 38
depth 2 39
frequency 2 40

Reverb

mix 41
width 42
damp 43
size 44

Issues

There is a problem that is currently beyond our control, unfortunately. On multi-processor systems with some software, using two or more instances of lush plus can cause a crash. The solution is to create multiple copies of the plug in with different names. It actually makes it easier to distinguish between them anyway. They are very small in relation to the size of a modern hard disk so storage isn't a problem.

So lush1.dll, lush2.dll etc

Credits

VST is a trademark of Steinberg

To buy the full version of Lush, please go to

<http://homepage.ntlworld.com/sealed/newwebsite/shop.htm>