

Expert Sleepers Crossfade Loop Synth v3.0.5 User Manual

Copyright © 2008 Expert Sleepers. All rights reserved.

This manual, as well as the software described in it, is furnished under licence and may be used or copied only in accordance with the terms of such licence. The content of this manual is furnished for informational use only, is subject to change without notice, and should not be construed as a commitment by Expert Sleepers. Expert Sleepers assumes no responsibility or liability for any errors or inaccuracies that may appear in this document.

Contents

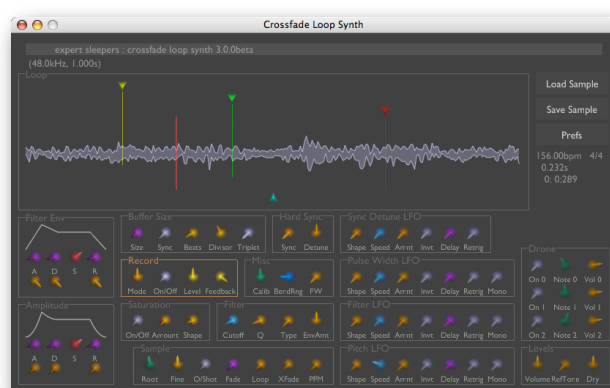
Introduction	6
Crossfade Loop Synth	6
Crossfade Loop Synth Effect	6
Installation	7
Mac OS X	7
Windows	7
System Requirements	7
Mac OS X	7
Windows	7
Registration	8
Using Crossfade Loop Synth	9
Using the controls	9
Knobs	9
Sliders	9
Name/value display	9
Loading and manipulating samples	9
Loading samples	9
Controlling sample playback	10
Setting the loop points and crossfade	10
Loop calibration	11
Reference Tone	11
Envelopes	12

Controls	12
Infinite Release	12
Saturation	12
Filter	12
Play Position Memory	13
Pulse Width	13
Hard Sync	13
LFOs	14
Pitch LFO	14
Filter LFO	15
Pulse Width LFO	15
Sync Detune LFO	15
Drones	15
Pitch Wheel Range	15
Crossfade Loop Synth Effect	16
Compared to Crossfade Loop Synth	16
Recording	16
Record controls	16
Buffer size controls	17
Saving the sample to disk	17
Using the Effect as a Delay	17
Preferences	18
MIDI control	19
Version History	20

3.0.5 20/5/2008	20
3.0.4 13/1/2008	20
3.0.3 16/12/2007	20
3.0.2 30/9/2007	20
3.0.1 18/3/2007	20
3.0.0 15/3/2007	20

Release Notes	23
----------------------	-----------

Contact	24
----------------	-----------



Installation

Mac OS X

Simply copy the plug-in to the appropriate folder:

Library/Audio/Plug-Ins/Components

for the Audio Unit version, or

Library/Audio/Plug-Ins/VST

for the VST version.

Windows

Simply copy the plug-in to your VST plug-ins folder.

System Requirements

Mac OS X

Crossfade Loop Synth requires at least Mac OS X version 10.2.8. Version 10.4 or higher is recommended.

The plug-ins are Universal Binaries and so will work on PowerPC or Intel Macs.

The Audio Unit version will work in any Audio Unit host.

The VST version requires a “VST 2.4” compatible host.¹

Windows

Crossfade Loop Synth has been developed and tested with Windows XP SP2. It may work with other versions of Windows (Vista included) but this is by no means guaranteed.

The plug-in requires a “VST 2.4” compatible host.

¹ VST is a trademark of Steinberg Media Technologies GmbH.

Registration

The downloadable version of Crossfade Loop Synth stops working after 15 minutes every time you use it. To stop this happening, you need to buy a registration.

You can buy a registration key online using a credit card or PayPal from the Expert Sleepers Licence Manager application. See [here](#) for more information. Note that you need at least version 1.0.4 (Mac OS X) or 1.0.11 (Windows) of the Licence Manager.

The e-commerce side of things is handled by [eSellerate](#). If you have any security concerns, have a look at their website which is pretty informative.

Your registration key allows you to install Crossfade Loop Synth on up to 3 different computers (useful if for example you have a desktop computer in the studio and a laptop for live use).

You need an internet connection to activate the software, though not necessarily on the computer on which you want to use it.

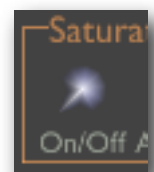
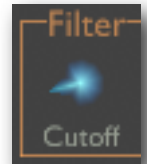
Using Crossfade Loop Synth

Using the controls

Knobs

Basic use of the knobs is to click on them and drag the mouse up and down. However you can obtain different results by holding keys as follows:

- Shift : Values change more slowly as you move the mouse.
- Command¹ (Mac OS X) / Alt (Windows) : The knob assumes its default position.



The exception to the above are knobs which are actually 'on/off' buttons. These are coloured light grey in the interface. Simply clicking on such a knob toggles the state between on and off.

Sliders

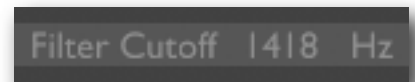
Sliders behave similarly.

- Shift : Values change more slowly as you move the mouse.
- Command : The slider assumes its default position.



Name/value display

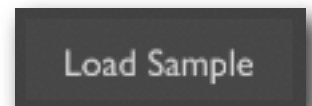
As you move the mouse around the interface, the name and current value of the control currently under the mouse is displayed in the top right of the window. This area also provides tooltips for buttons.



Loading and manipulating samples

Loading samples

The 'Load Sample' button lets you choose an audio file on disk to load as the sample to play. Files should be mono or stereo, 16 or 24 bit, uncompressed audio.

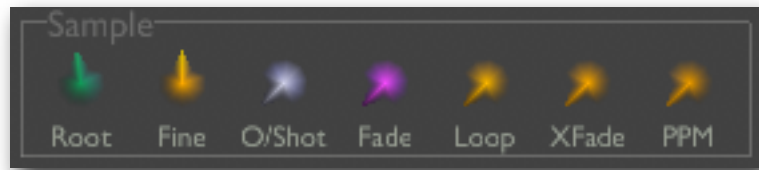


Mac OS X: Most popular formats (e.g. AIFF, WAV, SD2) should work.
Windows: Only WAV format is supported.

¹ The 'Command' key is also known as the 'Apple' key - the one next to the spacebar.

Controlling sample playback

The selection of knobs labelled 'Sample' control some basic aspects of sample playback.



The 'Root Note' control lets you set the MIDI note number at which the sample will play back at its original pitch (this is essentially the same as a coarse tune control). A 'Fine Tune' control is also provided. A reference tone can be used to help tune the sample correctly - see [below](#).

The 'No Loop On/Off' control lets you disable looping i.e. the sample stops playback once it hits the loop end position. The 'No Loop Fade' control lets you set a short fade-out for this, rather than an abrupt stop. NB the sample will continue to loop during this fade-out, so the settings of the loop controls will have an effect on the sound.

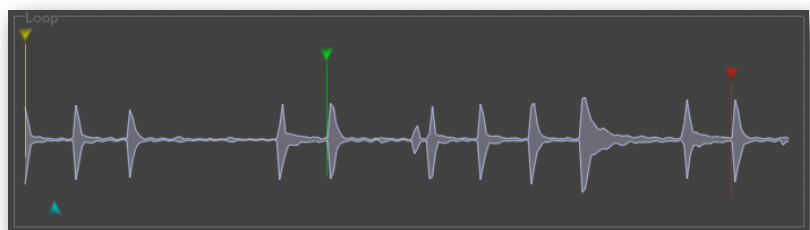
The 'Loop Mode' control chooses between the 3 basic loop modes: Forwards (loop plays from beginning to end), Reverse (loop plays from end to beginning) and Alternate (loop switches between Forward and Reverse whenever it hits a loop endpoint).

'Crossfade Type' selects between 'Equal Gain' and 'Equal Power' crossfade curves. The former is more appropriate when the ends of the loop are similar material, and phase-coherent (for example, if you're looping the sustain section of a sampled instrument). The 'Equal Power' mode is useful when looping less coherent material, and can help to prevent the apparent drop in volume during the crossfade that you can get with the 'Equal Gain' curve.

The final control in this section is Play Position Memory - see [below](#).

Setting the loop points and crossfade

The remaining loop controls are the 4 coloured sliders that appear in the sample preview window.



'Start Offset' (yellow) sets the point at which playback will start when the note is first triggered.

'Loop Start' (green) sets the beginning of the looped section.

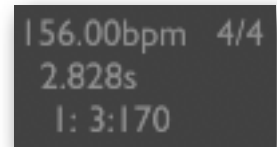
'Loop End' (red) sets the beginning of the looped section.

NB when the Loop Mode is Reverse, Loop End is effectively the loop start and Loop Start is effectively the loop end. Also in this case the Start Offset should be set after Loop Start.

'Crossfade' (blue) sets the amount of crossfade or overlap applied at the beginning and end of the loop. Higher values will tend to smooth the loop transitions.

Loop calibration

Various information is displayed to the right of the sample waveform window to help in setting up loop points.



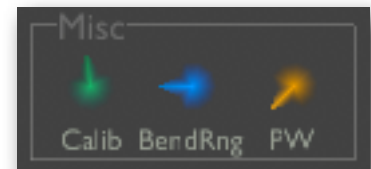
156.00bpm 4/4
2.828s
1: 3:170

The first line gives the song's current tempo and time signature, as set by the host application.

The second line shows the current loop time, in seconds. NB this is not necessarily the time between the start and end markers - when crossfading is taken into account, the actual time after which the sample repeats is different.

The third line also shows the loop time, but in musical notation (bars, beats and 480ths of a beats).

To display the loop time, we have to assume a certain pitch for sample playback. This pitch is set with the 'Calibration Note' control in the 'Misc' group.



Reference Tone

The 'RefTone' knob fades up a pure tone at the reference pitch for the note being played. This can be useful when tuning the sample, but can also be used creatively to introduce another element into the synth's sound.



The sample needs to be tuned against this reference tone for the pulse width control to work properly (see below).

Envelopes

Controls

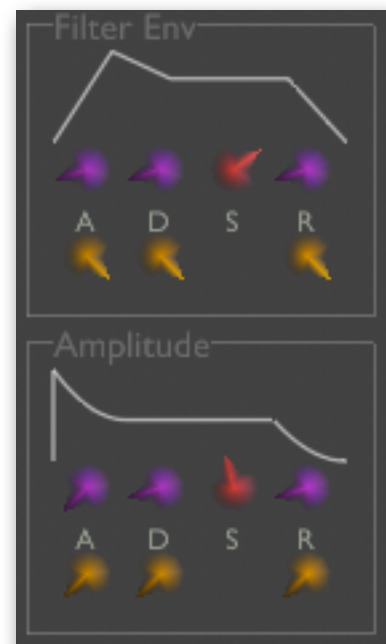
The amplitude and filter envelopes are both of the standard ADSR type, but with extra control over the shape of the curves.

The upper 4 knobs control the attack time, decay time, sustain level and release time.

The lower 3 knobs control the shape of the attack, decay and release curves.

Infinite Release

The filter envelope release setting has a special value (at full clockwise rotation of the control) labelled 'Inf'. When this setting is made, the envelope stops at the sustain level, and does not decay to zero when the note is released.



Saturation

The saturation section lets you apply subtle or extreme distortion/overdrive effects to the sample (before being fed to the filter section).

The 'Saturation Amount' control applies boost to the signal as it passes through the saturation effect, thus increasing its tendency to saturate.

The 'Saturation Shape' control affects the nature of the waveshaping applied to the signal. At a value of 0.0, the effect is simple hard clipping. At 1.0, the effect is soft clipping. Beyond 1.0 the effect is increasingly more extreme waveshaping.

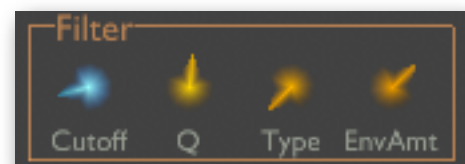


Filter

The filter 'type' control lets you smoothly choose between no filtering, lowpass filtering, bandpass filtering and highpass filtering.

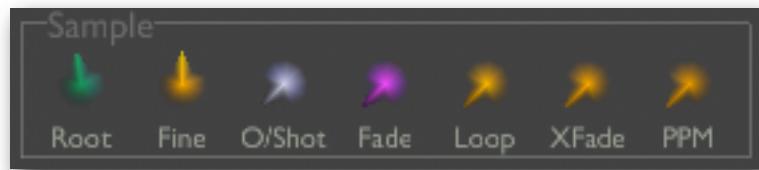
The filter cutoff and resonance ('Q') controls function exactly as you would expect.

The envelope amount control sets how much the filter envelope modulates the filter cutoff.



Play Position Memory

The last control in the 'Sample' group, PPM provides variations on the idea that the sample should start playing from the position at which it last stopped playing. For example, if you had a sample of someone counting from one to ten, it might be useful to play a note which played 'one, two, three...', release the note, and then play the same note again for 'four, five, six...'.

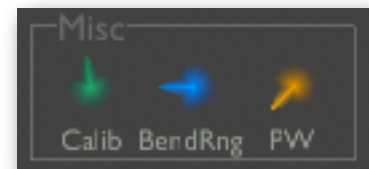


The options are:

- Off.
- Global - playback restarts at the last position played, regardless of the notes involved.
- Per Note - each MIDI note (i.e. pitch) has its separate memory of the position it last stopped playing.
- Same Note - playback position is remembered if the same note is played again, otherwise playback starts from the normal sample start point.
- Different Note - playback position is remembered if different notes follow each other; if the same note is played twice, the playback position goes back to the start.

Pulse Width

The Pulse Width control lets you apply an effect similar to the pulse width modulation familiar from classic analogue synths. If the sample has been correctly tuned to the [reference tone](#), adjusting the PW control will alter the tonal character of the sound in a manner similar to classic PWM.



Pulse width has its own LFO - see below.

Hard Sync

'Hard Sync' borrows another concept from classic analogue synths - that of oscillator sync.

In traditional synthesis, the frequency of one oscillator is forced onto the waveform of another. In Crossfade Loop Synth, this is done by adjusting the loop length so that the loop repeats at the desired audio frequency. The result is more like synthesis than sample playback - but synthesis with a waveform from the sample buffer. In effect, a kind of wavetable synthesis. By moving the loop point through your sample, you can get some nice tonal variation into your sound.



The 'Sync' control turns the effect on. It sets length of the sample that is used for synthesis, in terms of a number of cycles at the reference frequency. Setting this to 1 will produce a most recognisable single tone - higher settings will produce more complex and possible atonal waveforms.

When Hard Sync is turned on, a small section of the sample at the loop start point is all that will be used. However, at the start of a note the sample will still play from the start offset until it reaches the loop start. Therefore, if you just want the tone of the sync'd sound, set the start offset after the loop point so playback begins immediately at the loop. Or, use this creatively, to play an interesting section of the sample before hitting the loop - resulting in something similar to the old 'S+S' keyboards of the 80s.

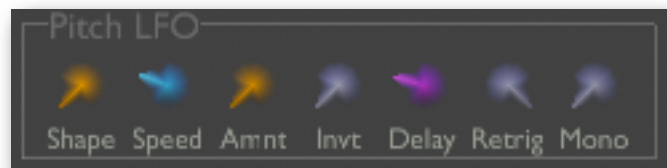
Note that the crossfade control still has an effect. High crossfade values will tend to 'soften' the sound you get from Hard Sync.

The 'Detune' control lets you modulate the pitch of the sample playback, while keeping the sync'd pitch constant. This gives the characteristic 'tearing' sound.

The detune amount has its own LFO - see below.

LFOs

There are four LFOs which are independent and are each assigned a fixed function. They all have the same controls:



- 'Shape' - selects one of four LFO waveforms: sine, triangle, saw and square.
- 'Speed' controls the frequency of the LFO.
- 'Amount' sets the amount by which the LFO modulates its affected value.
- 'Invert' flips the LFO waveform - e.g. the saw waveform switches from a rising ramp to a falling ramp.
- 'Delay' sets the period over which the delay's effect fades up after a note is pressed. This can give e.g. a nice vibrato effect that fades up during a note, as a violin is normally played.
- 'Retrigger' - if on, the LFO waveform resets when a note is pressed. If off, the LFO waveform runs continuously. NB retriggering is also affected by the LFO's 'Mono' control.
- 'Mono' - if on, all notes playing use the same LFO. If off, each note has its own LFO.

Pitch LFO

Modulates the note pitch by up to 100 cents (one semitone).

Filter LFO

Modulates the filter cutoff frequency by up to 3 octaves.

Pulse Width LFO

Modulates the pulse width control (see [above](#)).

Sync Detune LFO

Modulates the hard sync detune frequency (see [above](#)) by up to an octave.

Drones

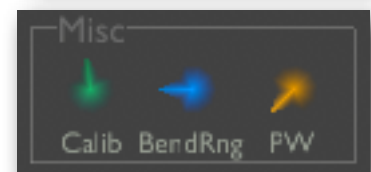
You can turn on up to three notes to play continuously (like the drones on the bagpipes). This is mainly useful for the effect plugin (below) but has its uses for the synth version too.

Usage is very simple - for each of the 3 drones you have an on/off switch, a note control and volume control.



Pitch Wheel Range

Found in the 'Misc' section - simply sets the range of the MIDI pitch bend control, from 0 to 12 semitones.



Crossfade Loop Synth Effect

Compared to Crossfade Loop Synth

The effect version of Crossfade Loop Synth can do everything the synth version can - it simply adds more features.

The primary difference is that you can record audio into the sample buffer. You can still load samples from disk too.

You can play notes from the effect over MIDI, assuming your host application supports this (not all hosts allow passing notes to effects, only to synths).

Though they also feature in the synth version, the drones (see [above](#)) really come into their own in the effect version. For a simple delay effect, turn on one of the drones tuned to the root note, and enable recording with feedback (see below).

Recording

Record controls

'Mode' chooses the recording mode:

- Continuous - recording is always on.
- Gated - recording is turned on and off with the 'On/Off' control.
- Gated With Reset - as Gated, but the record position is reset to the start of the buffer when recording starts.
- Gated By Notes - recording is active whenever any notes are playing (including drones).
- Gated By Notes With Reset - as Gated By Notes, but the record position is reset to the start of the buffer when recording starts.
- Triggered - recording starts when the 'On/Off' control is turned on, and stops at the end of the buffer. (This is the mode you'd use to treat Crossfade Loop Synth as a traditional sampler.)



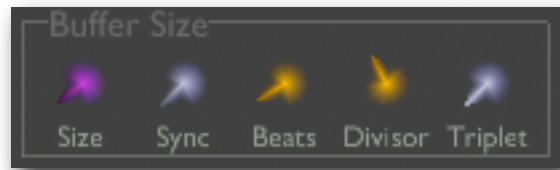
'Level' sets the recording level. Raise this if the level going into the plugin is too low.

'Feedback' controls the amount of feedback applied. At 0%, new recording completely replaces the audio already in the buffer. At 100%, new recording is layered on top of the old audio. At other settings, the old audio is reduced in volume on each pass.

Buffer size controls

These controls together set the size of the recording buffer.

The first control 'Size' simply sets the buffer size in seconds. The range of this control is a preferences setting - see below.



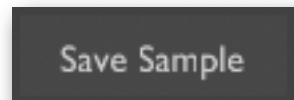
The 'Sync' control has four settings - 'Off', 'Off (Adaptive)', 'On' and 'On (Adaptive)'.

In the 'Off' modes, the buffer size is set via the 'Size' control. In the 'On' modes, the remaining controls set the buffer size in terms of the host's tempo. 'Divisor' chooses a beat length to use as the basis for the size (e.g. a setting of 1/4 chooses quarter notes) and the 'Beats' control sets how many of those beats to use for the buffer length. 'Triplet' modifies the chosen beat length to its triplet version.

The '(Adaptive)' modes take into account the loop start, end and crossfade settings, so that the net length of the loop, rather than the actual buffer size, matches the size chosen with the size or beats controls.

Saving the sample to disk

The 'Save Sample' button lets you save the audio currently in the buffer to disk.



Currently there are no options. The saved file is always a 24 bit stereo AIFF (Mac OS X) or WAV (Windows) file. The audio is normalised during save.

Using the Effect as a Delay

Crossfade Loop Synth Effect can create some interesting variations on delay effects.

To get a basic delay, try the following settings:

- Choose a buffer size that is rhythmically related to the tempo of your song (e.g. by using the 'Sync' settings above).
- Set the loop start and end points to the start and end of the buffer, and the crossfade to zero.
- Set the record mode to Gated By Notes With Reset.
- Activate the middle drone (which by default plays at MIDI note 60, the same as the default sample root note).

From there, try varying the loop mode, the loop start and end points etc. Try adding the other two drones to get audio an octave below and above the pitch you recorded.

Preferences

Pressing the 'Prefs' button brings up a dialog where various preferences are set. These settings are shared by all instances of Crossfade Loop Synth, and are not stored with presets.

Prefs

The top section shows the product version.

The central section will show your serial number once you've bought a registration.

'Constant redraw' is on by default. If turned off, the GUI is only redrawn when a control changes. Use this if you're concerned that the GUI is wasting your CPU resources. Note that the display of playback and record positions is useless if constant redraw is disabled.

'Floating tooltip' causes the parameter name and value display (usually in the top right of the GUI) to be displayed above the mouse pointer. Use this if you find it inconvenient to look away from the mouse to see the parameter value you're altering.

The 'GUI Size' controls let you rescale the entire window. This could be useful if you're running low on screen space, or conversely if you want to be able to see the GUI from a long way away.

The 'Max buffer size' setting only affects the Effect version of the plugin. It sets the range of the buffer size control. Setting this to higher values will consume a larger amount of your computer's memory.



MIDI control

All of Crossfade Loop Synth's parameters can be controlled via MIDI CC's (Continuous Controllers) according to the table below.

CC 64 (sustain pedal) is also supported.

2 Root Note	46 Drone 0 Volume	88 Sync Detune LFO Invert
3 Fine Tune	47 Drone 1 On/Off	89 Sync Detune LFO Delay
4 Start Offset	48 Drone 1 Note	90 Sync Detune LFO Retrigger
5 Loop Start	49 Drone 1 Volume	
7 Volume	50 Drone 2 On/Off	
8 Loop End	51 Drone 2 Note	
9 Crossfade	52 Drone 2 Volume	
11 Attack	53 Filter LFO Shape	
12 Decay	54 Filter LFO Speed	
13 Release	55 Filter LFO Amount	
14 Attack Shape	56 Filter LFO Invert	
15 Decay Shape	57 Filter LFO Delay	
16 Release Shape	58 Filter LFO Retrigger	
17 Sustain	59 Filter LFO Mono	
18 Filter Cutoff	60 Pitch LFO Shape	
19 Filter Q	61 Pitch LFO Speed	
20 Filter Type	62 Pitch LFO Amount	
21 Filter Env Amount	63 Pitch LFO Invert	
22 Filter Env Attack	65 Pitch LFO Delay	
23 Filter Env Decay	66 Pitch LFO Retrigger	
24 Filter Env Release	67 Pitch LFO Mono	
25 Filter Env Attack Shape	68 Calibration Note	
26 Filter Env Decay Shape	69 Buffer Size	
27 Filter Env Release Shape	70 Use Beats	
28 Filter Env Sustain	71 Beats	
29 No Loop Fade	72 Beat Divisor	
30 No Loop On/Off	73 Triplet	
31 Loop Mode	74 Pulse Width	
32 Saturation On/Off	75 Pulse Width LFO Shape	
33 Saturation Amount	76 Pulse Width LFO Speed	
34 Saturation Shape	77 Pulse Width LFO Amount	
35 Crossfade Type	78 Pulse Width LFO Invert	
36 Pitch Wheel Range	79 Pulse Width LFO Delay	
37 Play Position Memory	80 Pulse Width LFO Retrigger	
39 Record Mode	81 Pulse Width LFO Mono	
40 Record On/Off	82 Reference Tone Level	
41 Record Level	83 Hard Sync Cycles	
42 Dry Level	84 Hard Sync Detune	
43 Feedback	85 Sync Detune LFO Shape	
44 Drone 0 On/Off	86 Sync Detune LFO Speed	
45 Drone 0 Note	87 Sync Detune LFO Amount	

Version History

3.0.5 20/5/2008

- First Windows version.

3.0.4 13/1/2008

- Fixed a crash when loading VST presets with the GUI hidden.

3.0.3 16/12/2007

- Fixed a possible crash when using very short buffer sizes in the Effect version.

3.0.2 30/9/2007

- (AU version) Now responds properly to AudioUnitReset(), so in e.g. Logic the delay buffer will be cleared when song playback is started etc.

3.0.1 18/3/2007

- Fixed crash bug when using Effect version with small (<64 samples) buffer sizes.
- Fixed failure in MOTU's AU Examiner that prevented use in Digital Performer.

3.0.0 15/3/2007

- First effect version.
- Added 'play position memory'.
- Added drones.
- Added pulse width modulation.
- Added 'hard sync'.
- Added LFOs.
- Added reference tone.
- Added calibration display.

2.1.5 4/1/2007

- VST version now built against VST SDK 2.4 and so is usable in current VST hosts.
- VST version now supports GUI resizing (as AU version previously did).

2.1.4 9/5/2006

- Fixed stability problems with filter.
- Added control of pitch wheel range.

2.1.2 22/4/2006

- First Universal Binary version.

2.1.1 27/1/2006

- First VST version.

2.1.1 2/2/2005

- fixed crash when using alternate and reverse loop modes
- fixed crash which could occur when GUI repeatedly opened and closed

2.1.0 22/12/2004

- added "equal power" crossfade option
- fixed issues with detuned playback of large samples
- cpu efficiency improvements

2.0.0 12/12/2004

- all-new GUI
- new 'reverse' and 'alternate' loop modes
- amplitude and filter envelopes now ADSR with adjustable shape
- added saturation section
- increased range of filter cutoff
- volume control now has a different response curve
- NB 2.0.0 is not compatible with 1.x presets

1.3 20/3/2004

- added MIDI CC control of most parameters
- resolved some possible (rare) crash & glitch issues
- added handling of MIDI 'All Notes Off' and 'All Sound Off' messages
- added support for 24 bit audio files
- added confirm dialogue when attempting to load a very large sample
- added support for MIDI pitch bend messages
- if two presets use the same sample, changing between them no longer reloads the sample or cuts off any sounding notes (though note that any glitching caused by sudden parameter changes will still occur)
- fixed possible audio cut-out when loop endpoints moved while notes sounding

1.2 12/2/2004

- added 'one shot' playback mode
- fixed possible crash when changing sample while notes are playing
- added volume control
- better audio file support, including support for wav and sd2 files

1.1 2/10/2003

- fixed component registry bug

- fixed crash when loop end set before loop start
- added fine tune control
- added filter sweep control

1.0 4/2/2003

- added Aqua GUI

0.2b 29/12/2002

- sample filename & path now stored with preset
- added proper handling of user pressing 'cancel' in file choosing dialogue
- improved voice allocation algorithm when repeatedly playing the same note
- added state-variable filter with its own envelope
- added a readme

0.1b 11/12/2002

- First beta release.

Release Notes

v3.0.1 has a known issue in that PWM and Hard Sync don't work well together. The intention is to re-implement PWM and release this as v3.1.0, a free upgrade, at some point in the future.

Contact

The Expert Sleepers website is here:

<http://www.expertsleepers.co.uk/>

Or you can email

info@expertsleepers.co.uk

Or you can use the forum, which is here:

<http://www.collective.co.uk/expertsleepers/forum/>