

TIM EXILE

S L O O

Voice Swarm Synthesiser



Manual

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Automation IDs 26

Intro

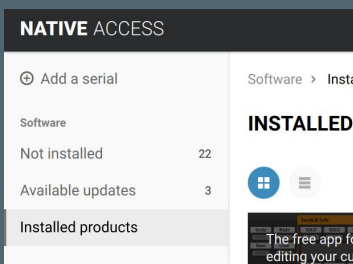
SLOO is a powerful instrument for composing and performing with evolving textures, dense and rhythmic chords, dynamic leads and basses, alien percussion and unholy transitions between all of them. It's a voice swarm synthesiser and it's just as happy on stage as it is in the studio. It uses shed loads of oscillators all at once - 48 to be precise - to achieve anything from epic chords to subtly evolving monosynths. I say oscillators but they're more like 48 independent synth voices with a choice of oscillator type, multimode resonant filter, frequency modulation, parametric LFO and a mod matrix. The synth voices behave like a flock of birds operating partly independently, partly as one. Stand close and hear the birds, stand afar and hear the flock. The concept is simple, the sound is dense. And it morphs: with the morph bar you can transition dramatically between a flock of starlings and a kettle of vultures.

Enough about birds, let's dive in...

Installation

Firstly unzip the zip file to a sensible location of your choosing.

Then download, install and launch the Native Access application from Native Instruments' website [here](#)



Once Native Access is launched, click 'Add Serial' and enter the serial number you have received.

You will then be asked to browse to the location where you unzipped the file and select the folder which contains SLOO.nicnt.

Once you confirm the folder selection Native Access will install SLOO.

For support enquiries related to installation please contact [Native Instruments support](#)

Overview



The unique sound of SLOO comes from two things. Firstly the interaction between the 48 voices when their parameters swarm in a pattern by a certain distance from a central point. Secondly the way these parameters morph between the lefthand and righthand voice parameter settings.

The best way to get to know the sound of SLOO is to explore the presets in the preset toolbar on the lefthand side. There are 4 banks with synths, sound FX, basses and percussion.

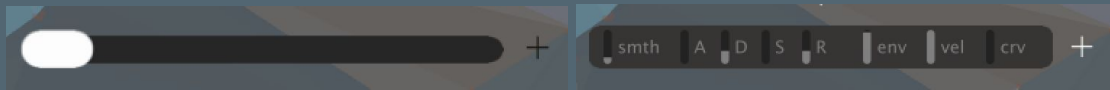
There are 5 main sections on the interface

1 Swarm Patterns and Swarm Pattern History



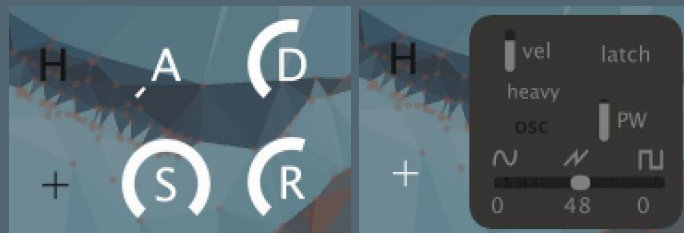
The two global randomise buttons randomise the parameter spreads for the lefthand or righthand parameter sets. The history wheel stores the results of the last 16 randomise actions. Moving the clock hand recalls the stored random values. History recall can also be automated in different ways by MIDI note events.

2 Morph bar



The morph bar controls the morphing between the lefthand and righthand parameter sets. Morphing can also be controlled by a dedicated envelope generator.

3 Gate, Amplitude Envelope and Oscillator settings



The controls in this section define the response of the global amplitude envelope to MIDI note events or the H (Hold) button alongside some bonus functions such as oscillator settings.

4 Scales and Live Quantise



The single octave piano keyboard allows each note in the octave to be remapped to a certain pitch. There are 5 scales which can be selected using the radio buttons to the righthand side of the piano keyboard.

5 Voice parameters



There are 8 main parameters for the voices: Pitch, Pan, FM Pitch, FM Amount, Filter Pitch, Filter Resonance, LFO Frequency and LFO Amount. For each parameter there are centre, pattern and distance controls which set how the 48 voices swarm around a central point. Pitch, FM Pitch, Filter Pitch, LFO Frequency and LFO Amount have additional parameters in their respective + pages.

Swarm Patterns and Pattern History



This section generates, stores and recalls swarm patterns. Swarm patterns govern how each voice's individual parameter relates to a single central point.

A note about swarm patterns

This is where our bird analogy comes in handy again.

Let's say there are 48 birds in our flock. They can be close to each other or far apart. This has a big impact on how the flock looks. But they also have a particular pattern in relation to each other - their swarm pattern - which stays the same whether they're flocking close together or far apart.

Let's say some birds have red feathers and others blue. If the blue and red feathered birds are all evenly distributed the flock will look purple whether it's close or far away. But if the blue birds tend to fly at the head of the flock and the red ones at the tail the flock will look more like a gradient. If we add more bird 'parameters', such as wingspan or beak length we get an exponential rise in how the relative distribution of the birds' 'parameters' affects the overall appearance of the flock.

The relative distributions of a certain parameter in the flock such as feather colour is called a swarm pattern. Whether the birds are flocking close together or far apart they still have the same swarm pattern but at a different distance.

Each parameter in SLOO has a swarm pattern. The complexities of SLOO's sound arise from how these swarm patterns interact between the different parameters. Swarm patterns are generated randomly and automatically stored in the history wheel by hitting the randomise button next to a parameter. Alternatively you can generate new

swarm patterns for all parameters on one side of the morph bar by hitting one of the two large pattern buttons at the top.

Each time a new swarm pattern or group of swarm patterns is generated the history rotates one position clockwise and stores the new patterns. Rotating the arm of the pattern history recalls the values generated by any one of the last 16 randomise actions. Depending on how the voice parameters are configured this can create dramatic shifts in the sound and is handy for rapid sound design and comparison.

Bonus function: recalling Random History by MIDI note-on



While I was building the swarm pattern architecture I lost a few hours along the way just rotating the pattern history wheel and listening to the results. So I decided to make it automatable. It's great for giving synth lines a bit of character - especially useful if you're working inside the box.

Recall of pattern history via MIDI note-on events can be set up in the automator page which is accessed via the + button beneath the pattern history wheel. The histories which are available to recall by note-on are set using the Start and Len controls. Start sets the first history in the sequence which can be recalled, Len sets the length of the sequence of histories which can be recalled.

There are 4 modes for note-on history recall. Click on one of the icons to select one of these modes:

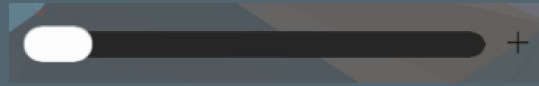
Off (top lefthand corner) - histories are not recalled by note-on events

Random (top righthand corner) - a random history within the sequence is selected at note-on

Forwards (bottom lefthand corner) - histories are recalled in a forwards sequence, looping round to Start

Backwards (bottom righthand corner) - histories are recalled in a backwards sequence, looping round to Start + Len

Morph Bar



This controls the crossfade between the parameter settings on the lefthand side and those on the righthand side. The lefthand side parameters are the parameters that you'll hear when the morph bar is completely to the lefthand side. The parameters on the righthand side are the parameters that you'll hear when the morph bar is completely to the righthand side. As you drag the morph bar from left to right you'll hear more and more influence of the righthand side parameters and less and less of the lefthand side parameters until you hit 100% righthand side parameters on the far righthand limit.

The Morph Bar can be controlled either on the graphic interface, from the modwheel of a MIDI keyboard or automation parameter 2

Bonus functions: Morph Envelope, Smoothing and Curve



These bonus functions are in the Morph Bar + page

Morph Envelope

This modulates the position of the Morph Bar in dependence on MIDI note events. The curve of this modulation is set using the A (attack), D (decay), S (sustain) and R (release) faders. These affect how the modulation signal changes over time in response to note events. For more information about envelope generators read [this](#). The amount of influence the Morph Envelope has over the Morph Bar can be set with the env fader.

Smoothing

Moving the Morph Bar abruptly can cause a big jump in the sound which may not be desirable so the speed at which the morph catches up with morph bar movements can be set using the smth fader.

Curve

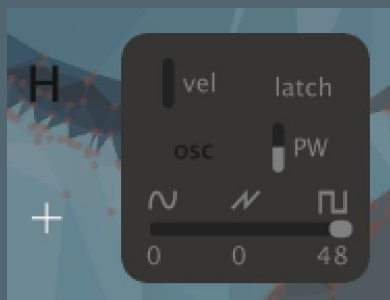
Sometimes a linear morph just ain't right so you can set the curve of the morph with the crv fader. Higher settings result in a more logarithmic curve which favours the righthand side of the morph bar. This function is useful for adjusting the feel of Morph Envelope settings with fast attack or decay times.

Gate and Amplitude Envelope



This section controls how the overall output level changes over time. The H (Hold) button toggles between the level being affected by MIDI note events in the off position (dark) and the level being permanently full in the on position (bright). When H is off the rate and shape of how the envelope changes the sound over time is affected by the A (Attack), D (Decay), S (Sustain) and R (Release) knobs.

Bonus functions: Envelope Velocities, Gate and Oscillator modes



These bonus functions are in the Gate and Envelope + page

Envelope Velocity

The amount that the velocity of incoming MIDI note events affects the level of the highest peak the amplitude envelope generator will hit is controlled by the 'vel' fader. With the fader fully down the envelope will always hit a peak of 80% velocity. As the fader is moved up, the velocity of incoming notes affects the peak of the envelope more and more until maximum where the peak of the envelope is set entirely by the incoming note velocity.

Gate Mode

The 'latch' button affects how the envelope responds to more than one note on event at one time. When latch is off (dark) all incoming note on events retrigger the envelopes regardless of whether there is already an existing note on. When latch is on (bright) the envelopes are retriggered only on the first note on event.

Oscillator Modes

There are 3 different aspects of the behaviour of the oscillators which can be set:

Oscillator Retrigger

When the 'osc' button is bright the oscillators will be resynced by gate events. This results in a more punchy attack to the sound.

Oscillator Waveform Distribution

The horizontal fader along the bottom of the + page sets the distribution of the waveform of the oscillators. When full left, all 48 oscillators will be sine waves. As the fader moves towards the centre from the left, more and more of the oscillators will have a sawtooth waveform until the fader is in the centre at which point all 48 oscillators will have a sawtooth waveform. As the fader moves from the centre to the right more and more of the oscillators will have a pulse waveform until the fader is full right at which point all 48 oscillators will have a pulse waveform.

Oscillator Pulsewidth

The pulse width of any oscillators that have a pulse waveform can be controlled with the PW vertical fader. When the fader is in the centre the pulse width is 50:50, when it is at maximum it is 99:1. To find out more about pulse width oscillators read [this](#)

Voice Density

Voice density is the number of voices that SLOO uses at once. There are 3 modes - Light, Medium and Heavy. Heavy is the default mode and where all 48 voices are in action at once. In this mode SLOO is a hungry beast! If you'd like to reduce SLOO's appetite for CPU you can select Medium or Light to reduce the number of voices.

Scales and Live Quantise



The pitch of the oscillators can be forced to stay in key using the scale functions, and the timing of gate events can be forced to stay in time using the live quantise functions.

Scale mode has 4 static scales C, A, L and E which can be set up in advance and switched between live to create shifting chord sequences. The first scale, S, is dynamic and updated live in response to incoming note events. In this mode the pitches which the oscillators are remapped to are recalculated based on incoming note events.

To select one of the 5 scales click on its respective letter icon.

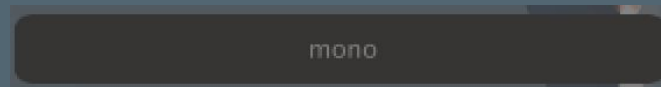
The note map for the selected scale is displayed on the scale map display to the right of the S, C, A, L and E buttons.

Bonus functions: Editing Scales, Dynamic Scale Mode

These bonus functions are in the Scales and Live Quantise + page.

Editing Scales

When C, A, L or E are selected the + page shows an editable display of how pitches are remapped within the scale. To change how a pitch is remapped for a key click and hold the key and drag the mouse up and down.



When the dynamic scale S is selected you can select from 3 behaviour modes which control how the pitches are distributed between the voices. To select one of them, click on the word to cycle through the 3 options.

In mono mode only one note per octave is available at once. This results in a monosynth-like response. In poly mode the scale map is made up of any notes which have been pressed. This results in a polyphonic-like response. In adaptive mode the

scale map defaults to mono unless two or more notes are played at once in which case polyphonic mode is enabled. This allows a flexible playing style for keyboardists.

Voice Parameters



Voice Parameters Overview

The 8 global voice parameters Pitch, Pan, FM Pitch, FM Amount, Filter Pitch, Filter Resonance, LFO Frequency and LFO Amount control the global voice parameter settings. Each global parameter has a lefthand and a righthand setting. The lefthand setting controls the voices when the Morph Bar is fully left, the righthand setting controls the voices when the Morph Bar is fully right. When the Morph Bar is between the left and right the voice parameters will be a combination of these values.



Each setting has 3 controls. The lefthand knob controls the centre point of the flock, the middle button generates a new swarm pattern for the voices and the righthand side knob controls the distance the values for each voice swarm from the central point. With the A knob fully down the individual random offsets have no effect on that parameter for any of the voices. Turning the distance knob up introduces more and more influence from the swarm pattern. With the distance knob fully up the parameters swarm at their furthest point from the centre.



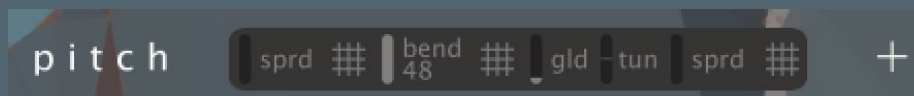
The Morph button in between the left and right settings controls whether the parameter is included in the morph. When Morph is disabled the righthand settings become invisible and the settings for that parameter are controlled by the lefthand settings at all positions of the Morph Bar.

Pitch



These parameter settings control the pitch of the oscillators. These pitches are added to the pitch of the current MIDI note to allow the pitches to be played in the expected way using a MIDI keyboard.

Bonus Functions: Spread, Scale Mapping, Bend and Glide



These bonus functions are accessed in the Pitch + page

Spread

Additionally to the main page pitch control the pitches of the oscillators can be spread by micro-tuned increments using the 'sprd' vertical fader. This function has the most impact when all oscillators are at the same pitch and produces a thickening effect to the sound. There is a separate spread setting for the lefthand and righthand sides of the morph.

Scale Map

The pitches of the oscillators are mapped to the currently selected scale when the grid icon is highlighted. Scale map can be disabled by clicking the icon which becomes dark. When disabled oscillators can take any pitch including microtones. There is a separate scale map setting for the lefthand and righthand sides of the morph as well as for the morph itself (the centre grid button).

Bend

The 'bnd' vertical fader controls how much the oscillator pitches are affected by MIDI pitchbend.

Glide

The time it takes for oscillators to glide up to a new pitch is set using the 'gld' vertical fader. At the bottom pitches move instantly, at the top they take a long time to glide to their new pitch.

Pan



These parameter settings control the left/right pan position for each oscillator

FM Pitch



These parameter settings control the pitch of the frequency modulation source for each oscillator

Bonus Functions: Scale Map, Key Amount



These bonus functions are accessed in the FM Amount + page

Scale Map

The pitches of the frequency modulation oscillators are mapped to the currently selected scale when the grid icon is highlighted. Scale map can be disabled by clicking the icon which becomes dark. When disabled oscillators can take any pitch including

microtones. There is a separate scale map setting for the lefthand and righthand sides of the morph.

Key Amount

The 'key' vertical fader controls the amount that the current global pitch of the keyboard influences the pitches of the frequency modulation oscillators. At the bottom the keyboard pitch has no effect. At the top the pitch of the keyboard is added in full to the current pitches of the FM oscillators.

FM Amount



These parameter settings control the amount of the frequency modulation source for each oscillator

Filter Pitch



These parameter settings control the cutoff frequency of the filter for each oscillator

Bonus Functions: Key Amount, Filter Type Distribution, Velocity Amount



These bonus functions are accessed in the filter + page

Key Amount

The 'key' vertical fader controls the amount that the current global pitch of the keyboard influences the cutoff pitches of the filters. At the bottom the keyboard pitch has no effect. At the top the pitch of the keyboard is added in full to the current cutoff pitches of the filters.

Filter Type Distribution

The horizontal fader on the + page sets the distribution of the filter types. When full left, all 48 filters will be lowpass filters. As the fader moves towards the centre from the left, more and more of the filters will become bandpass filters until the fader is in the centre at which point all 48 oscillators are bandpass filters. As the fader moves from the centre to the right more and more of the filters will highpass filters until the fader is full right at which point all 48 filters will highpass filters.

Velocity Amount

The 'vel' vertical fader controls the amount that the current gate velocity influences the cutoff pitches of the filters. At the bottom the velocity has no effect. At the top the velocity is added in full to the current cutoff pitches of the filters.

Filter Reson



These parameter settings control the resonances of each filter

LFO Frequency



These parameter settings control the resonances of each filter.

Bonus Functions:



Retrigger, Shape, Shape Spread, Width, Width Spread, Curve, Curve Spread, Morph Enable, Sync Mode, Sync Clock Rate

The LFO Frequency bonus functions are an entire world unto themselves, helping to create anything from slowly shifting drones to complex polyrhythmic melodies.

Retrigger

When 'retrig' is enabled (bright), all LFOs are restarted by new note-on events. When disabled LFOs run free without ever being restarted.

Shape

The shape vertical fader controls the shape of the LFO. The shape can be continually adjusted from a downward saw wave at the bottom through a symmetrical up-down wave in the middle to an upward saw at the top. Whatever the value of this parameter the peak of each LFO cycle always appears in the same place allowing rhythmic settings to always stay in time with the grid.

Shape Spread

The shape spread bi-directional knob controls the amount that the shape of each of the 48 LFOs is offset from the global value by a spread value which is different for each voice.

Width

The width vertical fader controls the pulse width of each LFO cycle. At the lowest setting the shape of each LFO cycle is executed in a very small percentage of the total cycle length. The output of the LFO remains at its lowest for the rest of the cycle. At the highest setting the shape of each cycle takes the full length of the cycle to execute and the LFO cycles round again just at the point the LFO shape has been completed. Whatever the value of this parameter the peak of each LFO cycle always appears in the same place allowing rhythmic settings to always stay in time with the grid.

Width Spread

The width spread bi-directional knob controls the amount that the width of each of the 48 LFOs is offset from the global value by a spread value which is different for each voice.

Curve

The curve vertical fader controls the curve of the LFO as it executes its shape. The curve can be continually adjusted from a sine function at the lowest setting through a linear function in the middle to a logarithmic function at the top.

Curve Spread

The curve spread bi-directional knob controls the amount that the curve of each of the 48 LFOs is offset from the global value by a spread value which is different for each voice.

Morph Enable

The LFO shape, width and curve controls and their spread controls are duplicated with one set for each side of the Morph Bar. Morphing is enabled when the > button is bright. When disabled (dark) the righthand morph parameters disappear from the interface.

Sync Mode

The LFOs have 3 sync modes: free, soft and hard which affect how the LFO relates to the current tempo and clock. In free mode the LFO frequencies bear no relation to the current tempo and move freely. In soft mode the LFO frequencies are mapped to musically sensible mathematical subdivisions of the current tempo but they are free to move independently of the sync clock so if an LFO frequency changes mid-cycle its phase may become arhythmically offset from the clock. In hard mode the LFO frequencies are mapped to musically sensible mathematical subdivisions of the current tempo and are hard-synced to the sync clock. If an LFO receives a new frequency mid-cycle it waits until its cycle is completed, adopts the new tempo and waits for the next clock pulse to restart.

Sync Clock Rate

This controls the minimum LFO rate when sync mode is soft or hard.

LFO Amount



These parameter settings control the resonances of each filter.

Bonus Functions:

Amplitude Amount, Amplitude Amount Spread, Pitch Amount, Pitch Amount Spread, FM Amount Amount, FM Amount Amount Spread, FM Pitch Amount, FM Pitch Amount Spread, Filter Pitch Amount, Filter Pitch Amount Spread, Morph Enable



The LFO Frequency bonus functions are yet another entire world unto themselves, allowing close control over the shape of the sound and how it moves. The parameter names get a little ridiculous here - amount amount amount - but it's cool. You can do cool things with it.

Amplitude Amount

The bipolar vertical fader 'a' controls the amount of influence the LFO has on the amplitude of the voice. In the middle the LFO has no influence. At the highest setting the LFO has a full positive influence. At the lowest setting the LFO has a full negative influence

Amplitude Amount Spread

The bi-directional knob 'a' controls the amount that the amplitude amount of each of the 48 LFOs is offset from the global value by a spread value which is different for each voice.

Pitch Amount

The bipolar vertical fader 'p' controls the amount of influence the LFO has on the pitch of the voice. In the middle the LFO has no influence. At the highest setting the LFO has a full positive influence. At the lowest setting the LFO has a full negative influence

Pitch Amount Spread

The bi-directional knob 'a' controls the amount that the pitch amount of each of the 48 LFOs is offset from the global value by a spread value which is different for each voice.

FM Amount Amount

The bipolar vertical fader 'fma' controls the amount of influence the LFO has on the FM Amount of the voice. In the middle the LFO has no influence. At the highest setting the LFO has a full positive influence. At the lowest setting the LFO has a full negative influence

FM Amount Amount Spread

The bi-directional knob 'fma' controls the amount that the FM Amount amount of each of the 48 LFOs is offset from the global value by a spread value which is different for each voice.

FM Pitch Amount

The bipolar vertical fader 'fmp' controls the amount of influence the LFO has on the FM Pitch of the voice. In the middle the LFO has no influence. At the highest setting the LFO has a full positive influence. At the lowest setting the LFO has a full negative influence

FM Pitch Amount Spread

The bi-directional knob 'fmp' controls the amount that the FM Pitch amount of each of the 48 LFOs is offset from the global value by a spread value which is different for each voice.

Filter Pitch Amount

The bipolar vertical fader 'filt' controls the amount of influence the LFO has on the Filter Pitch of the voice. In the middle the LFO has no influence. At the highest setting the LFO has a full positive influence. At the lowest setting the LFO has a full negative influence

Filter Pitch Amount Spread

The bi-directional knob 'filt' controls the amount that the Filter Pitch amount of each of the 48 LFOs is offset from the global value by a spread value which is different for each voice.

Morph Enable

The LFO amounts and their spread controls are duplicated with one set for each side of the Morph Bar. Morphing is enabled when the > button is bright. When disabled (dark) the righthand morph parameters disappear from the interface.

Appendix 1 - Automation IDs

Automation ID	Parameter
1	Master Volume
2	Morph
3	Random History
4	Scale
5	Hold
6	Attack
7	Decay
8	Sustain
9	Release
10	Pitch centre left
11	Pitch distance left
12	Pitch centre right
13	Pitch distance right
14	Pan centre left
15	Pan distance left
16	Pan centre right
17	Pan distance right
18	FM pitch centre left
19	FM pitch distance left
20	FM pitch centre right
21	FM pitch distance right
22	FM amount centre left
23	FM amount distance left
24	FM amount centre right
25	FM amount distance right
26	Filter pitch centre left
27	Filter pitch distance left
28	Filter pitch centre right
29	Filter pitch distance right

30	Filter resonance centre left
31	Filter resonance distance left
32	Filter resonance centre right
33	Filter resonance distance right
34	LFO Frequency centre left
35	LFO Frequency distance left
36	LFO Frequency centre right
37	LFO Frequency distance right
38	LFO Amount centre left
39	LFO Amount distance left
40	LFO Amount centre right
41	LFO amount distance right
42	Oscillator type
43	Pulse width
44	Morph Envelope Attack
45	Morph Envelope Decay
46	Morph Envelope Sustain
47	Morph Envelope Release
48	Morph Envelope Amount
49	Pitch glide
50	Pitch snap left
51	Pitch snap right
52	Key to FM Pitch
53	FM Pitch Snap left
54	FM Pitch Snap Right
55	Filter type
56	Key to Filter Pitch
57	Velocity to Filter Pitch
58	LFO Shape Left
59	LFO Width Left
60	LFO Curve Left
61	LFO Shape Right
62	LFO Width Right
63	LFO Curve Right

64	LFO Sync
65	LFO Grid
66	LFO > Amp left
67	LFO > Pitch left
68	LFO > FM Amount left
69	LFO > FM Pitch left
70	LFO > Filter left
71	LFO > Amp right
72	LFO > Pitch right
73	LFO > FM Amount right
74	LFO > FM Pitch right
75	LFO > Filter right

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