

EVOL VSTi

Version 1.2

July 19, 2005

www.xsynth.com



What is EVOL?

EVOL is a subtractive softsynth with focus on the following:

- Warm filter
- Long host sync times
- Huge modulation matrix
- ROPP (Rogue Oscillator Phase Position)

Installation

Copy the contents of the zip file into your VST plugin directory

EVOL Features

- 8 Note subtractive synthesiser
- 127 patch memory locations
- 3 x VCO (FM, ring modulation & waveshaping)
- 1 x VCF
- 1 x VCA
- 3 x ADSR envelopes
- 5 x LFO BPM sync, key & free run (4 mono & 1 poly)
- 1 x High pass/low boost filter
- 1 x Arpeggio
- 2 x Rhythmic gate BPM sync
- 1 x Spacious stereo reverb
- 1 x Stereo chorus/flanger
- 1 x Stereo BPM delay

All LFOs support host sync up to 32 bars (more than a minute at 120 BPM)

EVOL uses ROPP (Rogue Oscillator Phase Position) to give a warm feel

EVOL relies on LFOs for the automation of parameters

EVOL has an extensive modulation matrix with up to 60 destinations

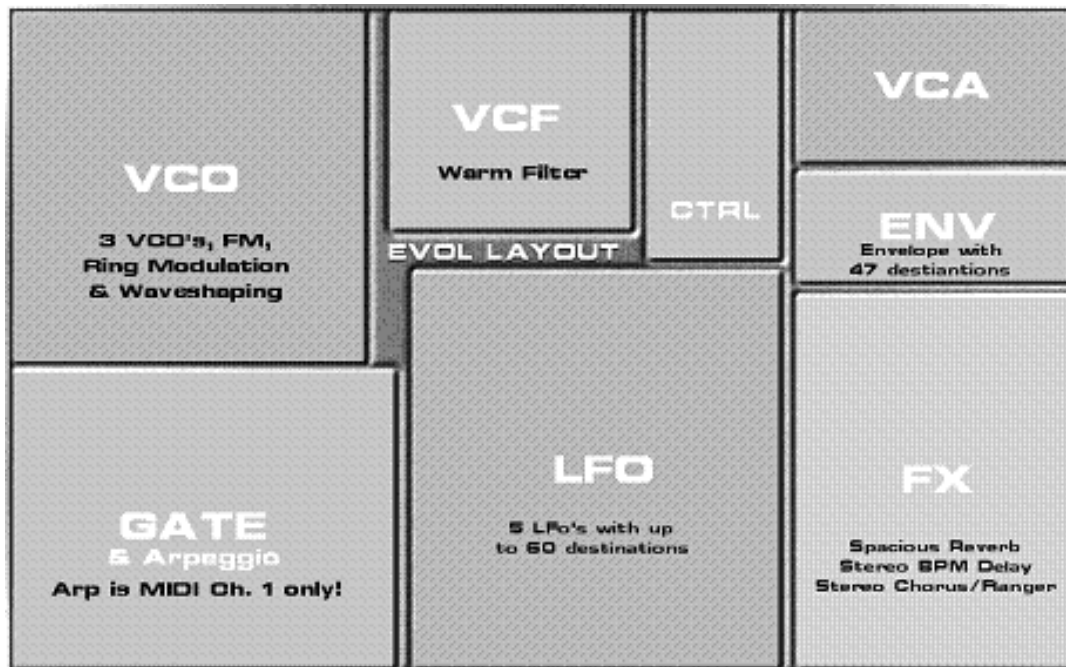
EVOL offers a lot of features and flexibility within its compact user interface but once you master it you're in for a big sonic landscape. It has a default set of patches, providing a wide range of sounds to get you started and you can download more from [the website](#).

Changes in version 1.2 (from 1.0)

- Added division buttons on several parameters
- All routing to FM is multiplied by 10
- Added a phase for the gate waveform
- The gate envelope did not benefit from negative values so it is now positive only

The EVOL Sections

This diagram shows the 8 main sections of EVOL



From left to right, top to bottom:

- VCO - with 3 VCOs, FM, ring modulation and waveshaping
- VCF – voltage controlled filter
- Control
- VCA – amplifier section
- ENV - envelope with 47 destinations
- Gate and arpeggiator
- LFO - 5 LFOs with 60 destinations
- FX - reverb, stereo BPM delay and stereo chorus/flanger

The VCOs



EVOL has 3 VCOs, each of which has tuning, fine tuning, pulse width and phase controls, and a waveform selector - sine, saw, ramp, triangle, pulse, white noise and pink noise are the available waveforms.

VCO 3 can operate in three modes:

- Normal - its output is treated as an ordinary signal
- FM only - its output is used to modulate VCO 1, Mix 3 controls the modulation depth,
- Normal and FM - its output is used for both purposes

The VCO set can operate in several modes, determined by the selection made in the FM/WS matrix (drop-down list):

FM/WS off

- the VCOs can be used as three separate VCOs
- VCO 3 can modulate VCO 1 by setting VCO 3 to one of its FM modes and turning up the Mix 3 control
- VCO 1 can Ring Modulate VCO 2 by turning up the RM control

FM only

- VCO 2 modulates VCO 1
- the Mix 1+2 level only controls the VCO 1 level - ring modulation is not enabled
- VCO 3 can modulate VCO 1 by setting VCO 3 to one of its FM modes and turning up the Mix 3 control

FM mix

- as for "FM only"
- the original VCO 2 signal can be mixed in

WShape

- the 3 VCOs act as three separate VCOs
- waveshaping is enabled for VCO 2
- VCO 2 can modulate VCO 1 by setting VCO 3 to one of its FM modes and turning up the Mix 3 control
- VCO 1 can Ring Modulate VCO 2 by turning up the RM control

Note: Waveshaping can produce aliasing so is best to only use it for low key patches if you want a clean sound. Higher keys will produce more aliasing and should be avoided unless you want an FX type patch.

FM+WSs

- VCO 2 modulates VCO 1 - modulation depth is set with the FM control and waveshaping is enabled for VCO 2. Waveshaping has no influence on the signal modulating VCO 1.
- VCO 3 can modulate VCO 1 by setting VCO 3 to one of its FM modes and turning up the Mix 3 control
- VCO 1 can ring modulate VCO 2 by turning up the RM control (feedback loops are avoided)

FMWSMix

- VCO 2 modulates VCO 1 - modulation depth is set with the FM control and waveshaping is enabled for VCO 2. Waveshaping has no influence on the signal modulating VCO 1.
- VCO 3 can modulate VCO 1 by setting VCO 3 to one of its FM modes
- VCO 1 can ring modulate VCO 2 by turning up the RM control (feedback loops are avoided)
- the original VCO 2 signal can be mixed in

A Ring Modulation (RM) example

Adjusting the RM control causes VCO 1 to modulate VCO 2; the result is the modulated signal, plus the VCO 1 and VCO 2 signals depending on the 1+2 Mix control.

So if VCO 1 = 200Hz and VCO2 =500Hz, you will get the modulations 300Hz and 700Hz ($VCO\ 2 \pm VCO\ 1$), and, depending on the Mix1+2 setting, the original VCO 1 and VCO 2 frequencies.

A Frequency Modulation (FM) example:

With VCO 3 switched into one of its FM modes, adjusting the FM control causes VCO 3 to modulate VCO 1. The Mix 3 control adjusts the depth of the modulation, and the FM control adjusts the amount of modulation (the higher the setting, the more additional frequencies).

For example, if VCO 1 is 200Hz and VCO 3 is 200hz, FM will initially produce signals at 300hz and 700Hz, then as FM is increased, 800hz and 1200Hz, 1400Hz and 1800hz etc.

Another FM example:

With an FM mode selected in the VCO mode matrix VCO 2 modulates VCO 1.

For example with VCO 1 at 200hz and VCO 2 at 300 Hz, and Mix1+2 at 0 (all the way left), as you increase the FM level you will get signals at 100hz and 500hz first, then as FM is increased, 400hz and 800hz, then 700hz and 1100Hz, followed by 1000Hz and 1400Hz.

If VCO 3 is switched to an FM mode then its signal will also modulate the modulated VCO 1 signal.

When one of the Waveshaping modes of operation is selected, you can use the waveshaping graph to alter the waveform generated by VCO 2. Waveshaping applies the graph to the input waveform; if the graph is an even slope then the waveform is not affected. You can drag each point on the graph to a new position, and these changes can introduce new frequencies into the VCO 2 waveform.

You can select the phasing of the 3 VCOs by adjusting the P1, P2 and P3 controls, and which VCOs are synchronized with notes played - VCO 1, VCO 2 or VCO 3, or both VCO 1 and VCO 2 or all 3 VCOs.

A note about the VCF and modulation envelopes (ADSR)

Both the VCF and modulation envelope's depth controls (ENV) determine whether the envelope is inverted or normal. At the midway (12 'o' clock) position, there is no effect – the envelope is off. Below mid position, the envelope is inverted, and above midway it is normal.

The VCF Section



The VCF (voltage controlled filter) section provides controls for filter cut-off frequency, resonance, key tracking depth and velocity sensitivity (depth), together with an ADSR envelope and a modulation depth control.

You can select the filter type, from low pass, high pass, band pass or band reject, and set the filter curve shape to linear, exponential or 2 variants of decibel. Finally, you can activate an EQ - with low boost or high pass settings.

EVOL's filter behaves a little differently to other filters that you may be used to. Most of the time you will find yourself setting resonance (RES) to about middle position.

This can do 2 things:

- brighten your sound if the cut-off frequency (FRQ) is wide open
- produce a Phat timbre when FRQ is around the middle position

The Control Section



The control section is headed by an output level VU meter, followed by controls for the output level and pan position.

There is also a glide control which determines the time it takes for one note to glide to another when they overlap (played legato), a pitch bend range selector (up to 12 semitones) and a MIDI CC control which adjusts how much effect your MIDI keyboard's aftertouch and MOD wheel will have on the selected parameter ("phew!").

The VCA Section



In the VCA (amplifier) section, EVOL offers another ADSR envelope, together with EQ level controls. The first knob ("HP") sets the high pass frequency when "EQ-Hi Pass" is selected (in the filter), then there is "Lo" and "Boost" which boosts the lower frequencies when "EQ-Lo Boost" is selected

in the VCF ("Lo" sets the area of frequencies to boost and "Boost" sets the amount of boost).

There are also three switches in the VCA section:

- Retrigger- which retriggers the amplifier ADSR envelope whenever a new note on message is received
- Mono - outputs a monophonic signal - in polyphonic mode up to 8 voices are available.
- Priority - determines which notes are dropped in mono mode, EVOL can automatically discard either the lower pitched note, the higher pitched note, the last received note, or none

The ENV Section



EVOL also provides an independent ADSR envelope with its own modulation amount control (ENV). The available routing destinations are shown in the routing modulation and gating section.

The Gate and Arpeggio



EVOL offers 2 16-step gates, each with an ADSR envelope and modulation depth control. Each gate can be routed to one of several destinations shown in the drop-down lists.

You can set the gate's level and phase, together with the waveform and sync-to-BPM resolution (this can range from 128 beats down to 1/16th of a beat).

The arpeggiator, in the same section, only receives MIDI on channel 1 and uses a resolution of 1-64 with a range from 1 to 4 octaves.

The "Arp Time" control functions like an envelope release, and "Arp Hold" keeps the arpeggiator running after you release the key(s).

The 7 arpeggio play modes are:

- OFF
- Up
- Down
- Up+Down
- Down+Up
- Up+Down 2
- Down+Up 2

The LFOs



EVOL offers 5 LFOs, each of which has its own level and speed controls, together with waveform and destination selectors.

LFOs 1 to 4 can run in sync (with a BPM resolution ranging from 128 beats down to 1/16th of a beat) or can free running (with the rate set using the "Free" control).

LFO 1 is polyphonic, can have an initial delay and can be routed to LFO 3

LFO 2 is monophonic and is mostly used for controllers like a Mod Wheel

LFO 3 is monophonic and can be routed to LFO 4

LFO 4 is monophonic and can be routed to LFO XL

LFO XL is monophonic; it always runs in sync, and has several more waveforms

LFOs 2 to 4 and XL can be phased in relation to LFO 1

The routing destinations available for each LFO are shown in the routing modulation and gating section.

The FX Section

EVOL has 3 integrated send effects - reverb, delay and chorus/flanger.



The reverb has damping, width, room size and mix controls, together with a freeze switch, modulation depth and pre-delay feedback levels. In addition, you can set 2 pre-delay times, in the range 0.06 seconds (60 milliseconds) to 9 seconds.

The delay is a stereo effect; you can select the delay times and set the feedback levels for the left and right channels independently. The delay can be routed to:

- the main EVOL output.
- the reverb input.
- both the main EVOL output and the reverb input.





The chorus (which can act as a flanger FX at certain settings) has level and speed controls, together with a modulation depth control.

You can route the chorus output to:

- the main EVOL output.
- the delay.
- the reverb.
- both the delay and the reverb.
- both the main EVOL output and the delay.
- both the main EVOL output and the reverb.
- the main EVOL output, the delay and the reverb.

It is possible to select which effects are active (the picture to the left shows that "All FX are On"). This feature is valuable as it's not a good idea to have effects running and using CPU when they're not needed.



There are also 4 send level controls; a master level, and one for each of the effects. And finally, a separate reverb on/off switch.

Here's how you can use the effects section. First thing to do is decide which effect you want to use. *Let's say it's CHORUS.*

- We need to send the signal to the CHORUS by using the FX matrix dropdown list (it will say "FX Send Off") in the lower right of EVOL.
- Choose "Chorus On"
- Turn up the master send level ("FX Mix") to the middle position
- Turn up the "Chorus" send to the middle position

Now the CHORUS is running with a signal going into it.

To get the typical CHORUS effect, turn up "Mod" and "Speed" to the middle positions.

The FX matrix allows the chorus and delay to use different routings. You could for example, route the chorus output signal into the delay and then into the reverb. This will lead to a weird ambient effect.

A schematic of this setup could look like this:

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Main signal--> Chorus--> Delay--> Reverb--> OUT
Main signal-----> OUT
  
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A Few Tips on Using EVOL

Several of the control knobs have a divide switch attached to them. These switches are used when you want to use the control to send a smaller value. The switch is coloured red when it is off. When this is turned on its colour will change to purple and the effect of the associated control will be much less. For example, if an LFO is routed to the pan position, then the pan amount will be much less when the LFO's divide switch is on

Cubase has a feature for the fine adjustment of controls. Hold CTRL down while adjusting, this will divide values by 10.

To lower CPU use, make sure all things that are NOT used are turned down or off.

You can select items from EVOL's drop-down lists by clicking on the list, scrolling to the desired value and selecting it, or you can move to the next/previous item in the list by clicking the triangular arrow either side of the list.

To learn about a knob, hover your mouse over it and you will see a tool tip. If the tool tip is not shown try turning the knob first.

Displaying tool tip info over dropdown lists is not supported by SynthEdit, so the lists are described in this diagram.



Fat Leads and ROPP

To get a fat lead sound you need to use Rogue Oscillator Phase Position (ROPP).

ROPP sound is closely related to the old type UNISON mode but is not achieved the same way, and ROPP is polyphonic whereas UNISON was monophonic.

To obtain ROPP you must experiment with the phase and waveforms and VCF filter.

One setting which generally leads to a ROPP is the following:

VCO	Tune	Fine	Waveform	and
1	0	+/-2	saw	
2	0	0	pulse	Phase turned to 0 (all the way left)
3	-1	0	saw or ramp	MIX 3 volume to centre position
VCF	Control	Setting		
	FRQ	at 12 o'clock		
	RES	at 2 o'clock		
	Decay	at 2 o'clock		
	ENV	at 2 o'clock		

Now you should have a ROPP sounding patch

Make this patch livelier by using LFOs to modulate Phase/PWM and Pitch

By setting VCF the velocity sense control to about 9 'o' clock, you will achieve an even more lively patch

Routing Modulation and Gating

The LFOs, Gates and ENV can be routed to other controls to modulate them. The table below shows the controls and the available destinations.

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Modulation Destinations Matrix									
VCO S									
		LFO 1	LFO 2	LFO 3	LFO 4	LFO XL	Gate 1	Gate 2	ENV
	VCO Levels: 1, 2, 3, 1+2, 2+3, 1+3, All	Y	Y	Y	Y	Y	Y	Y	Y
	VCO Phases: 1P, 2P, 3P, 1P+2P, 2P+3P, 1P+3P, All P	Y	Y	Y	Y	Y	Y	Y	Y
	VCO Pulse Widths: PW1, PW2, PW3, PW1+2, PW2+3, PW1+3, PW All	Y	Y	Y	Y	Y	Y	Y	Y
	VCO FreqMod level and RingMod level	Y	Y	Y	Y	Y	Y	Y	Y
	VCO Mix 1+2 level, Mix 3 level	Y	Y	Y	Y	Y	Y	Y	Y
F I L T E R									
		LFO 1	LFO 2	LFO 3	LFO 4	LFO XL	Gate 1	Gate 2	ENV
	Filter: Cutoff Frequency, Resonance, both	Y	Y	Y	Y	Y	Y	Y	Y
	Filter HiPass	Y	Y	Y	Y	Y	Y	Y	Y
	Filter ADSR and	Y	Y	Y	Y	Y	Y	Y	Y

	Env Modulation depth								
A M P & E N V									
		LFO 1	LFO 2	LFO 3	LFO 4	LFO XL	Gate 1	Gate 2	ENV
	Envelope ADSR and Amount	Y	Y	Y	Y	Y	Y	Y	
	Amp ADSR	Y	Y	Y	Y	Y	Y	Y	Y
C O N T R O L									
		LFO 1	LFO 2	LFO 3	LFO 4	LFO XL	Gate 1	Gate 2	ENV
	Control Output level	Y	Y	Y	Y	Y	Y	Y	Y
	Control Output Pan position	Y	Y	Y	Y	Y			Y
	Control Output Pan negative						Y		
	Control Output Pan positive							Y	
G A T E S									
		LFO 1	LFO 2	LFO 3	LFO 4	LFO XL	Gate 1	Gate 2	ENV
	Gate Amount	Y	Y	Y	Y	Y			Y
	Gate 1 ADSR and Volume		Y	Y	Y	Y			

	Gate 2 ADSR and Volume		Y	Y	Y	Y			
L F O S									
		LFO 1	LFO 2	LFO 3	LFO 4	LFO XL	Gate 1	Gate 2	ENV
	LFO 3 Speeds, Fast and Slow	Y							
	LFO 4 Speeds, Fast and Slow			Y					
	LFO XL Speeds, Fast and Slow				Y				
F X									
		LFO 1	LFO 2	LFO 3	LFO 4	LFO XL	Gate 1	Gate 2	ENV
	FX Mix level	Y	Y	Y	Y	Y			Y
	FX Chorus/ Flanger level	Y	Y	Y		Y			Y
	FX Chorus/ Flanger Modulation depth	Y	Y	Y		Y			Y
	FX Reverb Freeze						Y	Y	
	FX Send levels - Chorus, Delay, Reverb	Y	Y	Y		Y			Y

EVOL Control Parameters

Nearly every control in EVOL can be automated, 189 parameters are available. The table below shows the controls available and the parameter names in numerical order.

The numbers in [...] are the parameter numbers shown when EVOL is loaded inside by EnergyXT, the next column shows the parameters as they appear in Tracktion; their appearance in your host may well be different.

EVOL Control Parameters				
Control name	Identifier in energyXT	Identifier in Tracktion		
Arp Note length (up to 1 beat)	[0] Arp Time	Arp Time		
Gate 1 Steps - 1 to 9	[1] 01 to [9] 09	01 to 09	Off/On	
Sync VCO 2 with VCO 1	[10] 1+2 Sync	1+2 Sync	Off/On	
Gate 1 Steps - 10 to 16	[11] 10 to [17] 16	10 to 16	Off/On	
Gate 2 ADSR - Attack	[18] A	A		
ADSR - Attack	[19] A	A (2)		
Gate 1 ADSR - Attack	[20] A	A (3)		
Filter ADSR - Attack	[21] A	A (4)		
Amp ADSR - Attack	[22] A	A (5)		
Arp Hold On/Off	[23] Arp Hold	Arp Hold		
Pitch Bend	[24] Bend	Bend	0 to 12 semitones	

Range			
Boost level	[25] Boost	Boost	EQ - only when Lo Boost is selected in the Filter
Modulation Divide	[26] CTRL Divide	CTRL Divide	Off/On
Chorus Send level	[27] Chorus	Chorus	
Mod Wheel Modulation depth	[28] Ctrl	Ctrl	
Gate 2 ADSR - Decay	[29] D	D	
ADSR - Decay	[30] D	D (2)	
Gate 1 ADSR - Decay	[31] D	D (3)	
Filter ADSR - Decay	[32] D	D (4)	
Amp ADSR - Decay	[33] D	D (5)	
Damp level	[34] Damp	Damp	
Delay Send level	[35] Delay	Delay	
LFO 1 Delay	[36] Delay	Delay (2)	
Modulation depth	[37] ENV	ENV	
Envelope Modulation depth	[38] ENV	ENV (2)	
Modulation Divide	[39] ENV Divide	ENV Divide	Off/On

Left channel Feedback level	[40] FBK L	FBK L	
Predelay Feedback	[41] FBK P	FBK P	
Right channel Feedback level	[42] FBK R	FBK R	
FM Modulation Level	[43] FM	FM	
FM Modulation Divide	[44] FM Divide	FM Divide	Off/On
Cutoff Frequency	[45] FRQ	FRQ	
Master Send level	[46] FX MIX	FX MIX	
VCO 1 Fine Tuning	[47] Fine 1	Fine 1	+/- 0.5 semitone
VCO 2 Fine Tuning	[48] Fine 2	Fine 2	+/- 0.5 semitone
VCO 3 Fine Tuning	[49] Fine 3	Fine 3	+/- 0.5 semitone
Chorus/Flanger Level	[50] Flanger	Flanger	
LFO 1 Free Running Speed	[51] Free 1	Free 1	
LFO 1 Free Running Speed Divide On/off	[52] Free 1 Divide	Free 1 Divide	Off/On
LFO 2 Free Running Speed	[53] Free 2	Free 2	

LFO 2 Free Running Speed Divide On/off	[54] Free 2 Divide	Free 2 Divide	Off/On
LFO 3 Free Running Speed	[55] Free 3	Free 3	
LFO 3 Free Running Speed Divide On/off	[56] Free 3 Divide	Free 3 Divide	Off/On
LFO 4 Free Running Speed	[57] Free 4	Free 4	
LFO 4 Free Running Speed Divide On/off	[58] Free 4 Divide	Free 4 Divide	Off/On
Freeze	[59] Freeze	Freeze	Off/On
Amount	[60] Gate	Gate	
Glide level	[61] Glide	Glide	
EQ (Hi Pass)	[62] HP	HP	EQ - only when HiPass is selected in the Filter
LFO 1 Destination	[63] LFO 1	LFO 1	
ENV Destination	[64] LFO 1	LFO 1 (2)	
VCO 3 Waveform	[65] LFO 1	LFO 1 (3)	sine, saw, ramp, triangle, pulse, white noise, pink noise
Gate 2 Destination	[66] LFO 1	LFO 1 (4)	
Fine Tune	[67] LFO 1	LFO 1 (5)	0 to +11 semitones
Filter Type	[68] LFO 1	LFO 1 (6)	Lo-Pass, Hi-Pass, Band Pass,

			Band Reject
LFO 3 BPM resolution	[69] LFO 1	LFO 1 (7)	
LFO XL Destination	[70] LFO 1	LFO 1 (8)	
LFO 1 Waveform	[71] LFO 1	LFO 1 (9)	sine, saw, ramp, triangle, pulse
Left Channel BPM resolution	[72] LFO 1	LFO 1 (10)	
VCO 2 Waveform	[73] LFO 1	LFO 1 (11)	sine, saw, ramp, triangle, pulse, white noise, pink noise
Sends Control Matrix	[74] LFO 1	LFO 1 (12)	All OFF, Chorus, Delay, Reverb, Chorus+Delay, Chorus+Reverb, Delay+Reverb, All ON
LFO 4 Speed Source	[75] LFO 1	LFO 1 (13)	Free Running, Host BPM, Key Mono 1-4
Filter Envelope Curve	[76] LFO 1	LFO 1 (14)	Exponential, Linear, Decibel, Decibel (old)
Mod Wheel destination	[77] LFO 1	LFO 1 (15)	FRQ (Filter Freq), LFO 2, VCF (freq), ENV, OUT, Gate, G12V, G2V, G1+2, Res, Freq+Res
LFO 4 Destination	[78] LFO 1	LFO 1 (16)	
Transpose, VCOs	[79] LFO 1	LFO 1 (17)	+/- 5 octaves
Arpeggio Mode	[80] LFO 1	LFO 1 (18)	Off, Up, Down, Up+Down, Down+Up, Up+Down2, Down+Up2

LFO 4 Waveform	[81] LFO 1	LFO 1 (19)	sine, saw, ramp, triangle, pulse
LFO 1 BPM resolution	[82] LFO 1	LFO 1 (20)	
LFO 4 BPM resolution	[83] LFO 1	LFO 1 (21)	
Sync VCO by Note Hit (On)	[84] LFO 1	LFO 1 (22)	N1, N2, N3, N1+2, NAll
LFO 2 Speed source	[85] LFO 1	LFO 1 (23)	Free Running, Host BPM, Key Mono 1-4
Gate Sync Waveform	[86] LFO 1	LFO 1 (24)	sine, saw, ramp, triangle, pulse
VCO 1 Waveform	[87] LFO 1	LFO 1 (25)	sine, saw, ramp, triangle, pulse, white noise, pink noise
Right Channel BPM resolution	[88] LFO 1	LFO 1 (26)	
Keyboard Random panning	[89] LFO 1	LFO 1 (27)	K1, K2, K3, K4
PreDelay 1 Time	[90] LFO 1	LFO 1 (28)	0.06 (60 milliseconds) 0.12. 0.25. 0.50, 1 to 9 seconds
LFO 2 Destination	[91] LFO 1	LFO 1 (29)	
Gate Sync BPM resolution	[92] LFO 1	LFO 1 (30)	
Gate 1 Destination	[93] LFO 1	LFO 1 (31)	
LFO 2 BPM resolution	[94] LFO 1	LFO 1 (32)	

Arpeggio Range	[95] LFO 1	LFO 1 (33)	(1 to 4 octaves?)
Delay Destination matrix	[96] LFO 1	LFO 1 (34)	Out, Reverb, Out+Reverb
Chorus/Flanger Destination matrix	[97] LFO 1	LFO 1 (35)	Out, Delay, Reverb, Delay+Reverb, Out+Delay, Out+Reverb, Out+Delay+Reverb
EQ Selector	[98] LFO 1	LFO 1 (36)	Off, Lo Boost, Hi Pass
LFO 1 Speed source	[99] LFO 1	LFO 1 (37)	Free Running, Host BPM, Key Poly 1-4
LFO 3 Destination	[100] LFO 1	LFO 1 (38)	
LFO 3 Waveform	[101] LFO 1	LFO 1 (39)	sine, saw, ramp, triangle, pulse
Arp Step Length	[102] LFO 1	LFO 1 (40)	(1 beat to 1/64th beat) - the higher the faster
PreDelay 2 Time	[103] LFO 1	LFO 1 (41)	0.06 (60 milliseconds). 0.12. 0.25. 0.50, 1 to 9 seconds
LFO XL Waveform +	[104] LFO 1	LFO 1 (42)	sine, sinic, tri, peak, dip , hump, saw, ripsaw1, ripsaw2, ramp, ripramp1, ripramp2, sharkR, sharkL, pulse, random, random2, pure sine
LFO 3 Speed source	[105] LFO 1	LFO 1 (43)	Free Running, Host BPM, Key Mono 1-4
LFO 2 Waveform	[106] LFO 1	LFO 1 (44)	sine, saw, ramp, triangle, pulse
LFO XL BPM	[107] LFO 1	LFO 1 (45)	

resolution			
FM and Waveshaping matrix	[108] LFO 1	LFO 1 (46)	Off, FM only, FM mix, Waveshaping, FM+WS, FM and Waveshaping mix
LFO 1 Modulation Amount	[109] LFO 1	LFO 1 (47)	
LFO 1 Modulation Amount Divide	[110] LFO 1 Divide	LFO 1 Divide	Off/On
LFO 2 Modulation Amount	[111] LFO 2	LFO 2	
LFO 2 Modulation Amount Divide	[112] LFO 2 Divide	LFO 2 Divide	Off/On
LFO 3 Modulation Amount	[113] LFO 3	LFO 3	
LFO 3 Modulation Amount Divide	[114] LFO 3 Divide	LFO 3 Divide	Off/On
LFO 4 Modulation Amount	[115] LFO 4	LFO 4	
LFO 4 Modulation Amount Divide	[116] LFO 4 Divide	LFO 4 Divide	Off/On
LFO XL Modulation Amount	[117] LFO 5	LFO 5	
LFO XL Modulation Amount Divide	[118] LFO 5 divide	LFO 5 divide	Off/On
EQ (Lo Boost frequency)	[119] Lo	Lo	EQ - only when Lo Boost is selected in the Filter
VCO 1+2 Mix	[120] Mix	Mix 1+2	100% VCO1 to 50/50 to

	1 +2		100% VCO2
VCO Mix 3 level	[121] Mix 3	Mix 3	
Reverb Modulation Depth	[122] Mod	Mod	
Chorus/Flanger Modulation depth	[123] Mod	Mod (2)	
Mono switch	[124] mono	mono	Off/On
Output level	[125] OUT	OUT	
VCO 1 Phase	[126] P1	P1	
LFO 2 Phase	[127] P2	P2	
VCO 2 Phase	[128] P2	P2 (2)	
LFO 3 Phase	[129] P3	P3	
VCO 3 Phase	[130] P3	P3 (2)	
LFO 4 Phase	[131] P4	P4	
Gate Phase	[132] P G	P G	
LFO XL Phase	[133] P XL	P XL	
Pan position	[134] PAN	PAN	
VCO 1 Pulse Width	[135] PW 1	PW 1	
VCO 2 Pulse Width	[136] PW 2	PW 2	
VCO 3 Pulse Width	[137] PW 3	PW 3	

Priority switch	[138] Priority	Priority	Off, Low, High, Last (for mono)
Gate 2 ADSR - Release	[139] R	R	
ADSR - Release	[140] R	R (2)	
Gate 1 ADSR - Release	[141] R	R (3)	
Filter ADSR - Release	[142] R	R (4)	
Amp ADSR - Release	[143] R	R (5)	
Resonance level	[144] RES	RES	
Ring Modulation Level	[145] RM	RM	
Retrigger switch	[146] Retrigger	Retrigger	Off/On
Reverb mix level	[147] Rev Mix	Rev Mix	
Reverb switch	[148] Reverb	Reverb	Off/On
Reverb Send level	[149] Reverb	Reverb (2)	
Gate 2 ADSR - Sustain	[150] S	S	
ADSR - Sustain	[151] S	S (2)	
Gate 1 ADSR - Sustain	[152] S	S (3)	
Filter ADSR -	[153] S	S (4)	

Sustain			
Amp ADSR - Sustain	[154] S	S (5)	
Reverb Room Size	[155] Size	Size	
Chorus/Flanger Speed	[156] Speed	Speed	
Gate 2 Step 1	[157] Step 1	Step 1	Off/On
Gate 2 Steps - 10 to 16	[158] Step 10 to [164] Step 16	Step 10 to Step 16	Off/On
Gate 2 Steps - 2 to 9	[165] Step 2 to [172] Step 9	Step 2 to Step 9	Off/On
LFO 4 Sync	[173] Sync	Sync	Off/On
LFO 3 Sync	[174] Sync	Sync (2)	Off/On
LFO 1 Sync	[175] Sync	Sync (3)	Off/On
LFO 2 Sync	[176] Sync	Sync (4)	Off/On
Key Tracking depth	[177] Track	Track	
VCO 1 Tune	[178] Tune 1	Tune 1	+/- 5 octaves
VCO 2 Tune	[179] Tune 2	Tune 2	
VCO 3 Tune	[180] Tune 3	Tune 3	+/- 5 octaves
Envelope Modulation Divide	[181] VCF ENV Divide	VCF ENV Divide	Off/On

VCO 3 Setting	[182] VCO 3 Setting	VCO 3 Setting	Normal, FM only, Normal+FM
Gate 2 Volume	[183] VOL	VOL	
Gate 1 Volume	[184] VOL	VOL (2)	
Filter Velocity Sensitivity	[185] VS	VS	
Amp Velocity Sensitivity	[186] VS	VS (2)	
Waveshaper	[187] Waveshaper	Waveshaper	Modulation depth, higher values for less effect
Reverb Width	[188] Width	Width	

Automating the Controls

The table below shows the controls available for each EVOL section and the parameter names.

The numbers in [...] are the parameter numbers shown when EVOL is loaded inside by EnergyXT, the next column shows the parameters as they appear in Tracktion; their appearance in your host may well be different.

EVOL Control Parameters				
A M P				
	Control name	Identifier in energyXT	Identifier in Tracktion	
	Amp ADSR - Attack	[22] A	A (5)	
	Amp ADSR - Decay	[33] D	D (5)	

	Amp ADSR - Sustain	[154] S	S (5)	
	Amp ADSR - Release	[143] R	R (5)	
	EQ (Hi Pass frequency)	[62] HP	HP	EQ - only when HiPass is selected in the Filter
	EQ (Lo Boost frequency)	[119] Lo	Lo	EQ - only when Lo Boost is selected in the Filter
	Boost level	[25] Boost	Boost	EQ - only when Lo Boost is selected in the Filter
	Amp Velocity Sensitivity	[186] VS	VS (2)	
	Retrigger switch	[146] Retrigger	Retrigger	Off/On
	Mono switch	[124] mono	mono	Off/On
	Priority switch	[138] Priority	Priority	Off, Low, High, Last (for mono)
A R P				
	Control name	Identifier in energyXT	Identifier in Tracktion	
	Arp Note length (up to 1 beat)	[0] Arp Time	Arp Time	
	Arp Hold On/Off	[23] Arp Hold	Arp Hold	
	Arpeggio Mode	[80] LFO 1	LFO 1 (18)	Off, Up, Down, Up+Down, Down+Up, Up+Down2, Down+Up2

	Arp Step Length	[102] LFO 1	LFO 1 (40)	(1 beat to 1/64th beat) - the higher the faster
	Arpeggio Range	[95] LFO 1	LFO 1 (33)	(1 to 4 octaves?)
C O N T R O L				
	Control name	Identifier in energyXT	Identifier in Tracktion	
	Output level	[125] OUT	OUT	
	Pan position	[134] PAN	PAN	
	Glide level	[61] Glide	Glide	
	Pitch Bend Range	[24] Bend	Bend	0 to 12 semitones
	Mod Wheel Modulation depth	[28] Ctrl	Ctrl	
	Modulation Divide	[26] CTRL Divide	CTRL Divide	Off/On
	Mod Wheel destination	[77] LFO 1	LFO 1 (15)	FRQ (Filter Freq), LFO 2, VCF (freq), ENV, OUT, Gate, G12V, G2V, G1+2, Res, Freq+Res
E N V E L O P E				
	Control name	Identifier in energyXT	Identifier in Tracktion	
	ADSR - Attack	[19] A	A (2)	
	ADSR - Decay	[30] D	D (2)	
	ADSR - Sustain	[151] S	S (2)	
	ADSR - Release	[140] R	R (2)	

	Modulation depth	[37] ENV	ENV	
	Modulation Divide	[39] ENV Divide	ENV Divide	Off/On
	ENV Destination	[64] LFO 1	LFO 1 (2)	
F I L T E R				
	Control name	Identifier in energyXT	Identifier in Tracktion	
	Cutoff Frequency	[45] FRQ	FRQ	
	Resonance level	[144] RES	RES	
	Key Tracking depth	[177] Track	Track	
	Filter Velocity Sensitivity	[185] VS	VS	
	Filter ADSR - Attack	[21] A	A (4)	
	Filter ADSR - Decay	[32] D	D (4)	
	Filter ADSR - Sustain	[153] S	S (4)	
	Filter ADSR - Release	[142] R	R (4)	
	Envelope Modulation depth	[38] ENV	ENV (2)	
	Envelope Modulation Divide	[181] VCF ENV Divide	VCF ENV Divide	Off/On
	Filter Type	[68] LFO 1	LFO 1 (6)	Lo-Pass, Hi-Pass, Band Pass,

				Band Reject
	Filter Envelope Curve	[76] LFO 1	LFO 1 (14)	Exponential, Linear, Decibel, Decibel (old)
	EQ Selector	[98] LFO 1	LFO 1 (36)	Off, Lo Boost, Hi Pass
F X C H O R U S				
	Control name	Identifier in energyXT	Identifier in Tracktion	
	Chorus/Flanger Level	[50] Flanger	Flanger	
	Chorus/Flanger Speed	[156] Speed	Speed	
	Chorus/Flanger Modulation depth	[123] Mod	Mod	
	Chorus/Flanger Destination matrix	[97] LFO 1	LFO 1 (35)	Out, Delay, Reverb, Delay+Reverb, Out+Delay, Out+Reverb, Out+Delay+Reverb
F X D E L A Y				
	Control name	Identifier in energyXT	Identifier in Tracktion	
	Left channel Feedback level	[40] FBK L	FBK L	
	Right channel Feedback level	[42] FBK R	FBK R	
	Left Channel BPM resolution	[72] LFO 1	LFO 1 (10)	
	Right Channel BPM	[88] LFO 1	LFO 1 (26)	

	resolution			
	Delay Destination matrix	[96] LFO 1	LFO 1 (34)	Out, Reverb, Out+Reverb
F X R E V E R B				
	Control name	Identifier in energyXT	Identifier in Tracktion	
	Damp level	[34] Damp	Damp	
	Reverb Width	[188] Width	Width	
	Reverb Room Size	[155] Size	Size	
	Reverb mix level	[147] Rev Mix	Rev Mix	
	Freeze	[59] Freeze	Freeze	Off/On
	Reverb Modulation Depth	[122] Mod	Mod	
	Predelay Feedback	[41] FBK P	FBK P	
	PreDelay 1 Time	[90] LFO 1	LFO 1 (28)	0.06 (60 milliseconds) 0.12. 0.25. 0.50, 1 to 9 seconds
	PreDelay 2 Time	[103] LFO 1	LFO 1 (41)	0.06 (60 milliseconds). 0.12. 0.25. 0.50, 1 to 9 seconds
F X S E N D S				
	Control name	Identifier in energyXT	Identifier in Tracktion	
	Sends Control Matrix	[74] LFO 1	LFO 1 (12)	All OFF, Chorus, Delay, Reverb, Chorus+Delay, Chorus+Reverb, Delay+Reverb, All ON

	Master Send level	[46] FX MIX	FX MIX	
	Chorus Send level	[27] Chorus	Chorus	
	Delay Send level	[35] Delay	Delay	
	Reverb Send level	[149] Reverb	Reverb (2)	
	Reverb switch	[148] Reverb	Reverb	Off/On
G A T E S				
	Control name	Identifier in energyXT	Identifier in Tracktion	
	Amount	[60] Gate	Gate	
	Gate Sync BPM resolution	[92] LFO 1	LFO 1 (30)	
	Gate Sync Waveform	[86] LFO 1	LFO 1 (24)	sine, saw, ramp, triangle, pulse
	Gate Phase	[132] P G	P G	
G A T E 1				
	Control name	Identifier in energyXT	Identifier in Tracktion	
	Gate 1 ADSR - Attack	[20] A	A (3)	
	Gate 1 ADSR - Decay	[31] D	D (3)	
	Gate 1 ADSR - Sustain	[152] S	S (3)	

	Gate 1 ADSR - Release	[141] R	R (3)	
	Gate 1 Volume	[184] VOL	VOL (2)	
	Gate 1 Destination	[93] LFO 1	LFO 1 (31)	
	Gate 1 Steps - 1 to 9	[1] 01 to [9] 09	01 to 09	Off/On
	Gate 1 Steps - 10 to 16	[11] 10 to [17] 16	10 to 16	Off/On
G A T E 2				
	Control name	Identifier in energyXT	Identifier in Tracktion	
	Gate 2 ADSR - Attack	[18] A	A	
	Gate 2 ADSR - Decay	[29] D	D	
	Gate 2 ADSR - Sustain	[150] S	S	
	Gate 2 ADSR - Release	[139] R	R	
	Gate 2 Volume	[183] VOL	VOL	
	Gate 2 Destination	[66] LFO 1	LFO 1 (4)	
	Gate 2 Step 1	[157] Step 1	Step 1	Off/On
	Gate 2 Steps - 2 to 9	[165] Step 2 to [173] Step 9	Step 2 to Step 9	Off/On

	Gate 2 Steps - 10 to 16	[158] Step 10 to [164] Step 16	Step 10 to Step 16	Off/On
LFO 1				
	Control name	Identifier in energyXT	Identifier in Tracktion	
	LFO 1 Modulation Amount	[109] LFO 1	LFO 1 (47)	
	LFO 1 Modulation Amount Divide	[110] LFO 1 Divide	LFO 1 Divide	Off/On
	LFO 1 Free Running Speed	[51] Free 1	Free 1	
	LFO 1 Free Running Speed Divide On/off	[52] Free 1 Divide	Free 1 Divide	Off/On
	LFO 1 Delay	[36] Delay	Delay (2)	
	LFO 1 BPM resolution	[82] LFO 1	LFO 1 (20)	
	LFO 1 Speed source	[99] LFO 1	LFO 1 (37)	Free Running, Host BPM, Key Poly 1-4
	LFO 1 Destination	[63] LFO 1	LFO 1	
	LFO 1 Waveform	[71] LFO 1	LFO 1 (9)	sine, saw, ramp, triangle, pulse
	LFO 1 Sync	[175] Sync	Sync (3)	Off/On

LFO 2				
	Control name	Identifier in energyXT	Identifier in Tracktion	
	LFO 2 Modulation Amount	[111] LFO 2	LFO 2	
	LFO 2 Modulation Amount Divide	[112] LFO 2 Divide	LFO 2 Divide	Off/On
	LFO 2 Free Running Speed	[53] Free 2	Free 2	
	LFO 2 Free Running Speed Divide On/off	[54] Free 2 Divide	Free 2 Divide	Off/On
	LFO 2 Phase	[127] P2	P2	
	LFO 2 BPM resolution	[94] LFO 1	LFO 1 (32)	
	LFO 2 Speed source	[85] LFO 1	LFO 1 (23)	Free Running, Host BPM, Key Mono 1-4
	LFO 2 Destination	[91] LFO 1	LFO 1 (29)	
	LFO 2 Waveform	[106] LFO 1	LFO 1 (44)	sine, saw, ramp, triangle, pulse
	LFO 2 Sync	[176] Sync	Sync (4)	Off/On

LFO 3				
	Control name	Identifier in energyXT	Identifier in Tracktion	
	LFO 3 Modulation Amount	[113] LFO 3	LFO 3	
	LFO 3 Modulation Amount Divide	[114] LFO 3 Divide	LFO 3 Divide	Off/On
	LFO 3 Free Running Speed	[55] Free 3	Free 3	
	LFO 3 Free Running Speed Divide On/off	[56] Free 3 Divide	Free 3 Divide	Off/On
	LFO 3 Phase	[129] P3	P3	
	LFO 3 BPM resolution	[69] LFO 1	LFO 1 (7)	
	LFO 3 Speed source	[105] LFO 1	LFO 1 (43)	Free Running, Host BPM, Key Mono 1-4
	LFO 3 Destination	[100] LFO 1	LFO 1 (38)	
	LFO 3 Waveform	[101] LFO 1	LFO 1 (39)	sine, saw, ramp, triangle, pulse
	LFO 3 Sync	[174] Sync	Sync (2)	Off/On

LFO 4				
	Control name	Identifier in energyXT	Identifier in Tracktion	
	LFO 4 Modulation Amount	[115] LFO 4	LFO 4	
	LFO 4 Modulation Amount Divide	[116] LFO 4 Divide	LFO 4 Divide	Off/On
	LFO 4 Free Running Speed	[57] Free 4	Free 4	
	LFO 4 Free Running Speed Divide On/off	[58] Free 4 Divide	Free 4 Divide	Off/On
	LFO 4 Phase	[131] P4	P4	
	LFO 4 Speed Source	[75] LFO 1	LFO 1 (13)	Free Running, Host BPM, Key Mono 1-4
	LFO 4 BPM resolution	[83] LFO 1	LFO 1 (21)	
	LFO 4 Destination	[78] LFO 1	LFO 1 (16)	
	LFO 4 Waveform	[81] LFO 1	LFO 1 (19)	sine, saw, ramp, triangle, pulse
	LFO 4 Sync	[173] Sync	Sync	Off/On

L F O X L				
	Control name	Identifier in energyXT	Identifier in Tracktion	
	LFO XL Modulation Amount	[117] LFO 5	LFO 5	
	LFO XL Modulation Amount Divide	[118] LFO 5 divide	LFO 5 divide	Off/On
	LFO XL Phase	[133] P XL	P XL	
	LFO XL BPM resolution	[107] LFO 1	LFO 1 (45)	
	LFO XL Destination	[70] LFO 1	LFO 1 (8)	
	LFO XL Waveform +	[104] LFO 1	LFO 1 (42)	sine, sinic, tri, peak, dip , hump, saw, ripsaw1, ripsaw2, ramp, ripramp1, ripramp2, sharkR, sharkL, pulse, random, random2, pure sine
V C O s				
	Control name	Identifier in energyXT	Identifier in Tracktion	
	VCO 1+2 Mix	[120] Mix 1+2	Mix 1+2	100% VCO1 to 50/50 to 100% VCO2
	VCO Mix 3 level	[121] Mix 3	Mix 3	
	Ring Modulation	[145] RM	RM	

	Level			
	FM Modulation Level	[43] FM	FM	
	FM Modulation Divide	[44] FM Divide	FM Divide	Off/On
	FM and Waveshaping matrix	[108] LFO 1	LFO 1 (46)	Off, FM only, FM mix, Waveshaping, FM+WS, FM and Waveshaping mix
	Sync VCO by Note Hit (On)	[84] LFO 1	LFO 1 (22)	N1, N2, N3, N1+2, NAll
	Keyboard Random panning	[89] LFO 1	LFO 1 (27)	K1, K2, K3, K4
	Transpose, VCOs	[79] LFO 1	LFO 1 (17)	+/- 5 octaves
	Fine Tune	[67] LFO 1	LFO 1 (5)	0 to +11 semitones
V C O 1				
	Control name	Identifier in energyXT	Identifier in Tracktion	
	VCO 1 Tune	[178] Tune 1	Tune 1	+/- 5 octaves
	VCO 1 Fine Tuning	[47] Fine 1	Fine 1	+/- 0.5 semitone
	VCO 1 Pulse Width	[135] PW 1	PW 1	
	VCO 1 Phase	[126] P1	P1	

	VCO 1 Waveform	[87] LFO 1	LFO 1 (25)	sine, saw, ramp, triangle, pulse, white noise, pink noise
V C O 2				
	Control name	Identifier in energyXT	Identifier in Tracktion	
	VCO 2 Tune	[179] Tune 2	Tune 2	
	VCO 2 Fine Tuning	[48] Fine 2	Fine 2	+/- 0.5 semitone
	VCO 2 Pulse Width	[136] PW 2	PW 2	
	VCO 2 Phase	[128] P2	P2 (2)	
	Sync VCO 2 with VCO 1	[10] 1+2 Sync	1+2 Sync	Off/On
	VCO 2 Waveform	[73] LFO 1	LFO 1 (11)	sine, saw, ramp, triangle, pulse, white noise, pink noise
	Waveshaper	[187] Waveshaper	Waveshaper	Modulation depth, higher values for less effect
V C O 3				
	Control name	Identifier in energyXT	Identifier in Tracktion	
	VCO 3 Tune	[180] Tune 3	Tune 3	+/- 5 octaves
	VCO 3 Fine Tuning	[49] Fine 3	Fine 3	+/- 0.5 semitone
	VCO 3 Pulse Width	[137] PW 3	PW 3	

	VCO 3 Phase	[130] P3	P3 (2)	
	VCO 3 Waveform	[65] LFO 1	LFO 1 (3)	sine, saw, ramp, triangle, pulse, white noise, pink noise
	VCO 3 Setting	[182] VCO 3 Setting	VCO 3 Setting	Normal, FM only, Normal+FM

EVOL doesn't come with many patches but try to check at the website www.xsynth.com/evol/ for updates and patches.

EVOL have been tested in Cubase SX and Minihost.

Enjoy your FREE EVOL VSTi

Credits

Thanks to Gravehill of KVR for beta testing, a thing I KNOW can be a PAIN!

Thanks to Klanglabs for the nice dial knobs.

Thanks to DarkStar for writing this user guide.

Thanks to Andy McDonough for compiling the pdf version.

EVOL was created by Michael Kastrup in SynthEdit (www.synthedit.com) and compiled as a VST instrument.

This VSTi features SynthEdit modules by

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