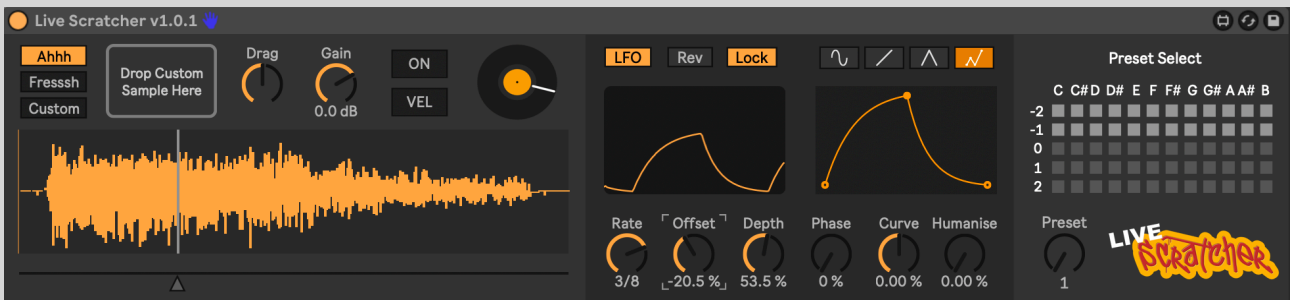


LIVE SCRATCHER

by
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Manual

Requirements

- Windows / MacOS
- Ableton Live 11/12 Suite, or Ableton Live Standard with Max for Live installed.
- Live 12 is required to open the example project.

Introduction

Live Scratcher is a Max For Live instrument which emulates the sound a DJ makes when scratching with vinyl and a mixer. The way it does this is quite simple: you have control of a playhead which moves forwards and backwards over a sample and a single MIDI note will 'cut' the sound in, much like a crossfader would.

Like the sound vinyl makes when pushing it forwards and backwards under a needle, faster movement of the playhead creates a higher pitched sound and slower movement creates a lower pitched sound.

Playhead movement can be controlled manually with the mouse, via Push, or mapped to a MIDI controller. It can also be fully automated, either in a MIDI clip using Ableton Live's automation envelopes, or by having the playhead follow the built-in LFO.

The LFO itself includes 4 shapes: Sin, Ramp, Triangle and Custom. Custom allows you to draw in your own LFO shape. The shape of the LFO can then be further adjusted with the 'Curve' control and humanisation can be applied to make everything sound less rigid and robotic and more like an actual turntablist.

Choose from the two included classic scratch sounds, "Ahhh" and "Fresssh", or load your own custom sample.

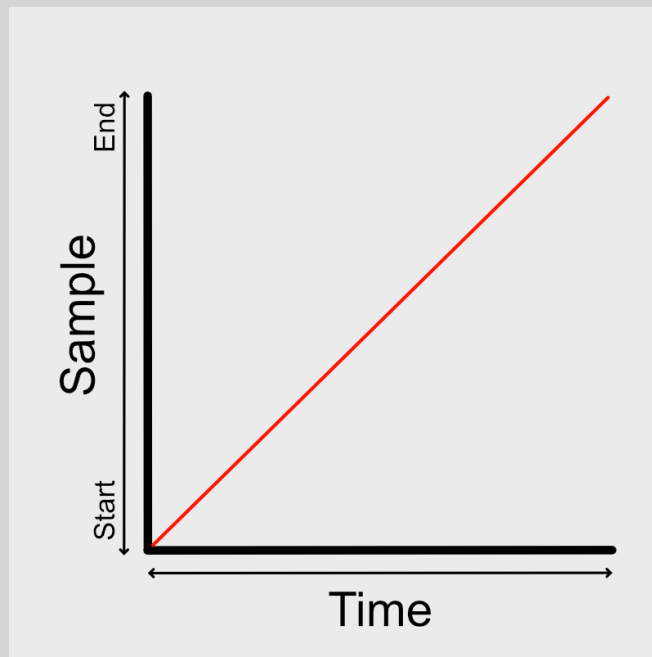
By combining different rhythmical patterns of MIDI notes with the forwards / backwards movement of the playhead - especially if these are playing at different time intervals, eg., 16th notes playing over a 1/3 bar LFO / automation movement - you can create sounds very much akin to those a real scratch DJ would make.

Standard scratches such as flare, baby, orbit, chirp or transform can all be performed using a combination of these two elements. Some examples of these are supplied in the included Ableton Live 12 example project.

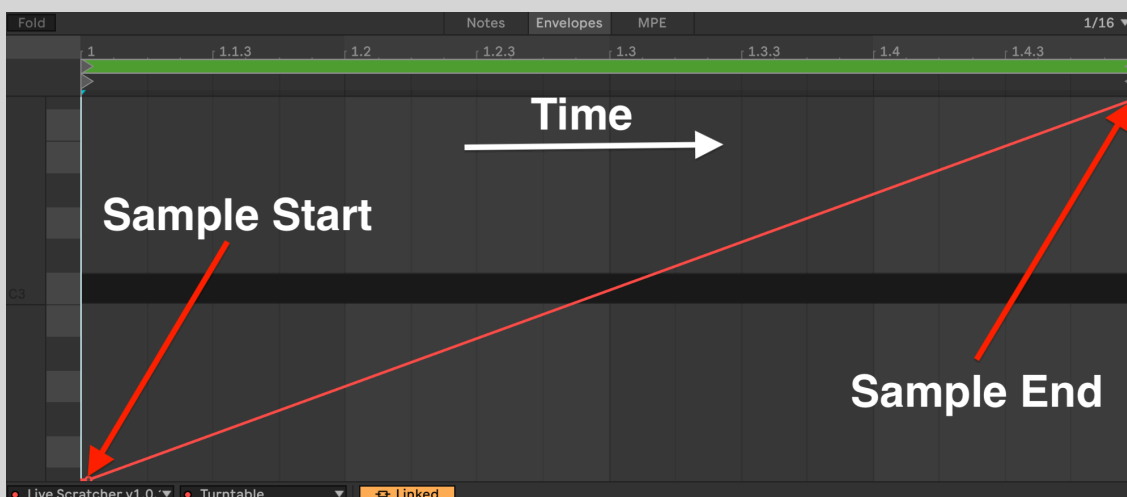
How Playhead Automation Works

Playhead automation in Live Scratcher, whether this is done with the LFO or Ableton's envelope automation, follows the same basic principle which can be demonstrated with the following graphs.

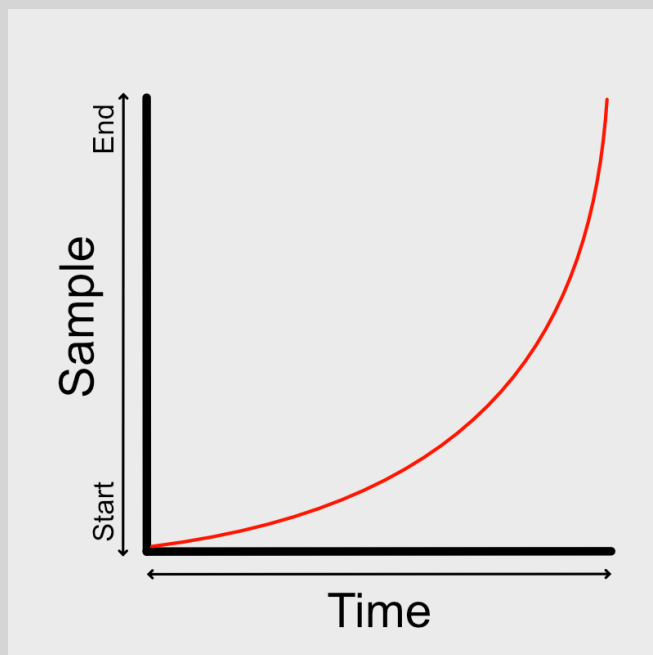
Here we can see the red line represents a sample being played normally. So it starts at the beginning of the sample and plays to the end at a fixed, linear speed over a period of time.



Live Scratcher's playhead automation works in much the same way in Ableton Live. So below we can see an automation envelope for the 'Turntable' (playhead) parameter drawn onto a MIDI clip. The automation line shows the path the playhead takes when playing the sample straight forward from beginning to end and at a fixed speed over the space of one bar:



Using automation, we can bend this line, thereby creating changes in speed as the sample plays through over time. In the next image we can see the sample starting off slowly, then speeding up towards the end.



Or we can move backwards through the sample. For example, in the image below we can see the sample quickly playing forwards, slowing down as it approaches the middle of the sample, then changing direction and speeding up again as it moves backwards back to the start.



All of these movements can be made using Live's automation envelopes using the same patterns shown in the graphs.

Getting Started

The best way of getting started with Live Scratcher is to load the supplied example project. Note that you will need Live 12 to open this project.

To do this, double-click the 'Live Scratcher.alp' file and it will open Ableton Live. You'll then be asked where you want to save the project, just choose a location where you'd normally keep your Ableton Live projects. You'll then see the project folder that's just been created.

Open this, then open the 'Live Scratcher.als' Ableton Live Set file.

Or, if you want to get straight into using the device without any example clips, just drag the 'Live Scratcher.amxd file' directly onto a MIDI Track.

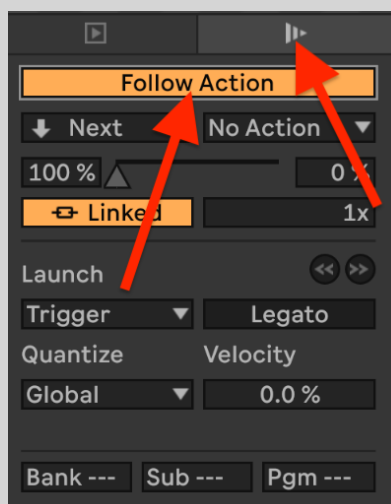
Example Project

To hear examples of Live Scratcher in action, start by launching any of the blue MIDI clips.

These clips all use different examples of turntable / playhead automation combined with MIDI note patterns to 'cut' the sound in and out as the playhead is moving.

They are all set to use Follow Actions in Legato Mode, so what you'll hear is a kind of automated 'scratch routine' where each clip will play for half a bar then switch to another random clip. Legato Mode prevents the clip from playing from the beginning each time it's launched and will instead continue to play the clip from a relative, global position.

To prevent switching clips automatically, select all the blue clips, click the 'Follow Actions' tab in Ableton and turn off 'Follow Action':



To see how automation works in more detail, please see the '[How Playhead Automation Works](#)' page above.

Next, enable the 'LFO' toggle button and try playing one of the green clips. Instead of using Live's automation envelope to automate the 'Turntable' (playhead) parameter, the green clips rely on the built-in LFO to move the playhead forwards / backwards through the sample.

Try switching between some of the green clips. Each clip, as well as providing the notes to 'cut' the sound in at selected times, is using an automation envelope to select one of the presets from those stored in the device's right-hand panel. These presets are snapshots of various different LFO settings.

For more information on each of the LFO's parameters, please see the '[LFO Control](#)' section below.

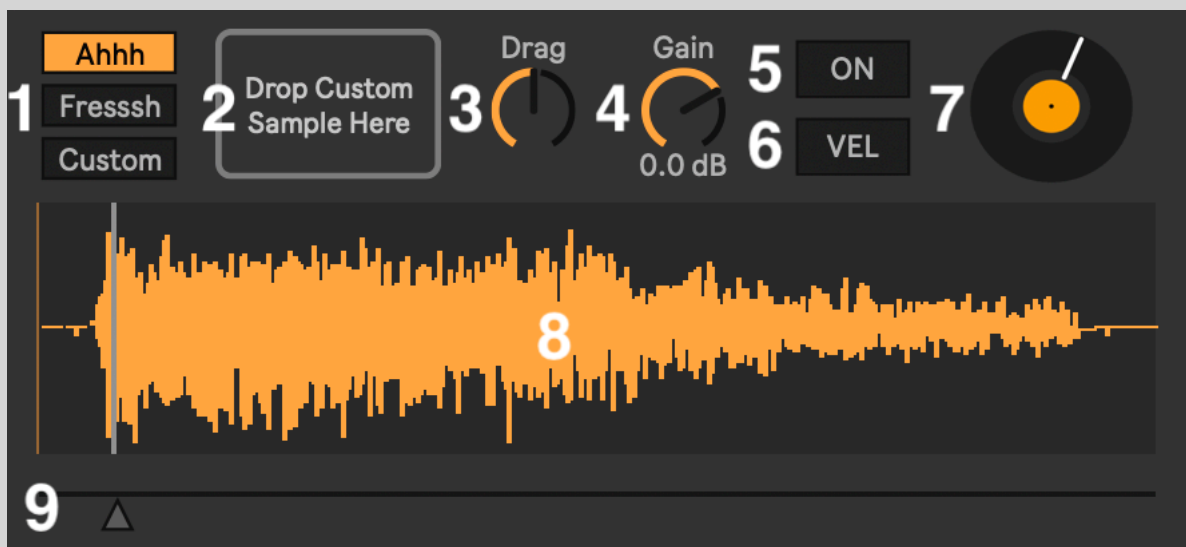
Device Controls

The device is split into 3 main areas: 1. Sample Selection / Playback, 2. LFO Control, and 3. Preset Select.



1. Sample Selection / Playback

Here is where you can select your scratch sample, import your own sample, move the playhead with the mouse, and see the playhead's position as it moves forwards / backwards through the sample.



1. 'Ahhh / Fresssh / Custom' tabs - These will select your sample. Choose from the included classic 'Ahhh' and 'Fresssh' scratch sounds, or your own custom sample.

2. 'Drop Custom Sample Here' Dropdown - Drag and drop your own sample here to load a sample into the 'Custom' slot. See [Tips for Using Your Own Samples](#) below for info on the kind of samples that work best.

3. Drag - This controls how responsive the playhead is to movement. Lower Drag times will make the playhead more responsive but forwards /

backwards movements sound less like vinyl and are more 'digital' sounding. Higher settings will make the playhead less responsive to movement but give you a more 'analogue' and authentic vinyl sound. The sweet spot is usually the default centre setting but, depending on your chosen sample and how it sounds when you move the playhead over it, you may wish to adjust this.

4. Gain - Controls the overall gain / volume of the device.

5. ON - With the 'ON' button disabled (default), the sample will only be heard when holding MIDI note C3. With 'ON' enabled, the sound of the playhead moving over the sample will be heard regardless of holding down the note or not.

6. VEL - With this turned off, the sample will play at the same volume regardless of note velocity. Turned on, the sample's volume will respond to note velocity.

7. Vinyl - This is purely decorative and simply provides a 'DJ view' of the playhead position. The white line indicates the playhead position, starting at 12 o'clock and moving clockwise 360 degrees as the playhead passes through the whole of the sample.

8. Waveform Display - Displays the waveform of your chosen sample. The grey vertical line shows the current playhead position.

9. Horizontal Slider - Moving this slider provides manual control of the playhead position. You can also click and drag the playhead left / right in the Waveform Display above to move it manually.

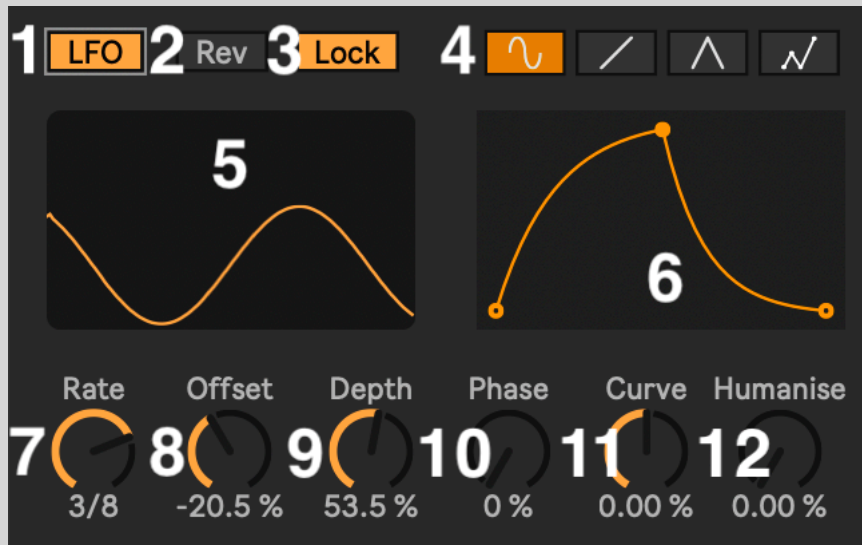
This slider (which has the parameter name 'Turntable') can also be automated to move the playhead forwards / backwards, either with Ableton's automation envelopes (see '[How Playhead Automation Works](#)') or by syncing its position to the built-in LFO (see below).

2. LFO Control

As well as automating the playhead using automation envelopes in Live, you can also sync it to the device's built-in LFO. Just be careful not to enable the LFO when you're already using automation as the two will both try to move the playhead at the same time. It will generally not sound good if you're using both!

Just like when drawing in automation envelopes, the lowest point in the LFO represents the beginning of the sample and the highest point represents the

end. So below (in area 5) we can see that the LFO is modulating between the start of the sample and about half way through in a smooth sine wave shape (so it speeds up in the middle and slows down at either end).

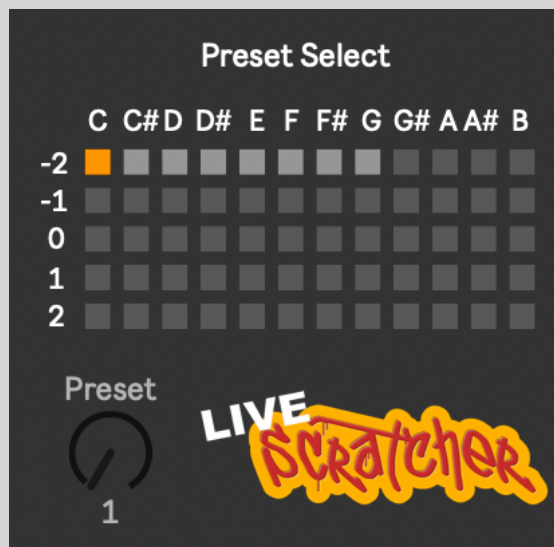


1. LFO On/Off - With LFO on, the playhead is locked to the LFO and follows its movement. With LFO off, the playhead will follow the 'Turntable' (playhead) parameter automation or manual movement of the slider.
2. Rev - Reverses the shape of the LFO.
3. Lock - With Lock on (default) the LFO will sync to the Transport Start/Stop. The LFO will start/stop along with the project and retrigger each time it starts. With Lock off the LFO will run continuously, regardless of whether your project is playing or not.
4. LFO Shape - Choose from Sine, Ramp, Triangle and Custom shapes.
5. LFO Display - A visual representation of the LFO.
6. LFO Shape - Here you can create your own custom LFO shape. Click to add a point, Shift + click to remove a point. Click and drag a point to move it around. Alt/Option + click & drag to bend a line up/down. The 'reverse shark fin' shape (assuming the shark is facing right, of course!) shown above tends to work quite well.
7. Rate - The time it takes, in note divisions, for the LFO to complete one full cycle.
8. Offset - Moves the vertical centre point of the LFO up/down.

9. Depth - Controls how much the LFO moves away vertically from the centre point.
10. Phase - Controls the phase shift of the LFO. +% moves the phase right, -% moves the phase left. Use this to shift the LFO forwards / backwards 'in time'.
11. Curve - Applies a curve shape to the LFO. +% creates a convex shape, -% a concave shape.
12. Humanise - Use this to add randomness to the LFO movement. The resulting sound will be more like the actual movements a DJ would make when pushing a record forwards / backwards. Without any humanise applied, the sound will be more precise and robotic-sounding.

3. Presets

There are 8 LFO presets included in Live Scratcher. These are snapshots of various different parameter settings, mainly in the LFO selection.



Remember to have the LFO turned on and notes playing for these presets to have any effect on the sound.

Click a preset to select it. You can add a preset to an empty slot (or overwrite an existing one) by holding Shift + clicking the slot. Delete a preset by holding Option/Alt + Shift and then clicking on the preset you want to delete.

Presets can also be selected by using MIDI notes C-2 to B2 or by turning (or automating) the Preset dial.

Tips for Using Your Own Samples

- Works best with samples of exactly 1 second in length. Anything longer or shorter and it won't sound as good. You can negate this a little by increasing the 'Drag' amount for longer samples, but try to stick to the 1 second length for the best sound.
- Also works best with particularly noisy, aggressive-sounding samples. Screams, white noise, car screeches, etc. all work well.
- Adding a short amount of silence before and after your sample helps give the initial transient more 'attack' as the playhead passes over it. Without the silence beforehand, things can sound a little 'mushy' as the playhead passes each end of the sample.
- Although you're limited to one custom sample, you can still add more instances of the device if you wish, either each on a separate track or together in a Drum Rack. The only limit here is your CPU, although the device itself is not particularly CPU-intensive.

Suggested Reading / Viewing

1. This is a very helpful article when it comes to working out scratch patterns. It explains scratch notation methodology and provides example scratches and routines which can then be replicated in a MIDI clip.

TTM - Turntablist Transcription Methodology (2000), *Carluccio, Imboden, Pirtle* - http://www.ttm-dj.com/TTMv1.1_Eng.pdf

2. This video series is also helpful when trying to understand, and learning how to perform, the various 'standard' sounds that can be made when scratching. Here DJ Qbert breaks down many well-known scratches from throughout history into their fundamental turntable and crossfader movements.

https://www.youtube.com/playlist?list=PLSeGoJCdHNvAaycdAPMki_S_Ze4tomZwM

3. Here are two excellent YouTube tutorials on alternative methods of creating scratching sounds in Ableton Live.

Tom Cosm - How To Create Record Scratching / Crab Sounds With Two Ableton Live Effects: <https://www.youtube.com/watch?v=kX0gMfRF6XY>

Mad Zach - Ableton Live Scratch Techniques: <https://www.youtube.com/watch?v=HH3ryAEP308>