DELOS DSP

TECHNICAL REFERENCE & USER MANUAL

LILITH DRUMS

A self-contained, sample-based acoustic drum instrument with a 13-bus mixer, an independent cymbal mixer, and per-channel EQ and compression built in.

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0.33.0

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Contents

1. Overview

Lilith Drums is a sample-based acoustic drum instrument built from a multi-piece recorded kit and 30 playable articulations. It is entirely self-contained — there is no Kontakt or third-party sampler runtime underneath it — with its own sample playback, articulation handling, output routing and insert processing running inside the plugin's own engine.

Recordings for each articulation are blended across velocity layers in real time, with small per-hit pitch and amplitude randomization standing in for round-robin variation, so repeated notes and fills keep a natural, non-repetitive character.

Key features

- 30 mapped acoustic drum articulations, velocity-layered with per-hit micro-variation
- 13 host-negotiated stereo output buses (Master + 12 assignable buses)
- Main mixer and a separate cymbal mixer, both feeding the same 13-bus routing
- Per-channel 6-band parametric EQ and compressor, on every channel including the buses and master
- Fully editable MIDI map with MIDI Learn, plus JSON import/export
- Complete mix, EQ, compressor and MIDI-map state recall, shared identically between DAW sessions and preset files

AU | VST3 | Standalone | macOS & Windows

2. Getting Started

Supported formats

Lilith Drums is built as an Audio Unit, VST3, and standalone application. There is no Unity build of this instrument. The main output bus is fixed stereo; each of the 12 additional output buses can independently be enabled as stereo or disabled, with no mono option on any bus.

Installation

Run the platform installer and restart your DAW (or rescan its plugin folders). In hosts that support multi-output instruments (Logic Pro, for example), the plugin picker will offer both a plain stereo instantiation and a "Multi-Output" instantiation exposing all 13 buses — choose the multi-output version if you want to route individual channels to separate mixer tracks.

> **MACOS SECURITY NOTICE**
> macOS will likely warn that Lilith Drums can’t be opened because it is from an unidentified developer while notarization for this build is in progress. This does not indicate a problem with the installer. To open it: go to **System Settings** → **Privacy & Security**, scroll to the Security section, select **Open Anyway** next to the notice about Lilith Drums, then confirm **Open**.

Trial & activation

Lilith Drums is currently distributed as a public, active-development demo build. Engine optimization, library balancing and workflow refinements continue across upcoming versions.

3. Interface Overview

The instrument opens on the Kit view, showing all 30 articulations as clickable pads over a photo of the recorded kit, with tabs across the top for Mixer, Cymbal Mixer, MIDI Map and Info.

- **Kit view** — visual pad layout of all 30 articulations, doubling as the target for MIDI Learn.
- **Mixer view** — the main mixer strips described in Section 6, with a pinned Master strip.
- **Cymbal Mixer view** — a dedicated mixer page for cymbal articulations, described in Section 7.
- **Insert FX overlay** — opens per channel from either mixer, showing the 6-band EQ and compressor described in Section 8.
- **MIDI Map view** — the full 30-row note-assignment table described in Section 9.

4. The Sample Engine

All 30 articulations are loaded from WAV files at launch and decoded fully into memory — there is no disk-streaming engine, and no external sampler format or runtime is required. Each articulation carries three velocity layers by default, and the engine plays back with a fixed pool of four voices per articulation, stealing the oldest voice on overlap (round-robin voice allocation, not round-robin sample recordings).

Velocity crossfading, not round-robin recordings

Rather than switching between multiple recordings of the same hit, Lilith Drums crossfades continuously between its two nearest velocity layers based on the incoming MIDI velocity. For roughly the first 15 ms of a hit, only the single closest-velocity layer plays, so two real recordings never phase-cancel against each other on the attack; after that window, playback blends smoothly between the two layers for the remainder of the note.

Per-hit micro-variation

Every trigger applies a small random pitch offset (roughly ±0.5% playback-rate jitter, about ±8 cents) and a small random level offset (±0.75 dB), combined with a sub-linear velocity-to-gain curve — together simulating the subtle inconsistency of a real player without needing extra recorded takes.

5. Output Routing

Lilith Drums exposes **13 stereo output buses** to the host: one always-active **Master** bus, plus **12 generic buses** (labelled "Out 1" through "Out 12" at the host level). All 13 are declared active by default specifically so hosts like Logic Pro can offer both a simple stereo instantiation and a full multi-output instantiation without any extra configuration; the host itself negotiates which buses actually get connected.

> **BUS NAMES ARE GENERIC AT THE HOST LEVEL**
> There is no fixed "Kick bus" or "Snare bus" at the plugin-format level — the 13 buses are simply Master and Out 1–12. Instrument-specific grouping (kick, snare, toms, hi-hats, cymbals, room) exists only inside the plugin's own mixer, where each channel has its own routing menu pointing at any one of the 13 host buses.

Any mixer channel that is routed to a bus the host hasn't actually connected falls back silently to Master, so a track is never simply silent because of a routing mismatch after changing a host's output configuration.

6. Main Mixer

The main mixer page shows eight primary leaf channels — Kick, Snare, five individual toms, Hi-Hat and Hi-Hat Closed — plus three internal bus channels (Overheads, Room Close, Room Far/Reverb) and a pinned Master strip.

The main mixer, showing per-channel gain, pan, tune and routing.

CONTROL	RANGE	DEFAULT
Trim	`−12 to +12 dB`	`0 dB`
Volume (fader)	`−60 to +6 dB`	`0 dB`
Pan	`Full left to full right`	`Center`
Tune	`−12 to +12 semitones`	`0 st`
Room Close send	`0–100%`	`20% (shell/hi-hat), 50% (cymbals)`
Room Far (Reverb) send	`0–100%`	`20% (shell/hi-hat), 50% (cymbals)`
Output bus	`Master or Out 1–12`	`Master`
Mute / Solo	`On / Off`	`Off`

Panning uses a simple linear pan law rather than an equal-power curve. Every channel — leaf, bus and Master — also carries its own 6-band EQ and compressor; see Section 8.

7. Cymbal Mixer

Nine cymbal articulations — ride edge, ride bell, ride shank, both crash pairs, china, both splashes and the mini bell — live on a dedicated Cymbal Mixer page rather than the main mixer, and route internally into the Overheads bus.

The independent cymbal mixer.

Cymbal channels share the exact same gain, pan, tune, mute/solo and Room Close/Room Far send controls as any main-mixer leaf channel — the difference is one of defaults and layout, not extra controls: cymbal channels default to a higher room-send level (50% vs. 20%) reflecting the more ambient character cymbals typically carry, they have no per-channel output-bus dropdown of their own (they can only reach the mix via the Overheads bus), and the page has no pinned Master strip.

8. Per-Channel EQ & Compression

Every channel — all 18 leaf channels, the three internal buses, and Master — carries its own insert chain: a 6-band parametric EQ followed by a compressor, opened via the Insert FX overlay from either mixer page.

6-band EQ

The per-channel EQ editor.

BAND	TYPE	DEFAULT FREQUENCY	DEFAULT STATE
1	High-pass	30 Hz	Off
2	Low shelf	150 Hz	On
3	Bell	500 Hz	On

Band	Type	Default frequency	Default state
4	Bell	3000 Hz	On
5	High shelf	8000 Hz	On
6	Low-pass	18000 Hz	Off

Frequency range 20 Hz–20 kHz (clamped near Nyquist at low sample rates), gain −15 to +15 dB (not used by HP/LP), Q 0.1–10.0 by mouse wheel. A disabled band is skipped entirely, not just zeroed.

Compressor

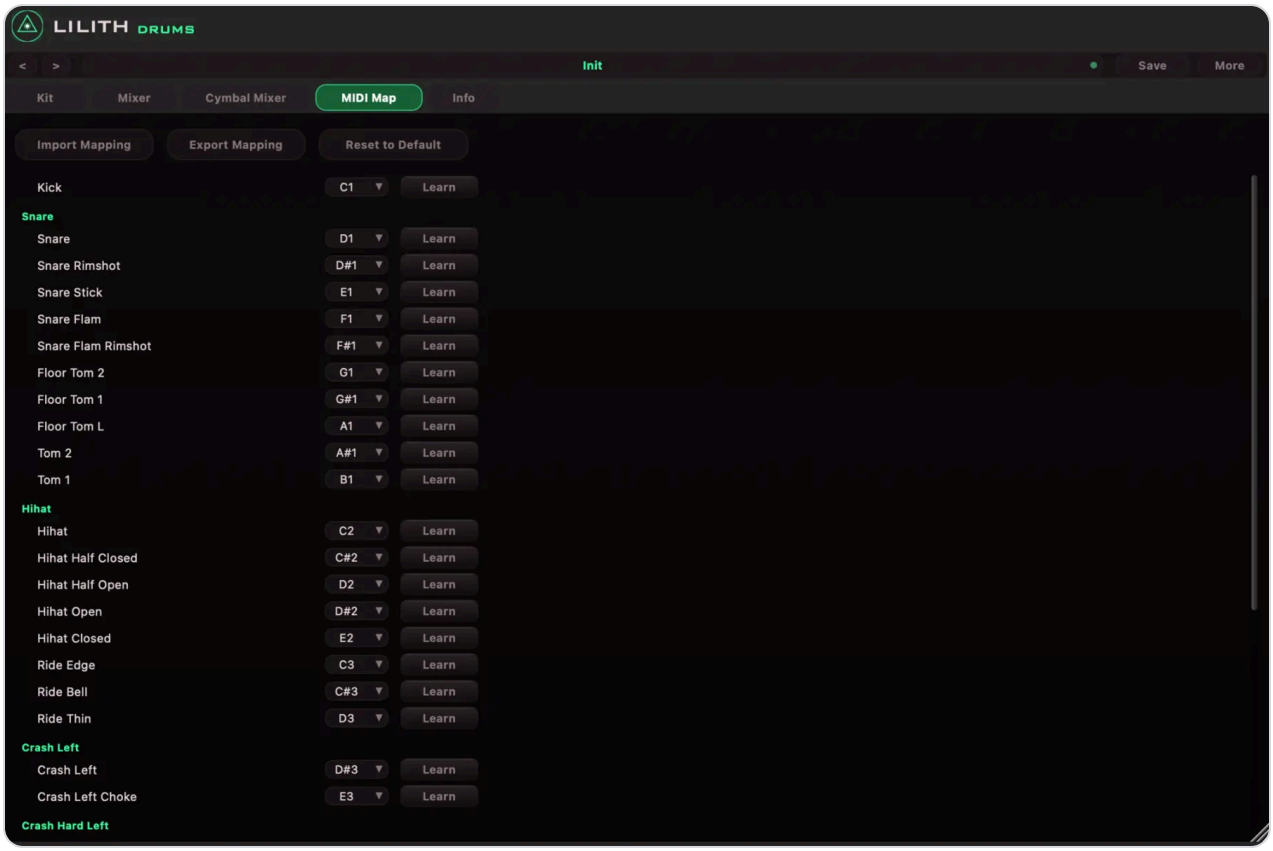
The per-channel compressor editor, with waveform and gain-reduction feedback.

Parameter	Range	Default
Threshold	−60 to 0 dB	−18 dB
Ratio	1:1 to 20:1	3:1

PARAMETER	RANGE	DEFAULT
Attack	0.1–200 ms	10 ms
Release	10–1000 ms	100 ms
Makeup	−12 to +24 dB	0 dB

Waveform and gain-reduction feedback are captured only for whichever single channel is currently open in the Compressor editor, to keep per-block overhead low across a 22-channel mixer.

9. MIDI Mapping



The MIDI Map view, showing per-articulation note assignment and Learn.

Each of the 30 articulations ships with a default MIDI note (Kick at C1, snare-family notes starting at D1, then toms, hi-hats, and cymbals starting near C3) — kick and snare follow General MIDI convention, but the rest of the map is Lilith Drums' own layout rather than a strict GM drum map.

Editing the map

The MIDI Map view lists all 30 articulations, each with a note-name selector and a Learn button. Clicking Learn arms that row; the very next note-on — whether from a MIDI controller or a click on a Kit-view pad — is captured and assigned, and a small indicator marks any row that no longer matches the shipped default.

Import, export & reset

The complete mapping can be exported to a plain JSON file (one entry per articulation, note number as the value) and re-imported later, or reset to the shipped default map in one step from the same view.

10. Presets & State Recall

Lilith Drums uses the same state format for saved preset files and for a DAW session's own recall, so the two can never drift out of sync with each other. A saved state captures, for every channel including the buses and Master:

- Output bus assignment, gain, volume, pan, tune, mute and solo
- Room Close and Room Far send levels
- All six EQ bands' frequency, gain, Q and on/off state
- The compressor's enabled state, threshold, ratio, attack, release and makeup

The complete 30-entry MIDI map is captured separately alongside the mix state. Instrument/sample selection itself is not part of a preset — there is currently one shipped kit, so presets are entirely about mix, processing and MIDI mapping, not sample content.

Preset files use the extension .lilithdrumspreset and are stored under RAVIX Acoustics/Lilith Drums/Presets in the platform's application data folder.

11. Technical Notes & Known Behaviors

BUS NAMING

The 13 host-level output buses are named generically (Master, Out 1–12), not per-instrument. Kick/snare/toms/hi-hat/cymbal/room naming exists only inside the plugin's own mixer channels, which are then manually routed to whichever of the 13 buses you choose.

CYMBAL MIXER SENDS

The cymbal mixer does not have a unique "ambience send" control beyond the same Room Close/Room Far sends every leaf channel has — only the default send level differs for cymbal articulations.

MIDI MAP IS NOT STRICT GENERAL MIDI

Only the kick (C1) and snare (D1) notes align with General MIDI convention; tom, hi-hat and cymbal note assignments are Lilith Drums' own layout. Remap as needed for controllers built around a strict GM drum map.

ONE SHIPPED KIT

The current build ships a single recorded kit; presets capture mix/processing/MIDI state, not alternate sample content.

12. Troubleshooting

My host only shows a stereo instantiation, not multi-output

Some hosts require the multi-output variant to be chosen explicitly at instantiation time (for example, from an Audio Unit "configuration" picker) rather than being switchable afterward — remove and re-add the instrument, choosing the multi-output option if offered.

macOS blocks the installer

See the notarization notice in Section 2 — use System Settings → Privacy & Security → Open Anyway.

A channel seems to have gone silent after changing my host's output routing

If a channel was routed to one of the 12 generic output buses and that bus is no longer connected in the host, the channel falls back to Master automatically — check Master rather than assuming the channel itself is muted.

A MIDI controller pad doesn't trigger the articulation I expect

Open the MIDI Map view and use Learn to reassign that pad's note directly, or Reset to Default to restore the shipped mapping.

13. Version & Credits

Product	LILITH DRUMS
Version	`0.33.0`
Publisher	Delos DSP
Formats	AU, VST3, Standalone
Platforms	macOS (Apple Silicon & Intel), Windows
Web	delosdsp.com
Support	delosdsp.com/contact