INDEPENDENT AUDIO SOFTWARE

Broken Synth

Find the melody inside the damage.



Move from rounded resonance to starved, sputtering textures without leaving the performance behind. Six large controls lead into oscillators, expressive envelopes, a held-note sequencer and four independently shaped space returns.

Complete colour user guide · version 0.9.0 · Apple Silicon Mac AU · macOS 12+

Contents

Start with the part 3

Inside the sound 3

Get Started 4

Styles Bank 4

Midi Learn 4

The Six Big Controls 5

Self-Oscillating Filter 5

Voice & Midi 6

Oscillators 6

Envelopes & Motion 6

Color & Broken 7

Arpeggiator & Step Sequencer 7

Two Delays / Two Reverbs 7

Trial And Activation 8

Tape Limiter 8

Hover Control & Automation 8

Saving Your Own Presets 9

Modules & Presets 9

Install and choose the right host slot 9

Trial and permanent licensing 9

Save, recall and automate 10

Troubleshooting and support 10

About this guide 11

Start with the part

Move from rounded resonance to starved, sputtering textures without leaving the performance behind. Six large controls lead into oscillators, expressive envelopes, a held-note sequencer and four independently shaped space returns.

01 / Load Broken Synth in a software instrument slot in Logic: AU Instruments > Lynch Audio Lab. Play your MIDI keyboard, record a MIDI region, or click the audition keyboard. Click the preset name for 600 factory sounds in Bass, Lead, Pad, Keys, Sequence or Broken, plus Init and User presets. The arrows beside the name load the previous/next sound. Factory presets load the full sound, including Output, and preserve Mute. Turn on ? for explanations when hovering over controls.

02 / Load Broken Synth in a software instrument slot in Logic: AU Instruments > Lynch Audio Lab.

03 / The preset menu now has Styles > genre > instrument folders.

04 / Raw Techno uses strong tube/transistor/tape/damage and active final Tape limiting.

Inside the sound

Get Started

Load Broken Synth in a software instrument slot in Logic: AU Instruments > Lynch Audio Lab.

Styles Bank

The preset menu now has Styles > genre > instrument folders.

Hover Control & Automation

Hover Control is an optional click-free mode for the six large wheels.

Midi Learn

Right-click or Control-click any sound control, including switches, selectors and step sliders.

The Six Big Controls

MORPH moves between our Round four-pole ladder-inspired filter, Silky cascaded state-variable filter and Acid three-pole feedback filter.

Oscillators

Two oscillator banks have Saw, Pulse, Triangle and Sine.

Get Started

Load Broken Synth in a software instrument slot in Logic: AU Instruments > Lynch Audio Lab. Play your MIDI keyboard, record a MIDI region, or click the audition keyboard. Click the preset name for 600 factory sounds in Bass, Lead, Pad, Keys, Sequence or Broken, plus Init and User presets. The arrows beside the name load the previous/next sound. Factory presets load the full sound, including Output, and preserve Mute. Turn on ? for explanations when hovering over controls.

Styles Bank

The preset menu now has Styles > genre > instrument folders. Techno has 54 sounds across Basses, Pads, Percussion, Kicks, Hi-Hats, Leads, Drones, FX and Foley. House, Electro, Hip Hop, Ambient and Cinematic have 12 each: 114 new sounds in addition to the original 600 and Init. Arrow browsing runs through the original bank, Styles, then User. Save... stores your edited Styles sound as a new User preset; factory files stay unchanged. Factory AU preset IDs 0-600 are retained; Styles adds 601-714.

Raw Techno uses strong tube/transistor/tape/damage and active final Tape limiting. Filter self-oscillation makes pitched kick sweeps and sirens. Metal hats and foley-like textures are synthesized from noise, FM/ring and damage, not sampled field recordings. Delay/reverb are intentionally audible: shared Echo/Reverb returns and individual sends are both raised, with appropriate ducking and filtering. For drier sound lower FX, Echo or Reverb; for stronger effects raise their return/send controls. Follow Host tempo for stored step/arp patterns and synced delays.

Kicks and basses are referenced around MIDI 36 (C2); hats around MIDI 84 (C6), pads/leads often MIDI 48 (C3). Long pads/drones need sustained notes; kicks/most percussion have one-shot amp decay. Transpose and use envelopes/velocity as desired. These are sounds created with the existing synth engine, not recordings of drum machines or copied commercial patches.

Midi Learn

Right-click or Control-click any sound control, including switches, selectors and step sliders. Choose MIDI Learn and move a MIDI CC knob/fader sent to this instrument. The status line shows the waiting parameter; learning stops after one eligible CC. Escape, closing the editor or Cancel MIDI Learn cancels. The assignment is MIDI-channel-specific. Learning an already assigned CC moves it to the new parameter; each parameter has one assignment. Remove MIDI Assignment removes only that binding. Absolute / Pickup is the default: match or cross the current control value before it moves, avoiding jumps after preset/UI/automation changes. Switches and indexed controls change immediately. Absolute / Jump follows a 7-bit CC immediately. Relative / Two's Complement uses 1 up / 127 down; Relative / Binary Offset uses 65 up / 63 down (64 is neutral). Select the mode after learning. Continuous Hz controls use the same logarithmic range as the UI. Relative encoders on indexed controls advance one item per tick. Bindings are saved per instance in Logic project/ClassInfo state.

They survive factory and User sound changes, but are not copied with a User sound preset. CC0/32 bank select, CC6/38 data entry, CC96-101 RPN/NRPN, CC64 sustain and CC120-127 channel-mode messages

are reserved and cannot be learned. Unmapped CC1 retains its mod-wheel role; assigning CC1 overrides that role on the learned MIDI channel. Notes, pitch bend and pressure keep their existing behavior. For reliable performance playback, record the incoming MIDI CCs in a MIDI region. While the editor is open, MIDI changes also notify host parameter listeners with grouped gestures; recording that as a track automation lane depends on the host. Logic's Controller Assignments / Automation Quick Access is the host-level option for writing track automation independent of this editor. Do not route the same hardware control through both methods at once.

The Six Big Controls

MORPH moves between our Round four-pole ladder-inspired filter, Silky cascaded state-variable filter and Acid three-pole feedback filter. Intermediate positions blend their outputs; this is an original design, not a measured hardware clone. CUTOFF opens or darkens the sound. It uses a logarithmic dial. Key tracking, velocity, the filter envelope, LFO and aftertouch can open it further. RESONANCE emphasizes the cutoff region. Enable Self Osc in Filter to let Round sustain a tone near 94-100% Resonance. Morph 0 gives pure Round; its self-oscillation fades out by Morph 50. Silky and Acid do not self-oscillate. The existing amp envelope gates each voice, so an idle instance is silent.

Self-Oscillating Filter

Start from Init. In Filter > Presets choose Self-Osc Keys, then double-click Osc to disable the oscillator sources. Hold a note: the sound comes from nonlinear filter feedback, not an added sine oscillator. Cutoff sets pitch; Key Track 100% doubles it per octave. Cutoff 261.63 Hz tunes C4 (MIDI 60) near C. For pure tuning set Env Amount, Velocity Filter, LFO Filter and Pressure Depth to zero; Color/flutter can still alter timbre/pitch. Pitch bend, master Tune and Glide currently affect the oscillators only. Resonance below the threshold lets the tone decay. Self Osc defaults off in Init, factory presets and older saved sounds. WARMTH blends tube, transistor and tape ingredients. Shape those in Color. BROKEN raises starved rails, sputter, crackle, quantization and loose circuit damage. At zero there is no damage. Raise it gradually and adjust the ingredients in Broken. FX is the shared master for both delays and both reverbs. 100% preserves the stored balance, 0% is dry and 200% doubles the wet level.

Individual sends and the Echo/Reverb returns shape the balance in their module pages; FX does not change Chorus.

Voice & Midi

Poly has 16 note voices. Each voice can have one, two or three unison oscillator pairs; unison does not reduce the 16-note limit. At the limit, released voices are reclaimed first, otherwise the oldest is stolen with a short transition. Mono retriggers envelopes for each note. Legato preserves envelopes when a held note changes. Both use last-note priority and return to an earlier held note when the latest is released. Glide applies between overlapping mono/legato notes. Velocity affects level and filter. Pitch bend range is 1–24 semitones. CC1 increases the existing LFO depth; set a small amount of LFO pitch/filter first. Channel pressure and poly pressure open the filter. Sustain is CC64; CC123 releases notes and CC120 silences voices. CC121 resets expression controllers and sustain. MIDI channels 1–16 share the same sound; this is not a multitimbral or MPE instrument. Direct AU note pitches round to semitones. MIDI program changes and SysEx are not implemented. Panic clears voices, held notes, controllers and effect tails without changing controls.

Mute fades the output while voices continue. Closing the audition keyboard stops its own note IDs. Recorded MIDI is the most reliable way to audition chords.

Oscillators

Two oscillator banks have Saw, Pulse, Triangle and Sine. Oscillator 1 has octaves; Oscillator 2 has semitone and fine tuning. Pulse width affects Pulse only. Sub follows the played pitch one octave below. Noise, FM and ring modulation create breath, clang and dirt. Saw and pulse use edge correction; the generation, filters and distortion run internally at 4× with FIR downsampling. Intentional FM, crush and damage can still produce roughness and aliasing. These are creative effects, not alias-free promises.

Envelopes & Motion

Amp and Filter have separate attack, decay, sustain and release pages. Amp sustain at zero makes a pluck; it remains a held note until note-off. Filter depth can be positive or negative in semitones. Short releases make rhythmic sounds; long attacks and releases make pads. Motion routes one LFO to pitch, filter, pulse width, stereo pan and tremolo. Sine, Triangle, Square and deterministic Sample & Hold are available. Sync uses host tempo and musical divisions. Unsupported/missing tempo callbacks use 120 BPM.

Color & Broken

Tube is asymmetric saturation; Transistor is harder clipping; Tape adds low-pass saturation and small pitch flutter. Tone is a separate color low-pass. Warmth zero removes the saturation amounts but Tone still acts while Color is enabled. These are algorithmic characters, not recordings or circuit measurements. Starve lowers clipping rails with signal level. Sputter suppresses weak tails. Crackle is signal-driven and silent while idle. Crush deliberately reduces quantization resolution. Loose adds low-frequency damage. Noise from oscillators is a separate source. Chorus adds short modulated stereo delays.

Arpeggiator & Step Sequencer

Enable Arp, hold a chord, and choose Up, Down, Pendulum or Random, 1–3 octaves, division and gate length. It runs while notes are held, including sustained notes. It begins from the incoming note event, using host tempo; it does not align its first step to the bar grid. The original Sequence sounds enable Arp; the expanded Sequence sounds use Step. In Arp/Seq, Playback mode selects Arp or Step. Choose Sequences for 96 patterns: Bass, Acid, Melodic, Octaves, Rhythm or Broken. Loading a pattern changes only the sequencer, preserving your sound. Step uses the newest held/sustained key as its root. Page 2 shows 16 columns: PITCH is a semitone offset (–24 to +24), VEL is 1–127 scaled by the held key velocity, GATE is note length in percent; zero means REST. Drag a small slider to edit. The highlighted column follows the audio engine. Length loops the first 1–16 steps; Swing lengthens alternate steps and shortens the following steps, preserving each pair. Up/Down/Pendulum/Random also choose step order. Page 3 offers whole-pattern Transpose; Arp octaves apply only in Arp mode.

Releasing all held/sustained keys stops and rewinds the pattern; release and FX tails may continue. This player is monophonic and does not send MIDI to other instruments. The pattern is deterministic after Reset with the same MIDI, settings and tempo events. A transport stop releases held notes; a seek restarts the engine and effect tails. Free-running drift and modulation continue between played phrases unless you reset.

Two Delays / Two Reverbs

Clean Echo is a filtered stereo echo. Character Echo adds our own saturation/color. Both offer sync or milliseconds, feedback, width, low/high cut and ducking. Echo module pages show both sound pages and their tone/duck pages. Delay send controls how much synth enters a line; Echo controls the return. Plate is our dense algorithmic plate; Room is an early/diffuse room. Each has send, decay, predelay, width, low/high cut and ducking. Reverb controls their common return, available in Plate and Room. FX is the master above both delay and reverb. Increasing sends with Reverb at zero still fills the effect buffers but is inaudible until you raise the return.

Trial And Activation

See the trial and licensing chapter supplied with the installer. Support: info@lynchaudiolab.com

Tape Limiter

Tape is the last creative module, after chorus, both delays, both reverbs and Output. The header Tape Limiter button toggles it directly. Drive pushes an original tape-inspired soft saturation with partial level trim; Ceiling sets the saturation knee and sample peak limit; Release controls a stereo-linked, zero-lookahead sample limiter. Four local recipes offer Soft Glue, Tape Punch, Hot Reels and Crushed Bus. All factory sounds start with it off. Init stays clean. Existing saved projects and User presets keep their original coloration; reload a factory sound to hear the new tube/tape/grit treatment. Dry factory variants have dry effects, with the new signature coloration still active. This is algorithmic coloration, not a measured tape machine. The final nonlinear stage runs at the output sample rate; extreme drive can add aliasing. Sample limiting is not true-peak limiting and no mastering loudness target is implied.

Output defaults to −6 dB. Sample Protect defaults on with a −1 dBFS sample ceiling; it is not a true-peak limiter. Output telemetry is sample peak and slow RMS, not LUFS. Protection releases over 60 ms and may change dynamics when heavily driven. Polyphonic stacks are naturally louder than single notes. Keep monitor levels comfortable while testing extreme settings. If silent: check an instrument slot rather than an insert, incoming MIDI/channel, Mute, Osc enabled, oscillator levels, Amp sustain/envelope, cutoff, Output and your track output. Reverb/echo need an individual send, the shared return and FX Master above zero. If a note hangs, press Panic. If Logic does not list this new AU, restart Logic after saving your project; no existing production is changed by the installer. The unit reports 16 samples of synthesis latency for host compensation. Stereo and mono outputs are supported at 8–192 kHz. CPU cost rises with polyphony, unison and sample rate. Factory sounds are starting points; Robin’s listening and musical testing determine sound quality.

Hover Control & Automation

Hover Control is an optional click-free mode for the six large wheels. Turn it on in the header, enter a wheel, then move vertically: up increases and down decreases. Entering preserves the current value; moving out ends the gesture. Shift gives fine control. Scroll changes any dial without clicking, even with Hover Control off. Double-click resets a dial. Esc disables Hover Control and cancels MIDI Learn. Leaving the window or closing the editor ends active gestures. All 181 sound parameters are exposed to the host, including switches, selectors, all 48 step values and FX Master. In Logic choose Touch or Latch to write mouse/hover changes; Read plays existing automation. Hover Control changes interaction only; it does not change Logic's automation mode. UI preferences, preset browser actions and MIDI assignments are not sound automation parameters.

Saving Your Own Presets

Click Save..., enter a name and press Save. This saves all sound controls and the complete step pattern to Library/Application Support/Lynch Plugins/Broken Synth/Presets in your user folder. Saved sounds appear in User and are available in every instance. Existing sounds are never overwritten; duplicate names receive (2), (3), etc. Use Refresh User Presets in another open instance to see new files. Loading any sound preserves the current Mute state and clears held notes and tails. An asterisk after the preset name means controls have changed. Logic project state also stores all sound/step parameters independently of the User file. Init is a clean single saw with no effects or coloration, suitable for building a sound from scratch. It is available in the name menu and the Init button. The 600 sounds comprise the 24 original Starting Points and 576 recipe-based expansions; their musical balance still needs listening.

Modules & Presets

The 13 tabs reveal detailed controls. Double-click Osc, Filter, Motion, Color, Broken, Arp/Seq, Chorus, Echo, Plate Room or Tape to toggle its enable state. Echo double-click switches both delays together; each delay also has its own enable switch. Voice and Envelope always run. Module Presets is a small button that expands only when clicked. Four recipes per module, plus Self-Osc Keys in Filter, change only that module; other modules and Output/Mute/protection are preserved. Reverb recipes do not raise the shared Reverb return or FX Master. Use Next Page to access all controls. Ordinary dials reset to their original parameter default on double-click; Shift-drag gives finer adjustment. Host automation and save/restore include all 181 parameters. Help mode and page selection are interface preferences, not sound parameters.

Install and choose the right host slot

Apple Silicon Mac, macOS 12 or later. Audio Unit only; no Intel Mac, Windows, VST3 or standalone application is included. Use an AU-compatible software-instrument host and send MIDI to the instrument track.

Save your session before installation. Use the verified current installer and follow its installation prompts, then restart the host if the newly installed AU is not listed. Select the product under Lynch Audio Lab in the appropriate slot.

Trial and permanent licensing

Download the trial installer shown on the product page; the same installer is used for trial and purchase. No card is needed for the trial.

Open the plug-in, click Trial & Activation at the bottom and press Start trial to begin its full 14 days. Installing, opening a preset or downloading a guide does not start a new trial. Each product has its own trial. There is no subscription, automatic charge or periodic noise burst.

For a permanent purchase, use the exact Buy link on the product page. Lemon Squeezy supplies a license key in the receipt. Connect this Mac to the internet, click Trial & Activation at the bottom, paste the receipt key for this exact product and choose Activate. A permanent license allows a maximum of three computers. After successful activation, work offline.

To free a Mac's activation, connect it to the internet, open Trial & Activation and choose Deactivate this Mac. This releases that computer without renewing or resetting trial dates. Presets, project settings and updates do not renew the trial and retain settings.

The login Keychain stores trial and license-key records separately from presets. If it is locked, unlock it normally and press Refresh in Trial & Activation. Keep the system date correct.

At expiry, audio effects return latency-aligned dry audio with normal reported latency; instruments are silent; MIDI tools stop output and release held notes. Presets and project settings remain. Purchase activation restores licensed processing rather than a new trial.

Save, recall and automate

Save the host project to retain the AU instance. Use the product-specific preset operations described in the control chapters for reusable sounds. Preset files, complete project state and controller assignments can have different scopes; do not treat them as interchangeable.

When using host automation, choose an exposed sound parameter, record a short test pass and replay from before the first change. Check module enables, routing and output level. Only use product-local MIDI Learn when this manual explicitly documents it; otherwise use the host's controller-assignment workflow.

Troubleshooting and support

If the AU is missing, save your session, install the current package and restart the AU-compatible host. Check the required macOS version and Apple Silicon architecture, then review the host's plug-in manager. Do not delete a working production project to troubleshoot an insert.

For no sound or no processing, first check the correct slot, track input/output, incoming audio or MIDI, bypass/mute, module enables, mix/return amounts and trial or activation status. Test a simple documented starting point before adding a complex chain.

If the sound is too loud or distorted, reduce drive or output and inspect later inserts and the host master. Sample-peak protection does not guarantee intersample peaks. Source clipping cannot be repaired simply by lowering a later trim.

For dropouts, reduce active polyphony, unison, long returns or dense processing where applicable, or use the host's freeze/bounce workflow. A larger buffer can help scheduling; it cannot cure sustained processing overload.

For activation trouble, check the internet connection and use the key for this exact product from the Lemon Squeezy receipt. For help, contact info@lynchaudiolab.com with product version, macOS version, AU host and a short description. Never send your private license key publicly.

About this guide

Lynch Audio Lab · Music records a brighter tomorrow. This guide describes the released Audio Unit package. The control chapters preserve the supplied public operating documentation, with current-operation addenda integrated and obsolete private-test release labels removed. Images show the real product interface; some original panel lettering may predate the current package version. Original TXT documentation remains available separately.

Original Lynch designs are not measured hardware replicas or equipment-maker endorsements. Listen in context, maintain headroom and check the final deliverable after downstream processing. Support: info@lynchaudiolab.com.