LYNCH RADIO

AAX NATIVE | APPLE SILICON | VERSION 0.2.0

Valve-radio amplifier and preamp, speaker character, pedals and recording effects.

Read this first

These two AAX pages cover this installer. The complete colour control manual follows unchanged. Its AU-specific installation, Logic menu paths and format exclusions apply to the AU edition only; use these opening pages for AAX. The controls and sound engine are shared.

Requirements and tested host

An Apple Silicon Mac and an AAX Native host running natively on Apple Silicon are required. The embedded engine requires macOS 12 or later; your Pro Tools version may require a newer macOS. Actual host testing used Pro Tools Intro 2026.11. Other host releases are not independently certified by these tests. No Intel, Windows, HDX DSP, AudioSuite or standalone application is included.

1. Install

Save your sessions and quit Pro Tools. Open the signed AAX installer and follow macOS Installer. Administrator authentication may be requested. It installs only the selected product AAX bundles under /Library/Application Support/Avid/Audio/Plug-Ins/LYNCH Audio Lab/. Your installed Audio Units, sessions, presets and activation data are not replaced.

2. Load the effect

Restart Pro Tools and open an audio track or bus insert. Use insert search with the public product name, or browse the Lynch Audio Lab manufacturer menu. Choose the appropriate mono or stereo format. Radio and Thirty also offer mono/stereo: one input channel and two output channels.

3. Activate or evaluate

Open Trial & Activation in the plugin. An existing purchase key works for this product in AU and AAX on the same Mac without a separate format purchase. Studio Classics uses one shared bundle entitlement for all eight effects. A full 14-day trial starts only when you choose Start trial; reinstalling or changing format does not reset it.

Working in Pro Tools

Licensing and offline work

Purchased licences are permanent for up to three activated computers. Activation requires an internet connection; paid activated use is available offline. The developer signing iLok is not an end-user licence requirement for these effects. Pro Tools itself has separate licensing requirements. After the trial ends, the effects use latency-aligned dry bypass and retain their settings.

Presets, automation and session recall

Use the plugin user-preset controls or Pro Tools settings presets. Save the Pro Tools session to retain the plugin state. For host automation, enable the required parameters in the plugin automation window, then use the normal Pro Tools automation modes. The adapter updates automation at audio-buffer boundaries; it does not claim sample-accurate automation.

Buffer and CPU guidance

Use the lowest hardware buffer that remains stable for your session. The test system completed ten stereo inserts at 48 kHz/64 samples and 96 kHz/512 samples. A heavier session with 13 loaded instances exceeded CPU capacity at 96 kHz/64 samples; three isolated mono instances completed that setting. These are measured examples, not universal capacity guarantees. If AAE -9173 appears, raise the buffer or deactivate unused processing. A muted track is not the same as a deactivated track.

Delay compensation and monitoring

Enable Pro Tools delay compensation when mixing. The host receives the engine latency: 16 frames for Studio Classics and 256 for Radio/Thirty in the tested configurations. Hardware and host buffering add further monitoring delay. These products do not provide zero-latency hardware monitoring.

Updates, duplicates and removal

Quit Pro Tools before updating. Keep a single active AAX copy of each product; contact support if a previous private test copy is also present. To remove AAX, quit Pro Tools and move only that product .aaxplugin bundle out of the LYNCH Audio Lab scan folder to a backup folder or Trash. Retain presets, projects, licences and any AU copies you still use. Documentation is installed under /Library/Application Support/Lynch Audio Lab/Documentation/AAX/.

Support and scope

Support: info@lynchaudiolab.com. Include your product version, macOS, Pro Tools version, channel format, sample rate and buffer setting. Avid and Pro Tools are trademarks of Avid Technology, Inc. No Avid endorsement or certification is claimed.

THE COMPLETE USER GUIDE

LYNCH RADIO

A radio before the amplifier.
A voice with a way home.



Mac Audio Unit edition | English | Manual revision 1.2 | 29 October 2026

Edition covered

Radio 0.2.0. Apple Silicon Mac, macOS 12 or later, and an AU-compatible host. This guide covers the released plug-in. Audio devices, transport and audio-file recording are managed by your host.

Find your way

Install and connect 3

14-day trial and activation 4

First sound 5

Panel and the way home 6

Operate and save 7

RADIO, PREAMP and Thirty 8

Radio Detail and speakers 9

Broken Speaker I and II 10

The pedalboard 11

Tape Echo and local sounds 12

Recording: the complete chain 13

Desk and recording EQ 14

Recording compression 15

Tape and analogue noise 16

Studio delay and reverb 17

Final limiter and meters 18

Signal flow and recipes 19

Inside the sound 20

Solve a problem 21

Control reference 22

Read First sound for a fast start. The later chapters explain every module; the Control reference gives the current control ranges. Screenshots illustrate the interface family; small layout and version-label differences may be visible.

Install and connect

LYNCH RADIO is an Audio Unit audio effect. Load it on an audio track carrying a guitar DI recording or a live instrument input. It does not create guitar notes by itself.

01. Save your host project and close the audio host before installation. Open the signed .pkg installer supplied with your purchase and complete the macOS installation steps.

02. Reopen your AU-compatible host and allow its plug-in scan to finish. The installed component is in **/Library/Audio/Plug-Ins/Components/**.

03. In Logic Pro, open an **Audio FX** insert and choose **Audio Units > Lynch Audio Lab > Lynch Radio**. Select the layout you need.

04. Select the correct input and output devices in your host. Assign your guitar input to the audio track. Enable software input monitoring when you want to hear the plug-in while playing.

05. Start with a comfortable headphone or monitor level, then play. Use your interface gain to obtain a healthy unclipped DI signal before adjusting the plug-in Input.

Track and instance	What it does
Mono input / Mono output	A centred single-channel rig. Stereo returns are folded to mono.
Mono input / Stereo output	The practical choice for one guitar with stereo echoes or ambience.
Stereo input / Stereo output	Processes both incoming channels. Use for a genuinely stereo source.

Recording versus monitoring

A normal DAW audio track often records the incoming DI while the insert processes monitoring and playback. To commit the processed sound, route or bounce it using your host. The Recording panel inside the plug-in is a sound-processing rack, not a multitrack recorder or a record button.

If the plug-in is missing

Confirm the Mac is Apple Silicon and the host runs natively. Rescan the AU in the host plug-in manager. Older private ThirtyTest/RadioTest components can share the AU identity; with the host closed, move an old test component out of its Components folder and retain a backup. Keep your projects and presets.

14-day trial and activation

The trial uses the same installer as the purchased product. Every sound and control is available for 14 calendar days. There is no payment card, automatic charge, subscription or periodic noise interruption.

01. Open the Trial & Activation status button near the bottom of the editor.

02. Press Start trial when you are ready. A plug-in scan or opening a project does not start the trial. Thirty and Radio have separate trial periods.

03. To buy, use Buy license to open the official Lemon Squeezy checkout. Your receipt provides your permanent product license key.

04. Paste the key into the secure License key field and press Activate. Internet is required for activation. An activated license then works offline.

State	What you hear
Ready / not started	Dry bypass until you start the trial or activate a purchase.
Trial active	The complete processed sound. The status shows remaining time.
Trial ended	Dry input with the normal plug-in latency; saved sound settings remain intact.
Licensed	The complete processed sound, including offline use.

Three computers, permanent use

Each purchased product key permits up to three computer activations. Reusing the same key on the same Mac reuses its activation. To move to another computer, open Trial & Activation and choose Deactivate this Mac while online. This releases that activation without restarting the trial.

Projects and presets stay yours

License keys and trial dates are stored in the login Keychain. They are not saved in AU presets or DAW project state. Expiry does not erase a preset or any control setting. Reinstalling, rescanning or restoring an AU preset does not restart a trial.

If activation needs attention

Unlock the login Keychain and choose Refresh if storage is unavailable. Keep the Mac clock correct. An initial activation needs a working internet connection. A temporary network outage does not erase an already activated purchase. If all three activations are occupied, deactivate an old computer or contact support.

Bought before keys were introduced?

Do not buy again. Contact info@lynchaudiolab.com with your original order number so we can arrange the correct product key. Never put your license key in a public screenshot or support forum.

First sound

01. Insert Radio on a live guitar track or a clean DI recording. Select Mono-to-Stereo if you want stereo returns.

02. Choose Init and RADIO mode. Start at Input 0 dB, Drive 4, Tone 5 and Output -6 dB. Keep the Recording rack and unnecessary effects off while learning the core sound.

03. Leave Speaker Enabled on and start with Paper Cone. Play softly, then harder. Adjust Drive to find the point where the tone begins to compress and break up.

04. Reduce the guitar's own volume to explore cleanup. Increase plug-in Input only when the interface/host input is already healthy and unclipped.

05. Set final Output for a comfortable listening level, add effects one at a time and save the complete sound.

The four front controls

Input (-24 to +24 dB) feeds the pedalboard and valve stages. Drive (0-11) raises preamp gain. Tone (0-10) moves from darker to more open treble loss between stages. Output (-48 to +12 dB) trims the completed signal before the optional Warm Limiter.

Where the character comes from

Input and Drive excite the radio stages and the damaged speaker when selected. Output makes the finished result louder or quieter; it does not produce the same breakup as increasing Drive. Use the input/drive controls to shape the instrument and Output for a fair level comparison.

Panel and the way home



Sounds and mode at the top; Drive-linked station scale; four main knobs; module drawers and RMS meters below.

The five module buttons open Radio Detail, Speaker, Pedalboard, Tape Echo and Recording. The selection indicates the page you are viewing; a status lamp indicates active processing. Opening a drawer does not switch its sound on. Close the active drawer or press Escape to reveal the radio again.

Oslo to Sandnessjøen

The station pointer follows Drive, including automation and preset recall. Leifjord sits between Narvik and Sandnessjøen and glows gently near Drive 9.6. Sandnessjøen lights fully at Drive 11. Robin was born there; Leifjord was the approach to home where the anticipation began.

The town order tells that personal story. It is decorative, not a historically accurate station-frequency chart or a geographic route map. Drive 11 extends the same saturation design beyond 10, adding 2.8 dB into its first stage; it is not a separate mode or an automatic output boost. Click the LYNCH RADIO badge for the story.

Operate and save

Action	Result
Drag a knob	Adjusts its value. Read the numerical value beneath it.
Shift + drag	Makes a finer adjustment.
Double-click a knob	Returns that control to its default value.
Arrow keys	Make small value changes when a control has keyboard focus.
Click a module title	Opens its editor; opening does not enable the sound.
Click a pedal footswitch / rack ON area	Toggles that device. The board/rack master must also be on.
Close a drawer / Escape	Closes the editor without changing the sound.
Guide / tooltips	Use the in-product help when you want a reminder while playing.

Whole sounds and local sounds

Radio has Init and 32 factory starting sounds, complete Save/Open sound files and 24 local Tape Echo starting points. Echo presets change only the echo settings and enable Tape Echo; they leave the radio, pedals, Recording and final Output as set.

01. Choose a starting sound, then edit it. Custom means the current settings differ from the selected starting sound.

02. Use Save to write a complete **.aupreset** sound in the default Audio Unit preset folder. Open starts in the same library and can also load your earlier Radio .aupreset files from other locations.

03. Save the host project as well: AU settings are stored with the session. Keep the source audio and any external plug-in presets with your project.

The default folder is **~/Library/Audio/Presets/Lynch Audio Lab/Lynch Radio/**. Logic uses this product folder for its Settings menu. Reopen that menu after saving; if it has not refreshed, choose Load and select the file. Saving here gives your preset a matching file and AU preset name.

The readable lower-panel version row identifies the loaded plug-in. Its tooltip includes the build number.

Factory selection normally retains your Input calibration; Init can reset it. Check Input and Output after a reset, sound load or mode change. Full sound files and AU sessions recall saved output levels. A factory starting point is not a volume guarantee for every guitar.

Automation and controllers

Automate sound controls in the AU host. For a physical expression pedal, map its MIDI controller to Wah Position through the host controller-assignment system. The plug-in is an audio effect; it does not have its own instrument-style MIDI input.

The green eye on the radio chassis is decorative artwork, not a tuner. Use your host tuner if required. UI Size offers 75%, 100% and 125%; sound settings do not change with window size.

RADIO, PREAMP and Thirty

Mode	Audible route and use
RADIO	Two-stage preamplifier, radio output stage with supply sag, optional speaker and its damage voicing. Use as a complete compact radio-amp sound.
PREAMP	Two-stage preamplifier without Radio's output stage or speaker. Use before another guitar amp plug-in. Optional pedal, echo, tremolo and Recording processing can still operate.
RADIO with Speaker Off	Retains the Radio output stage while bypassing only its speaker. This is different from PREAMP.

01. For the original radio-into-amp idea, place Radio before Thirty in the host insert chain.

02. Choose PREAMP. Start with Radio effects and Recording off so the next amplifier receives a simple preamp signal.

03. Set Radio Input/Drive/Tone for character. Reduce Radio Output if the next amp is driven too hard.

04. Enable Thirty's cabinet/microphones for the finished capture. Adjust Thirty final Output for listening level.

Avoid duplicate stages by choice

Thirty already includes a reduced Radio preamp. Use either that module or a separate Radio insert initially; enabling both stacks two preamplifiers. The separate product adds its own mode, power stage, speakers, Broken Speaker, pedalboard and rack. Its full presets are independent of Thirty's presets.

PREAMP is a software signal route, not an instruction to connect a physical speaker output to another amplifier. Audio device selection and recording are managed in the host.

Radio Detail and speakers

Control	Range and effect
Supply Sag	0-100%. Dynamic supply compression in the RADIO output stage; unavailable in PREAMP.
Valve Bias	-100 to +100%. Changes preamp asymmetry in both modes, with DC removal.
Tremolo Rate	0.2-12 Hz. Speed of post-valve amplitude modulation.
Tremolo Depth	0-100%. Zero removes tremolo; full depth gives deep amplitude movement.
Speaker Enabled	Bypasses only the speaker in RADIO; PREAMP always excludes it.
Speaker choice	Paper Cone, Oval Midrange, Warm Cloth, Broken Speaker I or Broken Speaker II.

Choose the ordinary speaker first

Paper Cone starts from a compact radio-speaker balance. Oval Midrange focuses the midrange and narrows the low/high reach. Warm Cloth gives an alternative smoother presence balance. Compare while holding Input, Drive, Tone and Output steady. These are original algorithmic voicings rather than measured speaker IRs.

Use Sag when you want harder playing to feel more compressed and the output stage to recover between phrases. Bias is a different preamplifier control: it changes asymmetry rather than acting as a tone shelf. Learn each at moderate Drive before combining extreme settings.

Broken Speaker I and II



Choose Broken Speaker in the Speaker module. RADIO mode and Speaker Enabled are required.

Selection	Character
Broken Speaker I	Torn-cone buzz, asymmetric breakup and a midrange coil-rub rattle. Softer notes stay relatively cleaner; attacks excite the damage.
Broken Speaker II	A more severely shredded intensity, with stronger asymmetric breakup and loose-contact collision character.

01. Select RADIO, enable Speaker and choose Broken Speaker I.

02. Play the same phrase quietly and strongly, then change Drive to hear how excitation changes the damage.

03. Try II for a more severe texture. Reduce final Output to compare at a sensible similar level.

04. Return to an ordinary speaker, PREAMP or Speaker Off when you want that damage stage out of the sound.

I and II are two damage intensities, not one versus two physical loudspeakers. The effect is signal-driven cone/coil behaviour: it does not add random silence or independent crackle noise. Broken Tube and cabinet-hit gestures belong to Thirty; they are not Radio controls. The fault is inspired by a damaged-radio-speaker idea, not a measured damaged Luxor driver.

The pedalboard



Open controls with the pedal name; use its footswitch to change the sound.

Turn on the Pedalboard master / BOARD POWER, then the pedals you want. Individual ON settings survive board bypass. Turning the board back on restores those selections. In Radio, amber indicates a stored ON state while the board or global bypass prevents processing; green indicates a powered active path.

Device	Main controls and use
Wah	Position sweeps the resonant filter. Auto Wah adds tempo movement; Division sets its cycle and Depth its travel around Position. Position 50% with Depth 100% gives the broadest sweep.
Compressor	Sensitivity increases compression; Output sets the level into the next stage. This pedal changes the way the amplifier is driven.
Fuzz	Fuzz controls drive, Volume sets output, and Bias alters sustain/decay, including gated textures. It is an original two-transistor-inspired effect.
Drive / Boost	Overdrive adds clipping, Tone shapes the result, and Level changes drive into the amplifier. More Level can matter as much as more Overdrive.
Phaser	Speed sets motion and Depth its extent.
Chorus / Vibrato	Chorus uses Intensity; Vibrato uses Rate and Depth. Mix sets the blend. A disabled mode-specific control keeps its stored setting.

Placement and timing

Modulation Placement moves Phaser and Chorus/Vibrato before the amplifier or Studio After Cabinet. The Wah/Compressor/Fuzz/Drive chain remains ahead of the amplifier stages. Before Amp effects are mono for a mono guitar; use After Cabinet and a stereo output for width. Auto Wah follows host beats when valid, otherwise free-runs at the last valid tempo, initially 120 BPM.

Tape Echo and local sounds



Tape Echo has its own machine, feedback, tone and placement. It is separate from the Recording delay.

Control group	Operation
Machine	Single Head / Three Head. Heads and Echo Spring apply to Three Head only.
Time / Sync / Division	50-1,500 ms free time; sync divisions from 1/16 to 1 Bar, including triplet and dotted values.
Repeats / Mix	0-95% feedback / 0-100% dry-echo blend. Mix 100% is wet-only echo output.
Heads	Head 1, 2, 3, pairs of heads or All Heads.
Bass / Treble	-12 to +12 dB each on the echo voice.
Wow, Tape Drive, Age, Duck	0-100% each: pitch movement, saturation, wear and return attenuation while playing.
Placement	Before Amp or Studio After Cabinet. Stereo returns from mono guitar need After Cabinet and a stereo output.

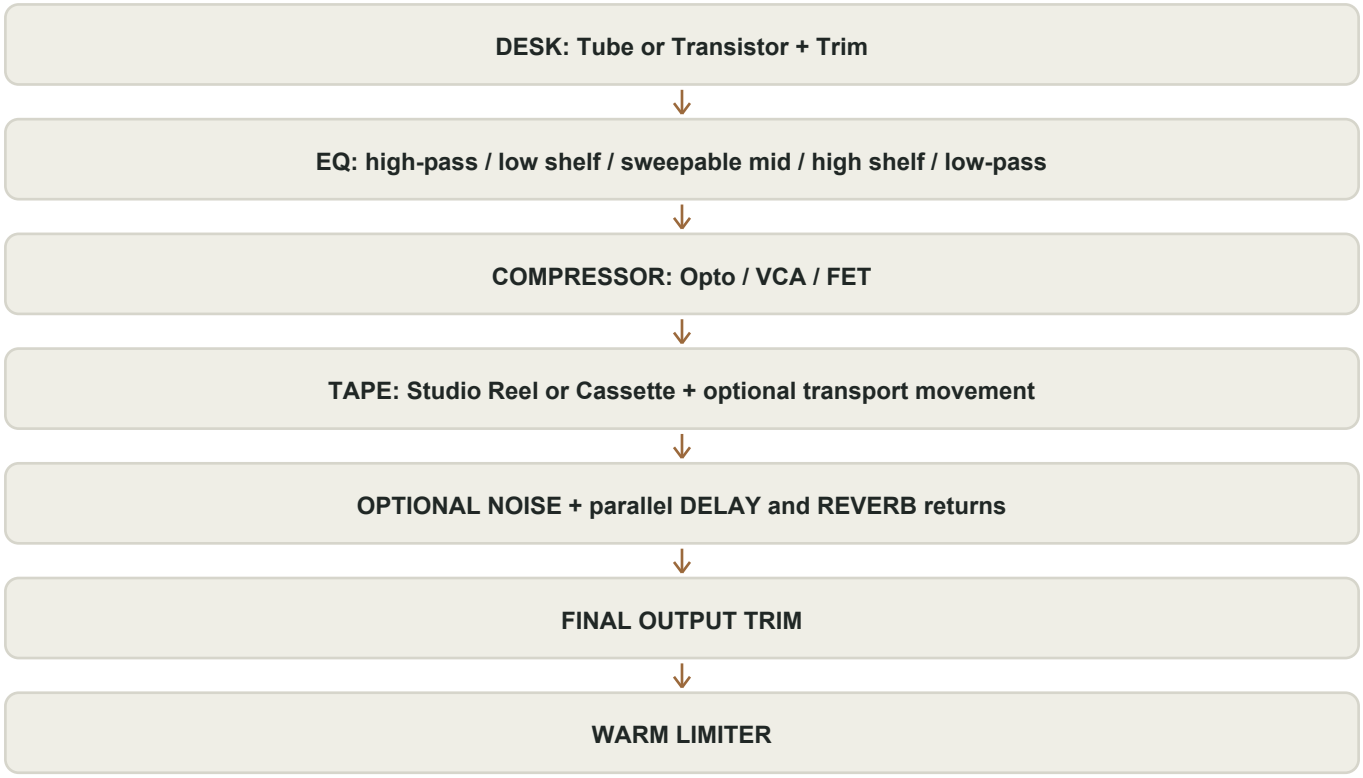
The 24 ECHO PRESETS cover Short/Slap, Leads/Phrases, Tempo/Sync, Three Head, Worn/Texture and Space/Send. They change only the 16 echo controls and enable Tape Echo. A manual edit shows Custom echo. Full Save/Open still stores the entire Radio sound.

Radio and Thirty echo differences

Radio's Tape Echo does not expose Thirty's extra Tape Mode menu, 200% runaway feedback or added low/high-cut controls. For explicit Ping Pong, Dual Rhythm and Multi Tap modes inside Radio, use the Recording Stereo Delay. A selected echo sound may also alter placement.

Recording: the complete chain

The Recording rack is the finishing stage of the rig. Turn on its master and the individual devices you want. Click a module face/title to edit it; click the LED/ON area to toggle it. Master bypass retains the device settings. Init leaves the rack master off.



The audible order is fixed. The main compressor precedes tape, so it can control transients entering the tape stage. Delay and reverb are parallel sends from the finished rack signal, and their returns are added alongside the dry path. The final limiter follows the output trim. The module order shown above is not a freely reorderable patch bay.

Four different kinds of level

Input drives the whole instrument. Desk Trim changes the level entering recording EQ/compression/tape. Compressor Makeup restores or changes level after compression. Final Output changes listening level and drives the optional last limiter. These controls have different jobs.

Desk and recording EQ

Desk: console colour

Tube and Transistor select different analogue-inspired coloration. Drive increases saturation in this desk stage, while Desk Trim sets its output before the EQ and compressor. Start with a modest Drive value, compare at similar levels, then reduce Trim if the extra colour is simply louder.

Desk control	Range / operation
Type	Tube / Transistor
Drive	0-100%
Trim	-18 to +18 dB

EQ: shape the finished guitar

The recording EQ acts after the amp/cabinet rather than changing the amplifier tone stack. Use high-pass to reduce unwanted low energy, the low shelf for body, the mid bell for focus and the high shelf/low-pass for brightness. Higher mid Q makes a narrower bell. Broad small changes are often easier to place in a mix than large boosts.

Control	Range
High Pass / Low Pass	20-2,000 Hz / 2,000-20,000 Hz
Low shelf frequency / gain	30-400 Hz / -12 to +12 dB
Mid frequency / gain / Q	150-8,000 Hz / -12 to +12 dB / 0.3-4
High shelf frequency / gain	1,500-16,000 Hz / -12 to +12 dB

A useful starting exercise

Enable only Desk and EQ. Try a small low-mid reduction around 250-400 Hz if the guitar is cloudy, or a broad mid lift if it disappears in a busy mix. Move the frequency while listening, then reduce the amount. Bypass EQ at a similar final level to judge whether it helps.

The rack reuses the Lynch analogue-colour and equalizer engines through a focused guitar-rig control set. The main Radio Tone control and the recording EQ have different positions and behaviours; one does not replace the other.

Recording compression

Style	Behaviour and starting use
Opto	Program-dependent recovery for a gentler, breathing response. Start here for sustained clean guitar.
VCA	Feed-forward RMS-style level control. Useful when you want steady rhythm-guitar dynamics.
FET	Peak-sensitive, partly feedback-style behaviour. Useful when you want a more assertive response to transients.

Control	What to do
Threshold (-48 to 0 dB)	Lower until the gain-reduction meter responds on the notes you want to control.
Ratio (1:1-20:1)	Sets how strongly levels above threshold are restrained. Start around 2:1 for gentle control.
Attack (0.1-100 ms)	Shorter settings catch more pick attack; longer settings let more transient through.
Release (20-2,000 ms)	Sets recovery. Adjust until the level returns naturally between phrases. Opto recovery also responds to the signal.
Makeup (-18 to +18 dB)	Manual gain after compression. Match the bypassed loudness before judging.
Mix (0-100%)	Blends dry and compressed signals for parallel compression.

Set it by ear

Begin with Ratio 2:1, Attack about 20-30 ms and Release about 180-300 ms. Lower Threshold for a few dB of gain reduction on stronger notes, then adjust Makeup for a fair comparison. These are suggestions, not a universal preset. If pick attack disappears, lengthen Attack or reduce compression. If the level pumps, adjust Release and reduce the amount.

The gain-reduction meter shows attenuation, not output level. It is independent of the pedal compressor and final limiter meters. The three styles adapt the Lynch dynamics engine; they are not claimed component-for-component replicas of named commercial compressors.

Tape and analogue noise

Recording Tape is a separate colour stage from Tape Echo. It processes the guitar passing through the rack; it does not create repeats. Studio Reel and Cassette change the tape profile. Drive changes saturation, Tone adjusts balance, Wear changes loss, Bias shifts the operating character, and Wow adds transport movement.

Control	Range / use
Type	Studio Reel / Cassette
Drive / Tone	0-100% each. Tone 50% is the nominal balance.
Wow / Wear	0-100% each. Use small Wow for subtle movement.
Bias	-100 to +100% around nominal bias.
Speed	Slow / Normal / Fast
Reel speeds	7.5 / 15 / 30 ips
Cassette speeds	0.9375 / 1.875 / 3.75 ips
Noise switch / floor	Independent optional noise; -90 to -35 dBFS nominal floor.

Use tape without burying the performance

Start near nominal Bias, Tone 50% and a small Drive amount. Listen for the way transients round and sustained notes become denser. Raise Wear or slow the tape for a more restricted, aged sound. Adjust final Output for comparison rather than compensating by driving an earlier stage harder.

Wear and noise are independent

You can use tape colour and wear with Noise off. Turning Noise off removes the deliberately generated noise bed. It does not remove noise already recorded in a DI or present at the input. Tape does not repair clipped input recordings.

Studio delay and reverb

Stereo Delay is the rack delay, separate from Tape Echo. Enable the delay, set Send above zero and bring up Return. Both must pass signal for the effect to be audible. The dry path remains present: a 100% Send is not a wet-only output setting.

Delay control	Range / effect
Mode	Classic, Stereo, Ping Pong, Dual Rhythm 3:2, Multi Tap
Time / Sync / Division	50-2,000 ms in free time; Sync uses host tempo and the selected musical division.
Feedback	0-95%; higher values give more repeats.
Send / Return	0-100% sent to delay; -60 to +6 dB wet return.
High Pass / Low Pass	20-2,000 Hz / 2,000-20,000 Hz on the delayed sound.
Width / Ducking	0-100% each. Width 0 centres the return; Ducking reduces it while playing.

Studio Reverb

Plate offers a shaped studio tail, Spring a resonant spring-inspired colour, and Room a room-style field. Decay is 0.2-12 seconds. Send (0-100%), Return (-60 to +6 dB), High Pass (20-2,000 Hz), Low Pass (2,000-20,000 Hz) and Ducking (0-100%) shape the wet path.

For clarity, use modest sends and darken the returns. Increase ducking when echoes or reverb obscure the picked phrase; the wet sound becomes more prominent in the gaps. Use a stereo-output instance to hear left/right modes. A mono-output instance cannot reproduce stereo width.

Final limiter and meters

Warm Limiter is an optional final tube-inspired colour and sample-peak-control stage. Enable Recording and this module. Amount (0-100%) increases drive and limiting; Ceiling (-18 to 0 dBFS) sets the fully active processed-path sample ceiling. It follows Output, so more Output can drive it harder.

Its meter shows actual linked gain reduction. It has no automatic makeup gain or loudness matching. Switching and ceiling edits are smoothed, so a newly enabled fade is not an instantaneous brick wall. Global bypass passes the latency-aligned dry signal rather than forcing that signal through the limiter.

Sample peaks and true peaks

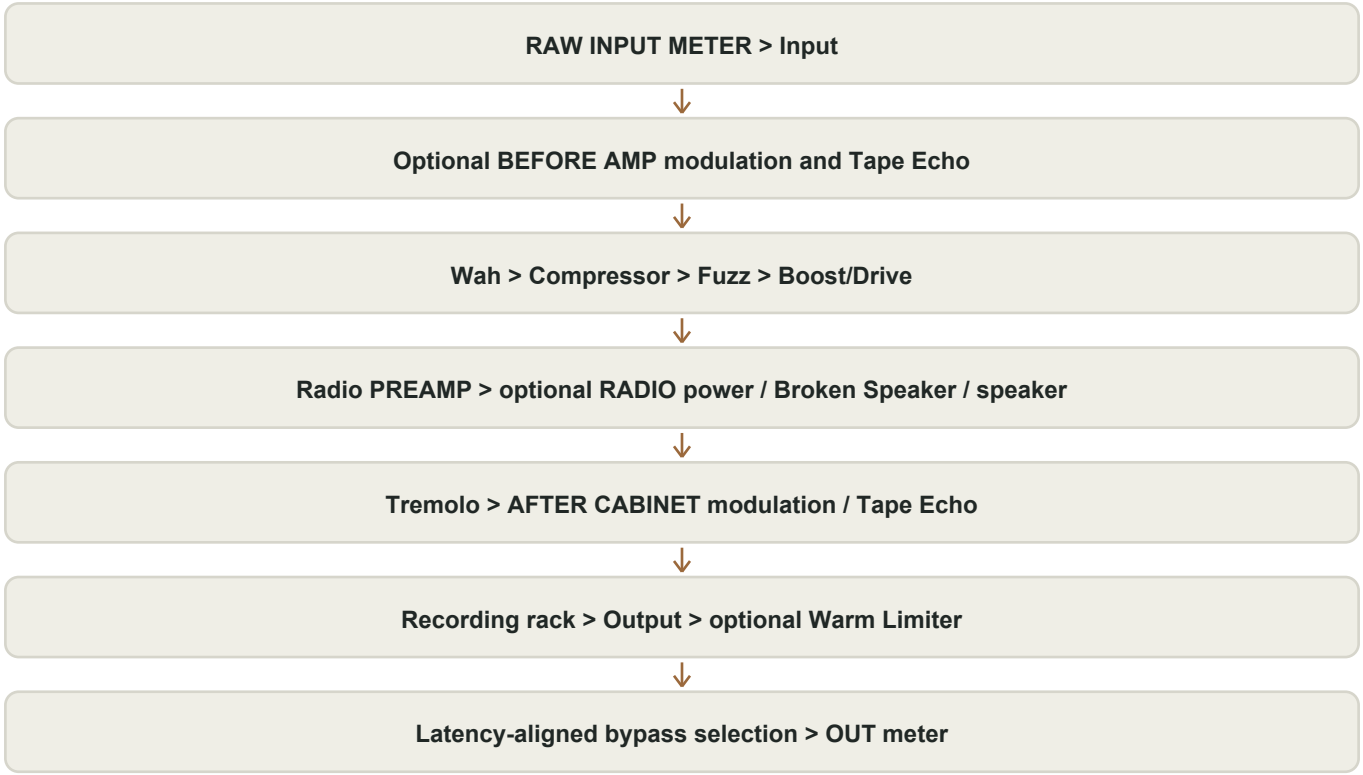
This is a sample-peak limiter, not a true-peak mastering limiter. It does not guarantee an intersample peak limit or a streaming loudness target. Use the host peak meters and a dedicated final mastering stage when those requirements matter.

Read the VU meters correctly

IN and OUT are aggregate input and output RMS readings, not separate left/right meters. The warm VU reference is 0 VU = -18 dBFS RMS. Digital full scale is 0 dBFS, so a VU near its centre does not mean digital clipping. Fast peaks can exceed the average reading; check the host peak meters too.

Meter	Where it measures
IN	Raw incoming audio before plug-in Input calibration. Turning plug-in Input does not change this raw input reading.
OUT	The finished signal after output trim, optional limiting and the active/bypass selection.
Compressor GR	Gain removed by the recording compressor.
Limiter GR	Gain removed by the optional final limiter.

Signal flow and recipes



Goal	Starting exercise
Playable radio grit	RADIO, Paper Cone, Drive around 4, moderate Sag. Find cleanup with the guitar volume before adding effects.
Radio before another amp	PREAMP, optional effects off initially, next amp after Radio. Use Radio Output to control drive into that amp.
Torn-speaker accent	RADIO + Speaker Enabled + Broken I. Play hard accents among softer notes, then compare II.
Pulsing worn texture	Modest Drive, slow Tremolo and a little Recording Cassette Wow/Wear. Add only enough noise for the arrangement.
Stereo lead space	Mono-to-Stereo output, Recording Stereo Delay in Ping Pong with a modest Send and some Ducking. Add Room reverb last.

Inside the sound

Radio uses an original reduced valve-inspired design. Two asymmetric nonlinear stages with coupling and treble-loss filtering form the preamplifier. Input, Drive, Tone and Valve Bias change the way the stages are excited and the shape of their overdrive. DC-removal stages keep deliberate asymmetry from simply becoming an offset.

RADIO adds a reduced nonlinear output stage with signal-dependent supply sag and recovery, followed by the selected compact-speaker response. Broken Speaker adds level-dependent cone breakup and coil-rub behaviour. PREAMP selects the preamplifier result instead, leaving the Radio power stage and speaker out of the audible route.

The pedal/valve/damage path runs at 4x the host sample rate before returning to host rate. This is a compact musical model, not an electrical reconstruction of a known Luxor chassis. The original radio model and its exact circuit are unknown.

The studio engines

The rack shares the Lynch analogue-colour, equalizer, dynamics, tape and reverb engines through a selected set of controls. Its console/EQ/compressor/tape core uses 4x processing at 44.1/48 kHz, 2x at 88.2/96 kHz and 1x at 192 kHz. Noise, transport movement and spatial returns complete the path. The limiter uses a tube-inspired antiderivative-antialiasing transfer, DC removal and linked peak control.

Latency and performance

The complete plug-in reports 256 host samples of fixed processing latency, including its aligned bypass. At 48 kHz this is about 5.33 ms; at 44.1 kHz about 5.80 ms. Your live round-trip delay also includes hardware input/output, buffers, host routing and other plug-ins. The reported plug-in number is not total monitoring latency.

Cabinet, microphone, room and fault behaviours are original algorithmic interpretations. They do not use measured commercial speaker/microphone impulse responses. Numerical checks, host validation and musical listening answer different questions; they do not establish a universal ranking against other products.

Solve a problem

Symptom	Check in this order
No sound	Host input and output, track input assignment, track monitoring and transport; then global Bypass, channel volumes and final Output. Radio is an effect and needs an audio input.
Effect editor opens but nothing changes	Enable the board/rack master and the individual device. A selected page is not proof that processing is on.
A control is greyed out	Its path or required mode is inactive. Examples: Time with Sync on, head patterns with Single Head, Speaker and Sag in PREAMP. Stored values remain available when the path is restored.
Stereo sounds mono	Check the host instance has stereo output, then use After Cabinet placement and non-zero width/mix.
Sound is too distorted or low	First inspect interface/host input clipping. Then reduce Input, pedal output and Drive. Final Output cannot undo earlier clipping or saturation.
Crackle or uneven decay	Separate intentional Broken Speaker character from host overload. Bypass damage, pedals and the rack individually, then check buffer size and CPU.
Monitoring feels late	Use wired headphones, reduce the host buffer while keeping playback stable, and check other latency-heavy plug-ins.
Delay/reverb seems missing	Check both Send and Return, the module/master switches, placement and output format. Strong ducking can intentionally hide the return while you play.

Ask for support

Use the Contact / Support link at lynchaudiolab.com. Include product/version, macOS, Mac model, host/version, input/output format, the smallest repeatable steps and a screenshot. A saved preset and a short dry audio example can help reproduce a sound issue. Keep a copy of your original project.

Control reference

This reference lists the current sound-control ranges. Controls can be unavailable when their parent module or required mode is off. Retired compatibility-only controls are omitted; old sessions can retain them internally. Current interface labels take precedence over generic host parameter names. Use current rig and module controls for new sounds. Thirty and Radio full sound files are not interchangeable.

Control	Range	Operation
Signal mode	0 to 1	Radio includes a small radio output stage and speaker. Preamp bypasses both; place another amplifier after this plugin. [RADIO, PREAMP]
Input	-24 to 24 dB	Input calibration before the pedalboard and valve preamplifier.
Drive	0 to 11	Gain into two asymmetric valve-inspired stages, up to11 at Sandnessjoen MAX. Lower the guitar volume to clean up.
Tone	0 to 10	Passive-style treble loss between valve stages: dark to open.
Output	-48 to 12 dB	Final trim after studio processing, before the optional final limiter. Zero is unity.
Bypass	Off / On	Latency-aligned dry input. Preserves all sound settings.
Supply sag	0 to 100 %	Dynamic supply compression in the Radio power stage. Preamp leaves this stage out.
Valve bias	-100 to 100 %	Changes asymmetry around the preamp operating point, with DC removal.
Radio speaker	0 to 4	Paper, oval and warm radio speakers plus Broken Speaker I and II: strong cone breakup and coil rub, with a second more shredded damage level. Original algorithmic voicings, no captured impulse responses. [Paper Cone, Oval Midrange, Warm Cloth, Broken Speaker I, Broken Speaker II]
Radio speaker enabled	0 to 1	Bypass only the small speaker in Radio mode. Preamp always bypasses the power stage and speaker.
Tremolo rate	0.2 to 12 Hz	Post-valve tremolo speed.
Tremolo depth	0 to 100 %	Zero disables tremolo; full depth gives complete amplitude movement.
Pedalboard Enabled	Off / On	Enable the complete pedalboard. Individual pedal settings are retained when the board is bypassed.
Wah Enabled	Off / On	Enable the classic wah circuit.
Wah Position	0 to 100 %	Wah pedal position. Assign this parameter to a controller in Logic for foot-pedal control.
Compressor Enabled	Off / On	Enable the classic pedal compressor.
Compressor Sensitivity	0 to 100 %	Amount of compression from the pedal's sensitivity control.
Compressor Output	-24 to 18 dB	Level after the compressor pedal.
Fuzz Enabled	Off / On	Enable the classic two-transistor fuzz model.

Control	Range	Operation
Fuzz	0 to 100 %	Fuzz circuit drive.
Fuzz Volume	-36 to 12 dB	Output volume of the fuzz pedal.
Fuzz Bias	0 to 100 %	Lynch addition: adjusts transistor bias from smoother sustain toward gated, broken decay.
Drive Enabled	Off / On	Enable the mid-focused overdrive pedal.
Overdrive	0 to 100 %	Drive in the pedal clipping stage.
Drive Tone	0 to 100 %	Tone after the overdrive circuit.
Drive Level	-24 to 18 dB	Output level of the overdrive pedal.
Phaser Enabled	Off / On	Enable the classic phaser.
Phaser Speed	0.05 to 12 Hz	Rate of the phaser sweep.
Phaser Depth	0 to 100 %	Lynch addition: reduces sweep depth while retaining the classic phase stages.
Chorus Enabled	Off / On	Enable the classic chorus/vibrato circuit.
Chorus Intensity	0 to 100 %	Original-style combined chorus intensity control.
Vibrato Rate	0.05 to 12 Hz	Vibrato modulation rate, available in Vibrato mode.
Vibrato Depth	0 to 100 %	Vibrato modulation depth, available in Vibrato mode.
Chorus Mode	0 to 1	Chorus uses its Intensity control; Vibrato exposes separate Rate and Depth. [Chorus, Vibrato]
Chorus Mix	0 to 100 %	Lynch addition: dry/effect balance for the chorus/vibrato pedal.
Modulation Placement	0 to 1	Place phaser and chorus before the amplifier or in the studio path after its cabinet. [Before Amp, Studio After Cabinet]
Tape Echo Enabled	Off / On	Enable the tape echo. Settings are retained when bypassed.
Tape Echo Machine	0 to 1	Single Head and Three Head have distinct tape-machine voicings and feedback behavior. [Single Head, Three Head]
Echo Time	50 to 1500 ms	Base tape echo time. Tempo synchronization overrides this time while Sync is enabled.
Echo Sync	Off / On	Synchronize echo time to the DAW tempo. A 120 BPM fallback is used if the host supplies no tempo.
Echo Division	0 to 7	Musical division of the host tempo. [1/16, 1/8 Triplet, 1/8, 1/8 Dotted, 1/4, 1/4 Dotted, 1/2, 1 Bar]
Echo Repeats	0 to 95 %	Tape feedback. High settings can sustain or build a dense echo tail.
Echo Mix	0 to 100 %	Dry/echo balance. Use 100% for a fully wet send effect.

Control	Range	Operation
Echo Heads	0 to 6	Choose active playback heads in the Three Head machine. Single Head has no head-pattern control. [Head 1, Head 2, Head 3, Heads 1 + 2, Heads 2 + 3, Heads 1 + 3, All Heads]
Echo Bass	-12 to 12 dB	Low-frequency tone shaping in the echo voice.
Echo Treble	-12 to 12 dB	High-frequency tone shaping in the echo voice.
Wow / Flutter	0 to 100 %	Tape transport pitch variation.
Tape Drive	0 to 100 %	Drive the modeled tape/preamp stages harder.
Tape Age	0 to 100 %	Progressive tape wear and loss of high-frequency detail.
Echo Duck	0 to 100 %	Reduce the echo while the input plays, allowing the tail to emerge afterward.
Echo Placement	0 to 1	Before Amp or Studio After Cabinet. This does not imply a physical amp effects loop. [Before Amp, Studio After Cabinet]
Echo Spring	0 to 100 %	Three Head machine's spring ambience. Hidden on Single Head.
Recording Rack Enabled	Off / On	Enable the optional recording chain after the cabinet and microphones. Init leaves this complete rack bypassed.
Desk Enabled	Off / On	Enable the tube or transistor desk stage. The rack master must also be enabled.
Desk Type	0 to 1	Tube or transistor-inspired recording desk coloration. [Tube, Transistor]
Desk Drive	0 to 100 %	Drive the desk input stage for recording-console coloration.
Desk Trim	-18 to 18 dB	Level leaving the desk stage, before the recording EQ and compressor.
Recording EQ Enabled	Off / On	Enable the recording equalizer, separate from the original amplifier tone controls.
Recording High Pass	20 to 2000 Hz	Low-frequency cut in this recording module.
Recording Low Pass	2000 to 20000 Hz	High-frequency cut in this recording module.
Recording Low Frequency	30 to 400 Hz	Frequency of the low shelf in the recording equalizer.
Recording Low Gain	-12 to 12 dB	Low-shelf boost or cut in the recording equalizer.
Recording Mid Frequency	150 to 8000 Hz	Center frequency of the recording EQ's bell band.
Recording Mid Gain	-12 to 12 dB	Midrange bell boost or cut in the recording equalizer.
Recording Mid Q	0.3 to 4	Width of the midrange bell. Higher Q is narrower.
Recording High Frequency	1500 to 16000 Hz	Frequency of the high shelf in the recording equalizer.
Recording High Gain	-12 to 12 dB	High-shelf boost or cut in the recording equalizer.

Control	Range	Operation
Recording Compressor Enabled	Off / On	Enable the recording compressor. Its gain-reduction meter shows actual attenuation.
Recording Compressor Type	0 to 2	Opto, VCA or FET-inspired recording dynamics. The model changes the response, not only its name. [Opto, VCA, FET]
Recording Threshold	-48 to 0 dB	Level above which the recording compressor reduces gain.
Recording Ratio	1 to 20 :1	Compression ratio above threshold.
Recording Attack	0.1 to 100 ms	Compressor attack. Shorter settings catch transients sooner.
Recording Release	20 to 2000 ms	Compressor recovery. The Opto model uses adaptive recovery informed by this setting.
Recording Makeup	-18 to 18 dB	Manual gain after recording compression; no hidden automatic loudness matching.
Recording Compression Mix	0 to 100 %	Blend dry and compressed signal for parallel compression.
Recording Tape Enabled	Off / On	Enable the recording tape stage. Noise has its own independent switch.
Recording Tape Type	0 to 1	Studio reel or cassette-inspired tape response. [Studio Reel, Cassette]
Recording Tape Drive	0 to 100 %	Drive the tape stage from subtle color toward stronger saturation.
Recording Tape Tone	0 to 100 %	Recording tape tone balance; center is the nominal setting.
Recording Tape Wow	0 to 100 %	Tape transport pitch variation.
Recording Tape Wear	0 to 100 %	Tape wear and frequency loss, independently of the noise switch.
Recording Tape Bias	-100 to 100 %	Bias offset around the nominal tape setting.
Recording Tape Speed	0 to 2	Slow, Normal or Fast. Reel: 7.5/15/30 ips. Cassette: 0.9375/1.875/3.75 ips. [Slow, Normal, Fast]
Analog Noise Enabled	Off / On	Add optional recording noise independently of tape wear. The complete rack must be enabled.
Analog Noise Floor	-90 to -35 dBFS	Nominal analog-noise level. Noise is absent with its switch off.
Recording Delay Enabled	Off / On	Enable the parallel recording delay. Send and Return are separate from the dry path.
Recording Delay Time	50 to 2000 ms	Recording delay duration with Sync off.
Recording Delay Sync	0 to 1	Follow the host tempo with the chosen musical division.
Recording Delay Division	0 to 7	Musical duration of the recording delay when tempo sync is on. [1/16, 1/8 Triplet, 1/8, 1/8 Dotted, 1/4, 1/4 Dotted, 1/2, 1 Bar]
Recording Delay Feedback	0 to 95 %	Amount returned to the recording delay input for more repeats.

Control	Range	Operation
Recording Delay Send	0 to 100 %	Amount sent from the recorded dry signal to the parallel delay.
Recording Delay Return	-60 to 6 dB	Level of the delay returning alongside the unchanged dry path.
Delay High Pass	20 to 2000 Hz	Low-frequency cut in this recording module.
Delay Low Pass	2000 to 20000 Hz	High-frequency cut in this recording module.
Recording Reverb Enabled	Off / On	Enable the parallel recording reverb. Send and Return are separate from the dry path.
Recording Reverb Type	0 to 2	Plate, Spring or Room recording ambience. [Plate, Spring, Room]
Recording Reverb Decay	0.2 to 12 s	Approximate decay time of the selected recording reverb model.
Recording Reverb Send	0 to 100 %	Amount sent from the recorded dry signal to the parallel reverb.
Recording Reverb Return	-60 to 6 dB	Level of the reverb returning alongside the unchanged dry path.
Reverb High Pass	20 to 2000 Hz	Low-frequency cut in this recording module.
Reverb Low Pass	2000 to 20000 Hz	High-frequency cut in this recording module.
Auto Wah	Off / On	Tempo-synced wah motion. Enable Pedalboard and Wah first. Off preserves manual Position. Follows DAW beats during playback; free-runs at the last valid tempo, initially 120 BPM, when stopped.
Wah Division	0 to 7	Duration of one complete sweep in musical beats. 1 Bar means four quarter-note beats. Triplet and dotted rates are available. [1/16, 1/8 Triplet, 1/8, 1/8 Dotted, 1/4, 1/4 Dotted, 1/2, 1 Bar]
Wah Depth	0 to 100 %	Sweep amount around manual Wah Position. Position 50% gives the full heel-to-toe range at 100% Depth. Zero leaves Position unchanged.
Recording Delay Mode	0 to 4	Classic preserves the original delay. Stereo separates the repeats; Ping Pong alternates sides; Dual Rhythm uses left:right 2:3 times; Multi Tap adds four rhythmic taps. [Classic, Stereo, Ping Pong, Dual Rhythm 3:2, Multi Tap]
Recording Delay Width	0 to 100 %	Stereo width of the wet delay return. Zero is mono; 100 is full width. The dry path and feedback level stay unchanged.
Warm Limiter Enabled	Off / On	Final stereo-linked tube limiter after all recording effects and output trim. Off preserves the original signal.
Warm Limiter Amount	0 to 100 %	Tube drive and peak control; no automatic loudness matching.
Warm Limiter Ceiling	-18 to 0 dB	Sample-peak ceiling after output trim; no true-peak or intersample guarantee.
Delay Ducking	0 to 100 %	Attenuate only the delay return while playing; it recovers between phrases.
Reverb Ducking	0 to 100 %	Attenuate only the reverb return while playing; it recovers between phrases.