NCSOUNDLAB CHANGELOG

What changed, and what is still known open.

V1.1.1 | WEB AND WINDOWS | CHANGELOG

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1.1.1 — DSP AND EXPORT FIXES

2026-11-01

- The shared ladder filter divided its cutoff by the sample rate twice, so the resonant 4-pole was a wire. Cutoff is `tan(w0/2)`, capped at 0.95, with matching feedback in the Kotlin and TypeScript engines.
- The “18 dB/oct” high-pass is a true 3rd-order Butterworth, measured at −3 dB at cutoff and 18 dB/oct in the stopband. It was 24 dB/oct with a notch.
- An LPF between 1 and 1000 Hz is no longer silently bypassed; biquads reset on non-finite input; the phone-mic EQ keeps separate L/R filter state.
- `stop()` restores the stored master level; offline export no longer overwrites the live master rack, and send buses use the offline destination.
- Sidechain control is negative, dither clamps after quantisation, mixdown renders a 1 s release tail, and pitch-shift tails fade instead of holding a DC plateau.
- Captures stop every microphone track on unmount and cancel when Stop lands during the threshold wait; kit export refuses a slice with no render.
- Wet inserts report zero latency; the encoder clamps out-of-range values the way the TypeScript encoder does; output meters meter the output.
- aubio's tempo tracker is the first pass for BPM (verified within ±4 BPM on 90/120/140 click tracks, 32 tempo and pitch tests). YIN remains the pitch detector.
- 259 test files / 2,922 tests pass; studio FX parity and measurement 38/38; `tsc --noEmit` clean.

1.1.0 — VERIFIED BASELINE

2026-10-28

- Full unit suite passes: 2,795 tests across 241 files.
- TypeScript check clean; production build green.
- Added the /ncsound catalogue route and excluded it from the PWA precache.
- No audio-engine or desktop-shell behaviour changed in this entry.

1.0.0 — FIRST PUBLIC INSTALLER

2026-10-26

- Windows x64 installer published on GitHub releases.
- Five-stage pipeline, 26-module rack and sample editor included.
- Auto-update bundle included in the release assets.