VEIL

DE-ESSER · INVISIBLE BY DESIGN

USER MANUAL

Version 1.0 · VST3 + AU · macOS & Windows

Ghostnote LLC

Contents

1. Introduction

VEIL is a de-esser: it finds the harsh **ss**, **sshh** and **ts** sounds in a voice and softens them. What makes VEIL different is a single design goal pursued without compromise: **you should never hear it working.** No dulled consonants, no lisping, no loss of air or presence — the voice simply stops spitting.

Three engineering decisions deliver that invisibility, and each one is verified by an automated measurement suite that runs before every release (the numbers are printed in section 8):

- **Split-band processing.** Only the sibilant band is ever turned down. The body of the voice passes through a mathematically flat crossover and is untouched by construction — measured change while de-essing: 0.00 dB.
- **Ratio detection.** VEIL listens to how much high-frequency energy there is *relative to the voice itself*, not to an absolute level. A whispered "ss" and a shouted "SS" are treated identically, so one setting works for the whole performance.
- **Lookahead.** The audio is delayed by 3 ms while the detector is not, so the gain is already in place when a "t" or "ts" transient arrives. Nothing escapes, and nothing clicks.

2. Installation & Compatibility

2.1 Formats and requirements

Item	Details
Formats	VST3 (macOS and Windows) · Audio Unit (macOS)
macOS	macOS 11.0 or later — universal binary (Apple Silicon + Intel)
Windows	Windows 10 or later, 64-bit
VST3 path (macOS)	/Library/Audio/Plug-Ins/VST3/Ghostnote VEIL.vst3
VST3 path (Windows)	C:\Program Files\Common Files\VST3\Ghostnote VEIL.vst3
AU path (macOS)	/Library/Audio/Plug-Ins/Components/Ghostnote VEIL.component
Channels	Mono and stereo (stereo detection is linked — no image shift)
Latency	3 ms (144 samples at 48 kHz), reported to the host for automatic plugin-delay compensation

2.2 First install — security warnings

The installer is not yet signed with an Apple / Microsoft code-signing certificate, so both systems show a one-time warning when you first run it. The file is safe — every release is built and validated automatically on GitHub's servers — the warning only reflects the missing certificate:

- **macOS 15 (Sequoia) and later:** double-click the .pkg. When macOS says it "could not verify" the installer, close that dialog, open **System Settings > Privacy & Security**, scroll to the bottom and click **Open Anyway** next to the installer's name, then confirm.
- **macOS 14 and earlier:** Control-click (right-click) the .pkg in Finder, choose **Open**, then click **Open** in the dialog.
- **Windows:** if SmartScreen shows "Windows protected your PC", click **More info**, then **Run anyway**.

2.3 First scan

- **FL Studio (macOS & Windows):** Options > Manage plugins > Find more plugins, or press the rescan button. The plugin appears as "Ghostnote VEIL" under Installed / Effects.
- **Logic Pro (macOS):** the AU is picked up automatically on launch; if not, restart Logic or rescan in Settings > Plug-in Manager.
- **Ableton Live:** enable VST3 (and Audio Units on macOS) in Settings > Plug-Ins, then rescan.
- **Other hosts (Cubase, Studio One, REAPER...):** any VST3-capable DAW on either platform works; run the host's plugin rescan after installing.

2.3 A note on latency

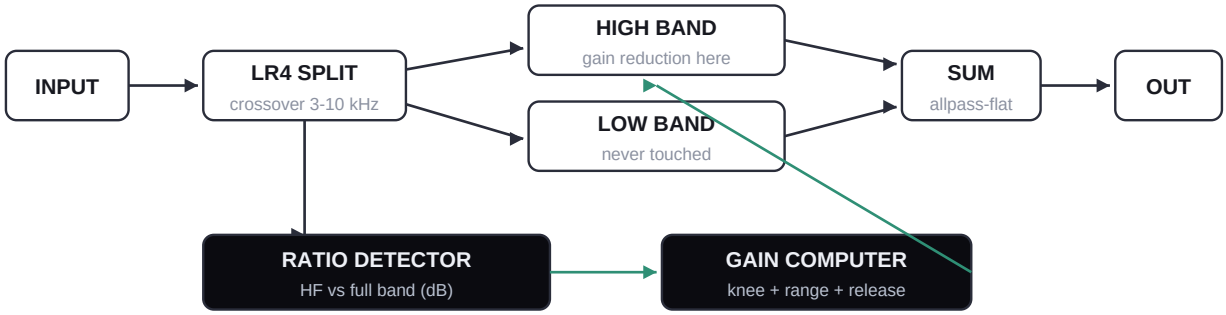
VEIL needs its 3 ms of lookahead to catch consonant onsets. Your DAW compensates this automatically during playback and mixdown, so everything stays perfectly in time. For live tracking through the plugin, 3 ms is well below the threshold most performers can feel, but if you monitor through a long chain, keep total chain latency in mind.

3. Quick Start

Step	Action
1	Insert Ghostnote VEIL on the vocal track (after your compressor is the most common spot — see section 6).
2	Play the vocal and watch **VEIL ACTIVITY**. With the default settings it should already flick to life on the esses and sit at –0.0 dB in between.
3	Raise **SENSE** until the esses sit down; stop before anything else moves. Because detection is relative to the voice, one setting holds for the whole take.
4	Set **LISTEN** to *Removed* for a moment. You should hear esses and sshh sounds only — if you hear words, lower SENSE. Switch back to *Output*.

That is the whole job for most sources. CROSSOVER, RANGE and RELEASE exist for fine tuning and unusual voices — they are covered next.

4. How VEIL Works



3 ms lookahead: the audio path is delayed, the detector is not

4.1 The split

The incoming audio is divided at the CROSSOVER frequency by a 4th-order Linkwitz-Riley filter pair. This particular crossover has a property that matters here: when its two halves are added back together, the result is perfectly flat in level. VEIL applies gain reduction to the high band only, so everything below the crossover — the body, warmth and presence of the voice — cannot be affected even in principle. This is why VEIL never "numbs" a performance the way broadband de-essers do.

4.2 The detector

Most de-essers trigger when the high band crosses a level threshold, which means they over-process loud phrases and miss quiet ones. VEIL instead computes the **ratio** between the high-band envelope and the full-band envelope, in dB. During a vowel this ratio is strongly negative (most energy is low); during a true sibilant it approaches 0 dB. Because a ratio has no units of loudness, the measurement is identical at any singing level — verified: a –29 dBFS "ss" and a –9 dBFS "SS" receive exactly the same treatment. A floor gate keeps the detector asleep during silence so it never chases the noise floor.

4.3 The gain computer

When the ratio exceeds the SENSE threshold, reduction is applied through a 4 dB soft knee (gentle onset, no hard switching) with a 1.3 slope, and is capped at the RANGE value so the correction always stays inside natural-sounding bounds. Attack is 1 ms; combined with the 3 ms lookahead the gain is fully in place roughly 2 ms *before* the sibilant reaches the output. Release is program-dependent: it starts from your RELEASE setting for short hits like "ts", and automatically stretches up to 3x slower during sustained "shhh" sounds so the tail never flutters.

5. Controls Reference

Control	Range	Default	What it does
SENSE	0–100 %	50 %	Detection sensitivity. Internally sets the relative threshold from –2 dB (0 %) to –14 dB (100 %): higher catches gentler sibilance.
CROSSOVER	3–10 kHz	5.5 kHz	Where the sibilant band begins — both for detection and for the applied reduction.
RANGE	1–24 dB	10 dB	The maximum the veil will ever pull down. A hard cap that keeps extreme moments natural.
RELEASE	20–200 ms	60 ms	Base recovery speed. Automatically slows up to 3x on sustained sibilance (program-dependent).
LISTEN	3 modes	Output	**Output**: the result. **Sibilants**: solo the detected band. **Removed**: only what VEIL takes away.
BYPASS	on/off	off	Latency-matched, click-free true comparison (also wired to the host bypass).

5.1 Setting SENSE

Raise slowly while the busiest section plays. The right value is the point where every obvious ess triggers the meter and normal consonants do not. If you find yourself past ~75 % on a normal voice, the CROSSOVER is probably set too high for that voice — lower it instead of forcing SENSE.

5.2 Finding the right CROSSOVER

Source	Typical start point
Deep male voice, "sh"-heavy problems	3.5–4.5 kHz
Typical male lead	4.5–5.5 kHz
Typical female lead	5.5–7 kHz
Airy / whispery voice, protect presence	7–8.5 kHz
Cymbal bleed / hi-hat spill on a vocal mic	6–8 kHz

The reliable method: set LISTEN to *Sibilants* and sweep CROSSOVER until you hear the esses clearly with as little of the voice's tone as possible. Then return to *Output*.

5.3 RANGE and RELEASE

RANGE at 6–12 dB is transparent for almost everything; treat anything beyond ~16 dB as a repair setting for genuinely harsh recordings. RELEASE rarely needs to move: shorten toward 30–40 ms for fast rap deliveries with dense "ts" hits, lengthen toward 100 ms+ if you ever hear the tail of a long "shhh" breathing back in.

5.4 The VEIL ACTIVITY meter

The readout shows the current gain reduction in dB with a bar underneath (full scale 24 dB). Healthy behaviour: –0.0 between sibilants, quick flicks of –4 to –12 on esses. If it never returns to –0.0, SENSE is too high or CROSSOVER is too low.

6. Where to Put VEIL in the Chain

Because detection is level-independent, VEIL is unusually forgiving about placement — both classic positions work. Guidelines:

- **After the compressor (recommended default).** Compression raises sibilance along with everything else; de-essing afterwards deals with the final, most consistent signal.
- **Before heavy saturation or brightening — always.** Distortion and exciters sharpen esses dramatically. De-ess before them so they receive clean consonants.
- **In the Ghostnote chain:** SIREN (pitch) → TALISMAN (compression/color) → **VEIL** → other effects → MONOLITH (master). If VEIL is doing the de-essing, leave TALISMAN's TAME switch off so the two never fight.
- **Two-stage trick for hard cases:** one VEIL before the compressor at low SENSE (shaving the worst peaks), one after at normal settings. Each works gently; together they handle recordings that would force a single de-esser into audible territory.

7. Recipes

Situation	SENSE	XOVER	RANGE	REL	Notes
Pop lead vocal	45–60	5.5–6.5k	8–10	60	The defaults, nudged by ear.
Rap / fast delivery	50–65	5–6k	10–12	35	Short release for dense "ts-ts" articulation.
Dark male voice	50	4–4.5k	8	70	"sh" lives lower than you think — find it in Sibilants mode.
Bright female voice	40–55	6.5–7.5k	8–10	60	Higher crossover protects presence and air.
Whisper / ASMR	60–75	7–8k	6–8	80	Gentle range; the ratio detector handles the low level fine.
Harsh digital recording	65–80	5–6k	14–18	50	Repair mode. Check Removed often; accept a little audibility.
Backing vocal bus	55–70	5.5k	12	60	Stacked esses multiply — de-ess the bus harder than a lead.

8. Measured Performance

Every VEIL build must pass an automated audio-measurement suite before release. These are the shipping v1.0 results — they are the "invisible but effective" promise, in numbers:

Test	Result
Bright pitched vowel (no sibilance)	0.00 dB gain reduction, +0.00 dB level change — untouched
Level independence ("ss" at −9 dBFS vs −29 dBFS)	10.0 dB reduction on both — identical treatment
Voice body during active de-essing (300 Hz tone, 4.6 dB GR active)	−0.00 dB change to the body
30 ms "ts" burst	8.8 dB caught via lookahead, click-free
Bypass	Bit-exact (input delayed by exactly the reported 144 samples)
Host validation	Apple auval (strict) passed; pluginval strictness 10 passed on Apple Silicon and Intel

9. Troubleshooting

Symptom	Cause & fix
Voice sounds lispy / dull	Too much reduction. Lower SENSE or RANGE; check the meter returns to –0.0 between esses. Confirm with LISTEN > Removed: you should hear esses, never words.
Esses still poke through	Raise SENSE first. If SENSE is already high, the CROSSOVER is likely above the sibilance — sweep it down while in Sibilants mode. As a last resort raise RANGE.
"ts"/"t" clicks escape	These are broadband transients; make sure CROSSOVER is not set too high (try 5 kHz) and shorten RELEASE so the veil resets between hits.
Pumping on cymbal-heavy material	VEIL is voice-first. On drum buses lower SENSE, raise CROSSOVER toward 7–8 kHz and keep RANGE ≤ 6 dB.
Meter always shows reduction	The source itself is hissy/bright (or SENSE is maxed). Remember: constant reduction = no longer a de-esser, but an EQ. Back off until activity is event-based.
Timing feels early/late while tracking	That is the 3 ms lookahead latency; your DAW compensates on playback. For live monitoring, use a low-latency monitor path.

10. Specifications

Specification	Value
Processing	Split-band dynamic attenuation (LR4 crossover, high band only)
Detection	Level-independent HF/full-band ratio, floor-gated
Knee / slope / cap	4 dB soft knee, 1.3 slope, capped by RANGE (max 24 dB)
Attack / lookahead	1 ms attack, 3 ms lookahead (latency reported to host)
Release	20–200 ms base, program-dependent up to 3x
Stereo behaviour	Linked detection, identical gain both channels
Sample rates	All standard rates (filters and times recomputed per rate)
Formats	VST3 (macOS & Windows), AU (macOS)
Plugin codes	Manufacturer Ghst · Plugin Veil (stable across all versions)