

MOD · 02 / SPACE

# NEBULA

SPACE

FREE · GPLv3

VST3 · AU

NEBULA is an FDN reverb built as a **volumetric cloud**. Drag the nebula to sculpt size and decay; it breathes on its own or to your tempo, and freezes into an infinite wash.

// ANATOMY



// CONTROLS — COMPLETE REFERENCE

## SOUND

**THE CLOUD** — Drag the nebula to sculpt — size and decay in one gesture.

**SIZE** — Scales the delay lines — from a short room to an endless cathedral, and far beyond.

**DECAY** — The tail length (T60, 0.1-12 s). Push it to the max and the tail freezes — infinite, stable, still breathing.

**STONE** — Tilt the colour of the tail — bright and glassy, to dark and warm.

**BREATH / SYNC** — Depth of the slow breathing that modulates the space — free and organic, or locked to your host tempo (1/2 · 1 · 2 · 4 bars).

**MIX** — Dry/wet blend, from a hint of air to a full wash.

**IN / OUT · IN PHASE** — Input and output trim (±24 dB). IN PHASE folds the tail to mono-safe in one click.

**MIX** — Dry/wet balance of the reverb.

## GLOBAL & I/O

**IN / OUT** — Input and output gain trim, smoothly ramped, with a true-peak-safe meter.

**SIZE · S/M/L** — Three interface scales; your choice is remembered across every OVNI plugin.

**PRESETS** — Save your own and browse the bank with ◀ name ▶.

**A/B** — Hold two settings and flip between them to compare.

**BYPASS** — The power icon bypasses the effect for a clean A/B against the dry signal.

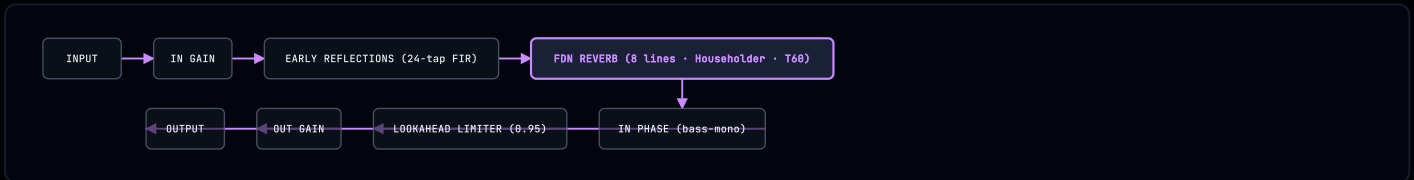
// PARAMETERS · EXACT RANGES

	RANGE	DEFAULT		RANGE	DEFAULT
SIZE	0-100%	50%	BREATH DIV	1/2 · 1 bar · 2 bars · 4 bars	1 bar
DECAY · T60	0-100% → 0.1-12 s	50%	INPUT GAIN	-24...+24 dB	0 dB
STONE	0-100%	40%	OUTPUT GAIN	-24...+24 dB	0 dB
BREATH	0-100%	25%	IN PHASE · MONO-SAFE	0ff · 0n	0ff
MIX	0-100%	35%	BYPASS	0ff · 0n	0ff
BREATH SYNC	0ff · 0n	0ff			

// HOW IT WORKS

**A real space, modelled.**

Not a sample of a room — a living network of delays, tuned like real air.



// UNDER THE HOOD

**HOUSEHOLDER FDN**

Eight lossless delay lines mixed by a Householder matrix build a dense, mode-free tail — the smoothness of a real hall with no metallic ringing.

**BREATHING MODULATION**

A slow LFO — three incoherent sines — modulates Size so the space stays alive and never freezes into a static, metallic drone.

**FREQUENCY-DEPENDENT T60**

Per-band absorption filters set decay by frequency, so highs fade faster than lows exactly as air and surfaces absorb in a real space.

**INFINITE TAIL (FREEZE)**

Push Decay to its top (≥99%) and the network freezes: feedback is clamped to the edge and input injection is out, for an endless, drift-free pad that still breathes. Freeze is Decay at maximum, not a separate button.

**EARLY-REFLECTION FIR**

A short FIR of early reflections places the room — its size and shape — before the diffuse tail arrives, giving the cloud a believable front edge.

**TRUE-PEAK LOOKAHEAD**

A 3 ms lookahead limiter (ceiling 0.95) holds the wash below clipping even on sustained lows; latency is reported and PDC-compensated.

// MEASURED PERFORMANCE

T60 · Decay 50%	0.832 s	T60 range · Decay 0→100%	0.1 → 12 s · 100%=Freeze
Phase correlation · wet tail	+0.15 · decorrelated	IN PHASE correlation	+1.00 · mono
Mono-sum · wet	-2.39 dB	Output limiter ceiling · release	0.95 · 80 ms
Worst true-peak · transients	0.93 · no clip	Latency	3.0 ms · 144 smp@48k · PDC

Conditions – pink noise · 48 kHz · 512-sample blocks. True-peak swept across 44.1 / 48 / 96 kHz × 64 / 128 / 256-sample blocks; per-stage limiter map measured on kick+hat, synth-perc and transient-burst material.

// LATENCY · PER SAMPLE RATE

	44.1 KHZ	48 KHZ	96 KHZ
REPORTED LATENCY	132 samples / 3.0 ms	144 samples / 3.0 ms	288 samples / 3.0 ms

PDC-reported to host (constant 3.0 ms lookahead).

// SPECIFICATIONS

SYSTEM · FORMATS		AUDIO · PROJECT	
FORMATS	AU · VST3 · Standalone	SAMPLE RATES	44.1 – 192 kHz (host)
SYSTEMS	macOS 11+ · Windows 10+	PRECISION	64-bit float
ARCHITECTURE	Universal · Apple Silicon + Intel	LATENCY	3.0 ms · PDC-compensated
I/O	mono / stereo in → stereo out	PRESETS	7 · 3 Production + 4 Sound Design
MIDI	Program Change · preset recall	LICENSE	GPLv3 · open-source · github.com/ovniaudio

// TRANSPARENCY & HONESTY

Dry path stays clean — at Mix 0% the dry-through true-peak is 0.953 (the lookahead limiter tames inter-sample peaks without crushing level); Bypass is a chassis pass-through. No analog modeling; no added noise, harmonics or THD. THD+N, frequency response and SNR are not characterised.

// INSTALL (FREE & OPEN-SOURCE)

Free & open-source (GPLv3), not yet code-signed: on macOS, right-click → Open the first time (or `xattr -cr` on the .component/.vst3); on Windows, allow it in SmartScreen. Source & downloads at [github.com/ovniaudio](https://github.com/ovniaudio).