

Desert Moon Audio

CLOUD SEVEN

STEREO REVERB PROCESSOR

Algorithmic Reverb · 118 Programs · Six Banks



The Cloud Seven is a real-time synthesized algorithmic reverb in the image of the great dedicated mainframe processors: one bright red display legible from across the room, one wheel, a handful of keys, and a hundred and eighteen programs you can reach in two presses. You find the sound, then you shape it.

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A NOTE ON THE DESIGN

The Cloud Seven is an original design by Desert Moon Audio, made in admiration of the great dedicated reverb processors. Its programs are original voicings, not sampled or measured captures, and it is not affiliated with or endorsed by any manufacturer of hardware reverberators.

1.1 What Gets Installed

FORMAT	LOCATION
Audio Unit	~/Library/Audio/Plug-Ins/Components/Cloud Seven.component
VST3	~/Library/Audio/Plug-Ins/VST3/Cloud Seven.vst3
AAX	/Library/Application Support/Avid/Audio/Plug-Ins/Cloud Seven.aaxplugin
Standalone	The Cloud Seven app — audition programs with live audio, no host needed.

macOS 10.15 or later, Intel and Apple silicon, universal. If the plug-in does not appear after installing, force a rescan in your host — Logic revalidates Audio Units only when it notices a new one.

1.2 The 14-Day Trial

The trial is the complete plugin — every program, every format — for fourteen days from first run, with a strip along the bottom of the panel counting down. When the trial ends, the Cloud Seven stays in your sessions but passes audio through dry until a license is entered.

1.3 Entering Your License

Click the trial strip (or buy at desertmoonaudio.com), paste your license key, and press **Activate**. The key is a signed string, not an activation: no server, no machine lock, no license count. It is stored at ~/Library/Application Support/Desert Moon Audio/Cloud Seven/license.dma and a license bought once works forever, everywhere.

2.1 Five Minutes In

Patch the Cloud Seven onto a stereo bus. Out of the box it runs *Large Hall*, **Mix** at 100% — the classic wet-only send patch. On a track insert, pull **Mix** back to taste.

1. Press **Prog**. The upper display shows the program, the lower shows the bank.
2. Step banks with the **cursor keys**; browse programs with the **wheel**. A  means the displayed program is not the one running.
3. Press **Enter** to load it. The wet path ducks for a moment while the tank clears — the polite mute the mainframe generation did.
4. Press **Edit** and shape it: cursor keys pick the parameter, the wheel adjusts.

Or skip the machine entirely: click the **preset name** in the bar above the faceplate and pick a starting point by source — Vocals, Drums, Strings — each arriving with Mix, pre-delay and Output already set for the job.

2.2 The Wheel

The adjust wheel is an endless encoder: drag vertically, or use your scroll wheel. Spin it fast and it accelerates like a real detent wheel; hold **shift** while dragging for fine steps. The Mix, Output and Input knobs answer to the same gestures, and double-clicking any of them returns it to its default.

2.3 Resizing

Drag the corner. The whole unit scales as one piece, from 640 px wide to double size, and the setting is remembered per window.



- 1 Preset bar.** Step, name, A/B, undo, redo, save, revert, menu.

2 Input. Stepped ± 8 dB trim, ahead of everything — dry path included.

3 Display. Program, parameter, value; LED meters at the left edge.

4 Cursor keys. Step banks, parameters, system items, register banks.

5 Adjust wheel. Endless. Scrolls programs, edits values, spins registers.
- 6 Mode keys.** Prog, System, Store · Reg, Edit, Enter.

7 Tap. Two presses set the pre-delay to the gap between them.

8 Favorites 1–4. Hold to store the running sound, tap to recall.

9 Mix and Output. Equal-power balance and a clean $\pm$ dB stage.

10 Power. The bypass. The display goes dark like the mains dropped.

3.1 How the Signal Runs

STAGE	WHAT HAPPENS
Input	± 8 dB trim in 2 dB detents, dry path included, like an analog input stage.
Pre-delay	Up to 500 ms before the reverb hears anything.
VLF Cut	Shelves the very low end out of everything the reverb sees.
Early pattern	A per-bank reflection geometry; Early Select shapes its envelope.
Diffusion	Six allpass stages per side smear the input into a cloud.
The tank	16 modulated lines, lossless Hadamard core, three-band decay. See §12.1.
E/R balance	Early field against late field, the program's voicing.
Rolloff	Lowpass on the whole wet output.
Mix	Equal-power dry/wet crossfade. 100% is the send patch.
Output	$-24\dots+12$ dB, after everything.

WHY THE TANK HEARS THE EARLY FIELD

A slice of the early-reflection pattern feeds the tank along with the diffused source, so the tail blooms out of the reflections instead of arriving as a second event. It is the difference between a room and a reverb *added* to a room.



Edit mode: parameter type above, value below. The  convention runs through every mode — it always means “displayed, but not what is running.”

Prog — finding a program

Press **Prog**. Cursor keys change banks, the wheel steps through the bank's programs, **Enter** loads. Press **Prog** again at any time to come home to the running program. The names render in mixed case on the red matrix, exactly as the library spells them.

Edit — shaping it

Press **Edit**. The cursor keys walk the fifteen parameters in the order of §7; the wheel adjusts, with acceleration on fast spins. Edits land on the running sound immediately, stay with the session, and are published to the host for automation under the same names.

System — the global menu

Press **System**. Unlike editing, nothing happens until you press **Enter** — a  marks a value shown but not yet set.

ITEM	RANGE	WHAT IT DOES
Dry Gain	Off, -60...0 dB	Trim on the dry path, under the Mix knob.
Wet Gain	Off, -60...0 dB	Trim on the wet path. The reverb can add gain; leave headroom.
Audio Routing	Stereo · Mono L · Mono R	What feeds the processor. The dry path stays stereo.
Meter Source	Input · Output	What the LED ladders show.
Display Level	1...5	Display intensity, dim to bright.
Clear Reg Bank	Bank 0...4	Erases ten registers. Permanent.

Reg — the fifty registers

Press **Reg**. Five banks of ten user slots, browsed with the wheel (one by one) and cursor keys (by bank). Section 5 covers storing, recalling and labelling.

THE METERS

Two red LED ladders, -72 to 0 dB, thresholds at -72, -48, -36, -24, -18, -12, -6 and 0. The top segment burns brightest — if it lights, take the Input trim down a step.

The registers are the machine's own memory — stored in the unit, not the session, the way outboard keeps its memories when you carry it to another studio. Every instance, every session, every host sees the same fifty.



Register mode: label and slot number above, bank below. An empty or non-running slot shows the star.

Store, recall, label

TO...	DO THIS
Store	Press Reg , find a slot, press Store . The running fifteen parameters are written under the running program's name.
Recall	Find the slot, press Enter .
Label	Press Reg a second time; the first character flashes. Wheel picks a character, cursors move along the fourteen positions — or simply type. Enter saves.

Registers remember which bank's early-reflection pattern they were made with, so a chamber stored as a register still recalls as a chamber.

Favorites 1–4

Car-radio keys. **Hold one in for a second** and the running sound is stored there, name and all; **tap it** and it comes back. Favorites live in the same non-volatile store as the registers.

Tap

Two presses of **Tap** set the pre-delay to the gap between them, up to 500 ms. The display confirms with **TAP 120 MS**. Tap quarter notes and the reverb sits behind the beat; tap eighths and it tucks in close.

REGISTERS AND PRESETS ARE DIFFERENT ANIMALS

The registers are the hardware fiction: fifty numbered slots in the machine, holding only the fifteen panel parameters. The preset bar (§9) is the plug-in convenience: named files that also carry Mix and Output, with save-as and menus. They coexist the way a console's recall sheets coexist with the outboard's own memories.

Halls are the concert halls and large natural spaces — the orchestral bank. **Plates** are the analog-foil sound: instantly dense, bright or dark, made for drums and vocals. **Rooms** are the small natural spaces, post-production's bread and butter. **Chambers** are the classic tiled echo chambers. **Ambience** adds air and place without audible reverb. **Spaces** are the outdoors and the impossible: churches, arenas, caverns, Europa.

HALLS

Large Hall
Medium Hall
Small Hall
Large & Near
Medium & Near
Small & Near
Large & Dark
Large & Deep
Medium & Deep
Concert Hall
Gold Hall
Clear Hall
Brass Hall
Amsterdam Hall
Berliner Hall
Boston Hall A
Boston Hall B
Chicago Hall
Vienna Hall
Worcester Hall
The ArchDuke
Sandors Hall

PLATES

Bright Plate
Dark Plate
London Plate
Snare Plate A
Snare Plate B
Vocal Plate
Rich Plate
Gold Plate
Dense Plate
Silver Plate
Percussion Plate
Echo Plate
CD Plate A
CD Plate B
Large Plate
Small Plate
Fat Plate
Crystal Plate

Old Plate

ROOMS

Studio A
Studio B Close
Studio B Far
Studio C
Studio D
Studio E
Deep Stone
Music Room
Heavy Room
Large Wooden
Small Wooden
Large Tiled
Medium Tiled
Small Tiled
Drum & Chamber
Diagnose Room
Small Vox
Glass Room
Percussion Rm
Marble Foyer
Large Q Room
Small Q Room
Large Red Room
Red Room
Blue Room
Large Room
Small Room
Front Room
Center Room
Back Room

CHAMBERS

Large Chamber
Med Chamber
Small Chamber
Large & Dark
Small & Dark
Large & Bright
Small & Bright
Kick Chamber

Snare Chamber

Vocal Chamber

A&M Chamber

CD Chamber

Deep Chamber

Amb Chamber A

Amb Chamber B

Old Chamber

AMBIENCE

Large Ambience

Med Ambience

Small Ambience

Large & Dark

Medium & Dark

Small & Dark

Large & Bright

Med & Bright

Small & Bright

Deep Ambience

Long Ambience

Clear Ambience

Heavy Ambience

Bass XXL

Percussion Air

SPACES

North Church

East Church

South Church

West Church

Cinema Room

Scoring Stage

Bath House

Car Park

Arena

Academy Yard

Hill Side

Cavern

Stone Quarry

Europa

Redwood Forest

Tanglewood

TWO DOORS INTO THE LIBRARY

These banks are the machine's view — front panel, bar menu's *Programs* section, and the host's program list. The factory presets (§11) are the engineer's view: the same engine, entered by source.

In the order the edit menu walks them. Together they are the whole voice of a program — there is nothing a factory program sets that you cannot reach.

PARAMETER	RANGE	WHAT IT DOES
Reverb Time	0.1 – 30 s	Mid-frequency reverb time — how long the field takes to fall 60 dB.
Size	1 – 24	Apparent size of the late field. Changes glide, so riding it bends the space rather than zipping it.
Pre Delay	0 – 500 ms	The gap between the source and the onset of reverberation.
Diffusion	1 – 9	Initial smear. Low keeps transients articulate; high melts them into the wash.
Density	1 – 9	How echo density builds inside the tank. Low is airy; high is seamless.
Modulation	Off, 1 – 9	Motion in the late field. Keeps long tails alive; off gives perfectly still, recallable tails.
Rolloff	80 Hz – 28 kHz	Lowpass on the whole reverb output.
HF RT Multiply	0.2 – 1.0 ×	Scales reverb time above the HF crossover. Real rooms lose their top first; this is that law, adjustable.
HF RT Crossover	200 Hz – 16 kHz	Where the HF multiplier takes over.
LF RT Multiply	0.2 – 4.0 ×	Scales reverb time below the LF crossover. Above 1.0 the low end outlasts the mids — the “large dark hall” law.
LF RT Crossover	80 Hz – 4.8 kHz	Where the LF multiplier takes over.
VLF Cut	0 – –18 dB	Shelves the very low end out of everything the reverb sees. Keeps kicks and plosives from loading the tank.
Early/Reverb Mix	E0–20 / R0–20	Balance of early pattern against late field. One sweep; whichever side is up sits at 20, each step below is 1.5 dB, 0 is off.
Early Rolloff	80 Hz – 20 kHz	Lowpass on the early reflections alone.
Early Select	0 – 20	Envelope of the early field: low decays away from the source, high blooms toward the tail.

WHERE THE EARLY PATTERNS COME FROM

Each bank carries its own reflection geometry — the sparse throw of a hall, the instant density of a plate, the close walls of a room. Programs, registers and factory presets all remember which pattern they were voiced with.

8.1 The Level Section

CONTROL	RANGE	NOTES
Input	±8 dB, 2 dB detents	Ahead of everything, dry included. The reverb can add up to 10 dB on resonant material — if the output ladder shows red, this is the first thing to reach for.
Mix	0 – 100 %	Equal-power dry/wet crossfade: constant perceived level across the sweep. 100% = wet only, the send patch and the default.
Output	–24 ... +12 dB	Clean stage after everything. Makeup or taming, without touching the host fader.

9.1 The Preset Bar

Above the faceplate: ◀ ▶ step the whole list · **name window** (click for the menu; a dot lights once anything moves off the loaded preset) · **A/B** · **undo** · **redo** · **save** · **revert** · **menu**.

The factory presets are *starting points by source* — Vocals, Drums, Guitars & Keys, Strings & Orchestral, Synths & FX, Post & Dialog — each a complete voicing including Mix, pre-delay and Output (§11). The menu's *Programs* section holds the six machine banks, so every door into the library is one click from here. Your own presets are files in ~/Library/Application Support/Desert Moon Audio/Cloud Seven/Presets — they outlive any session and appear in every instance.

9.2 A/B Comparison

Two scratch settings the panel flips between. Tweak one, flip, tweak the other, and hear them against each other; the key wears the letter of the slot that is sounding. A never-touched slot is seeded as a twin of the one you leave, so A and B diverge only as you edit. Deliberately saved nowhere — this is working memory.

9.3 Undo and Redo

A real edit history covering every parameter move — wheel, bar, host automation writes. Gestures are chunked into roughly two-thirds-of-a-second transactions, so undo steps back through *edits*, not through every detent of the wheel. A/B flips land as their own steps and are undoable too. The history clears when a session reopens.

WHAT TRAVELS WHERE

Bar presets carry all parameters except the power switch. Registers and favorites carry the fifteen panel parameters. Host sessions carry everything, program number and preset name included.

10.1 Vocals

Start from *Lead Vocal Plate* or *Ballad Vocal Hall*. The law that matters is **pre-delay**: 80–120 ms keeps the reverb behind the consonants so the voice stays forward while the tail blooms behind it. Darken **Early Rolloff** before reaching for the main Rolloff — sibilance lives in the early field.

10.2 Snare and Drums

Snare Plate for the classic lift, *Fat Snare Room* when the song wants wood instead of steel. On kick, keep **VLF Cut** at 0 and let **LF RT Multiply** above 1.4 carry the weight — on everything else, cut the VLF so the tank never fills with mud. *Power Drums* is the buildup-envelope trick: Early Select at 20 makes the reflections swell instead of decay, the gated-ambience feel without a gate.

10.3 Guitars and Keys

Acoustic Studio adds the room the DI never had. For clean electrics, *Clean Wash* runs Modulation at 6 — the tail chorus-thickens without detuning the instrument. Piano wants a hall with the **E/R mix** tilted early: the lid sound is reflections, not tail.

10.4 Strings, Orchestral, Choir

String Section is the Vienna-style patch: size 22, LF multiply 1.4 so the low strings ring longer than the violins, exactly as a hall behaves. For choir, *Church Choir* leaves VLF at 0 — the building's bloom is the point.

10.5 Synths, Pads, Effects

Pad Eternity (9 s, size 24) with the Mix knob is an instrument in itself: automate Mix instead of send level and the crossfade stays equal-power. Feed *Ambient Wash* a plucked transient and let Early Select 17 turn it into a swell.

10.6 Post and Dialog

Dialog Match is deliberately almost invisible: 0.45 s, 12% mix, no pre-delay — presence, not reverb. *Phone Booth* and *Exterior Slap* are scene tools; print them, don't ride them.

THE ONE-KNOB RESCUE

When a program is right but sits wrong in the mix, the answer is almost never Reverb Time. It is pre-delay (forward/backward), VLF Cut (mud), or HF RT Multiply (air that outstays its welcome) — in that order.

VOCALS

Lead Vocal Plate The pop vocal patch: dense plate held behind the consonants. 2.2 S · PRE 80 MS · MIX 22%	Intimate Vocal Small warm chamber, close and dry-ish. 1.2 S · PRE 40 MS · MIX 18%	Ballad Vocal Hall Long pre-delay hall for slow tempos. 2.8 S · PRE 110 MS · MIX 24%
Vocal Air Bright ambience — presence without audible reverb. 0.5 S · PRE 10 MS · MIX 20%	Backing Vocals Darker chamber that seats a stack behind the lead. 1.6 S · PRE 30 MS · MIX 26%	80s Vocal Plate Big bright plate, long throw. Unapologetic. 3.2 S · PRE 120 MS · MIX 28%
Spoken Warmth A touch of room around a spoken voice. 0.7 S · PRE 15 MS · MIX 14%		

DRUMS

Snare Plate The classic snare lift: bright, instant, tight VLF. 1.6 S · PRE 20 MS · MIX 30%	Fat Snare Room Wood instead of steel; early-heavy. 0.9 S · PRE 12 MS · MIX 35%	Kick Tight Room Short, dark, VLF open so the weight stays. 0.6 S · PRE 8 MS · MIX 20%
Drum Bus Glue Small room across the kit, felt not heard. 0.8 S · PRE 10 MS · MIX 16%	Big Tom Chamber Long low chamber for tom fills. 1.8 S · PRE 24 MS · MIX 30%	Power Drums Buildup envelope — gated-ambience feel, no gate. 0.55 S · PRE 6 MS · MIX 38%
Percussion Air Instant dense air for shakers and hats. 0.4 S · PRE 0 MS · MIX 22%		

GUITARS & KEYS

Acoustic Studio The room the DI never had. 1.0 S · PRE 20 MS · MIX 20%	Electric Room Amp-in-a-room glue for rhythm parts. 0.8 S · PRE 12 MS · MIX 18%	Solo Guitar Hall Singing hall for lead lines. 2.4 S · PRE 60 MS · MIX 26%
Clean Wash Modulated plate — chorus-thick tail, instrument untouched. 2.8 S · PRE 40 MS · MIX 30%	Grand Piano Hall Lid sound: early-tilted concert hall. 2.2 S · PRE 30 MS · MIX 24%	Rhodes Chamber Warm moving chamber for EPs. 1.5 S · PRE 25 MS · MIX 24%

STRINGS & ORCHESTRAL

String Section Vienna-style: big, low end rings longest. 2.6 S · PRE 30 MS · MIX 30%	Solo Violin Recital-hall focus with air on top. 1.9 S · PRE 24 MS · MIX 26%	Chamber Strings Closer, denser, quartet-sized. 2.0 S · PRE 26 MS · MIX 28%
Scoring Stage The dry-stage film sound, early-rich. 1.7 S · PRE 16 MS · MIX 28%	Church Choir Stone building, VLF wide open. 3.2 S · PRE 40 MS · MIX 32%	

SYNTHS & FX

Pad Eternity Nine seconds, size 24, deep modulation. 9.0 S · PRE 40 MS · MIX 45%	Synth Lead Plate space that keeps a lead in front. 1.8 S · PRE 50 MS · MIX 24%	Ambient Wash Cavernous, dark, half-wet. A sound design bed. 5.0 S · PRE 60 MS · MIX 50%
Pluck Bloom Buildup envelope turns plucks into swells. 1.2 S · PRE 20 MS · MIX 30%	Cinematic Hit Arena bloom for impacts and risers. 3.6 S · PRE 30 MS · MIX 40%	

POST & DIALOG

Dialog Match Presence, not reverb. Almost invisible. 0.45 S · PRE 2 MS · MIX 12%	Voiceover Air The smallest possible halo around a VO. 0.35 S · PRE 0 MS · MIX 10%	Phone Booth Tiny bright tiled box. A scene tool. 0.55 S · PRE 4 MS · MIX 25%
Exterior Slap Open-air bounce off a far wall. 0.9 S · PRE 30 MS · MIX 15%		

12.1 What the Engine Actually Does

The late field is a sixteen-line feedback delay network. Line lengths are spread wide and mutually non-integer so the modal pattern stays irregular at every Size; a sixteen-point Walsh–Hadamard butterfly mixes them losslessly, so every bit of decay comes from the per-line absorption filters and none from the matrix — the decay you dial is the decay you get. Each line carries a three-band absorption filter (mid gain for Reverb Time, a second-order shelf at the HF crossover, a low shelf at the LF crossover) and an in-line allpass whose gain is the Density control. Six input diffusors per side build echo density in the first tens of milliseconds; sixteen slow, mutually unrelated modulators keep the tail moving with peak deviation held under two cents. Output is tapped through two orthogonal zero-sum sign patterns: fully decorrelated left and right that fold to mono without coherent build-up.

12.2 Measured

QUANTITY	MEASURED AT 48 KHZ
RT60 accuracy	within ~6% of dialled, 0.5–8 s
Decay-curve ripple	0.08 dB broadband · 0.41 dB in the 250 Hz band
Echo density	Gaussian statistics by 100 ms
Stereo	tail correlation +0.05 · L/R balance ± 0.25 dB
Sample rates	44.1–192 kHz, RT held within 1.5% across rates
CPU	$\approx 75\times$ realtime on one core
Latency	none — pre-delay is an effect, not a latency

12.3 Troubleshooting

SYMPTOM	LOOK HERE
Output meter shows red	The reverb adds gain on resonant material. Input trim down a step, or Output down.
Reverb swallows the vocal	Pre-delay up before Mix down — 80 ms moves the tail behind the words.
Low end goes muddy	VLF Cut. It shelves the lows out of the reverb's input, which beats filtering the tail.
Tail sounds detuned	Modulation too high for sustained pitched material. Off is a legitimate setting.
No sound at all	The Power switch is the bypass — check the display isn't dark. Then Mix and Wet Gain.
Won't appear in host	Force a plug-in rescan. Retail Pro Tools additionally requires a PACE-signed AAX.
Tail cut off at bounce	Extend the render past the region — tail length is reported, but bounces still need the room.

Desert Moon Audio

Built and designed by a producer and musician.

Cloud Seven · Version 1.0 · Made in the USA

The Cloud Seven is an original design made in admiration of the great dedicated reverb processors. Its programs are original voicings, not sampled or measured captures of any hardware unit, and it is not affiliated with or endorsed by any manufacturer of hardware reverberators. All trademarks are the property of their respective owners.