PHANTOMEXPOSURE · USER GUIDE

GEOREVERB

Version 2.0.2 · Capture-based convolution reverb · VST3 / CLAP / AU · Windows, macOS, Linux



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1 WHAT GEOREVERB IS

GeoReverb is a convolution reverb that builds its impulse responses from places. Drop a pin anywhere on Earth, or point it at the aurora, the night sky, the sea floor, the Moon's orbit or the radio dial, and press `CAPTURE IR`. What it sees there becomes the space your sound plays in.

Every capture is its own room. Re-capturing the same place gives the same sound; moving the pin gives a new one. Captures are level-matched, so switching places or worlds doesn't make the level jump. Once you have a capture, the controls shape its size, tone and tail, and five modules (Tape, Bloom, Terrain, Spectral and Glitch) take it further.

WHAT'S NEW IN 2.0

- **A new window.** 1180 × 800, resizable from 0.75× to 2×. The capture worlds are tabs across the top, and the whole interface takes on the selected world's colour.
- **Three depths.** `PLAY` has the essentials as large knobs. `SCULPT` gives every module a page of its own, with a plain-language explanation and a live picture. `LAB` holds the LFOs, a modulation matrix and the randomiser.
- **Decay engine 2.** DECAY is now the late-tail RT60 you actually get, and it can be made longer than the captured IR. DAMP makes the highs die away faster without dulling the early reflections.
- **A live tail.** HYBRID keeps the first 120 ms of the captured place and continues it with a live tail, so DECAY and DAMP answer instantly. You also get FREEZE, GATE, DUCK, MOTION and TRUE STEREO.
- **A decay display** shows the loaded IR's energy decay in three bands, with measured RT60 for the lows, mids and highs.
- **A modulation matrix** lists every route in one place. Before 2.0 you could only see a route one knob at a time.
- **New names.** The phase-distortion module is now the **Phase Warp** engine (shown as PHASE). 1.x sessions and presets are migrated when they load.
- **2.0.2.** All 31 factory presets are in the preset menu, U1–U8 are eight separate slots, and the library IRs have neutral names (Large Church, Vocal Plate, Deep Space 1…). Sessions that used the old names load the same IR.

SIGNAL FLOW

The strip along the bottom of the window shows the chain. A block is lit when it's in use:

`IN` → `TAPE` → `PRE-DELAY` → `SPACE` (the convolution reverb) → `GLITCH` (and Phase) → `MIX` → `SPECTRAL` → `BLOOM` → `TERRAIN` → `LIMIT` → `OUT`

FORMATS AND INSTALLING

SYSTEM	FORMATS	INSTALLING
Windows (64-bit)	VST3, CLAP	Unzip. Copy GeoReverb.vst3 into C:\Program Files\Common Files\VST3 and GeoReverb.clap into C:\Program Files\Common Files\CLAP.
macOS 11 or later	VST3, AU, CLAP	One universal installer (.pkg) for Apple silicon and Intel, signed and notarised. It installs into /Library/Audio/Plug-Ins: VST3, Components (the AU) and CLAP.
Linux (64-bit x86)	VST3, CLAP	Unzip, open a terminal in the folder and run **bash install.sh**. It copies the plug-ins to ~/.vst3 and ~/.clap (no sudo), or copy them there by hand. Needs glibc 2.30+ (Ubuntu 20.04+, Debian 11+, Fedora 32+…) and X11 or Xwayland. Online capture uses the system libcurl if installed.

Then restart your host and rescan plug-ins.

2 QUICK START

1. **Pick a world.** Click a tab: `GEO`, `AURORA`, `SKY`, `SONAR`, `ORBIT`, `RADIO` or `WAVETABLE`.
2. **Choose a place.** Click the map to move the pin, type into `SEARCH A PLACE`, or pick something from `RECENT` or `SECRETS`.
3. **Press `CAPTURE IR`.** The decay display and RT60 readout update to show the new space.
4. **Shape it on PLAY.** Set PRE-DELAY, DECAY, DAMPING and TONE, then WIDTH, DRY and WET. Try a few of the nine characters.
5. **Add colour last.** Bring in a module tile only when the space already works on its own.

PLACE-BASED REVERB

Geo world, choose a location, CAPTURE IR. Start with DECAY and DAMPING, then try the terrain chips (RIDGE, COAST, BASIN…). Each one reads the ground differently.

BRIGHT, OPEN AIR

Aurora or Sky world. Try the Aurora or Celestial character for shimmer, and keep Bloom low at first.

DARK PRESSURE

Sonar or Orbit world, or the Ephemeris character. Shape with Terrain and a little Tape.

> **GOOD FIRST HABIT**
>
> Keep WET around the middle, leave some DRY in, keep Bloom low and leave SAFE on. Use `WET ONLY` often: it's the quickest way to hear whether the tail itself is working.

3 A TOUR OF THE WINDOW



The PLAY page with the Geo world selected. The top half (worlds, capture and decay display) stays the same on every page. The lower half changes with PLAY, SCULPT and LAB.

1 **Preset bar.** ‹ › step through presets, and the menu lists factory presets by world, plus INIT and eight user slots. `A` switches between two A/B compare slots. `UNDO` steps back through preset loads, secret locations and randomiser passes.

2 **Depth.** `PLAY`, `SCULPT` and `LAB` show the same sound at three levels of detail. OUT is the output meter.

3 **World tabs.** Each world is a different kind of capture (section 4).

4 **Search and Recent.** Type a place name to jump the pin there. RECENT takes you back to places you've used.

5 **World view.** The selected world is drawn as line-work over a dark ground, with the pin and its coordinates. Click the map to move the pin.

6 **Zoom and terrain chips.** – and + zoom. AUTO, RIDGE, COAST, BASIN, PLATEAU and URBAN set how the capture reads the ground. PHOTO shows the place's own picture under the line-work. SECRETS opens the hidden locations.

7 **IR source.** `CAPTURED` plays your capture, `LIBRARY` plays a built-in IR from the menu, and `YOUR FILE` loads a WAV. In Library and Your file modes, BLEND mixes the capture with the library IR.

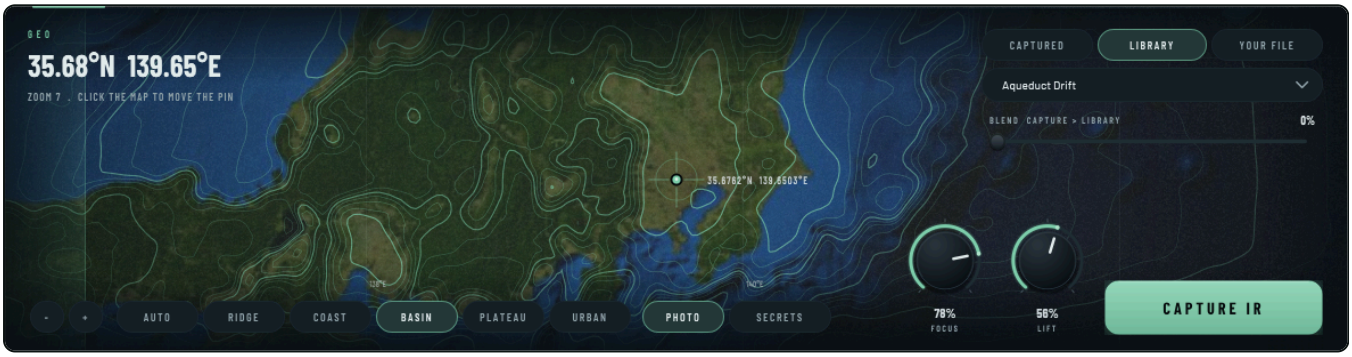
8 **World knobs and Capture IR.** Two knobs that steer the capture (they change with the world), then the button that turns this place into a reverb.

9 **Decay display.** The energy decay of the IR that's actually running, in low, mid and high bands. The amber line marks the pre-delay gap.

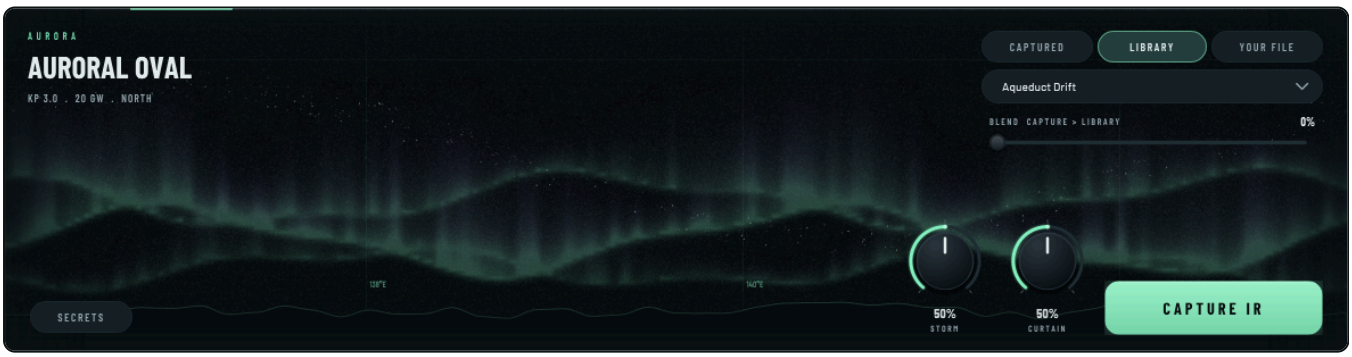
10	**RT60 readout.** Measured decay time (mid band, large), plus LOW, HIGH and PRE.
11	**Space and Output.** The main reverb controls. The switch turns the reverb core on or off, and the other modules keep working without it.
12	**Character.** Nine voicings of the space (section 6).
13	**Module tiles.** The amount knob and on/off switch for each module. Double-click a tile to open its SCULPT page.
14	**Signal chain.** Lit blocks are in use.
15	**Wet only / Safe / Bypass.** Wet only auditions the reverb path on its own. Safe adds extra output conditioning for extreme settings. Bypass smoothly returns the untouched input.

4 THE SEVEN WORLDS

Each world reads a different source and has a voicing of its own: its own tone, decay balance, early reflections and width. The two knobs beside CAPTURE IR change with the world. Turn them before you capture.



Geo: the satellite view under the pin, traced into contour lines with a lat/long graticule. Knobs: **FOCUS** tightens the centre of the response, **LIFT** raises its sense of openness.



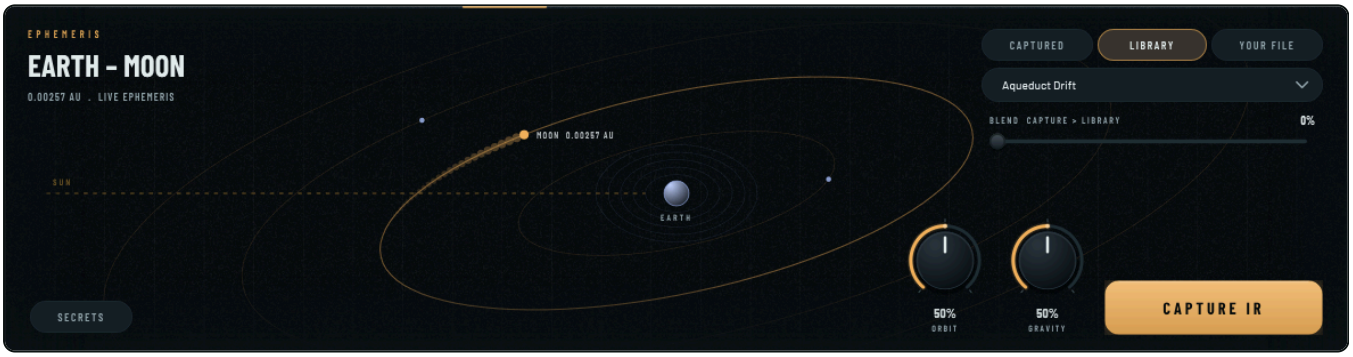
Aurora: soft curtains driven by the live Kp index. Knobs: **STORM** and **CURTAIN**. The live sky nudges the sound slightly from day to day, but the place sets its identity.



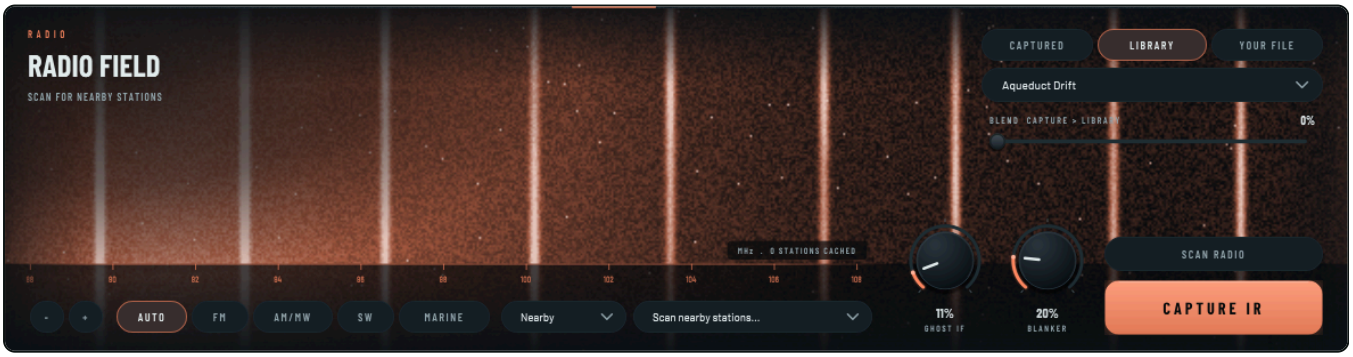
Sky (Celestial): a star chart seeded by the pin, at live sidereal time. Knobs: **DENSITY** and **DRIFT**. Sky captures add glassy glints.



Sonar: sea-floor bathymetry under the pin, with a sweeping ping. Knobs: **DEPTH** and **RESONANCE**. Deep, contoured, survey-like spaces.



Orbit (Ephemeris): the live Earth–Moon system. Knobs: **ORBIT** and **GRAVITY**. Slow, heavy, lingering spaces.



Radio: a scrolling waterfall of the radio dial. Pick a band (`AUTO` `FM` `AM/MW` `SW` `MARINE`) and a range (**Nearby**, **Global** or **Strange**), press `SCAN STATIONS` (it reads SCAN RADIO after the first scan), choose a station, then CAPTURE IR. Knobs: **GHOST IF** and **BLANKER** add receiver artefacts. Stations come from the free radio-browser.info directory, so this needs an internet connection.



Wavetable: `CAPTURE WT` builds a playable wavetable from the place, drawn here in 3D. See section 9.

5 CAPTURING A PLACE

PLACES FIRST

A capture belongs to its place. Press CAPTURE IR twice on the same spot and you get the same sound. Move the pin, even a little, and you get a different one. Places within a world, the worlds themselves and the terrain modes are all tuned to sound clearly different from each other. Aurora is the exception: it moves a little with the live sky.

TERRAIN CHIPS (GEO)

CHIP	WHAT IT DOES
Auto	Follows what the image looks like.
Ridge	Reads the ground as high, hard edges.
Coast	Reads water against land.
Basin	Reads an enclosed low area.
Plateau	Reads broad, flat high ground.
Urban	Reads dense built structure.

Each chip pushes the capture toward a different structural identity. They're easiest to hear by capturing the same place with two different chips and switching between them.

SECRETS

`SECRETS` opens a set of hidden landmark locations, each with its own picture and sonic signature. Secrets that fall inside the current view are marked on the map. Use them when you want a strong starting character.

IR SOURCE

SOURCE	USE IT FOR
Captured	Your capture from the current world. This is the normal mode.
Library	A built-in factory IR, picked from the menu. **BLEND capture › library** mixes your capture into it.
Your file	Load your own WAV impulse response with LOAD FILE. It's normalised by energy, then everything else on the panel applies to it. **BLEND capture › file** mixes your capture into it.

The chips are on the Geo world; a terrain mode chosen there also shapes Sonar captures. To save the current IR as a WAV, use `EXPORT` in the world view (Captured and Your file modes) or Export IR on the LAB page.

> **INTERNET**
> Geo, Aurora, Sky, Orbit and Radio use live imagery and data from public sources (NASA GIBS, the Kp index, radio-browser.info). No account or API key is needed. Sessions store the captured audio, so a saved project sounds the same when you reopen it, whether or not you're online.

6 PLAY

PLAY puts the controls you use most on one screen.

CONTROL	WHAT IT DOES
Pre-delay	The gap before the reverb starts. More gap keeps the dry sound clear. It can be locked to tempo on the TAIL page.
Decay	How long the space rings. On engine 2 this is the measured RT60 of the late tail.
Damping	How quickly the high frequencies fade. Higher is darker.
Tone	Overall colour of the reverb, dark to bright.
Freeze	Holds the tail indefinitely while new input passes dry.
Width	Stereo spread of the reverb.
Dry / Wet	Independent levels for the untouched signal and the reverb.

CHARACTER

CHARACTER	SOUND
Natural	Follows the captured place as it is.
Room	Shorter and closer.
Spring	Adds a real-time spring tank to the space.
Hall	Longer, smoother, wider.
Infinite	A tail that barely ends: 2.45 × DECAY.
Aurora	Octave-up shimmer, bright and airy.
Celestial	Shimmer tuned for sparse, glassy skies.
Sonar	A gradual onset with deep modal layers.
Ephemeris	The dark, gravitational register: slow, heavy and lingering.

On engine 2 the characters voice the space but don't change DECAY. Infinite is the exception.

MODULE TILES

Each tile has an amount knob and an on/off switch: **Tape**, **Bloom**, **Terrain**, **Spectral** and **Glitch**. The line under the name says which mode is active. Double-click a tile to open its SCULPT page. That page then shows `BACK TO PLAY`, and PLAY in the top bar also takes you back.

> **SUGGESTED ORDER**
>
> Capture → Space → Terrain → Tape → Bloom → Spectral / Glitch. If a capture already has a strong identity, do less.

7 SCULPT

SCULPT has one page for each part of the sound: `SPACE` `TAIL` `TAPE` `BLOOM` `TERRAIN` `SPECTRAL` `GLITCH` `PHASE` `OUTPUT`. Each page shows only the controls its current mode uses. On the right are the mode menus, the module switch, a short explanation and a live picture that moves as you turn the knobs.

SPACE



The captured place. **ATTACK** sets how fast the reverb builds, **DIFFUSION** how smooth or grainy the reflections are, and **EARLY / LATE** the balance of first reflections against the tail. **GHOST IF**, **IF WIDTH**, **IF MIX** and **BLANKER** add radio-receiver artefacts. The menu selects the character, and the switch turns the reverb core on or off.

TAIL



Decay · Damping	The same DECAY and DAMPING as on PLAY, repeated here beside the tail controls.
Captured / Hybrid	CAPTURED plays the IR as captured. HYBRID keeps the place's first 120 ms and continues it with a live eight-line tail. DECAY and DAMP then answer at once, with no rebuild, and the hand-over is level-matched band by band.
Motion	Lets the tail drift and breathe instead of ringing still. In CAPTURED it drives a light chorus on the wet signal.
Gate	Cuts the reverb off a set time (40–800 ms) after the input stops: the gated-reverb sound. Fully left is off.
Duck / Release	Pushes the reverb down (up to 30 dB) while the input plays, so it opens up in the gaps. RELEASE sets how fast it comes back.
Freeze	Holds the tail indefinitely. New input passes through dry.

Pre-delay sync	Free, or locked to a note value from 1/64 to 1/4 of the host tempo.
Engine	Switches between engine 2.0 and 1.x (section 11).
True stereo	Each input side also reaches the opposite output through its own decorrelated response, so a hard-panned source keeps its place in the room. On by default.

TAPE



A cassette deck in front of the space. The deck menu (**Manual**, **Studio**, **Warm**, **Cassette**, **Driven**) loads a character into the controls. **DRIVE** saturates, **FLUTTER** and **WOW** bend pitch, and **AGE** and **HISS** wear the tape. **BIAS**, **COMP**, **HEAD** and **X-TALK** fine-tune the deck. The picture shows the transfer curve.

BLOOM



A second, swelling reverb that follows the seasons at the pin's latitude. The picture shows where SEASON sits in the year. The mode menu picks **Classic**, **Granular**, **Spectral** or **Bloom**, and only the controls that mode uses are shown. These come from SIZE, FEEDBACK, SEASON, SWELL and SWELL RATE, DAMP, SHIFT, REVERSE, GLASS, DUCK, GRAIN, DENSITY, SPREAD, ATTACK, WIDTH and HALO. `FREEZE` holds the grain buffer.



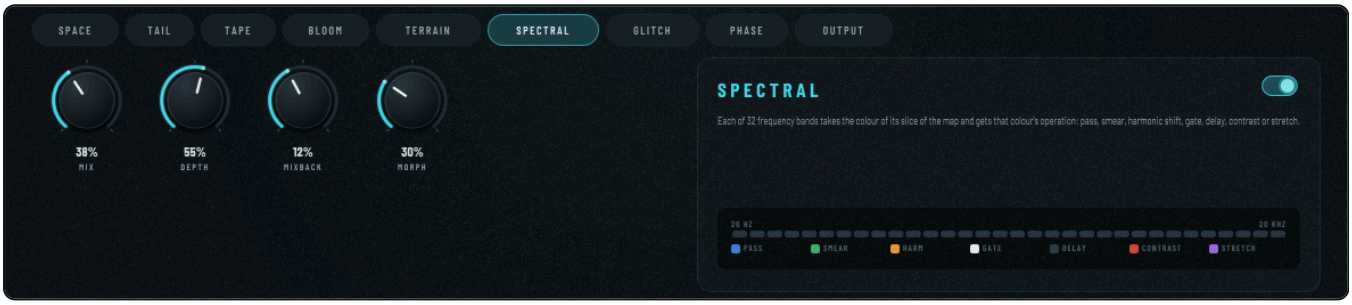
The same page in Granular mode: SHIFT, REVERSE, GRAIN, DENSITY and SPREAD replace the Bloom-mode controls.

TERRAIN



An EQ whose 32 bands follow the elevation profile under the pin. **SCAN** moves along the profile and **SPAN** sets how much of it is used. **TILT** leans it darker or brighter, and **DEPTH** sets how hard it cuts. **SMEAR**, **MORPH**, **FOCUS**, **FFT**, **Q** and **DRIFT** shape and animate the curve. **LOW CUT** and **AIR** trim the extremes.

SPECTRAL



Geo Spectral Behaviour. Each of 32 frequency bands takes the colour of its slice of the map, and each colour gets its own operation: blue passes, green smears, orange shifts harmonics, white gates, dark delays, red adds contrast and purple stretches. **MIX** and **DEPTH** set how much, **MIXBACK** feeds a little of the previous frame back in, and **MORPH** blends between operations.

GLITCH



Stutter, bit-crush and packet loss after the reverb. **Serial** runs it on the reverb, and **Parallel** mixes it in beside it. Controls: RATE, DEPTH, BITS (2–24), PACKET, JITTER, SLICE and CHAOS. Start with less MIX than you think you need.

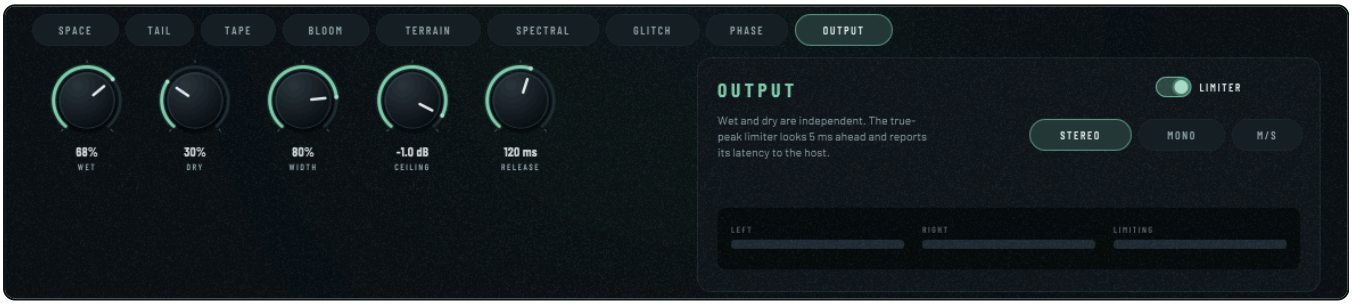
PHASE



The Phase Warp engine uses phase distortion as a spectral processor. The engine menu offers **Off**, **Warp**, **Cross**, **Warp + Cross**, **Buffer** and **Spectral**.

- **WARP** bends how each cycle of the audio is read back through the chosen curve. The 12 curves are Sawtooth, Square, Pulse, Double Sine, Half Sine, Res Saw, Res Triangle, Res Trapezoid, Stepped, Folded, Mirror and Glitch. COMPANDER and RESONANCE shape it, and LFO RATE and LFO DEPTH move it.
- **CROSS** runs the audio through a second modulated line, routed **Parallel**, **Ring Mod**, **Cascade** or **Ext Phase**. CROSS FB and CROSS MOD set how much.
- **Buffer** and **Spectral** swap the menus for their own modes (for example Stutter, Hold or Smear, and Freeze, BinShift or Comb).

OUTPUT



WET and DRY are independent, and WIDTH sets the spread. The true-peak **LIMITER** looks 5 ms ahead and reports its latency to the host. CEILING and RELEASE set its behaviour. `STEREO` is the normal working mode. `MONO` and `M/S` are useful for focus and compatibility checks.

8 LAB



LFO 1 AND LFO 2

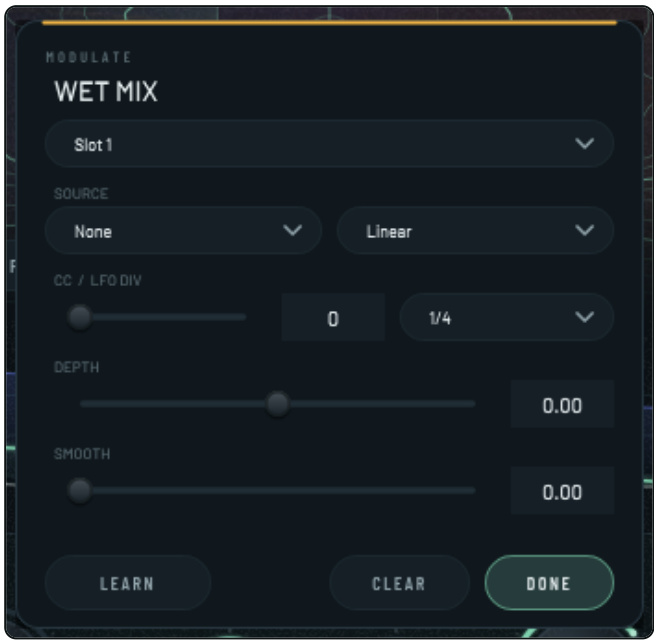
Each LFO has an on/off switch, a target menu (Off or any of the main controls, such as Early/Late, Glitch Mix, Wet or Decay), a shape (**Sine**, **Ramp**, **Random**, **Triangle**, **Square**), RATE and DEPTH. The picture shows the wave. Start slow and shallow: small movement usually sounds better than obvious wobble.

MODULATION MATRIX

The matrix lists every route with its source, its target, a bipolar depth you can drag, and a light that shows what the route is doing.

- `+ ROUTE` picks a control to modulate, grouped by module. New routes start on the mod wheel.
- Click a route to open its editor. Click **×** to remove it.
- Right-click any knob and choose **MIDI Learn...** to open the same editor for that knob.

The route editor has three **slots** per control. Each slot has a **source** and a response curve. The sources are MIDI CC, Velocity, Pitch, Aftertouch, Mod Wheel, Clock LFO (tempo-synced, 1/1 to 1/8T), Geo Season and Geo Brightness. **CC / LFO DIV** picks the CC number or the LFO's note value. **DEPTH** and **SMOOTH** set how much the source moves the control and how smoothly. `LEARN` grabs the next controller you move.



The route editor, opened from a knob's right-click menu.

RANDOMISE

Choose a scope (**Space**, **FX**, **Motion** or **All**), then `GENTLE` to nudge every control in it a little, `MED` to move them a fair way or `WILD` to throw them anywhere. `UNDO` steps back.

EXPORT IR

Saves the currently loaded captured IR as a WAV. In the Wavetable world it exports the captured wavetable bank instead.

9 THE WAVETABLE WORLD

The Wavetable world turns a place into an instrument. `CAPTURE WT` builds a wavetable from the place under the pin. Each capture has its own partial structure, so successive captures stay distinct. **WT MIX** sets its level against the reverb. The lower half has three pages.

SOURCE



TABLE sets how the table is built: the reading (for example Terrain), the frame count, the form and the envelope. **SCAN** sets where the scan sits (POSITION) and how it moves (a motion mode, MOT DEP and MOT RATE). **OSCILLATOR** adds a small root- and scale-locked oscillator core. **FM1** and **MOD** add frequency and amplitude movement. The panel on the left shows the table, and the slider beside it shows the scan position.

TONE



KARPLUS-STRONG adds a plucked-string resonator. **FILTER** and **FM2** colour the voice further, and **TEXTURE** (WT DUST, WT AGE) wears it.

PLAY



- **Keyboard: Drone** plays the wavetable continuously, excited by the audio. **MIDI** plays it from your keyboard. **Hybrid** does both. Root and Scale snap TUNE and the oscillator, so the table plays in key.
- **Voices: Poly** plays chords, **Mono** retriggers on every note and **Legato** glides between held notes without retriggering. UNISON stacks 1–4 voices, and GLIDE (up to 2 s), DETUNE (up to ±35 cents) and SPREAD apply across the stack.

- **Envelope:** ATTACK, DECAY, SUSTAIN and RELEASE.
- **Velocity:** **› TONE** makes soft notes darker and **› POS** moves harder notes further up the table, both per voice.

> EXPRESSION
> Right-click any knob to drive it from the mod wheel, aftertouch, velocity, a CC or an LFO.

10 PRESETS, KNOBS AND MIDI

PRESETS

The preset menu lists all 31 factory presets, grouped by world (Geo, Aurora, Celestial, Sonar, Ephemeris, Radio and Map WT), so you can see what kind of capture a preset uses before you load it. ‹ › step through them in order. Treat them as starting points: load one, keep what it gets right, then adjust DECAY, WET and the modules for the track in front of you.

- **INIT** resets to a clean starting point.
- **User slots U1–U8.** *SAVE Ux* stores the current sound and *Ux LOAD* recalls it. The slots are kept on your computer, so every project can use them. Save a version before you make radical changes.
- **A / B** keeps two versions side by side while you edit.
- **Undo / Redo** steps through preset loads, secret locations and randomiser passes.

INIT and the factory presets also appear in your DAW's own preset list (VST3 and AU; CLAP has none), and picking one there loads it. The last entry, **(Custom sound)**, shows when you are on your own sound, such as a user slot or a randomiser pass; picking it does nothing.

KNOB GESTURES

Drag	Change the value.
Double-click	Reset to default.
Right-click	**Type a value…** opens a field over the knob (Return sets it, Escape cancels). The menu also has **MIDI Learn…** and **Reset**.
Hover	A tooltip explains the control.

WINDOW SIZE

Drag the bottom-right corner to resize from 0.75× (885 × 600) to 2×. Small text stays legible at the minimum size. The editor remembers its size when the host re-creates it and when a session is reopened.

11 ENGINE 2.0 AND OLDER SESSIONS

New sessions use **engine 2.0**. DECAY is the measured late-tail RT60, and DAMP shortens the upper bands' decay instead of low-passing the whole IR. Where a band reaches its noise floor, the tail continues as matched, decorrelated noise, so DECAY can be longer than the captured IR. Captures are normalised by loudness, so the level stays steady between places.

Sessions saved before 2.0 open on **engine 1.x** so they sound as they were mixed. Switch engines with the ENGINE button on SCULPT › TAIL. HYBRID, FREEZE, GATE and TRUE STEREO need engine 2. The choice is saved with the session.

> UPGRADING FROM 1.X
> Sessions, user presets and saved modulation routes from 1.x are migrated automatically. Fifteen parameters were renamed with the Phase Warp engine, so host automation lanes recorded on those parameters need to be reassigned.

12 WHEN SOMETHING FEELS OFF

IF YOU HEAR THIS	TRY THIS FIRST
Too washed out	Lower the Bloom amount first, then shorten DECAY or raise DAMPING. Try GATE or DUCK on the TAIL page to clear space between phrases.
Too sharp or brittle	Raise DAMPING, turn TONE down, and pull back Glitch and Phase. Try the Warm tape deck with modest DRIVE.
Not wide enough	Raise WIDTH, increase DIFFUSION, check TRUE STEREO is on, or try a Sky or Aurora capture.
Too wide and unfocused	Lower WIDTH, check in Mono or M/S briefly, then rebalance EARLY / LATE.
The tail rings or sounds static	Switch to HYBRID and add a little MOTION, or put one slow LFO on Wet, Decay or a Bloom control.
DECAY doesn't seem to change the tail	Check the engine on SCULPT › TAIL. Older sessions open on engine 1.x, where the IR's own decay limits the tail.
Level jumps when switching places	Re-capture on engine 2: its captures are loudness-matched.
Radio finds no stations	Check your internet connection, try Global or a different band, and scan again.

STARTER SETTINGS

FROZEN DISTANCE
Sky or a cold Geo place, Celestial character, WIDTH open, a little Tape, airy Bloom. Use FREEZE under a held chord.

HAUNTED CHAMBER
Geo with BASIN or URBAN, Room or Hall character, Terrain on, moderate Tape body and a touch of Glitch for age.

SIGNAL RUIN
A Radio capture with SAFE on, Tape drift, then Glitch or Granular Bloom. Raise GHOST IF for a receiver sound.

> FINAL REMINDER
> GeoReverb responds best to small moves and repeated comparison. If a capture already has a strong identity, do less.