Remit

DIGITAL REVERBERATOR / USER GUIDE / 0.4.0f18



What it does

Remit is a stereo digital reverberator for the Reason rack that simulates five studio hardware reverberation eras from **1976**, **1979**, **1981**, **1985** and **1986**. Rather than convolving recorded impulse responses, Remit runs the complete signal path in real time: analogue input antialiasing filters, windowed-sinc resampling to each machine's internal sample rate, quantized and gain-ranged A/D and D/A converters, frequency-dependent delay tanks with time-varying modulation, and continuous-time reconstruction filters with per-channel converter strobe phase. A new device opens on the patch **1976 Hall**.

Machine and Program selectors

Machine. Five ivory keys under the display select which hardware simulation is running. Changing **Machine** or **Program** fades the reverb out over 12 ms, clears the tank and fades the new machine in, so the change never clicks; these two selectors are saved with the song and mapped to Remote, and remain non-automatable.

- **1976** (**23.8 kHz**, 12-bit converters with 3-bit PGA gain ranging): Simultaneous primary front (**CH I / II**) and secondary rear (**CH III / IV**) stereo output pairs staggered in converter timing, four-step predelay (**0, 20, 40, 60 ms**), and 16 decay dial steps (**0.4..4.5 s**). Supports **Reverb** and **Space**. - **1979** (**18.0 kHz**, 13-bit linear converters, 7-pole Chebyshev filters): Left D/A output offset by half a period, 16 early reflections per channel, and four inverting feedback loops with 16 decay steps (**0.4..4.5 s** at **500 Hz**), stepped Bass (**100 Hz**) and Treble (**6.3 kHz**) switches. Runs **Reverb**. - **1981** (**18.0 kHz**, 15-bit linear converters): Expands the **18.0 kHz** platform with 8-step predelay (**0..84 ms**) and 8-step early reflection level control. Supports **Reverb**, **Space** (**1.5..15.0 s**), and **Non-Lin** (**Low** tilt and **High** damping). - **1985** (**32.6 kHz**, 16-bit converters, 11-pole Cauer filters, **15 kHz** audio bandwidth): Full 4-band decay multiplier matrix (**300 Hz**, **1 kHz**, **4 kHz**, **8 kHz**), predelay switch (**0 / 40 ms**), adjustable early reflection time, level, and pan, 6-tap diffusion cluster, pre-tank low-pass filter (**2..15 kHz**), and simultaneous secondary rear (**CH III / IV**) stereo outputs. Supports all four programs (**Reverb**, **Space**, **Non-Lin** with **Low** tilt and **High** damping, and **Origin** with **0..120 ms** predelay and **1..10 kHz Filter**). - **1986** (**26.4 kHz**, 16-bit converters, **12 kHz** audio bandwidth): 16-step decay dial (**0.2..20.0 s**) with three density room sizes, 3-band decay (**0.25 kHz**, **1 kHz**, **7 kHz**), continuous predelay (**0..100 ms**), 8-tap diffusion cluster, and proportional low-pass (**2..12 kHz**) filtering both cluster and tank. Supports **Reverb**, **Non-Lin** (early tilt via **Low** and post-span late reverberation tail via **High**), and **Origin**.

Program. Four green keys under the Machine row; a program the selected machine does not have is dimmed. **Reverb** runs each unit's primary studio hall/plate algorithm. **Space** engages long flat-decay sustained atmospheres. **Non-Lin** shapes dense, gated early decay contours (**80..500 ms** on **1981**/**1985**, **100..500 ms** span on **1986**) with controllable slope and damping/late tail. **Origin** (on **1985** and **1986**) runs the classic **1976** reverberation network inside the higher-rate converter frame. Controls inactive in the selected **(Machine, Program)** combination dim visually and leave audio processing untouched.

The Live Simulation Display

The **482 x 112** screen is drawn as a soft green phosphor tube. It renders real-time internal solver telemetry from the engine alongside the current configuration, and every number it prints is the value the engine is using:

- **Taps (Left).** Three fields name the early-reflection structure of the selected machine and program (**3 TAPS**, **6 TAPS**, **8 STEPS**, **GATE**, **SPACE**, or the 1986 room **ROOM A** to **ROOM C** that Decay selects), the converter's word length and its sample rate. The plot below shows live input drive, the predelay offset, the early reflection spikes and the diffusion cluster along time; on **1976** it also shows the four **PGA** gain-ranging steps. - **TANK LOOPS & MOD.** Four live bars track energy inside the four tank feedback loops (**L1–L4**), and two **MOD** meters track the read heads' excursions. - **REVERB.** The six reverb knobs in the engine's own units: **Decay** in seconds (milliseconds in **Non-Lin**), the **Low**, **Mid** and **High** decay multipliers, **Filter** in kHz and **Pre** (Predelay) in ms. A knob the machine or program does not use reads **--**. - **CONTOUR / GATE.** Displays the frequency-dependent decay profile across low, mid, high, and low-pass bands with four translucent live spectral shimmer bars, or the gated envelope in **Non-Lin**. - **CLIP and the output meters (Right). CLIP** turns red when the input overloads the converter: turn **Input** down. Below it are the output meters, one numbered bar per channel: **1 2** on two-channel machines, **1 2 3 4** on **1976** and **1985**, where bars 3 and 4 light when the rear outputs are cabled.

Knobs and keys

Six large knobs on the left set the reverb itself: **Low**, **Mid** and **High** above, **Decay**, **Filter** and **Predelay** below. A knob the selected machine or program does not use is dimmed, and still turns. Under the display, the **Machine** keys light their amber lamp and the **Program** keys their green one; a program the machine does not have is dimmed. Eight smaller knobs to the right set the early reflections, the cluster and the levels.

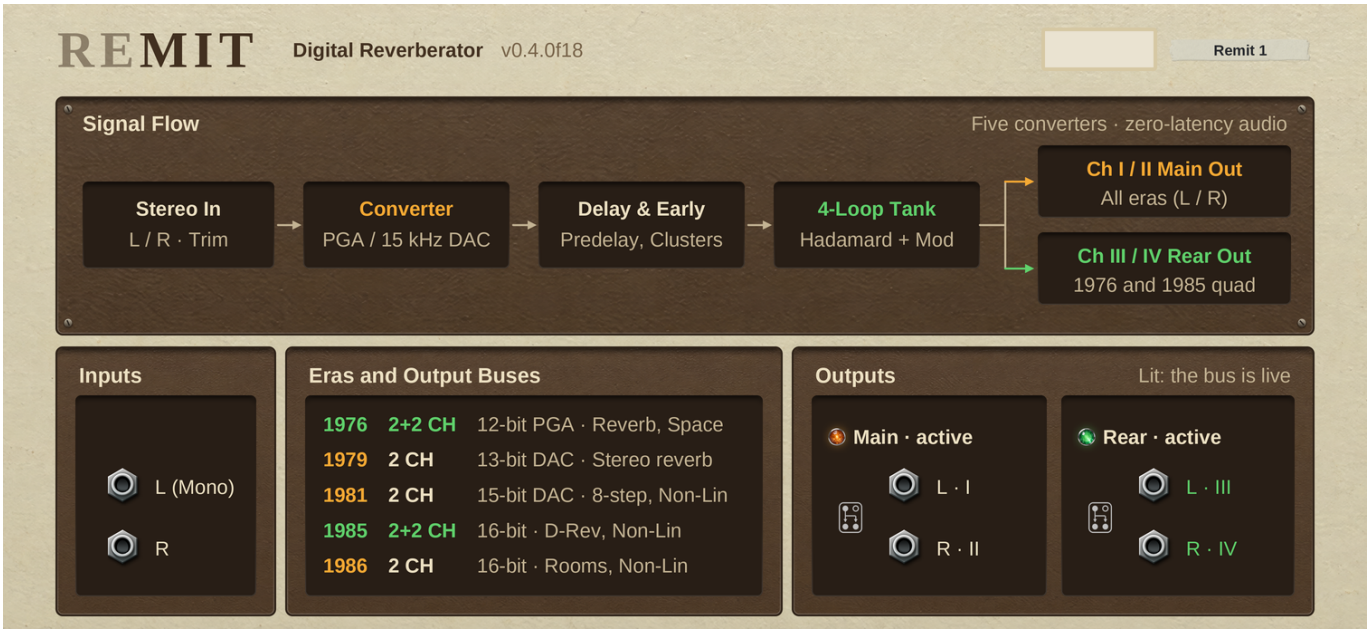
Decay. Sets mid-band reverberation time in the selected era's native scale (16 hardware dial steps in **1976/1979/1981/1986** and **1985**, sustained **Space** time up to **15–18 s**, or gate span in **Non-Lin**).

Low, Mid, High & Filter. Low and **High** shape bass and treble decay multipliers (continuous or stepped according to the chosen era) during **Reverb** and **Origin**, tilt and damp the burst in **1981/1985 Non-Lin**, and set early slope and late tail length in **1986 Non-Lin**. **Mid** controls the **4 kHz** band in **1985 Reverb**. **Filter** lowers the programmable pre-tank/cluster high-frequency cutoff in **1985** (**2..15 kHz** in standard programs, **1..10 kHz** in **Origin**) and **1986** (**2..12 kHz**).

Predelay, Early Time, Early Level, Early Pan, Cluster Time & Cluster Level. Control initial dry-to-tank gap, discrete reflection timing, early reflection mix, centre early-tap panning, diffusion cluster spread, and cluster level as supported by each era.

Input, Output & Mix. Input and **Output** are the two orange knobs and **Mix** the red one. **Input** (**-24..+24 dB**) drives the simulated A/D converter stage; **Output** (**-24..+24 dB**) trims the reverb's level ahead of **Mix** and leaves the dry signal as it is; **Mix** (**0..100 %**) balances dry input with zero-latency time-aligned processed wet signal.

Back panel



Stereo **Inputs** (**L (Mono)** / **Right**), primary stereo **Outputs** (**L · Ch I** / **R · Ch II**), and dedicated secondary rear stereo **Outputs** (**L · Ch III** / **R · Ch IV**). A single cable into **L (Mono)** or **Right** feeds both channels in stereo; a single cable on either output pair carries mono (summed on **Ch III / IV** when only one rear socket is wired). There are no CV inputs.

Dual back-panel activity lamps under **Active Bus Lamps** show live output bus availability: **Main** lights amber (**MAIN · ACTIVE**) when active (dim **MAIN · BYPASS** when bypassed/off); **Rear** lights green (**REAR · ACTIVE**) when running **1976** or **1985** with a rear cable patched, ready (**REAR · STANDBY**) when uncabled, dim (**REAR · 2-CH N/A**) on two-channel eras (**1979**, **1981**, **1986**), or **REAR · OFF** when bypassed/off. Above the three lower decks (**Inputs**, **Eras & Output Buses**, and **Outputs**) sits the **Signal Flow** schematic.

Automation and patches

Every knob can be automated and mapped via Remote and MIDI CC, and none clicks however fast it moves: a change of time, level, filter or decay fades over 20 ms, and Input, Mix and Output glide over a few milliseconds; **Machine** and **Program** can be saved in patches and mapped on Remote. Twenty factory patches cover all five hardware eras and four programs, opening on **1976 Hall**.