

Iron Summing

User guide · version 1.3.0



What it is

A two-mode summing system: a Channel on every track, a Bus on the master, auto-grouped into one console with live lanes for the whole session. Transformer-style saturation that drives like iron, opto glue with a hard 3 dB cap, and exactly zero samples of latency on every track. VST3, AU and AAX for Windows and macOS.

Audio never flows between instances. Each Channel processes its own track and the Bus processes the real summed audio your DAW hands it. What the instances share is control data over a lock-free registry: meters, names, solo state, trims and the one All Saturation control that scales the colour of every track at once. That is why every track runs at exactly zero samples of latency, why nothing smears at a hundred instances, and why a Channel keeps working even when a host isolates plugins into separate processes. Insert the Channel on tracks and the Bus on the master and they find each other with no configuration; groups 1 to 8 run separate consoles in one session.

Channel Tone is parallel harmonic injection around an untouched direct path, so there is zero phase shift at any setting. Even-order dominates at nominal level and odd-order arrives as you push, and low frequencies saturate first because drive follows $B = V/f$, the way flux builds in a core. At Tone 100, a -18 dBFS tone at 50 Hz measures its second harmonic near -55 dB; the same level at 1 kHz measures below -100 dB. Every Channel draws one of 32 fixed console voicings, compiled in, so voicing 12 sounds identical on every

machine and saves with the session. Channel Comp is a gentle 1.5:1 into the iron, capped at 6 dB of reduction.

Bus Push is opto glue with a hard mathematical cap: gain reduction cannot exceed 3.0 dB on any material, approached asymptotically, with a slow program-dependent attack and a fast release, so the first 5 ms of a hit leaves the plugin at full level or louder. Flood flips the same detector upward, so loud passages bloom instead of being held, the lift matching the cut to 0.01 dB and gliding through zero click-free. Bus Width is mid/side depth ahead of the harmonic stage: the mid is never processed, side content below 130 Hz is never widened, and four self-calibrating bands above it add at most 2 dB each. Bus Space generates even-order products from the lows and odd-order from the highs, seeded per instance and identical on recall. Bus EQ is four wide console curves: a 45 Hz shelf, proportional-Q bells at 550 Hz and 3 kHz, and air voiced at 22 kHz, plus or minus 6 dB and within 0.3 dB of the documented curves at every sample rate.

The metering is honest: a real stereo correlation from -1 to +1, the summed level arriving before the master section, and an output meter to -120 dB. There is no noise generator and no crosstalk faking. Nothing is random between recalls, so a mix reopened next year nulls against itself, and at Tone zero a Channel is bit-transparent. Measured at 48 kHz with 512-sample blocks: 0.06 percent of one core per Channel and 0.38 percent for the Bus, so a 64-Channel session spends about 4.4 percent.

Iron Summing has no oversampling, no lookahead and no linear-phase filters, and it does not route audio between instances. If your work needs those, this is not the console for that part of it.

Built and used at a working recording studio. Support: support@vitricaudio.com

Key features

- One plugin, two modes: a Channel on every track, a Bus on the master, auto-grouped
- Live lanes for the whole group in every window, with names and colours from the DAW
- Transformer-style drive: lows saturate first, direct path untouched, zero phase shift
- Push glue whose reduction can never exceed 3.0 dB, and Flood, the same curve upward
- Bus Width with the mid never processed and nothing widened below 130 Hz, plus console EQ
- Zero samples of latency, real and reported, at 0.06% of one core per Channel, measured

The two windows

The Channel window is the compact per-track view: the group's lanes with this track highlighted, TONE and COMP into the iron, mute and solo, and an output trim. The Bus window carries the lane rack for the whole group, ALL SATURATION, PHASE, LEVEL and MIX, then the console EQ row and the PUSH, WIDTH, SPACE and OUTPUT row with FLOOD above Push, and the pre-master readout and output meters at the right. The CHANNEL and BUS chips in the top bar switch mode; GROUP picks the console.

Working the lanes

Lanes carry the DAW's names and colours where the host reports them, the level of each track, and saturation heat that blends from cool data blue toward ember exactly by tone times All Saturation. Drag a lane to trim it remotely, double-click to rename, and use the S button to solo across the group. In TRACKS the trim takes an exact dB entry and keyboard trim and solo, and remote edits stay attached to the

instance you started on even when tracks reorder. Every knob takes a typed value: click it, enter a number, press Enter.

Typical uses

- **The whole mix.** Channels across the session, one Bus on the master, All Saturation riding the colour of everything at once. A 64-track console costs about 4.4 percent of one core.
- **Drum bus.** A second group as its own console. Push leans into the kit with the 3 dB cap keeping it honest, and Space adds low even-order weight.
- **Choruses that lift.** Flood on the loudest section turns the glue inside out. The same ballistics, mirrored upward, so the chorus blooms up to 3 dB without a fader ride.
- **Stems and print chains.** Zero real latency and bit-transparency at zero mean it can live on every stem of a print chain without smear, and null when you need proof.

Full specification

- One plugin, two modes: Channel on tracks, Bus on the master, mode is topology and not a parameter
- Automatic grouping with zero configuration, groups 1 to 8, separate consoles in one session
- Live lanes for the whole group drawn in every window
- The Bus window mixes Channel trims remotely, like a centre section
- All Saturation from the Bus scales every Channel's colour at once
- Channel Tone: parallel harmonic injection around an untouched direct path
- Zero phase shift on the direct path at any setting
- Even-order dominant at nominal level, odd-order arriving as you push
- Drive follows $B = V/f$, so low frequencies saturate first, core corner 45 to 70 Hz per voicing
- At Tone 100, -18 dBFS at 50 Hz measures H2 near -55 dB and H3 near -65 dB; 1 kHz measures below -100 dB
- 32 fixed console voicings, compiled in, identical on every machine and saved with the session
- Channel Comp: 1.5:1 into the iron, RMS detection, 30 ms attack, 120 ms release, capped at 6 dB
- Bus Push: opto-style glue, gain reduction cannot exceed 3.0 dB on any material, approached asymptotically
- Push attack 60 ms and program-dependent; 90 percent recovered 300 ms after a burst ends
- Transient enhancement of at most 1.2 dB: the first 5 ms of a hit leaves at full level or louder
- Flood: the same detector, threshold, taper and ballistics mirrored upward, boost capped at 3.0 dB
- The Flood lift mirrors the Push cut to 0.01 dB, and flipping the switch under audio is click-free
- Bus Width: mid/side depth ahead of the harmonic stage, the mid channel never processed
- Side content below 130 Hz is never widened; four expander bands above it add at most 2 dB each
- Width bands split at 550 Hz, 2 kHz and 8 kHz, RMS detected, self-calibrating to the material
- A dedicated Width bypass gives an exact null for mono-compatibility checks
- Bus Space: even-order products from below 500 Hz, odd-order from above 1 kHz, -95 dB floor between
- Space amounts are seeded per instance, stored in the session and identical on recall

- Bus EQ: 45 Hz low shelf, proportional-Q bells at 550 Hz and 3 kHz, air voiced at 22 kHz
- Bus EQ range plus or minus 6 dB, within 0.3 dB of the documented curves at 44.1, 48, 96 and 192 kHz
- Per-module bypass on EQ, Push, Width and Space, click-free and nulling exactly once settled
- Honest metering: true stereo correlation from -1 to +1, pre-master summed level, output to -120 dB
- Solo shared across the group like a monitor section button
- Track names and colours follow the DAW where the host reports them
- No noise generator, no crosstalk modelling, nothing random between recalls
- Bit-transparent at Tone 0: the null test is invited, and a reference preset ships for it
- Aliasing products below -80 dB at 44.1 kHz at full drive, measured worst case -85.2 dB
- Zero samples of latency, reported and real, in both modes, at every sample rate
- 0.06 percent of one core per Channel and 0.38 percent for the Bus at 48 kHz with 512-sample blocks
- 44.1 to 192 kHz, mono or stereo Channels, stereo Bus
- VST3, AU and AAX, Windows and macOS

Installation on Muse Hub

Purchase, installation, updates, refunds and removal for this Muse Hub edition are all handled by the Muse Hub app. The plugin opens and runs directly: there is nothing to unlock inside it, and the status chip reads MUSE HUB. On Windows the plugin installs as VST3 and AAX. On macOS the installer places VST3, AU and AAX builds in the standard system plugin folders. If the plugin does not appear in a host, rescan plugins, confirm the host is 64-bit, and in Audacity enable it in the Plugin Manager.

Requirements: Windows 10 or later (64-bit) or macOS 11 or later, Intel or Apple Silicon. Settings and presets are the same as the edition sold at vitricaudio.com, so projects open in either edition.

Frequently asked questions

Does audio flow between the instances?

No, and that is deliberate. Each Channel processes its own track and the Bus processes the real summed audio the DAW delivers to it. Instances share only control data: meters, names, solo, trims and the All Saturation scale. That is why every track has exactly zero samples of latency, why nothing smears at 100 instances, and why a Channel keeps working even if the host sandboxes plugins into separate processes.

What makes the saturation transformer-style?

The drive law. Low frequencies saturate first because drive follows $B \text{ equals } V \text{ over } f$, the way flux builds in a core. The harmonics are measured: at Tone 100, a -18 dBFS tone at 50 Hz shows its second harmonic near -55 dB while the same level at 1 kHz measures below -100 dB. The injection is parallel, so the direct path carries zero phase shift at any setting.

Can the glue ever overcompress?

No. Push approaches 3.0 dB of gain reduction asymptotically and can never exceed it, on any material. The attack is slow and program-dependent, the release fast, and the first 5 ms of a hit leaves the plugin at full level or louder. Flood applies the identical contract upward: the lift mirrors the cut to 0.01 dB.

Will my mix recall identically?

Yes, bit for bit. Every per-instance variation, from console voicings to Space seeding, is stored with the session. There is no random component between recalls, and at Tone zero the Channel is bit-transparent. A clean-console reference preset exists for the null test.

What does a big session cost?

Measured at 48 kHz with 512-sample blocks: 0.06 percent of one core per Channel and 0.38 percent for the Bus. A 64-Channel session spends about 4.4 percent of one core. Zero latency everywhere means no delay compensation anywhere.

Why is there no noise or crosstalk?

Because neither is defensible here. Modern console noise floors measure below -80 dBu, and real crosstalk is between channels: a plugin faking it inside one track is not modelling a console. Both were left out on purpose.

What formats and DAWs does Iron Summing support?

VST3, AU and AAX on Windows 10+ and macOS, Intel and Apple Silicon. That covers Pro Tools, Logic Pro, Ableton Live, Cubase, Studio One, FL Studio, REAPER and every other major host.

Support: support@vitricaudio.com · Product page: <https://vitricaudio.com/iron-summing> · Vitric Audio, Cleveland, Ohio. This guide describes Iron Summing 1.3.0 as distributed on Muse Hub.