

PullOver MixFader by Interloud Audio

- An Energy-Redistributing Mixing Console

OVERVIEW

One plugin instance per channel strip, linked through a shared runtime mixer architecture.

LOCAL STRIP



MIXER-PANEL OVERVIEW



CORE IDEA

PullOver MixFader is a virtual console layer for a DAW mix. Each plugin instance behaves like a channel strip, but active instances also see one another through a shared manager. The core fader stays bounded from -60 dB to 0 dB; additional motion can be redistributed to other channels, groups or the whole mix instead of simply boosting above unity.

The result is a mixing surface built around controlled energy movement: local fader control, group-aware counter-motion, remote mixer strips, MIDI-learned hardware control, sidechain-aware dynamics, stereo/phase tools, analyzer feedback and final fader/trim output gain.

At a glance

Fader: -60..0 dB

Trim: +/-24 dB

64 named groups

9-band EQ

128-band analyzer

64-band unmasking

MIDI Learn

Input/Output dynamics



Control architecture

Main fader, interaction modes, overdrag and group membership.

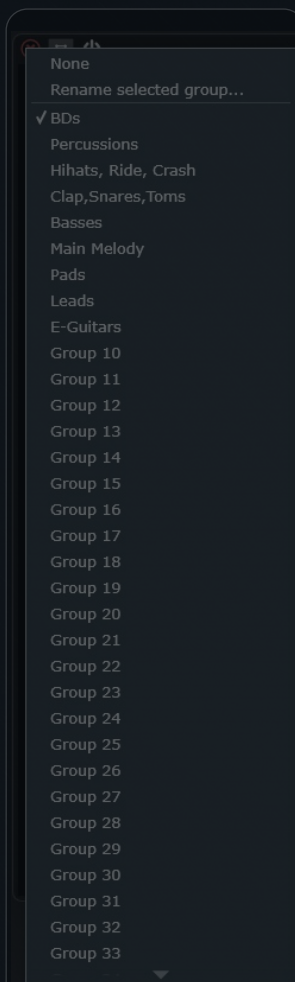
MAIN FADER



LOCAL FADER LOGIC

- Real Value is the bounded channel fader range from -60 dB to 0 dB.
- Interaction Mode selects the active interaction range: Single, Group or Master.
- Controller Target routes the primary hardware/automation input either to Real Value or to Overdrag.
- Overdrag is not an above-0-dB boost. It is a counter-cluster movement outside the active range.
- Overdrag Control Mode offers Middle Catch, Edge Catch and Direct behaviours for physical controllers.
- The final audio gain is applied at the end of the processor chain together with post-fader Trim.

GROUPING MENU



GROUPS AND SAFE STATES

The group menu exposes None plus named groups 1..64. Group names are synchronized between active instances and stored for project recall. Group offsets and the main offset let the system move many strips without destroying the individual base fader values.

Solo, Group Solo, Mute and Group Mute are non-destructive: the audible/displayed level can be forced down while the stored fader position stays intact.

OVERDRAG REDISTRIBUTION

When the inner range has reached the bounded fader edge, an Overdrag gesture can continue the musical move by shifting the outside range in the opposite direction. In Single mode the outside range is all other strips. In Group mode it is every strip outside the selected group. In Master mode there is no outside range, so Overdrag does not move anything.

BOUNDED MIX ENERGY

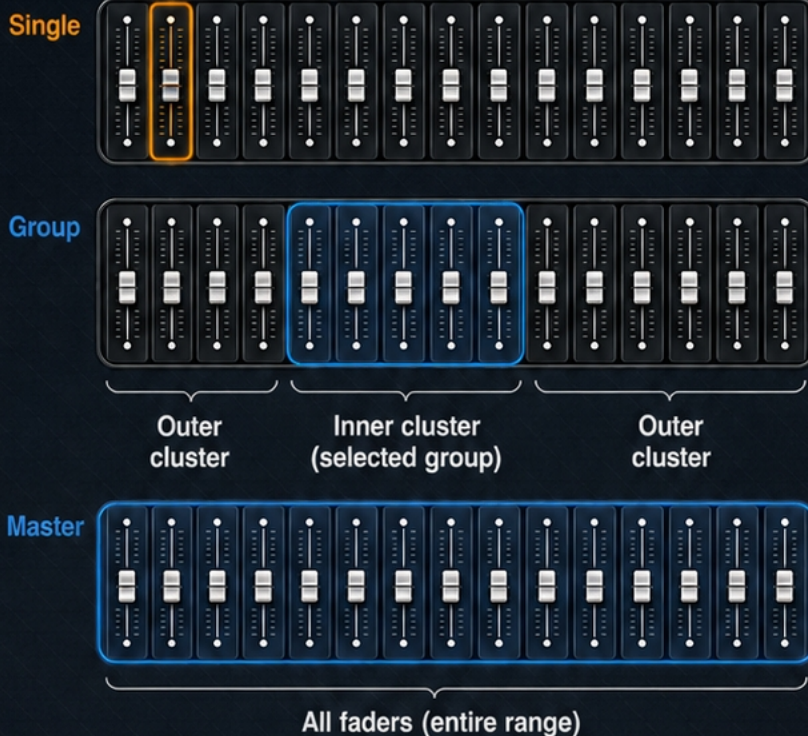
Practical purpose: keep fader movement bounded, visible and recoverable while still enabling expressive group and mix balancing. The user feels continued fader travel, but the mix change is made by relative energy redistribution rather than by boosting the selected fader beyond unity.

Overdrag: real fader, inner cluster and outer cluster

The active range moves normally; Overdrag acts on the counter-cluster outside that range.

Real fader / inner cluster

Controls the active interaction range: the local fader, its current group, or all instances in Master mode.



Source concept graphic: Single, Group and Master interaction ranges.

1. INNER CLUSTER

The Real fader controls the inner cluster. Single means one local strip. Group means the selected group. Master means every registered strip. This movement is limited by the -60.0 dB fader window.

2. OUTER CLUSTER

The outer cluster is everything outside the active range. Overdrag is reserved for this counter-cluster: Single targets all other strips; Group targets other groups/strips; Master has no outside cluster.

3. HEADROOM

At the start of an absolute Overdrag gesture the plugin measures remaining outer-cluster travel. Positive travel is how far the outside can still move down; negative travel is how far it can still move up.

OVERDRAG SIGN CONVENTION

Positive Overdrag

gesture/controller moves upward



inner stays bounded
outer moves DOWN



Negative Overdrag

gesture/controller moves downward

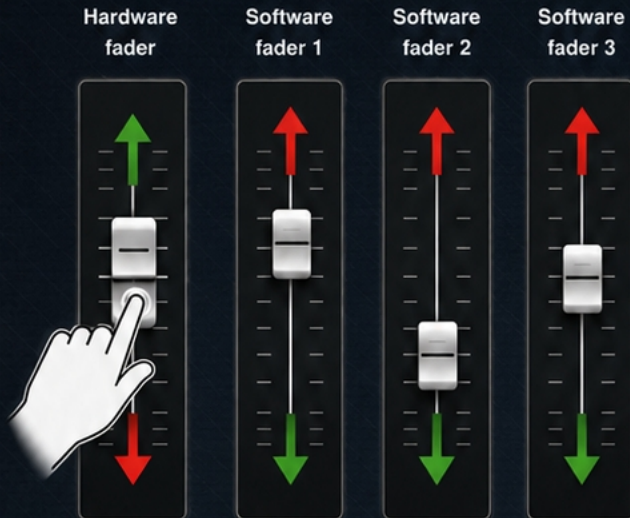


inner stays bounded
outer moves UP



What happens when you pull into Overdrag?

The selected fader stays bounded; the outside of the mix moves in counter-motion.



Controller movement is translated into software counter-motion.

UPWARD OVERDRAG

If the selected fader or group cannot move further upward inside the real range, pulling upward into Overdrag does not create gain above 0 dB. Instead the outer cluster is pushed downward by the accepted Overdrag amount. The selected range therefore becomes more dominant because the surroundings get quieter.

DOWNWARD OVERDRAG

If the controller moves downward into negative Overdrag, the inverse happens: the outer cluster is pulled upward, as far as its headroom allows. The selected range loses relative dominance without needing to force it below its useful working position.

CLAMPING AND SAFETY

All Overdrag movement is clamped by the most limited fader in the outer cluster. When any target would hit -60 dB or 0 dB, the plugin only applies the possible part of the requested move. This keeps the console state bounded and prevents hidden over-unity offsets.

STEP-BY-STEP RESULT

- | | |
|--|---|
| 1. Inner range reaches edge | The local fader, group or full mix is still limited to -60.0 dB. |
| 2. Overdrag amount is generated | Controller Target / Overdrag strip produces a logical signed gesture. |
| 3. Outer cluster moves opposite | Positive Overdrag lowers the outside; negative Overdrag raises it. |
| 4. Returning to catch does not undo | Middle/edge recapture only re-arms the controller. The mix move remains. |
| 5. Headroom clamps the move | Movement stops when the outer cluster reaches its remaining travel limit. |

MIDDLE CATCH

Must physically enter the centre/null zone before a move can start. Returning to centre re-arms the next additive gesture; it does not recall the old fader positions.

EDGE CATCH

Must hit the lower or upper physical edge first. The edge defines the allowed direction; a reversal locks until another edge is reached.

DIRECT

No catch and no direction lock. Every controller delta is converted directly into additive outer-cluster movement, then clamped by available travel.

Mixer panel and remote channel strips

A local plugin instance can become a compact mixer for all other active instances.

MIXER PANEL



REMOTE MIXER FUNCTIONS

- Displays active remote instances as mini channel strips with fader, meters, dB readout, name and group colour accents.
- Layout scales up to eight columns and uses scrolling for larger sessions while keeping three rows visible in the current design.
- Each strip includes SC-Source, More, Single/Group toggles and non-destructive Solo, Group Solo, Mute and Group Mute controls.
- Stale/deleted DAW instances are filtered by an audio-graph heartbeat so the mixer stays focused on live targets.

MINI MORE



LOCAL MORE



MIDI LEARN AND REMOTE ROUTING

Remote control is not only visual. MIDI Learn can assign hardware CCs to local targets and to remote Mixer-panel targets: faders, overdrag strips, interaction buttons, solo/mute states and the main stereo/phase controls.

SIDECHAIN SOURCE SELECTION

SC-Source buttons on remote strips define which published channels feed the local sidechain detector. This selection is persisted by stable instance identifiers and reused by the compressor and 64-band unmasking stages.

Tone, stereo and EQ blocks

The More panels hold channel tone tools; the Analyzer opens the parametric EQ controls.

MORE PANEL



MINI MORE



MORE-PANEL CHANNEL TOOLS

Channel tools include post-fader Gain/Trim, constant-power Pan, Delay Pan from -30 to +30 ms, Mid:Side balance from -100 to +100, Side Enhance, psychoacoustic Stereo Width, Phase Delay, Phase Rotation, L/R Swap, Phase Invert and Mono Test.

Stereo Width is scaled 0..100% with 50% as neutral. Mid:Side uses a bounded musical tilt: the extremes emphasize one component while reducing the other.

EQ CONTROLS



EQ AND MACRO SCOPE

The EQ block is a source-code-defined 9-band parametric section: Low Cut, Low Shelf, Peak 1..5, High Shelf and High Cut. Frequency spans 20 Hz to 20 kHz, gain spans +/-24 dB, Q spans 0.10..18, cut-filter slope spans 12..48 dB/oct and shelf slope spans 0.10..2.0.

EQ controls are host-automatable parameters. In Analyzer macro mode, edits can target Single, Group or Master scope while overlay layers preserve the visual origin of group and mix changes.

Analyzer and phase alignment

Visual feedback and phase-aware correction for single strips, groups and the full mix.

ANALYZER PANEL



PHASE ALIGN



ANALYZER SCOPE

The Analyzer shows Spectrum, Waveform, Correlation, Stereo Balance, Mid-Side Field and Phase Angle Before/After Align. It can view Single, Group or Master scope and overlays related channels for group or mix inspection.

Macro controls inside the Analyzer provide scope-aware access to Mid:Side, Stereo Width, Pan, Make Mono and the EQ Controls panel.

PHASE ALIGNMENT MODES

Phase Align offers Group or Group+Mix scope, Once analysis and Realtime On/Off operation. Processing can focus on Low range or Full range. Mono Compatibility On/Off enables an additional compatibility stage.

Stability and Group Stability define how strongly channels or groups behave like anchors. In the group hierarchy, low stability lets energy/loudness dominate; high stability pushes the system toward a user-defined hierarchy.

WHY THIS MATTERS

The source places the analyzer phase readout around the phase tools so the display can compare the signal before and after realtime Phase+ and Mono Compatibility stages. Telemetry is published at the end of the signal path, after EQ, dynamics and fader gain.

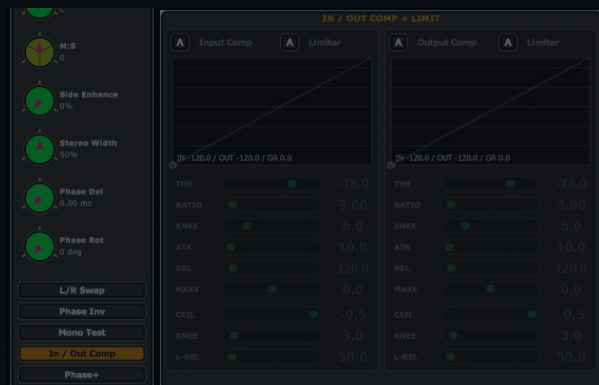
Dynamics, sidechain and signal flow

Dedicated dynamics stages plus selected sidechain sources and optional spectral unmasking.

SIDECHAIN COMPRESSOR



COMPRESSOR / LIMITER PANEL



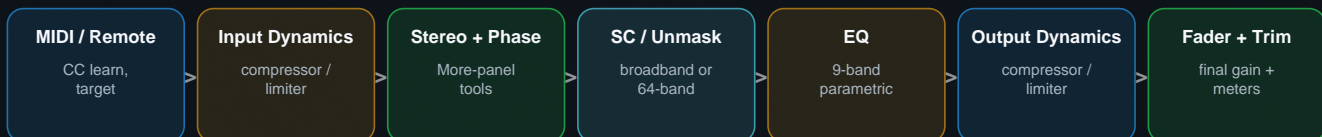
SIDECHAIN AND UNMASKING

The sidechain compressor listens to the selected SC-Source channels from the Mixer panel. It exposes Threshold, Ratio, Attack, Release, Makeup and Mix. The same source selection can feed the 64-band unmasking path with Amount, Max Reduction, Focus and Smoothing controls.

INPUT / OUTPUT DYNAMICS

Input Dynamics run before telemetry, EQ, stereo/phase tools and sidechain logic. Output Dynamics run directly before the final fader stage. Both sides include compressor and limiter controls, keeping corrective dynamics available without changing the PullOver fader model.

SIMPLIFIED PROCESSING ORDER



Control input is processed first; the absolute output level is deliberately applied last, after stereo, phase, sidechain, EQ and dynamics processing.

SOURCE-DERIVED TECHNICAL SUMMARY

Main fader range	-60 dB to 0 dB
Post-fader trim	-24 dB to +24 dB
Interaction scopes	Single, Group, Master
Overdrag modes	Middle Catch, Edge Catch, Direct
Groups	None plus 64 named groups
EQ	9 bands, 20 Hz..20 kHz
Analyzer	128 spectrum bands, 512 waveform points
Sidechain unmasking	64 detector bands
Phase tools	Delay 0..30 ms, rotation 0..180 deg
Stereo tools	Pan, Delay Pan, Mid:Side, Stereo Width, Mid/Side Pan