13x Audio

AURORA

User Manual

Parametric EQ, dynamics and intelligent workflows

Make your first correction in two minutes.
Find the controls in labelled close-ups.
Follow the audio through each stage.



VERSION 1.7.0

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For Aurora 1.7.0 on macOS, Windows and Linux.
Release notes and downloads: 13x.audio

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About this edition

Aurora is a parametric equalizer for corrective and creative work. It combines up to 24 bands with per-band dynamics and channel placement, three phase modes, spectral De-harsh, optional harmonic Character, Smart Ops and controls for working across multiple instances.

This manual describes Aurora 1.7.0, which adds musical intelligence: bands that follow the key, the chords, the bass, the kick or the voice, Click to Follow, Chroma EQ, the Out-of-Key Cleaner, microtonal tuning with Scala import, the Per-Note Leveler, Kick-Bass Lock, the Musical Lookahead and six musical presets (chapters "Musical intelligence" to "Bass tools"), as well as the Tilt band shape, corrected steep cuts with Legacy cut slopes for older sessions, Open Aurora in, and window sizes down to 50 % with a Size menu. It also covers 1.6.0: the new plug-in file names, themes, a full-screen spectrum, a Slope control for cut bands, Dynamic in the node menu, De-harsh Delta, smart band types on double-click and a working LV2 sidechain on Linux; the axis lock and momentary band solo from 1.5.1; and everything from 1.5, including Delta monitoring, remembered band selection, Listen for bypassed bands, the guided Smart Ops with Learn until Stop, and the reworked Dynamics, Instances and master views. The release notes list everything that changed.

How to use this manual

Start with Your first correction in two minutes, then use the interface overview to locate controls. New to 1.6? Four step-by-step tutorials walk through its features: dynamic EQ from the first click, De-harsh Delta, smart double-click with the Slope control, and full screen with themes. The reference chapters explain what a control does and when to use it. The practical recipes are starting points: thresholds, frequencies and timing depend on the recording. Compare changes in the mix and at similar perceived loudness.

The screenshots show the real Aurora editor with illustrative settings and synthetic audio. They demonstrate the interface rather than a measured result on a particular recording. Colours distinguish bands; a band's number identifies its slot, not a permanent frequency range.

What is on screen, and what is in the host

EQ, per-band dynamics, phase, Character, De-harsh, output, Smart Ops and the Instances list have native controls. Modulation routes, continuous snapshot Morph and manual Unmask role/group setup are available through the host's plugin parameter or automation view. They do not have separate panels in this editor.

This edition covers mono and stereo processing. It does not describe surround, oversampling, custom LFO shapes or per-band spectral suppression, because those are not active user features in this build.

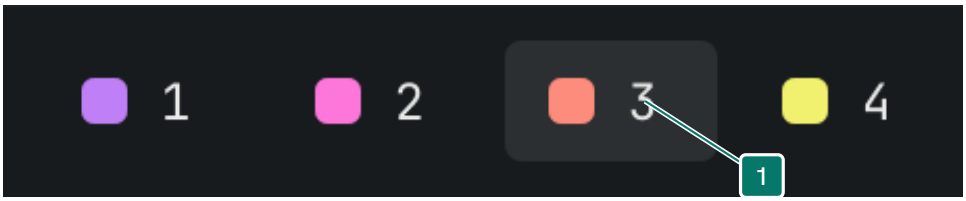
Your first correction in two minutes

Set one gentle cut - 1 of 2

Start from Default on a vocal track. This example uses one gentle bell cut to reduce low-mid muddiness. Use it to learn the controls, then adjust for your own recording.

1 0:00-0:30 | Play a loop and select Band 3

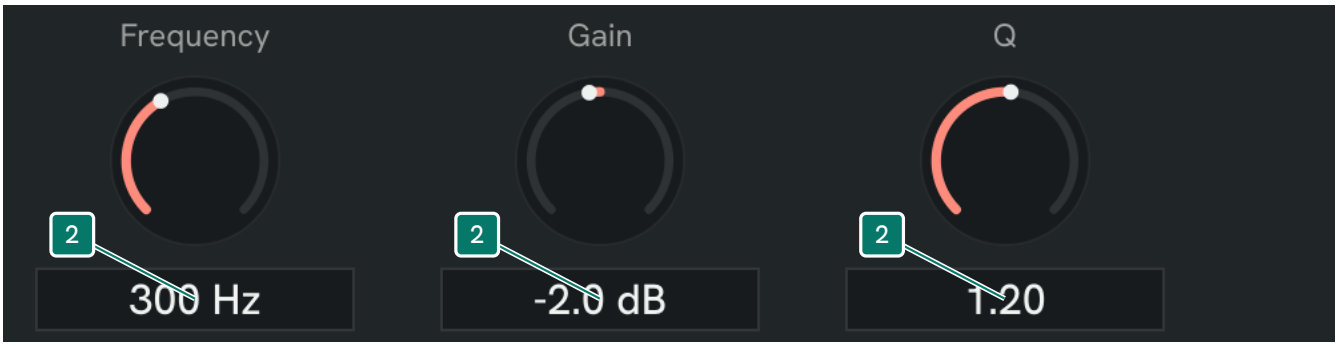
Use a passage that sounds a little muddy. Click tab 3; it starts as a flat bell at 400 Hz.



Tab 3 selects the third band.

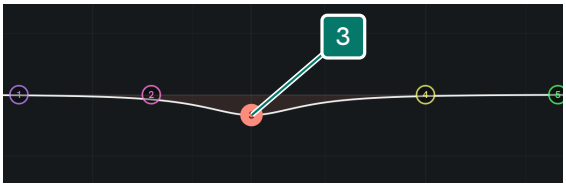
2 0:30-1:00 | Enter one gentle correction

Click the three readouts: Frequency 300 Hz, Gain -2.0 dB, Q 1.20. Press Enter after each value.



3 1:00-1:15 | Listen to the change

The small dip lowers the low-mid region. Listen for less boxiness while keeping the voice full.



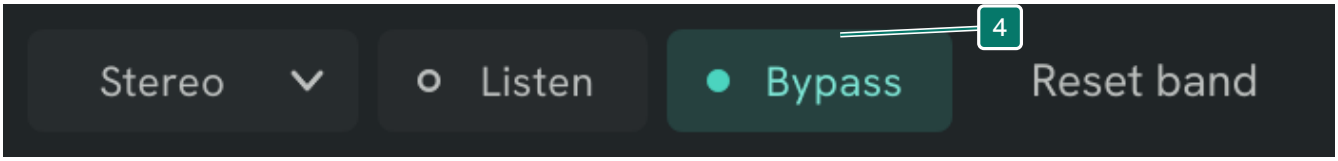
Hz = where you work.
dB = how much you change.
Q = how wide the change is.

Your first correction: compare and keep

The second minute is about deciding whether the change helps. Compare this small cut in the full vocal, not just in an isolated frequency region.

4 1:15-1:35 | Compare just this band

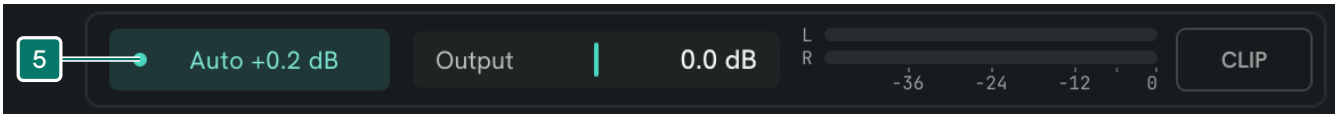
Click the band's Bypass, then click it again. Keep the cut only if the full vocal improves.



The lit Bypass in this picture means the cut is temporarily out of the signal.

5 1:35-1:50 | Check level and headroom

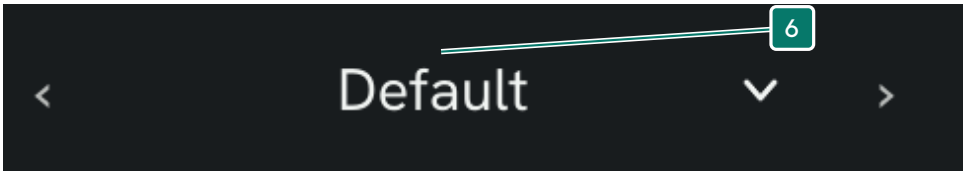
Restore the band. Try Auto gain, then fine-tune Output if one version still sounds louder. Watch CLIP.



Auto gain estimates the static EQ level change; your ears make the final comparison.

6 1:50-2:00 | Keep a useful starting point

Open the preset-name menu and choose Save preset... Give it a useful name, then save your DAW project.



Success sounds like less boxiness with the voice's body intact. If it becomes thin, try -1 dB or undo the change. These are practice settings, not a universal vocal preset.

Installation and host setup

Use the download package for your operating system and follow its included installation instructions. Aurora comes as VST3, AU and CLAP on macOS, VST3 and CLAP on Windows, and VST3, CLAP and LV2 on Linux. Close the host before replacing a plugin, and avoid duplicate copies of the same format in different scan folders.

Platform / format	File	Standard location
Windows VST3	13x Aurora.vst3	C:\Program Files\Common Files\VST3\
Windows CLAP	13x Aurora.clap	C:\Program Files\Common Files\CLAP\
macOS VST3	13x Aurora.vst3	/Library/Audio/Plug-Ins/VST3/
macOS Audio Unit	13x Aurora.component	/Library/Audio/Plug-Ins/Components/
macOS CLAP	13x Aurora.clap	/Library/Audio/Plug-Ins/CLAP/
Linux VST3 / CLAP / LV2	13x Aurora.vst3 / 13x Aurora.clap / 13x-aurora.lv2	~/.vst3/ / ~/.clap/ / ~/.lv2/

Audio and sidechain routing

Insert Aurora where you want the correction in the track's effect chain. Processing earlier in that chain changes what Aurora receives. External dynamic-EQ detection requires a routed auxiliary sidechain input; merely selecting External inside Aurora does not create a send in the DAW. How to route it in each host is described under Let another track trigger the correction.

The standalone build can be useful for checking the interface and audio device setup, but host automation, project routing and plugin delay compensation are DAW functions. Use the plugin in your DAW for those workflows.

Updating: the new file names

Until 1.5.1 the files were named Aurora.vst3, Aurora.component, Aurora.clap and Aurora.lv2 - the same names as iZotope's Aurora reverb, so installing one could replace the other. From 1.6 the files are named 13x Aurora. Hosts still show the plug-in as Aurora by 13x Audio, and projects and presets made with earlier versions open unchanged: every host identifier is the same.

After installing 1.6, remove the old 13x Audio files so your DAW does not list Aurora twice. On Windows, Install Aurora.cmd in the download does this, and on Linux install.sh does; both remove an old file only after checking it is ours, and never touch another vendor's. On macOS, delete the old Aurora.vst3, Aurora.component and Aurora.clap that came from 13x Audio. To tell them apart, check a file's Info.plist (Show Package Contents > Contents): ours names audio.13x.aurora. If it names iZotope or anyone else, leave it alone. When Aurora 1.6 finds an old copy of itself, it shows a one-time notice at the bottom of the window; click it to show the file.

On macOS, equivalent folders under your home Library can be used for a per-user installation. The macOS build targets macOS 11 or later and Intel/Apple silicon. The packaged Linux target is 64-bit x86 with glibc 2.35 or later. Use only a format supported by your host; Audio Unit is the format for Logic Pro.

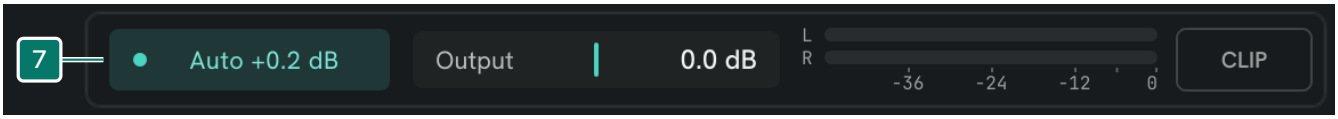
After copying the bundle or running the package's installer, rescan plugins in your DAW and look for Aurora under 13x Audio. Aurora does not require an account or license key for audio processing. The optional update check is separate from the audio engine.

Interface overview

The numbered teal squares are guide markers. Coloured circles in the graph are Aurora's band nodes.



Detail: the master block

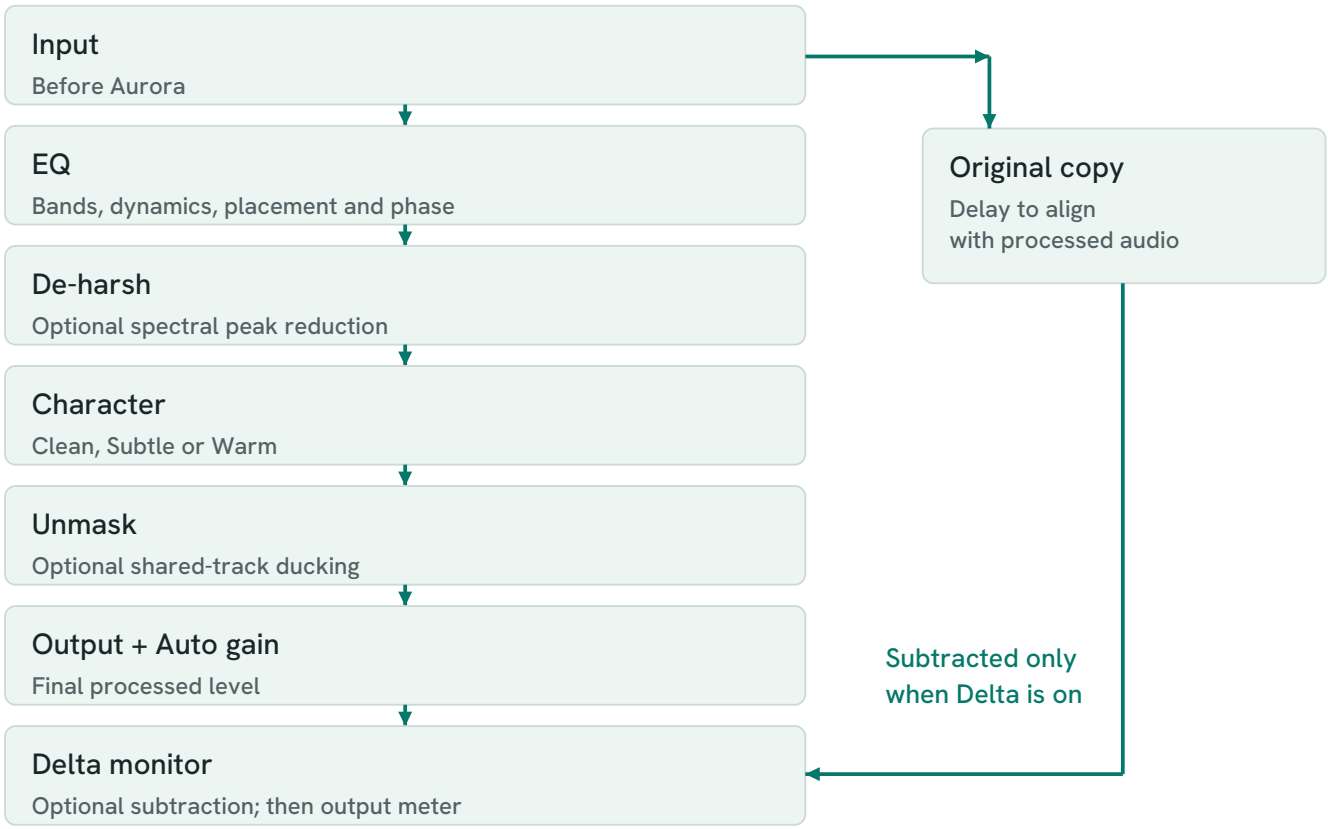


Guide	What to use it for
1 - Toolbar	Presets, Undo/Redo, A/B, phase, Smart Ops and plugin Bypass.
2 - Graph controls	Spectrum, Freeze, Analyzer, Instances, Delta and Full screen.
3 - Graph	See the response; select and move band nodes.
4 - Band rail	Select a band, add one with +, or Clear bands.
5 - Inspector	Edit the selected band's EQ, Dynamics and audition modes.
6 - Global stages	Choose Character and turn De-harsh on or off.
7 - Master block	Compare level with Auto gain, trim Output, watch the meter and CLIP.

Follow the signal

Aurora processes the track in this order. A change earlier in the chain can affect later stages: for example, EQ boosts can drive Character harder.

Main audio path



Bypass and Listen use separate audition paths and take priority over Delta.

Use the order to make a decision

- To change the level driving Character, adjust the signal before it. Turning Output down only trims the result afterward.
- Delta subtracts an aligned copy of the original from the final processed signal. It includes every active stage, not just EQ cuts.
- The spectrum's input trace is taken before processing; the output trace and meter follow the monitored result.

Technical note: EQ latency comes from the chosen phase mode and Lookahead. De-harsh adds its own delay. The original copy is delayed by the corresponding total so Delta compares aligned samples.

Editing bands and precise values

Aurora has 24 band slots. Existing bands are selected from their nodes or numbered tabs. Double-click an empty part of the graph to add a band at that position, or use + to add a default bell. Double-click an existing node to remove it. A temporary restore control appears after deletion; Undo also provides a way back.

Smart band type

A double-click picks the new band's type by where it lands: below 30 Hz a Low Cut (24 dB/oct), from 30 to 150 Hz a Low Shelf, from 150 Hz to 7 kHz a Bell, from 7 to 15 kHz a High Shelf, and from 15 kHz up a High Cut. Shelves and bells take their gain from the height you click at. While the pointer rests on empty graph space, a faint label beside it and the line under the graph name the type a double-click would create. Hold Shift while double-clicking to always get a Bell. To turn this off, untick Smart band type in the gear menu; every double-click then makes a Bell, as in earlier versions. The setting is yours, like the editor size, not part of a project or preset. A band always starts clean: a re-used slot does not keep the slope or dynamics of a band deleted before.

Frequency, Gain and Q - or Slope

Frequency locates the filter, Gain sets boost or cut for gain-bearing shapes, and Q controls width. On a Low Cut or High Cut band the third control is Slope instead of Q: it chooses 6 to 96 dB/oct or Brickwall, the same setting as the mouse wheel over the node and the node's right-click menu, and it is undoable and automatable like every control. Type a slope as 24, 24 dB/oct or Brickwall. Gain only shapes Bell, Low Shelf and High Shelf, and sets the slope of a Tilt; for the other types it is dimmed and reads a dash, because those shapes ignore it. A Tilt has no Q, so its Q reads a dash. The available ranges are 10 Hz-30 kHz, -30 to +30 dB and Q 0.025-40. Usable high frequencies remain limited by the host sample rate; a numerical setting above the available audio bandwidth cannot create new ultrasonic information.

Click a value readout to type. Frequency accepts values such as 750, 1.5k or 1.5 kHz. Decimal comma is also supported. Enter applies the edit and Escape cancels it. Invalid input restores the previous value; changing bands cancels an unfinished entry. Double-click a knob to restore its default.

Scroll over a node to adjust Q. On Low Cut and High Cut nodes, the wheel changes slope instead; Alt or Option with the wheel shapes the cut's knee. Ctrl on Windows, or Cmd on macOS, gives finer wheel adjustment. Right-click a node for filter type, placement, slope (cuts), Dynamic, Bypass band and Remove band. Dynamic switches the band's dynamics on or off, exactly like the switch on the Dynamics page.

Lock, solo, bypass and reset a band

Lock an axis, solo a band

Hold Shift while dragging a node to move it along one axis. The first few pixels decide: sideways changes only the frequency, up or down only the gain, and the other value stays exactly where it was. A thin line with arrows shows the axis. Release Shift to move freely again from where the node is; press it again to choose anew. Nodes without gain (cuts, notch, band-pass, all-pass) keep their frequency when locked up or down. The mini graphs in Compare work the same way.

Press a node with Alt (Option on macOS) or the middle mouse button and hold to solo that band: its region plays while you hold, and the mix returns when you let go. Keep holding and drag to sweep; add Shift to sweep the frequency only. The line under the graph says what a held key does before you click.

Bypass, delete and reset are different

Band Bypass keeps the band and its settings but removes it from processing. Delete frees the slot. Reset band restores that slot's defaults and associated dynamics/modulation/morph settings, keeping the band enabled. Clear bands removes EQ bands while global processing remains set; Character or De-harsh can therefore still affect the sound.

The selected band survives host recreation of the editor, including switching away and back in an FX chain. Selection is remembered per live instance, not promised across a full project reload. If the band no longer exists, the editor chooses the first available band or none.

Filter shapes and slopes

Shape	What it does	Typical use
Bell	Boosts or cuts around a centre frequency.	Body, presence, resonance control.
Low Shelf	Changes the level below a transition region.	Broad low-end balance.
High Shelf	Changes the level above a transition region.	Brightness or air.
Low Cut	Attenuates below the cutoff; also called high-pass.	Rumble or unwanted sub-bass.
High Cut	Attenuates above the cutoff; also called low-pass.	Dull an effect or reduce excess top end.
Notch	Removes a narrow frequency region.	A persistent whistle or tonal interference.
Band Pass	Passes a region and attenuates outside it.	Special effects or restricted bandwidth.
All Pass	Changes phase in the biquad modes while retaining magnitude.	Phase-oriented sound design.
Tilt	A straight slope across the spectrum, 0 dB at the band frequency.	Darker or brighter overall.

All Pass has no magnitude-shaping effect in the Linear Phase magnitude engine. Use ZL or NP when you specifically want its phase response.

Tilt

Tilt tips the whole spectrum around the band frequency: one side gets louder and the other quieter, in a straight line. Gain is the slope, up to 6 dB/oct either way; drag the node up or down to set it. Choose Tilt as the ninth shape in the band editor or from the node's menu. Choosing another shape later brings back the band's earlier type.

Cut slopes and older sessions

Cut slope

Low Cut and High Cut offer 6, 12, 18, 24, 30, 36, 48, 72 and 96 dB/oct plus Brickwall. These slope settings apply to cuts, not to bells and shelves. A steeper cut removes material more abruptly; that does not automatically make it a better choice. Every slope has the Butterworth shape: 3 dB down at the cutoff and flat beyond it.

Set the slope with the Slope control in the band editor, the mouse wheel over the node, or the node's right-click menu; all three change the same setting. In Zero Latency and Natural Phase, Brickwall is a very steep finite filter cascade, not an ideal vertical cutoff. In Linear Phase it uses a hard cutoff in the frequency-bin response. A cut's knee is shaped with Alt or Option and the wheel over its node; Aurora limits it to approximately Q 0.707 so a cut never adds a resonant bump.

Sessions from before 1.7

Projects saved before Aurora 1.7 open with Legacy cut slopes ticked in the gear menu. That instance keeps the earlier design for 18 to 96 dB/oct, which is deeper around the cutoff, so the mix sounds as it did. Untick it to correct that instance's cuts. It is saved with the project; presets do not change it.

Example: keep a vocal's weight

Start a Low Cut around 60-90 Hz with a 12 dB/oct slope. Raise the cutoff until rumble improves, then check low notes. If the voice becomes thin, lower the cutoff or use a gentler slope. The right setting depends on the singer and recording.

Phase modes and latency

Mode	Behaviour	Good starting point
ZL - Zero Latency	Minimum-phase EQ with no base EQ latency.	Tracking, live playing, everyday mixing.
NP - Natural Phase	Minimum-phase EQ with a decramped high-frequency response; no base EQ latency.	High-frequency shaping when you prefer its response.
LP - Linear Phase	FFT-based magnitude processing with 4,096 samples of base latency.	Phase-sensitive parallel work or deliberate linear-phase EQ.

Natural Phase is not linear phase: it still changes phase. Linear Phase keeps the EQ response linear-phase, but downstream Character is nonlinear and dynamic processing still changes over time. Linear-phase filtering can spread transient energy before an event; listen for softened attacks or pre-ringing on steep, low-frequency corrections.

Additional delay

De-harsh adds 2,048 samples. In ZL and NP, Lookahead adds its selected delay, which the Dynamics page shows in samples and milliseconds; in LP, the separate Lookahead setting is not added. The bottom bar shows the current total latency and Aurora reports it to the host for delay compensation.

Configuration at 48 kHz	Samples	Approximate delay
ZL or NP; no Lookahead, no De-harsh	0	0 ms
LP; De-harsh off	4,096	85.3 ms
ZL or NP; De-harsh on, no Lookahead	2,048	42.7 ms
LP with De-harsh	6,144	128.0 ms

These are processing delays, not the total round-trip latency of an audio interface. Avoid changing latency-bearing modes during a critical recording or live passage; the host may need to adjust its compensation. For low-latency monitoring, start with ZL or NP, Lookahead at zero and De-harsh off.

Stereo, Mid/Side and placement

Every band can process Stereo, Left, Right, Mid or Side. Choose the placement in the selected band's inspector or node menu. Stereo affects both channels. Left and Right affect one channel. Mid is the shared centre component; Side is the difference component that carries stereo separation.

The toolbar's Stereo / Mid/Side / Left/Right choice changes the analysis view and the default placement of newly created bands. It does not reroute bands you have already made. A new band defaults to Stereo in Stereo mode, Mid in Mid/Side mode and Left in Left/Right mode. Always check the selected band's own placement.

Example: less low-frequency stereo spread

On a stereo bus, create a Low Cut, set its placement to Side, and start gently around 80-120 Hz. This reduces low-frequency difference information without directly high-passing the Mid component. Compare in stereo and mono; do not remove width simply because a preset suggests it.

Example: centre clarity

Create a broad Mid bell near 2-3 kHz and try a small boost for a centred vocal. Other centred instruments can also change; Mid does not mean a separated vocal stem. A Side shelf can brighten stereo ambience, but it affects all material in the Side component.

On mono material there is no meaningful stereo difference component to process. Mono-Safety may report that no meaningful Side content was found. That is a valid result, not a failure.

> Placement is honoured by both the biquad and Linear Phase EQ paths. Use small moves and check the full mix: aggressive Left/Right corrections can shift the apparent image, while heavy Side cuts can narrow it.

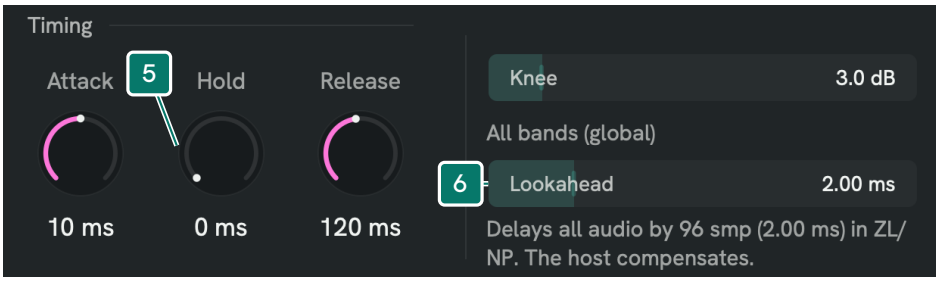
Dynamic EQ: level-dependent correction

Select a band, open Dynamics and switch Dynamic EQ on while the track plays. Start with static Gain at 0 dB and a negative Range for a cut that appears only when the detector triggers. While it is off, the band's values stay readable but locked.

Detail 1: switch it on, choose how it listens, set the level



Detail 2: timing, Knee and the global Lookahead



Lower inspector Dynamics page

Guide	Decision to make
1 - Dynamic EQ	Switch this band's dynamics on or off.
2 - Action / source	Above or Below sets when to react; Peak/RMS chooses detection. Internal uses this track; External uses a routed sidechain.
3 - Detector / Gain change	What the band hears against the Threshold; the live change within the Range, or why it can't act.
4 - Level	Turn Threshold past the level mark on its ring. Range sets the maximum change (negative cuts); Ratio the strength.
5 - Timing	Attack starts the action, Hold delays recovery, Release lets it go.
6 - Knee / Lookahead	Knee softens the start. Lookahead is one setting for all bands: a detector head start in ZL/NP, with the delay it adds.

Use bells or shelves for gain-based dynamic correction. The static Gain remains the base setting. Dynamic Range does not automatically sweep a cut filter's cutoff; use automation or modulation for that.

Dynamic EQ: the first switch-on and the meter

It acts from the first click

Switch Dynamic EQ on while the track plays. If the band's dynamic settings are still at their defaults, Aurora starts the Threshold 6 dB under the loudest level the band heard in the last two seconds and sets Range to -6 dB, so the band acts at once. A note under the meter shows the Threshold it chose, and one Undo takes the switch and both values back. Settings you have changed are never touched, and without signal only the switch changes.

Read the meter

The Detector row shows the level the band's detector hears right now, on a -60 to 0 dB scale, with the Threshold marked in the accent colour and the knee shaded around it. The part of the level past the Threshold is drawn in the band colour: that is what makes the band act. The Threshold knob carries the same information as a short mark outside its ring; turn the knob past the mark and the band starts to act.

When a dynamic band does nothing, the meter says why: "Under the threshold - lower it to the mark" after two seconds below it (in Below mode: raise it), or "No signal at this band" when the detector hears silence there. If the band is switched off, bypassed or no audio is processed, it says that instead.

Dynamic EQ in practice and external sidechain

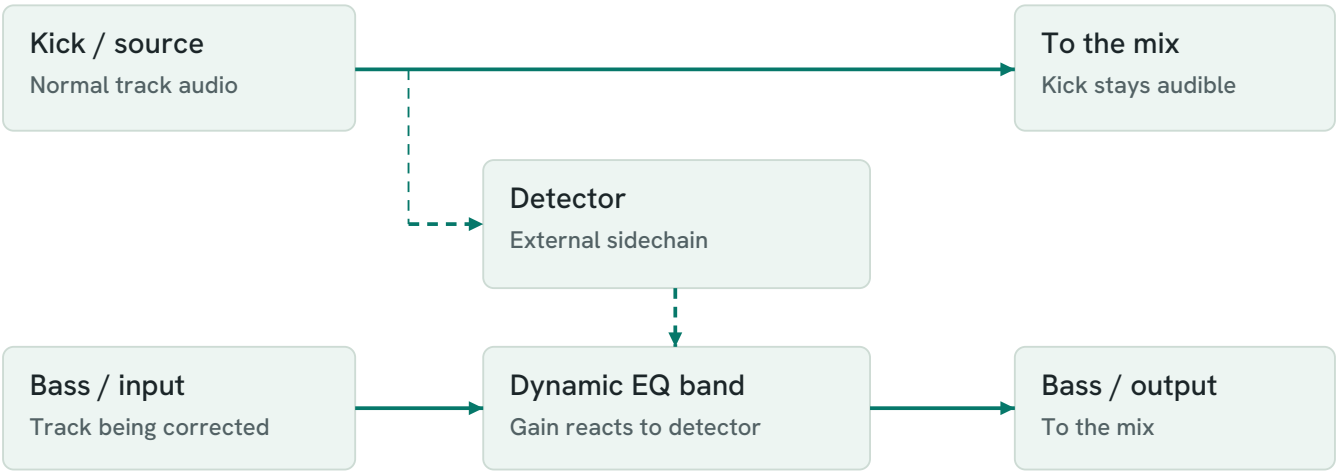
Make a vocal less harsh only when needed

Try a bell around the offending 2-5 kHz region: static Gain 0 dB, Above, Range -3 dB, Ratio 3:1 or 4:1. Start with 5-15 ms Attack, 80-150 ms Release and a modest Knee. Lower Threshold until harsh phrases trigger useful reduction. If ordinary phrases lose definition, reduce Range or narrow the band.

Let another track trigger the correction

A sidechain is a separate detector input. In this example the kick controls a dynamic band on the bass; it is not mixed into the bass output.

Solid = main audio Dashed = detector path; no kick audio is mixed into the bass here.



1. In your DAW, route the kick to the external sidechain input of Aurora on the bass.
2. In the bass instance, choose a bell in the competing region. Enable Dynamics, select External and Above, and choose a negative Range.
3. Play both tracks. Adjust Threshold and timing until the bass makes useful space without losing its sustain.

Routing a sidechain in your host

Routing check: selecting External in Aurora does not create the DAW send. In AU and in VST3 hosts that leave the sidechain bus inactive, Aurora falls back to its internal detector. In CLAP and LV2 the sidechain input is always present, so External with nothing routed hears silence and does not react. Verify the host routing before judging the effect.

Host	How to feed Aurora's sidechain
REAPER (Windows, macOS, Linux; VST3, CLAP, LV2)	Set the bass track to 4 channels and send the kick to its channels 3/4. Step by step: see Sidechain in REAPER, step by step.
Ableton Live (VST3/AU)	In Aurora's device, open the sidechain section and choose the kick track as Audio From.
Logic Pro (AU)	Choose the kick in the Side Chain menu at the top of Aurora's window.
FL Studio (VST3/CLAP)	Route the kick's mixer track to the bass's mixer track with Sidechain to this track, then select that input in the plug-in wrapper's processing settings.
Bitwig Studio (VST3/CLAP, also Linux)	Choose the kick in the sidechain selector of Aurora's device header.
Ardour / Mixbus (LV2 or VST3, Linux)	In Aurora's Pin Connections, add a sidechain input and connect the kick to it. With the LV2 version this works from Aurora 1.6; earlier LV2 builds declared no sidechain.

On Linux, VST3 and CLAP behave as on Windows and macOS (tested in REAPER 7.81 and reported working in Bitwig 6). Aurora 1.6 fixes the LV2 version, which did not declare its sidechain to the host (so Ardour offered none) and could crash when a host left the sidechain unconnected.

Technical note - Lookahead: the global 0-10 ms setting is saved but not automatable. ZL/NP delay audio by up to 2,047 samples, limiting the maximum at very high sample rates. LP uses its own latency path.

Sidechain in REAPER, step by step

REAPER has no sidechain menu. A track carries up to 64 channels, and Aurora's sidechain inputs are simply its input pins 3 and 4. By default REAPER feeds pin 3 from track channel 3 and pin 4 from channel 4. So the kick has to arrive on channels 3/4 of the bass track, and the bass track needs those channels.

1. Insert Aurora on the bass track.
2. Give the bass track 4 channels. In Aurora's FX window, click the button labelled 4 in 2 out (top right, the plug-in pin connector) and set Track channels to 4. The bass track's Routing window has the same setting.
3. On the kick track, click ROUTE and add a send to the bass track. In the send's audio channels, keep the source at 1/2 and set the destination to 3/4. The kick still reaches the master through its own track; the send only feeds Aurora's detector.
4. In Aurora, select the band, open Dynamics, switch Dynamic EQ on and set the source from Internal to External.
5. Optional check: the pin connector shows Sidechain L at Track Channel 3 and Sidechain R at Track Channel 4. In CLAP the pins are called Sidechain 1/2. In LV2 they are called Sidechain L/R from Aurora 1.6 and Audio In 3/4 before.

What you hear	Cause	Fix
VST3: the band reduces all the time, not with the kick	The bass track has only 2 channels, so the send to 3/4 goes nowhere. REAPER leaves the sidechain off and Aurora listens to the bass itself.	Set Track channels to 4 (step 2).
CLAP or LV2: the band never reacts	Same cause; these formats then hear silence.	Set Track channels to 4 (step 2).
The kick is sent to 5/6 and nothing happens	Pins 3/4 still read channels 3/4.	Send to 3/4, or set 6 channels and, in the pin connector, move Sidechain L to Track Channel 5 and Sidechain R to 6.

Tested in REAPER 7.81 on Linux with VST3, CLAP and LV2. REAPER's routing and pin connector work the same way on Windows and macOS.

Character and spectral De-harsh

Character

Clean bypasses the Character stage. Subtle adds restrained, level-dependent even and odd harmonics; Warm uses a stronger asymmetric voice. Both coloured modes include DC blocking. They are designed voices, not measured emulations of a named circuit, and they are not oversampled.

Character follows EQ and De-harsh. Its effect therefore depends on the level arriving from those stages. Output is downstream: turning Output down does not reduce the level driving Character. If you want less harmonic effect, change the voice or reduce the level entering the plugin.

Example: on a bass track, compare Clean with Subtle during a consistent phrase. If you want a more audible harmonic change, try Warm, then match the output level before deciding. Avoid assuming a louder or brighter result is necessarily more detailed.

De-harsh

The De-harsh section is a whole-signal spectral dynamics stage. It looks for narrow peaks above their local spectral surroundings and reduces them. It is not the same as a manually placed dynamic bell, and it is not a separate per-band spectral mode.

Turn it on with its own switch. Amount sets the strength; Attack and Release set its response timing. While De-harsh is off they show their values but cannot be changed. It adds 2,048 samples of latency even when the chosen phase mode is ZL or NP.

Example: for a brittle cymbal or aggressive synth, start with a low Amount, roughly 10-25%, and the default 5 ms Attack / 80 ms Release. Increase only until the sharpest peaks become less distracting. Listen for lost texture, softened attacks or unwanted changes to stable musical tones.

For a single repeatable problem frequency, a dynamic bell may offer more control. For many moving peaks, De-harsh may be a useful alternative. You can combine them, but compare each stage separately.

Hear what De-harsh removes

Click Delta beside De-harsh's Amount to hear only what De-harsh takes out: its input, aligned to its latency, minus its output, at its true level. Nothing after De-harsh (Character, Unmask, Output, Auto gain) is applied to it. Raise Amount until the removed signal holds only the harshness you want gone; when it starts to carry the melody or the attack of a sound, back off.

De-harsh Delta is a listening aid, like Delta and Listen: it is never saved and never automated. It ends when you close or hide Aurora's window, when playback stops, when you switch De-harsh off or bypass the plug-in, and when a preset or session is loaded. Switching fades over 10 ms, and the chain keeps running underneath.

Output, Auto gain and reliable comparison

The Output control provides -24 to +24 dB after EQ, De-harsh, Character and Unmask processing. Auto gain adds its calculated compensation on top of that setting. Delta, when enabled, is applied after these gains.

What Auto gain actually does

Auto gain estimates the loudness change from the static EQ response and applies an opposing trim, limited to +/-18 dB. It uses a model based on pink noise and a perceptual weighting approximation. It does not continuously measure your recording and chase its level, so it does not pump with the music.

This is an aid to comparison, not an exact loudness guarantee. The estimate does not fully compensate signal-dependent changes from dynamics, Character, De-harsh, Unmask, modulation or snapshot Morph. Actual material can also differ from the model. Fine-tune Output by ear when a critical comparison still sounds louder on one side.

Three comparison tools

- Band Bypass: hear what a single band contributes while keeping its settings.
- Plugin Bypass: compare against the latency-aligned original; the wet output trim is not applied to this dry path.
- A/B: compare two independent sets of processing settings. The lit slot receives edits. Copy duplicates the current slot into the other slot before you experiment.

Meter and clipping

The L/R meter shows output peaks from -48 to 0 dBFS; its small tick holds the recent peak. CLIP stays neutral until an output peak reaches 0 dBFS. It then turns red and shows the highest peak since, for example +0.8 dB, until you click it. Reduce Output if the next stage overloads, but remember that downstream trim cannot undo clipping that already happened before Aurora.

When more than one Aurora runs, the master block starts with the instance's name, so you always see whose Output and Auto gain you adjust.

Auto gain is separate from Smart Ops Trim loudness. The latter performs a short measurement and writes a fixed Output adjustment. Neither is a replacement for a dedicated loudness meter when you need a delivery-standard measurement.

Spectrum, Freeze and analyzer settings

Spectrum controls the live display. The dim input trace gives a pre-EQ reference behind the output analysis. The white response curve describes EQ gain; the spectrum describes audio energy. They answer different questions and should not be read as the same scale.

The spectrum uses a Blackman-Harris FFT window and a +4.5 dB/oct visual tilt. That tilt changes the display, not the audio. A narrow sine or resonance can appear wider at low frequency precision, and its peak height depends on the analysis and display settings. Use the shape and movement as evidence, then listen.

Update speed and Frequency precision

Open Analyzer to adjust its two controls. Slower Update speed makes a steadier display; faster settings follow events more closely. Frequency precision changes FFT size and visual smoothing:

Setting	Choose it when you want...
Low	A broad, calm overview of the spectrum.
Medium	Moderate frequency detail for general work.
High	Finer smoothing without a longer base analysis window.
Very high	More detail in low-frequency peaks.
Max	The finest available display smoothing.

Technical note: Low uses 2,048 samples; Medium/High use 4,096; Very high/Max use 8,192 at ordinary rates. Sizes double from 88.2 kHz and increase again from 176.4 kHz, capped at 16,384. A longer analysis window trades immediacy for detail; it does not change EQ audio quality. Analyzer preferences are remembered independently.

Freeze and channel views

Freeze holds the displayed spectrum for inspection while audio processing continues. Turn it off to resume the live view. The global channel selector changes how the display represents stereo, Mid/Side or Left/Right content. Instance overlays can add context from other Aurora instances.

Hover near the output spectrum to temporarily freeze it and reveal a frequency/note readout. Move away to release hover-freeze. While hovering on the frozen spectrum, click to create a band at that frequency and drag to shape it. Manual Freeze remains independent.

Example: freeze a sustained bass note, inspect its fundamental and harmonics, then unfreeze before judging a dynamic correction over a full phrase.

Full screen and themes

Full-screen spectrum

Click Full screen, next to Delta, to open the spectrum and EQ curve in a window that fills the screen Aurora is on. Everything works there as in the plug-in window: drag nodes, scroll for Q or slope, right-click for the menu, double-click to add or remove. Nodes and labels keep their size; the extra space goes to the plot. The bar at the top has Spectrum, Freeze and Exit full screen. Press Esc, click Exit full screen or close the window to bring the spectrum back. While it is out, the plug-in window says where it went. Move the window to another screen with its title bar if you like.

Themes

Gear menu > Theme chooses Aurora's colours: Graphite (the default), Midnight (blue), Ember (amber) or Studio Light (light surfaces). The choice changes every open Aurora window at once and is yours, like the editor size: it is not saved in projects or presets and does not affect the sound. Band colours stay in the same order in every theme; Studio Light shows them a little darker so they read on white.

Delta and Listen: two audition tools

Hear the processing difference

Delta lets you hear the difference between Aurora's processed output and the original. Click Delta beside Instances to engage it. The original is delayed to align with the EQ, Lookahead and De-harsh latency before it is subtracted.

Delta = processed output - latency-aligned original.

This includes EQ, phase changes in minimum-phase modes, dynamics, De-harsh, Character, Unmask and Output/Auto gain. It is not exclusively the sound being removed. A boost, saturation or a simple output-level change also produces a difference signal. With an identity chain and unity output, the difference is silence.

Example: set up a small dynamic cut on a resonant vocal phrase. Engage Delta to hear when and where Aurora differs from the original. Turn Delta off and confirm that the full vocal still sounds natural. A residual containing some musical tone does not by itself prove overprocessing; phase and gain changes also contribute.

Listen

Select a band and use Listen to hear a focused band-pass region around its frequency, until you click Listen again. For a quick check, hold the node with Alt/Option or the middle button instead (see Lock an axis, solo a band); with Listen on, the held band plays while you hold, then Listen continues on its band. Switching fades over 10 ms, and the normal chain, dynamics included, keeps running underneath, so the full output returns exactly as it would have been. Listen remains available when that band's Bypass is on and follows its current Frequency and Q. It is not the same as soloing that band's exact gain contribution.

In the gear menu, Band solo sets what Alt/Option- or middle-clicking a node does: Momentary (the default) plays while you hold; Latching turns Listen on and off with each click, as in Aurora 1.5. The setting is yours, like the editor size, not part of a project or preset.

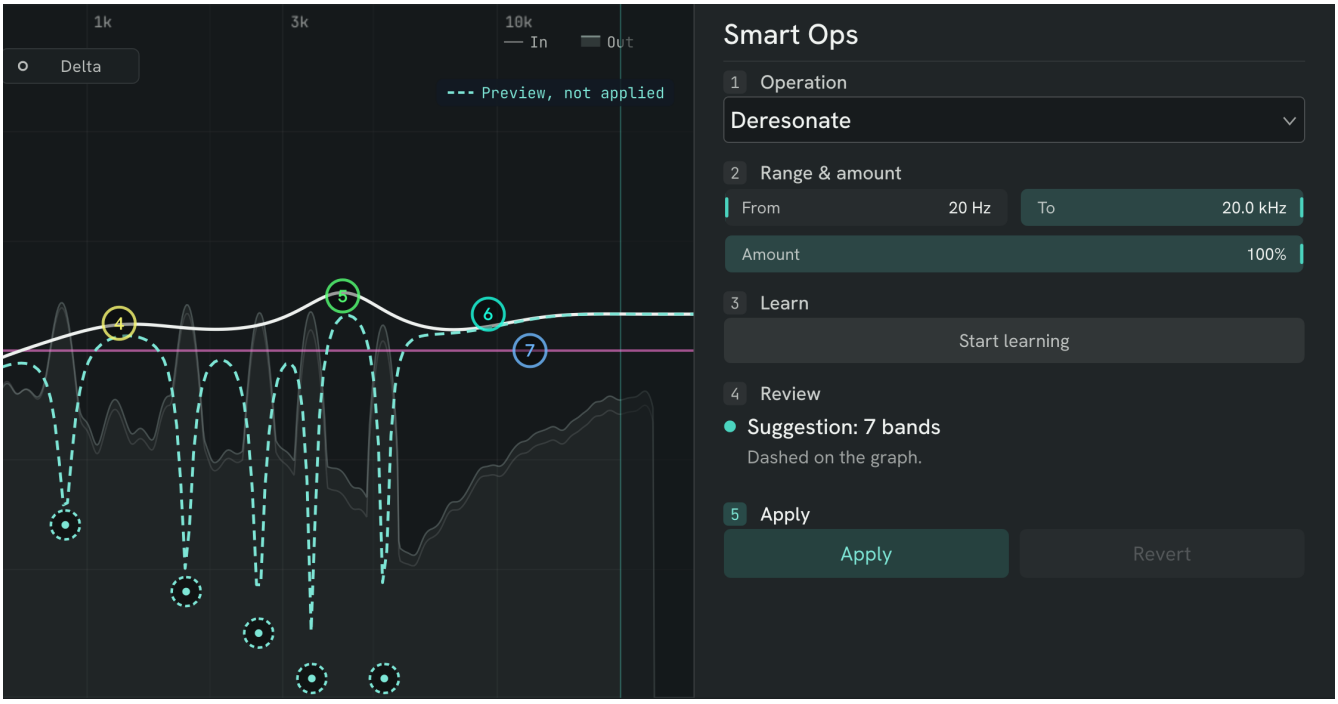
Priority and recall

Whole-plugin Bypass and band Listen take priority over Delta and De-harsh Delta, and De-harsh Delta takes priority over Delta. With both Deltas on you hear De-harsh Delta; Delta stays selected but dimmed, and you hear it again when De-harsh Delta ends. Delta is temporarily unavailable in those modes and resumes if it was selected when they end. Delta transitions are smoothed over 20 ms, Listen transitions over 10 ms.

Delta is not automated or saved in presets/sessions. It remains selected when this live instance's editor is closed and reopened; a new instance starts with Delta off. Listen is cleared when the editor closes. A held solo also ends when you let go, when the host transport stops, and when Aurora's window is hidden or the host moves to the background: nothing stays soloed. Before exporting or judging a final mix, return to normal monitoring so you hear the intended full output.

Smart Ops: learn, apply, refine

Smart Ops suggests EQ moves from a passage you play and creates ordinary bands you can edit. Its steps are numbered top to bottom; nothing changes until you click Apply.



1 Operation

What to look for. Start with Deresonate for persistent resonances.

2 Range & amount

From/To limit the region; Amount sets the strength. The step says when one is not used.

3 Learn

Start learning, play the passage, then Stop (or stop playback). Pauses don't count; at least 2 s.

4 Review

One headline and one line: where things stand and what to do next. The graph shows it dashed.

5 Apply

Writes the suggestion as one Undo step; dashed grey then shows the EQ before.

Revert

Takes back what Smart Ops changed and you have not touched. Tooltips say why a button is off.

First attempt: tame a persistent resonance

Choose Deresonate, restrict From/To to the problem region and start with a moderate Amount. Click Start learning, play a few phrases (5-10 s), then Stop. Compare the dashed preview with the current curve, Apply and listen. If a wanted tone is reduced, soften or remove that band.

> Learn listens until you click Stop or stop playback, and needs at least 2 s; pauses don't count. Once the status says the spectrum has settled, more listening changes little. Match and Starting point like a whole section (15-30 s), De-Ess a passage with several S sounds, Auto HP/LP the lowest and highest notes. 'Nothing to change' can be a valid result.

Smart Ops reference

Operation	Result and useful context
Auto HP/LP	Proposes low/high cuts from the learned bandwidth. Amount is available; From/To are not used. Check bass weight and air after applying.
Starting point	Proposes a broad starting EQ within From/To. Amount is not used. Treat it as a draft, then refine it.
Deresonate	Proposes static cuts for detected resonant regions. Useful for persistent tonal build-up.
Deresonate (dyn)	Proposes dynamic corrections so resonant regions can react to level. Recheck their thresholds on the real passage.
Match	Fits editable static EQ toward the selected spectral reference within From/To. Amount controls the extent.
Match (dyn)	Uses a reference to propose dynamic matching corrections. It is not a continuously self-updating match to a song.
Morph deresonate	Learns two sections and prepares two correction states for continuous snapshot Morph. Requires Learn B too.
Auto-Pocket	Sets up Duck behaviour against a suitable Send instance. Source role setup is in the host's parameter view.
De-Ess	Proposes corrections aimed at sibilant content. Amount is available; From/To are not used. Listen for dull consonants or a lisp.
Mono-Safety	Proposes Side low-frequency/resonance corrections. Needs meaningful Side content; compare in mono as well as stereo.
Trim loudness	Measures a short pre/post spectral-power comparison and writes Output trim. Keep audio playing.

Several operations can propose up to eight bands, subject to free slots. Smart Ops is not a promise to use every slot or to find a problem in every signal. The Review headline and the actual created bands are the record of what happened.

Apply, Revert and Undo

Apply writes the suggestion as one Undo step. Applying the same operation again replaces its previous result; bands you edited since stay as they are. Revert takes back what Smart Ops changed and you have not touched: a band you edited stays whole, and nothing else you changed is written. Once you change anything after Apply, the status reads Modified after Apply, the button Revert Smart Ops, and the graph shows what Revert would leave. Restore before Apply… puts back the exact earlier state, but first lists every change it would discard: choose Keep changes or Discard and restore. Revert and the restore are each one Undo step, so Undo brings back what they replaced. The status first confirms what happened, for example Smart Ops reverted: Your edit to band 14 was kept.

Reference matching, Morph and loudness trim

Match a related reference

Choose Match or Match (dyn), then Pink noise, Load file... or an available learned Aurora instance. The file chooser accepts WAV, AIF/AIFF and FLAC. Wait for analysis, Learn the target, choose a sensible From/To range and begin with moderate Amount. Inspect the result: matching tone does not clone performance, arrangement or dynamics.

Morph between two learned corrections

Select Morph deresonate. Learn A while the first section plays and Learn B while the second plays, stopping each when its section is through. Apply while audio keeps playing, then wait for the ready message. Open the host's Morph parameter to move between the prepared corrections.

Host parameter: Morph (0 to 1)

For Morph deresonate, use the highlighted first third.



0 = first correction. 1/3 = second correction. Between them, the prepared settings blend.

The toolbar's A/B buttons switch between two alternative settings sets. The Morph parameter blends prepared frequency/gain/Q snapshots. They are different controls: use Morph from 0 to 1/3 for this two-section operation.

Trim loudness

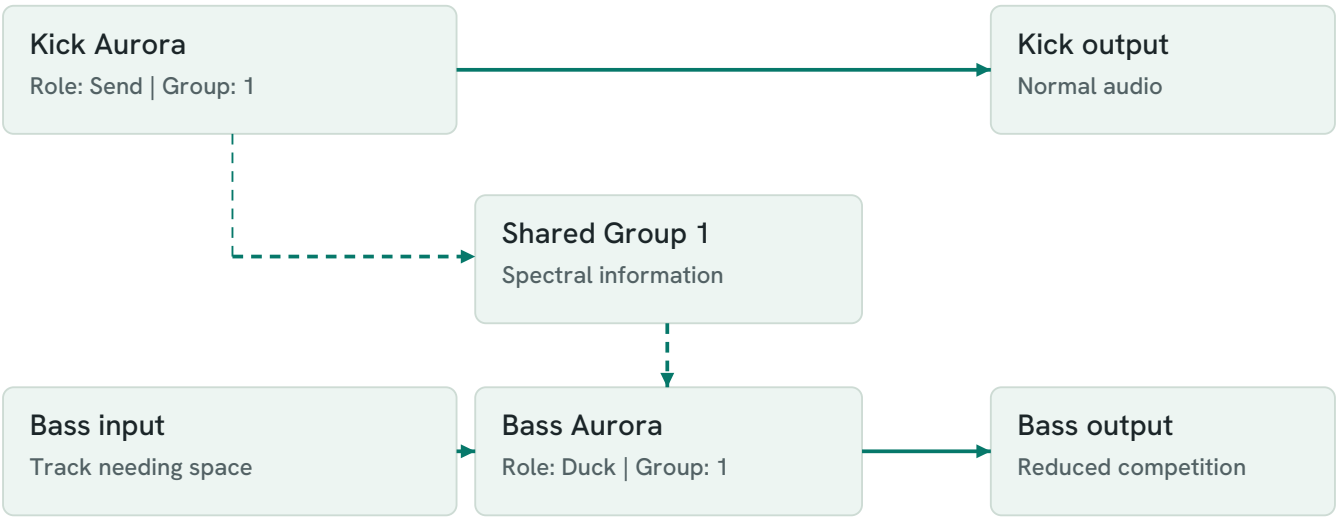
After a valid Learn, choose Trim loudness and Apply while audio plays. It makes a short measurement and writes a fixed Output adjustment. Keep normal monitoring active when measuring.

> Technical note: static Match's Match loudness option applies an approximate Output correction; Match (dyn) does not apply that correction. Trim loudness measures roughly one second of spectral power, not integrated LUFS or true peak. Morph's remaining two snapshot positions are copies of the first learned correction.

Auto-Pocket and manual Unmask

Unmask helps tracks make room for each other. Unlike external sidechain routing, it shares spectral information directly between Aurora instances. Audio stays on its original track.

Audio stays on its own track. The dashed path shares analysis, not a DAW audio send.



Example: kick and bass

1. Put Aurora on both tracks. In the kick's host parameter view, set Unmask Role to Send and Group to 1.
2. Play both tracks. In the bass instance, choose Auto-Pocket, learn a few seconds and Apply. It chooses a suitable Send and sets the bass to Duck in that group.
3. If the bass loses too much body, reduce Unmask Amount. Adjust Unmask Attack and Release in the host to change the timing.
4. To stop ducking, set Role to Off, or Revert the tracked Smart Ops operation.

For manual setup, set Send on the source and Duck on the destination, with the same group (1-8). Keep only intended sources in that group; more than one Send can contribute. Start with a low Amount.

> Technical note: instances must share the same plugin process for discovery. Per-plugin bridging or sandboxing can separate them even inside one DAW project. The engine adds no declared latency; Amount ranges from 0-100%, with a maximum reduction scale of 18 dB at full amount.

Auto-Pocket or sidechain

Which one fits

Auto-Pocket does not use the DAW's sidechain input. It reacts across 16 fixed bands from 40 Hz to 16 kHz with a built-in threshold. You cannot choose its frequency range or threshold. Unmask Role, Group, Amount, Attack and Release are host parameters only; the Aurora window shows the live carve on a Duck instance's curve but has no controls for them.

To cut a chosen range on track A only when the same range on track B passes a threshold you set, use a dynamic band with External detection. Its detector listens around the band's own frequency. Routing for each host: see Routing a sidechain in your host.

In Logic Pro

Logic's host parameter view is View: Controls in the plugin window header; switch back with View: Editor.

Auto-Pocket:

1. Insert Aurora on both tracks. On track B (the one that should win), choose View: Controls and set Unmask Role to Send and Unmask Group to 1. Switch back to View: Editor.
2. On track A, open Smart Ops, choose Auto-Pocket, Start learning while both tracks play, Stop after a few seconds and Apply. Leave Logic's Side Chain menu at None; Auto-Pocket does not use it.
3. Fine-tune Unmask Amount, Attack and Release in track A's View: Controls.

Range and threshold of your choice (sidechain):

1. On track A, in the Aurora plugin window header, open the Side Chain menu and choose track B (or a bus carrying it).
2. Add a bell at the range to cut and set its Q to the width. Leave static Gain at 0 dB.
3. While both tracks play, open Dynamics and switch Dynamic EQ on, then choose Above and External. Keep Range negative, for example -6 dB.
4. The Detector row now shows track B's level in that range. Turn Threshold just under its peaks, then adjust Attack and Release to taste.

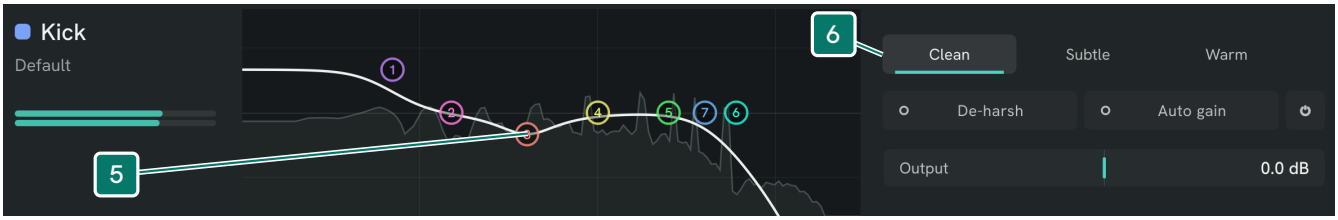
The Threshold set at switch-on comes from track A, because External can only be chosen once dynamics are on. Reset it from the meter after choosing External.

Instances: edit and compare

Instances lists every Aurora in the project. Click a row to edit that instance in this window; Compare shows all of them side by side.



Detail: Compare shows every instance as a strip



Guide	What changes when you use it
1 - Instances	Opens or closes the list; it shares the dock with Smart Ops.
2 - Editing banner	Names the instance you edit here; click it to go back.
3 - Eye	Keeps its curve on the graph; pointing at a row shows it for a moment.
4 - Edited row	Editing here: the one you edit. This plugin: this window's own.
5 - Compare strip	Drag nodes to edit that track's EQ; wheel changes Q or slope.
6 - Strip controls	Change its Character, De-harsh, Auto gain, Bypass or Output.

While you edit another instance, its name is on the preset, the bypass (Bass · Bypassed while it is on) and the master block. Curves and Spectra under the list switch what other instances draw. Double-click a name to rename it. Missing instances: see Auto-Pocket and manual Unmask.

Presets, Undo, A/B and reset

Click the current preset name to open the library. Factory presets are grouped by use, including drums, bass, vocals, instruments, mix bus, mastering, utility, creative and Auto-Pocket settings. Previous/next arrows step through the available list. Presets are examples, not source-aware recommendations.

Choose Save preset... to save a user setting. Open presets folder takes you to the actual folder for your system; you can organise user presets into subfolders. Keep copies of presets you want to share or migrate. Saving the DAW project remains the normal way to recall all plugin instances and routing together.

Undo and Redo

The toolbar history buttons reverse or restore plugin edits. Cmd/Ctrl+Z is Undo; Cmd/Ctrl+Shift+Z is Redo when the editor receives the shortcut. Some hosts intercept keyboard commands; use the buttons if that happens. Aurora's local edit history and the DAW's own undo stack are not necessarily the same history.

Compare two alternatives

Work in A, use Copy to duplicate it to B, then select B and make an alternative. Toggle A and B to compare. Edits go to the lit slot; Copy overwrites the other comparison slot with the current one. These are separate from the four snapshot states used by continuous Morph.

Reset deliberately

Reset band affects the selected band and related settings. Clear bands removes all EQ bands but leaves globals such as Character and De-harsh. Reset all parameters, in the preset menu, returns the whole plugin to its initial processing state. Use Undo if a reset was not what you intended.

Transient controls have different lifetimes: Delta and selected-band memory belong to the live instance, Listen clears on editor close, and scale/analyzer preferences are UI preferences. So is the view a new window opens in: a preset cannot store it, so choose Graph, Instances list or Compare under Open Aurora in in the gear menu. Do not assume every control is an automatable, preset-saved parameter.

Advanced host parameters and modulation

Use the host's generic parameter view or automation lanes for the controls below. They are active engine features, but this editor has no dedicated modulation or four-snapshot programming panel.

Sources and routes

Two LFOs each offer Sine, Triangle, Saw, Square and Ramp, free rates from 0.01-40 Hz, and tempo sync. Divisions include 4 bars, 2 bars, 1 bar, 1/2, 1/4, 1/8, 1/16, 1/32, 1/4T and 1/8T. Two envelope followers have Attack and Release. Two macros range from 0 to 1.

There are six modulation routes. For each route choose Source, Band, Param and Depth. Destinations are Freq, Gain, Q, Morph and Output. Morph and Output are global, so their routes ignore Band. A route set to None contributes nothing.

At full depth and full source value, Gain/Output modulation reaches 24 dB, and Frequency/Q modulation spans two octaves. Depth ranges from -1 to +1; LFOs are bipolar, while envelopes/macros are unipolar. Several routes can sum, so begin with small depth.

Example: subtle motion on a synth

Create a broad bell, choose LFO 1 as a route source, choose that band and Gain as destination, and start with Depth 0.05. At full bipolar LFO excursion this is about +/-1.2 dB. Set a slow free rate or a synced division and compare against a static setting. Keep the movement subordinate to the arrangement.

Automation and state

Most processing parameters can be automated, including band settings, Output, Auto gain, Character and the modulation controls. Lookahead is deliberately non-automatable because it affects latency. Phase and De-harsh changes can also affect latency; avoid abrupt mode changes during a critical pass.

Morph interpolates stored frequency/gain/Q snapshots. The supported on-screen path for preparing a two-section Morph is Smart Ops Morph deresonate. Do not confuse host parameters for engine access with missing controls that are expected to appear in the main editor.

Musical intelligence: what Aurora hears

Aurora 1.7 listens to the track it is on, and to its sidechain input if you route one: the key, the chord that is playing, the tuning, the bass line, the lead melody, the kick and the snare, the voice's formants and sibilance. Everything that uses this is off until you switch it on. With every 1.7 feature off, Aurora sounds like 1.6.1, with a quieter low end.

The song chip

The chip at the top right of the graph shows what Aurora hears: for example "E minor · Am7 · A4 438.2 Hz". "Key ?" means it is still listening; most material needs a second or two. Click the chip for the song settings:

- Harmony from: this track, the sidechain input, or Manual. Manual uses a chord you choose in the same menu (root and quality); both are automatable, so you can draw a progression in your host.
- Detect the key, or set a key and one of nine scales yourself.
- Tuning reference (A4 415–466 Hz) and Detect the tuning for recordings that are not at 440 Hz. Capture copies what Aurora detected into the manual settings.
- Musical Lookahead, the Key-lock call-out and the Bass tools call-out.

The keyboard strip

While a 1.7 feature is on, a strip along the bottom of the graph shows the key's notes, the chord tones (the root marked with a dot), the bass note (outlined) and the Cleaner's cuts (red), on the tuning in use.

Anchors: bands that follow the music

Select a band and open its Music page. Anchor chooses what the band follows:

- Hz: a fixed frequency, as in 1.6.
- Note: the nearest note of the tuning.
- Chord: a tone of the chord that is playing: Root, 3rd, 5th, 7th, 9th, 11th, 13th or Bass. Scale: a degree (1–7) of the key.
- Source: a sound itself: the Kick's tail, the Bass, the Snare's body, the vocal formants F1, F2 or F3, Sibilance, the Lead melody, or the strongest Peak within half an octave. Main or Sidechain says where it is heard.
- Harmonic: N times the pitch of the kick, bass, snare or lead (×2 to ×16).

For Note, Chord and Scale the band's own frequency is its home: the band stays within half an octave of it, so a root cut at 180 Hz follows the root between about C3 and B3 and never jumps an octave. Offset moves the target in semitones and cents, Glide sets how long the band takes to move, Confidence how sure the analysis must be.

When the analysis is not sure

A band below its Confidence holds its last target. A band that has not heard its source yet waits at home with its gain at 0 dB. A 7th band on a plain triad rests at 0 dB until a chord with a 7th comes. Freeze target keeps the band where it is until you release it. The Music page says what the band is doing in one sentence, and for Source bands shows a confidence meter with the threshold marked.

Musical Lookahead and Click to Follow

Musical Lookahead

Aurora needs a moment to recognise a chord or a note. The Musical Lookahead (song chip, 25 to 400 ms) delays the audio by that much, so changes land exactly on the beat. It is reported to your host as latency. Good starting points: 50–100 ms for bass or vocal following, 100 ms for Kick-Bass Lock, 200 ms for chords.

Click to Follow

Play the track for a second, then right-click a sound on the graph (Ctrl-click on a Mac). "Follow this sound" names what Aurora recognised, for example "Bass, harmonic 2 · 110 Hz", and creates a band that follows it: a gentle boost on a pitched sound, a cut on a resonance or a hit. Follow as lets you choose the source yourself. One undo removes the band again. A click on something that is none of the built-in sources creates a Peak band on the nearest steady resonance.

Key-lock: Chroma EQ, Cleaner and microtonal tuning

Song chip → Key-lock.

Chroma EQ

Twelve sliders, one per note name. Boosting C lifts every C in the range (65 Hz–5 kHz by default) at once, with no latency. Width sets how narrow each bell is. In Key Relative mode the sliders are the steps of the song's key (1, □2, 2 …), so the shape follows a key change; until a key is known they stay flat. Overlapping bells are compensated, so a slider's value is what its notes get. A red dot on a slider means it would need more than ±18 dB. Boosting a note also lifts other notes' overtones at that pitch, and bells below about 115 Hz are wider.

Out-of-Key Cleaner

Up to six steep cuts that find steady resonances on notes outside the key (Key mode) or outside the chord (Chord mode) and duck them while they ring. Notes of the key, the chord tones and the lead are never cut. Amount sets how deep (100 % = 18 dB), Sharpness how narrow, Speed how fast, Sensitivity how far a resonance must stand out. Delta plays only what it removes. The panel shows what it is cutting and which notes are protected.

Microtonal tuning and Scala

Microtonal detunes each note name by up to ±50 cents; anchors, Chroma EQ and the Cleaner follow it. Import Scala… reads a 12-note .scl file onto the root you choose, in one undo step.

Bass tools: Per-Note Leveler and Kick-Bass Lock

Song chip → Bass tools.

Per-Note Leveler

Every 808 or bass note at the same perceived loudness. Low Band levels with a shelf that follows each note and leaves the mids; Broadband levels the whole signal (for isolated 808 tracks). Weighting chooses how loudness is heard: Studio or Club (the ear at 75 or 90 phon), Small Speakers or K-weighting. Range limits it to the notes you want. The Leveler learns each note: from its second time on, the correction is there from the first moment.

Kick-Bass Lock

Route the kick to Aurora's sidechain input (chapter "Routing a sidechain in your host"). On every hit the bass ducks at that kick's own frequency, by Depth, for Attack + Hold + Release. Width is the cut's Q, 2nd harmonic adds a second cut at twice the frequency. Without a sidechain kick it does nothing. A Musical Lookahead of 100 ms lets each cut start with its kick at its own frequency.

Musical presets

The Musical folder of the preset menu holds six starting points: 808 Leveler, Kick-Bass Lock, Vocal Presence (Formant), In-Tune Cleaner, Warm 3rds and Root Mud Cut. Loading a preset never changes the song settings (key, harmony source, tuning, lookahead).

Tutorial: tame one boomy note with dynamic EQ

A bass line is fine except for one or two notes that boom. A static cut would thin out every note; a dynamic bell cuts only when that region gets loud. Values are starting points for this example.

1. Loop the passage and play it. Hold Shift and double-click the graph where the boom sits (often 60-150 Hz). Shift always creates a Bell; without it, a double-click in the lows creates a Low Shelf.
2. Make the band narrow: scroll over the node to a Q of about 3. Hold Alt/Option on the node to solo it and move it until the boomy note jumps out, then release.
3. Open Dynamics and switch Dynamic EQ on while the loop plays (or right-click the node and tick Dynamic). Aurora sets the Threshold 6 dB under what the band just heard and Range to -6 dB; the note under the meter names the Threshold.
4. Watch the Detector row: only the boomy notes should pass the Threshold mark. If ordinary notes cross it too, raise the Threshold; if the boom stays under it, lower the Threshold to the mark.
5. Set Range to the largest cut you want (about -3 to -6 dB), Attack around 15-30 ms and Release around 100-200 ms. Gain change shows each cut as it happens.
6. Compare with the band's Bypass. One Undo takes back the starting values together with the switch.

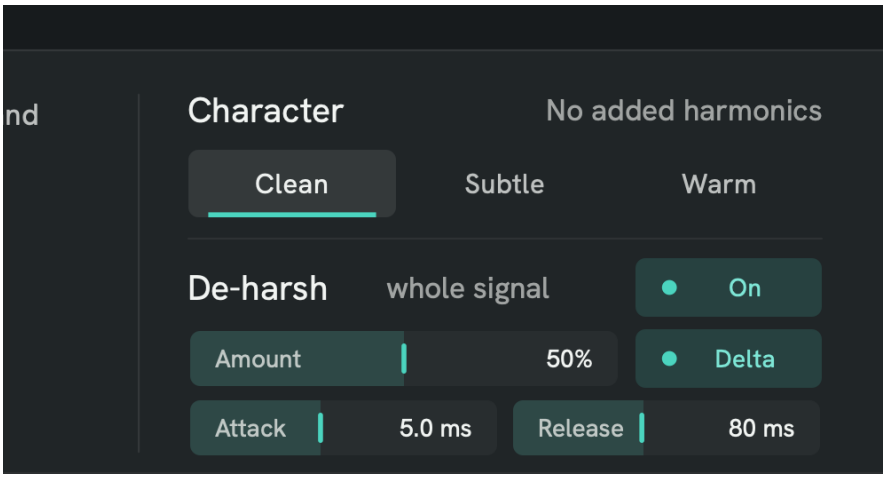


The Dynamics page during the tutorial: the Detector row passes the Threshold mark and Gain change shows -6 dB. The Threshold knob carries the level mark.

Tutorial: set De-harsh by ear

De-harsh softens piercing, harsh frequencies across the whole signal. Too little does nothing; too much dulls consonants, cymbals and attacks. De-harsh Delta lets you hear exactly what it removes, which makes the right amount easy to find.

1. Play a loud, bright part of the song. In the Character panel, switch De-harsh on and set Amount low, around 20%.
2. Click Delta beside Amount. You now hear only what De-harsh takes away.
3. Raise Amount until you clearly hear harshness in the Delta: edgy upper mids, hard sibilance, glassy peaks.
4. Keep raising it slowly. As soon as the melody, the words or the drum attacks become recognisable in the Delta, back off a little: that part belongs in the mix.
5. Click Delta again to hear the full mix, and compare De-harsh On and Off at a similar loudness.



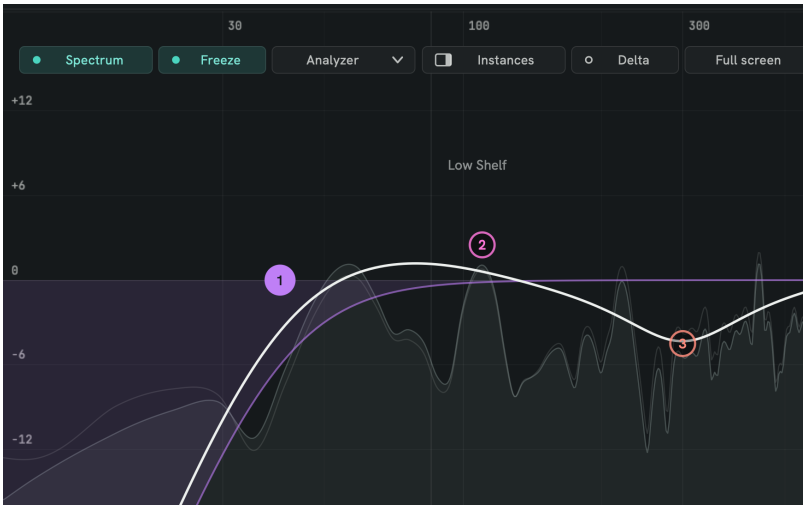
De-harsh on at 50%, with De-harsh Delta switched on beside Amount.

De-harsh Delta is a listening aid. It fades in and out over 10 ms, is never saved, and switches off by itself when playback stops, when you close Aurora, switch De-harsh off or load a preset. While it is on, it takes priority over the main Delta, which returns when you switch De-harsh Delta off.

Tutorial: a cleanup EQ in four double-clicks

With Smart band type on (the default), a double-click creates the band that fits where you click: Low Cut below 30 Hz, Low Shelf at 30-150 Hz, Bell from 150 Hz to 7 kHz, High Shelf at 7-15 kHz and High Cut above 15 kHz. A label beside the pointer shows which one you will get.

1. Rumble: point at the far left until the label reads Low Cut, double-click, and drag the node to about 30-40 Hz.
2. Choose its slope in the band editor's Slope control: 12 dB/oct is gentle, 24 dB/oct a firm everyday cut, 48 dB/oct and more very steep. You can also scroll over the node, or click the value and type 24.
3. Mud: point between 200 and 400 Hz (label: Bell), double-click and drag the node down by about 2 dB.
4. Air: point between 7 and 15 kHz (label: High Shelf), double-click and raise it by about 1 dB.



The pointer over the lows: the label says a double-click here creates a Low Shelf.



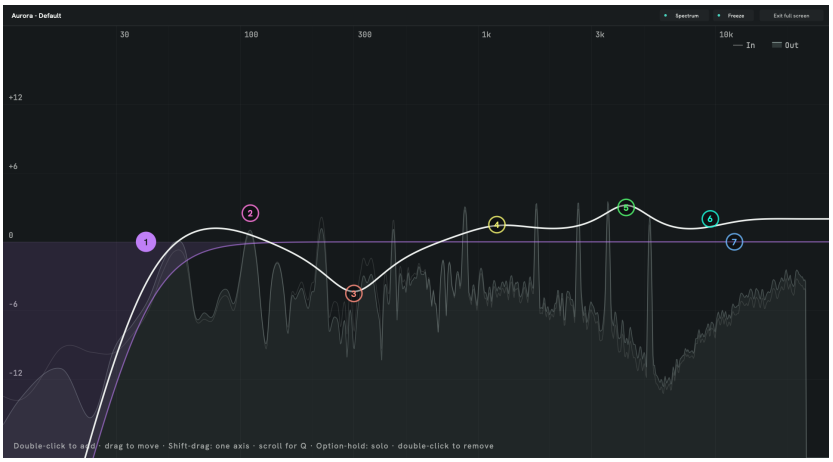
A Low Cut at 40 Hz: Slope at 24 dB/oct, and Gain shows a dash because a cut has no gain.

Hold Shift while double-clicking to create a Bell anywhere. To always get a Bell, untick Smart band type in the gear menu.

Tutorial: full screen and a theme for your room

Work on the curve at full size

Click Full screen in the row above the graph. The spectrum and the EQ curve fill the screen and stay fully editable: drag nodes, scroll for Q, right-click for the node menu and double-click to add bands. Spectrum and Freeze are at the top right, so you can freeze a moment and study it at full size. Press Esc or click Exit full screen to return.



The full-screen spectrum.

Pick a theme

Click the gear and open Theme: Graphite (the default), Midnight for dark rooms, Ember with an amber accent, or Studio Light for bright rooms and daylight. Every open Aurora window changes at once. The theme is your own setting: it is not saved in projects or presets, and does not affect the sound.



Graphite, Midnight, Ember and Studio Light.

Practical recipes

A more stable bass

Use a broad static bell for overall weight first. If only a few notes boom, add a dynamic bell at that region: Gain 0 dB, Above, Range around -2 to -4 dB, moderate Q, Attack around 15-30 ms and Release around 100-200 ms. Set Threshold so ordinary notes stay mostly unchanged. Compare with band Bypass and check the kick/bass relationship.

A brighter mix without brittle peaks

Try a small high shelf, for example +1 dB near 10 kHz. If specific peaks become unpleasant, use a focused dynamic bell or a small amount of De-harsh rather than immediately removing all of the shelf. Use Auto gain as a starting aid and trim Output by ear. Check cymbals, consonants and reverberation tails.

De-ess a vocal

Choose Smart Ops De-Ess, Learn a phrase containing real sibilants and Apply at a moderate Amount. Inspect the proposed dynamic bands, adjust Threshold and Range, and listen to both soft and loud words. A successful setting reduces distracting sibilance without dulling every consonant. Revert and try a manual dynamic bell if the proposal does not fit the recording.

Match two related takes

Capture a representative reference file and learn the target. Use static Match with a restricted From/To range and conservative Amount. Compare transitions between takes, then disable corrections caused by notes or performance differences rather than recording tone. Matching does not replace level editing or consistent mic placement.

Shape a parallel signal

Start with LP if a linear-phase EQ path suits the goal, and let the DAW compensate latency. Avoid assuming every parallel problem is solved by LP: Character is nonlinear, and external routing or host compensation can still matter. Compare transients and mono compatibility after adding steep cuts.

All recipe values are illustrative. Adjust in context, leave headroom, and keep a saved comparison before a major change.

Parameter reference: EQ and dynamics

Control	Range / choices	Notes
Band count	Up to 24	Seven flat bands initially active.
Frequency	10-30,000 Hz	Effective bandwidth depends on sample rate.
Gain	-30 to +30 dB	For gain-bearing shapes; Tilt: -6 to +6 dB/oct.
Q	0.025-40	Effective cut Q is capped near 0.707.
Placement	Stereo, Left, Right, Mid, Side	Independent for each band.
Slope	6/12/18/24/30/36/48/72/96 dB/oct; Brickwall	Low Cut and High Cut only.
Tilt	Off / On	On: the band is a Tilt; its type is kept.
Dyn Threshold	-60 to 0 dB	Default -24 dB.
Dyn Range	-18 to +18 dB	Default -3 dB; sign sets cut/boost.
Dyn Ratio	1:1-16:1	Default 4:1.
Dyn Knee	0-24 dB	Default 3 dB.
Dyn Attack	0.1-200 ms	Default 10 ms.
Dyn Hold	0-500 ms	Default 0 ms.
Dyn Release	5-2,000 ms	Default 120 ms.
Dyn Mode	Above / Below	Default Above.
Dyn Detect	Peak / RMS	Default Peak.
Dyn SC Source	Internal / External	Default Internal.
Lookahead	0-10 ms	Global; sample cap and LP exception apply.

A band's On parameter means the slot exists in the active band set. Its separate Bypass parameter preserves that band while taking it out of the signal path. Dynamic parameters are stored even when dynamics is off, so enabling it may reveal previously set values.

The defaults above are parameter defaults; a factory preset may set them differently. Return to the Default/reset state for a known neutral starting point.

Parameter reference: globals

Control	Range / choices	Initial value
Output	-24 to +24 dB	0 dB
Phase	Zero Latency / Natural Phase / Linear Phase	Zero Latency
Character	Clean / Subtle / Warm	Clean
Auto gain	Off / On	Off
De-harsh	Off / On	Off
De-harsh Amount	0-100%	50% when enabled
De-harsh Attack / Release	0.1-200 ms / 5-2,000 ms	5 ms / 80 ms
Unmask Role / Group	Off, Send, Duck / 1-8	Off / 1
Unmask Amount	0-100%	60%
Unmask Attack / Release	0.1-200 ms / 5-2,000 ms	8 ms / 120 ms
Morph On / Morph	Off, On / 0-1	Off / 0
Macro 1 / 2	0-1	0
Mod route Source / Depth	None or source / -1 to +1	None / 0

Gesture reference

The graph is designed for direct editing, with the inspector providing exact values. These gestures act on the selected or pointed-at band.

Action	Gesture / control
Add / remove a band	Double-click empty graph (type by position) / existing node.
Add a Bell anywhere	Shift + double-click empty graph.
Move a band	Drag its node; horizontal frequency, vertical gain.
Move along one axis	Shift-drag a node.
Change Q / cut slope	Wheel over node, or the band editor's Q / Slope; cuts use slope.
Shape a cut's knee	Alt (Option) + wheel over a cut node.
Fine wheel adjustment	Ctrl (Windows) / Cmd (macOS) with wheel.
Type, placement, Dynamic, Bypass	Right-click a node.
Spectrum full screen	Full screen (next to Delta); Esc returns.
Solo a band while held	Alt- (Option-) or middle-press a node and hold; drag to sweep.
Audition until turned off	Listen, or Alt-/middle-click with Band solo set to Latching.
Type a value	Click the readout; Enter applies, Escape cancels.
Restore a control default	Double-click its knob or supported bar.
Undo / Redo	Toolbar, or Cmd/Ctrl+Z / Cmd/Ctrl+Shift+Z.

Drag the editor's corner to resize it (50-140 %), or pick gear menu > Size. Aurora remembers the size.

When a shortcut does not reach Aurora

Your DAW may reserve keyboard commands for its own transport or editor. Give the plugin keyboard focus if your host supports that, or use the equivalent on-screen button. An active text field also changes where key presses go.

On Linux, many window managers move windows with Alt+drag (by default XFCE, MATE, Cinnamon, LXQt and KDE Plasma 5), so an Alt-press never reaches Aurora. Press the node with the middle button instead, or set the window manager's move key to Super.

For precise value entry, click the readout rather than repeatedly nudging the control. For quick tonal exploration, drag the node, then adjust Q. Use Listen temporarily, and return to normal monitoring before deciding whether the correction helps.

Troubleshooting and support

No sound, or only a strange fragment

Check plugin Bypass, Output, enabled cuts, Listen and Delta. Listen isolates a region; Delta can be silent when the chain makes no change. Also inspect the DAW's mute/solo controls, routing and automation. Clear bands does not disable global Character, De-harsh or Unmask.

The analyzer is frozen or looks unexpected

Turn Freeze off and Spectrum on. Adjust Update speed and Frequency precision. The input trace, output trace and EQ response are different displays; the spectrum tilt is visual only. A smooth-looking low-frequency peak does not necessarily indicate a wide EQ band.

Smart Ops will not apply

Click Start learning and play audio through the instance; it waits until audio arrives and needs at least 2 s before Stop keeps it. Point at Apply: its tooltip says why it is unavailable. Check From/To and free band slots. Morph deresonate requires both captures and continued playback. A file reference must finish analysis; another instance must have shared learned data. Auto-Pocket needs a Send source in a discoverable process.

Delay, changed peaks or an unexpectedly quiet comparison

LP, Lookahead and De-harsh add delay; check the latency in the bottom bar and the DAW's compensation. Auto gain and Output both change level. In Delta, output differences are intentional. Turn audition modes off for ordinary metering and Smart Ops Trim loudness.

A band returns to Band 2 after switching plugins

Aurora 1.5 remembers the selected band when the host recreates the editor. Earlier versions returned to Band 2 while keeping the EQ settings; update to 1.5.

An anchored band does not move

Read the sentence on the band's Music page. "Waiting" or "Listening" means Aurora has not heard what the band follows yet: play the track for a few seconds. "Holds … not clear enough" means the analysis is below the band's Confidence: lower it, or set the key or chord by hand in the song chip. A Sidechain band needs signal on the sidechain input. Follow 1–4 are reserved for a later version; pick a source instead.

Report a reproducible issue

Include Aurora version and format, operating system, DAW/version, sample rate and buffer size. Add exact steps, expected versus actual behaviour, and whether the issue occurs in a fresh project. A screenshot or short recording helps with UI issues; a small example project helps with routing or recall. Do not include private sessions unless you intend to share them.

Visit 13x.audio for current downloads and support information. Edition details are on page 3.