

Cherwell De-Esser

A clinical digital de-esser with two bands: SIBILANCE for the "s" and "t", and HARSHNESS for the hard, shouty edge in the 2 - 5 kHz presence region.

A Lab plug-in. The Lab is where new GFX plug-ins are built in the open: they may change sound or controls between versions.



Overview

This Lab version adds a second section, HARSHNESS. It has its own detector and its own dynamic cut: a bell that dips only while a band in the presence region (1.1 to 8.8 kHz, 3.3 kHz by default) gets too loud. It waits a little longer before it acts than the sibilance band (about 3 ms) and pulls down more gently (3:1), so it catches a voice or an instrument that turns hard on its loud notes and leaves single consonants to the SIBILANCE section. Each section has its own threshold, range, release, LISTEN key and a GR row. With HARSHNESS out (the default) it sounds as the Stable Cherwell De-Esser.

Both detectors listen to the input side by side, so one never changes what the other hears. The HARSHNESS cut comes first, then the SIBILANCE cut. Stereo linked, no

latency. The output passes straight through (a mix tool: no clip). No DRIFT: the Cherwell series is clinical digital processing.

Reach for it for

- Lead vocals that turn hard or shouty when they get loud, as well as sibilant
- Voice-over and podcasts on a bright or edgy microphone
- Distorted guitars with fizz, strings with bow bite
- Taming harsh peaks on a mix bus, a little at a time

Controls

The top bar

PRESETS	Opens the full preset list.
◀ / ▶	Step to the previous or next preset (wrapping round).
Preset display	Shows the preset name. Click it for the preset list too.
BYPASS	Lit = the whole unit bypassed, with a 15 ms crossfade, so it never clicks. Use it instead of REAPER's own on / off.

The display

The frequency range from 500 Hz to 20 kHz, with 0 dB at the top line and 6 dB steps below. Each section's full RANGE is shaded in its colour (SIBILANCE sky blue, HARSHNESS coral) and a line marks its FREQ. The bright line is what is being cut right now, both sections together. The caption reads SPLIT - BAND CUT or WIDE - WHOLE SIGNAL; LISTEN shows while a LISTEN key is lit.

RELATIVE	One key for both detectors. Lit (the default): each compares its band with the overall level, so it keeps working the same as the performance gets louder or quieter; THRESH then works from -30 to 0 dB of band against the whole. Unlit: an absolute threshold, -60 to 0 dBFS.
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SIBILANCE



Title lamp	The round lamp beside SIBILANCE switches the section in or out (in by default). Out, its cut lets go smoothly and the plate is greyed.
SPLIT	Lit (the default): only the band is turned down, a dynamic cut at FREQ. Unlit: WIDE, the whole signal is turned down while sibilance is found.
HIGH	Lit: the band becomes everything above FREQ (a shelf) instead of a bell. WIDTH is not used then.
LISTEN	Hear only what the sibilance detector hears, to find the "s".
FREQ	2 to 16 kHz (6.6 kHz by default).
WIDTH	Q 0.3 to 4: low = wide, high = narrow.
THRESH	-60 to 0: where it starts to act. Lower = more de-essing.
RANGE	0 to 24 dB: the most it will take off.
RELEASE	20 to 500 ms: how quickly it lets go.
GR	How much the section is cutting, 0 to 24 dB (green to 6, yellow to 12, red beyond). The dimly lit part of the row is the RANGE.

The sibilance detector acts in about 0.5 ms, with a 6 dB soft knee and 4:1 above it.

HARSHNESS

Title lamp	Switches the section in or out (out by default). Out, the plate is greyed and its cut lets go smoothly.
LISTEN	Hear only what the harshness detector hears: sweep FREQ until the edge you want to tame jumps out. With both LISTEN keys lit you hear the two bands together.
FREQ	1.1 to 8.8 kHz (3.3 kHz by default).
WIDTH	Q 0.5 to 4 (1.4 by default).
THRESH	-60 to 0 (-18 by default): lower = more.

RANGE	0 to 18 dB (6 dB by default): the most it will take off.
RELEASE	40 to 800 ms (150 ms by default).
GR	How much the section is cutting.

The harshness detector acts in about 3 ms, with a 6 dB soft knee and 3:1 above it. Its cut is always a bell at **FREQ**.

OUTPUT

OUTPUT	-12 to +12 dB.
OUT	The output level, -48 to +3 dBFS.

Knobs: drag up or down (Shift for fine moves) or use the mouse wheel; double-click or Ctrl-click to reset a knob to its default. A knob's value shows above it while you touch it. Every switch crossfades over 10 ms.

Presets

A preset sets both sections, **RELATIVE** and **OUTPUT** (0 dB), and turns the **LISTEN** keys off. **BYPASS** is left as it is. The first twelve are the Stable unit's, with **HARSHNESS** out.

Init	SIBILANCE 6.6 kHz, -30, 10 dB; HARSHNESS out.
Vocal: Female	SIBILANCE 7.7 kHz, a little narrower.
Vocal: Male	SIBILANCE 5.5 kHz.
Vocal: Gentle	A wide, light touch: 5 dB at most.
Vocal: Hard S	A narrow, deep cut: up to 14 dB.
Vocal: Wide (whole)	WIDE: the whole voice dips on each "s".
Voice-over: Close Mic	5.5 kHz, quicker release.
Air: Tame the Top	HIGH from 9.9 kHz.
Cymbals: Smooth	HIGH from 8.8 kHz, slow release.

Guitar: Pick Click	A narrow band at 3.3 kHz, fast.
Mix Bus: Harshness	The sibilance band at 4.4 kHz, 3 dB at most.
Absolute: Classic	Init with an absolute threshold.
Vocal: Ess + Harsh	SIBILANCE 6.6 kHz plus HARSHNESS at 3.3 kHz, 5 dB at most.
Vocal: Shouty Rock	HARSHNESS at 2.2 kHz, up to 7 dB, for a belted vocal; SIBILANCE 5.5 kHz.
Voice-over: Edgy Mic	HARSHNESS at 4.4 kHz, narrow, for a bright condenser.
Guitar: Fizz Tamer	HARSHNESS 3.3 kHz wide, slow release; a light HIGH shelf from 7.7 kHz.
Strings: Bow Bite	HARSHNESS 2.2 kHz, slow release; a light shelf from 8.8 kHz.
Mix Bus: Harsh Peaks	A wide HARSHNESS band at 3.3 kHz, 3 dB at most, 250 ms release.
Reset all to defaults	(Last in the list.) Init.

Tips

- Set HARSHNESS first, with LISTEN: sweep FREQ until the hard edge jumps out, then bring THRESH down until the GR row lights on the loud, hard notes only. Then set SIBILANCE.
- Keep HARSHNESS's RANGE modest (3 to 6 dB): it is a presence cut, and too much makes a voice sound dull and far away.
- A longer RELEASE on HARSHNESS (200 ms and up) makes it ride the phrase rather than each syllable.
- RELATIVE keeps both sections working the same through a quiet verse and a loud chorus. Use the absolute threshold when only the loudest moments should be touched.

File: gfx-lab-cherwell-deess.jsfx