

JELSTUDIO's "Otto"



Otto is an automatic amplitude wave-shape equalizer for LIVE or mixing/mastering use.

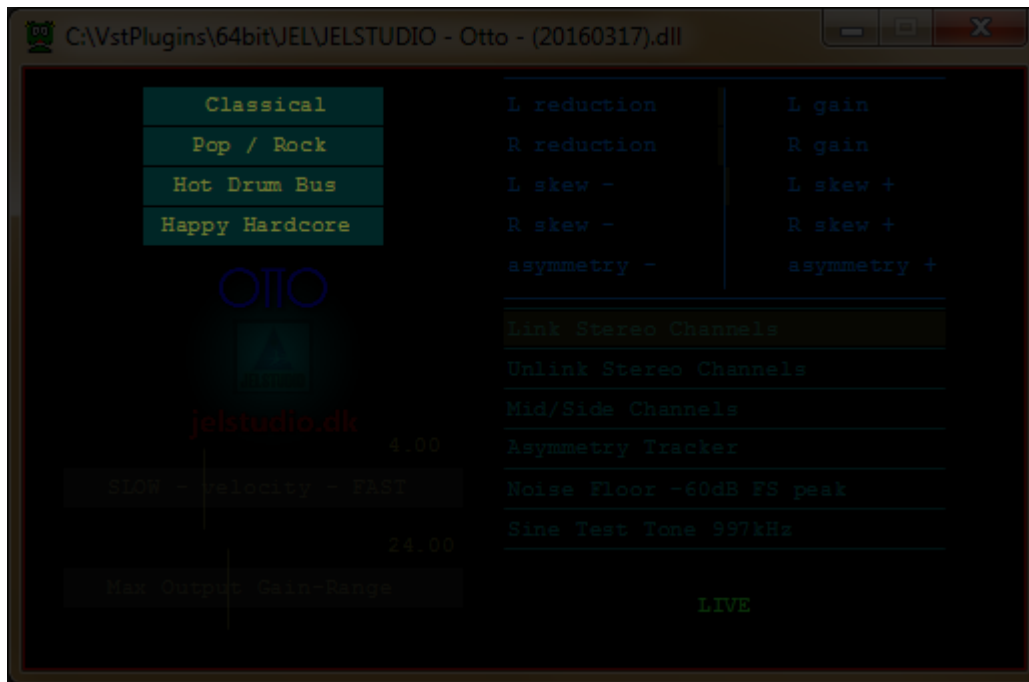
Otto normalizes audio automatically by re-shaping the wave-form to its largest possible size, thereby minimizing the amount of unused headroom.

It is not exactly a dynamic gain-stager, auto-leveler, compressor, DC offset remover, asymmetry remover or limiter, but those would be terms that are not too far off what Otto can be used for.

Technically it is a 32/64 bit VST2 audio-effect plugin mainly for DAWs and sound/video-editors on Windows.

Some of Otto's key-points:

- Average RMS volume (flat, unweighted) is adjusted to ~ -18 dB FS (can vary with settings)
- Runaway volume peaks are clipped at -0.1 dB FS
- Zero latency (for LIVE use or for tracking)
- DC offset is removed
- Stereo imbalance can be canceled (when stereo-channels are unlinked)
- Stereo image can be dynamically widened to the maximum mono-safe width (when Mid/Side mode is activated)
- Waveform asymmetry can be minimized (this is the only mode with latency, about 1/5th of a second or ~8000 samples)



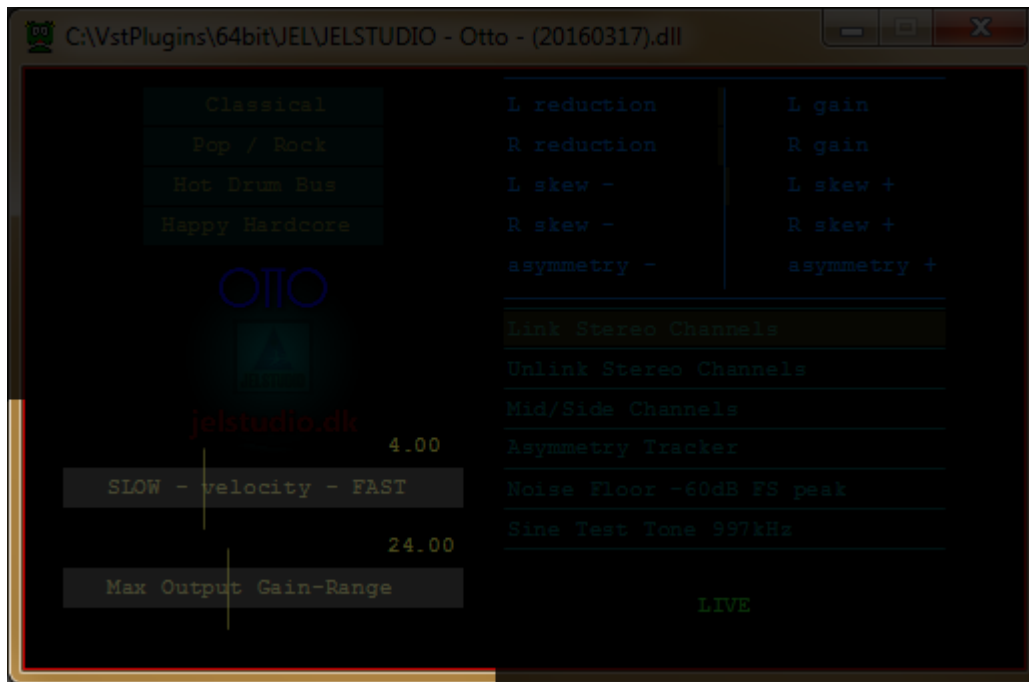
Quick pre-program select buttons

Click one of these buttons to set Otto to a preset state.
[use Left mouse-button]

If, for example, your audio is classical music, or a piano-piece with a female vocal, or some other type of music or audio where you want to keep a good part of the dynamic range intact, click the button labeled “Classical”.

You can then further fine-tune the settings by adjusting some of Otto’s other controls.

When you first load Otto it defaults to the “Pop / Rock” setting.



Main controls

The top slider controls Otto's velocity (range from 1 to 10, default is 4)
[hold down Left mouse-button while sliding sideways, or right click mouse-button to reset back to default]

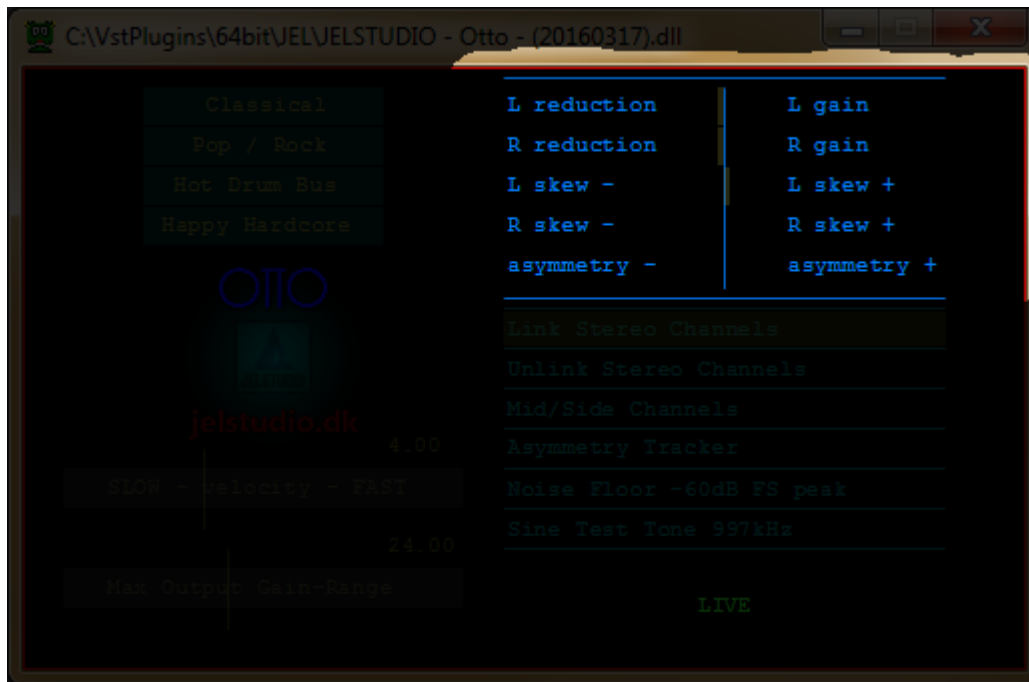
This is how fast Otto regains volume.

For a drum-bus with rapid transients you might want faster velocities, while for full mixes you might want slower velocities to avoid pumping.

Faster velocities can push output peak-volume higher, so generally you might want to lower the gain-range when using faster velocities to minimize possible distortion.

The bottom slider controls Otto's maximum gain (range from 0 dB to 60 dB, default is 24 dB)
[hold down Left mouse-button while sliding sideways, or right click mouse-button to reset back to default]

This is how far Otto will push the volume (the maximum range between no gain and full gain)



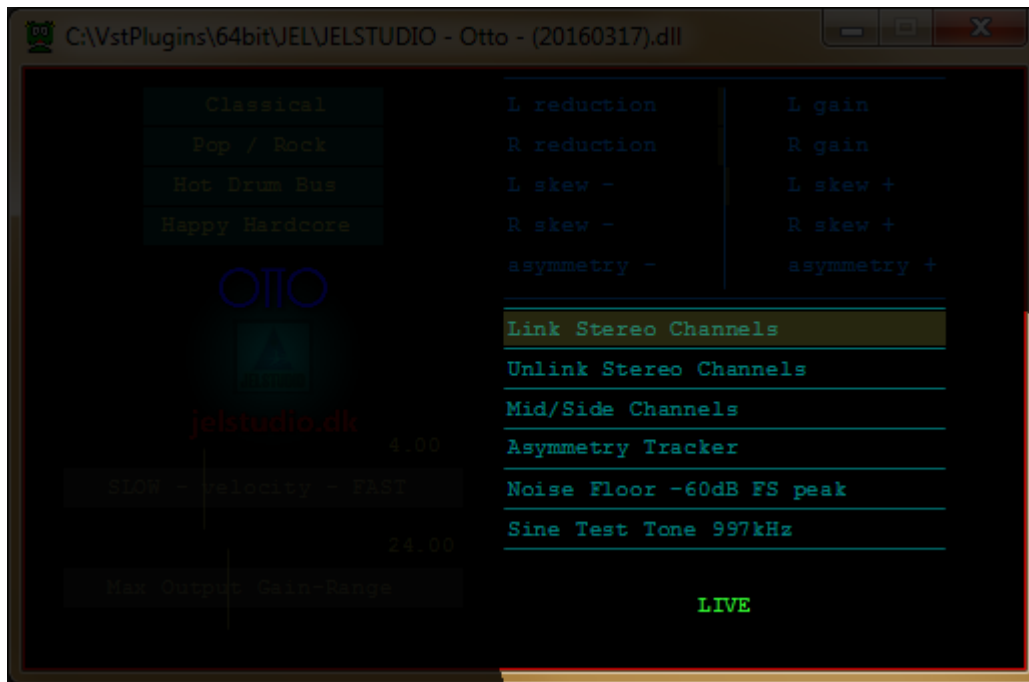
Information display

First two rows shows gain or reduction ratio of Left and Right channel. A colored bar stretching to the right side shows gain, and when stretching to the left side shows reduction. It will show up to 24 dB gain and about -6 dB reduction (even though applied gain and reduction can be beyond these values)

Second two rows show how skewed the Left and Right channel waveform is. It gives a hint of whether the waveform has closer to equal positive/negative energy or more of one or the other. Generally a well-behaved waveform has little skew.

Last row shows the asymmetry-tracker (only when the asymmetry-tracker is active)
If there is good tracking; the bar will move slowly. If there is bad tracking; the bar will cycle through the whole range hunting for optimal tracking.

For all five information displays; their purpose is only to give a general idea of what Otto is doing.



Control System Switches

Click these buttons to switch ON or OFF some of Otto's sub-systems.
[use Left mouse-button]

“Link Stereo Channels”

Links the volume between Left and Right channel so stereo-image is maintained.

“Unlink Stereo Channels”

Unlinks the volume between Left and Right channel and allows independent gain-settings for each channel. This can enhance audio where stereo-balance is unintentionally off-center. If stereo-image (the relative balance between Left and Right channel) should be maintained unaltered; then do not use this mode.

“Mid/Side Channels”

Unlinks mid-channel (mono center) from side-channel (stereo) and allows independent gain-settings for each. This can enhance perceived stereo-width. This setting is ‘mono-safe/mono-compatible’ (no phase-cancellations)
(On the info-display; Left channel will display Mid, while Right channel displays Side)

“Asymmetry Tracker”

THIS MODE CAUSES LATENCY! (the display at the bottom will go from “LIVE” to “OFFLINE”)
This mode will attempt to reduce waveform asymmetry. It generally works best with individual instruments/sounds (bas, synth, vocal), while it can get thrown off by mixed sounds or percussive sounds.

“Noise Floor -60dB FS peak”

Activates a white-noise floor that peaks at -60 dB FS.

“Sine Test Tone 997kHz”

Activates a sine-type test-tone at 997 kilo-Hertz. The test-tone is routed through Otto.

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DSP programming: Jacob Larsen
GUI programming: Jacob Larsen
VST compiler: Derek John Evans