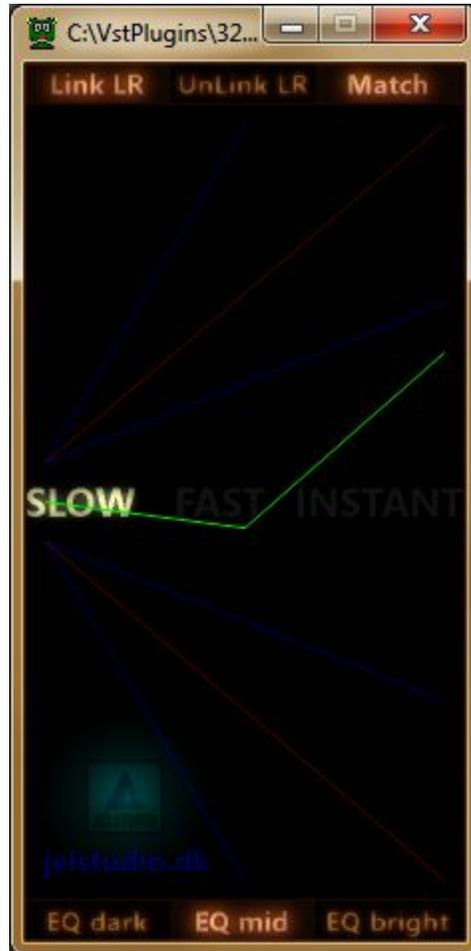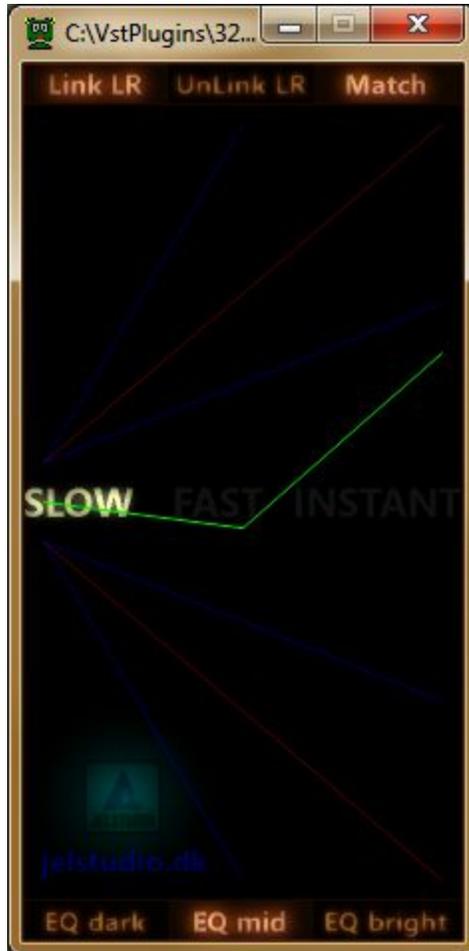"AutoEQ"

version 20160427

JELSTUDIO

AutoEQ is an automatic tonal equalizer for LIVE or mixing/mastering use.

Technically it is a 32/64 bit VST2 audio-effect plugin mainly for DAWs and sound/video-editors on Windows, but it can also be used in a LIVE VST-host (for example with LIVE stage-performance audio, or with music/TV home-stereo audio)

Some of AutoEQ's key-points:

- Zero latency (for LIVE use or for tracking)
- Can handle incoming audio-signals that has 'overs' (internally handles signals hotter than 0dB, either real peaks or ISPs)
- Can EQ left/right channel independently
- Can lock output-gain to input-gain (Level matching)
- THD better than -160 dB in ”SLOW” mode (-59 dB in ”SLOW, Match” mode)*
- THD+N better than -114 dB in ”SLOW” mode (-46 dB in ”SLOW, Match” mode)*
- THD_R (THD RMS) better than 0.0097% in ”SLOW” mode (3.3% in ”SLOW, Match” mode)*
- Can dynamically EQ the signal in various ways

* measured with Christian-W. Budde's "VST Plugin Analyser"
    http://www.pcjv.de/applications/measurement-programs/

EQ-mode selector-buttons

Click these buttons to switch ON that specific EQ-mode.
[use Left mouse-button]

"Slow"
Slow EQ changes over time. This mode usually gives the most natural sound.

"Fast"
Fast EQ changes over time. This mode can be good with mixed-content programs (such as TV-shows, or content alternating between speech and music)

"Instant"
Instant EQ changes over time (stepped EQ). This mode can be useful with some fast-paced electronic music genres.

"Link LR"
Normal stereo-mode, which maintains the channel-correlation between Left and Right channel.

"UnLink LR"
Dual mono-channel mode, which will EQ Left and Right channel independently of each other.
(This mode can cause shifts in the stereo-perspective when used with normal stereo-audio. It can also cause tonal shifts between mid and side channel when used on mid/side encoded signals where it will EQ mid and side channel independently of each other)

"Match"
When ON; output-gain levels will match input-gain levels.
When OFF; EQ-changes are not gain-compensated, so output-gain levels will fluctuate with EQ-changes.
It is advised this is turned OFF when AutoEQ is used for mastering and ON when AutoEQ is used for monitoring, since it will increase the level of harmonic distortions when turned ON.

"EQ dark", "EQ mid" and "EQ bright"
Selects the tonal brightness that AutoEQ will aim to maintain.
(If none is selected AutoEQ will be OFF and audio bypassed unchanged)

A line will show if EQ-gain is added (line goes up, tone is brighter) or subtracted (line goes down, tone is darker).

The line has 3 points:

The first point (which does not move) is the bass (the static base-point which all EQ-adjustments originally relate to)

The second point (the middle break of the line) is the mid-band. If it is above the base-point (basspoint); EQ-gain is added to the mid-band. If it is below the base-point (bass-point); EQ-gain is subtracted from the mid-band.

The third point (the end of the line) is the high-band. If it is above the base-point (bass-point); EQ-gain is added to the high-band. If it is below the base-point (bass-point); EQ-gain is subtracted from the high-band.

The EQ displays 2 lines (White is LEFT, Red is RIGHT)

The 3-band EQ has two first-order pass filters. One high-pass and one low-pass, each with a standard response curve slope of 6 dB per octave. The result is an EQ with overall low (bass), mid (vox) and high (treble) tonal control.

AutoEQ's phase-response is not linear.

The EQ's max total gain-span per band is 48 dB (max 24 dB addition or subtraction)
The purpose of the EQ is not to finalize the tonal spectrum, but to stabilize it so later EQ tonal-sculpting can be more coherent.

Because EQ'ing takes place relative to the low-band (the bass sounds) the EQ's overall output can sometimes create an emphasis-effect when kick-drums and other such 'bass-thumping' sounds are playing (resulting in a perceived more powerful beat)

When using AutoEQ with a DAW or audio-editor that triggers a plugin-reset when audio-play begins; be advised that AutoEQ (when used in Slow-mode) can take a few seconds to reach the target tonal-brightness. In such case a silent pre-roll/lead-in of about 5-10 seconds should be used before the audio begins.

Usage ideas:
DJ-mixes, podcasts, TV or video-soundtracks and similar multi-content programs.