
Voxengo OVC-128 User Guide



Version 1.13

<https://www.voxengo.com/product/ovc128/>

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Introduction

OVC-128 is a massively-oversampled soft/hard clipper effect plug-in for professional music production applications. A common use for this plug-in is hard-clipping before the final mastering limiter. This is an effective approach in contemporary electronic music, when loudness is boosted using a clipper plug-in while minor excessive peaks are absorbed by a final peak limiter that applies small to moderate gain itself.

Clipping the tracks via OVC-128 is practically similar to clipping using high-quality outboard analog gear. At 44.1kHz source sample rate, the internal audio sample rate of OVC-128 is a whopping 5.6 MHz!

A perfect combination for contemporary electronic music production is OVC-128 followed by Voxengo Elephant mastering limiter in the “EL-C” or “EL INS” mode. This combination produces both energy and smoothness.

Note that OVC-128 is a relatively CPU-demanding effect plug-in, it requires a higher-end processor for comfortable use. Performing 128X-oversampled clipping on a single track is computationally similar to performing a simple clipping on 1000 tracks.

Features

- 128X linear-phase oversampling
- Clipping hardness control
- Stereo processing
- 64-bit floating point processing
- Preset manager
- Undo/redo history
- A/B comparisons
- Contextual hint messages
- All sample rates support
- 38 ms compensated processing latency

Compatibility

This audio plug-in can be loaded into any audio host application that conforms to the AAX, AudioUnit, VST, or VST3 plug-in specification.

This plug-in is compatible with Windows (32- and 64-bit Windows XP, Vista, 7, 8, 10 and later versions, if not announced otherwise) and macOS (10.11 and later versions, if not announced otherwise, 64-bit Intel and Apple Silicon processor-based) computers (2.5 GHz dual-core or faster processor with at least 4 GB of system RAM required). A separate binary distribution file is available for each target computer platform and audio plug-in specification.

User Interface Elements

Note: All Voxengo plug-ins feature a highly consistent user interface. Most interface elements (buttons, labels) located at the top of the user interface are the same in all Voxengo plug-ins. For an in-depth description of these and other standard features, and user interface elements, please refer to the “Voxengo Primary User Guide”.

Clipper

The “Gain” parameter increases signal’s gain, in decibel. Clipping occurs at 0 dBFS level; this parameter pushes input signal into clipping. Drag with the right-mouse-button to change the “Out Gain” in an inversely-linked mode. The “R” switch enables residue signal monitoring: a difference between the clipped and the original sound.

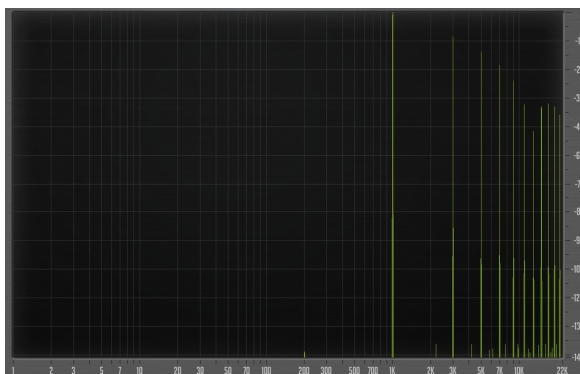
The “Hardness” parameter selects the hardness of clipping: soft-clipping at 0, hard-clipping at 1. This parameter cross-fades between the “tanh” soft-clipping function and the hard-clipping function.

This panel also features the gain reduction meter which displays the reached gain reduction level in decibel. This level correlates to the distortion amount in the output signal. The release time of the meter can be adjusted in the Settings window.

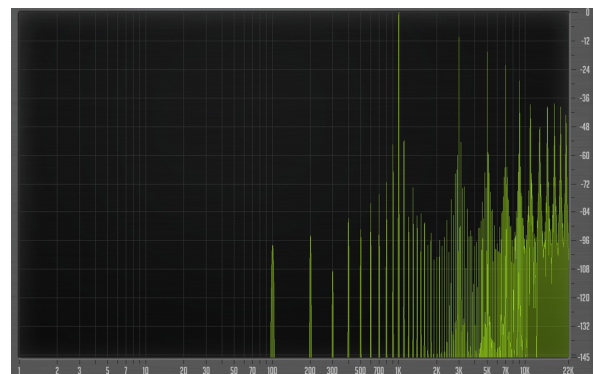
The “OVC” is an acronym for “OVerampled Clipper”.

What’s The Deal?

Here you can see 12 dB hard-clipping applied over 1 kHz sine-wave at 44.1kHz sample rate. As you can see, OVC-128 clipping produces almost no aliasing in comparison to simple clipping.



OVC-128 clipping of 1 kHz sine-wave



Simple clipping of 1 kHz sine-wave

Out

This panel displays output level meter with the overload (“OL”) indicator. Note that overload mainly indicates the fact that the clipping (saturation) point was slightly over-reached due to some amount of high-frequency oscillations that produce overshoots over the 0 dBFS level. The actual clipping point is at 0 dBFS.

The “Out Gain” controls the overall output level of the plug-in, specified in decibel. Drag with the right-mouse-button to change the “Gain” in an inversely-linked mode.

Credits

DSP algorithms, internal signal routing code, user interface layout by Aleksey Vaneev.

Graphics user interface code by Vladimir Stolytko. Graphics elements by Vladimir Stolytko and Scott Kane.

This plug-in is implemented in multi-platform C++ code form and uses “zlib” compression library (written by Jean-loup Gailly and Mark Adler), “base64” code by Jouni Malinen, FFT algorithm by Takuya Ooura, filter design equations by Magnus Jonsson and Robert Bristow-Johnson, VST plug-in technology by Steinberg, AudioUnit plug-in SDK by Apple, Inc., AAX plug-in SDK by Avid Technology, Inc., Intel IPP and run-time library by Intel Corporation (used under the corresponding licenses granted by these parties).

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Questions and Answers

Q. Is it possible to specify the clipping ceiling arbitrarily instead of using the default 0 dBFS so that the output level stays unchanged?

A. The same result can be achieved by adjusting the “Gain” knob with the right mouse button; this enables the inversely-linked change of the “Out Gain” knob.

Q. Are there any plans to add flexibility to OVC-128 as to being able to choose less than 128X mode?

A. OVC-128 uses a fixed oversampling by design, it is not adjustable. Beside that, running it at less than 32X oversampling will make it lose all sonic benefits.

Happy Mixing and Mastering!