

KRATOS2 MAXIMIZER



USER MANUAL

OVERVIEW

Presenting the latest version of Kuassa's ooh-so-handly limiter / loudness maximizer plugin **Kratos 2 Maximizer**; featuring the new *Adaptive Mode* for *Attack* and *Release* parameters, dithering section, up to 4x oversampling, automatic latency compensation, inter-sample peak detection, A/B compare and completely redesigned graphics. In addition, **Kratos 2 Maximizer** is now available as a *Rack Extension* and *AAX* plugin for Propellerhead Reason and Avid Pro Tools users, respectively.

The purpose of the original Kratos Maximizer VST / AU plugin was to make your mixes immediately LOUD. In addition, the new **Kratos 2 Maximizer** also serves as a solid mix finalizer; aside from offering additional methods to manage your mixes' dynamics with Adaptive Mode, you can now push further than before without fear: Crank the **Maximize** knob, tune the unique **Texture** knob to taste, tweak **Attack** and **Release** for tighter or loose response, then adjust the **Knee** for harder / smoother limiting action. Throughout, the signature Kuassa no-nonsense design will guide your hands, eyes, and ears, giving you the freedom to create your maximum sound.

KeyFeatures:

- Transparent, precision limiting / loudness maximizing
- Unique Texture knob for smooth or harder character
- Attack and Release parameter with the new adaptive option
- Latency Compensation toggle, supported by most DAW
- 3 dithering options with 3 modes of bit depth to accommodate wide range of mastering needs
- Up to 4x oversampling mode
- A/B compare
- Compact user interface, straightforward workflow
- Support up to 96 kHz Sample Rate

System Requirements

Windows:

Windows XP or Later (32/64 bit)

Intel Pentium 4, or AMD Athlon XP or better (Core2 Duo, Athlon64, or better is recommended) with 512MB minimum RAM

VST/VST3/AAX compatible host/sequencer, Pro Tools 10 or Propellerhead Reason 7.1 or later*

Macintosh:

Mac OSX 10.5 or later (32/64 bit)

Intel Pentium 4, or AMD Athlon XP or better (Core2 Duo or Athlon64 recommended) with 512MB minimum RAM

VST/VST3/AU/AAX compatible host/sequencer, Pro Tools 10 or later or Propellerhead Reason 7.1 or later*





VST, VST3, AU and AAX Versions



INSTALLATION

Mac OSX 10.5 or later

Note for MacOS X users: you must be logged in to a user account with administration privileges to run the installer.

1. For Mac installer(.dmg) format, double-click the installer and follow the instructions. The installer automatically point to your Mac's default VST/VST3/AU/AAX plug-ins path (see below). Alternatively you can customize the installation target to specific folder.
2. Here is the list of default folder installation path for each of our supported platforms in Mac OSX:
 - **Mac Audio Unit** (Kratos2Maximizer.component) : Library/Audio/Plug-Ins/Components
 - **Mac VST** (Kratos2Maximizer.vst) : Library/Audio/Plug-Ins/VST/Kuassa
 - **Mac VST3** (Kratos2Maximizer.vst3) : Library/Audio/Plug-Ins/VST3
 - **Mac AAX** (Kratos2Maximizer.aaxplugin) : Library/Application Support/Avid/Audio/Plug-Ins

Windows XP or later

Note for Windows Vista, 7, or later: We recommend installation with Administrator rights using "Run as Administrator" for both Kuassa Installer and Sequencer/Host installer.

1. For Windows Installer (.exe), double-click the installer and follow the instructions. The installer automatically point to your system's default plugins path (see below). Alternatively you can point the installation target to specific folder. Most VST host already have a "Plugins" or "VSTplugins" folder inside it's installation directory, or you can point the host to read any folder you choose.
2. Here is the list of default folder installation path for each of our supported platforms:
 - **Windows 32-bit VST** (Kratos2Maximizer.dll) : C:\Program Files\Steinberg (x86)\VstPlugins\Kuassa
 - **Windows 64-bit VST** (Kratos2Maximizer.dll) : C:\Program Files\Steinberg\VstPlugins\Kuassa
 - **Windows 32-bit VST3** (Kratos2Maximizer.vst3) : C:\Program Files (x86)\Common Files\VST3\Kuassa
 - **Windows 64-bit VST3** (Kratos2Maximizer.vst3) : C:\Program Files\Common Files\VST3\Kuassa
 - **Windows 32-bit AAX** (Kratos2Maximizer.aaxplugin) : C:\Program Files (x86)\Common Files\Avid\Audio\Plug-Ins
 - **Windows 64-bit AAX** (Kratos2Maximizer.aaxplugin) : C:\Program Files\Common Files\Avid\Audio\Plug-Ins

UNINSTALLATION

Mac OSX 10.5 or later

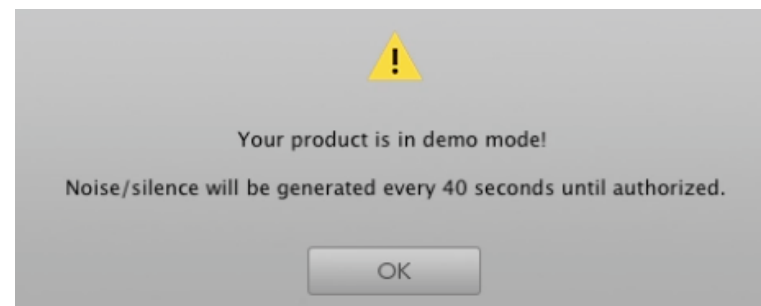
To uninstall from OS X, simply delete the plug-in located on the Plug-ins folder, and delete other file resources located at: */Users/[YourName]/Music/Audio Music Apps/Kuassa*

Windows XP or Later

Use "Add/Remove programs" or "*Programs and Features*" from the Windows Control Panel. If Kratos2Maximizer does not listed, delete the .dll file from your VST plug-in folder. And other Kratos2Maximizer file resources at *~\Documents\Kuassa***

AUTHORIZATION

1. On evaluation mode, you will see this pop-up window when you first start the plugin

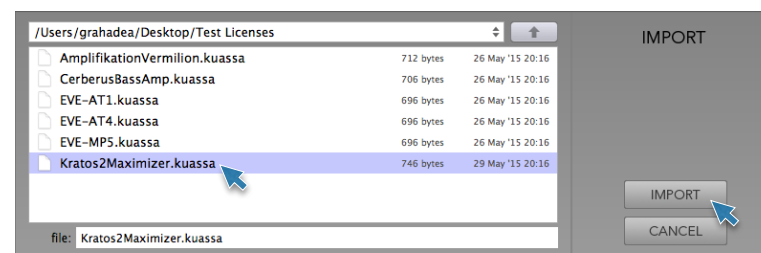


2. To start the authorization process, click the **[File]** button on the top-left of the plug-in's Interface, there, you will find a selection box titled **[import License]**.



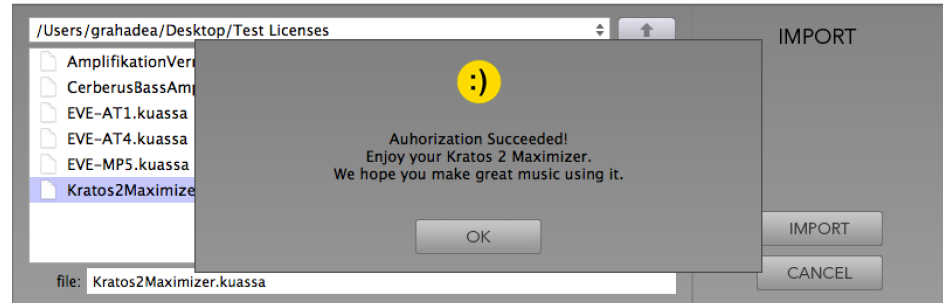
3. Locate the *License File* **[Kratos2Maximizer.kuassa]** obtained from the confirmation e-mail sent to you after you purchase Kratos2 Maximizer from our web store.

Note that the *License File* contains your personal information used to authorize the plug-in.



AUTHORIZATION (Cont'd)

4. After you locate the *License File*, a pop-up box confirming that you have successfully authorized your plug-in will show.



5. To check if you have completed the authorization process, simply load the *About Box* by clicking the Kuassa castle logo on the top-left corner. If your authorization was successful, either your name or your e-mail address will be shown on the *About Box*. You will also notice that the generated noise/silence on the Evaluation Version is now gone.



6. That's it! Enjoy your copy of Kratos2 Maximizer, Cheers :)

Functions: Kratos2 Maximizer



Delay Compensation:

- ★ If ticked, it will report to DAW / Host to automatically compensate latencies produced by the texture parameter. Please note that not all DAWs supports auto latency compensation.

- Kuassa "Castle" Logo:** Click to show the *About Box*
- [File] button:** The Menu button contains several functions; preset saving, license file authorization, delay compensation, and shortcuts to the user manual and Kuassa website.
- Preset Selector:** Select from available *Presets*, press left-right buttons or select from drop down menu
- A-B Compare:** Compare two different settings of the EQ
- Copy A to B:** Copy settings from the "A" state to "B" state
- Power Button:** Turns the plug-in on or off.
- Maximize:** Adjusts the signal level to the limiter. The range is 0 – 20 db. Rotate the knob clockwise until you get the desired loudness level, in correlation with the other controls.
- Texture:** The character, or 'Texture', knob acts similar to look-ahead in other limiters, that's why it's measured in milliseconds (ms). It also causes latency, depends on the look-ahead time. 'Texture' behaves different to 'usual' look-ahead parameters. The longer the Texture setting, the response to the low frequency will be better (lower distortion/artifacts, and sounds tighter). Longer setting will also give more limiting reaction time and prevent more transients from being clipped.
- Knee:** Knee determines how smoothly compression/limiting is applied when the signal exceeds the threshold. When the knee is at zero the limiting kicks in instantly. Rotate clockwise for softer knee setting and Vice-versa.

Hard Knee Soft Knee
- Attack:** The time taken for the limiter to start compressing or limiting the dynamic range. Available at 0-300ms.
- Release:** The time take for the signal back to normal again after limiting occurs. Available at 0-1000 ms.
- In Adaptive mode,** attack and release times are dynamic and depend on the source material and *Texture*, with the values set in **10** and **11**, respectively, as the upper bound. In **Normal** mode, the *Attack / Release* times are static and equal to the values set in **10** and **11**.
- Dither Section:** Adds very low level controlled noise to the material. Used to reduce distortion of low-amplitude signals when converting to lower resolution.
 - **Normal** = Classic linear dither
 - **High Pass** = Classic linear dither with high-pass filter applied
 - **Equal** = The dither follows equal-loudness contour (human hearing envelope)
 - **8 bit** = Noise test, low-resolution audio, creative and/or non-conventional purposes
 - **16 bit** = Universal standard for CD Audio
 - **24 bit** = DVD/movie, pre-mastering, high-quality audio and/or storage purposes
- Gain Reduction Meter:** Displays the amount of gain reduction being applied to the audio input. When the meter falls below 0 dbFS, gain reduction, and thus limiting/maximizing, is occurring.
- Oversampling:** Increase the internal sampling frequency to reduce aliasing artefacts at the cost of higher CPU usage.
- Ceiling:** Sets the upper limit of the output signal. The range is 0 to -20 dbFS.

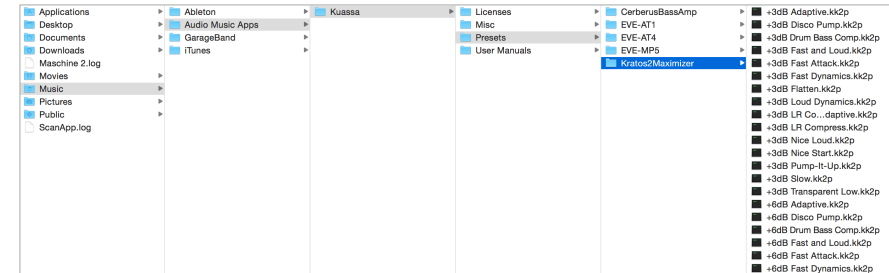
Preset Management (1/2)

A new preset management system based on a folders/sub-folders hierarchy has been implemented, hereby replacing the banks system of previous Kuassa products.

1. Presets for Kratos2Maximizer are located in the following folders*:

- **Mac:** *Users/[YourName]/Music/Audio Music Apps/Kuassa/Presets/Kratos2Maximizer*
- **Win:** *~\Documents\Kuassa\Presets\Kratos2Maximizer*

All presets inside these folders will be recognized by the plugin as individual presets, and sub-folders will be recognized as banks. They will thus be shown on the Kratos2Maximizer's preset selector.



2. To save a preset, set your plugin to the desired parameter settings, then select:

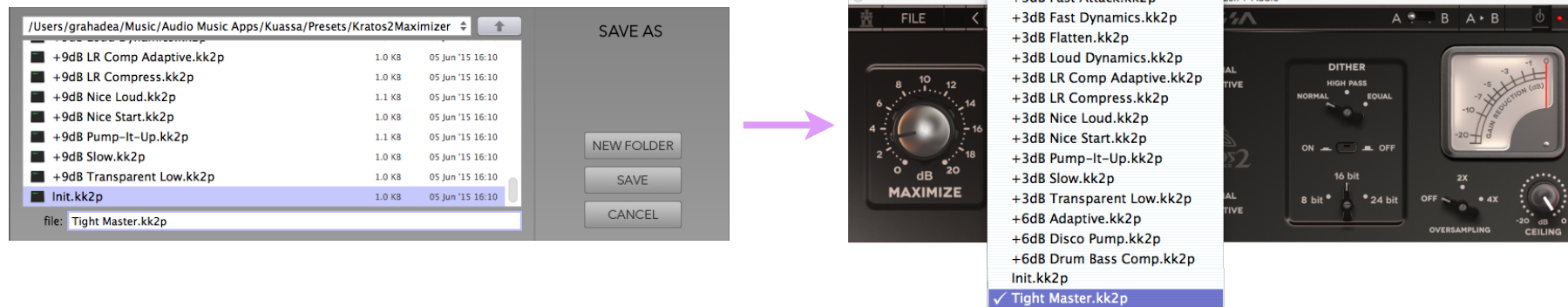
- *"Save Preset"*: Overwrites currently active preset.
- *"Save Preset As"*: Saves current settings into a new preset file (.kk2p).



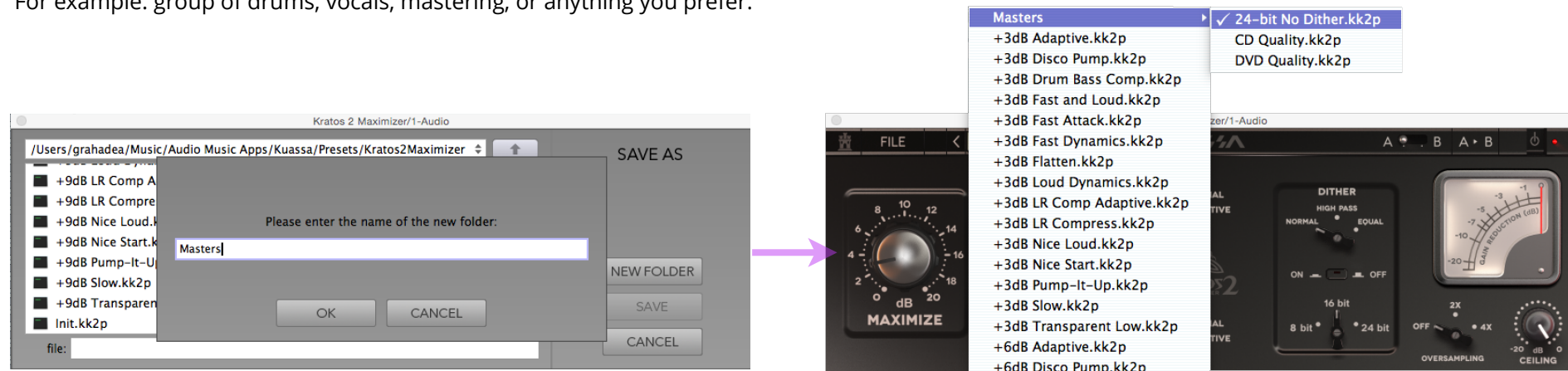
Preset Management (2/2)

3. If you are creating a new preset using the “Save Preset As” option, make sure that you have chosen the correct preset folder as mentioned in [point 1 above](#) to make sure that it will be recognised automatically by Kratos2Maximizer plugins.

- **Mac:** *Users/[YourName]/Music/Audio Music Apps/Kuassa/Presets/Kratos2Maximizer*
- **Win:** *~\Documents\Kuassa\Presets\Kratos2Maximizer*



4. To create a new preset bank, simply create a “NEW FOLDER”. This is useful for grouping presets based on their instrument group or use. For example: group of drums, vocals, mastering, or anything you prefer.

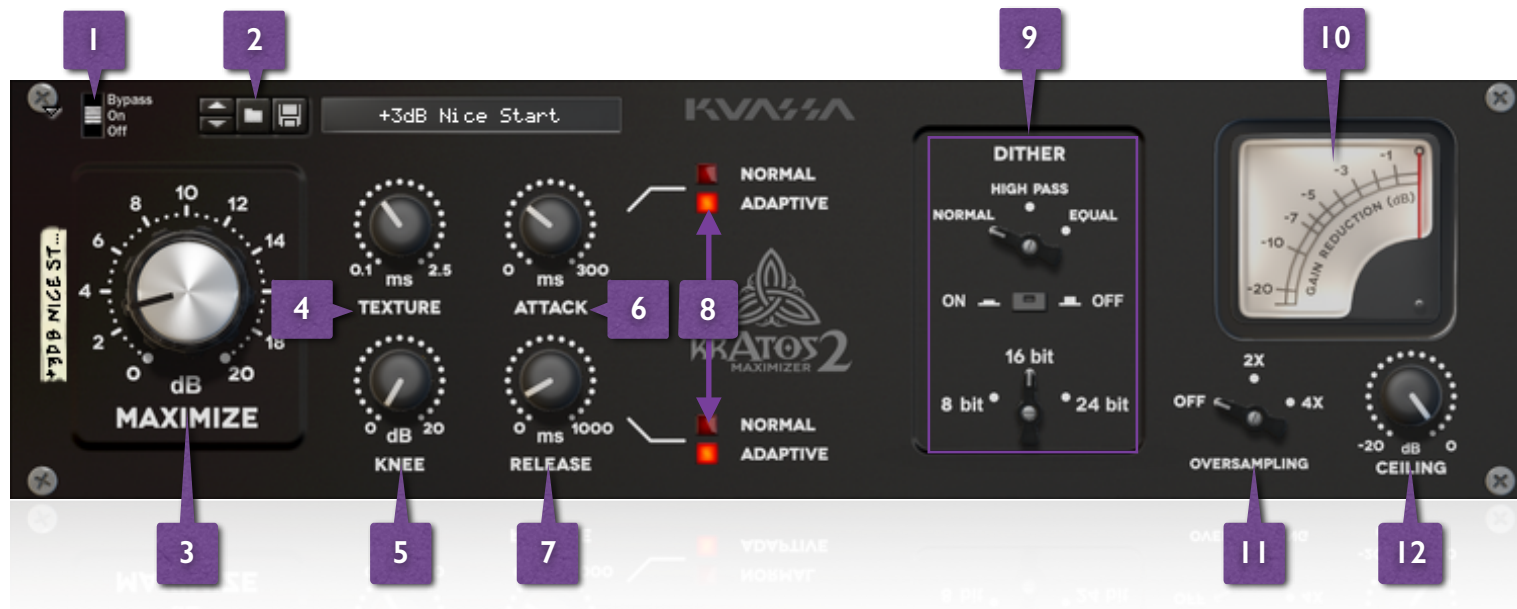




Rack Extension Version



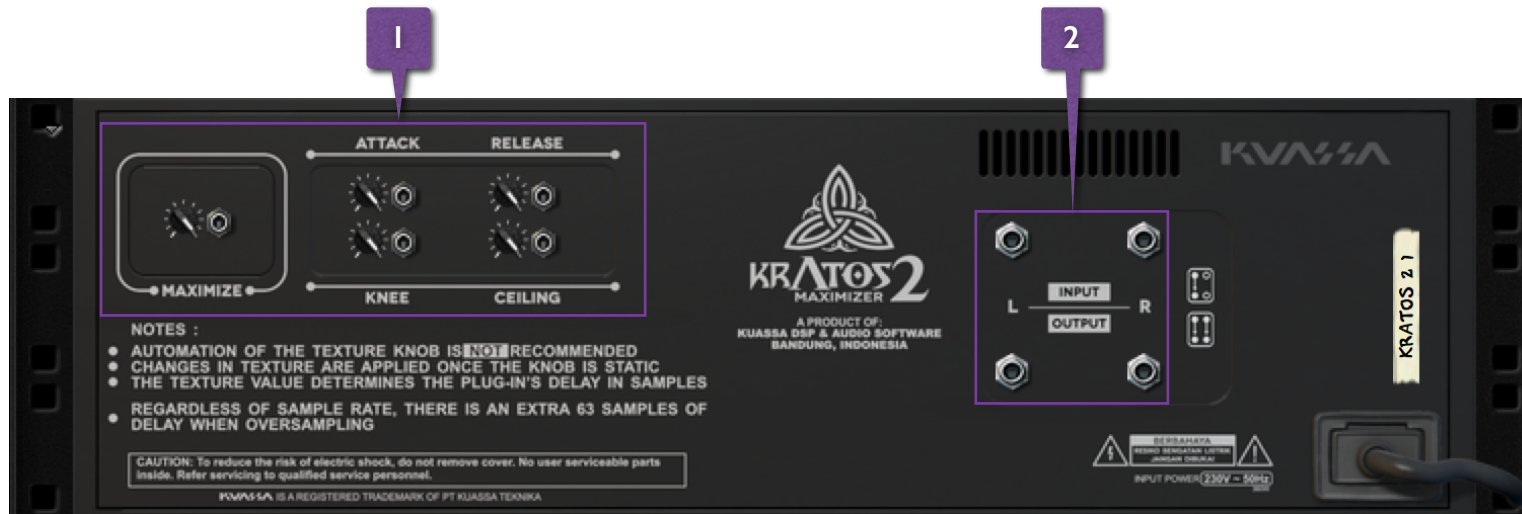
..... Front Panel



- Bypass Slider:** Turns the EQ on, off, or bypass
- Preset Selector:** Select from available *Presets*, press up-down buttons or select from drop down menu
- Maximize:** Adjusts the signal level to the limiter. The range is 0 – 20 db. Rotate the knob clockwise until you get the desired loudness level, in correlation with the other controls.
- Texture:** The character, or 'Texture', knob acts similar to look-ahead in other limiters, that's why it's measured in milliseconds (ms). It also causes latency, depends on the look-ahead time. 'Texture' behaves different to 'usual' look-ahead parameters. The longer the Texture setting, the response to the low frequency will be better (lower distortion/artifacts, and sounds tighter). Longer setting will also give more limiting reaction time and prevent more transients from being clipped.
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Hard Knee Soft Knee
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- Release:** Is a period when the signal back to normal again after limiting occurs. Available at 0-1000 ms.
- In **Adaptive** mode, attack and release times are dynamic and depend on the source material and *Texture*, with the values set in **10** and **11**, respectively, as the upper bound. In **Normal** mode, the *Attack / Release* times are static and equal to the values set in **10** and **1**.
- Dither Section:** Adds very low level controlled noise to the material. Used to reduce distortion of low-amplitude signals when converting to lower resolution.
 - **Normal** = Classic linear dither
 - **High Pass** = Classic linear dither with high-pass filter applied
 - **Equal** = The dither follows equal-loudness contour (human hearing envelope)
 - **8 bit** = Noise test, low-resolution audio, creative and/or non-conventional purposes
 - **16 bit** = Universal standard for CD Audio
 - **24 bit** = DVD/movie, pre-mastering, high-quality audio and/or storage purposes
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- Oversampling:** Increase the internal sampling frequency to reduce aliasing artefacts at the cost of higher CPU usage.
- Ceiling:** Sets the upper limit of the output signal. The range is 0 to -20 dbFS.

Back Panel



1. CV Input:

- **Socket:** Receive incoming CV message for controlling/automate each parameter of Kratos 2 Maximizer.
- **Trim:** Turn counter-clockwise for each corresponding input to reduce the intensity of incoming CV message.

2. **Input and output sockets.** Please note that Kratos 2 Maximizer Rack Extension is an FX, and should always be added as FX device instead of instrument.

NOTES:

- Automation of the Texture knob is NOT recommended.
- Change in Texture is applied when the knob is stationary.
- Texture value determines the plug-in delay in samples.
- Regardless of sample rate, there is an extra delay of 63 samples when oversampling is used.

Basic Usage

The main goal of a “maximizer” is to safely increase the perceived loudness of a signal. It does so by first limiting the signal at a specified volume threshold — ensuring that the signal never exceeds the threshold— and then applying the same amount of gain to the signal as the threshold. Thus, maximizing by 10 dB is equivalent to limiting the signal at -10 dB and subsequently applying 10 dB of gain. Limiting ensures that signal is safe from clipping and peaks after gain application (the signal never exceeds 0 dBFS) but also reduces the dynamic range of the signal by cutting off all transients above the specified threshold. Therefore, maximizing is a trade off between perceived loudness and dynamic range.

In practice, this involves maximizing the signal up to the point where dynamic range reduction is perceivable. For complex signals containing lots of transient information (in the form of drums and percussion), this reduction can become very noticeable. Hence most good maximizers employ various timing tricks to convince the listener that their drums are still there. Pre-emptively reducing gain before a transient occurs, for example, ensures that the thump from a kick drum still punches through.

Below we outline a “quick start” guide to setting up your maximizer. There are, however, no hard rules of thumb for maximizing; the best way is to compare to a commercially released good quality masters as a reference:

1. Load an audio file in your DAW and put the Kratos 2 Maximizer on the last insert slot.
2. For mastering, we recommend setting the [Ceiling] at -0.1 or -0.2 db for additional protection against peaks. We also recommend using the Adaptive mode.
3. Play the file and start rotating the [Maximize] knob.
4. Watch the [Gain Reduction] meter while rotating the knob. Stop when the reduction occurs regularly during transients and occasionally in between.
5. If you start hearing sound degradation (clipping or fuzziness), adjust the [Texture] knob.
6. Adjust the [Attack] and [Release] time to suit the material. In general, increasing the [Release] time will result in a tighter sound.
7. If you feel that the limiting action is too hard, adjust the [Knee] to soften.
8. Keep adjusting the parameters in relation to the [Maximize] knob until you get the desired loudness level. You can compare with other good quality masters as a reference for the best loudness level.
9. If you are saving or exporting to a lower bit-depth, turn on the [Dither] section and adjust as you prefer.
10. Generally, [Oversampling] should be enabled when using fast [Texture] and [Attack] setting or heavy gain reduction to ensure best possible quality.
11. You can also use this plugin for creative purpose, such as distort the sound or create pumping effect.

MIDI CC NAMES

[128] = maximize

[129] = texture

[130] = knee

[131] = "/custom_properties/attackType

[132] = "/custom_properties/attack",

[133] = "/custom_properties/releaseType",

[134] = "/custom_properties/release",

[135] = "/custom_properties/ceiling",

[136] = "/custom_properties/ditherOn",

[137] = "/custom_properties/ditherType",

[138] = "/custom_properties/ditherBitDepth",

CREDITS

Developed by:

Iqbal Ansyori

Pratama Kusuma

Rendy Fajar

Bramantyo Ibrahim

Cil Satriawan

Adhitya Sulistya Wibisana

Arie Ardiansyah

Grahadea Kusuf

Rathomi Trinugraha

Sundawan Sukmaya

VST Plugin Technology by Steinberg Media Technologies, GmbH.

Audio Units by Apple, Inc.

Rack Extension by Propellerhead Software

Avid Audio eXtension by Avid Technologies, Inc.

CONTACT

PT Kuassa Teknika

Jl. Sukasenang V No.14

Bandung, 40124

West Java, Indonesia

General Inquiries: info@kuassa.com

Tech. Support: support@kuassa.com

<http://www.kuassa.com>

A PRODUCT OF:
KUASSA
BDG, WEST JAVA.
INDONESIA

<http://www.kuassa.com>

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