



JAX ESSENTIAL SERIES
(Squasher)

MANUAL

JAX ESSENTIAL SERIES

AUDIOUNITS

The JAX ESSENTIAL Series is an universal collection of several MIDI enabled AudioUnits for usage with any AUv3 supporting host application across all modern Apple devices (iPhone / iOS, iPadOS, Intel and Apple Silicon based Macs).

Truly Universal

These units show identical behavior on all mobile devices and the desktop Macs running on MacOS natively and are for instance selectable within GarageBand, MainStage3 and Logic Pro X and all host applications, which support Apple's latest AUv3 standard. On the Mac, the units can process optionally in-process or out-of-process, which is configurable with the host application.

Unified parametric interface

The units inside the collection come with an unified, simple and easy to use parametric interface, which is specifically optimized for touch screen usage, freely size-able and this way operating on any screen size and orientation. Especially in Logic Pro X, the windows can be freely adjusted to any size.

Presets

The presets of the audio units are based on Apples human readable *.plist XML format and shareable across all supported devices. Most of the plugins come with a factory

set of around 200 presets for instant selection. For a complete preset list, please see the addendum.

MIDI Automation

The most important parameters are directly MIDI automatable by just assigning a controller number to the desired parameters. Multiple assignments are possible. Please note, that MIDI values are by nature quantized to 128 concrete values. However AudioUnit automation will always use full floating point resolution for the parameters.

Next Step Evolution

For more specialized applications, the JAX SELECTIVE RANGE (SR) Series will enhance many of the essential series effects with a unique frequency band-bass split filter, well suited for mastering tasks and frequency selective enhancements. Applying modulation effects to the whole frequency spectrum often will not give optimal results, so we enhanced the basic concept for selective frequency ranges and instant setup and access.

The SR Series effects also come with a more advanced graphical user interface, emulating hardware controls for the main parameters.

(screenshot)

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JAX Squasher

The JAX Squasher is a loudness maximizing all-pass limiter, meaning it will allow to push the volume and squash the passed audio in loudness dimension, fitting into the available range below zero decibel. It also has a ,Mix‘ parameter, which commonly is often called ,parallel compression/limiting‘. This parameter can adjust the final mixture of the original input and the processed (squashed) result to any taste. JAX Squasher does not introduce a latency.

There are only 2 significant parameters for tweaking, this are the ,threshold‘ and the ,input gain‘ parameters, so it is very easy and quite safe to use. Input volume and threshold are used to add gain to the audio, while speed will adjust the internal envelope follower (release and attack are extra available here). An eventually appearing pumping effect can be adjusted with the envelope follower controls, to fit to the rhythm of the audio and for forming transients.

The threshold value will automatically raise the gain for maximum loudness. Extreme values for loudness and speed will result in more or less transient distortion or even a complete crush, which is not a goal of the effect processing at all.

The JAX Squasher does a fairly good job when common loudness boost and improvement of perception is required. Users should take care for not overusing this effect, as the final result may become more and more flat this way. Per

default and with the right adjustment of the available parameters, no colorizing of the sound is generated. This may be the main difference to many available dynamics processors out there. JAX Squasher tries to process the in-passed audio as transparent as possible.

(screenshot)

PARAMETERS

JAX Squasher has the following parameters:

Global

These parameters are common to all effects in the Essential Series and some may be redundant to the following main parameters.

- kDisplayContrast - The display contrast can be freely adjusted and is now saved with a preset.
- kBypass - This parameter corresponds to the global bypassing parameter, shared by all audio units.
- kOutputClipper - This parameter forces the level to clip on the 0dB mark. It is basically an audio brick-wall.
- kActive - Whether the effect is processing or the audio is passed thru unchanged. This is mainly for additional control.
- kGainIn - The input gain can be adjusted extra for very quiet levels.
- kGainOut - The gain of the processed output can be adjusted here, which may be useful for mixing purposes.

Specific

- kDynamicsAttack -
- kDynamicsRelease - The release and attack time of the internal Envelope follower, which drives the gain boost of the limiter. It depends very much on the type of audio

material, how to adjust this parameter correctly. Extreme short values may result in distorted transients.

- `kDynamicsTresh - Threshold` is a commonly used term for the gain limit or range for limiting or compression, however the parameter is here used to auto-adjust the entire gain of the audio into the available headroom up to 0db.
- `kDynamicsMix` - Input and output of the effect processor can be mixed to fit the taste. It is also often called ‚parallel limiting/compression‘. It basically allows to adjust the final result without touching the main parameters.

MIDI Implementation

All items in the Essential Series have inbuilt direct MIDI controller support. Each of the parameters above can be assigned to a MIDI controller. Multiple assignments are possible with this.

Please note, that MIDI controller values are limited to a resolution of merely 128 values. If you need fine control via automation with floating point precision, we explicitly recommend to use the exposed `AudioUnit` parameter interface.