



# **JAX MINISAMPLER** **(AudioUnit)**

**PREVIEW MANUAL**

# **JAX MINISAMPLER**

The JAX MINISAMPLER is a very easy to use and quite powerful sampler AudioUnit, working with certain prepared templates for quick sampler file creation. Templates are prepared key mappings in Apples AUSampler file format.

By assigning samples to keys, musical instruments, clip launchers and drum sets can be build and instantly used with any MIDI based music production.

JAX MINISAMPLER requires a supporting audio host application for its operation.

There are several different templates to chose from.

## **The One Sample Template**

The most thinkable simple template is the “One Sample Template”, where the user can just load and assign a single sample to a root key and it will be mapped across the entire MIDI key range, thus transposing it accordingly. Many of such JAX MINISAMPLER instances can be used simultaneously, to construct musical arrangements and MIDI accomplishments this way alone.

With the available parameters the sound can be modified in realtime and also automated via predefined MIDI control messages. AudioUnit parameter automation is available too and will be translated to MIDI messages internally.

## **The Clip Launcher Template**

This template is for assigning 16 different samples to the white MIDI keys in the range between 48 to 74 (around the middle “C” key number 60). The parameters apply to all samples at same time and the clips can be played polyphonic too.

It is thought for cases, where larger audio clips are needed to fake “audio tracks” in pure midi environments. For instance for supplied vocal parts. With MIDI key messages these clips can be started sample accurate, even if no audio tracks are available. The audio clips must be tuned accurately and the tempo must fit to the tempo of the current playing MIDI arrangement.

## **The Slicer Template**

(available with the PRO Version of JAX MINISAMPLER)

This template is very similar to the “One Sample Template”, as it will load only a single (a monolithic) sample. The difference is, that this sample will be mapped to separate keys with different sample start positions (virtually sliced).

Per default the loaded sample will be mapped to 16 equally spaced slices. The start marker of each slice can be adjusted separately, manually and with MIDI controllers, whereby the new values will affect note triggers after adjustment. The slices are mapped to the white keys between MIDI notes 48 and 74.

This preset may be useful for loading rhythmic loops, which can be deconstructed and re-ordered this way by pressing MIDI Keys in appropriate order. Deconstructed Drum loops

are commonly used for perfectly adopting the current tempo of the midi arrangement, if the loop has different tempo.

Remarks: The resolution of the sample start parameter is rasterized to a maximum of 128 possible discrete MIDI values for this technical limitation.

## **The Chromatic Mapping Templates**

(available with the PRO Version of JAX MINISAMPLER)

For more advanced usage we provided the “Chromatic Mapping Templates”. With these selected templates, MIDI keys can get assigned a sample, that usually should correspond to the root key of the selected MIDI note number of that key. Such mapping can be used for constructing common key sampled melodic instruments, for instance samples, generated with so-called auto samplers, like our JAX AUTOSAMPLER.

There are different key mapping templates available, which for instance sample certain fixed intervals of keys, drastically saving disk space this way. It depends on the tonal complexity and the formants of a voice, how large the intervals between the sampled notes can be to remain realistic. A high quality Grand Piano sound for instance, usually will require a per key sampled sound for sounding convincing and other things, like well adjusted velocity filters.

Also any kind of polyphonic audio clip launchers can be constructed with this template easily. For this kind of sampler instrument we recommend the templates for white keys. If a key is not assigned, the sound for the selected MIDI note range will remain silent.

The controllable parameters will affect the entire accomplished sampler instrument with this configuration. Individual sample control is available with the Key Group Template.

## **The Key Group Template**

Another useful template is the “Key Group Template”. Here the user can construct a limited number of so-called sample layers, where each of the keys can be automated with its own independent set of control parameters. Such mapping is useful for building drum maps and audio clip launchers, that usually require independent parameter automation per clip/sample.

Remarks: Because of the fact, that available MIDI controllers are very limited, only a small set of a maximum 12 such key groups are supported.

## **Available Presets**

We provided several useful examples made with our template based design, which can be loaded for study or just for musical usage. But there are also other, internally more complex patches available, which provide features, that are not directly editable with JAX MINISAMPLER. The Grand Piano is such an example, that uses further specialized internal controls for sounding more convincing.

The factory content can be loaded and played and should not be modified or re-saved, as it may lose some of the unique internal routings of these prepared presets.

We also plan to provide a number of more ready to be used sample sets and presets in the near future, so that MINISAMPLER can be used like a kind of preset sound expander.

Other upcoming products may also share the created presets and the provided factory content for JAX MINISAMPLER.

## **Importing and Managing Samples**

JAX MINISAMPLER will import all supported sample formats that iOS is recognising. The samples may be renamed upon import and always placed into a shared folder area on the mobile device, where the AudioUnit can access these from inside any host application.

Samples also must have absolute paths inside the preset files. This is a requirement of the Apple AUSampler format.

Remarks: Loop markers are generally supported with certain audio file formats too, but currently loop markers cannot be edited with the user interface of JAX MINISAMPLER.

Compressed audio is supported but such file formats usually do not support loop makers at all. Compressed audio always will be expanded into the memory upon loading, so using compressed samples is merely useful for content without loops and for internet distribution. It is also good for saving disk space for preset storage on the mobile device.

## **The Sample Browser**

We provided integrated browsers, where presets and samples can be imported and managed by the user. Only successfully imported samples can be assigned to a sampler preset. At first the samples must be imported into a shared directory for instant selection. Usually this will work as an automated process, started by assigning a sample to a key by the user.

Samples and Presets can also be deleted for keeping device space free.

Remarks: please note, that an AudioUnit cannot access shared global sample storages directly or anything like this as possible on the desktop computer.

All samples must be copied into a shared app group folder for secure access therefore. If the samples are imported from a local folder on the used device, for instance, the used space will be always duplicated on this device, as the sample is copied to a new place. This is a common iOS problem and we cannot do anything for preventing such kind of awful waste.

Managing, deleting and moving imported samples is also rather quite critical, because it may invalidate all existing patches, that reference these samples. Loading presets with missing sample files will therefore fail and the sampler may become silent without any further notice. A single missing sample can make the internal AUSampler instance refusing to work completely and silently.

We therefore do not recommend to modify imported samples and files in any way. Also renaming samples will cause the complete lost of working presets.

Remarks: In rare cases the internal Apple AudioUnitSampler may crash upon loading presets and importing certain samples. As we do not own the source code of this component, we cannot guarantee flawless function of our units under all circumstances.

## **The Sampler File Format**

We use Apples native AUSampler file format and for our template based design. The reason is, that JAX MINISAMPLER is internally using the Apple AudioUnit Sampler. This sampler is well known from the MacOs and also available on the iOS platform. The problem with this proprietary AudioUnit is, that its format is not very well documented by Apple, so a huge amount of research was necessary to accomplish the current results.

We took much effort into the support of this special file format, which basically is an human readable XML file with hardcoded sample references. This means, it always uses absolute sample paths, which have to be rewritten, when such a file is created, installed or even moved to a different place. The file format and its entire content as it is very sensitive to errors and wrongly assigned values, so it is not recommended to modify such files manually.

The file format supports numerous complex sound modification parameters, but only a very small subset of those features is currently supported by our JAX MINISAMPLER and its provided templates. We want to provide an easy usable sampler with not so much complexity.



Loading samples will cause a complete rewrite and reload of the selected preset file, which is done automatically in background. It is not recommended to exchange samples while performance situations as this may cause audio dropouts.

JAX MINISAMPLER may also import and load prepared patches (factory content) with much more complex internal structure than the currently provided templates. It is not recommended to modify our factory content presets, as this may lead to loss of sound and possibly create other unexpected results too.

## **How To Create Your Own Presets**

Just open the preset browser and select one of the presets from the “Templates” folder. By default all sounds are silent in such a loaded template.

Now start assigning samples by importing sample by sample to the CURRENTLY SELECTED key. It depends on the template, which of the keys can be assigned. The root key of the sample must fit to the selected MIDI key number. The sampling intervals are fixed with the different templates.

By assigning a sample to a valid key, the preset file will be recompiled and automatically reloaded into the sampler. The sound is immediately playable after successfully assigning the sample.

If the sound remains silent, an internal loading error by Apples AudioUnitSampler may have been occurred. If so, please try to select a different sample temporarily (i.e. the

provided “silence.aif”) and try to convert the failing samples to a different file format externally.

## **How To Use The Sampler Just As A Preset Synthesizer**

Open the preset Browser and select one of the prepared patches into the sampler. There may be downloadable content for the JAX MINISAMPLER available from our preset servers too. An internet connection with high bandwidth is required for loading sample content from our servers.

The JAX MINISAMPLER is able to load presets created with our JAX AUTOSAMPLER. Both audio units share the same spaces for preset and sample storage.

The internal sampler supports a maximum of 64 simultaneous polyphonic voices and also supports streaming large samples directly from disk.

Very large samples or disk streaming samples may not be displayed onto the waveform screen for memory usage reasons.

## The MIDI Implementation

The following MIDI Controllers are supported with the “One Sample Template”, the “Clip Launcher Template” and the “Chromatic Mapping Template”:

Envelope Attack - MIDI Continuous Controller No. ...

Envelope Decay

Envelope Sustain

Envelope Release

Voice Pitch

Voice Level

Voice Pan

Filter Cutoff

Filter Peak

These controllers affect the entire sample mapping.

The following MIDI Controllers are supported with the “Key Group Template”:

...

These controllers affect the individual key assignment of a defined range. The count of available MIDI controllers is limited by the MIDI specification and Apples AudioUnitSampler implementation.