

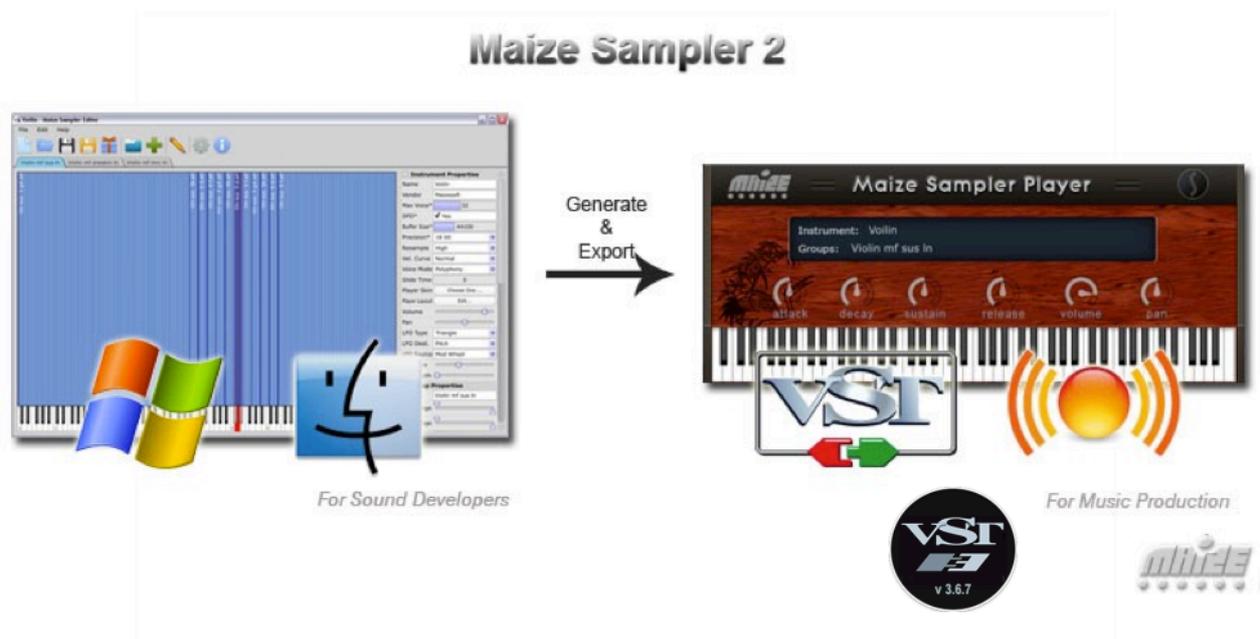
Maize Sampler 2

Documentation



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Introduction



Have you ever dreamed publishing your samples as a VST, VST3 and Audio Unit virtual instrument? With Maize Sampler 2, this is easy and affordable. In minutes, your instruments will be ready to be used by musicians all over the world.

Maize Sampler 2 is a cross-platform tool for sound developers to create sample-based virtual instruments. The following are some highlighted features:

- ✓ Standalone Windows and Mac OS X editor application (32 and 64bit).
- ✓ Group selections by key / controller / MIDI channel.
- ✓ Disk-streaming / Memory reading mode.
- ✓ Poly / Mono / Legato voice mode with glide time.
- ✓ LFO, ADSR envelope and built-in reverb effect controllable via Midi CC
- ✓ Low pass and High pass Filters with Cutoff Frequency
- ✓ Round-robin / Random overlapped sample trigger.
- ✓ Load EXS24 sampler format.
- ✓ Sample loop, Choke cluster, Release trigger.
- ✓ Big sample mapping area and sample table view.
- ✓ Export .mse compact instrument file.
- ✓ VST , VST3 and Audio Unit player plug-in generation (32 and 64bit).
- ✓ What you see is what you get player GUI editor
- ✓ Custom knobs and buttons on player UI.
- ✓ Serial number copy protection on exported instruments.

Tutorial

Don't know the workflow to make a virtual instrument with Maize Sampler 2? Let's make a very simple instrument to see how it works.

First, launch the maize sampler 2 editor by double clicking on the maize sampler.exe or maize sampler.app. Then you should see the maize sampler 2 editor main interface with menu, toolbar, mapping area and property list. The mapping area in the middle with grid and keyboard is the place which we can place samples. Initially, maize sampler creates a empty instrument for you named "untitled instrument". You can change this name in the instrument property list on the right to "super sine".

Second, press F3 to add a sine sample wave file into our instrument. At this time, maize sampler editor will pop up a sample-mapping dialog asking you how to map this sample. The default settings will stretch this to the full keyboard. Click OK, then you will see a purple sample covers the entire mapping area. You can try to click the keyboard below to preview the sound. The red key on the keyboard indicates the root note of the current selected sample. You can change the root note of this sample by right clicking on the desired key.

Finally, press F5 to call up the export dialog. This dialog will create VST/AU plug-in with your own identity and instruments. Check the "generate player plug-in with the instrument" and then click "Export". This will give you either a dll with a folder of your instruments for Windows or a bundle for Mac. And these are the files you can deliver to your musician customers. If you are just trying to add more instruments to your existing player, you should uncheck the "generate player plug-in with the instrument" option.

OK. Now you know the basic work flow of how Maize Sampler 2 works. If you would like to some details about it such as properties, skin, layout, and copy protection, please read on.

Details

1. Instrument Properties

▼ Instrument Properties	
Name	Untitled
Vendor	Maizesoft
Max Voice*	32
DFD*	<input checked="" type="checkbox"/> Yes
Buffer Size*	44100
Precision*	16 bit
Resample	High
Vel. Curve	Normal
Amp Range	<input type="range"/> -48,0
Voice Mode	Polyphony
Glide Time	0
Volume	<input type="range"/> 0.0 dB
Pan	<input type="range"/> 0.000
LFO Type	Triangle
LFO Dest.	Pitch
LFO Source	Mod Wheel
LFO Rate	<input type="range"/> 2.656Hz
LFO Depth	<input type="range"/> 0.000
Filter Type	None
Filter Cutoff	<input type="range"/> 0.000
Reverb	<input type="range"/> 0.000

The instrument is the top-level structure of Maize Sampler. It can be saved as a “ms2” file or exported as a “mse” file. In Maize Sampler Editor, only one instrument can be edit at the same time. The instrument has the following properties:

Name: The name of the instrument, will be displayed in the player. It may be different from the file name.

Vendor: Your company name.

Max Voice*: The max polyphony number. Changing this requires save and restart maize sampler.

DFD*: This decides if the samples are loaded into memory or streamed from disk. Changing this requires save and restart maize sampler.

Buffer Size*: The disk streaming buffer size. Bigger buffer reduces audio glitches. Changing this requires save and restart maize sampler.

Precision*: This decides whether samples are stored as 32bit or 16bit in memory. Changing this requires save and restart maize sampler.

Resample: The quality of interpolation used in pitch shifting.

Vel. Curve: This defines how the MIDI velocity is mapped to amplitude.

Voice Mode: poly/mono/legato

Glide Time: In mono/legato mode, you can set the voice to be pitch bended to the target in this glide time.

Volume/Pan: These are easy to understand. They can be controlled via standard MIDI controller.

LFO: There is a low frequency oscillator for each instrument; they can be mapped to control voice pitch, volume or panning.

Reverb: a simple built-in reverb effect. If you don't want it, make sure it's set to 0.

Filter Type: Low Pass & High Pass Filter

Filter Cutoff: (control via midi CC 74)

Cutoff Frequency for Low pass or High pass Filter

(P.S. you can Use Automation to Control Cutoff Frequency)

2. Group Properties

An instrument can have multiple groups. A group is a cluster of samples which share some properties. Only samples in selected groups will be played. And there are several different ways to select groups. In this way, different sub patches or articulations can be arranged in groups. Group has the following properties:

▼ Group Properties	
Name	Default Group
Key Range	0,127
Vel. Range	0,127
Gain	0 dB
Pan	0.000
Output	1
Attack	0.00
Decay	0.00
Sustain	2.00
Release	1.00
Overlap	Stack Trigger
Selection	Always Selected
- MIDI Ch.	1
- Key Switch	0
- CC#	Modulation Wheel (coarse)
- CC Range	0,0
- Program#	0
Release Trigger	<input type="radio"/> No
RT Decay	0
Disabled	<input type="radio"/> No

Name: name of this group. It will be shown in the editor and player.

Key Range: Only notes in this range will be sent into this group.
This will override samples' note range.

Vel. Range: Only notes in this velocity range will be sent into this group.
This will override samples' velocity range.

Gain/Pan: they are easy to understand

Output: Audio output Channel Selection for the selected group “1 to 16” (Stereo outputs) (fig 1)

“Can be controlled with a combo box from the GUI“

in Combo Box **action** select “group output stereo channel” (fig 2)

Fig 1

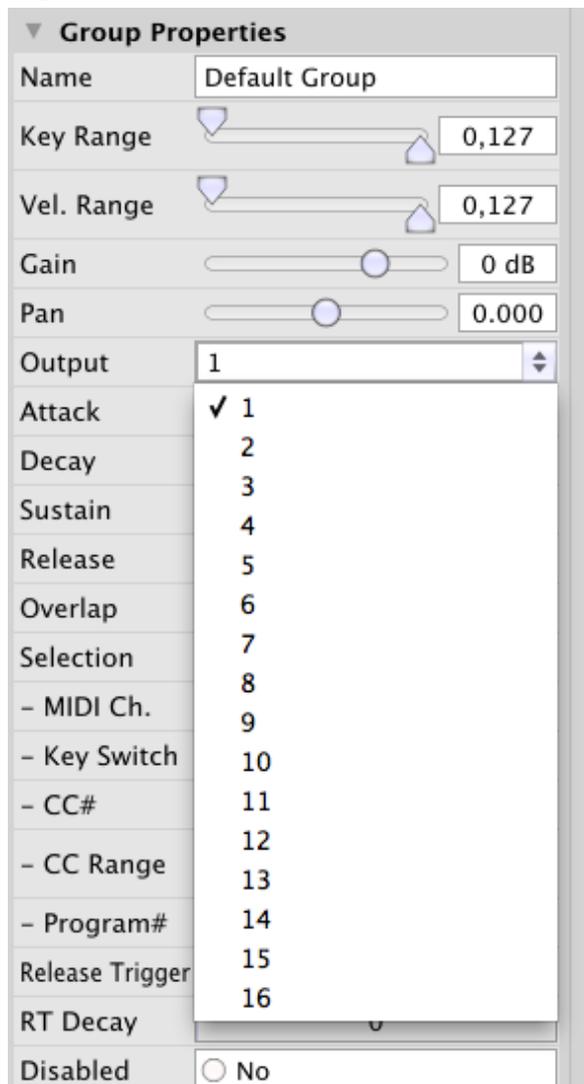
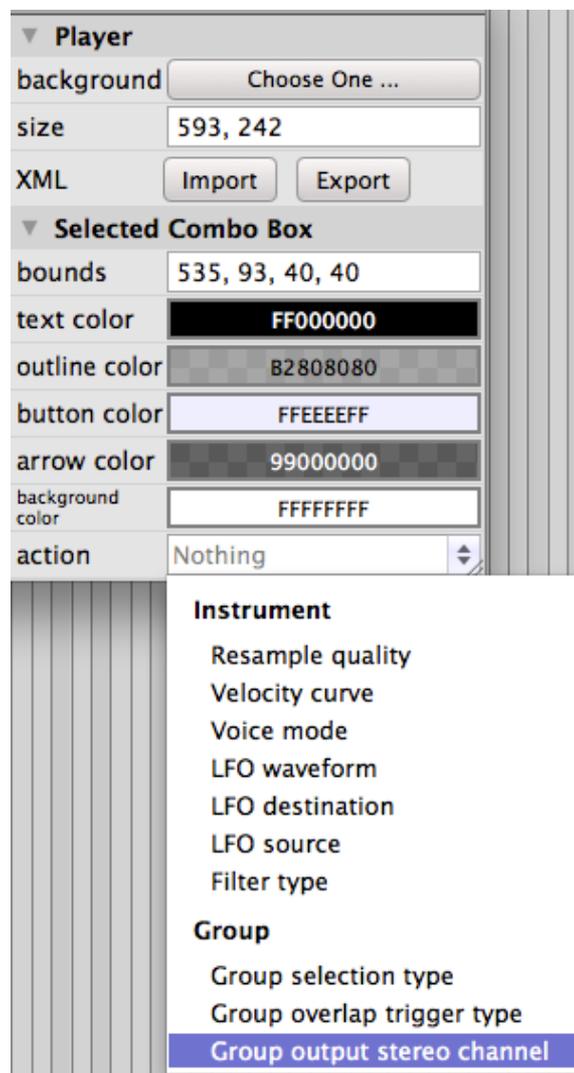


Fig 2



Group Properties Attack, Decay, Sustain & Release Controls

These controls range are between 0 and 2

“0” means 0% of the value of the “Sample Properties (Fig3)” ADSR Value

“1” means 100% of the value of the “Sample Properties (Fig3)” ADSR Value

“2” means 200% of the value of the “Sample Properties (Fig 3)” ADSR Value

Attack: (control via midi CC 73)

This attack time trims the attack time of all the samples in this group.

This offset will be added to the sample property attack time.

Decay: (control via midi CC 75)

This decay time trims the decay time of all the samples in this group.

This offset will be added to the sample property decay time.

Sustain: (control via midi CC 76)

This sustain level trims the sustain level of all the samples in this group.

This offset will be added to the sample property sustain level.

Release: (control via midi CC 72)

This release time trims the release time of all the samples in this group.

This offset will be added to the sample property release time.

(P.S. you can also use Automation to Control ADSR)

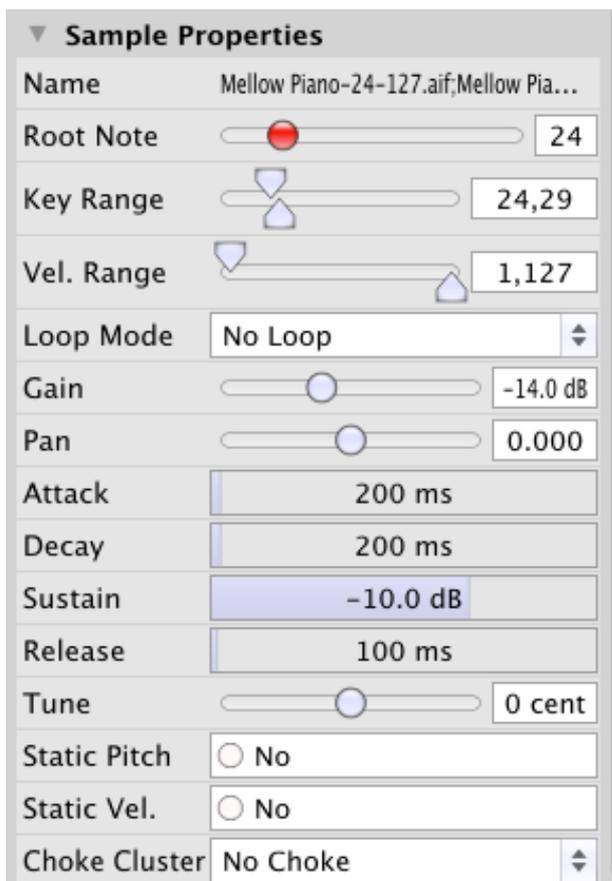


Fig 3

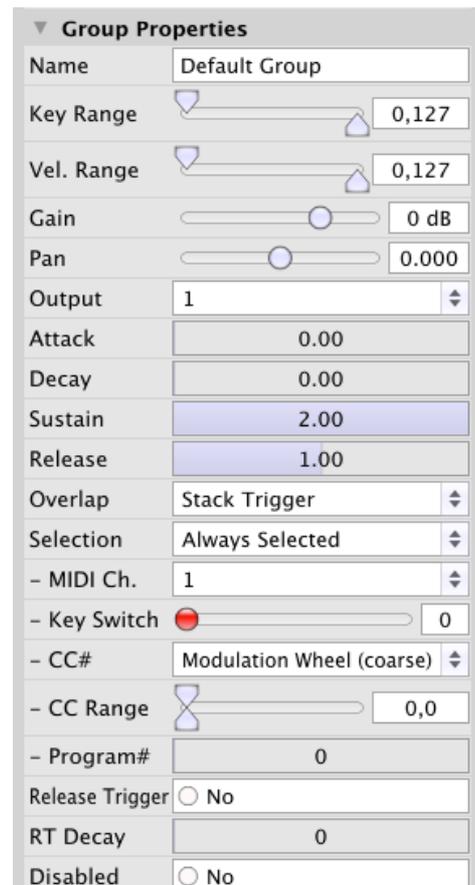


Fig 4

To hear the samples played back as they were recorded

We suggest starting with the values below to understand how the ADSR Works!
Then you can customize them to your own taste!

Startup Sample Properties values: (fig 3)

Attack : 200ms , **Decay:** 200ms, **Sustain:** -10db , **Release:** 100ms

Startup Group Properties Values: (fig 4)

Attack : “0” , **Decay:** “0”, **Sustain:** “2” , **Release:** “1”

“when using the values described above this is the range you will get”

Attack: “0” means “0ms Attack time” Plays the sample from the start

When using controls on the GUI you will have a range between “0ms and 400ms” attack time

Decay: “0” means “0ms Decay time” “No Decay”

When using controls on the GUI you will have a range between “0ms and 400ms” decay time

Sustain: “2” means “0db level” “No Attenuation”

When using controls on the GUI you will have a range between “-20db and 0db” sustain level

Release: “1” means “100ms release time”

When using controls on the GUI you will have a range between “0ms and 200ms” release time

Overlap: This defines who overlapped samples will be triggered.

Stack Trigger (Default): which means all the samples in the incoming note range will be played.

Round Robin: means samples will be triggered one after another.

Random Robin: means samples will be triggered randomly but without repetition.

Totally Random: means samples will be triggered in total random order, repetition may be possible.

These options are useful when you try to make your instrument more natural.

Selection: This defines how this group is going to be selected.

Always Selected : means this group is always active no matter what.

MIDI Channel : means this group can be selected by messages from a specific MIDI channel.

Note Key Switch : means this group can be selected by a certain note message.

Controller (CC): means this group will be selected by a MIDI Controller when it’s value is in a certain range.

Program Change: means this group can be selected by a specific program change message.

Manual Select by Users: means this group can only be selected by user commands on GUI.

MIDI Ch /Key Switch /CC# /CC Range/Program #:

These properties works in associates with the previous Selection property.

Release Trigger: If the samples in this group should be played upon note off messages.

RT Decay: This is the time in ms that the velocity of the release triggered sample should reach zero

That is to say, it’s a velocity modulation with the note duration.

3. Samples

After selecting a sample in the mapping area, the sample property will be displayed:

Name: name of this sample. It may include multiple sample names.

Root Note: the original pitch of this sample

Key Range / Vel. Range: This is straight forward.

Sample Start / Sample End: The sample position that the playback will start and end.

Loop Mode: if this sample should be played with loop. One shot mode will play the entire sample until it ends; this is useful for drum samples.

Sample Start/Sample End: The sample range that the playback will loop. Double click to input numbers.

Volume/Gain: These are easy to understand.

Attack/Decay/Sustain/Release: The ADSR amplitude envelope of this sample.

Tune: Fine tune of pitch.

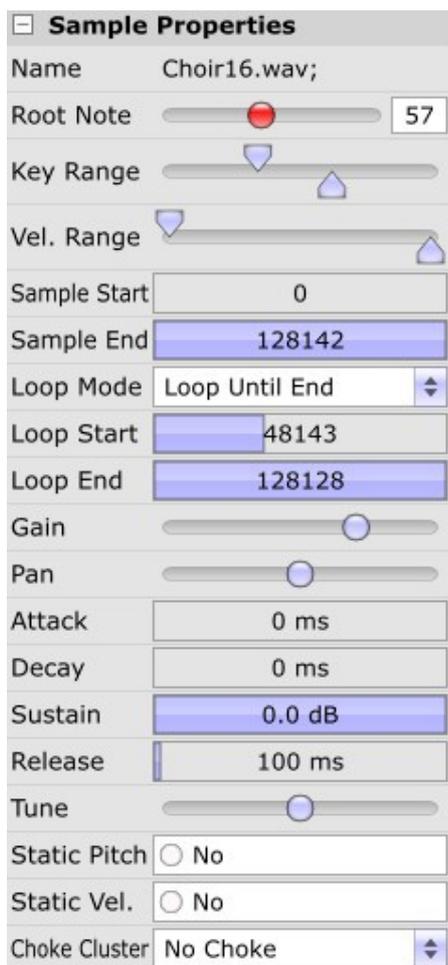
Static Pitch: This will disable the pitch shifting.

Static Velocity: This will disable the MIDI velocity amplitude modulation.

Choke Cluster: Samples in the same cluster will exclude each other.

This is useful for mutual exclusive samples such as open hi-hat and close hi-hat.

4. Mapping Area



The content view of maize sampler editor is the mapping area. On the top of mapping area, it is group tab bar. This tab bar shows all the groups in this instrument. All selected groups are in blue color. By right clicking on a group tab, you can select/deselect manually or delete this group.

In the mapping area, you can select sample by clicking on the sample rect. You can also select multiple samples by clicking while holding shift or drag a rectangular on the mapping area. To remove selected samples, you can double clicking on it or press delete key.

5. Skin and Layout

Maize Sampler 2 provides custom GUI for each instrument when your mse file is loaded in player plug-in. The player GUI can be edited by the Player GUI editor (F7).

The background picture can be easily changed by pressing the background button in Player property. Please note that this picture will be stretched to the size of the player which is defined in layout XML. If no picture is specified, the default maize sampler player skin will be used.



To add a new component, right click on the canvas, you will get the following options:

Add Component

- Knob
- Custom Knob
- Fader
- Button
- Image Button
- Label
- Keyboard
- Combo Box
- Level Meter

Knob: knob is a rotary widget on screen which can control a parameter in the instrument.

Custom Knob: the same as a knob, but you can assign a vertical film strip to it. Each frame of the film should be square.

Fader: similar with knob, but you just need to give a fader cap image, the cap will move up and down as a slider.

Button: a round cornered button with customizable color

Image Button: custom button can be assigned **a picture with two states side by side**.

The one on the left is normal state, and the right one is pressed state.

The width of the two states must be the same.

Label: a text label

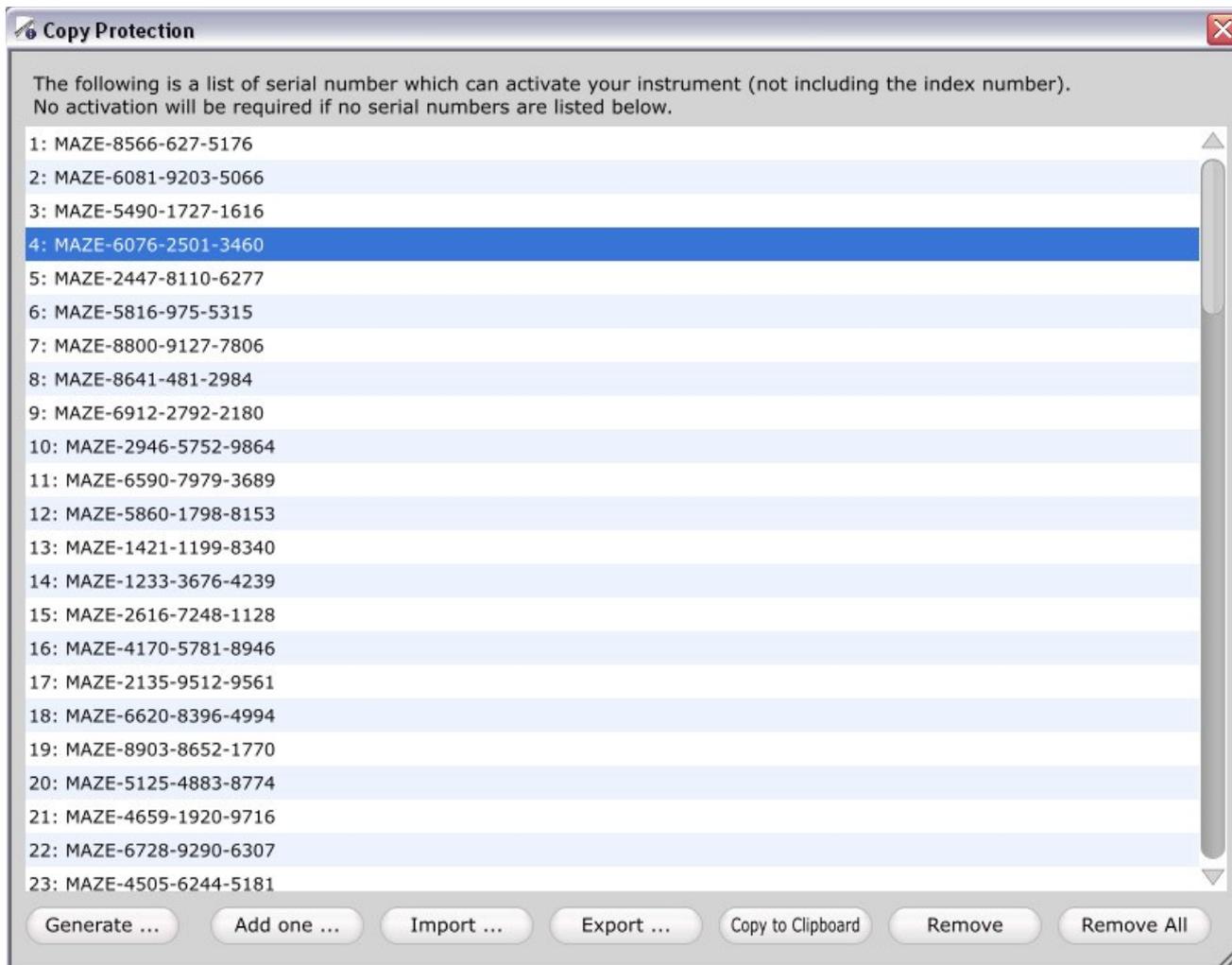
Keyboard: a midi keyboard

Combo Box: a combo box with predefined items

Level Meter: output level meter

6. Copy Protection

Maize Sampler 2 provides a basic serial number copy protection for your instrument. Press F6 to call up the copy protection dialog.



In this dialog, you can generate a list of random serial number or add one manually.

You can keep a copy of the serial numbers by export the list as a text file. It is recommended to have a copy of your serial numbers for tracking purpose.

The serial numbers are bundled with your instrument file.

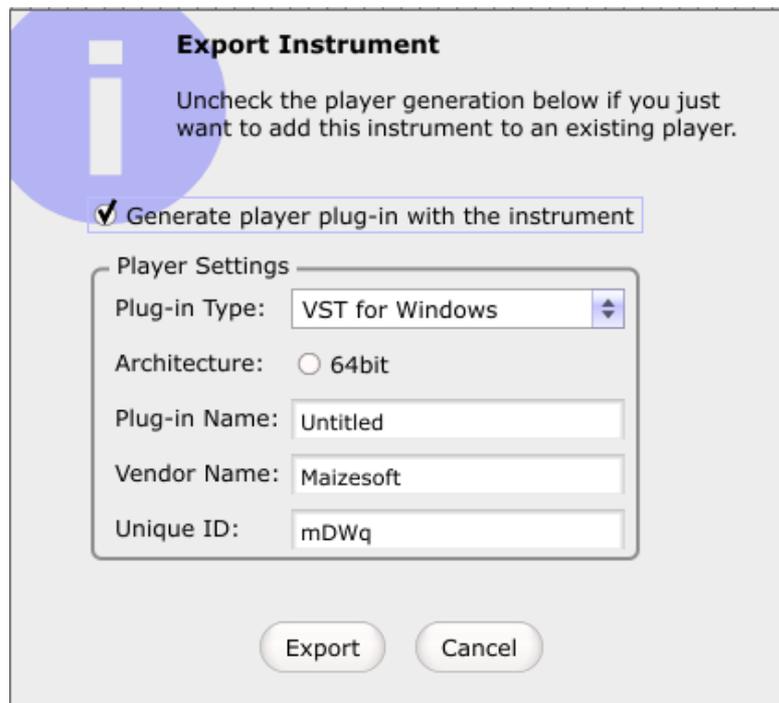
When your instrument is loaded by the player, the user is asked to provide a serial number.

If the provided one has a match in the list, the load will proceed, otherwise it won't be loaded.

If no serial number is listed in this dialog, it means the current instrument can be loaded freely.

Please note there is absolutely NO warranty on this copy protection.

7. Export



By pressing F5, you can export your current instrument as a compact mse file which includes everything about your instrument. To include a player plug-in with your instrument, check the “generate player plug-in with the instrument” option. If you just want to add more instruments into your existing player, uncheck the option and export the mse file to the .instruments folder (windows) or resource folder (mac) of your player.

In the Player settings:

Plug-in Type: Choose which type of plug-in you want to export. The cool thing is that you can even generate **Mac “Audio Unit”** from The **“Windows Application”** or **Windows “VST or VST3”** 32 and 64 bit from the **“Mac Application”**

For VST3 Export: you just need to rename the extension of the exported plugin

Windows plugin rename the **.dll** extension to **.vst3**.

Mac Plugin rename the **.vst** extension to **.vst3**

Architecture:

From Maize Sampler version 2.1, you can generate player in 32 bit or 64 bit architecture for use in different hosts.

On Mac, this option is disabled because the player will be a universal binary which works on both architectures.

Plug-in Name: This is the name which will be shown in the host.

Vendor Name: This is the manufacturer name which will be shown in the host.

Unique ID: Hosts require that each plug-in should have a unique 4 character ID. Maize Sampler generates a random one for you, but you can always change it here.

FAQ

1. How do I export a VST dll now? What is the mse file?

The mse file is the exported instrument files of Maize Sampler. This file is a compact format which includes everything about an instrument (samples, properties and skin).

In beta 3, a player plug-in generator is introduced. This tool allows you to generate your own VST, VST3 /AU plug-in along with a list of mse files. The generated player includes your own identify such as vendor name and plug-in name. On Windows, it's a DLL and a folder of mse files. On Mac, it's a component bundle.

2. How do I make a multi-instrument library with Maize Sampler 2?

Maize Sampler 2 is a single instrument sampler, that means one instance of player can only load and play one mse file at a time. But inside the player, you can unload and load a new instrument in the instrument list. That's why we need a common player instead of having multiple identical player for each instrument.

However, there is approach to add multiple instruments in one instrument as groups. Each group has a selection method. This defines how this group will become active. An option for sub instrument group is MIDI channel group selection. This selection method allows different groups being triggered by different MIDI channels. Another good one for sub instrument groups can be manual selection by users. In this group selection method, the current group will be selected by users in the player. Furthermore, you can also choose the program # selection method, so the group will be chosen by MIDI program change event.