

AnimaSpat 836X / 864X

Hello,

This is a simple help for the use of this new series of plugins, currently in beta phase. There are a number of limitations and constraints caused by the alpha stage of Synthedit 1.4, the availability of MacOS-compatible modules and the VST3 format itself, which means that I can not tell when and if functions on which they depend will be modified or introduced.

Its first goal is to initiate the progressive transfer of Acousmodules from 32-bit format to 64-bit, both to ensure compatibility with some hosts that only exist in 64-bit version, to benefit in some cases of better performance and, perhaps most importantly, to make them available to MacOS users ;-)
It is nevertheless likely that a large part of existing plugins will never be available in this form...

Installation

The plugins are available in two formats : VST3 for Windows and Audio Units (components) for MacOS.
Location :

- Windows : / Programs / Common Files / VST3 / or wherever you want...
- MacOS : / Library / Audio / Plug-Ins / Components /
- + Preset files: / User / Library / Audio / Presets /

They are tested with Reaper and Bidule on Windows 7/10 and MacOS 11.11.

They should also work with : Max / Msp, Audition, Ardor (MacOS), Factory (Windows), Pyramix (Windows), Tracktion / Waveform (Windows)

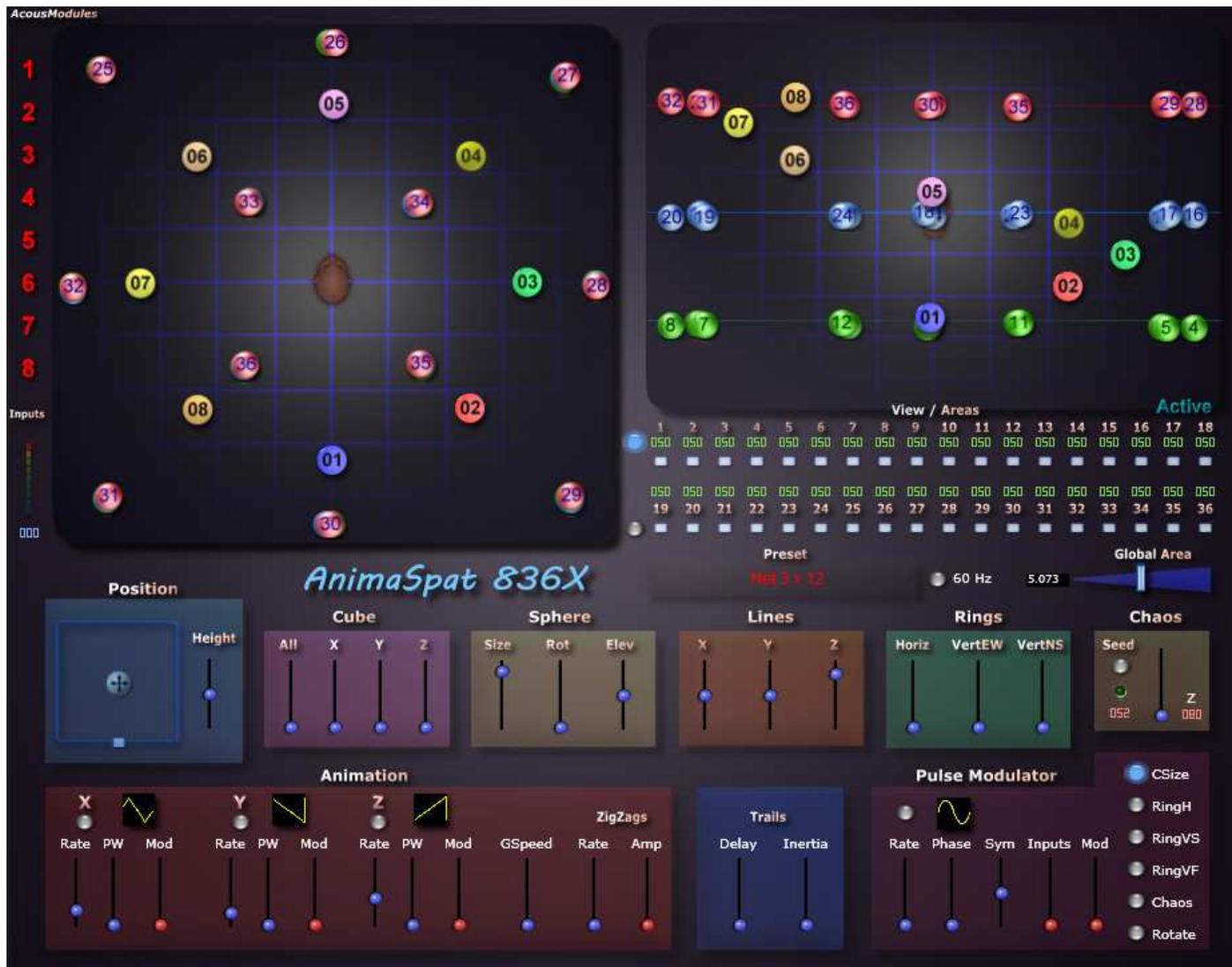
Known Issues (August 2018) :

- the recall of the internal presets may not work during the (re) loading of the plugin:
- Controller values may be different from what the GUI displays: move these controllers
- Windows: MIDI inputs do not work, use automation settings instead
- MacOS: the refresh of the graphical interface is slow and the animations more or less jerky
- MacOS: the removal of a plugin while it has automation tracks makes Reaper crash!

Description et utilisation

The "Spat3D" series represents sort of basic brushes with which one can draw and sculpt the *spatial mass* of sounds. It shares with traditional "panners" the ability to place and move the apparent source position of sounds within a loudspeakers space, but its settings and control modes are quite different, both more open for original arrangements, and less simple for "surround" standards.

The *AnimaSpats 836X* and *864X* share the same basic processing as the stereo input versions (218, 236 and 264), but manage the inputs as a group of eight and generate animations.



Common points

The representation of three-dimensional space is shared in two views : from above (left) and from front (right). They are flat and do not use perspective effects. The view of the front view is compressed vertically but the controlled space remains cubic (this is important for the adjustment of the Areas !).

This mode of visualization is obviously based on its analogy with the three-dimensional physical space of the loudspeakers spaces, so as to facilitate a number of operations and make them, perhaps, more intuitive. But it differs also in many ways :

- it is an amplitude control tool and it never represents the "sound"
- it is not necessary to precisely match the location of the projection points represented with the actual positions of the speakers, and it is often even necessary to treat them differently to obtain the desired result.

The positioning of the outputs (colored balls numbered) is done directly with the mouse.

Simultaneous pressing of the Control / Command key allows fine movement.

Note on the placement of objects on the vertical axis (front view) : unlike the majority of Acousmodules where the distribution of projection points is fixed on two or three levels of height, the "Spat3D" series allows a free placement also in this dimension. This can bring more flexibility, but also introduces difficulties...

In particular, most loudspeakers arrangements have more points on the horizontal axis than the vertical one, which is in line with our auditory perception and follows our way of inhabiting spaces. But as the technique used by "Spat3D" is based on spherical distances, we must not forget to reproduce this difference in the placement of the balls on the front view, where their vertical extent will have to be reduced most of the time. The thin horizontal lines (green, blue and red) are a reference for a device with three height levels.

The small buttons below the channel numbers on the right allow to hide the display of the corresponding objects while muting (selector on "Active"), or to change their color between blue, green and red (selector on "Color").

Hiding certain channels makes it easier to edit and adapt the GUI to the spatial format used (this does not change performance very much). The choice of color can help, for example, to identify height levels in the top view.



The Areas settings

This is an extremely important element and is sometimes found on traditional "panners". It is similar to the Influence setting in Reaper's *ReaSurround*.

Basically, these settings are used to determine how the amplitude of the incoming signal will vary on each of the outputs according to the 3D distance between them.

Input 1 has a visualization of distances in the form of bars. The button in the lower right corner of the top view displays it :



Depending on the value of these settings and the graphical distance between the balls (and the overall value of the next Area Volume), it is possible to get up to a total recovery of the device (the source sounds everywhere at the same level) or contrary a "discontinuous" space, which is in the case of these plugins not very advisable.

Individual Area settings are supplemented by the Area Volume one (or Global Area in other plugins). This setting may look like that of "Spread" found in many spatialization tools, but with a slightly different operation and effect.



This acts as a *master* shifting to the least or most of all the individual Area settings, and also changes the overall volume of the sound : there is no normalization of the amplitudes, so if a larger number important outputs is active the level will be stronger. "It is not a bug it is a feature", or at least a choice that I assume, being part of this way of dealing with the spatial mass of sound as such. As a result, if you want to get an enlargement of the area without the amplitude changes, you must also act on the amplitude of the sound...

Important Note about Aire Values : these "new" Acousmodules use a different method than 32-bit versions to compute distances, so the range of values is different. On the other hand, the Shape or Curve setting of the Area also influences how to make these adjustments. It is quite possible that these will change in future versions, which may change the way existing presets work.

La compensation du centre

A perceptively correct result of the Forms and Animations requires that speakers be placed inside the space. Thus this function is not present in these versions.

Inputs management



These two plugins accept an octophonic input, but it is possible to use less by disabling some of them by means of the numbered buttons on the left.

Be careful, as visual objects are not reordered accordingly, it is better to alternate them (and shift the relative entries). For example for a quadraphonic input, use 1-3-5-7 rather than 1-2-3-4, knowing that some shapes like the cube obviously require anyway to be 8...

Another method, can be more efficient, is to duplicate some plugin inputs (1 also goes on 2, 3 also goes on 4). In this way we keep all the potential provided by the 8 points.

At the bottom of this area is a meter peak that displays the mixed level of selected inputs.

The setting below allows you to set it for the envelope tracking function available in Pulse Modulator and Chaos.

Modes

These plugins are not meant to be used as a eight channels panner : for this use *Spat3D 836X* and *864X* plugins.

These are designed to treat multiple input channels as a single object that we can change and animate the shape globally. It is these global controls that we can control and automate.

While it is logical to use these plugins to place and transform the spatial mass of octophonic sources, it is also very interesting to use them in combination with a previous plugin such as the SpectraSplitter 8X (separation of a mono source into 8 spectral bands) or KaleidoSpat 64X (set to 8 outputs). In general, the more differences there are between the channels, the more the result will be noticeable.

Finally, the type of loudspeakers spatial arrangement also has a great responsibility in the relevance of this kind of treatment. If it's a holophonic system (speakers only around the listener) most shapes and animations will not work at all. In other words, these plugins have an interest almost only if we disposed at least one speaker in the center, the best being with 2D and 3D matrix ones. This is the main reason why I do not offer a version with fewer outputs (a cube 27, 3 x 9, seems to be the minimum to enjoy it).

The "Shapes" mode

The eight input points can be organized spatially into five "forms", five space-objects. These can be freely combined and the whole moved as a single group.

The idea is to make it possible to obtain a large variety of spatial mass forms with the minimum of controllers possible, while doing so in a simple and "intuitive" way.



From left to right:

- **Position** : the mini joystick controls the position of the group on the horizontal plane, the slider on the vertical plane
- **Cube** : a global control for the three axes (it is thus a cube) plus three separate controls for each axis (parallelepipeds more or less flattened). Since global control is added to separate controls, it can also be thought of as a kind of zoom on the shape defined by the other three.
- **Sphere** : the 8 points are placed in a circle whose diameter depends on the "Size" parameter but also on the elevation ("Elev"). When this parameter varies the 8 points follow the shape of a sphere...
- **Lines** : the 8 points are aligned along one of the three axes, the value determining the length of the line. All obliques are possible by combining the three.
- **Rings** : same thing but the 8 points form this time a ring.
- **Chaos** : the "Seed" button generates random values and the slider controls the amplitude of the spatial gap. Each time you press the Seed button new values are generated and the 8 points jump immediately to the new coordinates.

"Z": restricts the extent of Chaos on the vertical axis

The threshold setting under the "seed" button triggers new values based on the amplitude of the incoming signal. When the Seed button is pressed while the auto trigger is functioning, it acts as a Hold button.

The Animations

These plugins add to the features already present in other "Spat3D" animation functions of the small series "AnimaSpat".

They can be used to obtain "trajectories" as well as slow evolutions and they combine with Shape settings. The best is to experiment ;-)



The first three control groups activate and determine the values of three LFOs (waveform, speed, square wave ratio and amplitude), each modulating the position of input # 1 (and only this one) according to the three axes of space. The other seven inputs just follow the movement (see below).

Only the first five waveforms (sine, ramp, sawtooth, triangle and square) make it possible to obtain profiles with variable speed, the last two do shakings, more or less tightly.

Frequencies range from 0.05 Hz (20 seconds cycle) up to 10 Hz, to which is added a general setting ("GSpeed") to play on the overall speed of the animation. For now the three LFOs are independent, but it is planned to be able to synchronize them with offset as in the Acousmodules of the AnimaSpat series.

To these three modulators is added "ZigZags" which can create jumps or lines (with the "trails") random until fast agitations.

Trails

All this concerns the input n° 1, which is by default instantly followed by the 7 others.

If a Shape has been defined, a Cube for example, it is the whole of this form that is animated.

Where it becomes more fun is the introduction of both Delay and Inertia controls.

"Delay" allows to proportionally shift the 8 entries and "Inertia" brings as its name indicates a more or less important effect of inertia. At its highest value the animation can be almost frozen.

These effects are also active on Position controls (but not the Shapes controls).

These two settings provide a variety of rosaries, vibrations and organic waves ...

The last zone is a **Pulsation Generator**, which controls directly certain parameters of the Shapes : the extensions of the Cube, the rotation of the Sphere, the three axes of the Rings and the amount of Chaos.

This pulse is also generated by an LFO.

The Symmetry ("Sym") setting allows you to vary the pulsation effect in a univocal or alternative way (to try).

Finally, the "Input" parameter makes it possible to use, instead of or in addition to the LFO, the demodulation of the amplitude of the incoming signal (envelope follower).

Important note : currently the code produced by Synthedit (remember that this is an alpha version) does not exploit the graphics acceleration on MacOS. This can be quite penalizing for a plugin like this one.

Even more important note : the animations work ONLY when the plugin window is open. There does not seem to be a quick way out of this problem.

Also important note : the 64-channel version may require a powerful machine for some animations to sound properly. Optimizations will be useful...

MIDI controls

If all operations can be done with the mouse, these plugins become even more interesting with a control surface (or other commands of this type).

Currently, Steinberg has removed from the VST3 format the possibility of having a MIDI input, reserving only the "instruments" (VSTi) ... which let them pass the untreated input signal !

Fortunately, Apple's Audio Unit format does not benefit from these "enhancements" and can continue, like the 32-bit Acousmodules, to respond directly to Control Change messages.

However, since for this new series I chose compatibility above all, the user will have to make himself the correspondence between the incoming MIDI messages and the automation parameters of the plugins.

In Reaper this can be done either by the MIDILearn function (with recording of automation curves), or by means of the Automation MIDI Link function (with recording of MIDI sequences).

Warning: if the same controllers are assigned to multiple instances of the same plugin via MIDILearn they will follow the same commands at the same time! This disadvantage does not exist with the MIDI Link.

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