



Space Effect 2.0

for Windows (VST) and Mac OSX (VST and AU)

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Graphics were designed by Aaron Jasinski and adapted by MHC.

Urs Heckmann's AUGUISDK was used to implement the graphics for the AudioUnit version on Mac OSX.

Overview

The Space Effect is a VST effect for Windows and AudioUnit on Mac OS X. Thus, it runs as a plugin to VST compatible programs on Windows, such as Cubase DX, Acid Pro, Logic and other programs, which can execute VST plugins. Or it can be used with AU compatible programs on Mac OS X. Requirements

Installation

Windows:

The plugin should be installed in your VST plugins folder, that is the folder, which your host software (e.g. Cubase VST) uses to store all its plugins. When the installation procedure starts, you will be asked where this folder is located. If you don't know, then quit the installation program immediately, read your host software's manual and restart the installation procedure.

Mac OS X (AU):

If you've got an installer, then follow the instructions. Otherwise, drag the component (the SpaceEffect.component folder) to the place where your AudioUnits are kept. This is usually [HOME]/Library/Audio/Plug-Ins/Components/.

Mac OS X (VST):

If you've got an installer, then follow the instructions. Otherwise, drag the VST plugin (the SpaceEffect.vst folder) to the place where your VST plugins are kept. This is usually [HOME]/Library/Audio/Plug-Ins/Vst/.

Performance

Although the plugin contains many advanced features, especially when it comes to modulation, it is not hard on the CPU. We have optimized the code to make it execute as efficient as possible. However, it also depends on how many applications you run in parallel of course. If you have many background programs running, for example in the system tray, and if you replay a number of hard disk tracks at the same time as the plugin executes, then the CPU will of course be under more pressure.

The Knobs and Sliders

The fastest way to learn how the Space Effect works is to remember that the knobs, which are blue and labelled "seq mod" used for sequencer modulation.

Sequencer modulation

Each sequencer modulation knob selects how much the sequencer should affect the value of the grey knob next to the blue seq mod knob.

The cutoff knob has a knob next to it, with is blue and called seq mod. The blue knob decides how much the sequencer should change the *grey knob's* value. If the knob is turned to the left, then the sequencer output *decreases* the knob's value (that's why it has a - at the left hand side of it). If the knob is turned to the right, then the sequencer output *increases* the knob's value (that's why it has a + at the right hand side of it).

The more a sequencer modulation knob is turned to the left, the more it decreases the value. And the more such a knob is turned to the right, the more it increases the value of the grey knob, which is positioned next to it.

Thus, how much the value should be decreased or increased depends on the current value of the sequencer and how much the knob is turned.

The Different Sections

The Space Effect contains a number of logical sections, which process the sound in a certain way. Let's go through them one by one.

Sequencer

The sequencer is used to modulate all other sections, except the stereo delay. It's an analog style sequencer, which can change the sound dramatically if it's used the right way.

The Steps

There are 16 knobs, each representing one step. If you use all 16 steps, then the sequencer runs from step 1 to step 16 and then begins at step 1 again and repeats forever. Each step has a positive value only going from zero, when the knob is turned fully anti-clockwise, to max value when the knob is turned fully clockwise.

If you want to use the sequencer to change the waveform, then you must first turn the sequencer modulation knob either to the left or right. If it points at 12 o'clock, then the sequencer steps won't affect it. So if the sequencer modulation knob (in the evolving waveform section) is in either a left or right position, then turn each step knob to select waveform. As you turn the step knob, you can see that the waveform display shows which waveform the step corresponds to.

So, to summarize: If you use the sequencer to modulate waveform, then first select how much modulation you want by

setting the sequencer modulation knob. Then adjust each step by turning it and at the same time watching the waveform display.

Length

If you don't need to use all 16 steps, you can adjust the length slider to make it shorter. A display shows you how many step you have selected, when the slider is moved.

Speed

The speed is also adjusted with a slider. If you the sync button is deselected, the sequencer uses the plugin's own clock.

Synchronization

The sequencer can also be synchronized to the host software's tempo by selecting the sync button. In that case, the speed slider will decides how much the sequencer's speed is divided with respect to the host software's speed. That's why the speed display will show you a / character followed by a number, when the sync button is pressed down.

Phase

The phase knob adjusts how the sequencer should be shifted/delayed with respect to the host software's position. For example, the host software has a number of MIDI tracks and you record at bars 0, 1, 2, 3 etc. The sequencer's steps normally start at a whole bar (0, 1, 2, 3 etc) but you might want to have a slight lag sometimes. Then you can adjust the phase knob to make the sequencer steps start slightly after a whole bar in the host software.

Portamento

The porta knob adjusts the transition between each step. If the portamento is set to zero then the transition between each step value will be abrupt. However, if the portamento knob is set to max value, then there will be a ramp from a step value to the next. For example, assume that step 1 is set to zero and step 2 is set to max value (turned fully clockwise). If the portamento knob is set to max then the sequencer will output zero and then it will increase its output bit by bit until it reaches max. Thus, the transition between step 1 and 2 will be a ramp rather than an abrupt change. This can be used for a number of things. Here are a couple of examples.

- Modulate the ensemble amount with portamento set to max. Then you will get a smooth transition from no ensemble at all to max amount of ensemble effects, when the sequencer steps are programmed from min to max.
- Modulate the filter cutoff frequency with the sequencer and the sequencer portamento knob set to max. Then the cutoff will "glide" between the values rather than maxing an abrupt change.

Filter

The filter in the Space Effect is a resonant 4th order lowpass filter. It has the following controls.

Cutoff Frequency

There's a knob to adjust the cutoff frequency. When you pull it down, the sounds eventually gets inaudible and 100% filtered out. When the knob is turned fully clockwise, the sound is not filtered at all. The cutoff frequency can be modulated by the sequencer. This is carried out using the sequencer modulation knob, as described earlier.

Resonance

Resonance is a phenomena, which amplifies the frequencies near the cutoff frequency. It can be used to creat a certain type of sounds. Experiment with it and you'll notice quickly how it changes the sound. The knob has an associated sequencer modulation knob, next to it, to make it possible to modulate this parameter from the sequencer.

Rate

In addition to the sequencer, the filter can be modulated by an LFO (Low Frequency Oscillator). The LFO moves the cutoff frequency according to a certain shape, e.g. sine (see shape below). If you move the rate knob the the right, then the movement is carried out faster. Pull the knob down and the movement is done slower. If the sync button is selected, then the movement is carried out in speed with the host software. Then the rate selecteds how much the LFO should be divided with the host software's tempo. The rate can be modulated by the sequencer, by adjusting the sequencer modulation knob.

Depth

The depth knob decides how much the movement, described above, should affect the cutoff frequency. If it's set to its min value, then there's no move at all. If it's pulled to the top, then the movement goes from the current setting of the cutoff knob to the max value. The depth parameter can be modulated by the sequencer as well, by adjusting the sequencer modulation knob.

Sync (with the host software)

As mentioned earlier, the LFO can be synchronized to the host software's tempo. In that case, the rate knob works as a tempo divider.

Phase

The phase knob in the filter section, decides the lag of the LFO with respect to the host software's tempo. It works similar as the sequencer's phase knob.

Shape (SRP)

When the LFO is used to sweep the cutoff frequency, the shape knob selects which shape the sweep should have. The knob can be used to select one of the following three LFO modes.

1. Sine (S)
2. Random (R)
3. Pulse (P)

Sine makes the LFO sweep up, down, up, down etc. Random picks random values for the LFO and pulse has the shape of a square.

Resonator

The resonator in the Space Effect creates a certain type of rich sweeping sounds, which are often used to create powerful pads.

Frequency

The frequency knob selects which frequency the resonator should resonate at. The resonator is usually modulated by its LFO or by the sequencer. In that case, the frequency knob selects the base frequency. All modulations then either add or subtract from that position, depending on the depth or amount of sequencer modulation.

Feedback

Feedback adjusts how much of the resonator's output that should be fed back to its input. More feedback creates an accentuated and more powerful effect while low settings create a subtle and less noticeable effect. NOTE that if you crank the feedback knob all the way up, the resonator might go wild and you can get some nasty distortion, because you're simply feeding too much back. The amount of feedback can be modulated by the sequencer by adjusting the sequencer modulation knob for the feedback.

Rate

Similar to the filter, the resonator can be modulated by an LFO (Low Frequency Oscillator). The LFO moves the resonator's frequency according to a certain shape. If you move the rate knob up, then the movement is carried out faster. Pull the knob to the left and the movement is done slower. If the sync button is selected, then the movement is carried out in speed with the host software. Then the rate selecteds how much the LFO should be divided with the host software's tempo. The rate can be modulated by the sequencer, by adjusting the sequencer modulation knob.

Depth

The depth knob decides how much the sweep should affect the frequency. If it's set to its min value, then there's no move at all. If it's pulled to the right, then the movement goes from the current setting of the cutoff knob to the max value. The depth parameter can be modulated by the sequencer as well, by adjusting the sequencer modulation knob.

Sync (with the host software)

The LFO can be synchronized to the host software's tempo. In that case, the rate knob works as a tempo divider.

Phase

The phase knob in the resonator section, decides the lag of the LFO with respect to the host software's tempo. It works similar as the sequencer's phase knob.

Shape (SRP)

When the LFO is used to sweep the resonator's frequency, the shape knob selects which shape the sweep should have. The knob can be used to select one of the following three LFO modes.

1. Sine (S)
2. Random (R)
3. Pulse (P)

Sine makes the LFO sweep up, down, up, down etc. Random picks random values for the LFO and pulse has the shape of a square.

Ensemble

The ensemble is used to make it sound like there are many sound sources (oscillators).

Amount

The amount adjusts how much of the ensemble should be applied to the sound. Note that this knob can be modulated by the sequencer by adjusting the sequencer modulation knob next to the amount knob.

Vibrato Rate

Vibrato can be added to the ensemble to make the sound more human and less cold. The rate knob selects how fast the vibrato should be. This parameter can also be modulated by the sequencer by adjusting the sequencer modulation knob.

Vibrato Depth

The depth knob select how much vibrato that should be applied to the ensemble. It's possible to have the sequencer modulate this parameter as well.

Stereo Delay

A stereo delay can be used to add slap back delay or other effects to the Effect's overall sound.

Left and Right Delay time

The time knobs adjust the delay time for the left and right channel delays respectively. The delay time is shown in a display next to the knob. Note that is the sync button is selected, the display shows how much the time is divided with respect to the host sequencer's tempo.

Sync

When this button is clicked, the delay is locked to the host software's tempo. Just click this button and the delay time with the host software's tempo (e.g. the tempo in Cubase VST). When you move the time knob, the time is divided with the tempo in the host software.

Left and Right Feedback

This is how much of the delay that should be fed back again. Higher values result in more echoes, but no longer time between the echoes, just more echoes. The time between the echoes is adjusted with the left and right delay time knobs.

Left and Right mix

This is the wet/dry setting for the left and right delay respectively.

Loading and saving banks and patches

A new interface to load and save patches was introduced in version 2.0 of the Space Effect, a simple file load/save dialog.

Basic controls

You can load and save banks of patches from the plugin. Some plugin hosts don't allow you to save and load patches and that's the reason why these controls are in the plugin itself. If you use a host, such as Cubase VST, you'll notice that it has a set of controls, at the top of the window, for saving and loading patches. In that case, you might use these controls instead of the plugin's. It's up to you.

Click on the save button to save. Click on the load button to load. Then type in the filename. You may load and save patches and banks.

Editing bank and patch files

This section is only for those who wish to edit the bank file in a text editor.

The files use a simple text format. Load it in Notepad or Wordpad and you'll see that it uses a format, which reminds you of HTML. For the technically interested, the format is XML, which means that if you have an XML editor, you may edit the file in it. But any text editor, such as Notepad, will work fine too.

The file starts like this:

```
<bank product="spaceeffect" version="2.0">
```

and it ends like this.

```
</bank>
```

Between these "tags" each patch is listed. It's written almost the same, with a start tag and an end tag. The start tag goes like this.

```
<patch name="Guitar Fantazy" number="1">
```

and it ends like this:

```
</patch>
```

The patch name can be changed and so can the patch number. The patch number indicates which "slot" the patch should be loaded into. It should be a number between 1 and 64. But for single patches, the plugin saves it with the patch number zero, because it shouldn't be loaded into a specific slot but the current one. The patch name should not be longer than 24 characters.

Between the patch tags, each parameter is listed. Each patch has 64 parameters and each parameter should have a value between 0 and 1, for example 0.3 or 0.94. The value is given between the p tag (p is an abbreviation for parameter). For example, here's how the sequencer length parameter looks:

```
<p i="seq length">0.000</p>
```

In this case, it has a value of zero, which means that the sequencer is the minimum it can be, and that's 1. If it had a value of 0.5, you would use half of all sequencer steps, which is half of 16, and that's 8. Complex? Well, you don't have to edit these files, it's only for technical nerds like me, who might have a need for it sometime.

Keep in mind that you can remove for example all patches except one, and all parameters except a few in that patch. Then if you

load that bank, then only one patch and only a few parameters in that patch will be loaded. Here's an example.

```
<bank product="spaceeffect" version="1.2">
<patch name="Guitar Fantasy" number="1">
  <p i="seq step 1">0.000</p>
  <p i="seq step 2">0.000</p>
  <p i="seq step 3">0.000</p>
  <p i="seq step 4">0.000</p>
  <p i="seq step 5">0.000</p>
  <p i="seq step 6">0.000</p>
  <p i="seq step 7">0.000</p>
  <p i="seq step 8">0.000</p>
  <p i="seq step 9">0.000</p>
  <p i="seq step 10">0.000</p>
  <p i="seq step 11">0.000</p>
  <p i="seq step 12">0.000</p>
  <p i="seq step 13">0.000</p>
  <p i="seq step 14">0.000</p>
  <p i="seq step 15">0.000</p>
  <p i="seq step 16">0.000</p>
</patch>
</bank>
```

If you load this bank into the space Effect, then all sequencer steps for patch 1 will be zeroed. This it's quite easy to create your own templates, for say the sequencer or whatever you would like to create templates for.

Be careful out there!

Don't make any mistakes and change the format of the text file, because then the Space Effect might refuse to load it. For example, you must have matching tags as in the above example. If the above example would look like this:

```
<bank product="spaceeffect" version="2.0">
<patch name="Guitar Fantasy" number="1">
  <p i="seq step 1">0.000</p>
  <p i="seq step 2">0.000</p>
  <p i="seq step 3">0.000</p>
  <p i="seq step 4">0.000</p>
  <p i="seq step 5">0.000</p>
  <p i="seq step 6">0.000</p>
  <p i="seq step 7">0.000</p>
  <p i="seq step 8">0.000</p>
  <p i="seq step 9">0.000</p>
  <p i="seq step 10">0.000</p>
  <p i="seq step 11">0.000</p>
  <p i="seq step 12">0.000</p>
  <p i="seq step 13">0.000</p>
  <p i="seq step 14">0.000</p>
  <p i="seq step 15">0.000</p>
  <p i="seq step 16">0.000</p>
</patch>
<bank>
```

... then the Space Effect wouldn't load it. Because as you can see, there's a missing slash at the closing bank tag (on the last line).

The following is also illegal and will make the file unloadable:

```
<bank>
<patch name="Guitar Fantazy" number="1">
  <p i="seq step 1">0.000</p>
  <p i="seq step 2">0.000</p>
  <p i="seq step 3">0.000</p>
  <p i="seq step 4">0.000</p>
  <p i="seq step 5">0.000</p>
  <p i="seq step 6">0.000</p>
  <p i="seq step 7">0.000</p>
  <p i="seq step 8">0.000</p>
  <p i="seq step 9">0.000</p>
  <p i="seq step 10">0.000</p>
  <p i="seq step 11">0.000</p>
  <p i="seq step 12">0.000</p>
  <p i="seq step 13">0.000</p>
  <p i="seq step 14">0.000</p>
  <p i="seq step 15">0.000</p>
  <p i="seqstep 16">0.000</p>
</patch>
<bank>
```

The first bank tag does not have the product and version attributes supplied. They must always be supplied. There's another error as well. The last parameter, has an attribute "i", which has a faulty value. It should read "seq step 16" and not "seqstep 16". There's a missing space. All parameter names must always be written exactly as the Space Effect wants them. Never change the names of the parameters.

Creating a default bank, which is loaded at startup

You can load your favourite patch bank automatically when the plugin is started. Just name the file

```
SpaceEffectDefault.seb
```

and put it in SpaceEffect's program folder. It will then be loaded automatically when the plugin's started. For the default bank, you MUST use this filename, including the seb extension.

Windows:

The SpaceEffect program folder is usually
C:\Programs\SpaceEffect\.

Mac OS X (AU):

The SpaceEffect program folder is

```
[HOME]/Library/Audio/Plug-  
Ins/Components/SpaceEffect.component/Contents/Reso  
urces/
```

Mac OS X (VST):

The SpaceEffect program folder is

[HOME]/Library/Audio/Plug-
Ins/Vst/SpaceEffect.vst/Contents/Resources/

Activating the Plugin

On Windows, the activation tool should be started during the installation. On Mac OS X you supply the name and serial/activation code and then the installation process starts.

You **MUST** supply your name and the code you got when you purchased the software, or the plugin won't work.