
Spexx Audio Plug-In Documentation

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Introduction

This document contains the user manual and typical usage examples of the plug-in Spexx. Videos demonstrating specific software functionalities can be found at <https://www.youtube.com/recompose>.

Spexx is an audio plug-in for the generation of spectral images for new, unusual sound experiences. A base effect with seven additional, modular, matched effects in two processing chains enable the user to penetrate the depths of sonic structure with visual feedback.

The plug-in is delivered in the VST2, VST3, and Audio Unit format for macOS and in the VST2 and VST3 format for Microsoft Windows. On macOS, the plug-in binary is universal (for 64-bit host environments). On Windows, the 32-bit and the 64-bit versions are provided as two DLL files.

Only hosts that support the VST and AU formats can load Spexx. This includes Ableton Live, Logic, Cubase, Reaper, Bitwig, and many more. Pro Tools requires its own AAX plug-in format which is currently not supported.

Installation

macOS

To install the plug-in binary, unzip the installation package and copy the components for that operating system to the memory locations of VST plug-ins under Mac OS X and macOS. In the following, you will find a list of the default paths for Apple systems.

Copy the component **macOS/Spexx.component** to:

Format	Path	Extension
VST2 & VST3	Library/Audio/Plug-ins/Components Uncommon: Users/your username/Library/Audio/Plug-ins/Components	.component

Copy the component **macOS/Spexx.vst** or **macOS/Spexx.vst3** to:

Format	Path	Extension
VST3	Library/Audio/Plug-ins/VST3 Uncommon: Users/your username/Library/Audio/Plug-ins/VST3	.vst3
VST2	Library/Audio/Plug-ins/VST Uncommon: Users/your username/Library/Audio/Plug-ins/VST	.vst

Attention: Steinberg, the developer of the VST format, stipulates that the newer VST3 format requires a fixed folder for all VST3 plug-ins as shown in the previous table. However, VST plug-ins can be placed at any given location in the file system. This may be supported by the host software if it provides the option to define search paths for VST plug-ins. In practise, the folders listed in the table are predefined in all hosts from where they are imported to the host. We therefore recommend usage of folders listed in the table. If such a folder does not exist on your Apple system, you will have to manually create one. In contrast, VST2 requires no fixed installation location. It might be necessary to apply adjustments to the presets in your VST host application to include these VST2 and VST3 folders.

Windows

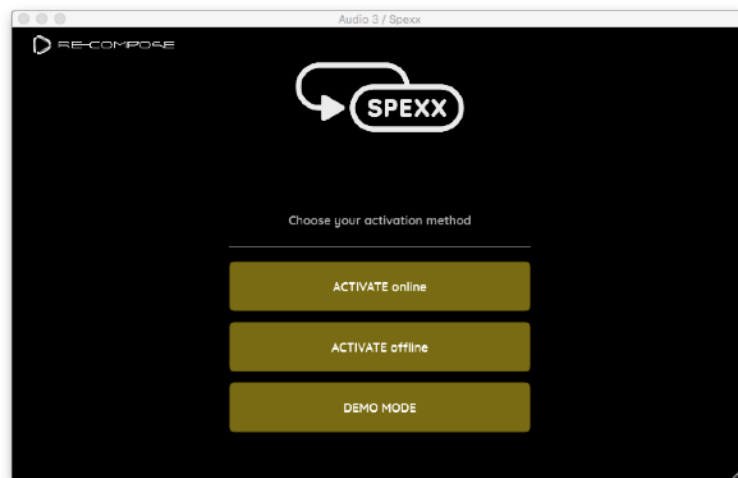
Unzip the installation package and copy the plug-in DLL (either from Win32/ or x64/, depending on whether your preferred host works in 32-bit or 64-bit mode) to the VST plug-in directory. These are the default paths for the installation of the Spexx audio plug-in on Windows:

Format	Path	Extension
VST3	C:\Program Files\Common Files\VST3 32-bit VST3 plug-ins on 64-bit Windows: C:\Program Files (x86)\Common Files\VST3	.vst3
VST2	C:\Program Files\Common Files\Steinberg\VST2 32-bit plug-ins on 64-bit Windows: C:\Program Files (x86)\Steinberg\VstPlugins	.dll

Attention: Should you apply changes to the default installation path for the plug-in during the installation process, make sure to take note of it so you can locate the plug-in later. When you move a plug-in to a new path, remember to update your VST host application with the new installation path.

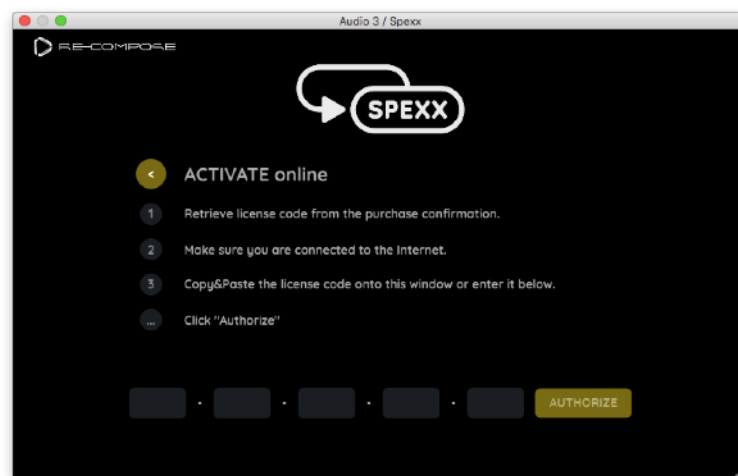
Unlocking

Spexx supports both online and offline activation. Further, a demo mode is included in the software.



Online Activation

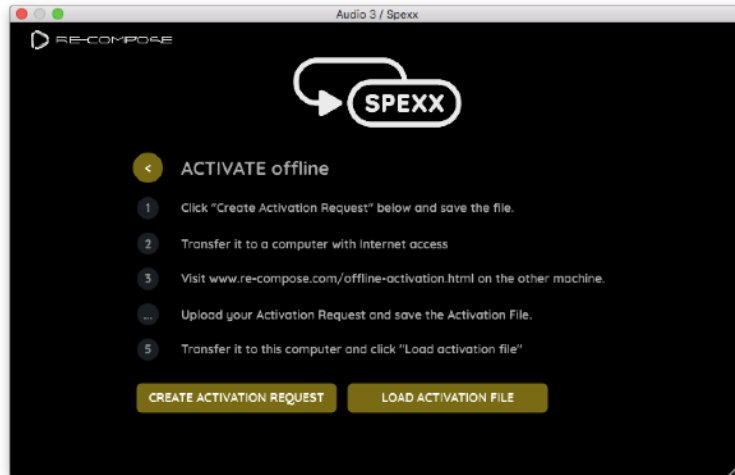
After starting the plug-in for the first time, click "Activate Online" on the welcome screen. This will display the online activation screen.



Copy and paste your serial code into the application window or enter it manually in the blank fields.

Offline Activation

Click on “Activate Offline” on the welcome screen. This will display the offline activation screen.



Click on the button “Create Activation Request”, then save the file to a portable drive (e.g. a USB flash drive) and transfer it to a computer connected to the Internet. On that computer, open the page <http://www.re-compose.com/offline-activation.html>, enter your serial code, and upload the “Activation Request File” followed by “Submit”. Save the “Activation File” to your portable device, transfer it back to the original computer, and import it by clicking on “Load Activation File”.

Deactivation

If you wish to deactivate the plug-in on one or all of your computers, please contact the Re-Compose Support at support@re-compose.com.

Demo Mode

On the welcome screen, click on “Demo Mode” to test Spexx. Every ten seconds, you will hear a signal interruption of 0.5 seconds.

Tutorial

Usage of audio effects in Digital Audio Workstations

Spexx is a typical VST/AU audio effect plug-in. In popular DAWs such as Live, Logic Pro, or Cubase, all of which can host these formats, you simply insert the plug-in from the host's browser into the dedicated audio effects area. When using AU, the plug-ins are categorized by their manufacturer. In the case of Spexx, this is "ReCompose". When using VST plug-ins, the folder architecture can be customized.

In Ableton Live, Spexx will appear in the respective AU or VST folder under the "Plug-ins" tab in the browser, where all third-party plug-ins are located. To load Spexx, simply drag it to the respective audio track, or double-click on it. It can be repositioned freely along the horizontal device axis.

In Logic Pro, plug-ins are accessed by clicking on the Audio FX tab of any given channel on the mixer. In the drop-down menu, navigate to "Audio Units" and then "ReCompose", then click on Spexx, and it will appear in the chain.

Structure of the user interface

The user interface of Spexx is structured as presented below (for a description of the elements see next page):



- A. Spectral snapshot representation of the input and output signals
- B. Setting of the spectral resolution: determines how “smooth” the result will sound. A higher value leads to a higher resolution.
- C. Setting of the temporal granularity: determines how fast the effect will react to parameter changes and also how it will sound due to such changes. A lower value leads to a higher resolution by a reduced jumping distance.
- D. Display of the mix between the input and output signal
- E. Reset to empty the buffer
- F. Switch between single-threading and multithreading
- G. Display of the CPU load
- H. Setting of the input gain
- I. Setting of the output gain
- J. Effects of the First Stage (feedback chain). These four effects can be shuffled freely via drag and drop within their process chain, which will lead to different results.
- K. Effects of the Second Stage (direct output). These three effects can be shuffled freely via drag and drop within their process chain, which will lead to different results.
- L. Floating panel for effect settings. The panels can be moved around by drag and drop.
- M. Information about UI elements on mouse rollover

Audio effects

Spexx is composed from a continuous base effect (Spectral Freeze) plus additional modulary, matched effects. The effects Damping, Decay, Feaze, and Focus are located in a feedback chain (First Stage). The effects Mirror, Pitch, and Slope generate a direct output from the input signal (Second Stage). These effects can be activated independently and are freely connectable via drag and drop in any order. The effects operate meaningful in combination and, within the whole system together with Freeze, they build a dynamic and flexible framework for extraordinary sound modulation.

Over time, the base effect (Spectral Freeze) generates a “spectral image with a long exposure time” from an input signal. It contains the frequency components of the entire previous audio signal.

In technical terms, the freeze function preserves the buffer that Spexx samples at initialization and plays it indefinitely. This resembles a photograph during continuous exposure, showing a very specific snapshot in time.

Upon starting Spexx, you hear the snapshot of the spectral image which can change as a function of the input signal. With the mix controller, it is possible to add a portion of the original signal. Spexx generates an output signal with a strong effect by default. With the mix control set to 1 (100%), only the spectral image will be audible.

In sonic terms, this effect washes over the frequencies and creates a sense of timelessness that lends itself to being manipulated in various ways by the seven modular effects contained within Spexx.

Effects of the First Stage (feedback chain)

This stage is destructive. As soon as the signal has been manipulated by an effect, there is no way back. At the same time, the current state is being altered by continuously incoming new audio material. In the case of silence at the input, it is possible for the Freeze Stage to arrive at steady stages, e.g. with a full Freeze without additional effects, or with a Feaze which preserves the peaks.

Decay

The entire frequency range decreases uniformly within an adjusted duration (**Time**).

Time: 0.0 s – 95.0 s (default setting: **5.0 s**)

Damping

All frequency bands outside of **Low** and **High** decrease gradually. **Factor** determines the speed of the decrease. The lower the value of **Factor**, the larger the amount of the decrease.

Without any further input signal, only the frequency portion between **Low** and **High** will remain audible.

Factor: 0.3 – 1.0 (default setting: **0.9**)

Low: 0.0 Hz – 20000.0 Hz (default setting: **0.0 Hz**)

High: 0.0 Hz – 20000.0 Hz (default setting: **300.0 Hz**)

Feaze

The loudest spectral components of the spectral image (peaks) are identified and remain unchanged while the rest of the frequency range is gradually decreased. The speed of the decrease is determined by **Power**. This results in a kind of fraying with a spectral structure looking like a comb.

Power: 1.0 – 16.0 (default setting: **1.0**)

Focus

Like Feaze, only with the most salient spectral component remaining.

Power: 1.0 – 16.0 (default setting: **1.0**)

Effects of the Second Stage (direct output)

The effects of the Second Stage are only applied to a momentary snapshot of the “frozen signal” and have therefore solely an impact on the current step in time. If one of these effects is reset to its original settings or turned off, the spectral image of the First Stage remains unaffected.

Mirror

The spectrum is mirrored at a set mirror frequency (**Frequency**). The mirroring is applied logarithmically and is scaled around 440 Hz. Therefore, the parameter range from 44 Hz to 4400 Hz is sufficiently large.

Frequency: 44.0 Hz – 4400.0 Hz (default setting: **440 Hz**)

Pitch

The signal is shifted along a frequency axis in a musically correct way, i.e. not by parallel transition of components but through an energy shift in a logarithmically scaled frequency grid. Existing frequency ratios and intervals are retained. **Shift** determines the extent of the shift (+/- 2 octaves).

Shift: -2.0 Octaves – 2.0 Octaves (default setting **centered at 0.0**)

Slope

The spectrum is pulled apart around an initial frequency (**Center**) according to the value of **Slope**. This results in a distortion of the spectral snapshot. The central value for **Center** has been specified with 440 Hz.

Slope: 0.3 – 4.0 (default setting: **1.0**)
Center: 44.0 Hz – 4400.0 Hz (default setting: **440.0 Hz**)

Sound examples

Following the link below, you will find a few examples of spectral manipulation by Spexx. The examples with the input signal have been marked with “Dry”: <https://soundcloud.com/recomposemusic/sets/spexx-interactive-spectral-manipulation-of-audio-signals-in-real-time>.