

Configuring NESS audio for your system

While some specific features and settings for using audio on your computer will vary according to the type of audio interface and audio drivers you have installed, you can access these settings using Audio Status Window.

The Driver pop-up menu in the Audio Status Window lets you view and select an audio driver for NESS. The list of available drivers will vary according to the audio drivers installed on your system. Here is a brief summary of the default options:

- *None* shuts off NESS audio processing.
- *CoreAudio* is the default audio driver for NESS on Macintosh.
- *MME*, *DirectSound*, or *ASIO* drivers for Windows systems will appear if you have correctly installed external hardware that supports the standard.
- The *ad_rewire* driver supports ReWire, a standard developed by Propellerhead Software that allows sound generating applications (ReWire Devices) to send multiple channels of audio and midi to other applications (ReWire Mixers) that process and output it.

Selecting an audio driver

- Click on **Audio Settings** to show the Audio Status Window.
- Click on the Driver pop-up menu and choose an audio driver from the pop-up menu.

This menu lists all the audio drivers installed on and available for use with NESS. When you choose a driver from the menu, it becomes your default audio driver, and will remain so the next time you launch NESS.

When you have selected the audio driver you want to use, various input (*Input Channels*, *Input Device*, and *Input Source*) and output (*Output Channels*, *Output Destination*, and *Playthrough Input*) parameter settings will become available based on the audio driver you choose.

Note: the number of input channels and output channels displayed in the DSP window are displayed with the grey attribute icon because the number of channels is driver/interface-dependent.

Configuring audio system inputs and outputs

- Click on **Audio Settings** to show the Audio Status Window.
- Click on the Input Source or Output Destination pop-up menus and choose the source or destination you want to use from the menu.

These menu lists all the input and output sources and destinations available for use with your audio driver. When you choose a source or destination from the menu, it becomes your default setting, and will remain so the next time you launch NESS.

Monitoring CPU usage

- Click on **Audio Settings** to show the Audio Status Window.

Three fields in the Audio Status window monitor the amount of signal processing NESS is currently doing.

CPU Utilization displays a rough estimate of how much of your computer's CPU is being allocated for crunching audio in NESS.

You can set the audio sampling rate with the Sampling Rate pop-up menu. For full-range audio, the recommended sampling rate is 44.1 kHz. Using a lower rate will reduce the number of samples that NESS has to calculate, thus lightening your computer's burden, but it will also reduce the frequency range.

Setting the audio sampling rate

- Click on **Audio Settings** to show the Audio Status Window.
- Click on the Sampling Rate pop-up menu to show a list of the available audio sampling rates. When you choose a driver from the menu, it becomes your default sampling rate.

NESS processes audio in by using a block of samples called a *signal vector*. You can use the Audio Status Window to select the I/O vector size (i.e., the number of audio samples) of the block size that NESS uses when working with audio input and audio output. You can also set the signal vector size - the number of samples that NESS processes at a time.

The I/O Vector size and Signal Vector size in NESS are commonly expressed as powers of two. They can be set as low as 2 samples, and in most cases can go as high as the largest available I/O Vector Size for your audio driver.

Optimizing the audio performances when you are close to the limit of your CPU's capability is a trial-and-error process that requires an understanding of how signal vector sizes and the NESS scheduler interact.

Setting the I/O and Signal Vector Sizes

- Click on **Audio Settings** to show the Audio Status Window.
- Click on the I/O Vector Size or Signal Vector size pop-up menu and choose an audio vector size from the menu. When you choose a value from the menu, it becomes your default vector size.

Some audio interface cards do not provide a choice of I/O Vector Sizes. There are also some ASIO drivers whose selection of I/O Vector Sizes may not conform to the multiple-of-a-power-of-2 limitation currently imposed by NESS's ASIO support. In some cases, this limitation can be remedied by using the ASIO driver at a different sampling rate.

Reducing the I/O and signal vector size can lower the global latency of the software, but will increase the CPU load. To lower the CPU load, you can try to increase those vector sizes. For

non real time critical application (i.e. you don't need a really low latency), it is recommended to choose the highest possible vector size

Overdrive

When *Overdrive* is enabled, NESS gives priority to timing and MIDI / OSC processing over screen drawing and user interface tasks such as responding to mouse clicks. Prioritizing those tasks can introduce glitches if the CPU load is still high.

Enabling/disabling Overdrive

- Click on **Audio Settings** to show the Audio Status Window.
- Click on the checkbox in the Value column for the Scheduler in Overdrive setting to enable Overdrive. To disable Overdrive, click in the checkbox to unselect the option.

Documentation taken from https://docs.cycling74.com/max7/vignettes/audio_status