Nirvana User Manual



To install:

Follow the Read Me instructions that come with the download!

Synopsis

Nirvana (a Max for Live device) is a feedback device that can be a polyphonic instrument or effect. But it can do so much more than feedback! It has simulations of a breadboard circuit and a 2D space or material for adding mics/speakers and sound sources for feedback and all kinds of audio debauchery! Create instruments and FX such as circuit bending, feedbacks in rooms or on materials, unique/experimental forms of synthesis/fx, space/material resonance and reverb, doppler fx/synthesis, all kinds of standard audio fx/synthesis, and so much more! Of course it is a fantasy world for noise/ambient/experimental music, but can also be used for all kinds of genres as you can make both utterly degraded as well as very beautiful sounds with it! Nirvana is a sandbox for sound and the sky's the limit with using it!

Source Modes



There are 3 different source modes (types of *Systems*) that you can use to make sounds which are described in their sections below. You

can have two different Systems per voice. In each System you can select a different source mode (as well as many other settings).

Space Mode



In Space mode you can <u>Add</u> up to 4 of these objects to a 2D room:

Microphones Speakers Audio sources



You select what <u>Type</u> of <u>Space</u> you are in based on a selected IR file for convolution (You can also drag and drop your own IR audio files!). If microphones point at speakers they are routed to, they may cause feedback of various intensities and timbres if close enough and loud enough. Any audio sources

that are in the room will be picked up by microphones. Speakers and audio source sound additionally feeds into the reverb of the room and that reverb is picked up as well by the microphones (attenuated by the <u>FB Bleed</u> value). The <u>Area</u> scales the size of the room. This makes the delay times longer or shorter and volume attenuating from rotating or distance between objects gets more or less severe (NOTE: This does not affect the convolution reverb!). <u>Pre</u> toggles on or off an internal pre-delay whose time is based off the <u>Area</u>. Also there is a toggle for <u>Clear feedback on new voice</u>. If enabled, on the start of a new voice all of the convolution, delay lines, and other histories of the voice are cleared in order to prevent feedback and tones from the previous voice to enter the new voice. This is usually what is wanted, but sometimes you might want to turn if off for example if you enjoyed the sound bleeding from the last voice to spark the feedback or if you want a sharp attack as the attack is slightly increased due to the few ms to clear the histories. This also is more CPU intensive to do.

In the Space is a Listener which appears as a cat head. The cat has left and right ears for the

output that are angled as seen visually and are affected by the angles of the objects as well. When you select an object (in any mode) their parameters appear in the box bottom left of the 2D display. Here we see the parameters of the Listener. There is a toggle to make it sum its stereo output to <u>Mono</u>. <u>Ignore Sources</u> cuts the raw



sounds of any audio sources in the Space (the sound of the sources through the mic/speaker and the reverb of the room is still heard). Pressing <u>Meow!</u> sounds a meow sample playback in the Space which is fun but also a preview of the Space's sound. You can also control the amount of the convolution <u>Reverb</u> of the Space heard directly by the Listener (NOTE: this doesn't affect the level of convolution reverb that the microphones pick up. <u>Gain</u> is the level for the Listener overall.

<u>Rotation</u>, <u>X</u>, and <u>Y</u> are common for all objects in Space and Material modes. They control those 2D transformations for each object. This can also be done by clicking and dragging each object to change its position; holding control will change the rotation.



Here are the Microphone settings. You can remove that (and any removable object) by clicking the <u>(X)</u> in the top left corner. Next to that is a drop down menu for selecting the microphone model type. Below that you can choose which <u>Speaker To</u> send the audio to. You can select from different <u>Effects</u> to add to the mic: a Filter, Resonator, or String. You can also affect the <u>Gain</u> of it here. Keep in mind

the gain staging in this device especially when it comes to the kind of feedback you want or how you or if you want it to distort and clip and where you want that to happen at.



The Speaker parameters are fairly simple, you can also select its model. It also has an input <u>Clip</u> option of whether to soft or hard clip the sum of its microphone inputs. Both the speaker and microphone apply hard clipping to their own outputs!

Here are the Source parameters. You can choose a source type: Noise, Oscillator, Sample, Ext



In, and Other System. Noise produces a white noise oscillator (NOTE: if you are feedbacking mics/speakers you need some kind of audio source to spark the feedback, if even just a

very low volume noise oscillator to simulate room noise). Oscillator mode produces



basic waveforms Types which you can select and transpose the

<u>Tuning</u>. Sample mode does sample playback with <u>Direction</u> options and playback ranges to select. Ext In uses the external audio coming into the device routed in the unopened view of the

device (or just the input if using the FX version). Other System routes the audio out from the other system of the device (ie System II's audio if you are in System I).

Material Mode



Material mode is nearly identical to Space mode so I'll just cover the differences. This mode simulates a 2D plane of different material <u>Types</u> you can select from in order to resonate and create feedback with! The Speakers and Microphones look different



because in this mode they represent Contact Microphones and Surface Transducers (Audio exciter surface speakers) which were used to create the IR files. (NOTE: if you turn off the Microphone and Speaker models — set to None – the sound of

the material is closer to the original through the contact mics. However you may of course prefer the sound of mic/speaker models as well). In this mode the mics/speakers do not rotate as that is not considered in the material feedback as the sound emanates in all directions of the surface. Instead, the rotation parameter is replaced by a <u>Tilt</u> parameter which aims to simulate the tilting of a speaker or microphone on a surface through FFT filtering, which can produce different tones!

Circuit Mode



Circuit mode differs quite a bit from the other two modes. It simulates a breadboard for creating circuits on. It has a 2D grid of points, each of those points is like a lead for a audio signal. But similar to a



breadboard, the columns are all connected together and therefore all signal on a column are all summed together (NOTE: difference of row is just for visual aid and doesn't affect the sound). On the Circuit you can <u>Add</u> up to 4 of these modules: Audio Source Audio Effects Math Operators

Each of these modules is represented by the rectangle blocks on the grid. They all have inputs and outputs. Inputs are always on the left, out on the rightmost column.

Audio Sources take two columns, the left input is the FM input of the Source (the source types are identical to Space mode) and outputs its sound on the right.

The Effect module has the same <u>Effect</u> options as the microphones did in Space mode. It takes 3 columns: the left is input to the effect, middle is <u>CV</u> for the main parameter of the effect (Delay=time, Filter=cutoff, Resonator/String=tuning) if the toggle is activated, and rightmost is the output of the effect. It also has a dry/wet <u>Mix</u> (not applied for the Filter). In Circuit mode objects have a <u>Column</u> and <u>Row</u> parameter which sets



🗴 Operator A	Column
•	
Type pow T	Row
	4
	Value
	⊙
	0.00

where they locate on the Circuit grid. The column can change dynamically allowing for circuits to change and modulate throughout a voice's duration.

The Operator has three columns: the left and middle are the left and right operands for whatever math operation <u>Type</u> is selected (for example, "-" would be the left column signal minus the middle column signal of the object). The right column is the result of the equation output. If no signal is in the

middle or left columns, the <u>Value</u> knob value is used instead.

OUTLIERS: the (interp) operator, which does an interpolation of the left and middle column values, uses the Value knob value still as the degree of interpolation. (sin), (tanh~) and similar values only use the left column, unless no value, then they use the middle.

At the bottom of the circuit are two halves of a cat's head. These represent the <u>Left</u> and <u>Right</u> channels which "listen" to the columns that they are underneath. Selecting <u>M/S</u> enables mid-side processing in which case the cat head becomes a mid and side option which can "listen" to the columns they are under.

Wires can also be added which effectively sum the two columns that they connect for extra amazing feedback! You can create a wire by clicking a grid point when it highlights the System color, and drag it to another grid point on a different column. Remember, since columns are summed the row doesn't make a difference and is just for visual aid!

System Parameters



These are the settings for the System effects applied to the

Sound Source's output. A basic amp envelope ADSR, a simple <u>Filter</u> option, panning and gain. (NOTE: when using the System's output from an audio source object's "Other System" option or for cross-feedback, the output is used before the panning and gain are applied).

Left Column



In the Left Column you can do various global functions of the device. At the top you can select which <u>System</u> to view for editing, and to the left of that toggle are the buttons to activate each System. Below that is <u>cross-modulation</u> amount which sends the sound of each system to each other.

Below this is a section thatd determines where to apply incoming MIDI note pitch values to. <u>Pitch</u> toggle allows the MIDI note pitch to transpose the pitches of all

audio source and FX resonator and string tunings (like a normal synth). Below that the options vary depending on if you are in Space/Material mode (on the right) or Circuit mode (on the left). In S/M mode you can scale the <u>Area</u> of the Space/Material with MIDI note pitches (low notes are bigger areas). You can also offset the <u>Microphone X or Y</u> positions with the MIDI notes. In Circuit mode you can instead scale the delay <u>Times</u> and offset the Listener ear column positions with MIDI notes. In both modes you can also offset the <u>Filter</u> cutoff frequencies with MIDI notes so that you can play different tones when feedbacking or however you want to use it! The boxes that say "100%" are scalings for these MIDI applications, when scaled higher the changes between MIDI note pitches gets more intense!



Below this is a section for the global audio settings. <u>Drone</u> mode ignores MIDI notes and instead plays a single voice whenever Ableton's transport is running. This is great for creating drones or constantly running sounds, or if used as an effect. You can set the type of <u>clipping</u> you want, which is applied before the main gain (which is below that as well as the main panning).

Modulators (Right Column)



Any parameter values that have a circle with a sine wave in it next to them are able to be modulated (clicking that circle opens the modulation attenuators for that parameter). There are two LFOs and one envelope. Additionally there is a Spray option (a random value generated at the beginning of each voice). The LFO's have basic shape options as well as a perlin noise option. At the bottom are the attenuation sliders where you can apply the modulator bipolar to the select parameter.

Object Position Automation Looper



At the very bottom of the device is the Object Position Automation Looper settings. This is a looper that can record automations of movements of the objects in their 2D spaces. So for Space/Material modes this can record and loop an object's X,Y, and Rotation/Tilt changes. For Circuit mode it does that for the Column changes. Length sets the length of the automation loop. When you activate the <u>Rec</u> changes in object's applicable position parameters are recorded. While recording is active, triggering a new voice (or if in Drone mode starting the transport) restarts the looper's phase and is a good way to begin the recording of an automation. If <u>Clear</u> <u>Value</u> is toggled on, then if you manually change any of the applicable positions of an object, then it will erase any automation recordings of such parameters if they exist. <u>Clear All</u> deletes all automation recordings.

Next to this is a display Zoom parameter in the event the device is too small in your display.

I hope you enjoy this device! Please email me if you have bugs or other issues: <u>dillonbastan@gmail.com</u> **More:** <u>http://dillonbastan.com/store</u>