ZEN DELAY VIRTUAL
USER MANUAL

INTRODUCTION

Thank you for purchasing Erica Synths x Ninja Tune Zen Delay Virtual!

Zen Delay Virtual, ZDV for short, is a digital evolution of the popular Ninja Tune Zen Delay hardware effect made by Erica Synths. Inspired by a trip to Berlin's trailblazing music hardware trade show, Superbooth, Coldcut's Matt Black and longtime friend Dr. Walker (Liquid Sky artist collective / Air Liquide) envisaged the exciting possibility of a custom hardware effects unit. The result was the creation of the original Zen Delay – the first-ever hardware effects unit produced in collaboration with an electronic music label.

Like its hardware progenitor, ZDV is a BPM-synced stereo delay line combining extreme feedback ranges for dub and experimental effects paired with a multi-mode 24dB/octave filter and overdrive. Crafted in close collaboration with electronic music producers, ZDV is designed with studio use in mind, and is suitable for many different situations, musical styles, and instruments. ZDV can add a unique, warm, and powerful sonic character to drums, loops, vocals, synths, samples, or virtually any other type of audio. Even full tracks or a stereo mix can be enhanced with the Zen Delay Virtual, breathing new life into productions, giving synth and drum parts a huge kick. ZDV can be used as a plug-in in nearly all digital audio workstations and also works as a standalone app.

FEATURES

• 5 stereo Delay algorithms: Tape, Digital, Tape Ping-Pong, Digital Ping-Pong, and Vintage
• Maximum delay time up to 5000ms
• LP/BP/HP stereo filter
• Delay bypass for use of the stereo filter alone
• Simulated tube overdrive
• Can synchronize to host tempo when used as a plug-in, or can synchronize to incoming MIDI Clock when used as a standalone app
• Special LFO modulation options not available on the Zen Delay hardware
• Library of presets created by producers and DJs
• Compatible with VST2, VST3, and AU (macOS-only) hosts

INSTALLATION

To install Zen Delay Virtual, simply double-click the installer file you downloaded from the Erica Synths website and follow the on-screen instructions. By default, all plug-in types (VST2, VST3, and AU) will be installed along with the standalone app. You can customize the installation to leave out one or more of these variants if you don't need them.

Windows Users: Be sure that Zen Delay Virtual is being installed into the proper plug-in paths used by your DAW. The default locations set in the installer will work for most users, but the installation locations of plug-ins on Windows is not 100% standardized yet. You may need to browse to the correct locations of where your VST2 and VST3 plug-ins are installed to ensure Zen Delay Virtual is also installed there. Otherwise, Zen Delay Virtual might not be found by your DAW.
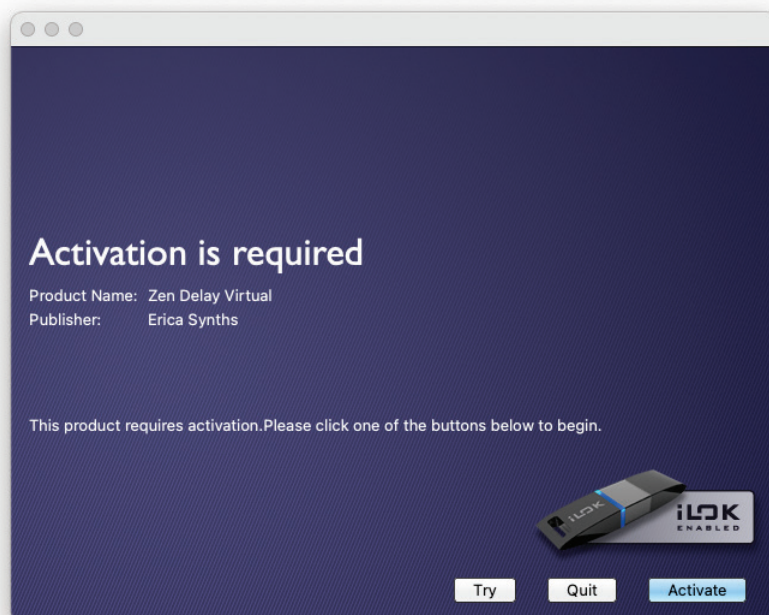
ACTIVATION

Zen Delay Virtual is protected against illegal copying/piracy with PACE. If you don't already have it installed on your system, please install the **iLok License Manager** software which can be downloaded from here:

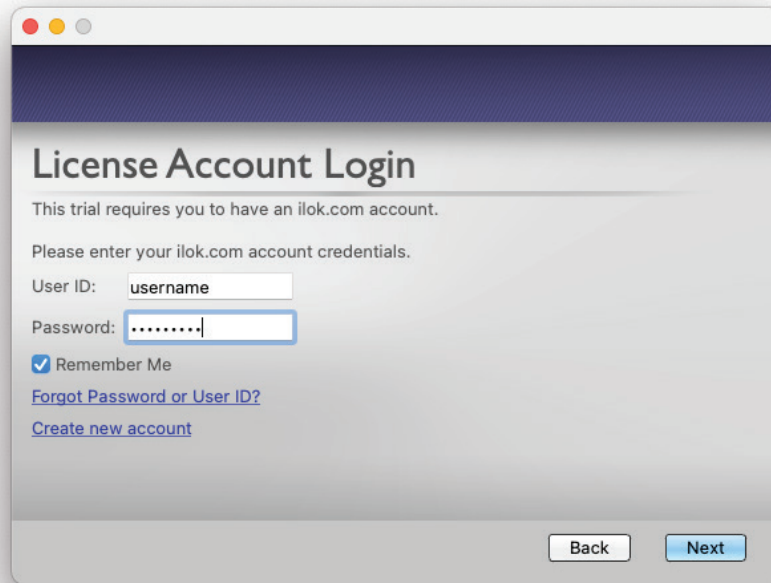https://www.ilok.com/#!license-manager

Before you can use Zen Delay Virtual, you must activate your personal license and choose where to store the license. You have a few options available for this:

- If you own a 2nd- or 3rd-generation **iLok hardware dongle**, you can store your license on it. You will need to have this iLok plugged into the computer whenever you want to use Zen Delay Virtual, but the benefit of the iLok is that you can physically take your activation with you anywhere, allowing you to install and use Zen Delay Virtual on any computer (such as when visiting someone's studio).
- You can also choose to save your license to your **iLok Cloud** account. You do not need a physical iLok dongle in order to use this option—your computer merely needs to have an Internet connection. By putting your license in your iLok Cloud account, you merely need to launch the iLok License Manager software and activate your Cloud session on the computer. Aside from not requiring an iLok dongle, this option also allows you to easily move your license around to other computers which have an Internet connection simply by opening an iLok Cloud session on another computer. As you can only have one iLok Cloud session active at a time, activating your iLok Cloud session on another computer will automatically de-activate the session on the previous computer.
- You may also choose to **store your license directly on the computer** where you wish to use Zen Delay Virtual. Your computer will need an Internet connection at the time of installing the license, but you'll then be free to use your computer and Zen Delay Virtual without an Internet connection after that. This is the best option to choose if you will be using Zen Delay Virtual in a stage performance or some other situation where you might not have Internet access (such as on a train or airplane). You will need Internet access again if you wish to remove your license from the computer and move it to another. While this option does have a number of conveniences for the traveling and performing musician, do be aware that you will lose your license if your computer is lost, stolen, or damaged.

To begin the activation process, simply launch the Zen Delay Virtual standalone app or load Zen Delay Virtual into your DAW. A screen will appear saying that Zen Delay Virtual needs to be activated. Click the "Try" button to start a 7-day trial, or click the "Activate" button in the bottom-right corner of the screen to enter your activation code.

After clicking "Activate", it will then ask you to input the Activation Code that you received upon purchasing Zen Delay Virtual. You can simply copy the Activate Code you received and paste it there. This will then activate your license in your iLok Account.

When you then run iLok License Manager, you will have a license standing by in your account, and you simply need to drag it to the location where you want to install the license:

• If you want to install it on your iLok, connect your iLok and then drag the license to the iLok entry in the left sidebar.
• If you want to install the license into your iLok Cloud, drag it to the iLok Cloud entry in the sidebar.
• If you want to install the license directly on the computer, drag it to your computer shown in the left sidebar.

For more information about how to use iLok License Manager and managing your licenses, please see the documentation here:

https://help.ilok.com/ilm_overview.html

INTERFACE AND CONTROLS

Zen Delay Virtual features four views: the Main Controls, the Preset Manager, the special Modulation controls, and Options (standalone app only).

THE MAIN CONTROLS

The Main Controls of Zen Delay Virtual are identical to the Zen Delay hardware providing a usage experience just like the original.

1. DELAY TIME: Set the delay time of the Delay stage manually using this knob ranging from super-short 3ms up to 5s. The scale is designed so that you can play with delay nuances at the short delay times and essentially use the effect as an instrument on its own. This control is also used for adjusting the delay BPM-Sync divisions and multiplications when synced to the host tempo or incoming MIDI Clock. At the 12 o'clock position, the delay time is equal to the incoming BPM; turning the knob counter-clockwise from 12 o'clock will introduce time divisions while turning clockwise will introduce time multiplications.

2. FEEDBACK: Used to control how much output signal from the Delay module is fed back to its input. In the fully-clockwise position, the Delay will have positive gain resulting in self-feedback.

3. DELAY MODE: Use this knob to select one of the 5 delay algorithms:

- **TAPE** and **TAPE PINGPONG** will introduce pitch-shifting when the delay time is changed.
- **DIGITAL** and **DIGITAL PINGPONG** will allow the delay time to be changed without introducing pitch changes.
- **VINTAGE** is a modification of the TAPE mode which also bit-crushes the audio signal with the increasing delay time, making it excellent for lo-fi craziness.
- **DELAY OFF** allows Zen Delay Virtual to be used solely as a filter/overdrive effect.

4. TAP can be used to set the delay time when Zen Delay Virtual is not synced to the host tempo or incoming MIDI Clock. Rotating the DELAY TIME knob will reset/override the tempo set with TAP.

5. DRY/WET adjusts the amount of delay heard at the final output of Zen Delay Virtual. The DRY/WET control is introduced after the Drive section, so you will be able to overdrive the signal even when this knob is set fully dry (counter-clockwise).

6. IN LEVEL adjusts the strength of the incoming audio signal. Extreme settings will trigger the input soft-clipping (the LED above the knob will light).

7. RESONANCE is used to set the amount of resonance for the Filter stage. In extreme clockwise settings, the Filter will self-oscillate.

8. VCF CUTOFF controls the cutoff frequency of the Filter stage.

9. DRIVE controls the simulated tube overdrive stage. It can increase the amount of overdrive to quite destructive madness. A limiter is present to ensure that the overall output volume does not increase when extreme overdrive is applied.

10. VCF MODE selects the mode for the Filter stage:

- **LP** is the low-pass filter mode, meaning more and more high frequencies will be removed as the VCF CUTOFF knob is turned counter-clockwise.
- **BP** is the band-pass filter mode which allows just a narrow range of frequencies around the VCF CUTOFF position to pass through the Filter stage.
- **HP** is the high-pass filter mode, meaning more and more low frequencies will be removed as the VCF CUTOFF knob is turned clockwise.
- **BYPASS** disables the Filter stage entirely.

11. BYPASS is used to toggle Zen Delay Virtual on and off in its entirety. When the button is lit/red, Zen Delay Virtual is active. When the button is unlit/grey, signals will pass through Zen Delay Virtual without going through any of the Drive, Delay, or Filter stages.

12. BPM Sync Menu (∨) allows exact tempo-sync divisions to be selected directly via a drop-down menu. When one of the sync divisions is selected, the divisions will change as the DELAY TIME knob is adjusted, thus providing visual feedback on the current delay time when manipulating the knob. Selecting **Unsynced** from the menu allows the delay time to be set freely and independently from the host tempo or MIDI Clock.

13. PRESET MANAGER (⊕) is accessed and hidden by clicking this button—details on Preset Management can be found in a later section of this manual.

14. MODULATION (⊚) is accessed and hidden by clicking this button—details on the Zen Delay Virtual modulation system are found later in this manual.

15. INFORMATION (ⓘ) about the current version of Zen Delay Virtual can be found by clicking this button. If you need to make a support request, please be sure to include the version information from this screen in your request.
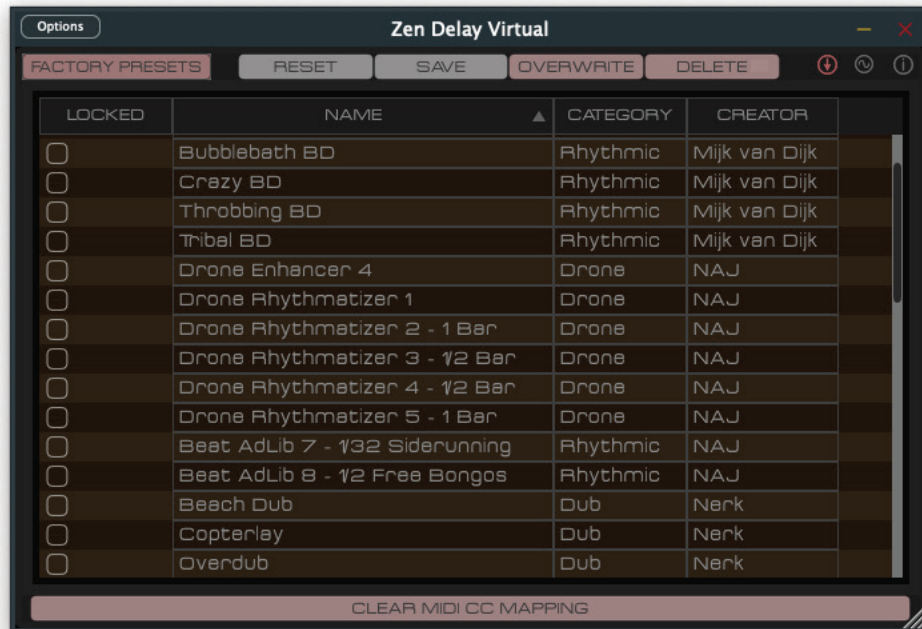
PRESET MANAGER

As the name suggests, the Preset Manager page allows you to save and recall the Main Controls and Modulation settings of Zen Delay Virtual. Zen Delay Virtual ships with a collection of presets designed by producers and DJs to get you up-and-running as quickly as possible, and you can easily extend this library by creating presets of your own.

The Zen Delay Virtual presets are shown in a list, and recalling a preset is as simple as clicking one of the presets to select it or scrolling up and down through the list using the up and down arrow keys on your computer's keyboard.

NOTE: *Because Zen Delay Virtual follows the performance-centric design of the Zen Delay hardware, selecting a new preset will immediately load that preset and overwrite the previous settings of the Main Controls and Modulations. This allows you to switch to new presets and manipulate them in a live performance without being blocked by "unsaved changes" warnings when switching to a new preset. Therefore, if you have Zen Delay Virtual set in a way that you want to preserve, be sure to save that preset before switching to a new one—you will not be able to undo your action.*

Creating, updating, and removing presets is managed by clicking the three buttons at the top of the Preset Manager:
1. **FACTORY PRESETS** toggles the factory preset list on and off. When the button is grey, the user preset list is in view. When it is red, the factory list is shown.
2. **RESET** sets Zen Delay Virtual back to the same initial state as when it is loaded new.
3. **SAVE** will create a new preset in the list using the current settings of the Main Controls and Modulations.
4. **OVERWRITE** will update the currently-selected preset using the current settings of the Main Controls and Modulations.
5. **DELETE** will remove the selected preset from the preset list.

Each preset includes a **NAME** to describe the preset, a **CATEGORY** which can group similar presets together, and a **CREATOR** indicating the name of the artist who designed the preset. When saving a new preset, these three fields will be filled with default/placeholder values. Simply click on any one of them to edit them to your liking.
Each preset also has a **LOCKED** checkbox on the left. If a preset is locked, you will not be able to overwrite or delete the preset ensuring that these important presets aren't lost accidentally.

You can alphabetically sort the contents of the preset list by clicking on the **LOCKED, NAME, CATEGORY**, and **CREATOR** labels the top of the table—clicking a label a second time will reverse the sort order.

MODULATION & OPTIONS

The Modulation & Options page allows for both modulation of the delay time and filter cutoff, customization of characteristics of the DIGITAL delay modes, and altering the routing between the Delay and Filter stages, all of which are features and enhancements beyond the original Zen Delay hardware.

TIME MODULATION

The **TIME MODULATION** section contains a number of controls for modulating the delay time; the modulation is applied as an offset to the current delay time set with the DELAY TIME knob. The available controls are:

1. FREQ adjusts the rate of the modulator–the current frequency is shown below the knob. You can alternatively use the drop-down menu above the knob to choose a BPM-sync value for the modulator.

2. WAVEFORM allows you to select one of the following modulator shapes: sinus, ramp, sawtooth, triangle, square, pulse (a narrower form of square), notch (an extremely narrow version of square), noise (random), and sample & hold (quantized randomness).

3. LEVEL sets how strongly the modulator affects the delay time. When fully counter-clockwise (the default position), the modulator has no effect on the delay time. As this knob is turned clockwise, the modulator will have an increasingly greater effect on the delay time, and this is additionally visualized by the brightness of the LED next to the FREQ knob.

4. X FM is the cross-frequency-modulation amount. That is, this knob determines how much the modulator affects its own frequency. This can be used to morph the standard waveforms into new shapes, and the impact of this cross-modulation is visualized by changing the brightness of the FREQ knob background.

5. X AM is the cross-amplitude-modulation amount. Turning this knob clockwise will cause the modulator to modulate the LEVEL amount which is also visualized via the brightness of the LEVEL knob background.

DIGITAL MODULATION

The **DIGITAL MOD** section in the middle controls the characteristics of the DIGITAL and DIGITAL PINGPONG delay modes.

1. BIT DEPTH controls the bit-crusher of the digital delay mode. Turning this knob counter-clockwise to reduce bits adds a gritty, lo-fi characteristic to the DIGITAL delays.

2. NOISE can add white noise to the DIGITAL delay modes as it is turned clockwise, adding another way to introduce lo-fi textures to the DIGITAL delay modes.

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3. SAMPLE RATE adjusts the sample rate reducer. Turning this counter-clockwise will reduce the sample rate of the DIGITAL delay modes giving it a more vintage feel (like older digital delays which didn't have the power to run at high sample rates). Turning this knob further counter-clockwise can introduce lots of sonic destruction.

CUTOFF MODULATION

The **CUTOFF MODULATION** section works similarly to the DELAY MODULATION section and contains a number of controls for modulating the delay time as well as an additional control for modulating the SAMPLE RATE knob of the DIGITAL MOD; the modulation is applied as an offset to the current cutoff set with the VCF CUTOFF knob. The available controls are:

1. FREQ adjusts the rate of the modulator—the current frequency is shown below the knob. You can alternatively use the drop-down menu above the knob to choose a BPM-sync value for the modulator.

2. WAVEFORM allows you to select one of the following modulator shapes: sinus, ramp, sawtooth, triangle, square, pulse (a narrower form of square), notch (an extremely narrow version of square), noise (random), and sample & hold (quantized randomness).

3. LEVEL sets how strongly the modulator affects the cutoff frequency. When fully counter-clockwise (the default position), the modulator has no effect on the filter cutoff. As this knob is turned clockwise, the modulator will have an increasingly greater effect on the cutoff, and this is additionally visualized by the brightness of the LED next to the FREQ knob.

4. RATE FM allows the cutoff modulator to additionally modulate the SAMPLE RATE knob in the DIGITAL MOD section to its left.

5. X FM is the cross-frequency-modulation amount. That is, this knob determines how much the modulator affects its own frequency. This can be used to morph the standard waveforms into new shapes, and the impact of this cross-modulation is visualized by changing the brightness of the FREQ knob background.

6. X AM is the cross-amplitude-modulation amount. Turning this knob clockwise will cause the modulator to modulate the LEVEL amount which is also visualized via the brightness of the LEVEL knob background.

FEEDBACK ROUTING

At the top of the Modulation page is a menu for selecting the **FEEDBACK ROUTING** which is additionally visualized next to the RATE knob in the CUTOFF MODULATION section.

1. Classic is the routing found on the original Zen Delay where the output of the Delay stage feeds directly back into itself. The output of the Delay stage is then sent to the Filter stage.

2. Post VCF puts the Filter stage within the Delay feedback loop. Additionally, it is the output of the Filter stage that is heard, meaning that the first iteration heard from the Delay stage will always be processed by the Filter stage.

3. Post VCF 2 also puts the Filter stage within the Delay feedback loop. However, unlike Post VCF (above), the audio output is taken directly from the Delay stage, meaning the first iteration heard from the Delay will not be processed by the Filter—the Filter will only exist within the Delay feedback loop. Once consequence of this is that the Filter will have no effect when the FEEDBACK is set fully counter-clockwise or the DELAY MODE is set to DELAY OFF.

INPUT GAIN STAGE

The original Zen Delay hardware has a pair of clipping diodes on the input gain stage which Zen Delay Virtual also replicates when the Input Gain Stage menu is set to "Soft clip". If you set this option to "Clean", the clipping will be bypassed which may be preferred if Zen Delay Virtual is placed on the master track or some other channel with rich harmonic content.

MIDI CC CONTROL

Zen Delay Virtual can be controlled by MIDI CC (Continuous Controller) messages. This gives you hands-on control of Zen Delay Virtual, allowing you to "perform" in a similar fashion to the Zen Delay hardware.

NOTE: *Before beginning, be sure you've either routed a MIDI device to the Zen Delay Virtual plug-in in your DAW or that you have enabled at least one MIDI hardware device in the Options menu of the standalone app.*

Begin by hovering your mouse over the top-center area of Zen Delay Virtual. While leaving your mouse there, manipulate the control on your MIDI controller that you want to assign, such as turning a knob or moving a slider. The MIDI CC received from that control will be shown at the top of Zen Delay Virtual (in the following example image, MIDI CC 14 has been detected):

To assign that MIDI CC to a control in Zen Delay Virtual, simply drag the MIDI CC from the top-center of Zen Delay Virtual to one of the controls—the control's name will appear in red text when the MIDI CC is correctly positioned over the control (in the following image, MIDI CC 14 has been dragged to the DELAY TIME knob):

Release your mouse button and the MIDI CC will be assigned to the control. Manipulating the control on your MIDI controller will now control Zen Delay Virtual.

NOTE: *You can assign a single MIDI CC to multiple knobs in Zen Delay Virtual to control them simultaneously. You can also assign different MIDI CCs to the same knob if you want the option to control that parameter from multiple hardware devices.*

To clear the current MIDI CC mapping, open the Preset Manager and click the **CLEAR MIDI CC MAPPING** button at the bottom.

STANDALONE AUDIO & MIDI SETTINGS

When using the Zen Delay Virtual standalone app (rather than one of the plug-in versions), an additional "Options" menu is available in the upper-left corner of the main window to provide access to Audio/MIDI Settings.
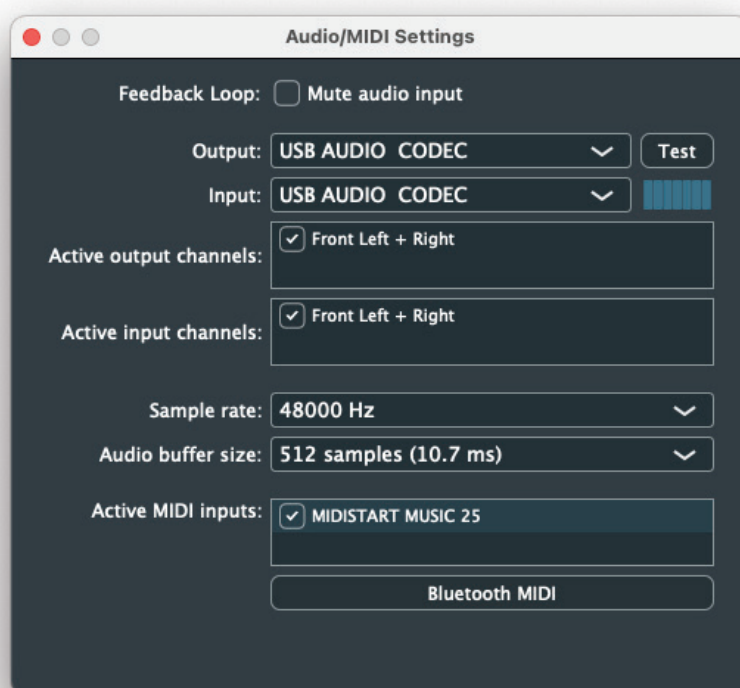
1. Feedback Loop: If Zen Delay Virtual believes your current hardware configuration could lead to feedback (where the input can receive the output), the "Mute audio input" checkbox will be checked thus disabling Zen Delay Virtual. Unchecking this box will make Zen Delay Virtual begin to work—be sure your hardware is configured correctly before doing this as feedback can get very loud very quickly!

2. Output: Choose the audio device you'd like to use for output from this menu. Clicking the "Test" button on the right will play a tone to the output device so you can ensure it is the correct output.

3. Input: Choose the audio device you'd like to use for audio input from this menu. There is a meter at the right that will show the detected level of incoming audio so you can verify that the input is working.

4. Active Output Channels: All output channels on the selected Output device will be shown here. Place a checkmark next to the output pair you want to use with Zen Delay Virtual in case your audio device has more than one output pair.

5. Active Input Channels: All input channels of the selected Input device will be shown here. Place a checkmark next to the input pair you want to use with Zen Delay Virtual in case your audio device has more than one input pair.

6. Sample Rate: You can choose the sample rate for Zen Delay Virtual from this menu—only sample rates supported by the selected audio devices will be shown.

7. Audio Buffer Size: Choose a buffer size from this menu—the smaller the size, the less audio latency from input to output. It is recommended to set this value as low as your computer can manage—if the value is too small, it may overload the CPU or result in choppy audio output.

8. Active MIDI inputs: All connected MIDI devices are shown in this list. Place a checkmark next to the MIDI devices you want to use as inputs to Zen Delay Virtual. If more than one device is chosen, their MIDI data will be merged together.

9. Bluetooth MIDI: Click this button to open a special window to detect, connect, and select Bluetooth MIDI controllers to use with Zen Delay Virtual.

SUPPORT

If you have questions, problems, or feedback about Zen Delay Virtual, you can submit a support request on the Erica Synths website here:

https://www.ericasynths.lv/support/directory/product_info/

Please be sure to include the Zen Delay Virtual version number (which can be found on the Info page) when submitting your request, along with details about your computer, operating system, and your host/DAW (name, version, etc.) so that the support staff can have as clear an understanding of the issue as possible.

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