

e::Pi User Manual

Introduction

At around 14, I was captivated by the endless possibilities of effects pedals, my eyes scanning catalogs with a sense of wonder and a pinch of trepidation. 100 dollars felt like a fortune to a kid with a meager allowance. It was a decision that weighed as heavily as a mortgage. The thrill of acquiring my first distortion or fuzz pedal is a memory etched into the minds of countless rock guitarists. The distorted sound that erupted from the amp was nothing short of revelatory. Hours were spent mindlessly strumming power chords, basking in the sonic bliss. The quality might have been questionable, but the impact was undeniable. That sound is one of the best sounds. With a budget guitar, a cheap amp, and a fuzz pedal, we transformed into rock stars. It's no surprise that many youths were so deeply drawn to rock music in the golden era of counterculture. The fuzz pedal has such transformative power. As the first product for IVH, we wanted to capture that same passion and excitement.

e::Pi is inspired by a legendary fuzz pedal: Electro-Harmonix Big Muff Pi. The pedal has various versions over time and in different places, which is a well-known fact.

This plugin is designed to use these versions with high-quality analog modeling technology. It can combine different versions for “sustain” and “tone” respectively. Moreover, you can choose between “vintage” or “modern” circuits. Please see the more detailed description below.

Modeling Technology

Our technology is based on the traditional analog modeling technology invented in the 1970s. It sounds far from cutting edge, however, it's the most accurate simulation in theory. In terms of real-time processing, it is computationally expensive. In particular, non-linear (NL) devices such as diodes, transistors, and vacuum tubes require more complex calculations. What if we simulate a guitar amp with many tubes and run it in real-time, it wouldn't run well without high optimization and approximation. Optimization requires spending many hours, patience, and expert skills, and it has a limit.

We combined it with the Neural Network (NN) and Machine Learning (ML) to replace some bottlenecks of the traditional way with NN. For flexibility and less computational cost, we captured just NL devices' behaviors themselves, not the entire circuit behavior: sounds from an output jack. This method doesn't need complicated NNs. Its behaviors are captured accurately with a tiny NN, which means it can run so fast that complex NL behaviors in real-time with very slight errors. We achieved the same high accuracy as the traditional way.

Moreover, it has flexibility and capability that the circuits' component variable can be changed with proper ranges. Without extra training or new models, we can tune further to be accurate or provide its variables as parameters to all customers.

Installation

Please download the installer for your OS: macOS or Windows, then open it and follow the installer instructions.

Install Folder

macOS

Audio Units and VST3

Macintosh HD:/Library/Audio/Plug-Ins/PLUGIN-FORMAT

AAX

Macintosh HD:/Library/Application Support/Avid/Audio/Plug-Ins

Windows

VST3

C:\Program Files\Common Files\VST3

AAX

C:\Program Files\Common Files\Avid\Audio\Plug-Ins

Presets

The folder will be generated automatically in the following directory when the plugin is loaded if the folder doesn't exist. Note that the "e_Pi Lite" preset saving folder is "e_Pi" sharing with the e::Pi plugin.

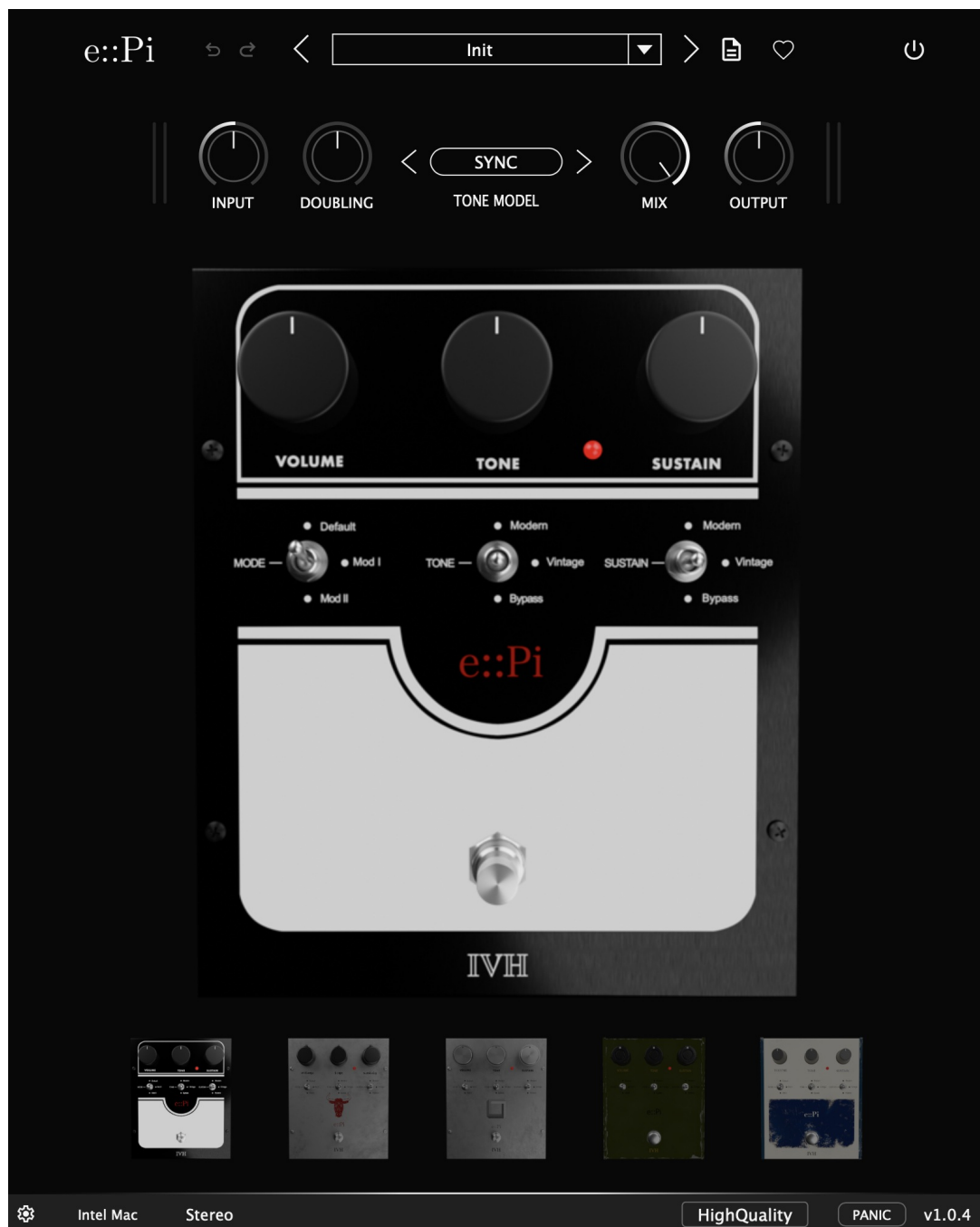
macOS

Macintosh HD:/Users/USERNAME/Library/IVH/e_Pi

Windows

C:\User\USERNAME\AppData\Roaming\IVH\e_Pi

GUI



Models

<p>Big Apple</p>  <p>The Big Apple model is a black guitar pedal with three large black knobs at the top labeled VOLUME, TONE, and SUSTAIN. Below the knobs are three sets of toggle switches for MODE (Default, Mod I, Mod II), TONE (Modern, Vintage, Bypass), and SUSTAIN (Modern, Vintage, Bypass). A red LED indicator is positioned between the TONE and SUSTAIN knobs. The front plate features a white U-shaped graphic with the text 'e::Pi' in red, and a silver footswitch at the bottom with 'IVH' printed below it.</p>	<p>Raging Bull</p>  <p>The Raging Bull model is a grey guitar pedal with three large black knobs at the top labeled volume, tone, and sustain. Below the knobs are three sets of toggle switches for MODE (Default, Mod I, Mod II), TONE (Modern, Vintage, Bypass), and SUSTAIN (Modern, Vintage, Bypass). A red LED indicator is positioned between the tone and sustain knobs. The front plate features a red bull head graphic in the center with the text 'e::Pi' in red below it, and a silver footswitch at the bottom with 'IVH' printed below it.</p>
<p>Square</p>  <p>The Square model is a grey guitar pedal with three large silver knobs at the top labeled VOLUME, TONE, and SUSTAIN. Below the knobs are three sets of toggle switches for MODE (Default, Mod I, Mod II), TONE (Modern, Vintage, Bypass), and SUSTAIN (Modern, Vintage, Bypass). A red LED indicator is positioned between the TONE and SUSTAIN knobs. The front plate features a large silver square graphic in the center with the text 'e::Pi' in grey below it, and a silver footswitch at the bottom with 'IVH' printed below it.</p>	<p>Soviet Green</p>  <p>The Soviet Green model is a dark green guitar pedal with three large black knobs at the top labeled VOLUME, TONE, and SUSTAIN. Below the knobs are three sets of toggle switches for MODE (Default, Mod I, Mod II), TONE (Modern, Vintage, Bypass), and SUSTAIN (Modern, Vintage, Bypass). A red LED indicator is positioned between the TONE and SUSTAIN knobs. The front plate features the text 'e::Pi' in white in the center, and a silver footswitch at the bottom with 'IVH' printed below it.</p>
<p>White Army</p>  <p>The White Army model is a light grey guitar pedal with three large black knobs at the top labeled VOLUME, TONE, and SUSTAIN. Below the knobs are three sets of toggle switches for MODE (Default, Mod I, Mod II), TONE (Modern, Vintage, Bypass), and SUSTAIN (Modern, Vintage, Bypass). A red LED indicator is positioned between the TONE and SUSTAIN knobs. The front plate features a dark blue rectangular graphic with the text 'e::Pi' in white, and a silver footswitch at the bottom with 'IVH' printed below it.</p>	

Toolbar

Top Toolbar



1. **Undo&Redo** — You can undo and redo actions following the edit history.
2. **Preset Manager ComboBox** — It is for managing presets. [See more details preset section.](#) Side arrow buttons next to the combo box are for switching presets.
3. **Save Button** — It is for saving the preset. [See more details in the preset section.](#)
4. **Favorite Button** — It is for marking and saving the preset as a favorite. [See more details in the preset section.](#)

Bottom Toolbar



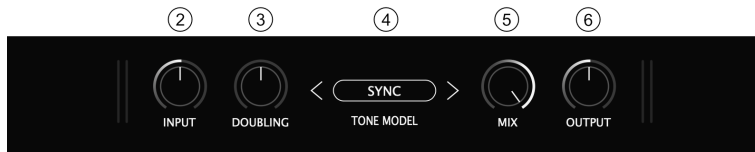
1. **Settings** — It is for the settings and you can manage your settings. [See more details in the setting section.](#)
2. **Architecture Info** — The plugin running on what OS and architecture
3. **Mono or Stereo** — The type of current processing, mono or stereo
4. **Audio Quality** — You can select the quality of the processing. In this e::Pi, LowLatency selects lighter ML models and HighQuality selects the more accurate model that needs more computational cost.
5. **Panic** — You can reset and restart the current audio process when errors occur.
6. **Version** — Plugin Version you use now.

Parameters

The parameters for which automation is enabled are below



1. **ON/OFF** — Switches the plugin on or off



2. **Input Level** — adjusts the volume of sound input to the plugin
3. **Doubling** — adjusts doubling delay time
4. **Tone Selector** — selects tone models. Note that the tone model will be selected automatically the same model of fuzz when the Tone model is “SYNC”
5. **Mix** — adjusts the raw sound and the processed sound
6. **Output** — Level adjusts the volume of sound output from the plugin



7. **Volume** — adjusts the volume of sound output from e::Pi process, not the plugin
8. **Tone** — adjust the tone filter
9. **Sustain**— adjust how the sound distort
10. **Mod Mode** — selects from three types: Normal, Mod I, Mod II
 - Mod I — the process order clipping and tone are swapped; processes tone first and the clipping later
 - Mod II — the tone is added before clipping; the clipping is sandwiched between two tone processes
11. **Tone-Mode** — selects from three types: Modern, Vintage, bypass
 - Modern — the circuit condition is pretty close to an “Ideal”
 - Vintage — the circuit condition is aging
12. **Sustain-Mode** — selects from three types: Modern, Vintage, bypass
 - Modern — the circuit condition is pretty close to an “Ideal”
 - Vintage — the circuit condition is aging



13. **Bypass** — switches e::Pi on or off, not the plugin on or off
14. **Fuzz Selector** — selects and changes models. Note that the tone model will be selected automatically the same model of fuzz when the Tone model is “SYNC”

Preset

e::Pi has a preset manager which you can save and load a favorite sound as a preset. This section explains how to use it and what it can do.

e::Pi’s preset is upward compatible with e::Pi Lite. Presets created in e::Pi Lite can be loaded in e::Pi, while presets created in e::Pi can be NOT loaded in e::Pi Lite.

Saving

There are two types of saving a preset.

New Preset

If you would like to save the preset as a new preset, please click the [“Save” button on the TopToolbar](#). You will see a saving window.

Please fill in the information you need like preset name, author, and category. Note that if there is the same preset with a matching preset name and author, a warning will ask you if it is okay to overwrite. Overwrite details are explained in the next section.

Favorite

You can mark the preset as a favorite. It is an easy way just click [“heart mark” on the TopToolBar](#) and it will be marked and saved as a favorite preset.

Preset Manager ComboBox

You can browse your presets by using the preset manager combo box. The details of how to use it and what it can do is below.



Category

It is the collection of presets which have a category name. The way to categorize your preset is explained save section above.

Favorite

It is the collection of presets you saved as favorites.

Save As

It creates a new preset with the current parameters state. It is the same technically as [“Save” explained above.](#)

Save As Default Preset

it will be the default preset.

OverWrite

It is for overwriting. You will see a warning if you really want to overwrite.

Delete

It is for deleting the preset you currently use. When click “Delete” you will see a warning if you really want to delete. Note that factory presets can NOT be deleted.

Reset

It is for resetting or reloading the preset currently used. Note that the current parameters state you changed and not saved will be discarded.

Copy

It is for copying with the current preset state.

Paste

It is for pasting another one’s parameters state copied with the above copy feature.

Load Preset

It is for loading a specific preset that doesn’t show up on the preset manager.

Rescan Presets

It is for Rescanning or reloading presets. It could help when presets are updated or you would like to use them but don’t show up.

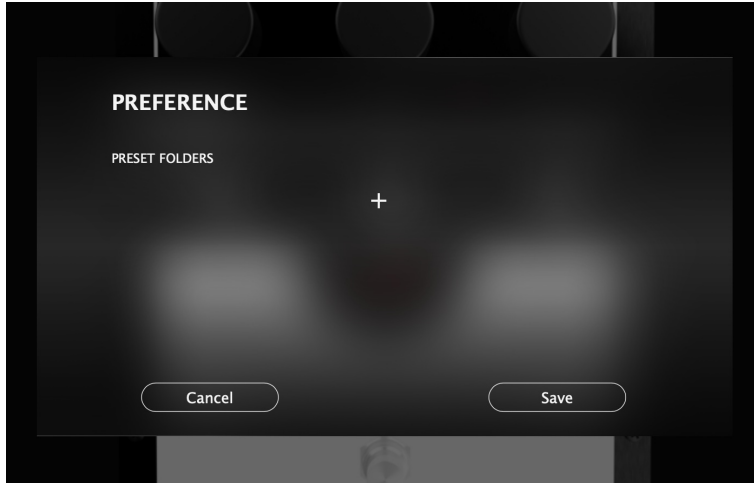
Add Preset Folder

It is for adding custom folders you use. It could help when adding third-party presets.

Setting

We currently have only one setting option: Add Preset Folders. It is described above in the preset section, please refer to the details.

Please click the plus “+” button and select the folder you want to add.



Reset All Settings

Please delete the “.cfg” extension file and launch the plugin via any DAW. The “.cfg” file will be created when the plugin is launched and all settings will be initialized.

macOS

e::Pi:

```
Macintosh HD:/Users/USERNAME/Library/IVH/e_Pi/e_Pi.cfg
```

e::Pi Lite:

```
Macintosh HD:/Users/USERNAME/Library/IVH/e_Pi_Lite/e_Pi_Lite.cfg
```

Windows

e::Pi:

```
C:\Users\USERNAME\AppData\Roaming\IVH\e_Pi\e_Pi.cfg
```

e::Pi Lite:

```
C:\Users\USERNAME\AppData\Roaming\IVH\e_Pi_Lite\e_Pi_Lite.cfg
```