STL TONES

IGNITE AMPS

EMISSARY

AUDIO PLUG-IN

USER MANUAL

Summary

Introduction

The Emissary is a digital emulation of a custom dual channel guitar tube amplifier. It has been developed to accurately model its real hardware counterpart, built for Ryan Huthnance (The Seer / Gaped / Chrome Bison / Emissary Studios) by Ignite Amps, in 2014.

The Emissary is a no compromise custom amp built for the kill. Featuring a very versatile clean channel that ranges from pristine cleans to slightly overdriven tones and a mean lead channel designed for serious bonecrushing distorsions, it offers a very wide tonal palette for the modern metal musician.

Every single component on the signal path of the real analog circuit has been taken into account and modeled in the best possible way to match the original sound, keeping an eye on CPU performance and real-time playability at the same time.
The Emissary is meant to be used as a virtual guitar amplifier for live playing and jamming, tracking or mixing inside hosts capable of AAX, AU, VST or VST3 Plug-Ins support.

Minimum System requirements

Windows: **Mac**:
Windows 7/8/10 (32/64 bit)   OSX 10.9
Intel Pentium 4 or AMD Athlon XP   Intel processor with SSE2 instructions support

Installation

To install the Emissary Plug-In, just run the supplied installer and follow the instructions.

For Windows AAX/VST/VST3 format, we provide separate x86 (32 bit) and x64 (64 bit) binaries, so make sure to choose the right one according to your operative system and plug-in host specifications.
Keep in mind that x64 binaries will not run on 32 bit environments, while x86 binaries will most likely run on 64 bit environments, although we do not reccomend such usage for performance and stability reasons.
We strongly advice the Windows user against putting both x86 and x64 versions in the host AAX/VST/VST3 folder(s), as it may cause one of the versions to not be recognized as a plug-in.

Mac plug-ins (AAX/AU/VST/VST3) are compiled in Universal Binary format for Intel processors, containing both 32 bit and 64 bit code in the same bundle, which means that the user doesn't need to care about choosing x86 or x64 version, as the system will handle that automatically.

After that, you should (re)start your favourite AAX/AU/VST/VST3 host, making sure it re-scans your Plug-Ins folder(s) to recognize the Emissary as a new "Effect" Plug-In (please note that some hosts may not re-scan the plug-in folder automatically at every start-up, so you may need to do it manually. Refer to your host's manual for instructions).
If everything is right, you should now see the Emissary entry into the "Effects" Plug-Ins list of your host.

Main Features

- Ignite Amps 3rd generation triode modeling engine
- Dynamic EL34 / 6L6GC / KT88 pentodes/tetrodes analog modeling (push-pull stage)
- Two channels: clean, and lead, each with fully separated controls
- Mono / Stereo processing support
- Selectable oversampling rate (up to 8x)
- Global input / output level controls
- Double precision (64 bit) floating point mathematical model
- Fully automatable controls
- Ignite Amps proprietary preset management system with bank file import/export functions

Graphic User Interface

Fig. 1 – Emissary Front Panel

Fig. 2 – Emissary Rear Panel

As you can see from the screenshots (fig.1 and fig.2), we've decided to make the Emissary look as similar as possible to the real hardware, in order to make the user experience easier, giving the chance to tweak the controls of the plug-in like one would do with the real amplifier.

The GUI is composed by a **header**, containing the Presets Management System plus other convenient functions, a switchable **main view** (alternatively showing the **front** and **rear panel** of the Emissary amplifier) and a **footer**, containing the global controls of the plug-in.

Front Panel Controls

Fig. 3 – Emissary Front Panel Controls

In the front panel of the Emissary you'll find all the controls you're used to see in every classic guitar amplifier:

Common controls for both channels

[1] **Channel**: lets you choose the active channel. Just click on the toggle switch to select the channel: left for Clean (white led), right for Lead (red led, default).

[2] **Depth**: controls the low-end response of the power-amp section. Like in real tube amplifies, it acts on the negative feedback loop of the power-amp circuit.

[3] **Presence**: controls the high-end response of the power-amp section. Like in real tube amplifies, It acts on the negative feedback loop of the power-amp circuit.

[4] **Ignition**: a simple power switch, turns the plug-in on and off.

[5] **Panel Switch**: lets you switch to the Rear Panel view.

Clean channel

[6] **Bass / Mids / Treble:** no need to explain much about these controls, but it is worth noting that, like in real amplifiers, each one of these controls influences the tonal response of the others involved in the circuit.

[7] **Gain**: controls the amount of gain applied to the input signal. Since this channel is designed to have a considerable headroom to maintain the picking dynamics as much uncompromised as possible, it won't overdrive unless you set the gain really high.

[8] **Bright**: controls the amount of picking attack, making the sound brighter or darker/softer depending on your needs.

[9] **Clean Master**: controls the output of the Clean Channel. It's placed right before the power-amp circuit, so it doesn't control just the output volume, but also the amount of signal driving the power-amp circuit. Therefore, when cranked up to high values, it may overdrive the power-amp, giving more saturation and compression if needed.

Lead channel

[10] **Gain**: controls the amount of distortion. Please note that this channel is designed to have tons of gain, so (ab)use this control at your own risk.

[11] **Bright**: controls the amount of picking attack, making the sound brighter or darker / softer depending on your needs. It can be really useful to prevent the distortion getting too muddy. In this channel, the effect of this control depends on the Gain control setting. If you set the Gain at full, the bright capacitor will be bypassed, so, switching it on and off won't make any difference on the final tone.

[12] **Deep**: controls the low-end response of signal at the earlier stages. It can be used to make the tone fatter and deeper, adding resonance to the lower frequencies but still avoiding muddyness.

[13] **Bass / Lo-Mids / Hi-Mids / Treble**: the "four knobs tonestack", one of the keys of the Emissary Lead channel. The double Mids control provides great versatility and a wide array of possible tones. It is worth noting that, like in real amplifiers, each control influences the tonal response of the others involved in the circuit.

[14] **Shape**: changes the tonestack response of the Lead channel. When switched on (toggle up) the high-mids will be more present, making the distortion more aggressive. When switched off (toggle down), it will give a gentle scoop on the mids, resulting in a smoother tone, with a softer attack.

[15] **Lead Master**: controls the output of the Lead Channel. It's placed right before the power-amp circuit, so it doesn't control just the output volume, but also the amount of signal driving the power-amp circuit. Therefore, when cranked up to high values, it may overdrive the power-amp, giving more saturation and compression if needed.

Rear Panel Controls

Fig. 4 – Emissary Rear Panel Controls

In the rear panel of the Emissary you'll find some additional controls to change the power amplifier behaviour:

[16] **Power Amp status**: lets you disable the power amplifier simulation.
When the power-amp is disabled, the output will be taken from the FX Send stage, thus bypassing the Master volume, Depth and Presence controls (which will appear greyed out on the front panel). Since the Master volume controls are disabled, if you need to adjust the output volume, you can use the Output control placed in the GUI Footer.

Please note that when the power-amp is disabled, the plug-in output level is automatically scaled for consistency, so, if you set the Master volume or Bias controls very low or very high, you could experience extreme output volume differences after switching. Use this option carefully!

[17] **Tubes**: lets you decide what kind of tubes you want to use in the Emissary's power-amp section. Clicking on this control will make a drop down menu appear and you will be able to select your preferred tube model. As described in the Bias control section, the range of the

Bias control will change according to the selected tubes, avoiding the need to re-bias the power-amp, like you would do in a real world situation and making it easier for you to compare different tubes.

[18] **Bias**: lets you choose the bias point of the power amp tubes. It is divided into 3 separate controls, which is one of the Emissary key features: Left Tube Bias, Common Bias and Right Tube Bias.

As you can imagine, the Common Bias acts on both tubes and sets the global bias value. The Left and Right controls act on the single pentode/tetrode instead, and can be used to fine tune the symmetry of the class AB power amp circuit by making the tubes work in a perfectly matched way, or deliberately applying an offset to generate more even order harmonic distortion due to the increased asymmetry.

Generally speaking, the Bias controls the amount of (negative) voltage offset applied to the signal at the grid of the tubes. Colder settings (trimmer turned counter clockwise) will make the pentodes/tetrodes draw less current, decreasing the overall output volume and potentially introducing cross-over distortion due to the class AB design (which may be what a guitarist needs to achieve a more dirty/loose tone). Hotter settings (trimmer turned clockwise) will make the pentodes/tetrodes draw more current, increasing the overall output level and eventually the power supply "sagging" effect, adding compression or, in extreme cases, saturation and cleaning up the tone from potential cross-over distortion.

Keep it in the default range (around half-way) for standard/real world operations, but feel free to experiment without the fear of blowing something up.

It is important to note that the range of the Common Bias control automatically changes depending on the selected tubes (see the Tubes control), for practical reasons. In fact, in a real world situation, biasing a KT88 with the same grid voltage offset of a 6L6GC, would cause the KT88 to draw almost two times the current drawn by the 6L6GC, causing a huge output volume difference and potentially damaging the tube itself by exceeding the maximum power dissipation rate of its anode plate.

Scaling the bias control range according to the selected tube, guarantees output volume coherence (making it easier to compare different tubes and choose the right one for you), and makes the virtual tubes work with currents that make sense in a real world situation, allowing you to set the bias of the power amp correctly, without the need to be a tube amplifier technician.

[19] **Panel Switch**: lets you switch back to the Front Panel view.
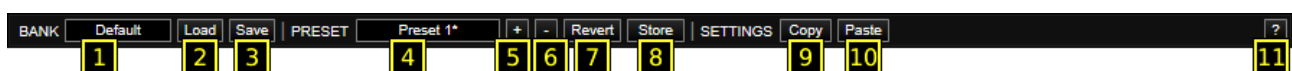

Header controls

Fig. 5 – Header

In the the Emissary header section (fig.5), you'll find controls for the Ignite Amps proprietary Preset Management System and other useful features:

[1] **Bank**: lets you change the name of the current bank. A bank is a group of presets which can be imported or exported to file, in order to save or recall settings and eventually share them with other the Emissary users, or just move them from one DAW to another.
Clicking on this control, will enable text editing, so just type in the new name and hit Enter to update.

[2] **Load**: lets you load a previously saved bank (using the Save [3] control) from a file. Clicking on this button will open your OS file manager to select the desired bank file. Once the file is chosen, all the presets contained in the bank will be available on the Preset Selector [4] and the first one will be automatically loaded.
Please note that when loading a new bank, all the previous bank settings will be discarded,

unless you saved them on a file.

[3]   **Save**: lets you save the current bank on file. Clicking on this button will open your OS file manager to select the path and the name of the file in which the bank will be stored. Once the file is chosen, all the presets contained in the current bank will be saved on the selected storage device and made available for future loading via the Load [2] control.
This is the only control that persists bank data on disk. Any other function of the Preset Management System will act on the plug-in memory, so no changes will be saved on file unless you use this control explicitly.

[4]   **Preset Selector**: lets you switch between presets contained in the current bank. Clicking on this control will open a popup menu showing all the available presets. Selecting a preset will immediately update the plug-in settings to the ones stored into it.
Additionally, when the mouse cursor is over this control, a button labeled "**E**" (as "Edit") will appear on the right side: by clicking on it you can edit the name of the current preset through a dialog box.
Once a preset is loaded, as soon as you edit one of the plug-ins settings, an **asterisk** ("*") will appear next to the preset name, in order to remind you that the settings for that preset are changed. You can revert the settings back using the Revert [7] function or permanently update them using the Store [8] function.

[5]   **Add Preset**: lets you add a new preset to the current bank. Clicking on this button will create and load a new preset with a default name ("Preset <N>"), using the current plug-in settings. You can change the preset name by clicking 2 times on the Preset Selector [4].

[6]   **Remove Preset**: lets you remove a preset from the current bank. Clicking on this button will erase the current preset and load the settings of the previous one on the list (or the next one, in case the removed preset was the first of the bank).
There is no undo function, so use this control carefully.

[7]   **Revert**: lets you revert the selected preset settings to the original state. Clicking on this button will discard all the current plug-in settings and reload the last saved ones. This control is enabled only when a preset has been changed from its saved state.

[8]   **Store**: lets you store the selected preset settings as its original state. Clicking on this button will save all the current plug-in settings and mark them as the last saved state, meaning that every successive use of the Revert [7] function, will recall these settings. This control is enabled only when a preset has been changed from its original state and will be disabled as soon as you click it (you'll also notice the asterisk next to the preset name disappear).

[9]   **Copy**: lets you copy the current preset settings on the plug-in's clipboard. You can then use the Paste [10] function to reload them. The cool thing about this control, is that the plug-in's clipboard is shared among different the Emissary instances, so you can conveniently copy and paste settings from one to another, without having to explicitly save and load the bank.
Please note that as soon as all the instances of the Emissary are removed from the project, the clipboard data will be lost.

[10] **Paste**: lets you load the preset settings available on the plug-in's clipboard. You can then use the Copy [9] function to store them. The cool thing about this control, is that the plug-in's clipboard is shared among different the Emissary instances, so you can conveniently copy and paste settings from one to another, without having to explicitly save and load the bank.
Please note that as soon as all the instances of the Emissary are removed from the project, the clipboard data will be lost.

[11] **About**: clicking on this button will show up all the the Emissary additional information. Just click anywhere in the plug-in graphic interface to make it disappear.

Footer Controls

Fig. 6 – Footer

In the Emissary footer section (fig.6), you'll find controls to manage the plug-in to suit your system and mixing environment at best:

[1] **Input level**: it is a simple way to adjust the amount of guitar signal going through the virtual circuit. <u>It is really important not to underestimate this control</u>, since it is the key to have Emissary react correctly to your guitar and playing. In fact, we can safely say that <u>this is the most important control to get the best out of Emissary</u>.

What's the correct way to use it?

Let's start from your guitar signal: as you know, when you play, the pickup output going to your sound-card input will be transformed to a digital signal by the AD converter of your audio interface. The first thing you should keep in mind, is that the converter has a maximum headroom that should never be exceeded. If your signal goes over this maximum threshold, it will be clipped. A clipped signal means less dynamics and the introduction of digital distortion.
So, the first thing you need to make sure of, is to never clip the AD converter (if you are clipping it, the clipping led indicator featured in most audio interface will light on, warning you that your input signal is too hot, so you need to lower the preamplifier control until the problem disappears).
On the other hand, an important thing to keep in mind, is that the higher the input signal (within the aforementioned headroom limit), the more accurate the AD conversion will be, keeping also the signal-to-noise ratio at the highest possible value. This means that, in order to get the best out of your sound-card, you need to keep the input signal as high as possible right before reaching the clipping threshold.

Ok, cool story, but when does the input level control comes into play?

Once your signal is converted to digital, it will be represented as a series of numbers that you can see as voltage values. These voltages can have a maximum and minimum value of 1.0 and -1.0 respectively. Supposing your input signal is peaking at its higher possible value right before the clipping threshold of the converter, it will be represented as 1.0 inside your host and Emissary will react to it like if you're sending a 1.0V signal to its input stage.
Why is it so important to know these details? Because if your guitar pickup has a maximum output voltage higher than 1V (or 2V peak-to-peak), like many modern active pickups have, you'll need to adjust the input signal that's being sent to Emissary. That's where the Input Level control comes into play. You need to tweak it to compensate the voltage scaling/normalization made by your AD converter.
The Input level control applies a scaling factor to the input signal. For example, if your pickup has a maximum output of 1.5V (so 3V peak-to- peak), you'll need to set the control at 1.5x. By doing this, your input will be multiplied by 1.5, so Emissary will not be fed with a 1.0V maximum signal, instead, it'll get a 1.0V x 1.5 = 1.5V maximum signal, which is the correct value to match your pickup specifications.
If you are using a single coil and its maximum output value is, let's say, 0.5V, you'll need to lower the input level by setting the control to 0.5x. This will make Emissary react like the input signal is 0.5V, or 1V x 0.5. Remember that the sound-card input level is meant to be always set so that you use the full AD converter headroom. Signal level adjustments, to pair the Emissary with your guitar pickups, need to be made after the AD conversion, using the Input Level control.

Please note that these concepts applies only when Emissary is the first plug-in of

your virtual guitar chain. If you are using another digital effect before Emissary, we suggest you to keep the input level control at half (default).

[2] **Oversampling**: lets you choose the internal processing sample rate of the plug-in. The available options are 2x, 4x or 8x. This means that if your host is set up to process at 44100Hz sample rate, by selecting 4x oversampling, for example, Emissary will process your signal at 44100 x 4 = 176400 samples per second. Oversampling is needed to avoid digital artifacts (aliasing) and improve the accuracy and musicality of the plug-in.
Obviously, the higher the oversampling, the higher the CPU usage.
In our experience and tests, we've found 4x oversampling to be the best compromise for accurate processing and good performance, but we've decided to add other two options to help users with slower machines to run the plug-in without CPU overloading (2x) or run the plug-in at its full potential when having a powerful system at disposal (8x).
Keep in mind that the sound difference between these three modes is not going to be night and day, so, for mixing purpose, you will hardly need to rework the mix settings when switching between different oversampling values. A good practice would be to run the plug-in at 4x or 2x during mixing and switch it to 8x right before rendering your project. This will avoid CPU usage problems when using multiple plug-ins in mixing phase and still give you full processing quality once your tracks are exported.

[3] **Routing**: lets the user select the processing mode of the plug-in (Mono or Stereo). It is extremely important to note that a complete stereo separation, and thus a correct stereo image preservation, is only possible when Emissary is placed on a stereo bus and fed with a stereo signal with left and right components panned at 100%. Feeding Emissary with two tracks panned at less than 100% left and right, will not preserve the correct stereo separation of the tracks at the output. Stereo Mode will obviously double the CPU load of the plug-in, as the two audio channels are being implicitly processed by two separated instances of Emissary.

[4] **Output**: lets you change the overall output level of the plug-in. Unlike the Volume controls located in the front panel, this control is completely linear and doesn't affect the dynamic behaviour of the plug-in in any way.

Tips for "digital" guitarists

- Always use the high impedance (Hi-Z) input of your sound-card (when featured). This will ensure less noise and signal loss. Most real (pre)amplifiers and stomp boxes, have an input impedance of 1MegaOhm, so it would be a good idea to get a sound-card with 1MegaOhm input impedance to use Ignite Amps simulators at their best.

- As mentioned above, make always sure to have the highest input signal before the AD conversion, avoiding clipping.

- Amp sims and stomp box simulators are not noisy, they do not add noise. In fact, they're a lot quieter than real hardware. If you have noise issues, check your guitar electronic circuit, cables and sound-card settings.

- In almost all cases, amp simulators and stomp box simulators don't introduce noticeable latency. The Emissary doesn't introduce any noticeable latency. If you're experiencing latency issues, check your sound-card settings (specifically, try to reduce the "Input Buffer Size").

- The Emissary is an amplifier simulator, so it needs a cabinet simulator to be placed in chain after itself, to sound like a real mic'd tube amplifier, so make sure to place one (and only one!) of them right after the Emissary.

- We strongly recommend to use our **NadIR Zero Latency Convolver** plug-in for cabinet simulation, which is freely downloadable from our official site.

Acknowledgements

Ignite Amps wants to thank Ryan Huthnance ([The Seer](#) / [Gaped](#) / [Chrome Bison](#) / [Emissary Studios](#)) for believing in Ignite Amps and letting us build his Emissary amplifier.
A VERY special thank goes to [Voger Design](#), for creating one of the best looking GUI we've ever seen and for the great and very professional collaboration and endless patience.
Thanks to all the musicians interested in the Ignite Amps project, trusting us into taking care of their sound. You know who you are.

Thanks to You too, for downloading and trying Emissary and for reading the f***ing manual! :-)

Sincerely
The Ignite Amps Team

\m/