Arguments

User Guide

v1.0

Arguments

The Mad Processor

Arguments is a vintage-style test equipment plugin for tone generation and dual audio processing. It takes two signals and smashes them together using math derived from analog nuclear research processors. The results are dynamic, often unpredictable but always unique. Since each part of Arguments can run independently, it also works as a sonically rich test tone generator, as a complex distortion unit, or as a multimode filter. Arguments open nature rewards exploration, the presets are a mere suggestion for you to jump off from.

Behind the frontplate

At its core Arguments is an analog computing-based combiner and integrator of signals, re-tuned from science to musical use. These instruments were used in analog nuclear instrumentation modular racks (NIM BIN) to allow for quick calculations without employing a dedicated computer. Arguments takes two signals A and B (B is either external via side-chain or from the internal generator) and puts them together using the argument block. The result is then put through a function block that processes it. This creates a wide range of tones, from simple boosting to high-passed industrial grit, from rhythmic modulations to raw textures. A multi-mode filter stage then allows for exact shaping and modulation. We employed analog modeling at every stage to make Arguments sound not like a calculator but like the rare vintage units that inspired it.

Arguments is available for macOS, Windows, and Linux (VST, VST3, AU, AAX, CLAP, 64-bit only), and also as AUv3 and Standalone on the App Store for iOS and iPadOS.

Installation

macOS

• Double click on the DMG archive to extract it
• Right click on the PKG installer and click open
• Follow the instructions to install the plug-in(s)

Windows

• Extract the ZIP archive
• Double click on the setup file (.exe)
• Follow the instructions to install the plug-in(s)

Linux

• Extract the tarball archive
• Run ./install.sh
• Follow the instructions to install the plug-in(s)

Registration

You can open the registration window by clicking on the icon ☰ next to the bypass button, in the top-right corner.

Online

- If you haven't created an account yet, you can <u>sign up here</u>
- Just input your credentials into the text fields and click on Log In.

Offline

- Download the license file from your <u>account</u>.
- Just drag and drop the license into the registration window or click on the *Load License File* button and browse to the downloaded license.

Parameters

Main

In A	Controls the amount of Input A signal.
In B	Controls the amount of Input B signal (either sidechain or the generator).
Mix	Controls the mix between Dry and Wet signals.
Output	Controls the amount of Output signal.
In B Source	Selects Sidechain or Generator as source for B signal.
Soft Clip	Enables/disables the soft clip on the output.
Oversampling	Selects the amount of oversampling to reduce aliasing artifacts.

Generator

Mode	Selects the Generator range: LFO (*0.01Hz to 50Hz*), OSC (*0.01Hz to 20kHz*).
Waveform	Selects the waveform for the generator (*sine, triangle, ramp up, ramp down, square, sine up, sine down, exp up, exp down, sample & hold*).
Output Trim	Controls an additional output volume for the generator. This is useful in OSC mode as the volume of the generator can be quite high.
Frequency	Controls the frequency of the generator.
Fuzzy	Controls a random modulation applied to the generator.
To Cutoff	Sends the generator output to modulate the Filter Cutoff.
To Resonance	Sends the generator output to modulate the Filter Resonance.

Argument

A	Just the value of A ignoring B.
B	Just the value of B ignoring A.
A+B	Adds the values of A and B together.
A-B	This subtracts B from A, essentially inverting the phase of B.
B-A	This subtracts A from B, essentially inverting the phase of A.
A·B/10	The product of A and B scaled down by a factor of 10.

$\sqrt{(A^2 + B^2)}$	The square root of the sum of squares of A and B.
$A/\|B\|$	Divides A by the absolute value of B.
$10A/\|B\|$	Divides A scaled by 10 by the absolute value of B.

Function

$\ln(\|x\|)$	Natural logarithm of the absolute value of x, tends to compress large values and expand small ones.
$\sqrt{\|x\|}$	Square root of absolute value of x, compresses large values.
x	No modifications applied.
x^2	Square of x, generally adds a second harmonic on simple signals, but can create a lot of harmonics if the signal is complex or too loud.
$-dx/dt/100$	First derivative of x with respect to time. It measures the difference between the current sample and a previous sample, creating a complex waveshaping effect. Scaled down by 100.
$-dx/dt$	Same as the previous function, but not scaled down.

Note: This should give you a basic idea of what is happening math-wise. It is by no means exact, however, as we are modelling the behaviour of an analog circuit. The result is also highly dependent on signal type and gain settings, so we encourage you to use your ears to explore.

Filter

Type	Selects the filter type (*LowPass, HighPass, BandPass, Notch*, *2 or 4 poles*).
Cutoff	Controls the frequency cutoff of the filter.
Resonance	Controls the amount of resonance of the filter.

Side-Chain Operation

First: Every DAW handles side-chain differently. Please consult your DAWs manual to find out how to set it up. For example, if you are still hearing an unaffected side chain signal even though mix is 100% wet, check if you have turned down the sending channel in your DAW.

In general, rhythmic material works very well with Arguments, as do simple sounds. Two pinged filters can become massive when run through Arguments. A Rhodes and a drum loop will sound smashing together.

Example: Put Arguments on a channel with a pad. Add a drum loop on another channel. Setup side chain input from the drum channel to Arguments. Set input B to side-chain. Set function to "X". Set Argument to "B" to listen to side-chain signal. Set Argument to "A+B" to listen to both signals. Now set different arguments and adjust the gain of A+B. Play with different functions. Depending on the combinations you might get no result or massive changes. Sometimes you won't hear anything, then you need to adjust gain. Play with all three parameters (gain, argument, function) until you have a signal you like. Now use the filter to shape the result of your sonic research.

Tips and Tricks

When math fails

The most interesting sounds happen when the math of Arguments fails. By setting the gain of A and B just at the cusp before the sounds disappear, tones remind us of the overloaded op-amps of rare instruments like the „Radioactive Box" PAR CR4-A. The dynamic signature of one signal is overlayed onto the other, which results in new peaks and rich textures. Thus it helps to map A and B to midi controllers for playful control of the gain staging.
Presets: Abyss Pull, Industrial Love

Oversampling as Texture Control

Oversampling is a sonic shaping tool. Due to the high internal gain of the plugin, you can get extreme sounds fast. If you tune the oversampling you will hear fizzling high-end frequencies appear the lower you go. If you are into industrial fuzz and destruction, turn it off. It will shred, especially in *-dx/dt* mode. If you own Lines, try exploring the oversampling we added there, too.
Presets: Harsh Noise Shred, Harsh Random Chop

LFO as a rhythmic shaper

By running the generator in LFO mode in time with a drum beat, you can shape the accent of it. *A+B* and X^2 work well, adjust the LFO forms to get different results from your groove. Offset the LFO phase by clicking on the LFO window to move the accent.
Presets: Synthesize Me, Drum Reverser

Willem Twee Simulator

The famed Dutch studio for vintage electronic music employs a boatload of sine generators run into a mixing board. This way you can play the static sines, creating exciting "Klangmixturen". You can do the same by setting up as many instances of Arguments as you like, each set to a different generator sine and tuning. Then ride the

channels with an external fader bank and fly off into 1960s tonalities. Add pitch-drift like on a failing vintage unit with the fuzzy control.
Presets: Vintage Sine A440

Locked-In Patch

Employ the "bad math" patch written above, so you end up with a signal mixture that crackles dynamically, as the sounds fight for space. Add a sharp bandpass filter with a lot of resonance. Sweep the filter. The filter will now ping through the clicks exciting it at the frequency it is set at. This results in tonalities much like a lock-in amplifier, another fantastic test equipment tool that sounds great when misused for music.
Presets: Locked-In Frequency 1-3

PAR CR4A Deep Fry

This is one rare yet fantastic piece of test equipment. A wide band preamp with filter that uses a similar chipset to the ARP 2500. As a scientific amp, it is used to deal with tiny signals, like dolphins singing in the depths of the Pacific. If you hit it hard, the overloaded op amps take time to recover. This makes a signal extremely dry and crisp and adds a decaying envelope that sounds like a fading Geiger counter. You can emulate that with Arguments: Use *B-A* and Sample and Hold as Waveform. Pitch that to 20kHz. Set Function to *-dx/dt*. Input A to 0.0dB, bring up Input B set to Generator slowly. Filter to taste.
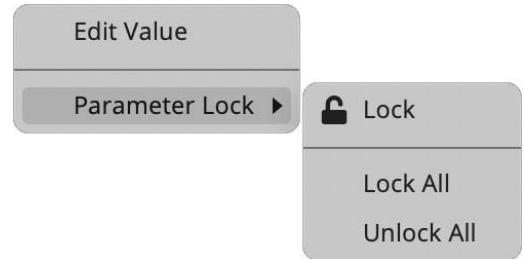*Presets:* PAR CR4A

Features

Parameter Lock

If you want to keep the value of one or more parameters while changing presets, or when using the randomizer button, you can use the *Parameter Lock* feature.

Right click on a parameter and choose *Parameter Lock*.

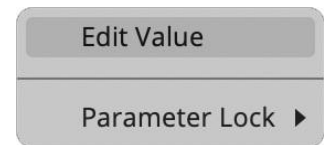|	
Lock / Unlock	If locked, the parameter won't be updated when changing presets
Lock All	Locks all parameters
Unlock All	Unlocks all parameters

Edit Value

You can also manually change the value for knobs and sliders. Right click on a parameter and choose *Edit Value*. You can also access this feature with SHIFT + Click.

By clicking on the icon ≡ you can access additional features.

Switch Smooth

When enabled, switching both Arguments and Functions results in a smoother sound, avoiding clicks and pops.

Sidechain

Some hosts may have unpredictable sidechain behavior. You can disable sidechain if it's causing issues in the plugin.

Window Size

You can resize the plugin window using three predefined sizes (*small, standard, big*).
You can also resize the plugin window by clicking and dragging the bottom-right corner of the interface. Double clicking will reset to the standard size.

Preset Copy / Paste

You can easily share presets by using this Copy/Paste feature.

Copy to Clipboard   The status of all parameters will be saved to the Clipboard

Paste from Clipboard   Load a preset from the Clipboard

Enable / Disable Notifications

You can enable or disable the notifications for updates and news (shown by the bell icon). This option is global and it will affect all AudioThing plugins.

Swap Mouse Buttons

If you are using the right button as your primary mouse button, the plugin might not recognize it. Use this option to enable it internally in the plugin.
This option is global and it will affect all AudioThing plugins.

GUI Acceleration

You can enable or disable the GUI acceleration supported by your system.
The current and default library is OpenGL.

Graphics Controls

This feature allows you to modify the User Interface's Brightness and Contrast.

End

Where is everything?

The installer will place the plugins, presets, and other data in these folders.

macOS

AU   */Library/Audio/Plug-ins/Components/*

VST   */Library/Audio/Plug-ins/VST/*

VST3   */Library/Audio/Plug-ins/VST3/*

CLAP   */Library/Audio/Plug-ins/CLAP/*

AAX   */Library/Application Support/Avid/Audio/Plug-Ins/*

Data   */Users/Shared/AudioThing/*

Windows

VST   *custom path from the installer*

VST3   *\Program Files\Common Files\VST3*

CLAP   *\Program Files\Common Files\CLAP*

AAX   *\Program Files\Common Files\Avid\Audio\Plug-Ins*

Data   *\Users\Public\Public Documents\AudioThing*

Linux

VST   *~/.vst/*

VST3   *~/.vst3/*

CLAP   *~/.clap/*

Data   *~/.local/share/AudioThing/*

Credits

DSP & Code   *Carlo Castellano*

Idea   *Hainbach*

Design   *John Gordon*

QA   *David*

EULA

Please visit www.audiothing.net/eula/ to review this product EULA.

Thank You

Thank you for your purchase! We hope you will have as much fun using it as we had making this product.
For support, please visit www.audiothing.net/support/
For further help or any questions, please contact us here: www.audiothing.net/contact/

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