Basimilus

Analog-inspired parameterized drum synthesizer

User Guide

Welcome to Basimilus.

The Basimilus is a parameterized digital drum synthesizer with its roots in the analog world. Basimilus is based on the popular Eurorack module Basimilus Iteritas Alter. At its heart, it is a simple six-oscillator additive synthesizer with adjustable waveform, harmonic spread, and decay. There is also an adjustable attack, that includes a noise oscillator. These are summed and fed into an infinifolder for crunch and variety.

Tone Generation

This section is for those who want to know a bit of the scientific backstory and under-the-hood workings of the Basimilus. Don't worry: if all you want is to use the plugins and make some awesome sounds, you don't need to read all of this technical mumbo-jumbo.

Basimilus uses six tonal oscillators and one noise oscillator in three configurations to generate sound. The SKIN setting is a basic additive synthesizer meant to simulate instruments that have modes that do not interact.The first oscillator frequency is determined by the pitch input. LIQUID is the same as skin but with a pitch envelope for all oscillators. The METAL setting modulates the oscillators by each other to simulate instruments that have a lot of modal interaction. The SPREAD control adjusts the pitch (relative to the base pitch) of the other five oscillators.

Each oscillator has an individual envelope that is controlled by the ATTACK, DECAY and HARM controls. The noise envelope is also affected by the ATTACK knob.

The oscillators are summed and then the ATTACK envelope is applied to the sum. This then feeds into a threshold-reflection folder with amplitude compensation and the ability to dynamically add more fold stages. At very high settings the fold will add in an exponentially decaying pulse at the local minima and maxima of the signal to add a gnarly buzz.

The final step is another envelope. This envelope is derived from the overall shape of the six oscillator envelopes. It adds back in the dynamics lost by folding so the output remains punchy, even under the most extreme folding.

ATTACK FOLD DECAY

OUTPUT

PITCH   DECAY
MORPH   HARM
SPREAD ATTACK
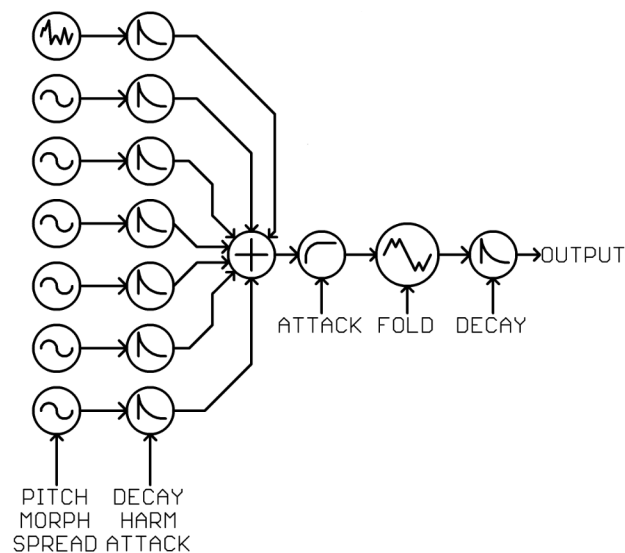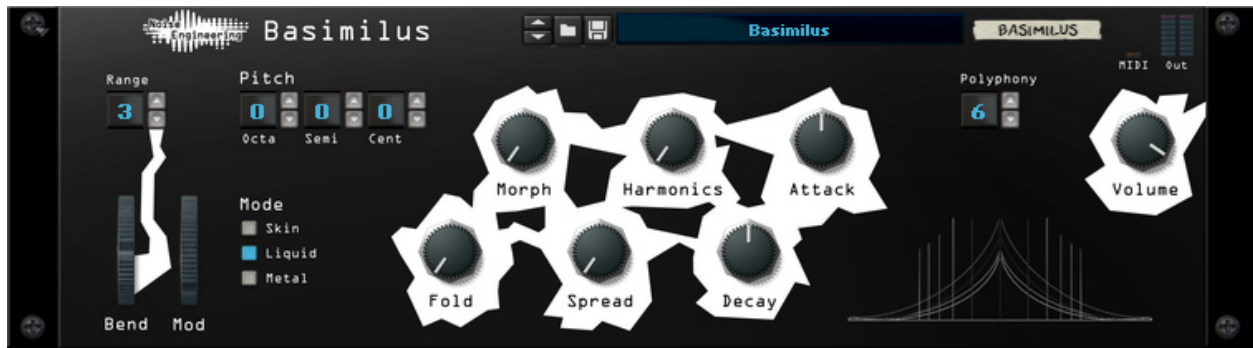
Tone Parameters

Morph: The morph knob and back input control the waveform of all oscillators. This blends through sine, triangle, saw, and square continuously. The knob offsets the back input.

Harmonic: The harmonic knob and back input control the harmonic decay of the oscillators. When fully CCW, only one oscillator is audible, producing a single harmonic. This simulates many simple analog bass drums. As the knob is turned CW, more, longer lasting harmonics are blended in.

Attack: The attack knob and back input adjust the attack for all oscillators. When left of center, noise is added. When dead center, a classic analog-style pop is produced. When right of center, the knob slows the attack. The knob offsets the input.

Fold: The fold knob and back input control the infinifold section. For the first 3/4 of the range, this sets the threshold of the folder, dynamically adding multiple fold stages to maximize the amount of folding based on threshold and signal amplitude. In the top quarter of the range, a pulse train based on the signal is mixed in to give even more harmonic content.

Spread: The spread knob and back input control the frequency spacing of the oscillators. This allows the overtone series to vary from a purely harmonic sound to more dissonant, inharmonic sound.

Decay: The decay knob and back input adjust the decay for all oscillators. The knob offsets the input.

Skin/Liquid/Metal: The mode switch selects between the three modes. Skin is a six-operator additive synth for tonal sounds. Liquid is a six-operator additive synth with a pitch envelope to add extra kick. Metal is a six operator FM synth for producing noisy and alien sounds. This setting can be controlled by back panel input into the Mode jack.

Volume: Knob and back panel input adjust the level of the Rack Extension.
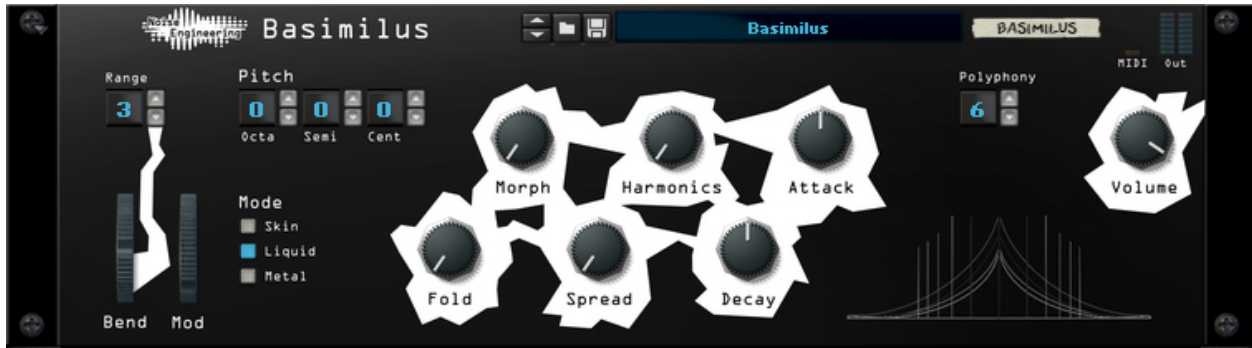
Note Control

Range: Sets the pitch bend range in semitones.

Pitch: The pitch selector adjusts the pitch of the fundamental oscillator by an octave, semitone and/or cent.

Polyphony: Sets the maximum number of simultaneous voices the plugin can play. The number to the right in parentheses indicates the number of voices currently playing.

Back Panel

Back-panel knobs act as attenuators for all inputs.

Gates

Gate: Input to trigger the module.

Note: CV input to specify note.

Outputs

Envelope: A CV output that tracks the current envelope level.

Left and Right: Left and right audio outputs.

About the Preset Names

Our names are a bit unusual. It's true. Product names, preset names... Let us explain.

At Noise Engineering, we think it's our job to make the tools, but not our job to tell you how to use them. Often, when products are described by a specific function (e.g., "drum module"), people grab the product for that function...and then don't explore what it can do beyond that space. Our synths are designed to be versatile and not serve a single function, and our effects are generally non-standard.

So you'll find that our product names are deliberately created to not tell you what to do with them. You decide how they best fit your workflow. Is this one for percussion? Is it smooth? Is it harsh? Is it for all your pads?

We give each Rack Extension a load of presets meant to hit a wide range of sounds so that you can have a quick taste. We started out with descriptive names like everyone else uses...and then realized that even within the team, people had different perceptions of sounds and how we would name them. And so we went back to our core practice of making the tool and not telling you how to use it: we chose not to be prescriptive.

So, about those preset names.

We are a small team of nerds. And faced with a daunting task like naming 1,000 presets for a single device, we do what we do best: we automate. We briefly considered using a dictionary, but if you've ever read a dictionary (at least one of us has), you'll know there are some words in there that at least one of our users is bound to not want popping up in their session. So we did a workaround. Stephen, our chief noisemaker and also head engineer, went to the nerdiest resource he could find: the IETF, or the Internet Engineering Task Force. They produce documents for voluntary Internet standards. They are technical and cover things like Network File Systems, MD5, ISCSI, Secure Shell-2, and others. Want a nerdy list? Check it out here.

The Requests for Comments series contains technical and organizational notes about the Internet. So we grabbed some of those and made our own dictionary. If some of the presets have very weird terms -- there is probably an esoteric technical meaning to it. If Joseph or some other name pops up, you can thank them for their contribution to trying to make the Internet a slightly more sane place. Of course there was still the occasional questionable word here or there, so we went in and made a few adjustments. You may one day find a preset with the name Puppies_rainbows or with Unicorn in the name. You can thank Kris for that.

We randomly selected names from this list. These presets were then organized into categories. Each Rack Extension has its own theme, including articles of clothing, keyboard keys, and tea. Have fun with them and explore. We hope that our products will help unleash your creativity and help inspire you to think outside the box...and then get back in.

About NE

Noise Engineering is located in Los Angeles, California. We started around 2014 when Chief Noisemaker Stephen McCaul wanted a hobby for his off time from his day job and started making Eurorack modules in a spare bedroom at home. One thing led to another and a couple of years later, he and wife Kris Kaiser quit their day jobs and took the company full time. Noise Engineering has since grown in size and has established itself as a well-regarded and innovative synthesizer brand, with products in Eurorack, 5U, and multiple software platforms.

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