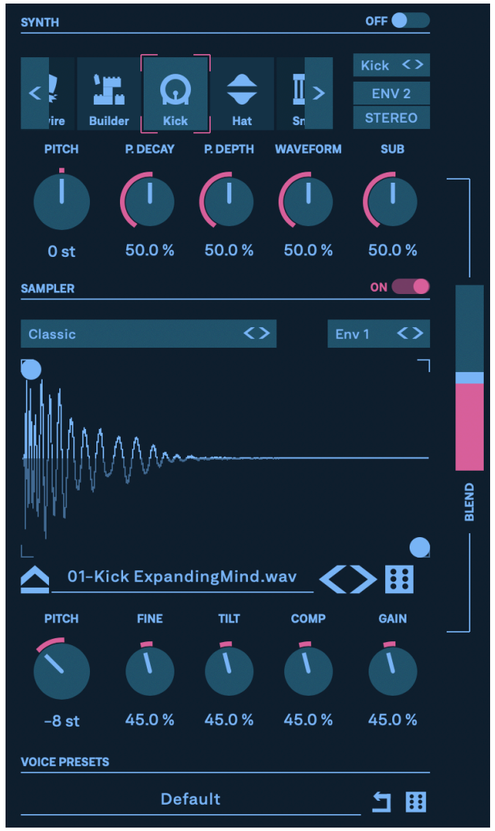
UNFILTERED AUDIO

BATTALION

USER MANUAL

VOICE PAGE

This is the main page of Battalion, where percussive sounds are generated through synthesis and/or sampling. There are eight drum voices on Battalion, selected via the left hand column. Each drum voice is a complex instrument capable of a wide variety of timbres. Let's break this down section-by-section.



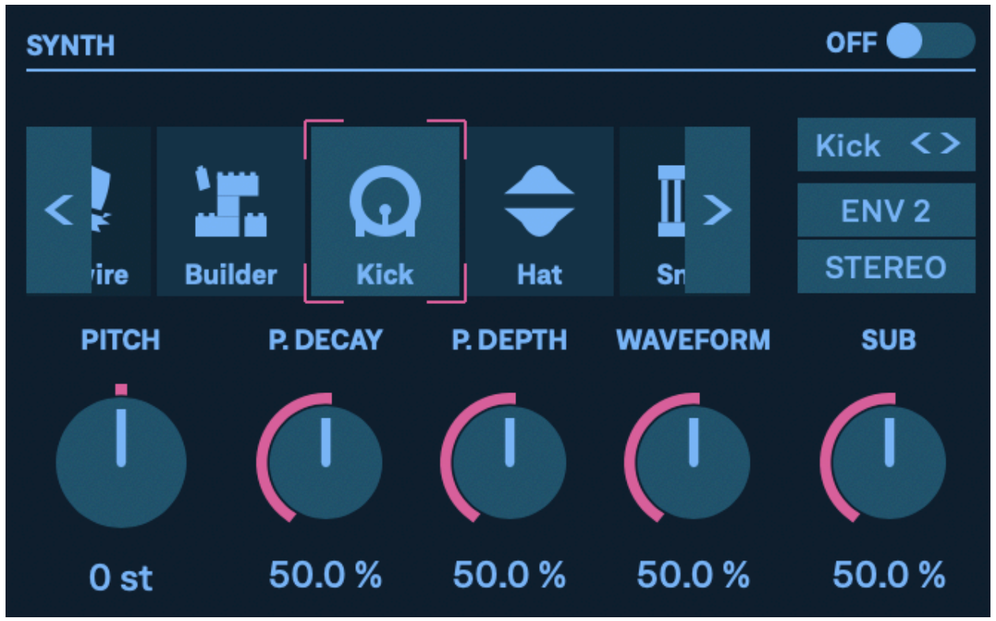
GENERATORS

The left part of the Voice Page consists of two advanced, multi-engine generators: the **synthesizer** and the **sampler**.

The **BLEND slider** on the right balances the volume mix of the two generators. At 50% blend, both engines will be at their maximum volume.

The bottom section is the **per-voice preset manager**. This saves the settings for all controls on the current voice page, allowing you to save individual drum presets instead of saving the entire kit and sequence. All modulation mappings for the current voice are saved with the preset, meaning that the current sound is completely re-usable.

The **backwards pointing arrow** resets the current voice to its default settings. The **dice icon** randomizes the current voice. The randomization depth can be controlled via the Options Menu (the gear icon in the top Battalion header).



SYNTHESIZER

The **synthesizer section** is used to generate tones and timbres from scratch instead of through the use of pre-recorded samples. There are over twenty different synthesis engines in Battalion, each with **four unique engine controls** and an optional **STEREO mode**.

The top right dropdown menu and the primary carousel control let you select the **current engine**. Each engine is represented by a helpful icon to explain the relative characteristics of the engine. The icon is also visible on Battalion's left-side voice selector so that you have a quick overview of the active engines on every voice.

Below the dropdown engine selector are toggles for **AMPLITUDE ENVELOPE SOURCE** and **STEREO MODE**.

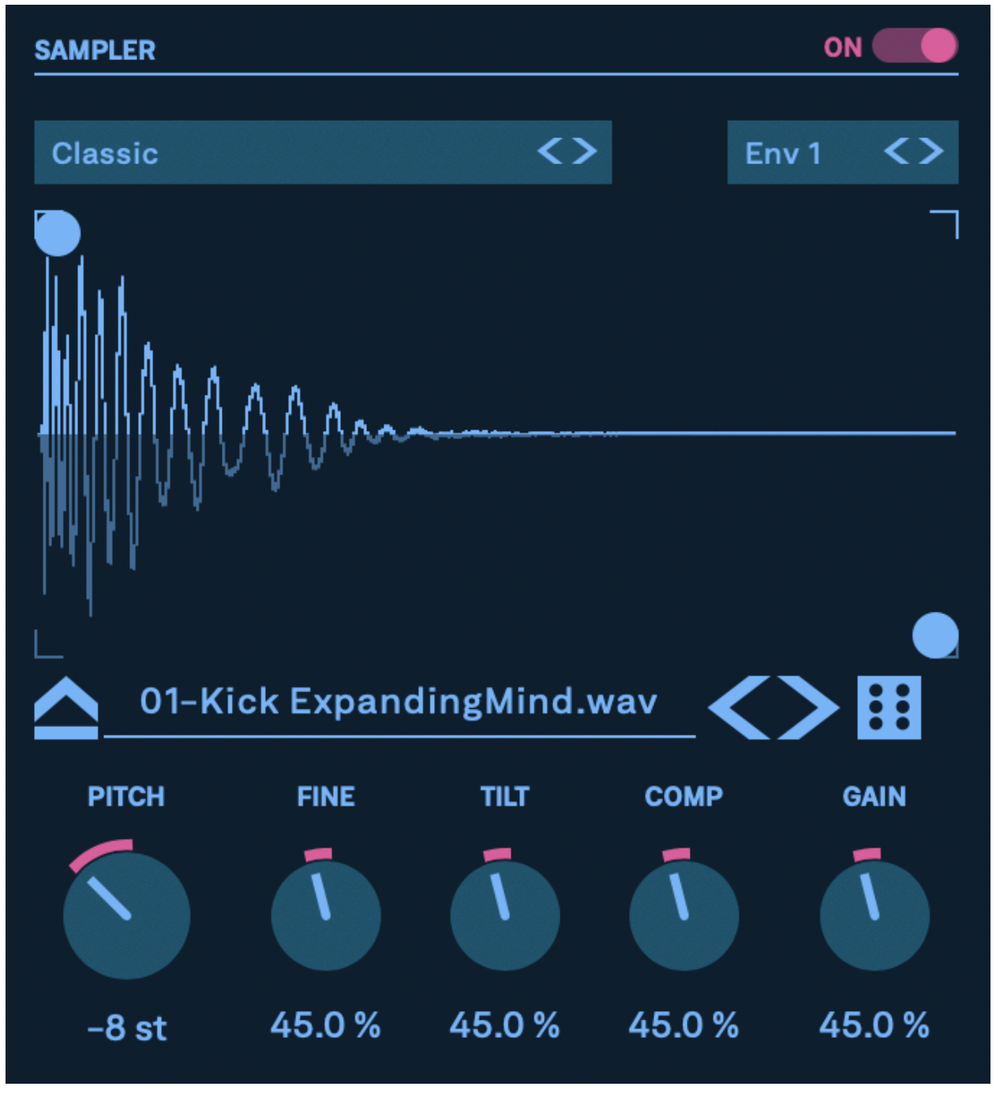
When the button labeled **ENV 2** is active, the synthesis engine will use Envelope 2 as its amplitude source. When it is inactive, Envelope 1 will be used instead.

When **STEREO** mode is active, the engine is modified to generate a stereo signal. This can involve simple techniques like using one noise generator for each channel in the hi-hat algorithm, or more complex things like detuning oscillators and re-routing FM signals. It is worth noting that in almost all instances, the STEREO mode will use more CPU than the corresponding mono mode. It is also worth noting that the perception of the stereo effect can vary with parameter settings. As an example, in the hi-hat engine the stereo effect is only noticeable if there is at least some noise used to generate the signal.

There are five knobs for each engine.

The **PITCH** control is use to control the frequency of the generator in semitone offsets. The default tuning for most engines at 0 semitones is 130.81 Hz, or C. Some of the engines (like Kick and Tripwire) are tuned an octave down for better default settings.

The other four knobs change with each mode. For a better explanation of each knob in each mode, either refer to the synthesis engine appendix, or hover your mouse pointer over the knob to see a descriptive tooltip.



SAMPLER

The **sampler section** is used to load, play, and modify pre-recorded sounds, or "samples". Battalion comes with a very large selection of sounds to help you get started.

The top left dropdown box is the **engine selector**. Like the synthesis section, each engine has a unique set of controls and a different method for playing back and manipulating samples.

The top right dropdown box selects the **amplitude envelope source**. You can select envelope 1 or envelope 2 if you would like to reshape the amplitude of the sample. Unlike the synthesis section, you can also disable the amplitude envelope completely. This is useful for longer samples, as the entire sample will be played back.

The **waveform window** dominates the sampler section and shows the sample data. The dots on the top and bottom of the waveform window are the **START** and **END** markers for the sample. These determine where sample playback begins and ends.

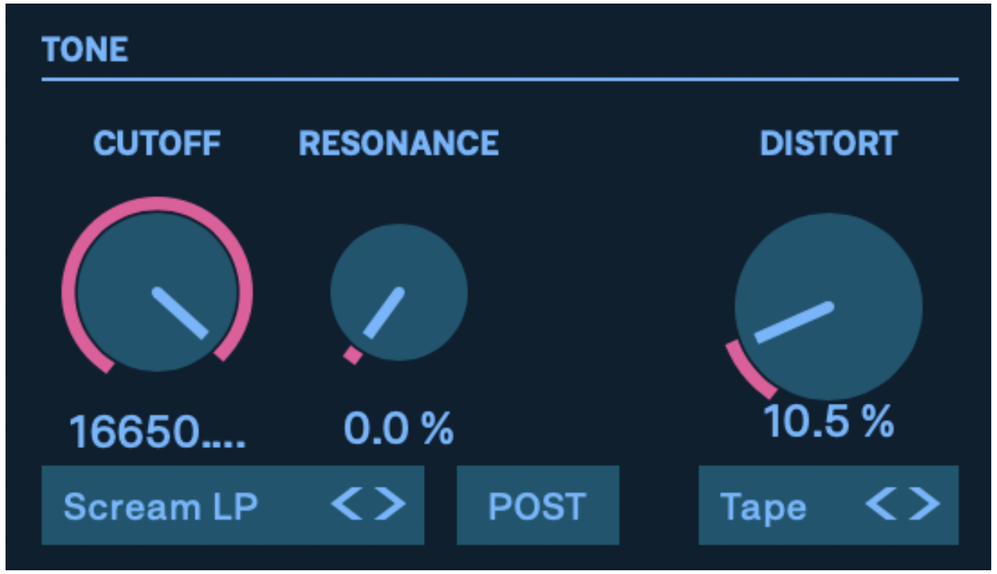
	TIP: Place the END marker before the START marker to play a sample backwards.
	TIP: Drag the waveform onto the voice selector tab to copy the loaded sample onto another voice.

The **sample selector** lets you load a sample from anywhere on your hard drive. The **left/right arrows** select the next or previous sample in the folder. The **dice icon** will load a random sample from the sample library.

Similar to the synthesis section, the sampler section has a **PITCH** knob and **four engine–specific knobs**. These differ slightly from the synthesizer section.

The PITCH knob at 0 semitones plays back the sample as it was originally recorded.

Additionally, the four engine-specific knobs are rendered as bipolar knobs to emphasize the default positions. At 50%, each knob will have no effect on the sound of the sample. For a more detailed description of each knob in each mode, refer to the sampler engine appendix, or hover your mouse pointer over the knob to see a descriptive tooltip.



TONE

The **tone section** is used to modify the output of the generators by processing it through a **multi–mode filter** and **non–linear distortion**.

The left portion of the tone section controls the filter. **CUTOFF** is used to set the cutoff frequency of the selected filter mode, while **RESONANCE** is used to determine how much feedback occurs in the filter algorithm.

When **POST** is active, the distortion is placed *after* the filter instead of before it. By default, the filter helps to tame the edges of the distortion.

The **DISTORT** knob determines the intensity of the distortion algorithm. In some modes (like Tape), a 0% setting will still have a very slight effect on the total sound.

FILTER ALGORITHMS

Scream/ Dark LP	LP means "**Low-Pass**". These filters remove high-frequency components and let lower frequency components through. The **SCREAM** variant has unrestricted feedback, leading to more dramatic screeches at high **RESONANCE** values. The **DARK** variant has a significantly more muffled resonance sound.
Scream/ Dark HP	HP means "**High-Pass**". These are the opposites of the Low-Pass filters. They remove low-frequency components and let higher frequency components through. While these are typically useful for brittle sounds, they can also be helpful for removing rumbles and useless low-frequency components from kicks.
Scream/ Dark BP	BP means "**Band-Pass**". These filters are like combinations of Low-Pass and High-Pass filters as they simultaneously remove low- and high-frequency content, creating a frequency "window" on a sound. The width of the frequency window is controlled by the **RESONANCE** value.
Comb FB+/–	A **Comb filter** is essentially an extremely short delay effect, useful for creating string-like feedback tones. The intensity of the feedback is controlled by the **RESONANCE** value, while the perceived pitch of the feedback is controlled by **CUTOFF**. The **+** variant does not affect the feedback, while the **–** variant inverts the polarity of the feedback.
Comb FF +/–	This is another Comb filter, but it uses **feed-forward** instead of feedback. Instead of dramatic string tones, this creates unique phase-cancellation effects.
Comb AP	The last Comb filter mode is an **all-pass** mode. This is a combination of the feedback and feed-forward modes. The **RESONANCE** control is used to add positive feedback *and* negative, polarity-inverted feed-forward to the signal.

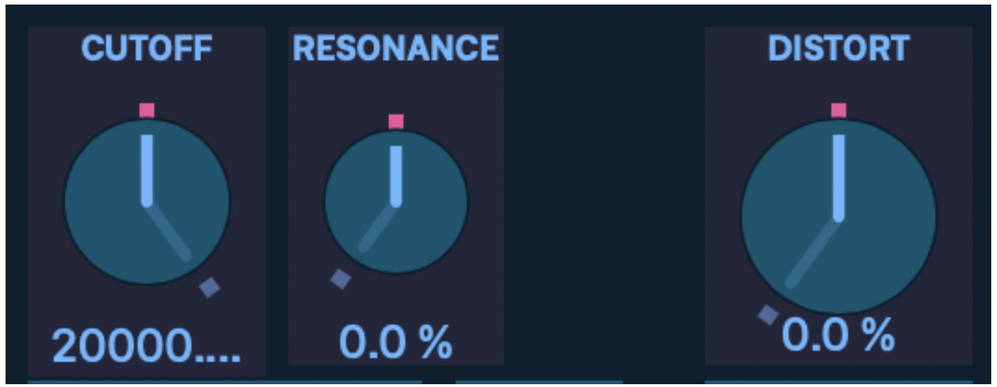
DISTORTION ALGORITHMS

Bitcrush	This is a classic **bitcrushing** effect. This changes the resolution of information used to represent the sound, lowering the fidelity of the signal. At maximum values, it is represented by a 1-bit square wave. At mild settings, this can be used to emulate the 12-bit sound of classic hardware samplers.
Rate Crush	Similar to bitcrushing, this is a classic **sample-rate reduction** effect. This reduces the frequency at which the audio data is processed, lowering time-rate fidelity. At 0%, this is a neutral effect.
Wavefold	This is a west-coast style **wavefolder**, a type of waveshaping that is popular in modular synthesis (and occasionally referred to as "foldback distortion" for guitarists). The **DISTORT** knob increases the amplitude of the signal. When the signal goes over an amplitude boundary, it is "folded over" and reflected across that boundary.
Phase	This is a **phase distortion** effect that sends the signal through a micro delay line. The length of the delay line is modulated via feedback from the audio input. The **DISTORT** knob controls the intensity of this feedback. It is a strongly digital distortion, resulting in clicks, pops, and harsh artifacts at high values.
Tape	This mode runs the signal through a soft saturation curve and a soft clipper, emulating **tape saturation** from classic analog recording devices. At 0%, this mode is not neutral. The **DISTORT** knob is used to boost the amplitude of the signal, emphasizing the saturation curve and activating the soft clipper.
Tube	This mode simulates **vacuum tube saturation** by running the signal through a saturation curve with relatively high rectification amounts. Similar to tape mode, this mode is not neutral and the **DISTORT** knob increases the amplitude of the signal to emphasize the effect.

MODULATION

This section contains four simple sources for adding movement to your drum parameters, creating a more active and lively sound. Battalion's voices have more complex modulation sources in the envelopes and LFOs, but let's first discuss how to use the modulation system.

To get started, click the **MODULATION MAP** button above any of the modulators. It is the button with a waveform and a knob on it:

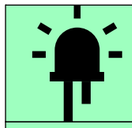


Clicking that button enters **modulation mode**. The button will change color, and all modulation targets will have a new background color to indicate that they are ready for modulation.

The sliders will have two pointers. The solid pointer shows the modulation amount: 12 o'clock is neutral with no modulation. The more transparent pointer shows the knob's current, non-modulated position. Once you start increasing the knob's modulation depth, a new arc will appear around the knob, showing the modulation depth and the possible range of modulation values for the knob.

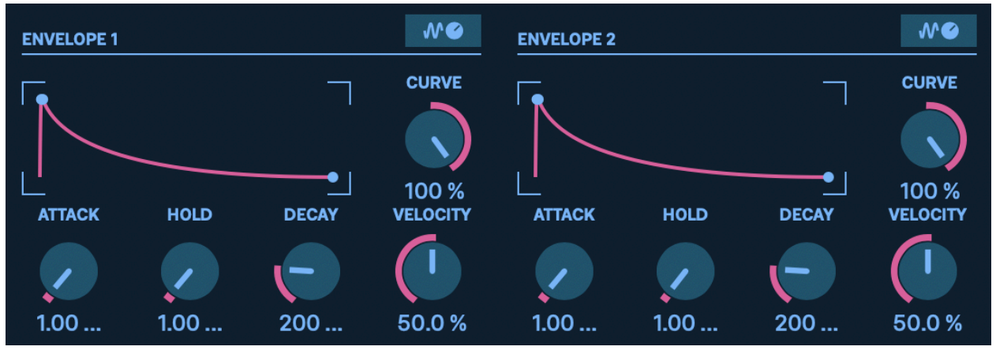
Once you are satisfied with your modulation settings, click the MODULATION MAP button again to exit modulation mode.

The **RANDOM** and **VELOCITY** modulators are per-trigger generators. Whenever the drum voice is triggered, RANDOM will generate a new, random, unipolar (positive) value. The VELOCITY modulator will translate the 0–127 MIDI velocity value to a unipolar modulation signal. Both of these modulators have a visualizer that shows the values of the last five triggers.

	**TIP:** If you are the type of sound designer that wants to map RANDOM to everything, skip ahead to read about the VARIATION control!
	**TIP:** Mapping the velocity to a low-pass filter CUTOFF will help simulate real-world hits where harder hits have more high frequency content. Similarly, mapping velocity to DECAY can simulate how harder-hit drums will ring for longer.

The two MACRO modulators are used to map their corresponding knobs to many parameters at once. This can be extremely useful for programming gestures or preset morphs that occurs over the course of a track. As an example, you could map one MACRO modulator to open up a filter, increase distortion, and alter an engine parameter. Now, turning the MACRO knob will make the sound more intense in multiple, simultaneous ways.

	**TIP:** The MACRO knobs are also available on the Performance Page (more on that later in the manual). Setting up multiple voices with macros can lead to dramatic changes and gestures via Performance.



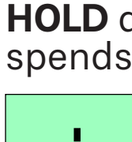
ENVELOPES

Battalion's **envelopes** are dual-purpose. They are primarily used to generate the amplitude curve for drum sounds. However, they are also available to be used as modulation sources.

Both envelopes are **AHD** (Attack-Hold-Decay) envelopes. This means that they are triggered and do not sustain: note "length" does not matter.

ATTACK determines how much time passes between the start of a drum trigger and the drum's maximum amplitude. For most traditional drum sounds, an ATTACK time of 0 milliseconds (or instantaneous attack) is appropriate. However, increasing ATTACK can have wonderful results, such as making drum hits sound "backwards" (lots of ATTACK, zero DECAY) or to help soften the initial drum intensity.

HOLD determines how much time the drum sound spends at maximum amplitude.

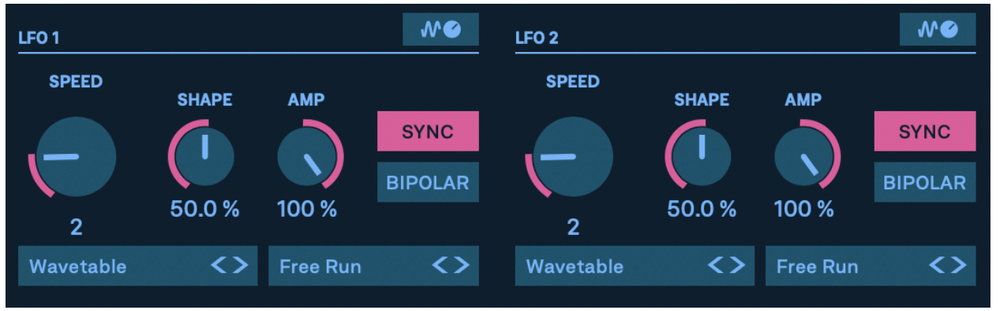
	**TIP:** Envelopes 1 and 2 have different HOLD ranges. Envelope 1 has a maximum of 5 seconds of HOLD, while Envelope 2 can HOLD for 20 seconds. Envelope 2 is the default sampler envelope.

DECAY determines how long it takes for the drum sound to go from maximum amplitude to silence, while the **CURVE** parameter will change the shape of the DECAY segment. A high CURVE value sounds the most “natural” as it is an exponential decay, which is the most similar to how real-world physical drums behave.

If a drum is retriggered before the DECAY segment is finished, the drum voice will “soft reset”. When this occurs, instead of restarting from zero (which can create audible clicks), the drum voice will re-attack from its current value.

TIP: This “soft reset” retrigger behavior will also affect the LFO modulators, which is described in the next section.

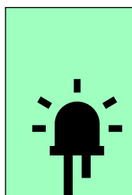
VELOCITY will determine how much the MIDI velocity of a trigger will affect the amplitude of the envelope. At 0%, the envelope will always have the same amplitude regardless of incoming velocity. As the knob increases, lower velocities will lower the maximum amplitude of the envelope.



LFOS

Each voice has **two multimode LFOs** (or Low Frequency Oscillators), each with multiple waveform engines, reset behaviors, and wide frequency ranges.

SPEED controls the speed of the oscillator. If **SYNC** is enabled, this will be in musical tempo units, with 2 being 2 bars, and 1/8 being an eight note. If SYNC is disabled, the SPEED units become Hz, and the frequency range is greatly expanded. From the bottom of the knob to about 12 o’clock, the frequency range goes from 0.01 Hz to 20 Hz. Past that, the rest of the knob covers a frequency range up to 440 Hz!



TIP: At higher frequencies, you can modulate the PITCH knob for FM effects. Certain modes may have speed limiters on the PITCH control or other parameters to prevent explosions. However, almost every modulation target in Battalion is able to be modulated successfully at audio rate. Experiment!

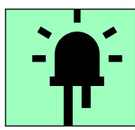
AMP controls the amplitude of the LFO, affecting all modulation targets simultaneously. Try mapping an envelope to this to have modulation intensity increase or decrease over the course of the drum event.

SHAPE will change the shape of the LFOs waveform. The bottom-left dropdown determines the **shaping algorithm**.

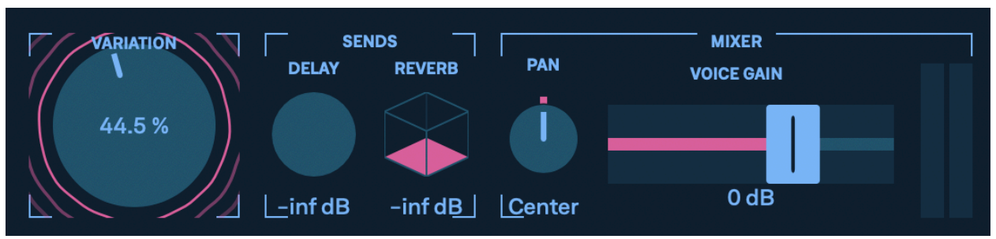
- **Wavetable**: SHAPE morphs smoothly between sine, triangle, saw, square, and random.
- **Triangle Tilt**: SHAPE morphs smoothly between falling saw, triangle, and rising saw.
- **Pulse Width**: The LFO is a pulse wave with pulse width selected by SHAPE.
- **Smooth Random**: The LFO is a random value each cycle. SHAPE affects the amount of smoothing between each new value.

The LFOs also have a **RESET MODE** selector to determine how and when the LFOs reset.

- **Free Run**: The LFO only resets once when playback is restarted by the DAW.
- **Always Reset**: The LFO resets on the reception of every trigger to this voice.
- **Soft Reset**: The LFO resets on a new trigger, but only if the voice was silent.
- **Sample and Hold**: The LFO is in Free Run, but the value of the LFO is only updated on triggers.
- **One Shot**: The LFO resets on new triggers, but only completes one cycle.



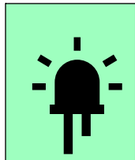
TIP: If you are short a modulation envelope, try combining Triangle Tilt with One Shot to turn your LFO into another envelope!



VARIATION AND MIX

This last section of the Voice Page covers four mixing controls and the mighty **VARIATION** knob.

VARIATION is a powerful control that introduces a unique random generator to nearly every control on the Voice Page, pre-attenuated to useful ranges. At low values, this will add some natural articulation and modification to each hit. At high values, this will be completely unpredictable.



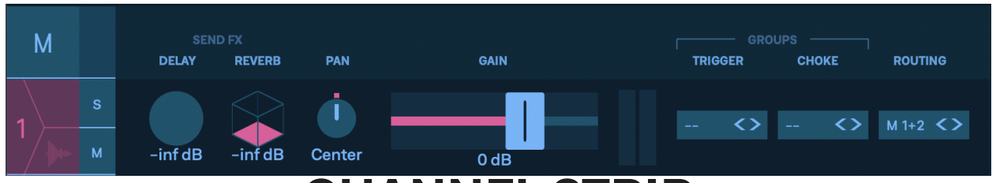
TIP: Variation does not affect locked parameters. To lock a control, right-click on it and a lock icon will appear. This will prevent the control from being changed by preset changes, the VARIATION knob, or the Performance Page.

DELAY and **REVERB** change how much the current drum voice is sent to the Delay and Reverb effects. More info on these can be found in the Mixer Page section.

Finally, **PAN** will change the stereo field position and **VOICE GAIN** will change the final amplitude of the drum voice. All four mix controls (DELAY, REVERB, PAN, and VOICE GAIN) can additionally be found for every drum voice on the Mixer Page.

MIXER PAGE

After designing your drum sounds, it's time to glue them together into a coherent mix. The Mixer Page gives you a bird's eye view of the eight voices, while also adding more advanced mix interaction controls like CHOKE and TRIGGER CHAINING. On this page, you will also find two new, high-quality Unfiltered Audio effects tuned specifically for Battalion: SHATTER DELAY and HEADSPACE REVERB.



CHANNEL STRIP

The **Channel Strip** provides access to the same four mixing controls from the Voice Page: **DELAY**, **REVERB**, **PAN**, and **VOICE GAIN**. It additionally adds three more dropdown parameters for advanced drum interactions.

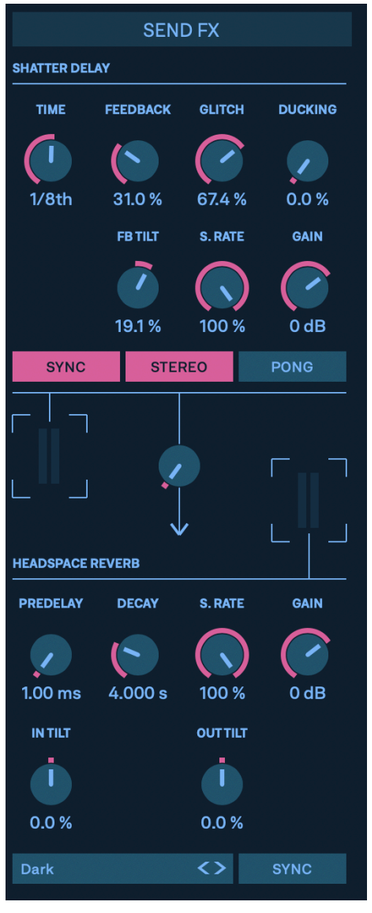
TRIGGER establishes trigger linking between two drums. The drum channel listed under TRIGGER will be triggered when this channel is triggered. As an example, if Voice 1's TRIGGER is set to "5", then Voice 5 will be triggered every time Voice 1 is triggered.

CHOKE is the opposite: Whenever this voice is triggered, it will smoothly silence the CHOKE target if it is audible. As an example, if Voice 1's CHOKE is set to "5", then Voice 5 will be silenced whenever Voice 1 is triggered.

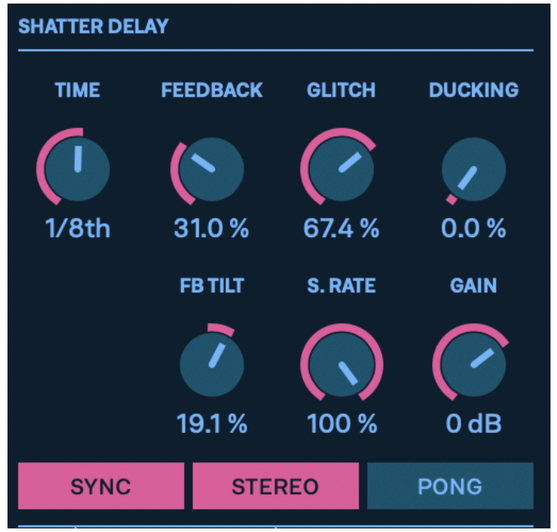
TIP: To create traditional hi-hat interaction, try setting up two drum voices both using the Hat engine. Use a shorter decay on one for the "closed" hi-hat, and a longer decay for the "open" hi-hat. Then, set them to CHOKE each other so that neither can sound simultaneously.

ROUTING selects the output stereo channel pair that the drum voice will be available on. Use this to send different voices to different outputs in your DAW to process each drum through different effects. Refer to your DAW's manual for setting up auxiliary outputs on a plugin.

TIP: Generally, setting up all of the output tracks and routing configurations can be quite time consuming. In general, most DAWs offer both track templates and either “Track Folders” or “Group Tracks”. It’s worth spending time to set up all of these auxiliary output tracks, then grouping them, and finally saving them as a track template. From there, when you want to load a multi-output version of Battalion, you can load the track template instead of loading the plugin and configuring it.



The **SEND FX** section consists of **SHATTER DELAY** and **HEADSPACE REVERB**, two new effects tuned for drum manipulation. These two effects can work entirely separately, or can be chained together through the use of the middle **SEND** knob. The middle knob determines how much the output of the DELAY is sent to the input of the REVERB.



SHATTER DELAY

SHATTER DELAY is the latest entry into our Instant Delay series of effects. These delays use a granular buffer to prevent pitch artifacts from occurring when the **DELAY TIME** is changed. The DELAY TIME here is given in musical units (based on your plugin host’s BPM) when **SYNC** is enabled, or Hertz when disabled.

FEEDBACK determines how much the delay’s output is sent back to its input. Practically, this determines how many echoes occur. **FB TILT** meanwhile adds a filter to the feedback path, removing low or high frequencies each echo.

TIP: Turn off SYNC and turn TIME way down with high FEEDBACK to get wild string tones.

GLITCH is a wild control that determines how much smooth, random Brownian motion is applied to the DELAY TIME parameter. At high values, echoes will never become uniform and will instead vary constantly.

The **STEREO** button adds another dimension to GLITCH when enabled. When enabled, the GLITCH value is determined separately for the left and right channels. When disabled, the channels share the same random value. In effect, when STEREO is disabled, the glitchy delay tones will appear in the center channel, while it will appear as a very wide sound when enabled.

Without needing GLITCH, the **PONG** button can also be used to generate wide stereo effects. When PONG is enabled, the left channel's delay is fed by the right channel's output (and vice versa). You will need to pan at least one drum voice off-center to hear the effect.

DUCKING is a parameter that can be used to add more space to busy feedback buffers. Incoming sounds will duck the volume of the feedback buffer, making the incoming sound more audible and reducing the number of echoes for sounds that are already in the buffer.

S.RATE (SAMPLE RATE) affects the sampling rate of the entire effect. This doesn't just sample crush the incoming audio, but entirely changes how quickly the DSP is processed. When the sample rate is lowered, the delay will sound a lot crunchier, perceived delay times expand, and anything currently in the buffer will become lower in pitch.

GAIN is a lot less dramatic: it just changes how loud the delay effect is!

HEADSPACE REVERB is an updated version of the reverb from our SILO Granulator plugin. The bottom-left **MODE** selector can tune the reverb's internal delay networks in many different ways. Experiment and find one that works best for your mix!

PREDELAY sets the amount of time it takes for incoming sounds to reach the reverb buffer. If **SYNC** is enabled, this is given in musical divisions of the plugin host's tempo. Otherwise, it is represented in milliseconds.

TIP: The delay buffer is an Instant Delay algorithm, so changing this won't place bad pitch artifacts into the buffer. Have fun automating this control and listening to the strange, smeared effects that it can achieve.

DECAY changes the perceived “room size” of the reverb. Tiny decay times can sound like a tin can, while large decay times can sound like cathedrals, canyons, or unrealistic spaces.

S.RATE (SAMPLE RATE) affects the sampling rate of the entire effect. Like the control on SHATTER DELAY, this doesn’t just sample crush the incoming audio, but entirely changes how quickly the DSP is processed. When the sample rate is lowered, the the reverb will become more heavily artifacted, perceived room sizes will expand, and any echoes currently in the buffer will shift down in pitch.

IN and **OUT TILT** function the same as the tilting feedback filter on SHATTER DELAY. They are placed on the input and output and can have a dramatic effect on the tone of the reverb. In general, the IN TILT is useful for preventing certain frequencies from building up in the reverb buffer, while OUT TILT is useful for last-stage frequency shaping.

GAIN is pretty straightforward. It controls the output level of the effect.

MASTER MIX

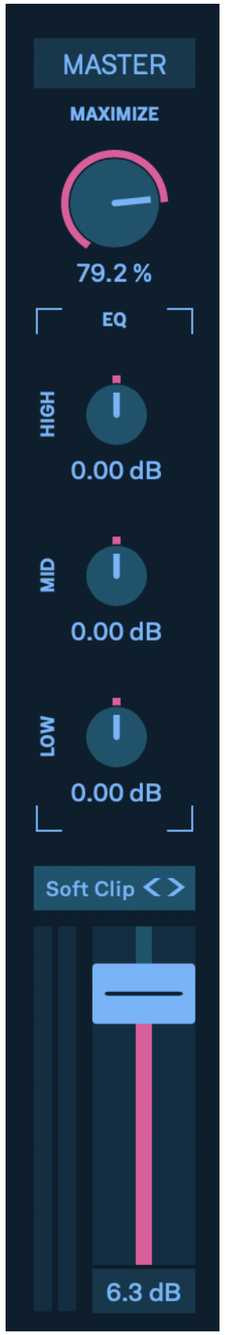
The **MASTER** mixing controls are available on every BATTALION page for quick adjustments. These controls only affect signals going out of MAIN OUTS 1+2, so these won’t affect voices on auxiliary outputs.

MAXIMIZE is a special effect that attempts to make the drum mix as loud as possible. It will greatly boost quiet signals, changing the shape of decay tails and over-exaggerating reverb.

The next section is a simple **3-BAND EQ** with separate gain controls for the **LOW**, **MID**, and **HIGH** frequency bands. Use these to quickly boost or cut those bands.

The **CLIPPING MODE** selector sets what happens when the final signal exceeds the available headroom.

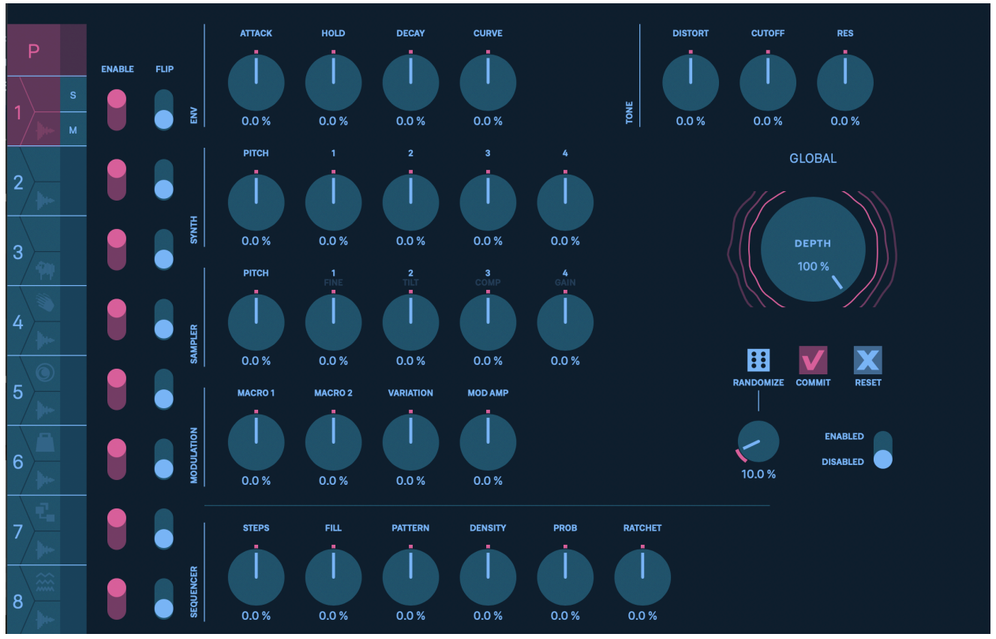
- No Clipping: All clipping is disabled, which is useful if you want to use a different limiting or clipping tool after Battalion. Take care when using this.
- Soft Clipping: A gentle saturation curve is applied to the entire signal, avoiding characteristic digital clipping sounds.
- Hard Clipping: The signal is unaffected until it hits the amplitude boundary, at which point it is clamped to the boundary.



- Wavefolding: This aggressive mode uses foldover distortion to add loud harmonics to the mix.

The **MASTER GAIN** control boosts or cuts the amplitude of the final mix. This GAIN is applied before the CLIPPING section.

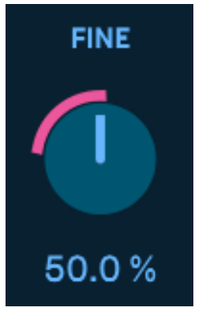
PERFORMANCE



This page is the source of happy accidents and magic. These controls affect all of Battalion's drum channels simultaneously, having dramatic impacts on sounds and sequences.

The performance page is comprised of multiple sections of knobs, five of which (**ENV**, **SYNTH**, **SAMPLER**, **MODULATION**, and **TONE**) affect the corresponding knobs on every voice. As an example, turning the PITCH knob on the SYNTH section down will lower the pitch on every SYNTH voice simultaneously.

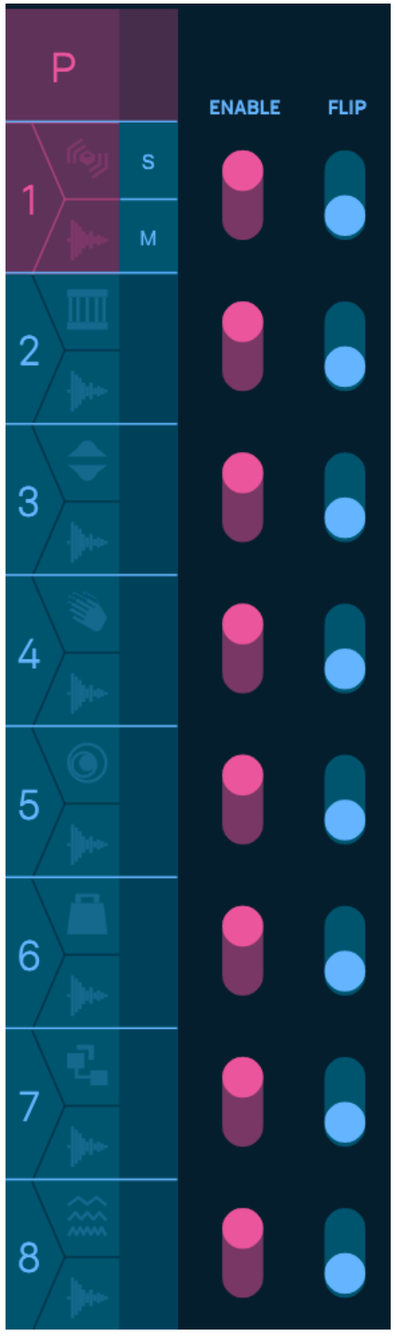
TIP: Like the VARIATION knob on the Voice Pages, if you would like to exclude a parameter from being affected by the Performance Page, you can right-click the knob to assign a lock to it. This will prevent the parameter from being modified by preset changes, Performance, or Variation.



The current value of every knob (including modulation, Performance, and VARIATION) is reflected by the arc around the knob. If the arc isn't matching up to your knob pointer, the parameter might be affected by one or all of those sources.

The ENV Performance controls affect both envelopes simultaneously on each voice.

The **MOD AMP** parameter is unique to the performance page. It controls the depth of all active modulations. Unmodulated parameters will not be affected. Turning MOD AMP to -100% will essentially mute all mapped modulation, while 100% will make all modulation more intense.



On the left-hand side are two toggles for each voice channel: **ENABLE** and **FLIP**. An ENABLED channel will respond to the Performance page, but you can disable channels when you want them to remain static. As an example, you might want to disable your kick voice if you would like for the kick to remain steady amid the changes.

If FLIP is enabled, the Performance controls will have the *opposite* effect on that channel. For example, if voice 1 has FLIP enabled, turning up the pitch on the Performance page will turn *down* the pitch on voice 1.

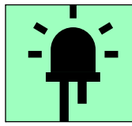
GLOBAL PERFORMANCE

The GLOBAL section contains useful controls for modifying the entire Performance Page at once.

The **DEPTH** knob is a bipolar control that affects the intensity of all performance controls. At 100%, all performance controls act as normal. At 0%, all performance controls are essentially disabled. At -100%, all performance controls are flipped, so a positive PITCH value would actually decrease the pitch of all voices.

The **ENABLED** switch is a quick way to disable the Performance Page effects. It's useful for auditioning the original control values. Alternatively, you can automate this control to switch between two sets of sounds.

The **RANDOMIZE** button will randomize every control on the Performance Page at once. The **RANDOMIZE DEPTH** knob will set the intensity of the randomization. This is independent of the RANDOMIZE DEPTH control on the main Battalion Options menu.

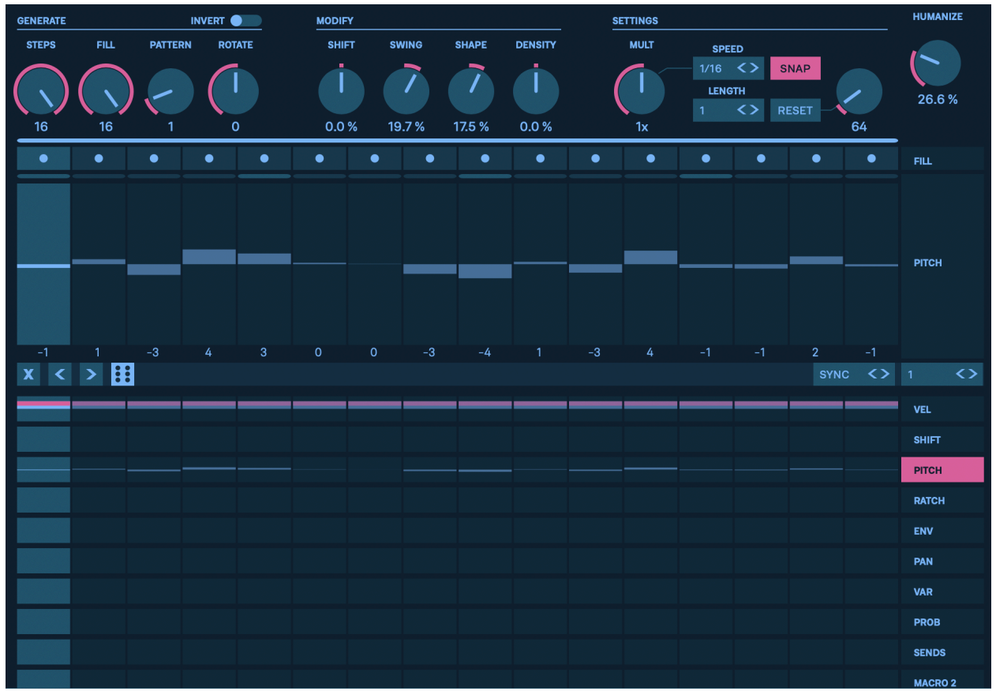


TIP: You can right-click Performance knobs to lock them as well. This will prevent them from being affected by the RANDOMIZE action.

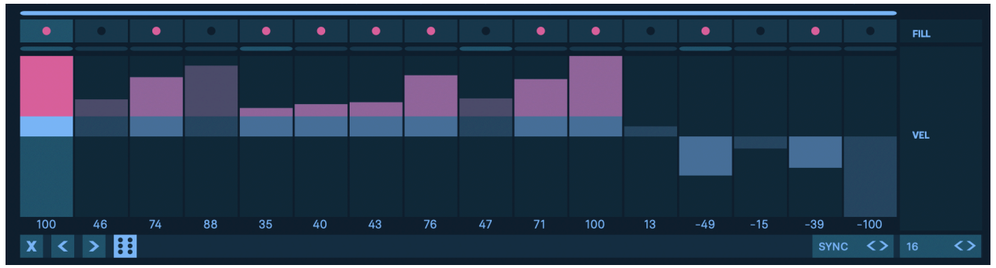
The **RESET** button immediately resets all Performance Controls to 0%, setting them back to neutral values that have no effect on your patch.

The **COMMIT** button also resets all Performance Controls to 0%, but with a twist: all knobs affected by the performance controls will be set to what their Performance values were. As an example, if Voice 1's PITCH knob was set to 0 semitones, but the Performance PITCH was making it sound like +7 semitones, then hitting COMMIT will set Voice 1's PITCH to +7 semitones and the Performance PITCH back to 0%.

SEQUENCER



The Sequencer is the beating heart of Battalion. It combines intentional and generative pattern creation with time bending controls for creating rhythms both familiar and unknown.



MANUAL STEP SEQUENCER

The center of the per-voice Sequencer Page is dominated by the **MANUAL STEP SEQUENCER**. This consists of a **STEP EDITOR** (the circles at the top) and a **MODULATION EDITOR** (the bars below them). Clicking on a step in the STEP EDITOR enables or disables the trigger for that step.

Below the primary MODULATION EDITOR are miniature views of each programmable parameter. In the image above, **VEL** (or **VELOCITY**) is selected and active. Clicking any of the labels on the miniature views will make that parameter visible on the main view.

VELOCITY is a special parameter. The top of the bar changes color (in the image above, pink) to note this special behavior. When the color changes, VELOCITY is at maximum, and Battalion is now additionally sending positive modulation to the voice's DISTORTION parameter to boost it even more!

SHIFT moves the step slightly forward or backwards in time, enabling per-step swing, lazy hi-hats, or other similar techniques.

PITCH changes the PITCH of the synth and sampler engines simultaneously.

RATCH (short for **RATCHET**) retriggers the step multiple times over the course of the step's length. For instance, if the step size is one sixteenth note and RATCHET is set to 2, there will be 2 events spaced one thirty-second note apart.

ENV affects the length of the envelopes for the voice. It scales the length of every segment of the envelope.

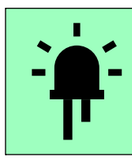
PAN changes the stereo position of each hit.

VAR changes the VARIATION amount for the voice on a per-step basis.

PROB (short for **PROBABILITY**) is another special control. At its middle position, the step has a 100% chance of triggering. Moving the slider downward reduces the chance of that step triggering. Moving the slider above the middle position raises the chance of the step having a double RATCHET.

SENDS will increase how much the step is sent to the delay or reverb effects. Positive values above the middle point increase the amount sent to the delay, while negative values below the middle point increase the amount sent to the reverb.

MACRO 2 will send modulation to the MACRO 2 knob on the voice page. This is helpful as you can map the MACRO knobs to anything on the Voice Page! For instance, if you need to sequence PARAM 1 per step, map MACRO 2 to it and sequence it here.



TIP: Alt+Clicking any slider in Battalion will reset the slider to its default value. On the modulation sequencer, you can hold Alt and drag to reset multiple steps to their default values.

The bottom of the MODULATION EDITOR contains a strip with a number of important buttons and dropdowns.

The **X BUTTON** will clear the modulation sequence for the currently visible parameter and reset every step to a neutral value.

The **LEFT** and **RIGHT ARROW BUTTONS** will shift the currently selected parameter sequence one step to the left or right. Steps will wrap around to the other side. Holding ALT on Windows or OPTION on Mac will rotate any manually placed steps as well.

The **RANDOMIZE BUTTON** will randomize the currently visible parameter sequence. Like other randomize buttons in Battalion, the intensity of this randomization is dependent on the Randomize Option on the main Options Menu.

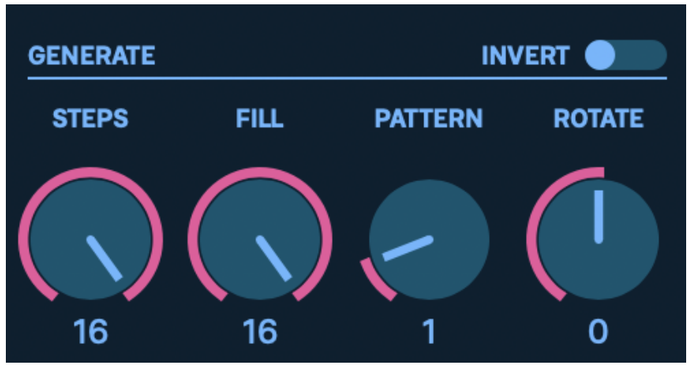
On the right side of this strip are two drop-downs: **MODULATION SEQUENCE LENGTH** and **MODULATION SEQUENCE SYNC MODE**. These two parameters work together to create exciting new behaviors for the modulation sequence.

Each modulation sequence can sync to the main gate sequence via a number of modes:

- SYNC: The length of this track will always equal the length of the primary trigger sequencer, no matter what the length of this track is.
- FREE: The length of this track is independent from the trigger sequencer, and is set via the MODULATION SEQUENCE LENGTH dropdown.

- TRIG: The length of this track is independent from the trigger sequencer. Additionally, it only moves forward one step on active triggers.
- RETRIG: Same as TRIG. However, the parameter sequence will reset when the trigger sequence resets.

TIP: TRIG's behavior is more generative. RETRIG will help resync sequences of different lengths. Both modes will still provide unexpected outcomes since the sequencer is only advancing on hits.



PATTERN GENERATOR

Battalion's PATTERN GENERATOR combines a Euclidean Generator with an advanced permutation modifier. A Euclidean Rhythm is a rhythm where each hit is spaced as evenly as possible. It is an algorithm developed by Godfried Toussaint in 2004 and is capable of generating many common and practical rhythms from many genres. If you are unfamiliar with Euclidean Rhythms, we highly recommend looking up more information online. It is a very exciting algorithm for discovering unexpected rhythms with only a few controls.

STEPS changes the number of steps used for pattern generation. This control has a number of side effects beyond setting the number of steps for the Euclidean generator:

- STEPS affects the number of steps warped by the SHAPE parameter (described in the next section).

- If SNAP is enabled (described in Sequencer SETTINGS), the Sequence Length will change to a multiple of the Pattern Length.

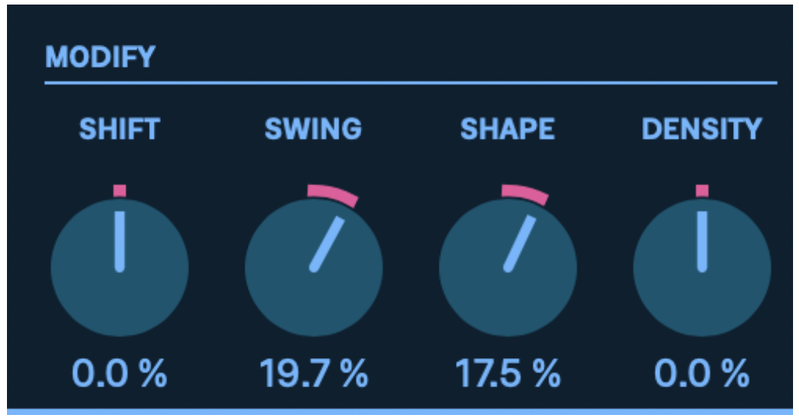
The Pattern Length is independent of the Sequence Length. More on that in the SETTINGS section, but it's important to keep in mind.

FILL determines how many active triggers will be placed in the Pattern. For instance, if STEPS is set to 16, and FILL is set to 4, four evenly spaced triggers will be placed across 16 steps (which is a traditional four-on-the-floor).

PATTERN will set the active permutation of the current Pattern. If PATTERN is set to 1, then this is the Euclidean pattern. For every other value, individual hits are shifted to create all of the possible permutations.

ROTATE will shift the active Pattern triggers forwards or backwards by a given number of steps. ROTATE does not affect the modulation sequences or manually placed triggers.

INVERT will swap every inactive step with an active trigger, and vice versa.



SEQUENCE MODIFIERS

This section contains four knobs that warp or remix your sequences.

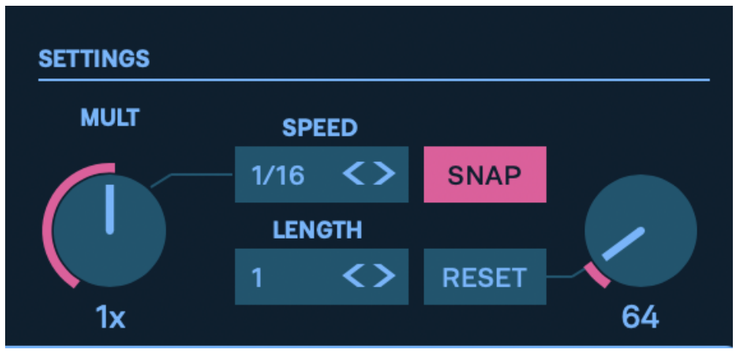
SHIFT nudges the playhead of this sequence to be early or late. This is useful for hip-hop style lazy hi-hats or slight flams between the kick and snare sequences. At 0%, the playhead is on-time. Positive values make the playhead run in front of the beat, while negative values make the playhead lag behind the beat. It is easiest to see how this works on the ALL Sequence page.

SWING changes the timing of every other step. For positive values, the alternating steps will arrive late. For negative values, the alternating steps will arrive early.

SHAPE bends the timeline between a number of steps (the number of steps is set by the STEPS knob on the Pattern Generator). This has a sort of "rubber band" effect of making these steps groups accelerate or decelerate. At 0%, no effect is applied. For positive values, the steps will speed up over time, while negative values will make the steps slow down over time.

DENSITY affects the probability of each trigger. At 0%, all triggers (both manually set or generated from the Pattern Generator) will have a 100% chance of firing. Negative values lower this probability (-25% density gives each trigger a 75% chance of firing). For positive values, inactive steps now have a chance of firing a trigger. At 25% Density, all manually set or Pattern triggers will still have a 100% chance of firing. Additionally, all inactive steps will have a 25% chance of firing.

HUMANIZE is a control that is shared between all sequence channels. At lower settings, it adds a more natural feel to beats by making hits slightly early or late. This is implemented in a way where the humanization is shared between channels so that it doesn't sound like a terrible ensemble, but rather a band that is interacting and reacting to each other. At high HUMANIZE settings, this will start to sound more like a chaotic shuffle effect.



SEQUENCE SETTINGS

SPEED and **MULT** interact to determine the time base for the sequence. For instance, at 1x MULT and 1/16 SPEED, this means that every step of the sequence is one sixteenth note (determined by the BPM of the plugin host). If MULT is set to /2, this halves the effective rate of the track so every step is an eighth note, similar to setting MULT to 1x and SPEED to 1/8.

LENGTH and **SNAP** work together to set the number of steps in the sequence. If SNAP is active, the Pattern STEPS knob will set the sequence length to a multiple of the STEPS knob. This multiple is either equal to LENGTH or the nearest multiple greater than LENGTH. For instance, if STEPS is 16 and LENGTH is 17, SNAP will round up to 32, the next multiple of 16.

If SNAP is disabled, the sequence length becomes independent of the Pattern Generator. This effectively leads to two independent, polymetric sequences. As an example, if STEPS is 7 and LENGTH is 16, the Pattern Generator will continue generating a 7-step pattern on top of the 16-step manual sequence.

To prevent this from endlessly generating, there is a **RESET** setting. The RESET button enables the behavior, while the knob sets the RESET length. With RESET enabled, both the Pattern Generator and the manual sequencer will be restarted after the number of steps set by RESET has passed. Going back to the previous example, if STEPS is 7 and LENGTH is 16, a 7-step Pattern will generate on top of the 16-step manual sequence. However, if RESET is set to 16, we now have a fixed 16-step sequence instead of a generative 112-step sequence.

KICK

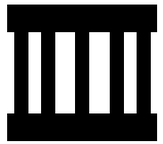
Kick is Battalion's workhorse kick drum generator designed for traditional kick synthesis. A pitch oscillator is modulated by a short pitch envelope. This adds a transient chirp to the beginning of the kick sound, independent from the amplitude envelope.

PITCH DECAY	Sets the decay of a modulation envelope that controls the pitch of the primary oscillator.
PITCH DEPTH	Sets how much the modulation envelope affects the frequency of the primary oscillator.
WAVEFORM	Sets the waveshape of the primary oscillator.
SUB	Sets the amplitude of a sine wave oscillator that is an octave below the main oscillator. This will be especially audible if distortion is applied to this drum.

HAT

Hat emulates the analog techniques used to generate hi-hat and cymbal sounds on classic 80's drum machines. It combines a noise generator with a stack of square wave oscillators. The noise emulates the "sizzle" of a cymbal, while the stacks squares are the tonal portion. This engine lets you experiment with both sections.

BLEND	Controls the mix between the noise generator and a stack of square waves.
SAMPLE RATE	Controls the sample rate of the noise generator.
CUTOFF	Sets the cutoff of a band-pass filter applied to the square wave stack and a high-pass filter applied to the noise generator.
HARMONIC	Controls the tuning relationship of the square wave stack.



SNARE

The Snare engine provides a traditional synthetic snare technique by combining a noise burst (the snare) with a tonal oscillator (the drum's body). The tonal oscillator's pitch is affected by a quick envelope to additionally simulate the moment the stick hits the drum head.

PITCH DECAY	Sets the decay of a modulation envelope that controls the pitch of the primary oscillator.
PITCH DEPTH	Sets how much the modulation envelope affects the frequency of the primary oscillator.
CUTOFF	Sets the cutoff frequencies of low-pass and high-pass filters that target the noise generator at different stages.
SAMPLE RATE	Controls the sampling rate of the noise generator.

CLAP

Like the Hat engine, Clap reimagines techniques used to generate handclaps from classic analog drum machines. This engine combines two separate envelopes. The first is an envelope triggered by a burst generator. It triggers multiple times consecutively to simulate multiple hands clapping (slightly offset from each other in time). A long, decaying envelope fires after the last clap to simulate the claps in a reverberent space. The parameters here go way beyond standard ranges to help make very experimental noise bursts and creative percussion.

CLAPS	Controls how many times the internal noise envelope is retriggered.
SPACING	Controls how much time passes between each retrigger of the internal noise envelope.
CUTOFF	Sets the cutoff of separate band-pass and low-pass filters applied to the noise generator.
REVERB DECAY	Sets the decay time of a separate noise generator envelope used to simulate reverb. This is based on how classic analog drum synthesizers worked for clap synthesis.

MODAL

The Modal engine uses a bank of decaying sine oscillators to simulate resonant, metallic objects. The sines are tuned to various modes to simulate natural materials, but these tunings can be heavily warped and modulated.

HARMONICS	Changes the tuning of selected oscillator partials.
DAMPEN	Sets how quickly the top partials decay compared to the fundamental.
VARY	Sets the amount of random modulation applied to the amplitude of each partial at the start of each hit.
BRIGHT	Changes the tuning of every oscillator partial.

COWBELL

Another classic 80's algorithm, the Cowbell uses a combination of noise and square wave oscillators to create a classic metallic percussion hit.

FILTER	Sets the cutoff of a high-pass filter applied to both the square wave oscillators and noise generator.
CLICK	Sets the level of a sharp transient added to each hit.
NOISE	Sets the level of noise mixed in with the oscillators.
HARMONIC	Sets the pitch relationship of the two square wave oscillators.

FM

This FM engine implements a simple 2-operator frequency modulation (FM) synthesis algorithm. In this setup, a modulator oscillator modulates the feedback of the primary carrier oscillator. The primary oscillator is also optionally routed to itself via feedback. Despite the simple architecture, this is capable of creating an enormous range of timbres.

RATIO	Controls the tuning relationship between the carrier and modulator oscillators.
DEPTH	Controls how much the modulator oscillator affects the tuning of the carrier oscillator.
FEEDBACK	Controls how much the carrier oscillator affects its own tuning. At high settings this will turn into high-frequency noise, useful for hi-hats.
ENV	Controls the level and then relative decay of an internal modulation envelope that targets FM Depth and Feedback simultaneously.

ADDITIVE

The Additive engine consists of an array of up to 24 sine oscillators, each with a separate frequency and amplitude. These are set simply through the use of two ratio controls.

FREQUENCY RATIO	Controls the tuning relationship between the base oscillator and its partials.
AMP RATIO	Controls the amplitude relationship of each partial. At high values this will start to saturate and introduce more harmonics.
PARTIALS	Controls the number of partials that are audible.
AMP ENVELOPE	Controls the level and then relative decay of an internal modulation envelope that targets the Amp Ratio parameter.

CHAOS

The Chaos engine ties two oscillators together into an unpredictable modulation feedback loop. These oscillators additionally run through a filter that is optionally modulated again by the oscillators. This is the wrong engine for melodic or predictable sounds.

RATIO	Controls the tuning relationship between the carrier and modulator oscillators.
CHAOS	Controls how much the modulator oscillator affects the tuning of the carrier oscillator, and vice versa. It gets messy quickly.
FILTER	Controls how much the oscillators affect the cutoff of a filter that the oscillators run through.
CHAOS ENVELOPE	Controls the level and then relative decay of an internal modulation envelope that targets the Chaos parameter.

VOSIM

This engine implements a modified version of VOSIM, which is a vocal synthesis algorithm. We use a simplified version that was implemented by the legendary Rob Hordijk and used also by Emilie Gillet in Mutable Instruments' classic Braids oscillator. In this version, two sine waves are summed together and windowed by a sawtooth oscillator. The PITCH control affects all of the oscillators, but the sine oscillators have additional independent controls.

PARTIAL 1	Sets the tuning ratio of the sine wave oscillator Partial 1 to the sawtooth oscillator window.
PARTIAL 2	Sets the tuning ratio of the sine wave oscillator Partial 2 to the sawtooth oscillator window.
FM	Controls how much phase modulation is applied to Partial 1 via Partial 2.
FM ENVELOPE	Controls the level and then relative decay of an internal modulation envelope that targets the FM parameter.

SUMSYN

SumSyn implements the “summation synthesis” algorithm. It was originally developed by James Moorer but came to us through our friends at Noise Engineering and their implementation in the Loquelic Iteritas Eurorack module. This was first ported into our Reaktor modules, then remade for LION, and remade again for percussion here. This is a general purpose engine that works well for kicks and tonal percussion. With high PM and PM ENV settings, it works well as a modular bongo.

RATIO	Controls the tuning relationship between the carrier and modulator oscillators. OSC 1 is set by pitch, OSC 2 is set by Ratio, and OSC 3 is set somewhere between the two.
BRIGHT	Controls a number of parameters, including wavefolding and oscillator balance.
PM	Controls how much phase modulation is applied to OSC 1 via OSC 3.
PM ENVELOPE	Controls the level and then relative decay of an internal modulation envelope that targets the Phase Modulation parameter.

RESON

The Reson engine is a counterpart to the Modal engine. Instead of using a bank of decaying sines, Reson instead uses a noise burst through a resonant filterbank. This gives it a grittier, noisier feeling than Modal.

HARMONICS	Changes the amplitude relationships of the various oscillator partials.
DAMPEN	Sets how quickly the top partials decay compared to the fundamental.
MATERIAL	Changes the frequency relationships of the resonating filters.
RING	Sets how long each filter can resonate for when struck.

COMBINATORIC

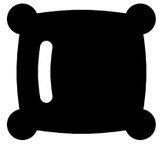
Combinatoric generates experimental sounds by running a sine wave oscillator through a comb filter. To add a lot of complexity, the comb filter is optionally modulated by both a pitch envelope and the sine wave itself. The engine can generate powerful drones, metallic blasts, and unexpected glitch effects.

COMB RATIO	Controls the tuning relationship between the base oscillator and the comb filter.
FEEDBACK	Sets the amount of feedback that occurs in the comb filter.
PITCH ENVELOPE	Controls the amount of frequency deformation applied to the comb filter at the start of the amplitude envelope.
FM	Controls how much the sine oscillator affects the tuning of the comb filter. At high values, this will produce artifacts and unexpected results, especially when combined with feedback.

KOMBUCHA

Kombucha is a partner to Combinatoric. It implements a variation of Karplus-Strong synthesis by running a noise burst through a comb filter. This simple algorithm is actually capable of generating a variety of complex, string-like tones with high feedback, or lo-fi noise bursts and snares with lower feedback.

SAMPLE RATE	Controls the sampling rate of the noise generator used to feed the comb filter.
FEEDBACK	Sets the amount of feedback that occurs in the comb filter.
PITCH ENVELOPE	Controls the amount of frequency deformation applied to the comb filter at the start of the amplitude envelope.
DAMP	Controls a low pass filter used to darken the timbre of the output.



PILLOW

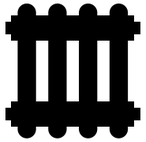
Pillow is a kick engine that specializes in dampened and glitchy kick sounds. If you are going for an early 00's "clicks and cuts" sound, or if you don't want the kick to overwhelm the rest of your beat, give this engine a shot.

PILLOW	Sets the cutoff of two serial low-pass filters that affect all sections of this engine.
CLICK	Sets the amplitude of a quick noise transient.
RATTLE	Sets the mix between the primary oscillator and the oscillator ring modulated with pink noise. This adds a perceptual rattle to the drum.
SUB	Sets the amplitude of a sine wave oscillator that is an octave below the main oscillator. This will be especially audible if distortion is applied to this drum.

ZAP

Zap is a kick engine with an exaggerated pitch envelope and a more heavily lo-fi transient attack. This engine excels at laser blasts, sci-fi UI sounds, and video game effects.

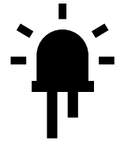
ENV	Sets the amount of transient frequency warping that occurs at the start of the amplitude envelope.
CLICK	Sets the amplitude of a quick noise transient.
OVERTONE	Sets the mix between the primary oscillator and a secondary oscillator that is two octaves higher.
SUB	Sets the amplitude of a sine wave oscillator that is an octave below the main oscillator. This will be especially audible if distortion is applied to this drum.



RADIATOR

Radiator is a kick engine with a roasty-toasty character. This is not an engine for clean, precise kicks, but rather noisy and burnt kicks full of character. By raising the pitch and overdoing the noise, Radiator can also double as an unusual snare engine.

ENV	Sets the amount of transient frequency warping that occurs at the start of the amplitude envelope.
TICK	Sets the amplitude of a quick noise transient.
OVERTONE	Sets the mix between the primary oscillator and a secondary oscillator that is two octaves higher.
ROAST	Sets the amplitude of a sine wave oscillator that is an octave below the main oscillator ring modulated by noise.



LPG

An LPG (or Low Pass Gate) is a classic circuit found in analog modular synthesizers. In a low-pass gate, an amplifier and a low-pass filter work simultaneously to shape the amplitude and frequency content of a signal. As the signal goes down in amplitude, the filter's cutoff lowers, removing more high-frequency content to provide a natural, woody decay. This engine emulates that effect, while also adding classic wavefolding and waveshaping to get that modular bongo sound quickly.

FOLD	Sets the amount of wavefolding applied to the oscillator.
SHAPE	Sets the amount of waveshaping applied to the oscillator.
NOISE	Sets the balance between the oscillator and noise sections before the low-pass filter.
DAMP	Controls how much the low-pass filter opens up simultaneously with the amplitude envelope. This is affected additionally by velocity.

TERRAINING

Terraining takes many of the experimental mix algorithms from our LION synthesizer and distills them into a percussion engine. This engine contains two independent, waveshaped oscillators and runs them through a morphing, multi-algorithm mixer.

PITCH 2	Sets the tuning of the secondary oscillator as related to the primary oscillator.
SHAPE 1	Sets the waveform of the primary oscillator.
SHAPE 2	Sets the waveform of the secondary oscillator.
TERRAIN	Smoothly morph between many wave terrain algorithms. These algorithms are driven by the primary oscillator on the x-axis, and the secondary oscillator on the y-axis. Past 50%, this will then run the oscillators through a number of bitwise operators for a more digital sound.

SHAME

Shame is the most digital, alias-heavy engine in Battalion. Like Terraining, it takes two oscillators and runs them through mixing algorithms taken from LION (in this case, the sample-and-hold algorithms from the Ash mixer mode). Unlike terraining, the two oscillators are linked together both through FM and through the mixer itself.

PITCH 2	Sets the tuning of the secondary oscillator as related to the primary oscillator.
FM	Sets how much the secondary oscillator affects the pitch of the primary oscillator.
FEEDBACK	Sets how much the primary oscillator affects its own tuning. This will turn into high-frequency noise at large values.
SHAME	Smoothly morph between a large selection of sample-and-hold algorithms fed with various configurations of the two oscillators as inputs.

ENTANGLED

Entangled finishes off the LION mixer trilogy (with Terraining and Shame). It mirrors the general architecture of Shame with two oscillators united through FM and mixing. The algorithms in Entangled are generally more polite than Shame, and are a selection of algorithms that excel at processing sine waves (ring modulation, windowing, wave terrains, and more).

PITCH 2	Sets the tuning of the secondary oscillator as related to the primary oscillator.
FM	Sets how much the secondary oscillator affects the pitch of the primary oscillator.
FEEDBACK	Sets how much the primary oscillator affects its own tuning. This will turn into high-frequency noise at large values.
TANGLE	Smoothly morph between a large number of two-operator mixing algorithms, including summing, ring modulation, windowing, and wave terrain.

HAYWIRE

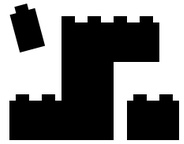
Named after *Haywire Frontier* by Nathan Ho, Haywire started out as a snare experiment based on Nathan's write-up on "Composing with Accelerating Rhythms". It ended up breaking away from his SuperCollider SynthDef in architecture, but maintained the spirit of its sound. Overall, Haywire produces a somewhat more acoustic-sounding snare than the Snare engine and responds very well to ratchet gestures.

OVERTONE	Sets the gain of two oscillators in two stages.
PITCH DEPTH	Sets how much the modulation envelope affects the frequency of the two oscillators.
BRIGHT	Sets the tuning of two band-pass filters used in the Rattle section.
RATTLE	Sets the amplitude of a pair of noise generators used to simulate a rattling snare.

TRIPWIRE

Tripwire is the kick counterpart to Haywire. Like Haywire, Tripwire started out as an experiment in recreating Nathan Ho's SynthDefs but ended up going down its own path. Tripwire produces very synthetic kick sounds that contain squishy pitch transients.

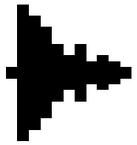
PITCH DECAY	Sets the decay of a modulation envelope stack that controls the pitch of the primary oscillator.
PITCH DEPTH	Sets how much the modulation envelope stack affects the frequency of the primary oscillator.
TRANSIENT	Sets the amplitude of an intial click.
SQUARE	Sets the intensity of a waveshaping effect applied to the oscillator.



BUILDER

Builder provides a "build your own engine" toolkit using the elements found in more traditional drum synthesizers. You have independent oscillator and noise sections, each with basic shaping controls. Use Battalion's modulation system to apply separate amplitude envelopes to each section.

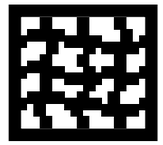
OSCILLATOR WAVE	Selects the waveform of the oscillator section.
OSCILLATOR GAIN	Sets the level of the oscillator.
NOISE TILT	Sets the filter cutoff (either low-pass or high-pass) of the noise generator.
NOISE GAIN	Sets the level of the noise generator.



CLASSIC

This is your bread-and-butter percussion sampler. There are two pitch controls (one course, one fine). Both pitch controls change the speed of sample playback. This engine is supplemented by three useful sample treatment effects: filter, compressor, and saturator.

FINE	Provides smooth, non-quantized pitch adjustments over a semitone in each direction. 50.0% is base pitch, 100% is +1 semitone, and 0% is -1 semitone.
TILT	Filters the sample. 50% is an unfiltered sound. 50-100% raises the cutoff of a high-pass filter, while 50-0% lowers the cutoff of a low-pass filter.
COMP	Applies dynamics modification to the sample. 50% is neutral. Values above 50% apply compression, while values below 50% apply expansion.
GAIN	Adds gain to the signal to interact with an internal saturator. 50% adds no gain. Below 50% attenuates the signal, while above 50% boosts the signal for saturation.



PHASE WARP

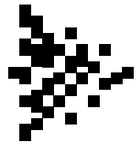
Phase Warp takes all of the sequence warping tricks from Battalion's sequencer and applies them to sample playback. If you imagine your sample playing back as a straight line from 0 (start) to 1 (end), this engine takes that straight line and bends it, reflects it, and chops it into bits.

MIRROR	Affects the boundaries of the sample, along with repetitions. At 50%, no manipulation is applied. Above 50%, the sample is sped up and made to reflect from its end point, causing a reverse playback. As the effect intensifies, the sample may bounce multiple times off of the start and end points. Below 50%, the end point is brought closer to the start point and the sample will loop multiple times around that without changing pitch.
SHAPE	Changes the pitch over the course of the sample. At 50%, no pitch manipulation is applied. Above 50%, the sample will speed up over time. Below 50%, the sample will slow down over time.
SPLIT	Places a speed change at the middle of the sample. At 50%, no speed changes occur. Above 50%, the second half of the sample is faster. Below 50%, the first half of the sample is faster.
SWING	Similar to Split, this control changes the speed of two chunks of the sample. Split will change the speed of the sample at its halfway point, while Swing instead changes that point at which a speed change will occur. At 50%, no speed manipulation occurs. Above 50%, the speed of the sample is increased until it reaches the swing point, at which case it immediately slows. Below 50%, the speed of the sample is decreased until reaches the swing point, at which point it immediately speeds up.

CLONER

Cloner is a new, cutting-edge algorithm that spectrally reconfigures the sample on every playback. With simple, metallic percussion samples and low VARIATION controls, this engine will make each hit sound like a slightly different strike instead of relying on large multi-samples. With intense settings, this can warp your sample into new forms.

FINE	Provides smooth, non-quantized pitch adjustments over a semitone in each direction. 50.0% is base pitch, 100% is +1 semitone, and 0% is -1 semitone.
TILT	Modifies the amplitudes of the spectral bins, effectively applying a tilt filter to the sample. Values above 50% apply a high-pass tilt, while values below 50% apply a low-pass tilt.
VARIATION	Changes the amount of spectral manipulation applied to the sample to emulate natural hit variation. 50% is the default, typical amount. 0% removes spectral changes, while 100% applies intense spectral change to each hit.
DAMP	Applies a spectral envelope to reduce or accentuate spectral ringing. 50% applies no spectral damping. Values above 50% filter out spectral rings, while values below 50% intensify spectral ringing.



GRANULAR

This engine breaks your sample into hundreds of little grains, or miniature sound events. In a granular sampler, Pitch and Speed are independent of each other. You can change the pitch of the sample without changing speed, and vice versa. Think of it as a sonic microscope for discovering new timbres inside of your samples.

SIZE	Changes the size (in time) of each grain.
RATE	Sets how frequently new grains are generated.
SPEED	Changes how quickly the playhead advances through the sample. At 50%, the playhead is stuck to the start point. Above 50%, the playhead moves forward from the start point, while below 50% the playhead moves backward from the end point.
BLUR	Applies per-grain random manipulation. At 50%, all grains have uniform parameters. Above 50%, this sets a random start position offset for each grain. Below 50%, this sets the probability that each grain will play backwards.

MIDI INPUTS

Sometimes, it might be preferable to skip Battalion's built-in sequencer and sequence it via MIDI input. Battalion is set up for advanced MIDI control with different rules for each channel.

CHANNEL 1 is the channel to use if you would like to sequence all eight Battalion voices easily from a sequencer. On this channel, each voice is mapped to a single key, repeated on all octaves for easy setup in any DAW.

The first drum voice is triggered on MIDI note C (any octave).

CHANNEL 1 NOTES:

MIDI C: Voice 1

MIDI C#: Voice 2

MIDI D: Voice 3

MIDI D#: Voice 4

MIDI E: Voice 5

MIDI F: Voice 6

MIDI F#: Voice 7

MIDI G: Voice 8

CHANNELS 2 THROUGH 9 provide chromatic control over each of the eight voices. On each channel, MIDI Note 60 or Middle C (C3 in some DAWs like Ableton, C4 in others) will trigger the associated voice with no transposition. Each channel is assigned to only one voice.

Channel 2: Voice 1

Channel 3: Voice 2

Channel 4: Voice 3

Channel 5: Voice 4

Channel 6: Voice 5

Channel 7: Voice 6

Channel 8: Voice 7

Channel 9: Voice 8

KEYBOARD SHORTCUTS

In Battalion's Options Menu, you can activate a mode where Battalion will take keyboard focus away from the DAW. This provides shortcuts for navigating Battalion more quickly. They will be familiar to many video gamers.

Q – Trigger the selected voice.

W – Navigate up in the selected voices.

S – Navigate down in the selected voices.

A – Navigate backwards through main pages.

D – Navigate forwards through main pages.