Shapeau

Draw the shape, hear it on the beat

Version 0.4.0

CLAP and VST3 effect for Linux and Windows

Part of the Audio Plugins

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Shapeau — manual

A multiband drawing rack. Linux and Windows, CLAP and VST3.

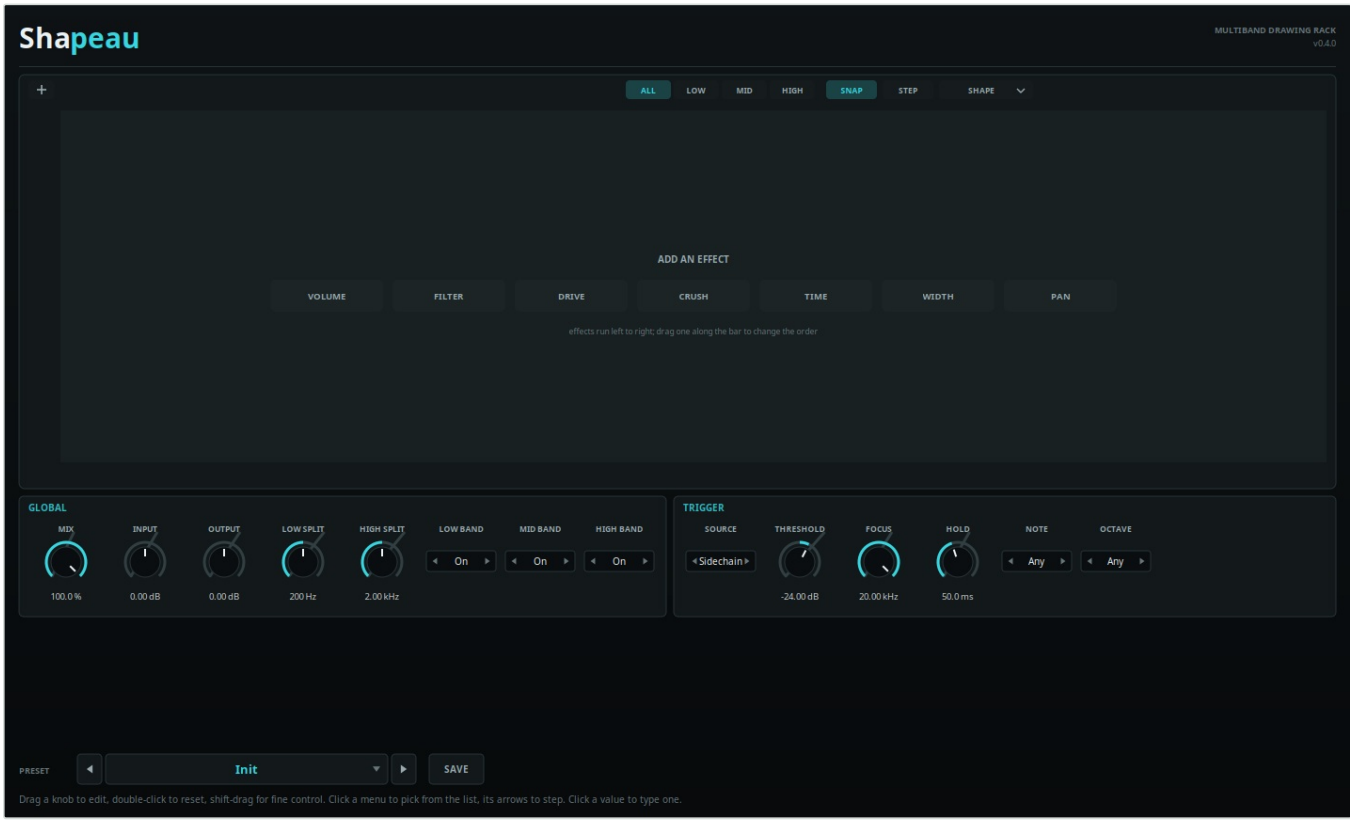
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1. What it is



The window as it opens: an empty chain, and the seven effects it can hold.

Shapeau is a chain of effects, each driven by a shape you draw: **volume**, **filter**, **drive**, **crush**, **time**, **width** and **pan**, in whatever order you put them in. The input is split into three frequency bands, and every effect has a shape of its own in each band – so a shape can duck the bass and leave the top alone. Every shape runs locked to the host's beat, and the audio it acts on is drawn behind it as it plays.

That is the whole idea. A ducking curve on the low band and a flat line on the other two is a sidechain without a sidechain. A filter shape that falls once a bar is a sweep. A drive shape with one hard step in it is distortion on the hits only. A time shape that falls at the rate the buffer fills is a stutter that holds a moment still; one that falls twice as fast plays it backwards. A stepped crush shape puts rhythm into the grit, and a width or pan shape walks a band across the stereo field. Each of these is a line drawn in the same editor, and the band tabs decide who hears it.

A shape does not have to follow the beat. Any effect can be restarted by a MIDI note or by a hit – in the signal itself, or in a sidechain input, which is where a kick from another track is routed to duck a bass to it. The sidechain is drawn behind the shape too, so the duck can be fitted to the kick by eye.

The effects run in the order the chain lists them, the same order in every band, and the three bands are summed back together and mixed against the dry input. A filter before a stutter and a stutter before a filter are two different sounds, and moving an effect is one drag.

Eighty-three parameters, ten presets.

2. The shape editor



A duck drawn on the low band, over the drum loop it is ducking. The selected band draws thick and bright; the other two are dim behind it.

The editor fills the top of the window, and under it are two panels: GLOBAL, and the controls of the effect being edited. Its toolbar has four groups:

- **The effect bar**, on the left: the effects in the chain, in the order the audio runs through them. Click one to edit it – its shape fills the editor and its panel appears below. Its **dot** switches it on and off without taking it out of the chain; the **×** that appears under the pointer takes it out; **drag** it left or right to move it in the chain; **+** adds an effect that is not in it yet, at the end. An empty chain shows all seven in the editor, one click from being added.
- **ALL, LOW, MID, HIGH** — which band's shape is being edited. **ALL** is the default: an edit goes to all three bands at once. Pick a band to draw it on its own. All three are always drawn; the selected one is bright and the other two sit dim behind it, so a shape can be drawn against what the other bands are doing.
- **SNAP** and **STEP** — the two editing aids: points land on a sixteenth of a cycle, and the mouse paints sixteen step cells instead of adding points.
- **SHAPE** — a menu of twelve starting shapes.



A chain of three. The bar lists them in the order the audio runs through them.

The horizontal axis is **one cycle** of that stage's shape — the stage's own **Rate** (a note value) and **Phase**. The vertical axis is the shape's value, from 0 at the bottom to 1 at the top, and what that value means is the stage's business: gain for volume, cutoff position for filter, drive amount for drive, crush amount, position in the past for time, a point between the speakers for pan, and mono to double width for width. Pan and width do nothing at the **middle** of their travel rather than at the top; every other stage's neutral shape is a flat line at the top.

WHAT THE EDITOR SHOWS

Behind the shape is the audio it acts on, drawn along the same cycle, so the part of the shape at a point in time sits over the sound at that point in time. **Grey** is what goes in, **in the accent** is what comes out; a duck drawn down to the floor sits on the stretch of the waveform it empties. A vertical line is the **playhead**, where the shape is being read right now.

Volume, filter, drive, crush and time draw the audio as its level, from the bottom up; pan and width, which move the sound between the speakers rather than change its level, as a waveform around the middle. With **ALL** selected the picture is the whole effect's input and output; with one band selected it is that band alone.

A **sidechain**, when one is routed in, is drawn in **amber** over both, so the kick a bass is being ducked for sits right under the dip that ducks it. It is only ever drawn and listened to, never heard. See section 5.

A thin pale line is the **modulation trace**: what the effect actually did after its **Smooth**. With no smoothing it lies under the shape and cannot be seen; with more, it rounds the shape's corners and lags behind its jumps – which is exactly what is heard.

DRAWING POINTS

- **Click** in the graph adds a point where the pointer is.
- **Drag** a point to move it. It stays inside the cycle, and the two end points move up and down only, so the shape always covers exactly one cycle.
- **Double-click** a point deletes it.
- **Right-click** a point cycles its corner weight: hard, medium, soft. A hard point is a corner, medium rounds it halfway, soft is a flowing curve. The segment between two points follows the harder of the two weights, so one soft point smooths both of its sides.
- **SNAP** rounds a new or dragged point's time to the nearest sixteenth of a cycle, which is what you want when a shape has to land on the grid.

BENDING A SEGMENT

The line between two points is not fixed. Put the pointer on it — a small handle appears at the middle of the segment — and **drag up or down**. The segment bows towards the top or the bottom of the editor without its endpoints moving; the same gesture as the curve handle in a DAW. It is how a rise becomes an exponential snap and how a recovery becomes a long ease instead of a straight line. **Right-click** the line to straighten it again.

The bend is stored per segment, in the preset, as the fourth number of the point that starts it. A file written before bending existed still loads, with straight segments.

STEP EDITING

STEP turns the editor into a sixteen-cell grid. Click a cell to set its level, or drag across several cells to paint them; the shape becomes hard steps with vertical edges. The step cells are fractions of the stage's cycle, not note values: with Rate at 1/1 (one bar) sixteen cells are sixteenth notes, with Rate at 1/4 (a quarter) they are sixty-fourths. Set the Rate to the grid the pattern should land on.

STEP again returns to point editing, with the steps still there: each cell boundary is a point, so a step shape can be nudged, bent or deleted like any other shape. Switching to step mode converts the current drawing by sampling it at the middle of each cell, so it is a conversion rather than a view — undo is the preset it was loaded from.

THE SHAPE MENU

SHAPE opens twelve generators, which replace the selected shape (or all three bands' shapes when ALL is selected):

- **FLAT** — the stage's neutral shape.
- **DUCK**, **GATE**, **RAMP UP**, **RAMP DOWN** — the four envelopes most often drawn by hand.
- **TRIANGLE**, **SQUARE**, **PULSE** — two-sided, half-open and a short burst.
- **SINE** — a full tremolo or pan sweep.
- **STAIRS** — eight descending steps.
- **RANDOM** — sixteen fresh random steps every time it is chosen.
- **EXPO RISE** — a rising curve with the bend already applied, which is the quickest way to see what bending does.

They are a starting point, not a preset: draw over them.

DRAWING SWITCHES THE STAGE ON

A stage switched off with its dot stays in the chain, and a shape drawn into it would be silently ignored. So drawing — adding, moving or deleting a point, bending a segment, painting a step or choosing a generator — switches that stage on, and switches on the bands being edited. A small dot on a stage or band tab marks one that is switched off. **FLAT** is the exception: it resets the shape without switching anything on, so clearing a drive curve does not add drive to the sound.

That, together with ALL as the default band, is the fix for the most common first impression of the plugin: a volume stutter drawn on the mid band alone leaves the low and high bands playing straight through, and a shape drawn into a stage that is off does nothing at all.



A cutoff sweep drawn by hand on the filter's mid band.

The stage's own smoothing — **Smooth**, on each panel — is applied after the shape, so a hard corner stays hard in the editor and still lands softly in the sound.

3. How the rack is put together

Low Split and **High Split** set the two crossovers: 200 Hz and 2 kHz by default. Both sides of each split are Linkwitz-Riley fourth order, in phase, so the three bands sum back to the input — a flat shape in all three bands is level-transparent, to within a tenth of a decibel.

Low Band, **Mid Band** and **High Band** switch a band's processing off. A band switched off passes dry to the sum; the other bands are unaffected.

Mix blends the whole rack against the input, and **Input** and **Output** trim either side of it. A rack that ducks or stutters is usually more useful mixed in than in place, which is why Mix is there and why it is the first control on the GLOBAL panel.

Nothing here adds latency: the stages filter and shape in place, and the time stage reads backwards from where it is rather than delaying the output.

4. The stages

VOLUME



A duck on the low band, as drawn in §2.

The shape is a gain: 1 is unity and 0 is silence, and the panel's **Volume** switch puts it in circuit. The curve is squared on its way to the gain, so a point halfway down the editor is about **-12 dB** — which is where a duck usually sits — rather than -6.

- **Trim** sets the stage's output gain, so a shape can dip deeply and still come back louder than it went in.
- **Rate** and **Phase** place the cycle. A duck drawn on the downbeat with a quarter note rate needs no phase; moving Phase to 25 % puts it a sixteenth early.
- **Smooth** rounds the gain. At zero the shape is followed exactly, which is what a hard gate wants; a little smoothing is what makes a duck sound like a compressor rather than a click.

A gate is the same stage with hard points and no smoothing: open for the first two fifths of the cycle, shut for the rest.

FILTER

The shape is a **cutoff position**, not a cutoff: the top of the editor is the **Cutoff** knob's value and the bottom is that value pushed down by **Depth** octaves. So one shape can be a two-octave wobble at 400 Hz or an eight-octave slam at 8 kHz depending on two knobs.

- **Cutoff** — where the top of the shape sits, 20 Hz to 20 kHz.
- **Depth** — how far below it the bottom of the shape reaches, 0 to 8 octaves. At zero the shape does nothing.
- **Resonance** — emphasis at the cutoff, up to the edge of self-oscillation on the state-variable filter this uses.
- **Drive** — saturation in front of the filter, inside the band. A resonant sweep that is driven excites its own harmonics instead of staying clean.
- **Low Type**, **Mid Type**, **High Type** — lowpass, highpass, bandpass or notch, chosen per band. The low band can be a lowpass while the high band is a notch, all driven by the same shape.
- **Rate**, **Phase**, **Smooth** — as on the volume stage. A filter that steps from one cutoff to another with Smooth at zero clicks; that is sometimes the sound and sometimes not.

DRIVE

The shape scales the **Drive** knob: the top of the curve is the amount set on the knob, the bottom is nothing driven at all. So a drive shape with a flat top is a constant distortion, and one that opens on every hit is distortion that arrives with the drums.

- **Style** — one transfer curve for all three bands: **Soft Clip**, **Hard Clip**, **Fold**, **Rectify**, **Sine Fold** and **Crush**. Rectify leaves DC behind; the stage removes it.
- **Input** and **Output** — gain either side of the shaper, separate from the amount, so the curve's top can be put where the shaper is interesting.
- **Tone** — a one-pole at 800 Hz mixed with the distortion: right takes the fizz off, left thins it out.
- **Mix** — the distortion against the band's clean signal. Below 100 % this is a parallel blend, which is where a driven bass keeps its bottom.
- **Rate**, **Phase**, **Smooth**.

The level compensation is the same curve for every style, on purpose: choosing between two styles is choosing a character, not a volume. The **Crush** style is the one exception in name only: it is a quantiser inside the drive stage, while the separate **Crush** stage below can reduce the sample rate as well and is shaped by its own curve.

CRUSH

The crush stage is a bit-depth and sample-rate reducer, per band, driven by the shape. The top of the curve is the **Amount** knob and the bottom is clean, so a flat top is constant grit and a stepped shape is grit that arrives with the drums.

- **Amount** — the amount the curve scales from, 0 to 100 %.
- **Bits** — the bit depth at full curve, 2 to 16. Six is a hard, grainy quantiser; sixteen is effectively clean.
- **Down** — the sample-rate division at full curve, 1 to 32. At 8 the signal is held for one sample in eight, which is the aliased, lo-fi half of a crusher.
- **Mix** — the crushed signal against the band's clean one. Below 100 % keeps a bass' weight under the grit.
- **Rate**, **Phase**, **Smooth**.

TIME

The time stage is a look-back buffer per band, **Range** long. The shape is the read head's position in it: **1 is now** and **0 is one Range into the past**.

The two gestures worth knowing:

- A shape that **falls** at exactly the rate the buffer fills holds one moment still. That is the classic stutter, and it is why the stage's own smoothing is called Step.
- A shape that falls **steeper** than that reads the buffer backwards, which is how a reverse is drawn. A shape that rises from the bottom to the top and stays there plays the buffer forwards at double speed for that part of the cycle.

Range sets the look-back — 20 ms to 2 s. Short ranges are the tight stutter (90 ms covers a sixteenth at 160 BPM); long ones are the tape stop.

- **Step** — how long the read head takes to travel when the shape jumps. This is the difference between a click at every step and a smooth stutter.
- **Smooth** — softens the drawn shape before it moves the read head, on top of Step.
- **Rate**, **Phase**.

WIDTH

The width stage is a mid/side width control, per band, with its own shape. **The middle of the curve is the plain stereo image**, the bottom sums the band to mono, and the top doubles the side signal. A width shape over an eighth note is a band that breathes; a hard step from mono to wide is a tear, which is why **Smooth** exists.

- **Rate**, **Phase**, **Smooth**.

Width is applied to a band after its time stage and before pan, so a band can be narrowed in the middle and still be placed anywhere in the field.

PAN

The pan stage places a band between the speakers. **The middle of the curve is the centre**, the bottom is hard left and the top is hard right. It is a balance rather than a constant-power pan: the centre is unity, so a neutral shape is transparent, and leaving the middle turns the opposite side down.

- **Rate**, **Phase**, **Smooth**.

A pan shape on the high band alone walks the top of a mix while the bottom holds steady; one on all three bands is an auto-pan of the whole signal.

RATE AND PHASE

Each stage has its own. **Rate** is the length of one cycle of that stage's shape, in note values from a thirty-second to four bars; **Phase** is where in the cycle the shape starts, from 0 to 100 %.

Rates are beats, so with the transport running they lock to the host's position and survive a tempo change. With the transport stopped the shapes free-run at the host's tempo, or at 120 BPM if the host offers none, so the editor and the sound keep moving while a part is being played by hand.

Every stage also ends with **Trigger**, **Loop** and **End**, which decide whether its cycle follows the beat at all; they are section 5.

5. Triggers and the sidechain



Volume set to Audio: the kick in the sidechain, in amber, starts the duck and sits at the left edge of the cycle; the END marker is where the shape stops until the next kick.

Every effect follows the host's beat until it is told otherwise. That is right for a kick on every quarter note and wrong for anything else – a broken beat, a fill, a break with no kick in it at all. Each effect can instead be started by something that happens.

TRIGGER, LOOP AND END

The last three controls on every effect's panel.

- **Trigger** – what starts the effect's cycle.

- **Sync** follows the host's beat, as described under *Rate and Phase*. This is the default.
- **MIDI** restarts the shape on every note that reaches Shapeau's note input.
- **Audio** restarts it on every hit the detector finds – in the sidechain, or in the signal itself (see *The TRIGGER panel* below).
- **Loop** – **Off** runs the shape once from the trigger and stops at its End, where it holds until the next trigger. **On** keeps cycling until the next trigger starts it again.
- **End** – where a shape run once stops. Turn the knob, or drag the dashed **END** marker in the editor; the part of the shape after it is dimmed, because it is never played. Sync and Loop ignore it.

A triggered shape still runs at its **Rate**, counted from the trigger instead of from the start of the song, and **Phase** still shifts it. Until its first trigger it rests at its End – or, with Loop on, at the end of the shape – so a duck drawn back up to the top lets the sound through untouched until the first kick arrives.

With an effect set to MIDI or Audio, the editor's picture starts at the trigger: the hit that started the cycle is at its left edge. A lamp in the top left corner of the editor, beside the trigger mode, lights on every trigger.

DUCKING A BASS FROM THE KICK

1. Put Shapeau on the bass track.
2. Route the kick track into Shapeau's **sidechain input**. Every DAW does this its own way; it is the same routing a compressor's sidechain uses.
3. Add **Volume**, pick **DUCK** from the SHAPE menu, and set **Trigger** to **Audio**. The factory preset *Sidechain Duck* is this, ready made.
4. Play. The kick appears in amber behind the shape. Drag the points until the dip covers the part of the kick that needs the room, and set **Rate** so one cycle is about as long as the duck should last.

To duck only the bottom of the bass, draw the dip in the **LOW** band and leave the other two flat.

The sidechain is drawn in every Trigger mode, Sync included: a duck that follows the beat can be lined up with a kick on another track the same way.

THE TRIGGER PANEL

One setup, shared by every effect set to Audio or MIDI.

- **Source** – what the Audio trigger listens to: the **Sidechain** input, or the **Input**, the signal Shapeau is processing.
- **Threshold** – how loud a hit has to be. Once it has fired, the detector waits for the level to fall 6 dB below this before it can fire again.
- **Focus** – a lowpass in front of the detector, never in the sound. At the top it hears everything; around 150 Hz it finds the kick in a full drum loop and ignores the hats and the snare's top. A low Focus finds the hit a few milliseconds later.
- **Hold** – the shortest time between two audio triggers, so a kick with a doubled attack, or a flam, starts the effect once.
- **Note** and **Octave** – which notes start an effect set to MIDI. **Any** in both answers to every note. C3 is MIDI note 48.

The quickest way to set Threshold is by the lamp: it should light once for every kick and not for anything else.

TIMING

Triggers add no latency. A MIDI note restarts the shape where it falls, to within a third of a millisecond. An audio trigger fires as the hit crosses the threshold – a fraction of a millisecond after it starts, a few with a low Focus – and the effect's **Smooth** rounds off the restart, so a duck drops in without a click.

6. Presets

The preset bar at the bottom of the window holds the factory presets. The arrows step through them, the field opens the browser, and **SAVE** writes the current state — parameters, band switches and all twenty-one shapes — to a user preset.

Factory presets are compiled into the plugin, so the `.clap` is all that has to be installed. User presets are text files in the plugin's own folder (`~/.clap/Shapeau/presets` on Linux, the same layout under `%APPDATA%` on Windows) and are also offered to the host through CLAP's preset discovery, so they show up in the DAW's own preset menu next to the factory ones.

A preset stores each shape as one line per stage and band, in normalised time and value with the point's corner weight and its segment bend, which is why a curve drawn by hand survives a save, a reload and a different install.

7. Parameter reference

There are 83 parameters, grouped the way the plugin window groups them. Every one is automatable and modulatable from the host, and every one can be typed in directly by clicking its value in the window. The name in `code` is the key used in preset files.

GLOBAL

PARAMETER	RANGE	DEFAULT	WHAT IT DOES
Mix `mix`	0.0 % … 100.0 %	100.0 %	The whole rack against the input, not one stage. A curve that ducks or stutters is most useful mixed in rather than in place.
Input `input`	-24.00 dB … 24.00 dB	0.00 dB	Gain into the rack, before the band split. The drive stage has its own, and this one is here for the rare source that needs it.
Output `output`	-24.00 dB … 24.00 dB	0.00 dB	Gain out of the rack, after the bands are summed and mixed.
Low Split `split_low`	20.0 Hz … 2.00 kHz	200 Hz	Where the low band ends and the mid band begins. Both sides are Linkwitz-Riley fourth order, so the three bands sum back to the input.
High Split `split_high`	200 Hz … 20.00 kHz	2.00 kHz	Where the mid band ends and the high band begins. Each band carries its own curve for every stage, which is the point of the split.
Low Band `band_low`	Off, On	On	Whether the low band is processed. Switched off, it passes through untouched and is still summed with the other two.
Mid Band `band_mid`	Off, On	On	Whether the mid band is processed.
High Band `band_high`	Off, On	On	Whether the high band is processed.

VOLUME

PARAMETER	RANGE	DEFAULT	WHAT IT DOES
Volume `vol_on`	Off, On	Off	Draws the level: ducking, gating, tremolo. The curve is squared, so a point halfway down the editor is about -12 dB.
Trim `vol_trim`	-24.00 dB … 24.00 dB	0.00 dB	Gain on the volume stage's output, which is what lets a curve duck and still leave the result louder than it came in.
Rate `vol_rate`	1/32, 1/16, 1/8, 1/4, 1/2, 1/1, 2 Bars, 4 Bars	1/4	The length of one cycle of the curve, in note values locked to the host's tempo.
Phase `vol_phase`	0.0 % … 100.0 %	0.0 %	Where in the cycle the curve starts. A quarter-cycle shift moves a duck drawn on the beat to a sixteenth before it.
Smooth `vol_smooth`	0.0 % … 100.0 %	15.0 %	Softens the corners of the drawn shape. At zero the curve is followed exactly, which is right for a gate and wrong for a duck.
Trigger `vol_trigger`	Sync, MIDI, Audio	Sync	What starts the volume cycle: the host's beat, a MIDI note, or a hit in the sidechain or the input, as the Trigger panel sets it up.
Loop `vol_loop`	Off, On	Off	With MIDI or Audio: On keeps cycling until the next trigger, Off runs the shape once and holds at its End marker.
End `vol_end`	0.0 % … 100.0 %	100.0 %	Where a shape run once stops and holds, until the next trigger. Drag the marker in the editor or turn this; Sync and Loop ignore it.

FILTER

PARAMETER	RANGE	DEFAULT

			WHAT IT DOES
Filter `flt_on`	Off, On	Off	Draws the cutoff: a sweep, a wobble, a plucked envelope per band.
Cutoff `flt_cutoff`	20.0 Hz … 20.00 kHz	1.00 kHz	The cutoff the curve's top reaches. With the curve drawn flat along the top of the editor this is simply the cutoff.
Resonance `flt_res`	0.0 % … 100.0 %	25.0 %	Emphasis at the cutoff. Pushed high the shared SVF is close to self-oscillation, which the drive control in front of it can excite.
Depth `flt_depth`	0 oct … 8 oct	5 oct	How far below the cutoff the bottom of the curve reaches, in octaves. Eight octaves puts the bottom of the editor under 20 Hz from any cutoff in the top octave; two gives a gentle breath.
Drive `flt_drive`	0.0 % … 100.0 %	0.0 %	Saturates the band before the filter. A resonant sweep that is driven excites its own harmonics instead of staying clean.
Low Type `flt_type_low`	Lowpass, Highpass, Bandpass, Notch	Lowpass	The response the low band is filtered with. Each band chooses its own, so the low band can be a lowpass while the high band is a notch.
Mid Type `flt_type_mid`	Lowpass, Highpass, Bandpass, Notch	Lowpass	The mid band's response.
High Type `flt_type_high`	Lowpass, Highpass, Bandpass, Notch	Lowpass	The high band's response.
Rate `flt_rate`	1/32, 1/16, 1/8, 1/4, 1/2, 1/1, 2 Bars, 4 Bars	1/4	The length of one cycle of the cutoff curve.
Phase `flt_phase`	0.0 % … 100.0 %	0.0 %	Where in the cycle the cutoff curve starts.
Smooth `flt_smooth`	0.0 % … 100.0 %	25.0 %	Rounds off the drawn steps. A filter with no smoothing on a hard step clicks, which is sometimes the sound wanted and sometimes not.
Trigger `flt_trigger`	Sync, MIDI, Audio	Sync	What starts the filter cycle: the host's beat, a MIDI note, or a hit in the sidechain or the input, as the Trigger panel sets it up.
Loop `flt_loop`	Off, On	Off	With MIDI or Audio: On keeps cycling until the next trigger, Off runs the shape once and holds at its End marker.
End `flt_end`	0.0 % … 100.0 %	100.0 %	Where a shape run once stops and holds, until the next trigger. Drag the marker in the editor or turn this; Sync and Loop ignore it.

DRIVE

PARAMETER	RANGE	DEFAULT	WHAT IT DOES
Drive `drv_on`	Off, On	Off	Draws the amount of distortion: a rhythmic grit, or saturation that only appears on the hits.
Style `drv_style`	Soft Clip, Hard Clip, Fold, Rectify, Sine Fold, Crush	Soft Clip	Which transfer curve shapes the signal. One style is shared by all three bands; it is the amount that is drawn per band.
Drive `drv_drive`	0.0 % … 100.0 %	40.0 %	The amount the curve is scaled from: the top of the curve is this much drive, the bottom is none.
Input `drv_input`	-12.00 dB … 36.00 dB	0.00 dB	Gain before the shaper, separate from the stage's own drive, so a quiet source can be put where the curve expects it.
Output `drv_output`	-36.00 dB … 12.00 dB	0.00 dB	Gain after the shaper, for balancing the drive against everything else in the rack.
Tone `drv_tone`	-100.0 % … 100.0 %	0.0 %	A one-pole at 800 Hz mixed in with the distortion: to the right takes the fizz off, to the left thins it out.
Mix `drv_mix`	0.0 % … 100.0 %	100.0 %	The distortion against the band's clean signal. Below 100 % this is the parallel blend, which is where a bass keeps its bottom.
Rate `drv_rate`	1/32, 1/16, 1/8, 1/4, 1/2, 1/1, 2 Bars, 4 Bars	1/4	The length of one cycle of the drive curve.

Phase `drv_phase`	0.0 % … 100.0 %	0.0 %	Where in the cycle the drive curve starts.
Smooth `drv_smooth`	0.0 % … 100.0 %	20.0 %	Softens the drive curve. A hard-stepped drive shape is a burst of distortion, which can click at its edges without this.
Trigger `drv_trigger`	Sync, MIDI, Audio	Sync	What starts the drive cycle: the host's beat, a MIDI note, or a hit in the sidechain or the input, as the Trigger panel sets it up.
Loop `drv_loop`	Off, On	Off	With MIDI or Audio: On keeps cycling until the next trigger, Off runs the shape once and holds at its End marker.
End `drv_end`	0.0 % … 100.0 %	100.0 %	Where a shape run once stops and holds, until the next trigger. Drag the marker in the editor or turn this; Sync and Loop ignore it.

TIME

PARAMETER	RANGE	DEFAULT	WHAT IT DOES
Time `tim_on`	Off, On	Off	Scrubs through the last moment of the band: stutters, half-speed, reverse and tape stops, all drawn as the read head's position.
Range `tim_range`	20.0 ms … 2.00 s	500 ms	The longest look-back. The bottom of the curve reaches this far into the past; the top is the present moment.
Step `tim_step`	0.0 % … 100.0 %	30.0 %	How long the read head takes to move when the curve jumps. It is the difference between a click at every step and a smooth stutter.
Rate `tim_rate`	1/32, 1/16, 1/8, 1/4, 1/2, 1/1, 2 Bars, 4 Bars	1/4	The length of one cycle of the read-head curve. A stutter usually wants a sixteenth; a tape stop, a bar.
Phase `tim_phase`	0.0 % … 100.0 %	0.0 %	Where in the cycle the read-head curve starts.
Smooth `tim_smooth`	0.0 % … 100.0 %	10.0 %	Softens the drawn shape before it moves the read head, on top of Step. Useful when a coarse grid is deliberate but the edges are not.
Trigger `tim_trigger`	Sync, MIDI, Audio	Sync	What starts the time cycle: the host's beat, a MIDI note, or a hit in the sidechain or the input, as the Trigger panel sets it up.
Loop `tim_loop`	Off, On	Off	With MIDI or Audio: On keeps cycling until the next trigger, Off runs the shape once and holds at its End marker.
End `tim_end`	0.0 % … 100.0 %	100.0 %	Where a shape run once stops and holds, until the next trigger. Drag the marker in the editor or turn this; Sync and Loop ignore it.

CRUSH

PARAMETER	RANGE	DEFAULT	WHAT IT DOES
Crush `crs_on`	Off, On	Off	Draws the amount of bit and sample-rate reduction. The top of the curve is the Amount knob, the bottom is clean.
Amount `crs_amount`	0.0 % … 100.0 %	60.0 %	The amount the curve scales from: the top of the curve is this much crush, the bottom is none.
Bits `crs_bits`	2 bit … 16 bit	6 bit	The bit depth at full curve. Sixteen is effectively clean; the low end is a hard, grainy quantiser.
Down `crs_down`	1 x … 32 x	8 x	The sample-rate division at full curve. At 8 the signal is held for one sample in eight, which is the aliased, lo-fi half of a crusher.
Mix `crs_mix`	0.0 % … 100.0 %	100.0 %	The crushed signal against the band's clean one. Below 100 % this is a parallel blend, which keeps a bass' weight under the grit.
Rate `crs_rate`	1/32, 1/16, 1/8, 1/4, 1/2, 1/1, 2 Bars, 4 Bars	1/4	The length of one cycle of the crush curve.
Phase `crs_phase`	0.0 % … 100.0 %	0.0 %	Where in the cycle the crush curve starts.
Smooth	0.0 % … 100.0 %	10.0 %	Rounds off the crush amount. A hard-stepped crush curve is a burst of grain, which can

`crs_smooth`			click at its edges without this.
Trigger `crs_trigger`	Sync, MIDI, Audio	Sync	What starts the crush cycle: the host's beat, a MIDI note, or a hit in the sidechain or the input, as the Trigger panel sets it up.
Loop `crs_loop`	Off, On	Off	With MIDI or Audio: On keeps cycling until the next trigger, Off runs the shape once and holds at its End marker.
End `crs_end`	0.0 % … 100.0 %	100.0 %	Where a shape run once stops and holds, until the next trigger. Drag the marker in the editor or turn this; Sync and Loop ignore it.

PAN

PARAMETER	RANGE	DEFAULT	WHAT IT DOES
Pan `pan_on`	Off, On	Off	Draws each band's position between the speakers: the middle of the curve is the centre, the bottom is hard left and the top hard right.
Rate `pan_rate`	1/32, 1/16, 1/8, 1/4, 1/2, 1/1, 2 Bars, 4 Bars	1/4	The length of one cycle of the pan curve.
Phase `pan_phase`	0.0 % … 100.0 %	0.0 %	Where in the cycle the pan curve starts.
Smooth `pan_smooth`	0.0 % … 100.0 %	15.0 %	Softens the pan movement. At zero a hard pan step is a jump; a little smoothing makes it a move.
Trigger `pan_trigger`	Sync, MIDI, Audio	Sync	What starts the pan cycle: the host's beat, a MIDI note, or a hit in the sidechain or the input, as the Trigger panel sets it up.
Loop `pan_loop`	Off, On	Off	With MIDI or Audio: On keeps cycling until the next trigger, Off runs the shape once and holds at its End marker.
End `pan_end`	0.0 % … 100.0 %	100.0 %	Where a shape run once stops and holds, until the next trigger. Drag the marker in the editor or turn this; Sync and Loop ignore it.

WIDTH

PARAMETER	RANGE	DEFAULT	WHAT IT DOES
Width `wid_on`	Off, On	Off	Draws the stereo width per band: the middle of the curve is the plain image, the bottom is mono and the top is double width.
Rate `wid_rate`	1/32, 1/16, 1/8, 1/4, 1/2, 1/1, 2 Bars, 4 Bars	1/4	The length of one cycle of the width curve.
Phase `wid_phase`	0.0 % … 100.0 %	0.0 %	Where in the cycle the width curve starts.
Smooth `wid_smooth`	0.0 % … 100.0 %	15.0 %	Softens the width movement, which keeps a hard step from tearing the image apart.
Trigger `wid_trigger`	Sync, MIDI, Audio	Sync	What starts the width cycle: the host's beat, a MIDI note, or a hit in the sidechain or the input, as the Trigger panel sets it up.
Loop `wid_loop`	Off, On	Off	With MIDI or Audio: On keeps cycling until the next trigger, Off runs the shape once and holds at its End marker.
End `wid_end`	0.0 % … 100.0 %	100.0 %	Where a shape run once stops and holds, until the next trigger. Drag the marker in the editor or turn this; Sync and Loop ignore it.

TRIGGER

PARAMETER	RANGE	DEFAULT	WHAT IT DOES
Source `trig_source`	Sidechain, Input	Sidechain	What an Audio trigger listens to: the sidechain input, where a kick track is routed to duck a bass, or the signal coming into the rack.
Threshold `trig_threshold`	-inf dB … 0.00 dB	-24.00 dB	How loud a hit must be to start an effect set to Audio. It re-arms once the level has fallen 6 dB below this.
Focus `trig_filter`	40.0 Hz … 20.00 kHz	20.00 kHz	A lowpass in front of the detector only, never the sound. Around 150 Hz it hears the kick in a drum loop and ignores the rest, a few ms later.
Hold `trig_hold`	5.00 ms … 1.00 s	50.0 ms	The shortest time between two audio triggers, so a kick with a long or doubled attack starts the effect once.
Note `trig_note`	Any, C, C#, D, D#, E, F, F#, G, G#, A, A#, B	Any	Which note starts an effect set to MIDI. Any answers to every note; a note name answers to it in the octave chosen beside it.
Octave `trig_octave`	Any, -1, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9	Any	The octave of the trigger note, with C3 as MIDI note 48. Any lets the note name match in every octave.

8. Preset library

10 factory presets ship with the plugin. They are installed beside the binary and exposed through CLAP preset discovery, so they appear in the host's own browser as well as in the plugin window's.

Bended Duck

A quarter-note duck with a bent recovery: the level comes back fast, then eases into unity instead of arriving in a straight line. Drawn across all three bands so the whole signal breathes together.

Crush Steps

A sixteenth-note bit and sample-rate crush drawn as sixteen steps, so the grit moves in rhythm instead of sitting still. The pattern is the same in all three bands, with a mixer at 75 % so the low end keeps some weight.

Drive Pump

Distortion that arrives with the beat: the drive curve is a duck shape, so the signal is clean between hits and saturated on them. The mid band is driven hardest, the low band moderately and the high band barely at all.

Filter Wobble

A cutoff sweep on the eighth notes, dark and resonant in the low band and opening across the mid and high, so the movement sits under a bass line instead of on top of it. Cutoff at 420 Hz, five octaves of depth.

Gated Stabs

A hard sixteenth-note gate across all three bands, with the low band opened only on the off-beats so the bottom jumps while the rest of the chord is chopped. A gate shape rather than a drawn curve: the corners are what make it read.

Half Speed Stop

The read head falls across one bar, so the whole signal drags into half speed and then holds on the same moment until the next bar. Mixed back against the dry signal so the groove survives the stop.

Kick Duck

The low band dips on every quarter note and the mid and high bands are left alone, so a bass line gets out of the way of a kick without the top of the mix pumping with it. Around 130 BPM.

Live Stutter

A sixteenth-note stutter on the mid and high bands only, with the low band left alone so the kick and bass hold the floor while everything above them retriggers. Hard steps and a short 90 ms range.

Pan Steps

Only the low band moves: sixteen steps throw the bottom of the signal left and right while the mid and high bands hold the centre. The shape is drawn on the low band and the other two are left flat.

Sidechain Duck

A duck started by the kick itself: route the kick track into the sidechain input and the whole signal dips at every hit, wherever the hits fall – fills, breaks and off-beat kicks included. Runs once per kick and holds open until the next one. Without a sidechain it does nothing.

9. Notes

- **Formats.** CLAP (1.2) and VST3, 64-bit, for Linux and Windows.
- **Channels.** Stereo in, stereo out, plus a stereo sidechain input that is listened to and drawn but never heard, and a note input for the MIDI trigger. The band split, every stage except pan and width, and the drive are applied to both channels identically. Pan and width are the two stages that deliberately treat the channels differently.
- **Latency.** None. The time stage reads backwards from the present rather than delaying the output, the filters are minimum-phase, and the triggers react to a hit as it happens rather than looking ahead for it.
- **Tail.** The time stage's look-back plus the release of the filters behind it, reported to the host so a bounce does not cut a stutter short.
- **CPU.** Three bands, two channels, one filter, one shaper, one crusher and the stereo stages each. An effect that is switched off or not in the chain costs nothing; the band split runs regardless, because the bands have to be summed back. The picture behind the shape is drawn only while the window is open.