

DRUMAZON 2

DRUM MACHINE



The screenshot displays the DRUMAZON 2 software interface, which is divided into several functional sections:

- Top Panel:** Includes a SCENE selector (set to "Discover Perfect Groove"), a DRUM KIT selector (set to "909 Saturated"), and the DRUMAZON 2 logo.
- Drum Kit Controls:** A row of 12 drum categories, each with three knobs (M, O, S) and several parameter knobs:
 - BASS DRUM:** ATTACK, LEVEL, TUNE, DECAY, PITCH, TUNE DEPTH.
 - SNARE DRUM:** TUNE DEPTH, LEVEL, TUNE, DECAY, TONE, SNAPPY.
 - RIM SH. / CLAP:** LEVEL, TUNE, DECAY, REVERB.
 - LOW TOM / MID TOM / HIGH TOM:** TUNE DEPTH, LEVEL, TUNE, DECAY, TONE, TUNE DEPTH.
 - CH. / OH.:** LEVEL, TUNE, DECAY.
 - CRASH / RIDE:** LEVEL, TUNE, DECAY.
- Effects and Processing:** A row of 10 effect slots (SLOT 1-5 and MORE) with various parameters like DISTORTION, BITCRUSHER, EQ 2, DELAY, REVERB, CHORUS, EQ 1, DYNAMICS 1, DYNAMICS 2, and FILTER.
- Global Settings:** Includes a CHOKE control, a CROSSLAYER section with DYNAMICS, SPLIT FREQ., GAP, PREAMP, THRESHOLD, LOW OUT, CLIP OUT, and FX. It also features a CLIPPER section with THRESHOLD, LOW OUT, and MIX, and a WET FILTER section with OFFSET, DEPTH, RATE, SPATIAL, LO CUT, HI CUT, GAIN, and FX.
- Drum Pattern Grid:** A 12x16 grid for programming drum patterns. The columns represent 16 steps, and the rows represent the drum kit elements: BASS DRUM, SNARE DRUM, RIM SHOT, HAND CLAP, LOW TOM, MID TOM, HI TOM, CLOSED HH, OPEN HH, CRASH, and RIDE. The current pattern is titled "Don't Push Too Far".
- MIDI Editor:** Located on the right, it includes an EDIT section with SCALE (1/16 FULL), LENGTH (16), and SHUFFLE (43). It also features STEP TYPE and ARTICULATION controls, and a VELOCITY section with values 52, 101, and +97.
- Performance Controls:** Includes COPY, PASTE, and CLEAR buttons, a LIVE/HOST NOTE selector, and a START/STOP button.

User Manual

Requirements

Software and hardware requirements:



Windows PC

OS version	Windows 7 or newer
CPU	Intel x86 / AMD x86
Software	VST2 / VST3 /AAX compatible host application (32bit or 64bit)



Apple Mac

OS version	OS X 10.13 or newer
CPU	Intel x86 / Apple Silicon
RAM	8 GB (16 GB Recommended)
Software	AU / VST2 / VST3 / AAX compatible host application (64bit!)

Hardware requirements / recommendations are based on estimates performed on available computers at D16 Group HQ, and therefore cannot cover all possible configurations available on the market. CPU usage may vary widely depending on the manner in which the product is used. Factors that may contribute to variance in CPU usage include particular patch and its complexity, the global quality setting, project sample rate. In order to form a better understanding of how a plug-in will behave within your current setup, we highly recommend downloading the demo and giving it a try.

Preliminary information

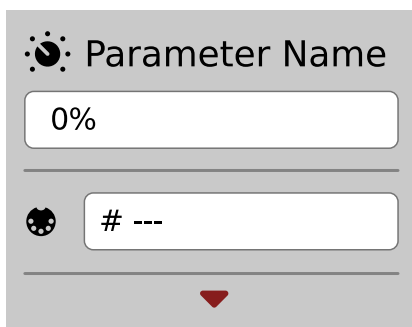
This chapter contains general advice for using the plug-in's interface.

To do a right-click on macOS with single button mouse:

Either click your mouse while holding the CTRL key on your keyboard or use two fingers on your touchpad.

Checking the value of a parameter

Right-click on any parameter to check its value in its context menu:



A parameter's context menu

Note: It's currently not possible to enter a precise value in the input box; it's just to check the value.

Fine-tuning continuous parameters

Tweak a control (knob) while holding the CTRL key (on Windows) or Apple CMD key (on macOS) - this will make the tweaking more precise while moving the mouse pointer up and down.

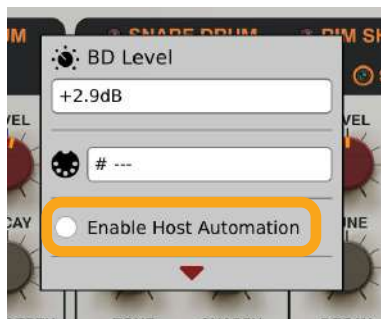
Double-click to reset a continuous parameter's value

Double-clicking on a parameter restores its value to the initial state, either default (right after loading the plug-in / loading it along with a project file) or from the most recently loaded preset.

Enabling parameters for automation

Drumazon 2 has thousands of sound parameters and VST/AU/AAX host automation allows only a handful of automatable parameters so **by default all parameters are disabled for automation.**

Using the parameter's context menu (described above), you can enable automation for any parameters you wish to control externally:



Enabling a parameter for automation

Interface overview

After loading the plug-in into the host application, the **Drumazon** graphical interface will appear:



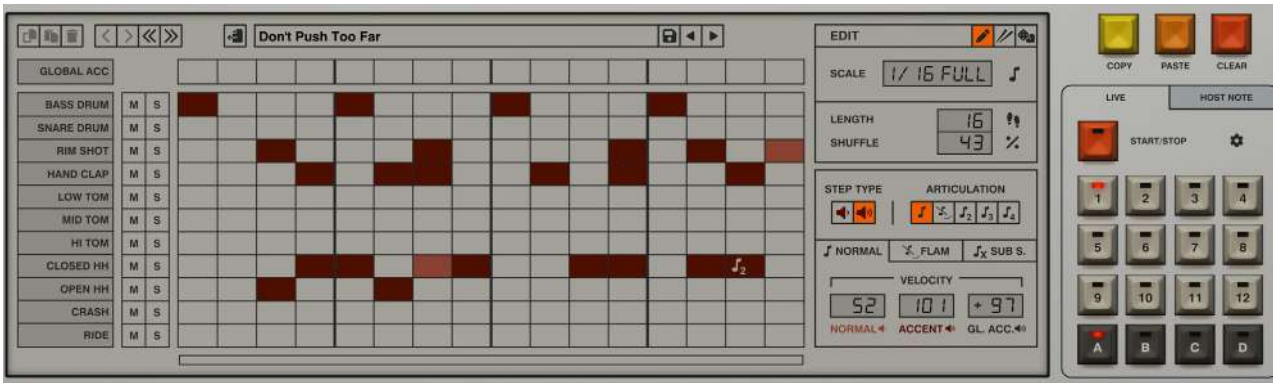
The Drumazon Graphical User Interface

Drumazon's interface is split into two main parts: the **Sound Control** section - responsible for controlling Drumazon's sound-generation options...



The Sound Control section

... and the **Internal Sequencer** - responsible for editing / replaying patterns. Available only while **Int Seq** mode is enabled.



The Internal Sequencer

The sound control section

This section is responsible for generating and processing sound.



The Sound Control section

Preset browsers

The top part of the **Sound Control** section contains the **Preset Management** subsections:



The Preset Management sections

There are two types of presets managed from here.

- The **Scene** presets section (to the left) - A **Scene** holds information for much of the plug-in state, including sound parameters (in the **Sound Control** section), the state of **Int Seq** option and entire pattern storage (for internal **Sequencer**).
- The **Drum Kit** presets section (to the right) - Covers only the sound parameters from the **Sound Control** section: parameters for all drum sounds, two effect **Buses** and **Master effects**.

Both subsections have the following controls:

- **Preset display** - Opens a browser to load, save and manage presets (more on that in the **Preset Management** part of the manual).
- **Save button** - Saves current sound settings as a new preset.

Generating drum sounds

Drumazon is a drum machine comprising **11** synthesized percussion instruments (the **Synth** view). Each of the instruments has its own independent effect chain (**Strips** view) and can then be routed / sent to one of two **Bus** effects (in the bottom part of the **Sound Control** section) or directly onto the **Master** effect chain (**Master** view).

To switch between all available views in the **Sound Control** section, use the **View** selector:



The View selector in the Sound Control section

The parameters for all **11** instruments are available in the **Synth** view:



The Synth view

The parameters correspond with the following drum sounds:

- **Bass Drum**
- **Snare Drum**
- **Rim Shot**
- **Hand Clap**
- **Low Tom**
- **Middle Tom**
- **High Tom**
- **Closed Hihats**
- **Open Hihats**
- **Crash**
- **Ride**

Each of these instruments have a common parameter:

Level - Sets the output volume for each instrument, placed after its effect strip in the **Strips** view.

And individual parameters:

- **Bass Drum**
 - **Tune** - Release time of the frequency envelope,
 - **Attack** - Amplitude value of the initial transient,
 - **Decay** - Decay time of the amplitude,
 - **Pitch** - Base frequency of the instrument,
 - **Tune Depth** - Range of the frequency envelope.
- **Snare Drum**
 - **Tune** - Release time of the frequency envelope,
 - **Tone** - Noise amplitude release time,
 - **Tune Depth** - Range of the frequency envelope,
 - **Decay** - Decay time of the amplitude,
 - **Snappy** - Amplitude value of the noise.
- **Rim Shot**
 - **Tune** - Base frequency of the instrument,
 - **Decay** - Decay time of the amplitude.
- **Hand Clap**
 - **Decay** - Decay time of the amplitude,
 - **Reverb** - Reverb time.
- **Low Tom, Middle Tom, High Tom**
 - **Tune** - Base frequency of the instrument,
 - **Tune Depth** - Range of the frequency envelope,
 - **Decay** - Decay time of the amplitude,
 - **Tone** - Noise amplitude release time,
 - **Tune Decay** - Decay time of the frequency envelope.
- **Closed Hihats, Open Hihats, Crash, Ride**
 - **Tune** - Base frequency of the instrument,
 - **Decay** - Decay time of the amplitude.

Mute / solo LEDs

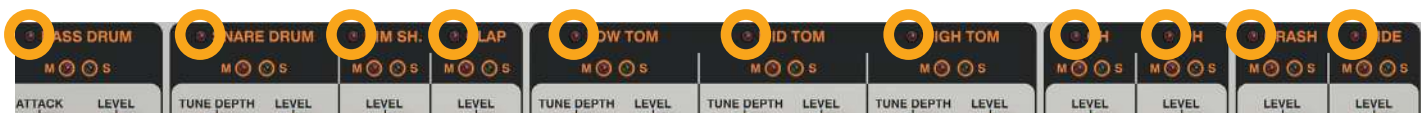
When **Drumazon** is playing, it is possible to turn individual instruments **On** or **Off** using the **Mute / Solo** LED switches; these stop the triggering of the instruments but allow the sounds to play until the end of the envelope. This stops a rapid cut in the sound, making the transition more natural.



The Mute / Solo LED switches

Drum sounds activity

The LEDs next to each instrument's name light up when the instrument is triggered and starts to play:



The activity LEDs

This way it's easier to be sure which drum instruments are engaged and when.

Drum sounds' individual effect chains

Each of the 11 drum sounds has its own dedicated channel strip where it can be further processed through a dedicated chain of effects. To get access to the drum sounds' channel strips we need to switch to **Strips** view:



The Strips view

The **Instrument Selector** section allows us to select which instrument's channel strip we edit:



The Instrument Selector section

Once an instrument is selected, we get access to its effect chain:



Selecting a Drum Sound's effect chain

Drum sound synth parameters

Each effect chain starts with the synth parameters from the **Synthesis** view, for ease of editing:



A drum sound's parameters

Filter / EQ

Then, the drum sound goes into the **Filter / EQ**:



The Filter / EQ section

Which can be **Enabled / Disabled** using the toggle LED in the upper-right corner of the section:



The LED to enable / disable the Filter / EQ

The first row of parameters controls **Low Cut** and **High Cut** filters with shared **Resonance**:



18 The Low Cut / High Cut filters

- **Low Cut** - Selects the **Low Cut** filter's frequency.
- **Resonance** - Sets the level of emphasis for both **Low Cut** and **High Cut** filters.
- **Hi Cut** - Sets the **High Cut** filter's frequency.

The two consecutive rows below control a two-band **Parametric EQ** (one row for each band):



The parametric EQ

- **EQ1 / EQ2** - **Enables / Disables** the corresponding band.
- **Freq** - Adjusts the center frequency of the band filter's peak.
- **Width** - Broadens or narrows the frequency range of the band from **4** to **0.5** octaves.
- **Gain** - Boosts or attenuates the amplitude of the band by up to **+/- 24 dB**.

Compressor

The **Compressor** section follows the **Filter / EQ**:



The Compressor section

A toggle LED in the upper-right corner of this section **Enables** or **Disables** the effect:



Enabling / Disabling the Compressor

The compressor is controlled by the following set of parameters:

- **Look A.** - (Look ahead) Allows the compressor to “see what’s coming”, to better predict signal level changes and allow for precise peak detection at the cost of latency;
 - **Off** - The option is disabled (no **Look Ahead**).
 - **1ms** - 1 ms look ahead.
 - **5ms** - 5 ms look ahead.
- **Pre Eq** - If disabled, the sound is first processed by the **Filter / EQ** and then by the **Compressor**. If enabled, the sound is first processed by the **Compressor** and then by the **Filter / EQ**.
- **Attack** - Sets the attack time for the compressor’s envelope between **1** and **500** ms.
- **Release** - Sets the release time for the compressor’s envelope between **1** and **500** ms.
- **Threshold** - Adjusts the amplitude detection threshold between **0** and **-48** dB.
- **Ratio** - Adjusts the compression ratio between **1:1** and **1:20**.

Signal routing

The two remaining sections, **Audio Out** and **Bus Send**, are responsible for redirecting the signal leaving the **Strip**:



Routing the signal as it leaves the Strip

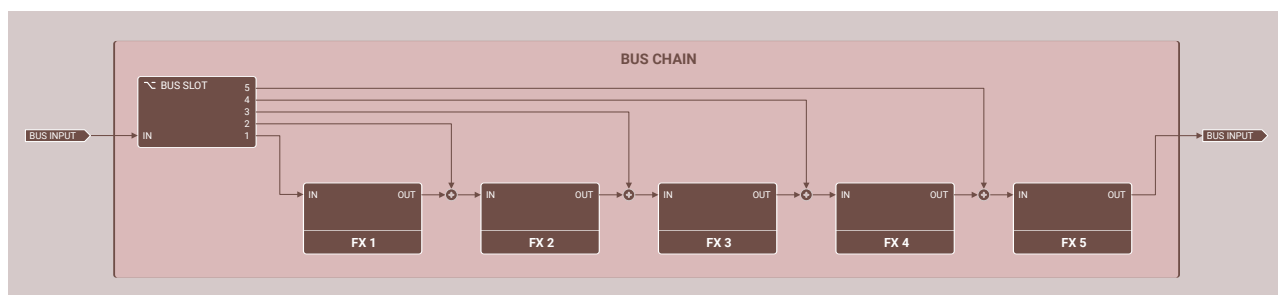
From the **Audio Out** section, we can decide where to direct the **Strip's** output; it can be routed to one of the **FX Buses** or directly to the **Master** effect chain.

The **Bus Send** section decides how much signal from **Audio Out** is sent to one of the two **FX Buses**, relative to the output **Level** set in **Audio Out** section - the principle is similar to mixer sends

Audio Out

Here, you'll find the following set of parameters:

- **Route To** - The destination to which the signal is routed to;
 - **Mast** - Master effect chain.
 - **Bus 1** - First FX Bus.
 - **Bus 2** - Second FX Bus.
- **Bus Slot** - If the **Route To** parameter is set to one of the **Buses**, we can also decide at which **Bus Slot** the signal enters the **Bus** effect chain. Each **Bus** is a series of **5 effects** working in a chain so there are **5 slots** where the signal can enter. If we set the slot to **1**, then the signal is routed to the **first effect** in the chain and then further processed by the rest of the **Bus**. If **2**, then the signal is routed to the **second effect** (omitting the first one) then further processed by the rest of the **Bus** (by consecutive effects in the chain - the 3rd, 4th and 5th).



A diagram showing the Bus Slots

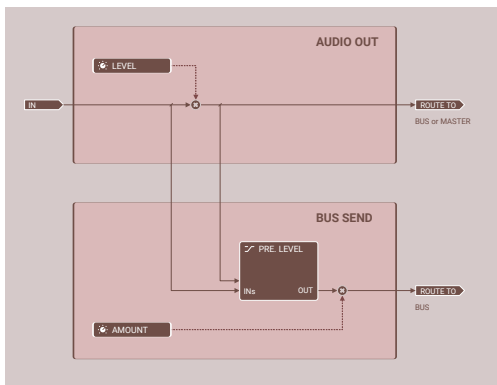
You can find more on **Buses** in the **FX Buses** chapter.

- **Panning** - Adjusts stereo panning.
- **St. Spread** - Adjusts the delay between *Left* / *Right* stereo channels.
- **Level** - Sets the output signal volume before it's routed to its destination.

Bus Send

This section is controlled by the following set of parameters:

- **Route To** - The signal leaving the strip is sent to;
 - **Bus 1** - First FX Bus.
 - **Bus 2** - Second FX Bus.
- **Bus Slot** - Selects which **Bus Slot** the signal is sent to within the **Bus** chosen by **Route To**.
- **Panning** - Adjusts stereo panning.
- **St. Spread** - Adjusts the delay between *Left / Right* stereo channels.
- **Pre Lev** - If **Pre Level** is disabled, the signal level (controlled by the **Amount** knob) sent to its destination is proportional to the **Level** setting in the **Audio Out** section. When **Pre Level** is enabled, the **Amount** is independent of the **Level** parameter.
- **Amount** - Sets the volume of the signal sent to its destination



A diagram showing Amount and Pre Level dependency

Drum Sounds' presets

The **Presets** display in the **Strip** view lets you manage presets for individual drum sounds:



The Drum Sounds' Presets display

Clicking the display opens a browser to load, save and manage **Presets** (more on that in the **Preset Management** part of the manual).

Copy / Paste functions for strip's sections

The **Copy / Paste** icons in the **Filter / EQ** and **Comp.** sections;



The Copy / Paste functions for a Strip's sections

These allow you to duplicate the section's parameter values between different drum sounds.

FX Buses

In the middle part of the GUI, there are two **FX Bus** sections:



The FX Bus sections

They are labeled **Bus 1** and **Bus 2** and work independently of each other.

Each **Bus** is a chain of 5 effects working in series. When a signal enters a **Bus**, it's processed by the effect in **Slot 1**, then the effect in **Slot 2** and so on until it's processed by the last one, **Slot 5**; it then leaves the **Bus**. Before the signal leaves a **Bus**, we can adjust its output level using the **Level** knobs:



The Level knobs in the Buses

Buses are fed by signals from individual drum instruments (the **Strips**), which are then processed by the **Buses** and continue onto the **Master** effect chain.

Graphically, the effects chain in **Buses** is organized as tabs. We can access each effect's parameters by clicking a corresponding tab:



The Bus tabs

By default, only essential parameters are shown in the tab's content. Clicking the **More** button in a **Bus** expands the section, allowing access to all parameters for the effects:



30 Accessing the complete range of parameters in the Bus effects section

Effect reordering / swapping

The effects in a **Bus** are reorderable using simple mouse drag-and-drop on tab headers within a **Bus**.



Re-ordering the effects in a Bus

It's also possible to swap effects between **Buses**. To do that, select the effects you want to swap in each **Bus**:



Swapping effects between Buses

Next, click the **Arrows** icon above the header in either of the two active effects to perform the swap.

Bus 1 setup

For more advanced routing, it's possible to redirect the output from **Bus 1** into the **Master** effect chain and additionally to split the signal and also send it to **Bus 2**. To access this option, use the **Setup** button in the **Bus 1** section:



The Setup button in Bus 1

The following parameters are available:

- **Amount** - Sets the amount of signal that'll be sent to **Bus 2**, proportional to the **Bus 1 Level** value.
- **Bus slot** - Decides which slot in **Bus 2** that the signal will be sent to.
- **Pre Level** - If **Pre Level** is enabled, the signal level (controlled by the **Amount** knob) sent to its destination is proportional to the **Bus Level** value. When **Pre Level** is disabled, the **Amount** is independent of the **Level** parameter.

Available algorithms

There are **10 effect** instances available in total (**5 per Bus**), but only **8 different algorithms** since there are some duplicates for more commonly used ones (**EQ** and **Dynamics**).

Distortion

The **Distortion** is an emulated diode-clipper style distortion effect with pre compression and optional crossover.



The Distortion effect

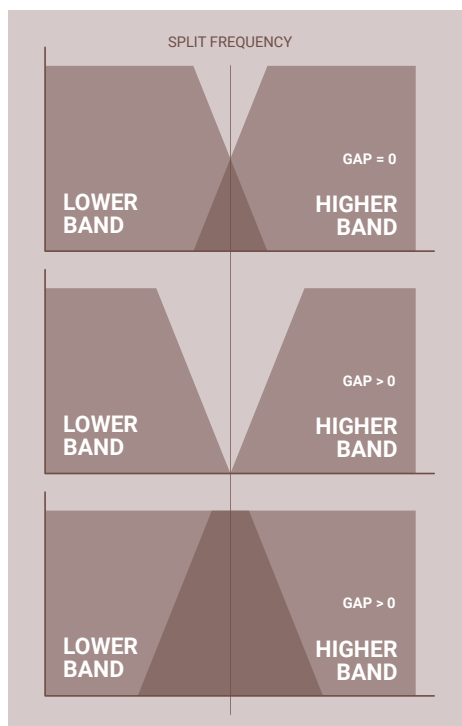
The following parameters are available:

Pre amplification

- **Dynamics** - (Single-knob compressor) Turn clockwise to increase the amount of compression for the input signal prior to clipping.
- **Before** - Decides where the compressor is located in the signal flow. This makes a difference only when **Crossover** is active. If **Crossover** is disabled, this parameter does nothing and compression is performed before clipping;
 - **Clip** - Compression is done after the signal is divided into two bands and applied only on the higher band (the **Clipper's** input) and before clipping.
 - **Split** - Compression is applied before the signal is split into two bands, so affects **Higher** and **Lower** bands.

Crossover

- **Enable** - Enables the 2-way **Crossover**. When activated, the signal is split into two separate frequency bands; **Lower**, which bypasses the **Clipper** and goes directly to the **Distortion's** output. **Higher**, which goes into the **Clipper**, so only higher tones are distorted while lower frequencies remain intact. If **Crossover** is disabled then other parameters from this section remain inactive.
- **Split Freq.** - Decides the frequency where the signal is divided into two bands.
- **Gap** - Sets the gap between **Lower** and **Higher** bands;
 - If the **Gap** = **0** then the two bands are conjoined.
 - If the **Gap** > **0** then the bands are disjoint and there's a gap between **Lower** and **Higher** bands; the bigger the value, the greater the gap (expressed in **Octaves**).
 - If the **Gap** < **0** then the bands overlap. The lower the value, the bigger the common part of the bands (expressed in negative **Octaves**).



A diagram showing the Distortion's crossover

Clipper

- **Preamp** - Sets the level of signal amplification in the **Diode** clipper.
- **Threshold** - Sets the level of amplitude above which signal distortion occurs.
- **Knee** - Sets the knee shape for the **Diode** clipper.

Mix

- **Low Out** - Sets the output volume of the lower band that bypasses the **Clipper**. This parameter is active only when **Crossover** is **Enabled**.
- **Clip Out** - Sets the output volume of the signal leaving the **Clipper**.
- **FX** - Crossfades between **Dry** and **Wet** signal.

Parametric EQ

Drumazon 2 offers a four-band **Parametric EQ**. The effect comprises lower and higher band filters that can work independently in either low and/or high shelf/cut modes. Additionally, there are two bell / peaking EQ filters. There are two instances of the effect in the **FX Bus** chains.



A parametric EQ

The effect has the following parameters:

Lower and Higher Bands

- **Mode** - Sets the mode in which the band operates.
 - **Cut** - Sets the band to work as a cut filter.
 - **Shelf** - Sets the band to work as shelf EQ.
- **Res / Width** - Controls **Resonance** while in **Cut** mode or slope **Width** while in **Shelf** mode.
- **Freq** - Adjusts the frequency of the **Shelf / Cut** filter.
- **Gain** - Sets the **Gain** value for the **Shelf** filter. Does nothing in **Cut** mode.

Bell filter / parametric EQ

There are two **Bell** filters in an **EQ**:

- **Freq** - Sets the center frequency of the peak.
- **Gain** - Boosts or attenuates the amplitude of the band.
- **Width** - Broadens or narrows the frequency range of the band.

Delay

Drumazon 2 offers a delay effect with a multi-mode filter in the feedback loop and a tempo synchronize option.



The Delay effect

Delay loop

- **Rate** - Controls delay time and ranges between 1 - 1000 ms, if **Sync** is **Off**. It can also be set to one of the four note values if **Sync** is set to any other position: **1/32**, **1/16**, **1/8** and **¼**.
- **Sync** - Syncs the delay line to the clock/tempo of the host application. Sync can take one of the following values;
 - **Off** - Synchronization is inactive and delay time, controlled by the **Rate** parameter, is expressed in milliseconds.
 - **Full** - Synchronization is enabled and delay time is equal to the full note value set by the **Rate** display, relative to the host tempo.
 - **Dot** - Synchronization is enabled and delay time is equal to the dotted note value set by the **Rate** display, relative to the host tempo.
 - **Tri** - Synchronization is enabled and delay time is equal to the triplet note value set by the **Rate** display, relative to the host tempo.
- **Feedback** - Delay loop feedback value.
- **Spread** - Stereo spread between Left / Right channels.

Feedback loop's filter

- **Type** - Filter mode;
 - **Off** - Filter disabled
 - **Low-pass**
 - **Band-pass**
 - **High-pass**
- **Cutoff** - Cutoff frequency
- **Reso** - Filter's resonance

Mixer

- **FX** - Crossfades between **Dry** and **Wet** signals

Reverb

The **Reverb** effect is an algorithmic reverberation unit with **Early** and **Late** reflection sections.



The Reverb section

The **Reverb** is controlled by the following set of parameters;

- **Pre. Del.** - Sets the delay between the dry signal and reverberation.

Early reflections

- **Size** - Sets the room size for early reflections only.
- **Diffusion** - Sets the reflecting surface's ability to spread the echo out. If this parameter is set to its lowest value, the reflecting surface is perfectly flat and does not distort the reflected wave. If set to its highest value, the reflecting surface distorts waves and spreads them out in different directions.
- **Color** - Changes the reflection character of the surfaces; the greater the value, the brighter the sound.
- **Modulate** - Controls the reflections' continuous variation.

Late reflections

- **Size** - Sets the room size for late reflections only.
- **Diffusion** - as above.
- **Color** - as above.
- **Feedback** - Controls how much wave energy is consumed by reflection. The smaller the value, the more energy is consumed, meaning the feedback is weaker.
- **Modulate** - as above.

Mix

- **ER / LT** - Crossfades between early and late reflections' outputs.
- **FX** - Crossfades between **Dry** and **Wet** signals.

Chorus

It's a double-line chorus with feedback option.



The Chorus

The **Chorus** is controlled with the following set of parameters:

Delay line

- **Offset** - Sets the minimum time that the input signal is delayed.
- **Depth** - Sets the maximum amount of delay time modulation applied by the internal LFO. Delay time modulation ranges from **Offset** (minimum) to **Offset + Depth** (maximum).
- **Feedback** - Sets the feedback value within the delay loop.

LFO

- **Rate** - Sets the frequency of the LFO controlling the delay line.
- **Spatial** - Adjusts the stereo phase shift between the LFO's oscillations.

Mixing

- **Lo Cut** - Sets the frequency of the low cut filter on the **Wet** signal leaving the delay line.
- **Hi Cut** - Sets the frequency of the high cut filter on the **Wet** signal leaving the delay line.
- **Fatness** - Increases the volume of the second delay line that has slightly deviated parameters, which results in fatter sound.
- **Gain** - Boosts the gain of the **Wet** signal.
- **FX** - Crossfades between **Dry** and **Wet** signals.

Bitcrusher

This effect features high quality resampling and bit reduction units with additional filtering in pre and post modes.



The Bitcrusher

The **Bitcrusher** is controlled via the following set of parameters:

Bit reduction

- **Dither** - Sets the intensity of the half-bit white noise that is added to the signal just before quantization. This reduces harmonic distortion that results from the signal's amplitude degradation by masking the side effects of quantization.
- **Bits** - The number of bits the input signal's amplitude is degraded to, which corresponds to 2^N actual quantization levels.

Approximation filter

This is an optional filter to remove partial or complete harmonic content above the resampler's Nyquist frequency, controlling the level of aliasing that occurs below the resampling frequency. It removes harmonic content before the discretization process.

- **Enable** - Activates / deactivates the filter.
- **Freq** - Sets the cutoff frequency of the **Approximation Filter** relative to the Nyquist frequency of the resampler, controlled by these parameters;
 - **0** (the default) - Sets the **Approximation Filter's** cutoff frequency exactly at the Nyquist frequency (no offset). This removes all harmonic content above the Nyquist frequency, preventing audible artefacts. The only occurring artefacts are images (harmonics occurring above the Nyquist).
 - **< 0** (negative offset) - Sets the **Approximation Filter's** cutoff frequency below the Nyquist frequency. This removes audible aliasing and part of the original harmonic content below the Nyquist frequency (proportionally, according to the negative **Freq** offset), as well as some images near the Nyquist.
 - **> 0** (positive offset) - Sets the cutoff frequency above the Nyquist frequency. As a result, aliasing will start to appear (artefacts below Nyquist frequency) in proportion to the positive **Freq** value.

Resampler

- **Freq** - Sets the frequency the signal is discretized to (resampled). This parameter ranges from 44 Hz to 44.1 kHz
- **Jitter** - Controls the intensity of random, short-period clock deviations in the resampler.

Images filter

Images are artefacts that result from resampling a higher sample rate to a lower sample rate. The **Images Filter** removes some or all of these artefacts from the audio spectrum after the discretization process.

- **Enable** - Enables the images filter.
- **Freq** - Sets the cutoff frequency of the **Images Filter** relative to the Nyquist frequency of the resampler. The higher the value of this parameter, the higher the frequency of harmonics passed to the output (above the resampler's Nyquist frequency).

Mixer

- **FX** - The crossfade between **Dry** and **Wet** signals

Dynamics

This is two effects in one; a typical compressor with a side chain option and an amplitude shaper with an envelope triggered via **Drumazon's** instruments.

There are two instances of the effect in the **FX Bus** chains.



The Dynamics FX Module - Mode selector section

The **Mode** parameter lets you select the mode of the **Dynamics** effect:

- **Comp.** - Compressor
- **VCA** - Amplitude shaper

Compressor

While in **Comp.** mode, the effect is controlled by the following set of parameters:



The Dynamics FX module - Compressor mode

- **Look A.** - (Look ahead) Allows the compressor to “see what’s coming”, to better predict signal level changes and allow for much more precise peak detection at the cost of latency;
 - **Off** - The option is disabled (no **Look Ahead**).
 - **1ms** - 1ms of audio latency is used for look ahead.
 - **5ms** - 5ms of audio latency is used for look ahead.
- **Threshold** - Adjusts the amplitude detection threshold between **0** and **-48 dB**.
- **Ratio** - Adjusts the compression ratio between **1:1** and **1:20**.
- **Side Ch.** - Enables side-chain input for the compressor, so instead of using the input signal for peak detection, the peak detector uses one of **Drumazon’s** other instruments as an input.
- **Input** - Selects the input / control signal for side-chaining.
- **Attack** - Sets the attack time for the compressor’s envelope between **1** and **500** ms.
- **Hold** - Sets the hold time for the compressor’s envelope between **1** and **500** ms.
- **Release** - Sets the release time for the compressor’s envelope between **1** and **500** ms.
- **Make Up** - Sets audio level gain.
- **FX** - Crossfades between **Dry** and **Wet** signals.

VCA

In **VCA Mode**, the internal envelope is triggered by one (or more) instruments of your choice. The envelope then modulates amplitude.



The Dynamics FX module - VCA mode

While in **VCA Mode**, the effect is controlled by the following set of parameters:

- **Attack** - Sets the attack time of the envelope between **1** and **500** ms.
- **Hold** - Sets the hold time of the envelope between **1** and **500** ms.
- **Release** - Sets the release time of the envelope between **1** and **500** ms.
- **Triggers** - Selects which inputs will trigger the compressor's envelope. These three combo boxes can select three different inputs and a signal from any of these will trigger the envelope.
- **Modulation** - Controls the way the envelope modulates the input signal's amplitude;
 - **0** - Sets the input signal to remain unchanged.
 - **Positive values** - Reduces the signal volume "outside" the envelope. The greater the value, the bigger the reduction of amplitude outside the envelope. At max settings, there will be no audible signal unless the envelope is triggered.
 - **Negative values** - Reduces the amplitude of the input signal. The signal is reduced by the value of the envelope.
- **Gain** - Sets output gain after amplitude modulation.



A diagram showing how different envelope modulation values affect amplitude

Filter

The last algorithm available in the **FX Bus** is the multi-mode **Filter** with cutoff modulation.



The Filter FX module

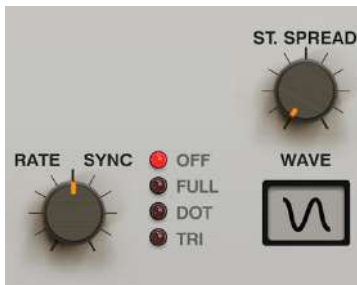
The first section controls basic filter parameters:

- **Type** - Selects one of 3 filter types, or disables the filter;
 - **Off** - Disabled
 - **Low-pass**
 - **Band-pass**
 - **High-pass**
- **Cutoff** - Sets the base cutoff frequency.
- **Reso** - Sets the filter resonance level.

Then we have the following controls:

- **Mod type** - Chooses the cutoff frequency modulation source;
 - **LFO** - Internal LFO.
 - **Env** - Envelope generator triggered by one or more of **Drumazon's** instruments.
- **Mod Amt.** - Sets the amount by which the modulation source affects the cutoff frequency.

LFO Modulator



The Filter's LFO modulator

The **LFO** is controlled with the following set of parameters;

- **Rate** - Controls the LFO frequency, ranging between **0.01 Hz** to **20 Hz**, if **Sync** is set to **Off**. Sets the LFO frequency to note value if **Sync** is set to any other option.
- **Sync** - Sets the LFO to synchronize with the clock/tempo of the host application. **Sync** can take one of the following values;
 - **Off** - Synchronization is inactive and the LFO's speed is controlled by the **Rate** parameter, expressed in Hz.
 - **Full** - Synchronization is enabled and the LFO's rate is equal to the full note value of the **Rate** display, at the host tempo.
 - **Dot** - Synchronization is enabled and the LFO's rate is equal to the dotted note value of the **Rate** display, at the host tempo.
 - **Tri** - Synchronization is enabled and the LFO's rate is equal to the triplet note value of the **Rate** display, at the host tempo.
- **Wave** - Chooses the LFO's waveform.
- **St. Spread** - Adjusts the stereo phase shift between the left and right channels for the LFO's oscillations.

Envelope modulators



The Filter's envelope modulators

The **Envelope** is controlled by the following set of parameters:

- **Attack** - Sets the attack time of the envelope between **1** and **500** ms.
- **Hold** - Sets the hold time of the envelope between **1** and **500** ms.
- **Release** - Sets the release time of the envelope between **1** and **500** ms.
- **Triggers** - Selects which inputs will trigger the filter's envelope. These three combo boxes can select three different inputs and a signal from any of these will trigger the envelope parameters.

Master effect chain

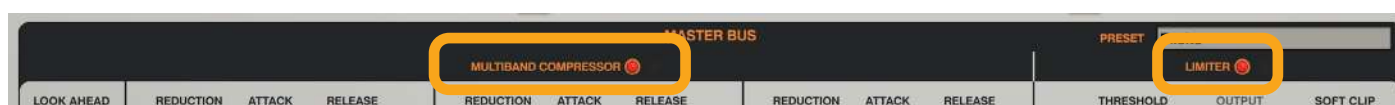
Eventually the signal from all drum instruments or **Buses** goes into the **Master FX** chain, where final touches to the sound can be made.



The Master FX chain

To edit the **Master FX** effect chain, select **Master** view in the radio group.

First, the signal goes into the **Multiband Compressor** and then it's processed by the **Limiters**. Any of the effects can be easily activated or deactivated using the LEDs in the header:



Enabling / disabling effects in the Master FX chain

Multiband Compressor

The first effect in the chain is a 3-band compressor with a **Look Ahead** option



The multiband Compressor

Each band is controlled by same set of parameters:

- **Enable** - Activates compression for a specific band.
- **Solo** - Mutes signals from other bands to check audio output from a specific band.
- **Attack** - Sets the attack time for a compressor's envelope between **1** and **500** ms.
- **Release** - Sets the release time for a compressor's envelope between **1** and **500** ms.
- **Threshold** - Sets the amplitude detection threshold between **0** and **-48** dB.
- **Ratio** - Sets the compression ratio between **1:1** and **1:20**.
- **Make Up** - Sets audio level gain.

The **Reduction** meter shows how much the signal is being compressed in a band.

The frequency width of each band is controlled by the two **Cross Frq** knobs:



The cross-frequency settings for the bands

And finally, the **Compressor's Look Ahead** option:



The Look Ahead option

The **Look Ahead** option allows the **Compressor** to “see what’s coming”, to better predict signal level changes and allow for precise peak detection at the cost of latency.

- **Off** - The option is disabled (no **Look Ahead**).
- **1ms** - 1ms look ahead.
- **5ms** - 5ms look ahead.

Limiter

The limiter has fairly standard parameters, with a soft-clip option:



The Master FX chain Limiter

- **Attack** - Sets the attack time for the limiter’s VCA (Voltage Controlled Amplifier) envelope between **1** and **500** ms.
- **Release** - Sets the release time for the limiter’s VCA envelope between **1** and **500** ms.
- **Threshold** - Adjusts the threshold level below which the limiter activates its VCA and the envelope is triggered.
- **Output volume** - Sets the overall output volume for the signal leaving the **Limiter** and can be found outside the **Master** view for quick access:



Output Volume parameter

- **Soft Clip** - Enables a diode-like soft clipper that cuts out all peaks that exceed a 0 dB amplitude level.

Trigger Outs

It's possible to add an audible trigger sound, like what occurs in analogue machines. By default, this signal is off. When turned on, you can decide which track (instrument) will trigger this sound and where the audio should be redirected to.

First, open the **Triggers** view:



The Trigger Outs section

Then set up to 3 simultaneous triggers that will be mixed with the rest of the drum instruments.

Enable / Disable the triggers you want with the LED toggle buttons in the header:



Enabling / disabling Trigger Outs

Then decide where to route the audible trigger signal:



The Trigger Out section

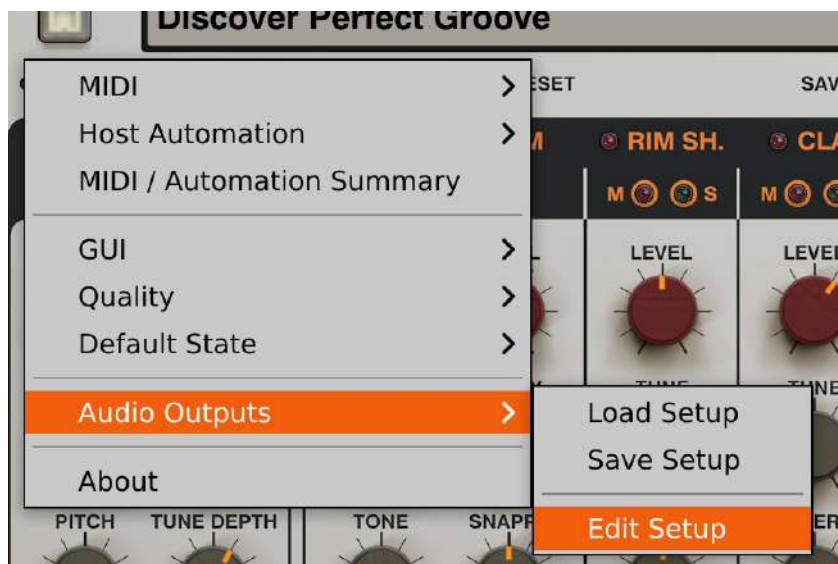
- **Route To** – Selects where the trigger out signal should be sent to, where it will be mixed with the rest of the drum sounds;
 - **Master**
 - **Bus 1**
 - **Bus 2**
- **Bus Slot** – Selects which **Slot** in the **Bus** the signal will go to, if the **Route To** parameter is set to one of the two **Buses**.
- **Source** – Selects which instrument should initiate the trigger sound.
- **Panning** – Sets the stereo balance.
- **Level** – Adjusts the output level of the trigger sound.

Plugin Audio Outs

Drumazon is a multi-output plug-in. It has **16 stereo outputs** that **Buses** or the **Master Output** can be routed to, with individual volume settings.

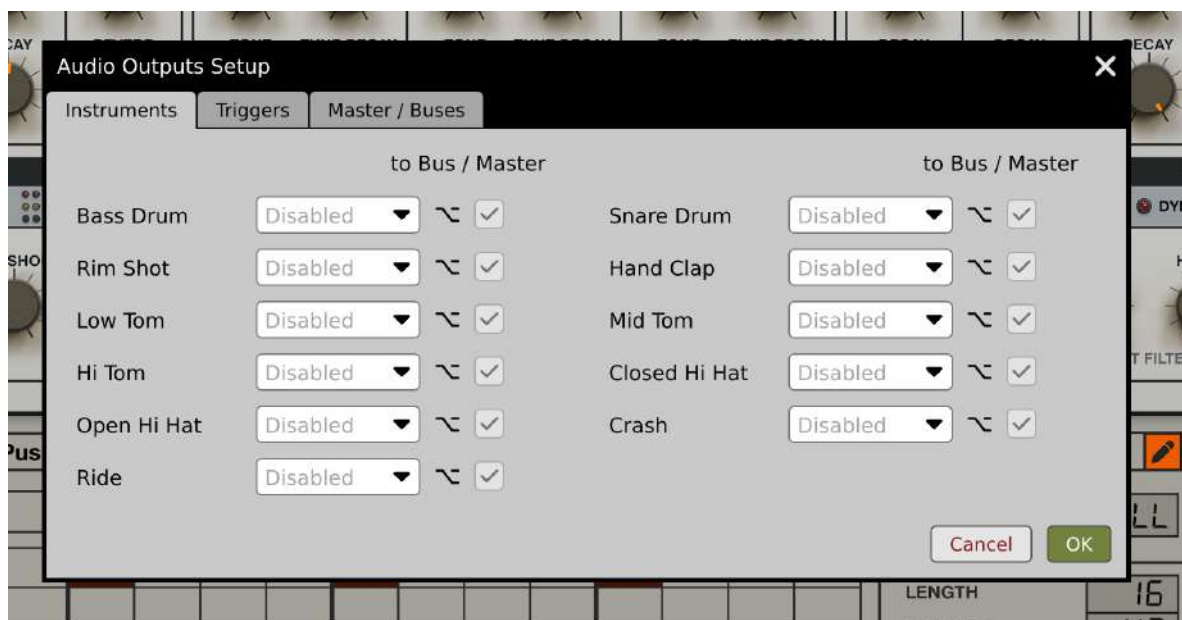
When **Drumazon** is loaded, the only routing is between the **Master Output** and the plug-in's first available audio out; the rest remain unused.

To change the output assignments, go to the **Options** menu and select the **Audio Outputs -> Edit Setup** option:



Opening the Audio Outputs Setup window

You will see the following window:



The Audio Outputs Setup menu

Using the combo boxes, you can choose which audio outputs receive a signal from which part of **Drumazon's** signal flow. A **Disabled** value means that no signal is being sent.

Once **Audio Output** is selected, the checkbox next to it becomes active. If it's unchecked, then signal is just sent to **Audio Output** without further processing by signal path that follows. This concerns processing by **Buses + Master** chain for individual instruments / triggers and **Master** chain for the **Buses**.

Loading and Saving Audio Outputs setup

Using Load Setup and Save Setup options in Audio Outputs submenu you can save current Audio Outputs Setup as file and load it from file.

Play modes

Drumazon works in two play modes:

- **Internal** – Drum patterns are triggered by the internal sequencer of the plug-in. **Drumazon** operates in this mode when **Int Seq** is enabled.
- **External** – **Drumazon** acts as a sound module; drum sounds are triggered by incoming MIDI Notes from the host sequencer. **Drumazon** operates in this mode when **Int Seq** is disabled.



The Int Seq toggle button

External mode

When **Int Seq** is disabled, **Drumazon** is in the **External** mode where it acts as a sound module. MIDI Notes corresponding to instrument (drum sound) note numbers are sent from the host sequencer to play drum patterns.

By default, the MIDI Notes layout (**MIDI Map**) follows the General MIDI standard, as it does in the original 909. The following chapters will explain how to change these settings.

Note velocity determines the volume at which notes are played. There's no discrete gradation between accented and non-accented notes in this mode as played note velocity will depend on the velocity value of each incoming MIDI Note. As a result, we can obtain a smooth transition in the loudness and responsiveness of instruments (127 levels of velocity).

In **External** mode, only the **Sound Control** part of the GUI works.

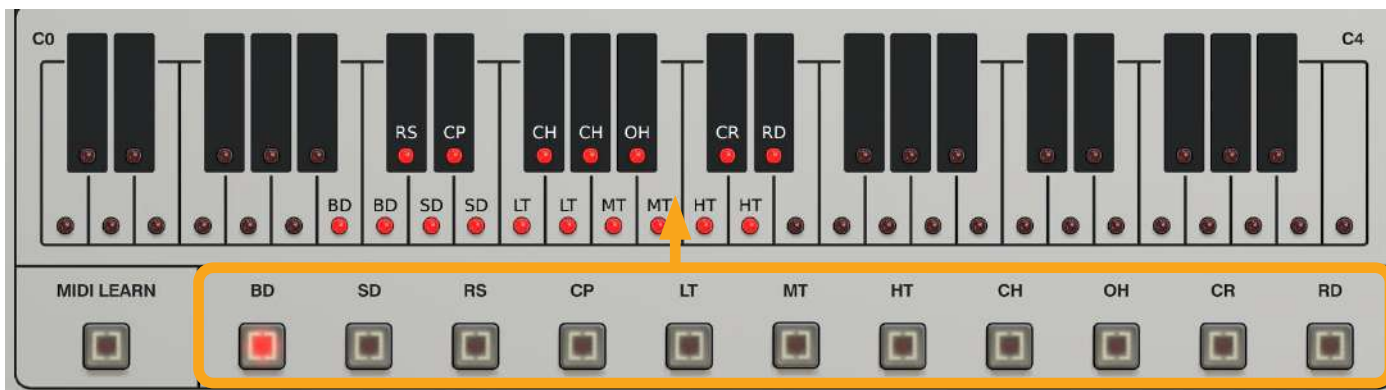
Drum MIDI Map

To change the MIDI Map or, in other words, the MIDI Notes that trigger particular sounds, you need to open the **Trigger / MIDI** view:



The MIDI Map

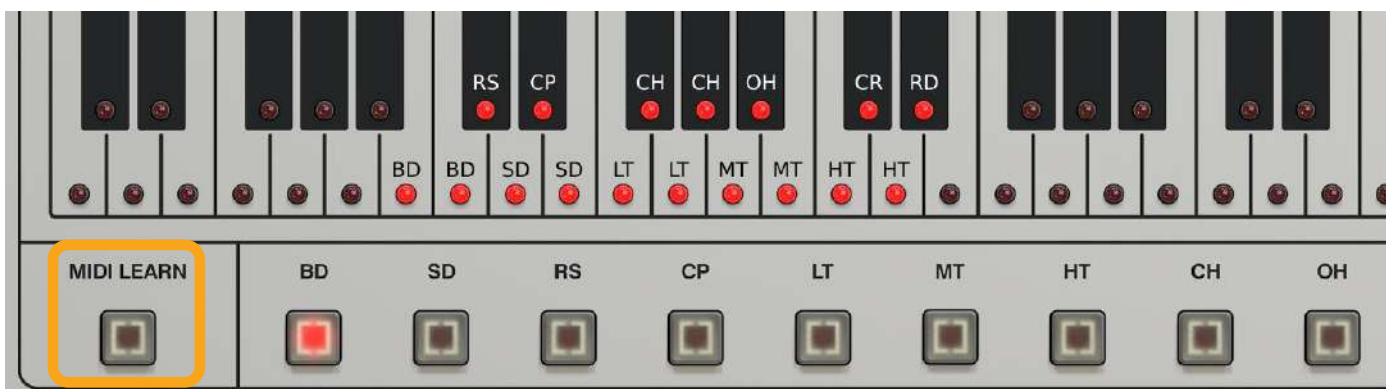
Using the selector at the bottom, you can select the drum sound / instrument you wish to re-map:



The Instrument selector

Then, use the keyboard above to change which MIDI Notes trigger that particular sound.

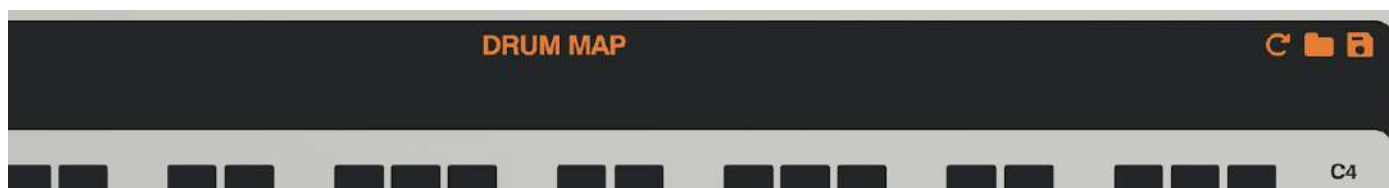
Alternatively, you can use the **MIDI Learn** function if you have a MIDI keyboard connected:



The MIDI Map - MIDI Learn

Once you activate the **MIDI Learn** mode, the plug-in will wait until you hit some keys on your MIDI keyboard to set as new trigger notes for the selected instrument. **Drumazon** operates in a 4-octave MIDI range only (starting with the 3rd octave of the entire MIDI range).

Using the icon shaped buttons in the header:



Managing the Drum Map

You can do the following:

- **Restore** factory (General MIDI based) **Drum Map**
- **Load** a **Drum Map** from a file
- **Save** the current **Drum Map** to a file

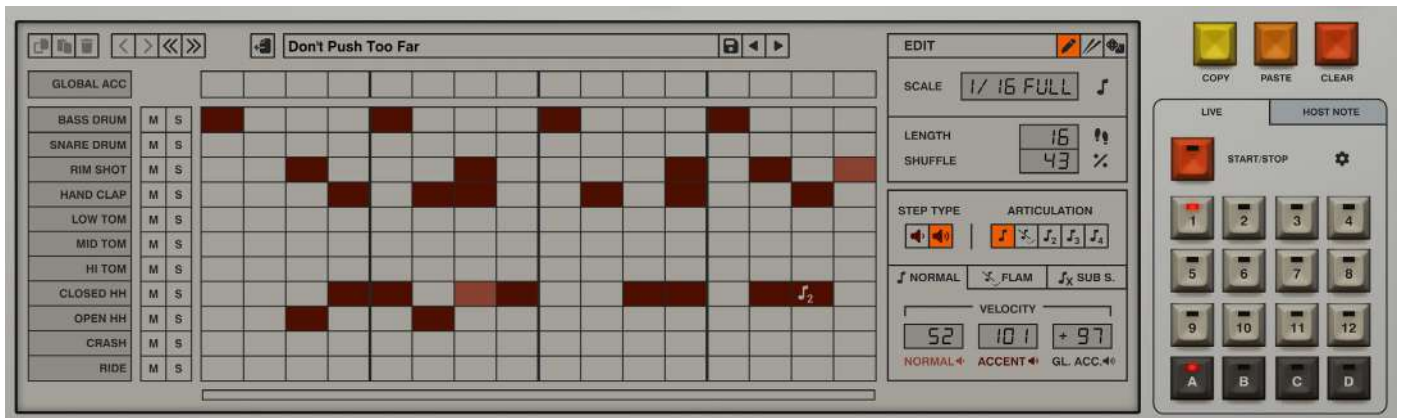
Internal mode - Sequencer

While **Int. Seq** is active;



Int Seq active

Here, **Drumazon** is in **Internal** mode, meaning that rhythms are generated by the internal sequencer which is located in the bottom part of GUI:



Drumazon's internal sequencer

In this mode, **Drumazon** uses its internal bank of patterns to generate rhythmic sequences.

Pressing **Play** in a host application, or the **Start / Stop** button on **Drumazon**, will start playback of a selected pattern. The LED diode on the **Start / Stop** button will light up if a pattern is playing:



The Start / Stop button

The **Pattern Selector** in the bottom-right corner allows you to select which pattern should be played, and/or view patterns in the **Pattern Editor**.



The Pattern Selector

Pattern trigger modes

There are two internal **Trigger** modes to start playing a pattern:



Selecting Trigger mode

- **Live mode** - Enabled when the **Live** tab is active in the **Pattern Selector**.
- **Host Note mode** - Enabled when the **Host Note** tab is active in the **Pattern Selector**.

Each of these modes share a common pattern storage system.

The whole bank consists of **48** different patterns that can be triggered using GUI or MIDI Messages (depending on the **Trigger Mode** selected).

Live mode

Drumazon is in this mode when first loaded. This is the default mode. From here, you can select patterns to be played continuously (in a loop) using the **Pattern Selector**:

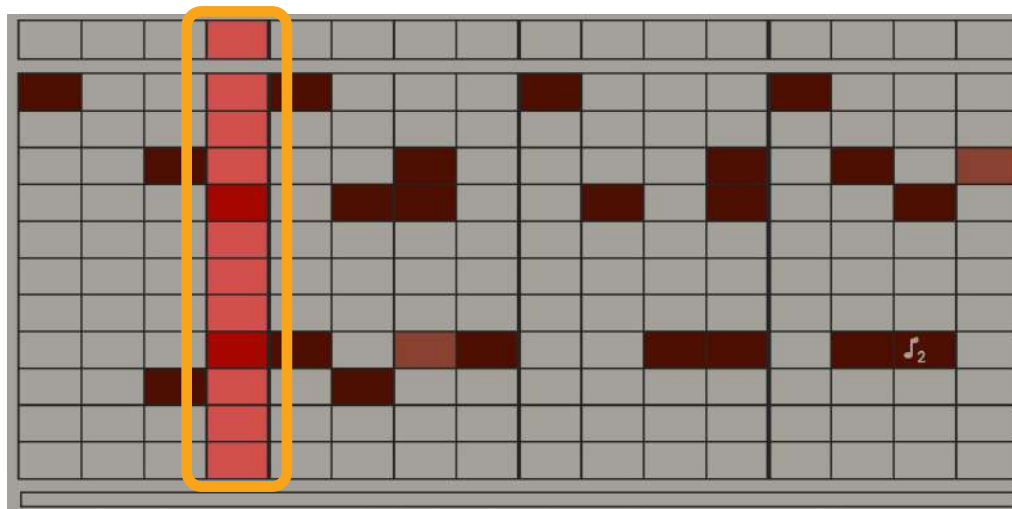


The Pattern Selector in Live mode

The **1** to **12** buttons represent **12** patterns within a single bank. There are four banks named **A** to **D**, which give **48** patterns in total. The currently selected bank and pattern in the bank are indicated by red glowing LEDs on corresponding buttons.

After loading **Drumazon**, the default chosen pattern is **A-1**.

When the **Start** button is pressed, the red highlight column scrolling across the **Pattern Editor** will indicate which step in the pattern is currently playing.



The Pattern play cursor

To select another pattern while playing, use a combination of one of the **Bank** (dark gray colored) and **Pattern** (white colored) buttons in the **Pattern Selector** (in that order). If the next pattern is in the same bank, you can select the new pattern using just the **Pattern** button in the **Pattern Selector**.

The next pattern will start playing when the current pattern comes to the end of its final step. The waiting pattern will be indicated by an LED glowing blue in the corresponding pattern button.

Host Link Active option

The **Host Link Active** option is accessible from the **Cog** icon in the **Pattern Selector** section and controls the way the plug-in sequencer's cursor position is aligned with the cursor position of the project in your DAW.



The Host Link Active mode

- Option **disabled** (default) - The sequencer cursor position is synchronized only once, when the sequencer starts to play, then the internal clock takes it over.
- Option **enabled** - The sequencer cursor position is continuously aligned for as long as the pattern plays.

The main difference between having the option disabled or enabled can be seen when you use loops in your project. When the option is disabled and the host rapidly changes cursor position, **Drumazon** ignores it and continues playing as if the position change didn't occur. But, when you enable the option and the host changes cursor position, **Drumazon** re-adjusts its own cursor position in response to changes in the host.

Host note mode



The Pattern Selector in Host Note mode

In **Host Note** mode, patterns are triggered using only MIDI Notes. Each note coming from the host application corresponds to one internal pattern. The whole bank of patterns is accessed by the **48** MIDI Notes starting from the C note of the second lowest octave and spanning 4 octaves. For convenience, **Drumazon** indicates the currently selected pattern on the **Pattern Selector**.

A **MIDI Note ON** triggers the corresponding pattern to play. Releasing the key and sending a **MIDI Note OFF** message will eventually stop the pattern.

It should be noted that in **Host Note** mode, the **Start** button in a DAW (**Start** transport message) has no effect. Patterns are only played back while a MIDI Note is received.

Pattern Follow

The **Follow** button activates a mode where the pattern currently playing is also set as the one being edited (**Pattern Editor**).



The Pattern Follow mode

When **Follow** mode is disengaged, the pattern being edited will be indicated by a blue LED light and the pattern being played will be indicated by a red LED light on the **Pattern Selector** buttons.



Pattern Follow disabled

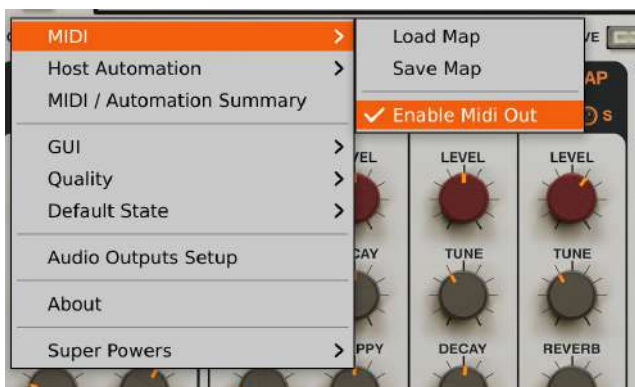
MIDI Output

Drumazon features active MIDI Output. This allows for the control of external instruments (virtual or hardware) by **Drumazon's** internal sequencer. It works either in **Live** mode or **Host Note** mode. When **Drumazon** is in **External** mode, it passes MIDI Notes through itself unchanged.

Velocity values of MIDI Notes sent by **Drumazon** are calculated according to **Normal**, **Accent** and **Global Accent Boost** patterns' dynamics parameters.

Enable / Disable MIDI Output

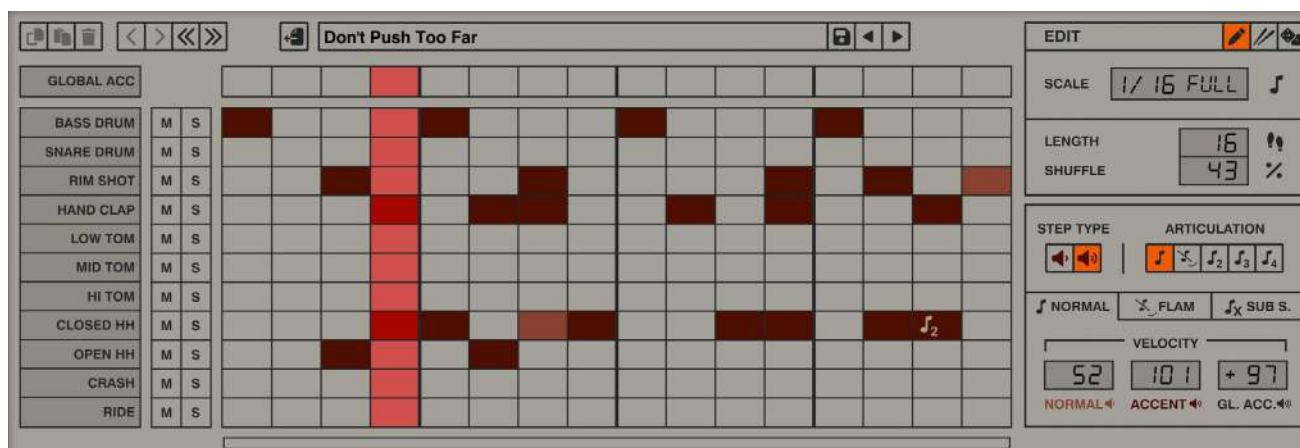
It's possible to disable MIDI Output to avoid the problems with MIDI loopbacks that occur in some DAWs; to do so, use the **Options** button in the upper left corner of the GUI and uncheck the **MIDI -> Enable MIDI Out** option.



The Enable MIDI Out option in the MIDI menu

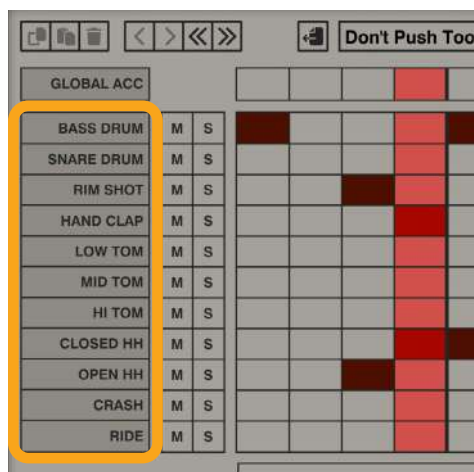
Pattern editing

The **Pattern Editor** is located in the bottom section of the GUI:



The Pattern editor

The grid section is the actual **Sequencer**. Each cell in the grid represents a single sequence step; the X axis represents time and the Y axis represents tracks for every drum instrument that **Drumazon** features. We can find the instruments' names on the right side:



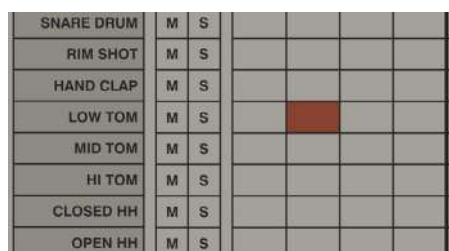
The Column with drum sound names

Each step can be enabled as **Normal** (with base loudness), or **Accented** (with increased loudness). The precise values for both types of steps can be specified for an entire pattern in the **Pattern Properties** section.

Apart from volume for each step, we can define additional attributes and articulations; such as **Flam** (or added grace note) and **Sub Step** (or subdivisions of 2, 3 or 4 repetitions per step).

Editing sequences

We can “draw” over the grid using mouse clicks to set / unset the steps (working as an on/off toggle). A filled rectangle means the step has been set / enabled:



An enabled step

On the right side, we can find a toolbar to select which **Drawing** mode we use and which type of step we will draw:



The draw toolbar

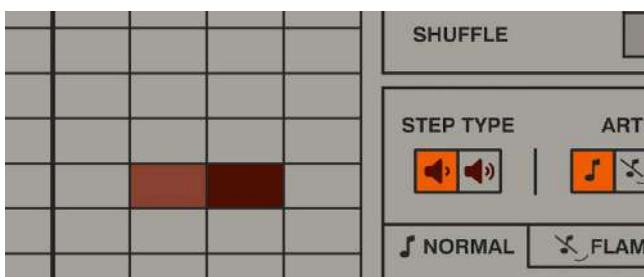
Accented and non-accented steps

The **Step Type** radio group allows us to choose between drawing **Normal** and **Accented** steps:



The Step Type

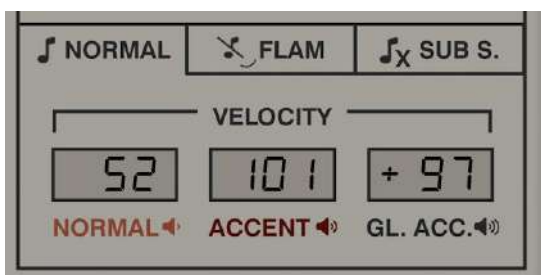
In the **Sequence** editor, a red rectangle represents a **Normal** step while a brown rectangle is an **Accented** one:



Normal and Accented step

For efficient editing, hold the **CTRL** key while setting steps to draw the alternative **Step Type**. So, if you set **Step Type** to **Normal**, drawing with the **CTRL** key held will draw **Accented** steps instead, and vice versa.

The precise **MIDI** velocity values for **Accented** and **Normal** steps are defined in the **Normal** tab at the bottom of the **Pattern Properties** section:



The Normal tab in the Pattern Properties section

The **Base** and **Accent** displays can be used to edit velocity values.

Articulations

The **Articulation** radio group lets you select which type of articulation is associated with a drawn step:



The Articulation radio group

Starting from the left, we have the following values:

- **None** - Articulation disabled, regular notes
- **Flam**
- **Sub Step x 2** - Subdivision with 2 notes
- **Sub Step x 3** - Subdivision with 3 notes
- **Sub Step x 4** - Subdivision with 4 notes

In the **Sequence** editor, **Articulated** steps are indicated with an appropriate icon:

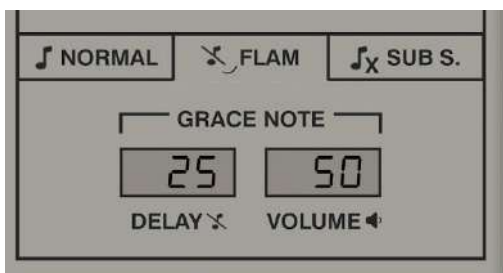


Steps with Articulation enabled

Alternatively, you can quickly change articulation for a step by right-clicking over that step in the editor. This will change the step to the next articulations in the sequence, in the same order as can be seen in the toolbar.

Flam

A **Flam** is a double triggering of a sound with a short delay between each trigger. In musical terms, it's equivalent to inserting a grace note before a main note. Parameters for the **Flam** articulation are controlled from the **Flam** tab in the bottom part of **Pattern Properties** and defined for each pattern:



Flam tab in Pattern Properties

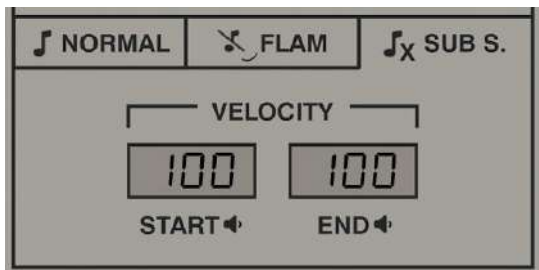
The **Flam** tab has two parameters:

- **Delay** - Sets the offset between the grace note and the main note, measured in **Step Length**. A 100% value means that offset is a half-step long.
- **Volume** - Sets the loudness of the grace note, measured against the step's volume. For example, a 50% value means that the added grace note is half as loud as the main note that follows.

Sub step

Another type of articulation in **Drumazon** is subdivision, referred to here as **Sub Step**. This divides a single step into evenly sized segments. The 2, 3 and 4 note subdivisions repeat a note 2, 3 or 4 times within the duration of a single step.

Parameters for the **Sub Step** articulation are controlled from the **Sub S.** tab in the bottom part of **Pattern Properties**, and the values are for an entire pattern:



The Sub S. tab in Pattern Properties

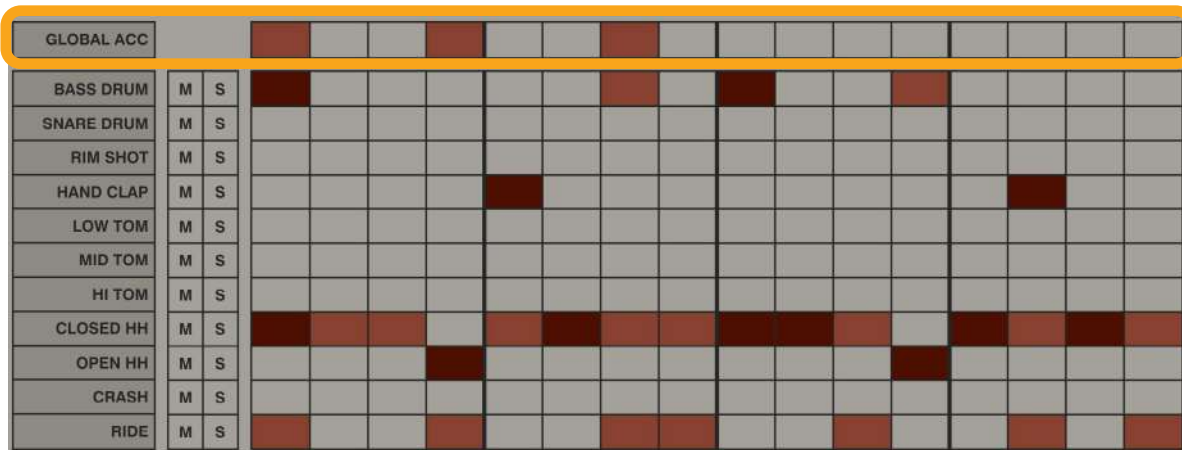
There are two parameters, expressed as percentages:

- **Start** - Sets the start volume, compared to the step volume.
- **End** - Sets the end volume, compared to the step volume.

The parameters describe the initial and final volume for the series of **Sub Step** notes, and volume for any in-between notes changes gradually between the two values.

Global accent

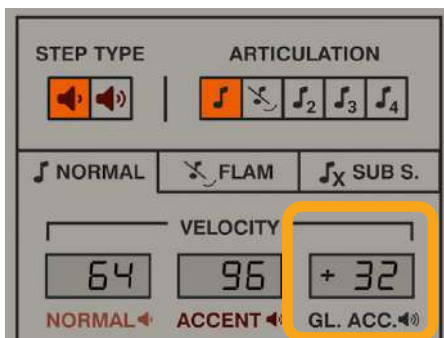
The **Global Accent** row is used to accent all parts / tracks on a given step:



The Global Accent track

For **Global Accent**, steps are set / drawn the same way as any other track using the **Sequence** editor, except the value is either **On** or **Off** (no accents nor articulations are available).

To control the **Global Accent's** boost or, in other words, how much louder globally accented steps will be, you need to use the **Gl. Acc.** parameter on the **Normal** tab in **Pattern Properties** column:

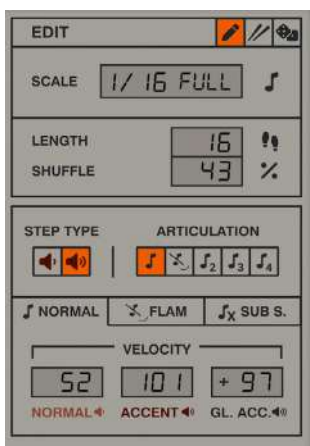


The Global Accent boost

The **Global Accent** parameter's value is added to existing velocity values for all enabled steps in a column, and if an instrument has an **Accent** on a given step and **Global Accent** is also added to that step, the two values will be combined.

Pattern Properties

The column located to the right of the grid contains properties and edit functions for the currently selected / edited pattern:



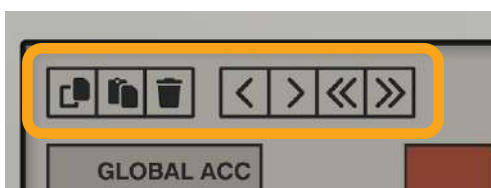
The Pattern Properties section

You can adjust the following properties:

- **Scale** - Sets the duration of a single step, relative to the tempo. The first part sets the note value, from **1/64th** up to **1/4th**, and the second part is a note value modifier (**Full, Dotted, Triplet**).
- **Length** - Sets pattern length, up to **64** steps.
- **Shuffle** - Adjusts the swing effect amount.

Pattern edit functions

In the upper part of pattern editor there's little toolbar with few useful edit functions;



The Pattern edit functions

Some of them are disabled because they operate only on selected tracks (so you need to select a track or tracks before using them).

To select a track for editing, click on a desired instrument name in the column on the left:



Selecting tracks

To select more than one track, hold the CTRL key while clicking.

Copy / Paste / Clear tracks

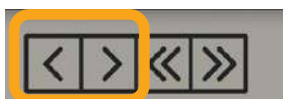
The first three buttons offer basic edit functions such as **Copy**, **Paste** and **Delete** track contents:



The Copy, Paste and Delete buttons

- **Copy** - Copies selected tracks to a buffer.
- **Paste** - Pastes the buffer contents onto selected tracks. If you copied more than one track into the buffer, you need to select the same number of destination tracks for every track to paste into the pattern editor. If you select fewer destination tracks, only that number of tracks will be pasted.
- **Clear** - Removes the contents of selected tracks.

Shift left / right



The Shift Left, Shift Right buttons for selected tracks

These buttons shift the contents of selected tracks in the X axis (time), to the left or right. Pressing once shifts the selected contents by one step.



The Shift Left, Shift Right buttons for the entire pattern

The next two buttons shift the contents of the entire pattern (all tracks), to the left or right. This function doesn't require any track selection.

Copy / paste / clear pattern

Above the **Pattern Selector**, we have three more edit functions:



The Clear / Copy / Paste pattern buttons

- **Copy** - Copies a currently selected pattern into a buffer.
- **Paste** - Pastes the stored pattern onto the currently selected pattern slot.
- **Clear** - Clears a currently selected pattern.

Loading and saving patterns

Loading patterns

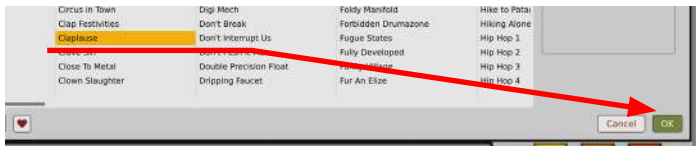
Clicking the **Pattern Name** box opens the **Pattern Browser**. Alternatively, you can use the **Arrow** icons to the right to browse the **Pattern Content** line-by-line.



Browsing patterns

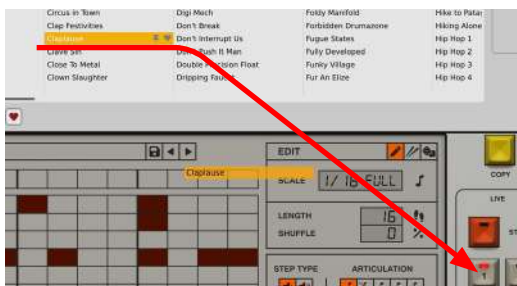
There are a few ways to load a pattern using the browser:

1. You can open the **Browser**, select a pattern and click **OK**; this will load the pattern into a previously selected **Pattern slot**:



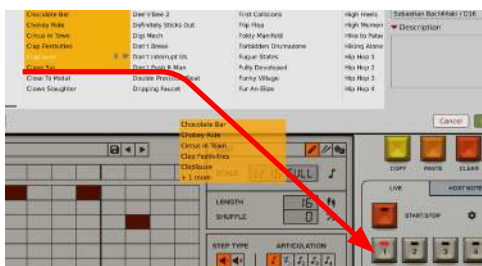
Loading a pattern through a browser

2. You can use drag-and-drop to load a selected pattern into the desired **Pattern Slot** in the **Pattern Selector**:



Loading a pattern using drag-and-drop

3. You can use drag-and-drop to load a few selected patterns at once into several **Pattern Slots**:



Loading a group of patterns using drag-and-drop

Saving patterns

Using the **Save** button will save your pattern.



Saving a pattern

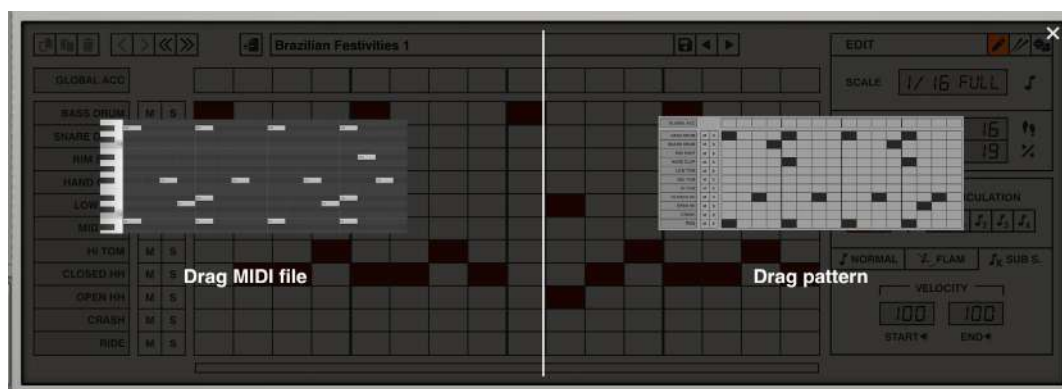
Exporting patterns

Using the **Export** button allows you to export your pattern outside **Drumazon**:



Exporting a pattern

When you click the button, the **Pattern Editor** area will be darkened by an overlay panel:

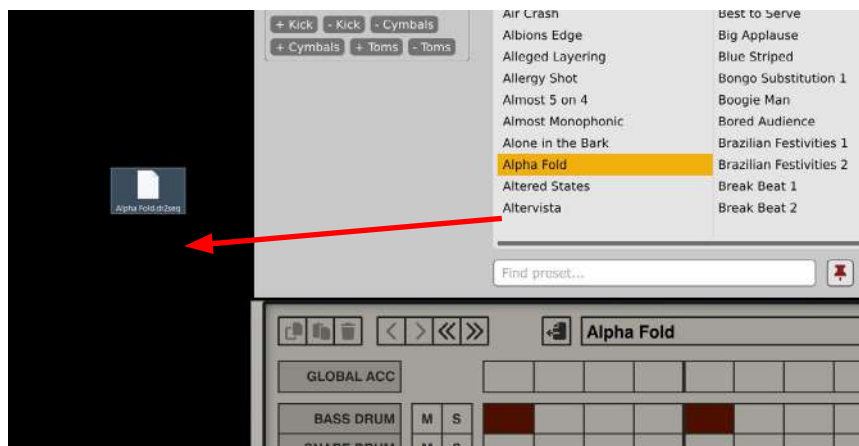


Dragging a pattern onto a track as MIDI clip, or onto the hard drive in Drumazon's own format

From this panel, you will be able to drag-and-drop the pattern wherever you like - either into your project or to a location on your hard drive. Using the left-side option (**Drag MIDI file**), you can drag the pattern as a MIDI Clip, while using the right-side option (**Drag pattern**), you can drag the pattern in **Drumazon's** native file format. Using **Drag pattern** also works between instances of **Drumazon**.

Velocity values for the exported MIDI Clip will be derived from **Pattern Properties** (the values for **Accented** and **Non-accented** steps, and for **Global boost**).

Alternatively, you can export patterns directly from the **Pattern Browser** by dragging a pattern from there onto the hard drive or into a project in your DAW:

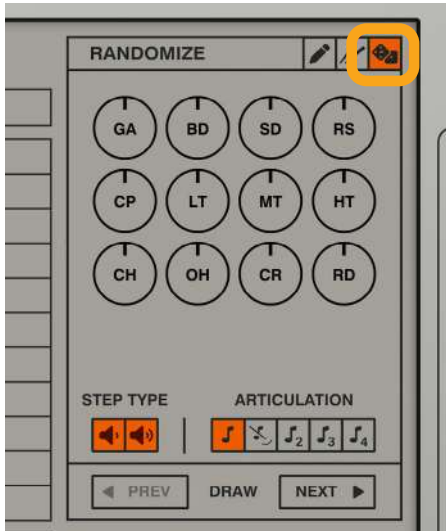


Dragging a file directly from the Pattern Browser

However, this will export patterns only in **Drumazon's** native file format. You cannot export patterns as MIDI Clips this way.

Randomizer

The **Randomizer** fills internal patterns with randomly generated content, working only in **Internal** mode. Select the **Random** tab from the **Pattern Editor** properties column to enable the **Randomizer**:



The Random mode tab

Using the instrument names column, you can select the tracks you wish to randomize:



Selecting tracks for randomization

Clicking selects a single track; to select more than one, hold the CTRL key on your keyboard while clicking additional tracks to add to the selection. Once you've decided which tracks you wish to randomize, click the **Next** button to generate randomly populated track rows:

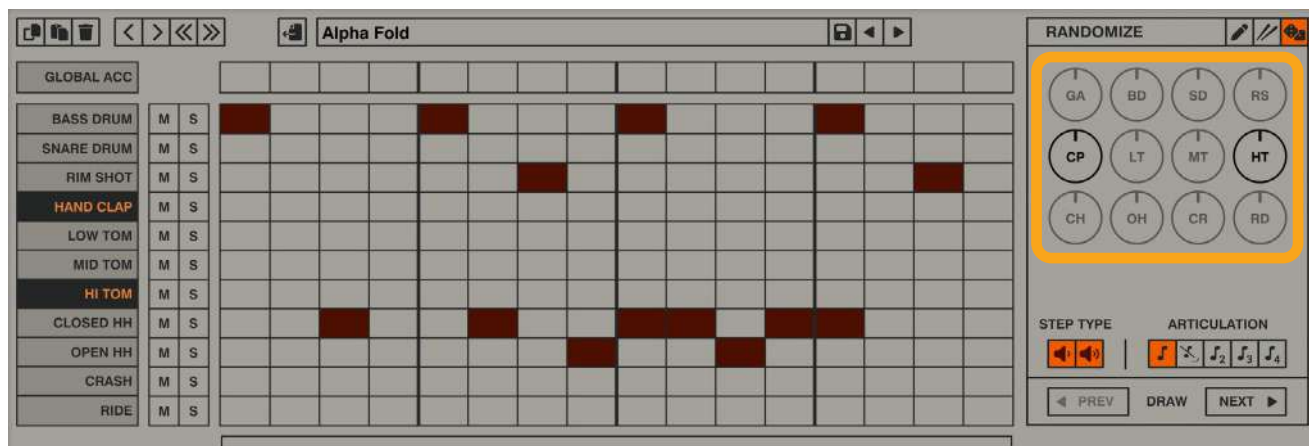


Generating new random pattern

If you haven't selected any tracks then the entire pattern will be randomized (all tracks).

It's worth mentioning that randomization isn't a special mode; you can switch between **Edit** and **Random** tabs with no restrictions. Also, when the **Random** tab is selected, you can modify sequence content (in the grid), just like you were editing it.

Every time a new sequence is drawn, you can use the **Amount** knobs to precisely set the "density" of the generated sequence individually for each of the randomized tracks:

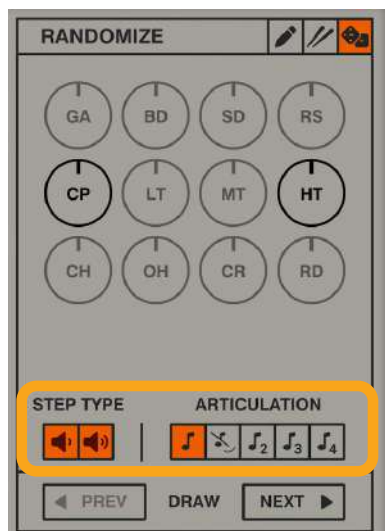


Setting densities

The greater a knob's value, the "denser" (more numerous) a generated sequence for a particular part will be.

The **Amount** knobs for unselected tracks are grayed out; they are inactive.

The **Modifiers** at the bottom choose what type of steps (accented, non-accented or both) and articulations are included in randomized patterns:



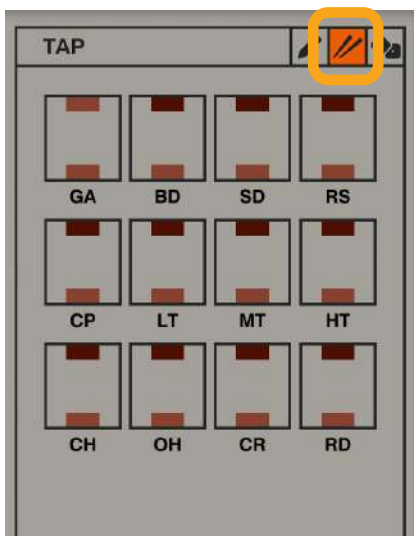
The Randomizer's modifiers

Any change to the **Modifiers** will be taken into account in the next random draw, which happens by clicking the **Next** button.

Each time you hit **Next**, a new seed for the randomizer is set, changing the probability distribution and generating a new pattern. Using the **Prev** button, you can go back to the previous seeds / randomization patterns.

Tap mode

Tap mode allows patterns to be recorded live. To enter Tap mode, select the **Tap tab** in **Pattern Properties**:



The Tap mode tab

Here, you will find **Pad** buttons that allow you to record steps while playing. Note that recording steps is only possible when the sequencer is running.

Pressing the upper half of a **Pad** records **Accented** steps and pressing the lower half, **Normal** steps. The **Pad** corresponding to **Global Accents** is an exception, since the **Global Accent** track has only single state steps (no **Accents**).

Alternatively, you can record steps using your MIDI keyboard. In **Tap** mode, **Drumazon** listens to MIDI Input and records steps according to the predefined Drum MIDI Map (see the **External Mode** chapter). Hitting a key with a velocity > 64 registers an **Accented** step; hitting a key with a velocity below that threshold will register a **Normal** step.

Options

This chapter concerns all the additional plug-in settings that aren't stored with any preset type. These settings are exclusively stored within a DAW session but can also be saved and loaded using the options described later in this chapter.

MIDI and parameter automation

This chapter describes everything about communication between the DAW (host) and the plug-in regarding MIDI or parameter automation options.

MIDI output

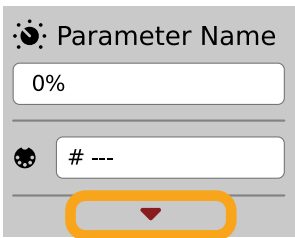
By default, **Drumazon 2** bypasses the MIDI messages it receives, meaning every MIDI event that goes into the plug-in is also sent out from the plug-in (which you can use to feed another MIDI track). If this functionality causes issues with your DAW (such as creating unwanted MIDI loopbacks) you can disable **Drumazon 2 MIDI Output** by clicking the **Options** button and unchecking the **MIDI -> Enable MIDI Out** option.



The Enable MIDI Out option

MIDI learn

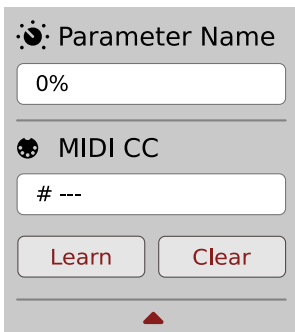
Right-click any plug-in parameter to open the context menu:



A context menu

Left-clicking outside the menu area closes it automatically.

Clicking the bottom arrow expands the menu and displays all available options:

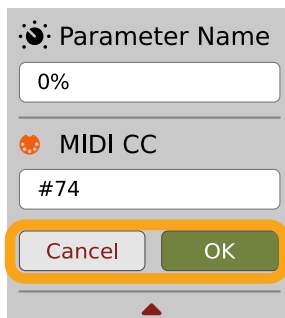


An expanded context menu

Linking a parameter to MIDI CC

The **Learn** function enables a quick assignment of physical controllers (from a MIDI controller) to plug-in parameters.

1. Click the **Learn** button to put the plug-in into a pending state before moving any MIDI CC controller.
2. Once the CC is recognized, click **OK** to save the change or click the **Cancel** button to restore the previous setting.

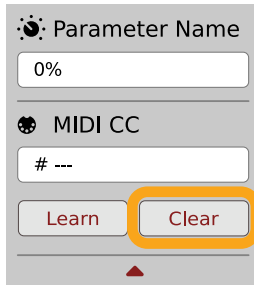


Linking a parameter to MIDI CC

Unlinking a parameter from MIDI CC

You can also delete a MIDI CC code attributed to a parameter from the context menu:

1. From the context menu, click the **Clear** button:

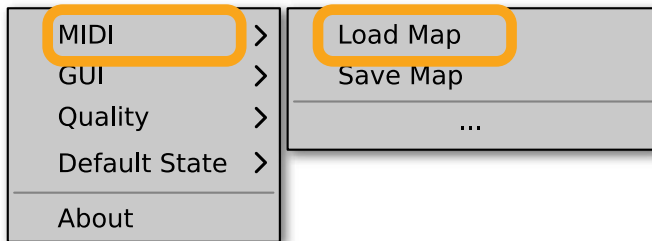


The Clear MIDI CC button

2. Then confirm using the **OK** button.

Loading / Saving a MIDI CC Map

These options are available in the **MIDI** submenu, accessible under **Cog** icon in the left-upper corner:



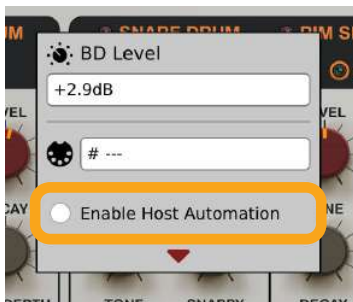
The Load Map and Save Map options

- **Save Map** - Saves the current MIDI CC map to a file.
- **Load Map** - Loads a MIDI CC map from a stored file.

Parameter automation

By default, all internal **Drumazon 2** parameters are disabled for external automation; this is because **Drumazon 2** has thousands of sound parameters and VST/AU/AAX technologies don't allow so many automatable parameters.

If you right click on a parameter in the **Drumazon 2** UI, you will see a context menu that allows you to enable automation for a given parameter and control it externally:



Enabling a parameter for automation

Note that not all parameters can be externally automated. Only parameters directly involved in sound generation have this option present.

Loading and saving an automation template

Once you enable the desired parameters for automation, you can save the automation map as a template to load later on in another plug-in instance.



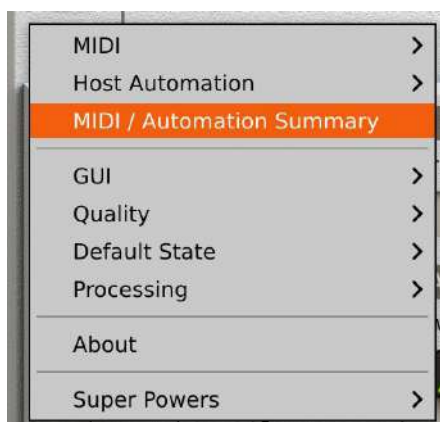
The Host Automation options

Click the **Options** button and go to the **Host Automation** menu to see the following options:

- **Load Template** - Loads an automation map from a file.
- **Save Template** - Saves current plug-in state as a new automation map file.

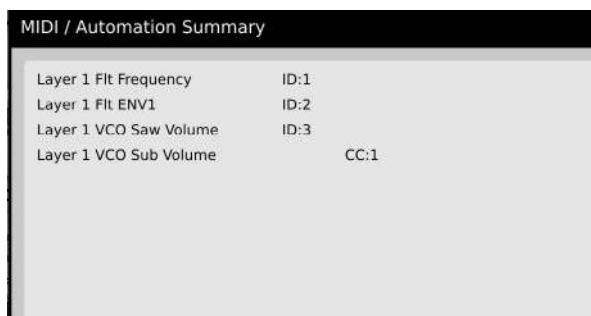
MIDI / automation summary

Once you have enabled some parameters for automation or assigned them (using **MIDI Learn**) to MIDI CC, you can check the current status of that assignment using **MIDI / Automation Summary** option in **Options** menu:



The MIDI / Automation Summary menu option

Using this option will bring up the **MIDI / Automation Summary** window:



The MIDI / Automation Summary window

This shows the list of parameters enabled for automation (with the respective **IDs** they are assigned to) and/or the **MIDI CC** numbers they are assigned to.

GUI

The **Size** and **System Scale** options are accessible from the GUI submenu under the **Options** menu in the upper-left corner of the plug-in. With these, you can adjust the look of the plug-in to suit the pixel density and resolution of your screen, and make some tweaks to the look.



The GUI Size and look options

Size

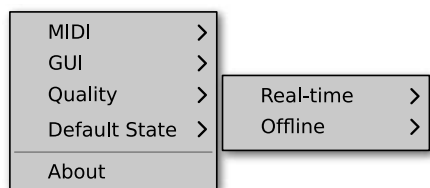
This option lets you choose one of several default skin sizes to best match the plugin to the resolution of your computer monitor.

System Scale

System Scale controls the rescale factor for the whole plug-in. For the best visual results, you should set it to the exact value from your system settings (screen properties).

Quality settings

The **Quality** submenu under **Cog** icon in upper-left corner allows to choose sound quality for **Real-time** or **Offline** modes.



Quality settings

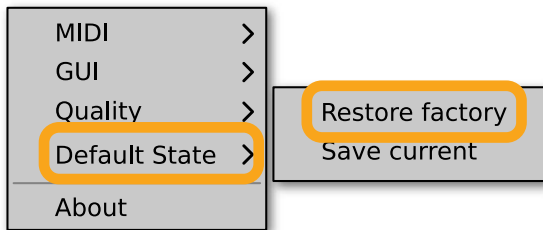
The higher the quality, the bigger the impact on the CPU.

Default settings

You can save your current settings so that the plug-in will default to them for each new instance, or restore the plug-in to load with its factory settings.

Changing default settings

1. Click the **Cog** icon in the left-upper corner of the plugin.
2. Go to the **Default State** submenu and choose the **Save current** option.



Changing the default state of the plug-in

With this option, the current plug-in state will be saved as the default / initial state for when you insert a new instance of the plug-in.

The plug-in state includes: sound parameters (default preset), views, preset filters, sound quality settings, loaded / created MIDI CC map and GUI settings.

Restoring factory defaults

To return the default state for new instances to factory settings:

1. Click the **Cog** icon in the left-upper corner of the plugin.
2. Go to the **Default State** submenu and choose the **Restore factory** option.

Preset Management

Preset storage

Presets, both from **Factory** content and user ones, are stored as files in proper locations on the disc. Each time a plug-in instance is loaded into a project, these locations are scanned and the presets found there are consolidated into a single linear structure (list) in the **Preset Browser**.

Preset structure

The presets' structure in the plug-in is hierarchically organized; there are a few different kinds of presets and these store different groups of parameters.

- **Scene** - A global preset which gathers all sound parameters, entire pattern storage for the **Sequencer** (48 patterns) and the selected **Int Seq** state;
 - **Drum Kit** - Covers all sound parameters, including all instruments and their **Strips**, both **Buses** and the **Master Section**;
 - **Instrument Preset** - Each instrument has its own preset system, which covers its synth parameters and its **Strip** parameters (**EQ**, **Compressor** and **Level**).
 - **Master Preset** - Includes parameters from **Master** view (**Multiband Compressor** + **Limiter**).
 - **Sequencer pattern** - Includes a single sequencer pattern with its additional parameters (like scale, length, shuffle, etc.). This kind of preset can be loaded only when **Int Seq** is enabled.

Browsing presets

The **Preset management section** (no matter what kind of preset it concerns) enables quick navigation and browsing of the preset structure:



The Preset management section

- **PRESET** - Displays the name of the currently loaded preset. Clicking the display opens the **Preset Browser** panel, allowing you to browse factory / user presets.
- **Prev / Next** - Hovering over right side of the **Preset** display exposes the **Prev / Next** buttons:



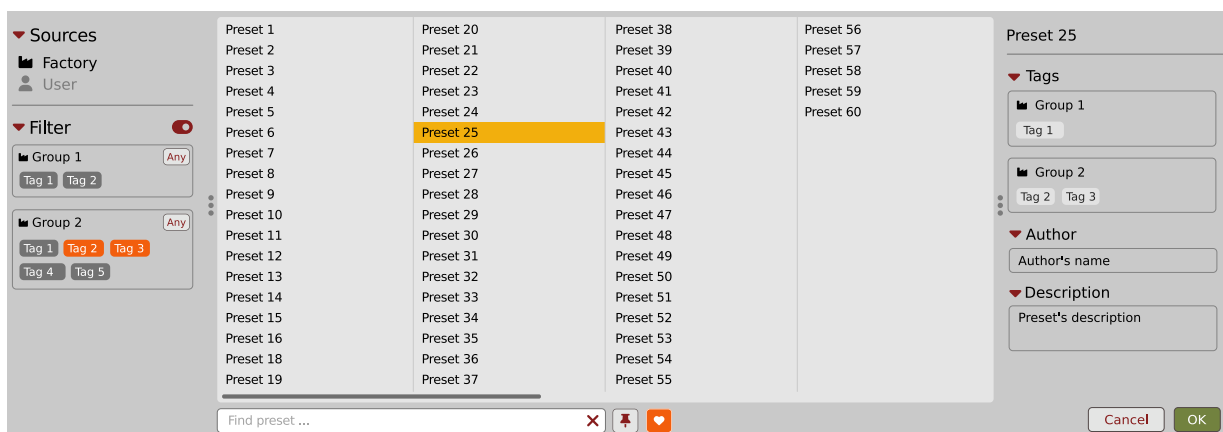
They allow for linear browsing of the presets list (depending on currently set filters - see sections below).

- **Save** - Saves current parameters as a new preset or allows for overwriting of the existing one (see sections below).

Right-clicking over the **Preset** display opens a context menu with two or three additional options:

- **Init** - Restores initial settings of plug-in parameters.
- **Reload** - Reloads the most recently loaded preset.
- **Save** - See description above.

The **Preset Browser** looks as follows:



The Preset Browser

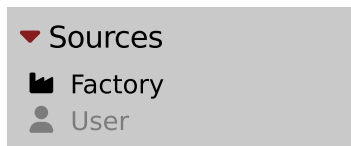
There are four main parts:

- **Sources** - Situated in the left column, filter content **Sources** for displayed presets.
- **Filter** - Below **Sources**, a preset **Filter** that uses the **Tags** system.
- **Results** - List of presets (shown in the middle column) from **Sources** that meet criteria set in the **Filter**.
- **Info pane** - The right column shows information about the currently selected preset(s), divided into several subsections.

If available - For some preset types this button can be hidden and accessible from the contextual menu (accessible via right mouse-click on **Preset display**)
 If available

Sources

In this section, you can choose a **Source / Source(s)** that you want to browse presets from.



Preset Sources

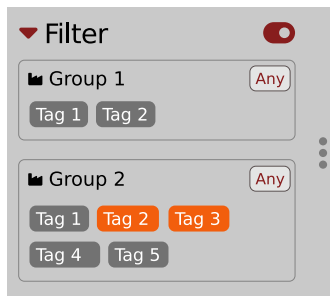
There are two resources to choose from:

- **Factory** - Delivered together with the plug-in and cannot be modified (read-only).
- **User** - Created by the user and can be freely modified or shared with other users.

Choosing any of them will cause the results to narrow to the presets from one resource.

Filter

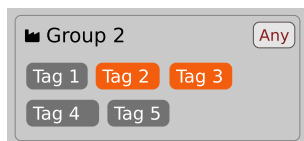
The section below is the **Filter**, which represents a preset filtering system using **Groups** and **Tags** to browse the content.



The Filter section

Groups and tags

Each **Preset** is described by a few common **Groups**. Within each of them there may be one or more **Tags** from a particular set.



The Filter group

Presets from the **Factory** resource were assigned **Groups** and **Tags** when they were created.

Groups and **Tags** describe the content clearly, taking into account the plug-in's purpose.

Editing of the **Groups** and **Tags** for **Factory** content is limited. User presets can be described with the same **Groups** and **Tags** as **Factory** content, or you may define additional **Tags** within factory **Groups** and even create your own **Groups** with your own **Tags** to describe your own presets.

The only limitation is that a user cannot remove factory **Groups** or **Tags** from **Factory** content.

Results

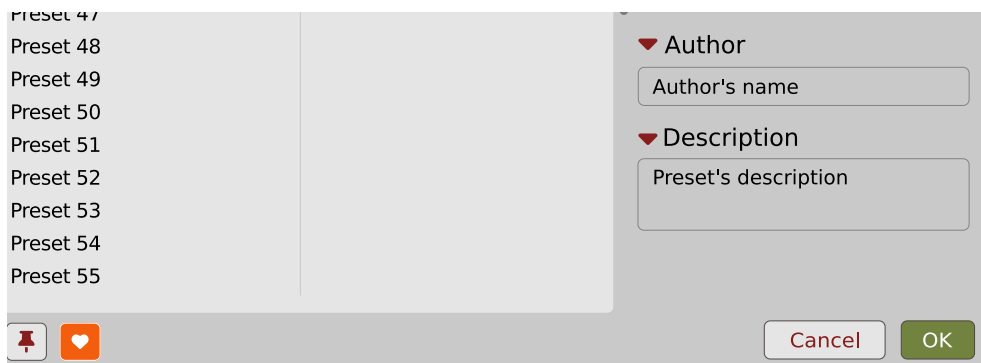
This is a list of presets from chosen **Sources** that meet the filtering criteria. The basic function of this section is to browse and load presets. It can also be used for editing, which is described later.

Preset 1	Preset 20	Preset 38	Preset 56
Preset 2	Preset 21	Preset 39	Preset 57
Preset 3	Preset 22	Preset 40	Preset 58
Preset 4	Preset 23	Preset 41	Preset 59
Preset 5	Preset 24	Preset 42	Preset 60
Preset 6	Preset 25	Preset 43	
Preset 7	Preset 26	Preset 44	
Preset 8	Preset 27	Preset 45	
Preset 9	Preset 28	Preset 46	
Preset 10	Preset 29	Preset 47	
Preset 11	Preset 30	Preset 48	
Preset 12	Preset 31	Preset 49	
Preset 13	Preset 32	Preset 50	
Preset 14	Preset 33	Preset 51	
Preset 15	Preset 34	Preset 52	
Preset 16	Preset 35	Preset 53	
Preset 18	Preset 36	Preset 54	
Preset 19	Preset 37	Preset 55	

The Results list

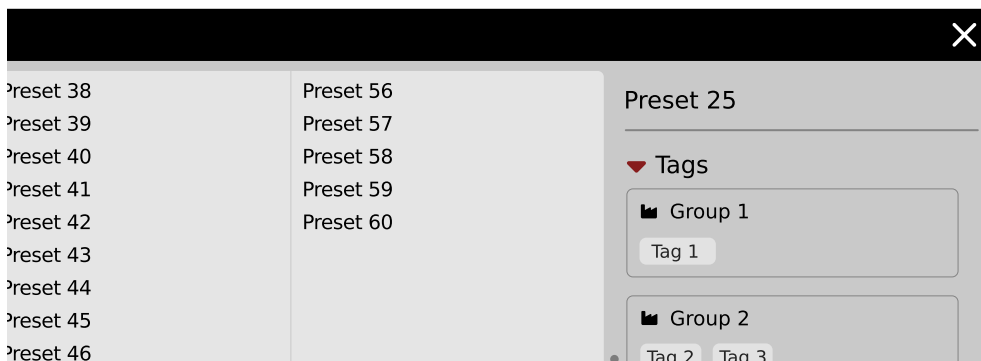
- **Click** any name to choose and load the preset.
- **Double-click** the name to choose, load the preset and close the browser.

Hitting the **OK** button confirms loading a preset and closes the browser. Using **Cancel** closes the browser but reverts all parameter changes that loading a new preset might have caused.



The OK and Cancel buttons in the browser

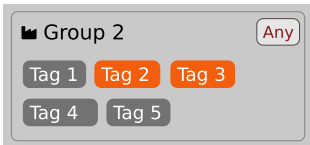
Using the **X** icon has the same effect as the **OK** button:



Close Browser window

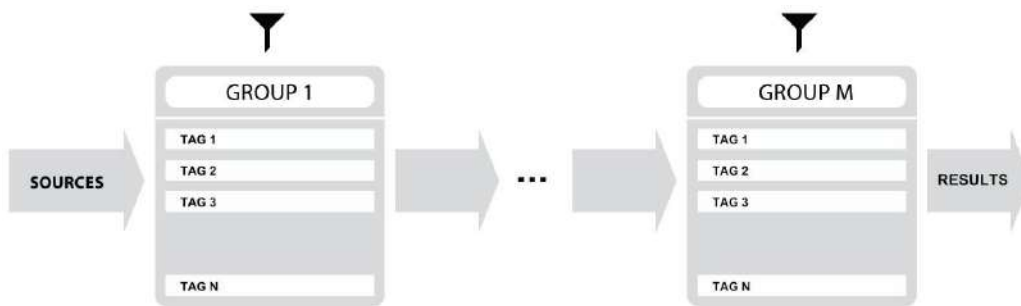
Preset filtering using Groups and Tags

The **Filter** section contains **Groups** of **Tags**. Each Group is represented by a rectangle with the **Group** name + set of **Tags** inside.



Group 2 with two tags set (Tag 2 and Tag 3)

The filtering process cascades from top to bottom. This means that all presets available in the selected **Sources** are filtered by selected **Tags** from the first **Group** (uppermost one), then the **Group** below and so on, until filtered by the last active **Group** (the bottom one).

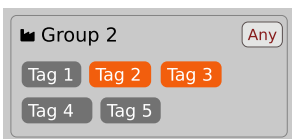


Preset Filtering with the use of Groups

The result of the cascade filtering process is listed in the middle column, the **Results** / presets list section. You can also consider the **Results** list as an intersection of preset sets, found by filtering through every individual **Group**.

Basic Actions

Tags work as toggle buttons. Click to *activate* / *deactivate* a **Tag**; a gray background color means that the **Tag** is inactive, and orange means that the **Tag** is *active*.



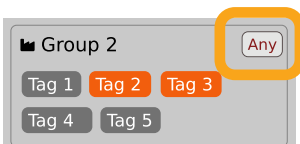
Group 2 with two tags set (Tag 2 and Tag 3)

If at least one **Tag** in a **Group** is active, then the **Group** (filter) also becomes active, otherwise the **Group** chosen doesn't affect the filtering process at all.

Group operator



When a single **Tag** is active in a **Group**, only presets having that **Tag** set are displayed in the **Results**.

If two or more **Tags** in a **Group** are active, the **Results** depend on the **Operator** chosen for the **Group**:



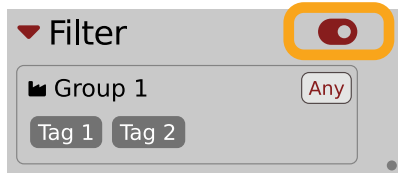
A Group operator

The **Operator** button works in toggle mode and offers a choice of two alternative **Operators** for the **Group**:

- **Any**  - Means that a preset is shown in the **Results** when the preset includes at least one of the active **Tags** from the **Group**.
- **All**  - Means that a preset is shown in the **Results** only when the preset includes all active **Tags** from the **Group**.

Filter enable / disable

You can quickly enable / disable the **Filter** using the toggle switch in the top-most section of the **Filter**:



An On/Off switch for a Group Filter

Other types of filtering

Searching by name

Alternatively, you can look for a preset by entering its name or just a piece of its name into the **Find preset** field:



The Find preset input


The **Results** are refreshed on-the-fly and they work together with the other filters.

Using the **X** icon clears the entire field:






Clearing the search field


Filtering Favorite presets

You can mark presets as a **Favorite** by clicking the **Heart** icon while hovering on preset name  . You can unmark presets by clicking the icon again (toggle mode):



Setting a preset as a Favorite on the list

-
-  Logical OR between Tags in the Group
 -  Logical AND between Tags in the Group
 -  It's allowed for every **source** (factory or user)

The flag is stored globally, meaning that a **Favorite** preset will be accessible as such from every other instance of the plug-in  .


Once you have your **Favorite** presets flagged, you can quickly filter them using the toggle button with a **Heart** icon on it:

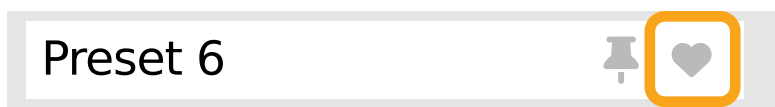


Favorite presets filtering

If the button is active, then only **Favorite** presets will be shown (considering all remaining filters).

Filtering Pinned presets

You can **Pin** one or more presets using the **Pin** icon while hovering over a preset name  . You can unpin a preset by clicking the icon again (toggle mode):



Pinning a preset on the list



Unlike **Favorites**, this flag works locally and it's stored with the project file (not global config), so **Pins** are stored individually for every instance (with total recall, so a plug-in state is recalled if saved in the context of a project).

But, similarly to **Favorites**, you can easily filter presets using the toggle button with the **Pin** symbol on it:



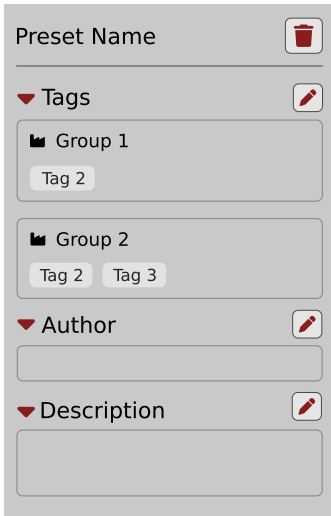
Pinned presets filtering

If the button is active, then only **Pinned** presets will be shown (considering all remaining filters).

-
-  Sometimes project or plug-in reload may be required
 -  It's allowed for every **source** (**factory** or **user**)

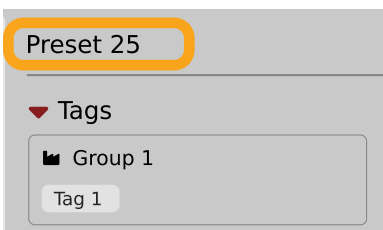
Info pane

The column to the right shows information about the selected preset or presets. It also provides access to some of the preset editing functions.



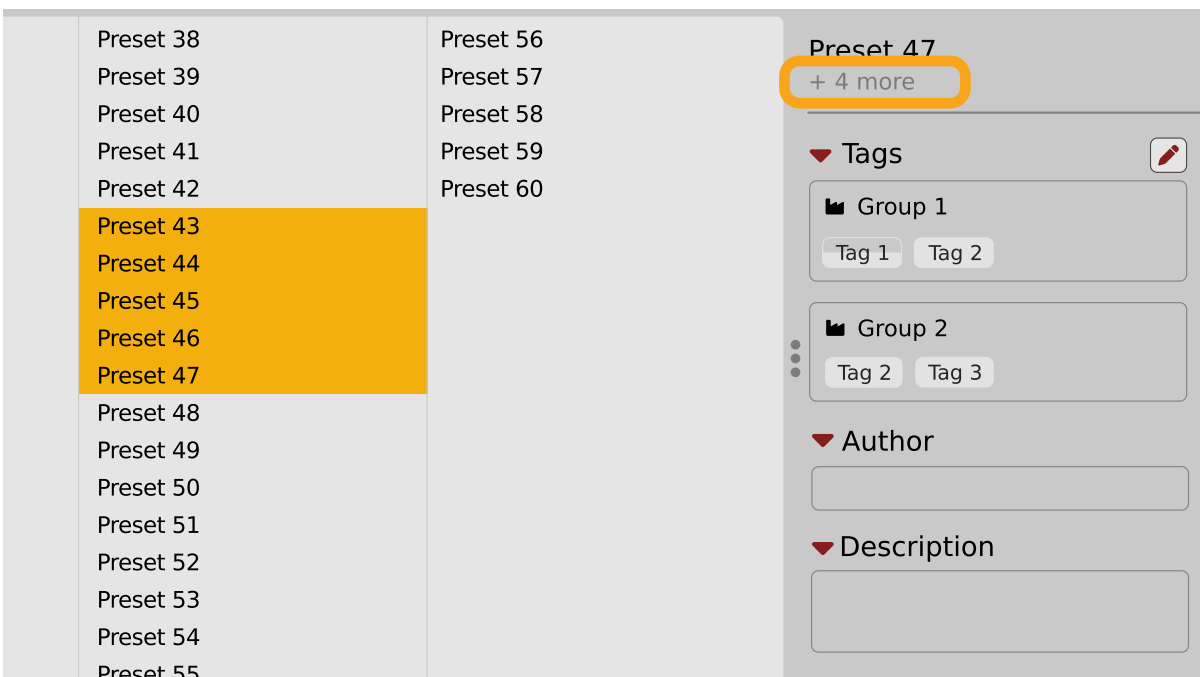
The Info pane

There's a preset name at the top.



The Preset name in the Info pane

Additionally, if you've selected more than one preset there's information about how many more have been selected:



Selecting more than one preset

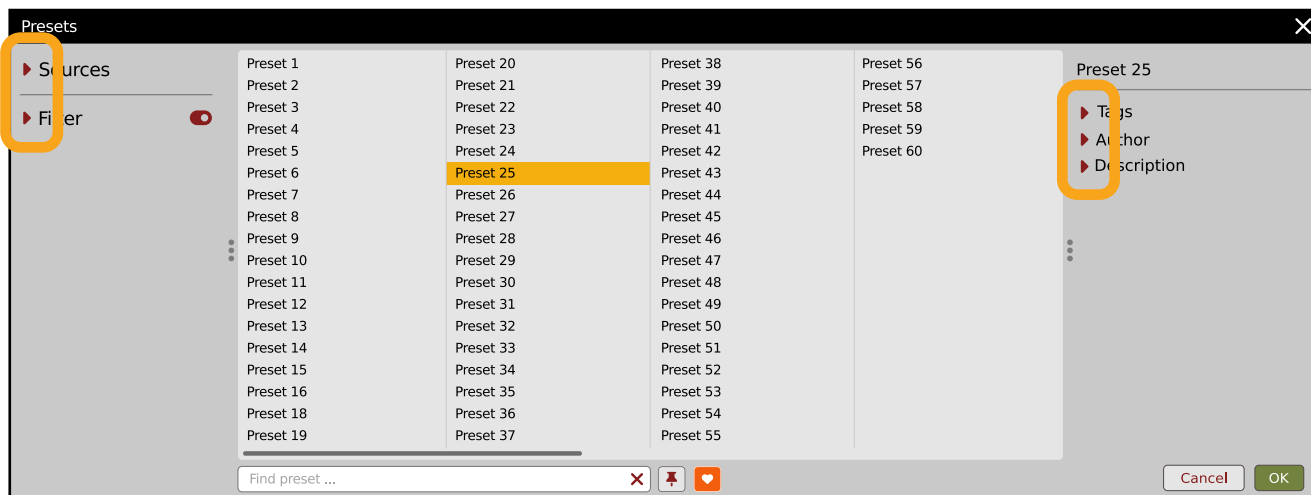
Below the preset(s) name there are few common sections describing selected presets:

- Tags
- Author
- Description

Browser's visual adjustments

Folding sections

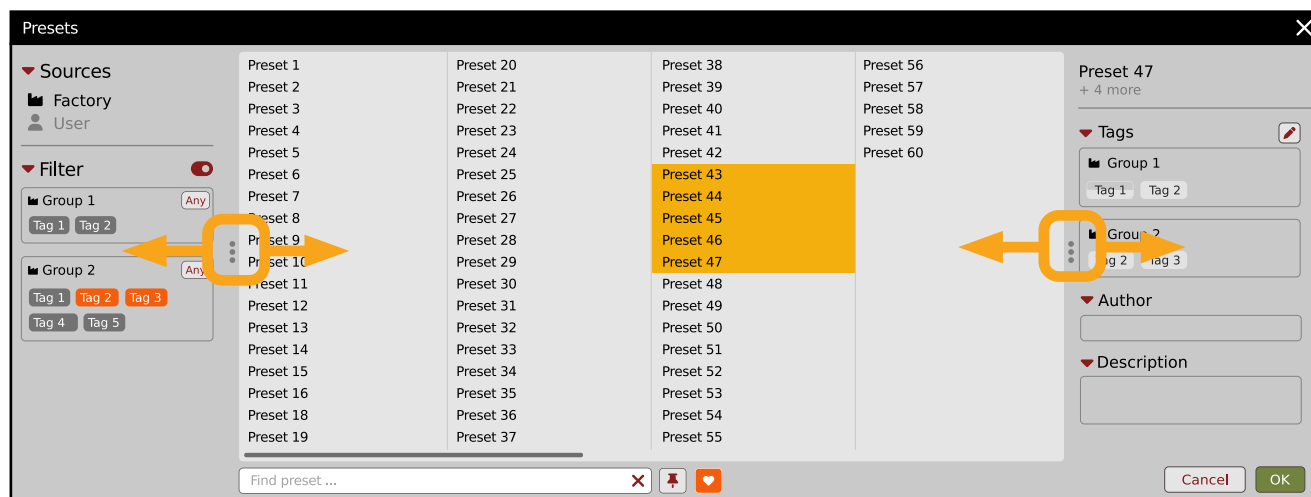
If you don't need to see the contents of every section / subsection, you can fold some of them up using the **Caret** icons:



Sections folded up

Resizing columns

You can use the three-dotted handles to change a column's width to your preference.



Resizing Browser columns

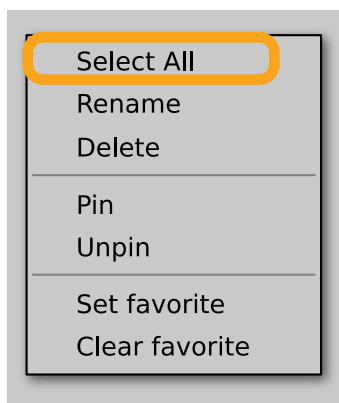
Editing presets

You can perform certain actions on presets, such as adjusting **Groups** and **Tags**, deletion, renaming the presets as well as their export or import. One should bear in mind, however, that some operations are only allowed on user presets but not on **Factory** content.

Preset selection for Edit

Some operations can be done on more than one preset, so you're allowed to select more than one preset at once; in the **Results** section, you can choose a preset or a set of presets in the following ways:

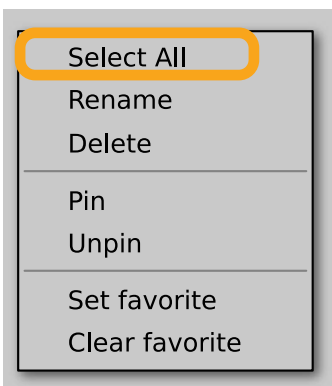
- **Click a preset** - Selects (and loads) one preset from the list.
- Win (**Ctrl** + **Click the preset**), Mac (**Cmd** + **Click the preset**) - Adds another preset to an already chosen preset or a set of presets.
- **Shift + Click the preset** - Selects a range of presets from the last chosen preset to the preset clicked with the *Shift* key.
- Right-Click on any **Preset** in the **Results** section and choose the **Select All** option - this selects all presets:



Selecting all presets

Preset renaming

On a selected preset , right-click to open the context menu and select the **Rename** option:

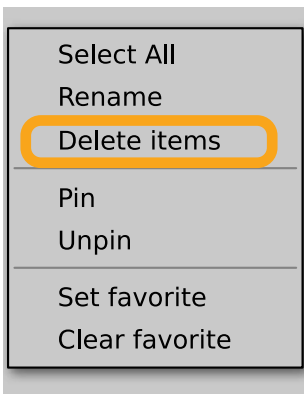


Preset renaming

 The option is available only for individual presets and won't work on a selection of two or more presets.

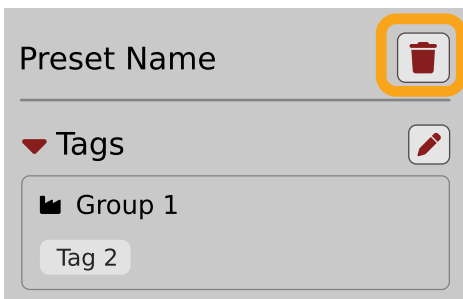
Preset deletion

Once you have selected one or more presets, right-click to open the context menu and select the **Delete items**  option:



Deleting presets

Alternatively, you can use the **Trash bin** button in the **Info pane** to delete selected presets:




The Trash bin button

Tags editing

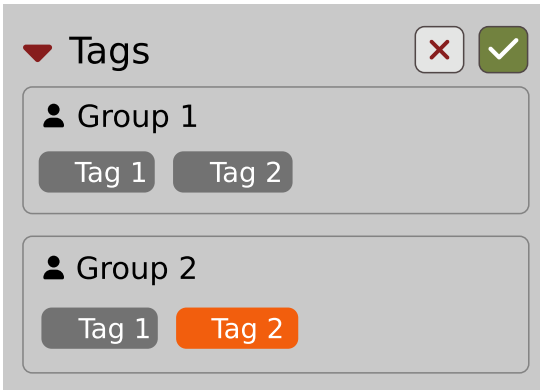
When you select a preset or presets to change their tags, click the **Pencil** button next the **Tags** section in the **Info pane** to enter **Edit mode** for the **Tags**:



Entering the Tag edit mode

 Or **Delete** option (depending on how many presets have been selected).

With the **Edit mode** enabled, you will see all possible **Groups** and **Tags** available for the preset(s):

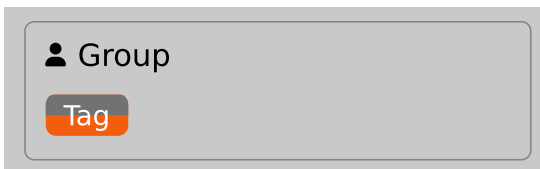


The Tag Edit mode

Tag buttons work in toggle mode, much like filtering. Clicking them either sets or erases a **Tag** for a chosen preset. If a **Tag** is set for a preset, it is indicated by an orange background color, whereas if a **Tag** is not set, it has a gray background color.

If you choose multiple presets with existing tags, **Tag** buttons will appear orange if a specific **Tag** appears in all selected presets, and gray if it appears in none.

When a specific **Tag** is set only for a few of the selected presets, it appears as half-gray and half-orange.



Tags appearing only in part of selection

Changing the **Tag** status for one or more chosen presets sets or erases this **Tag** in all these presets. A status change is signaled by an **Asterisk** to the left of a **Tag**.



A Tag with a status change

Tag buttons highlighted in half-gray and half-orange color (where **Tag** values across the highlighted presets aren't all the same) work in a three-state system when switching between states; they turn gray if you erase the **Tag** for all selected presets, orange if you set the **Tag** for all selected presets, and return to half-gray and half-orange if the selected items remain unchanged or are returned to their initial state.

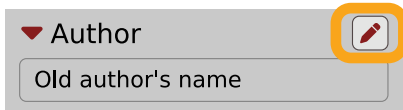
Potential changes have to be confirmed using the **OK / Cancel** buttons at the top part of the **Tags** section:



Confirmation buttons in the Tags section

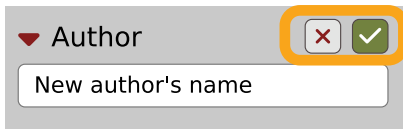
Author editing

When you select a preset or presets to change the **Author**, click the **Pencil** button next the **Author** section in the **Info** pane to enter the **Edit mode** for the **Author** field:



Editing Author

Once you've finished editing the field, confirm the operation using the **OK / Cancel** buttons:

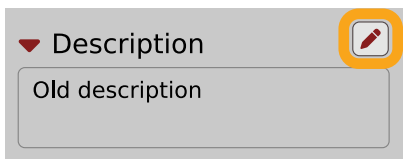


Confirming Author editing

This operation is possible for user content only.

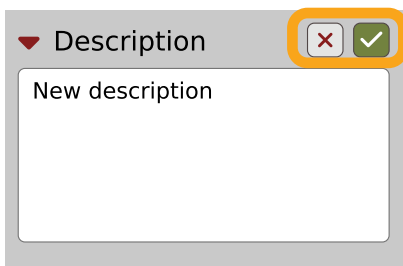
Description editing

When you select a preset or presets to change the **Description**, click the **Pencil** button next the **Description** section in the **Info** pane to enter the **Edit mode** for the **Description** field:



Editing Description

Once you've finished editing the field, confirm the operation using the **OK / Cancel** buttons:



Confirming Description editing


This operation is possible for user content only.

Setting presets as Favorites

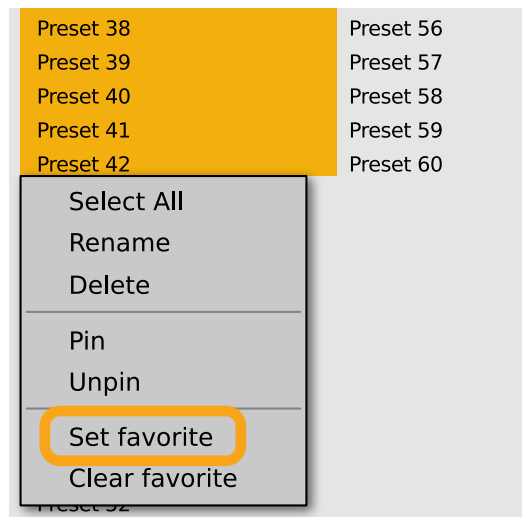
As described in the chapters above, you can mark a preset as a **Favorite** by clicking the **Heart** icon while hovering over the preset name:



Setting a preset as a Favorite

The flag is stored globally, meaning that a **Favorite** preset will be accessible as such from every other instance of the plug-in  .

It's also possible to perform the operation for a selection of presets. After you select the desired presets in the **Results** window, right-click on the presets to open a context menu:



Setting Favorite presets from the context menu

And select the **Set favorite** option.

To clear **Favorite** flags for the selection of presets, use the **Clear favorite** option instead.

Pinning presets

You can **Pin** one or more presets using the **Pin** icon while hovering over the preset name:

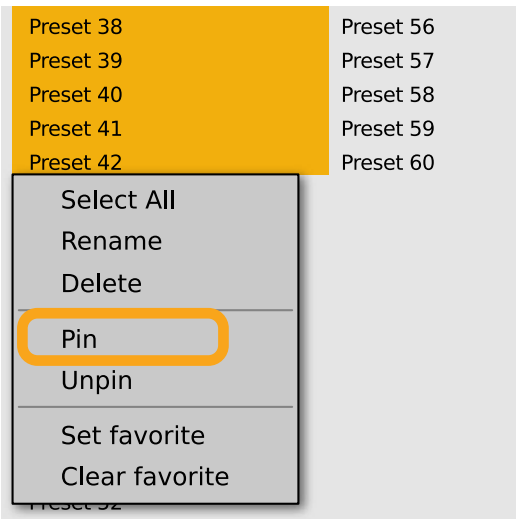


Pinning a preset

Unlike **Favorites**, this flag works locally and it's stored with the project file (not globally). This means the **Pins** are stored individually for every instance (with total recall, so a plug-in state is recalled if saved in the context of a project).

 Sometimes a project or plug-in reload may be required

It's also possible to perform the operation for a selection of presets. After selecting the desired presets in the **Results** window, right-click on the presets list to open the context menu:



Pinning presets from selection

And select the **Pin** option.

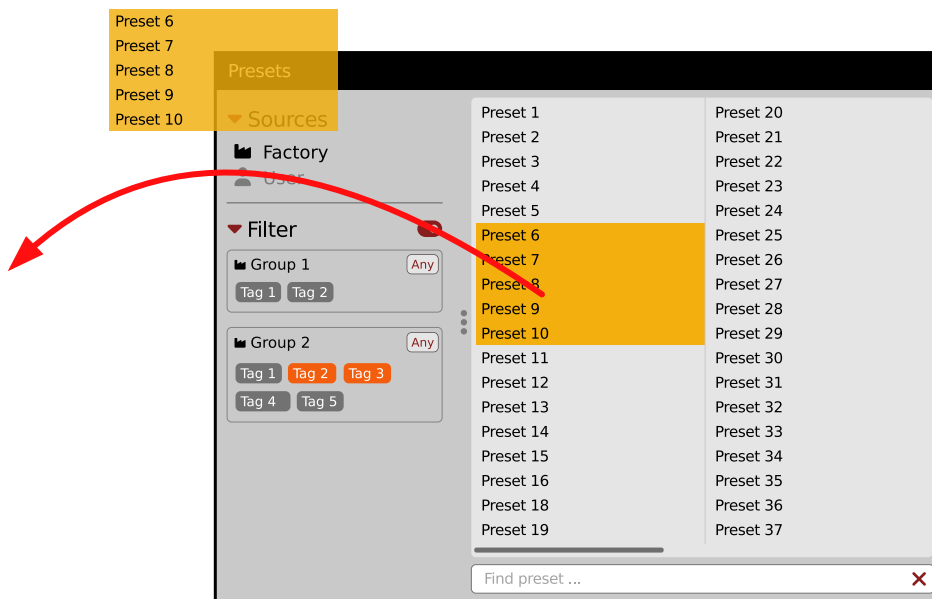
To clear the **Pin** flag for a selection of presets, use the **Unpin** option instead.

Preset exchange

If you want to make a backup, or exchange a preset with a collaborator, you can export / import selected presets.

Export

Select a preset or presets that you're going to export and drag-and-drop them outside your DAW into a location you'd like to store them:

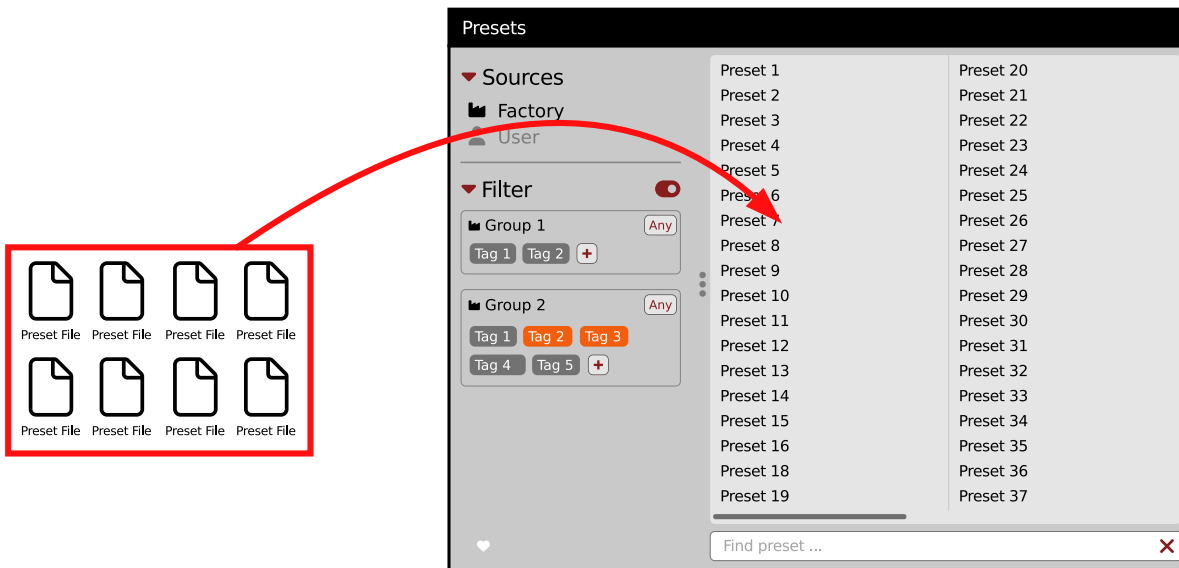


Exporting presets

The presets will be saved as individual files (one per preset) in the plug-in's native format.

Import

If you'd like to import preset files, you can drag-and-drop preset files from where they're stored, into the preset browser:




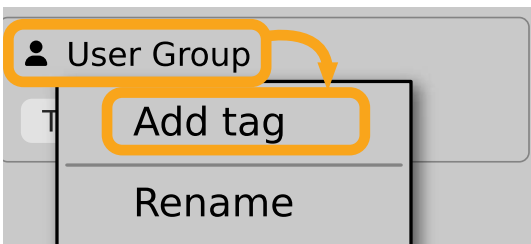
Importing presets

They will be automatically imported as user presets.

Creating custom Tags and Groups structure

Adding custom Tags

Users are allowed to add their own custom **Tags** to both their own content and factory content. To add a new **Tag** to an existing filter **Group**, click over the **Group's** name to pull down a menu and select the **Add Tag** option  :



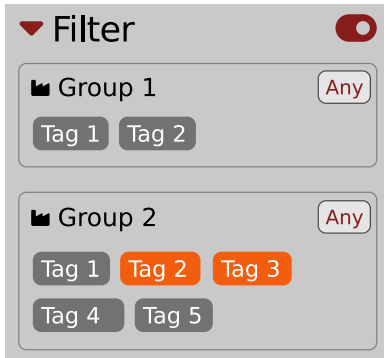
Adding a new Tag

You can do this either in the **Info Pane** (right column, while the **Tag edit** mode is enabled) or **Filter** (left column).

 This operation is allowed for a user's Groups only

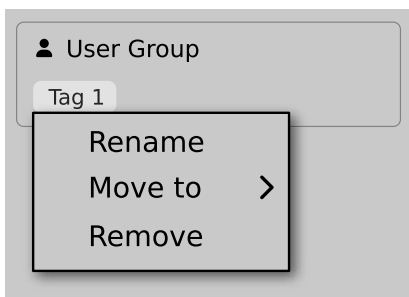
Editing custom Tags

There are a few edit options available for a user to perform on their own **Tags**, which are available by right-clicking a **Tag's** name in the **Filter** section:



The Filter section

You will see a context menu with all the available options:



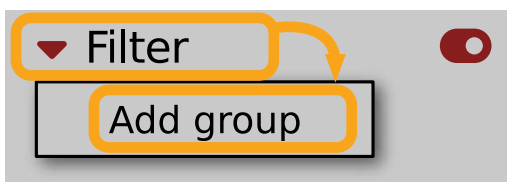
Editing options for a user Tag

- **Rename** - Changes the name of a **Tag**.
- **Move to** - Moves a **Tag** to another **Group**.
- **Remove** - Deletes a **Tag**.

The menu is accessible only for a user's own **Tags**.

Adding custom Groups

You can add a custom filter to **Groups** by clicking the **Filter** label and selecting the **Add Group** option from the pull-down menu:



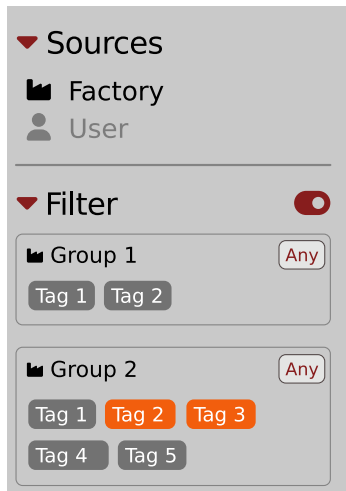
Adding a user Group

From here, you can add **Tags** to that newly created **Group** (see above), or move **Tags** from other **Groups**.

You can also add a custom filter to **Groups** in the **Info Pane** (right column) or **Filter** (left column).

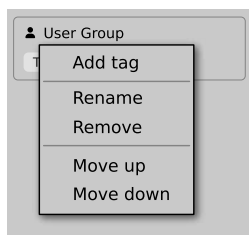
Editing custom Groups

There are a few edit options available for a user to perform on their own **Groups**. Click on a **Group's** name in the **Filter** section:



The Filter section

You will see a context menu with the following options:



Edit options for a user Group

- **Add Tag** - Adds a new tag to the **Group** (described earlier).
- **Rename** - Changes the **Group's** name.
- **Remove** - Deletes the **Group**, possible only when all **Tags** in the **Group** have also been removed.
- **Move up** - Moves a **Group** up in the **Filter**. Possible unless the **Group** is already the topmost one.
- **Move down** - Moves a **Group** down in the **Filter**. Possible unless the **Group** is the last one.

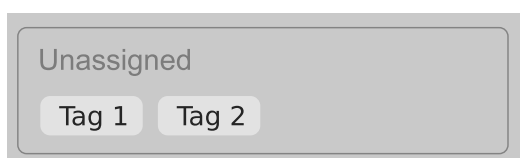
These operations are possible only on user **Groups**.

Groups in the **Filter** are ordered with **Groups** from **Factory** content first, then user groups below.

You can edit user **Groups** in either the **Info Pane** (right column, while **Edit mode** for **Tags** is enabled) or **Filter** (left column).

Unassigned Tags

When you receive content from a collaborator who uses different **Tags** and **Groups**, some Tags may show as **Unassigned**. This happens if the filter structure made by a preset's author is different.



Unassigned Tags

You can move the **Tags** across your **Groups** to make them fit your scheme, or re-tag the collaborator content entirely.

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