SUPERMODAL
FILTER

USER MANUAL

V1.0.0

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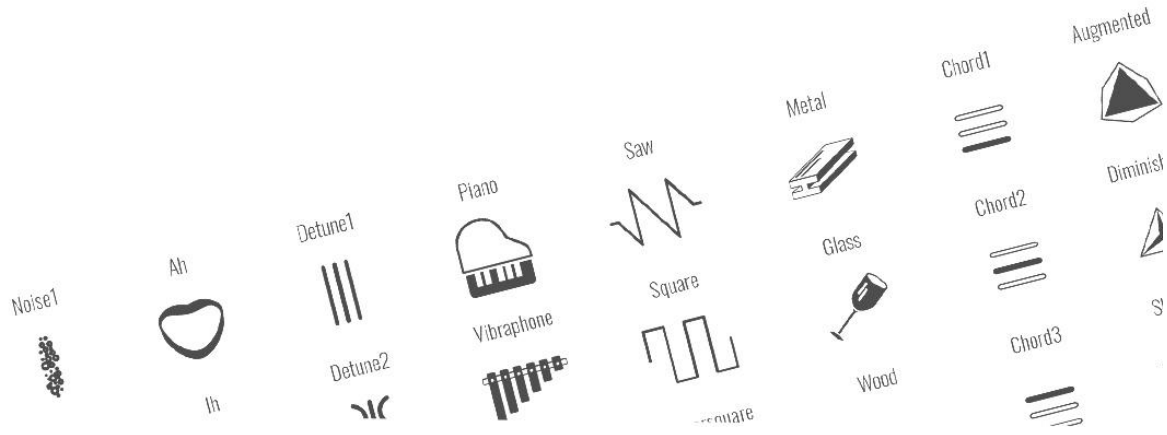
By

POLYVERSE

Table of Contents



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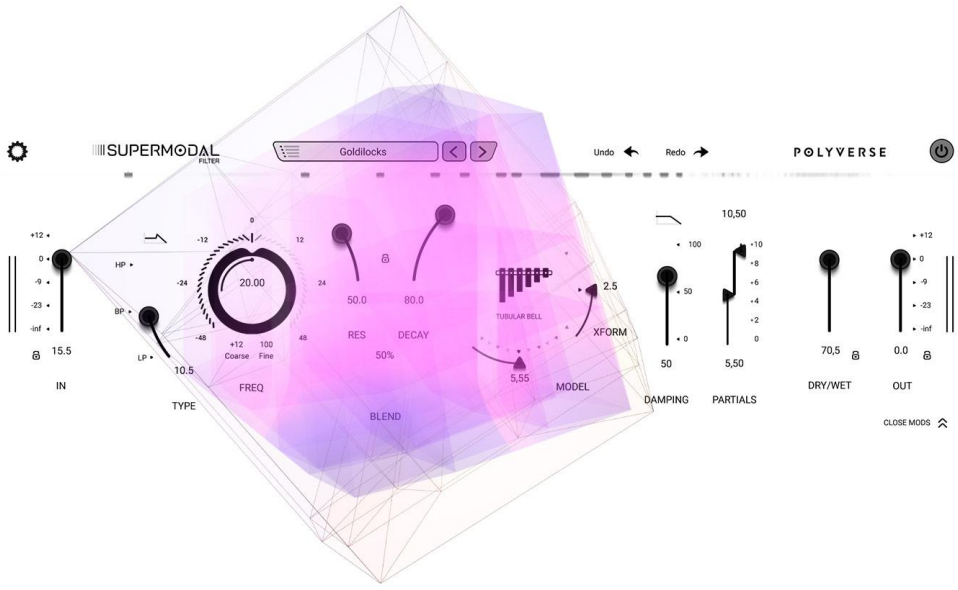
Factory Presets by:
Assaf Dar Sagol, Scott Kane, Arctic Fox, Jason Derric (Jazen Sounds), and Ian Ross (Inflight Muzik).

Special thanks to our Beta Test Team, who were invaluable not just in tracking down bugs, but in making this a better product.

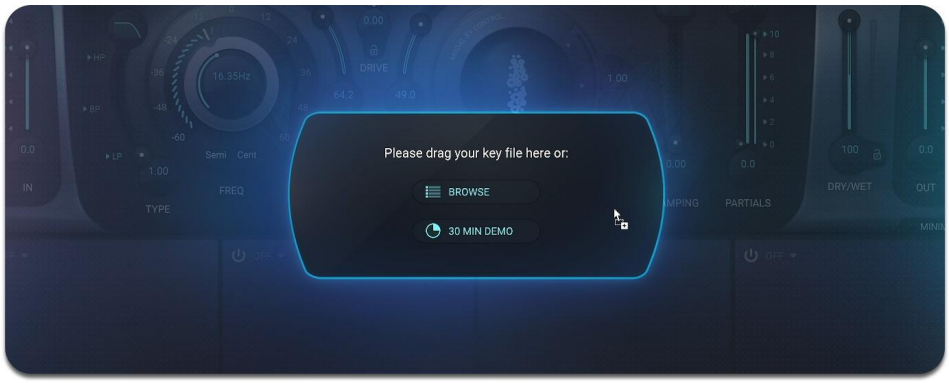


About Supermodal

Polyverse Supermodal uses 200 surgically precise bandpass filters to emulate the behavior of various resonating bodies. Together with an expansive modulation system, this extracts an extraordinary level of detail of sonic variation from a single audio signal. A relatively static track can become a shimmering cinematic soundscape, pulsating rhythm, pad with internal harmonic motion, and much more. Other than resonances, it does not add content to your track that wasn't there to begin with — it simply uses sophisticated filtering to squeeze the most musical diversity out of what's already there.

Getting Started

Installation



To install Supermodal, simply run the installer and follow the instructions on your screen. For free tutorials and videos about setting up and using Supermodal with your favorite DAW (Digital Audio Workstation), please visit our website at http://polyversemusic.com/support

When using Supermodal for the first time, a registration dialog will appear. To register and authenticate the plugin, first download, then drag and drop the key file you have received in your purchase confirmation email onto the dialog box.

If you've lost your confirmation email, you can re-request one to be sent automatically from our support page at http://polyversemusic.com/support

Compatibility:
Windows: 64-bit VST, VST3, AAX
OSX: 10.12+ 64-bit VST, VST3, AAX, AU

With or Without MIDI?

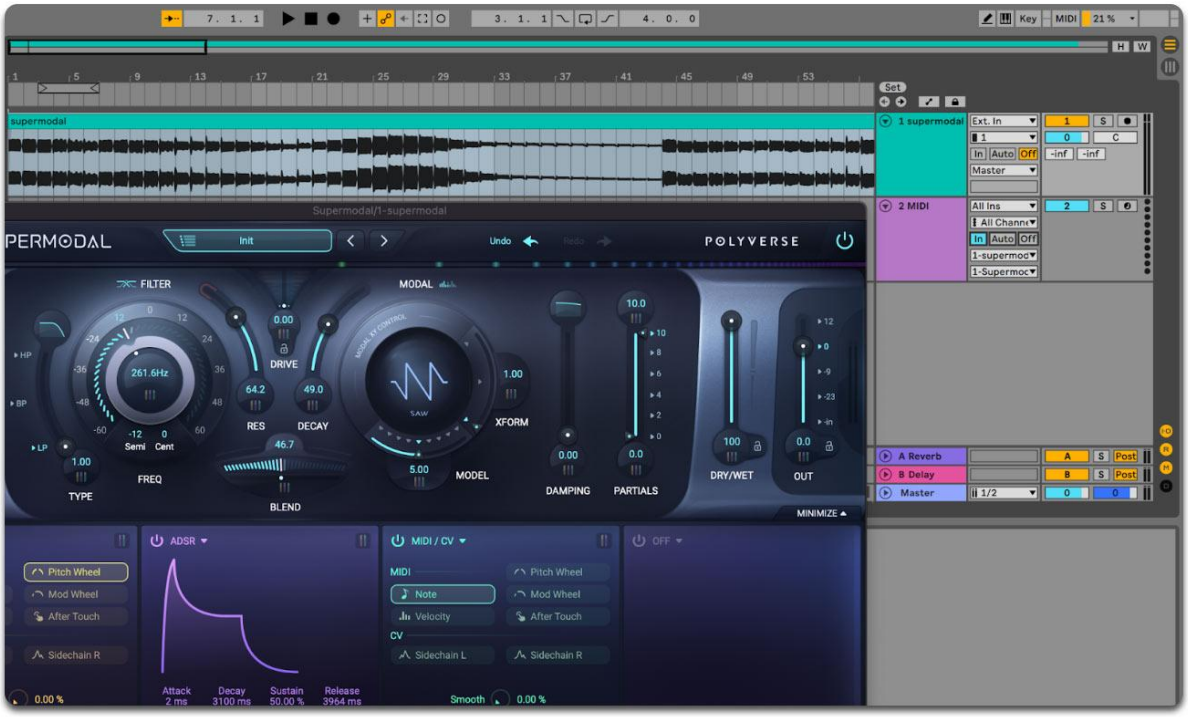
Supermodal can be inserted into audio or instrument tracks just like any audio effect. However, some of its features involve responding to MIDI notes and MIDI CC messages.

If you would like to use Supermodal as a regular effect, just load it in one of the insert slots on your DAW, and you're done!

If you want to use MIDI to separately trigger the envelopes manually, please refer to the following pages for instructions on routing MIDI within your specific DAW.

Ableton Live

- Click the "I-O" button to show the input and outputs.
- Create an audio track, and add some audio onto it.
- Add Supermodal onto the audio track.
- Create a blank MIDI track.
- Set the MIDI track's output to the audio track with Supermodal .
- While audio is flowing through Supermodal , play some MIDI notes on your virtual or external keyboard controller.



Logic X

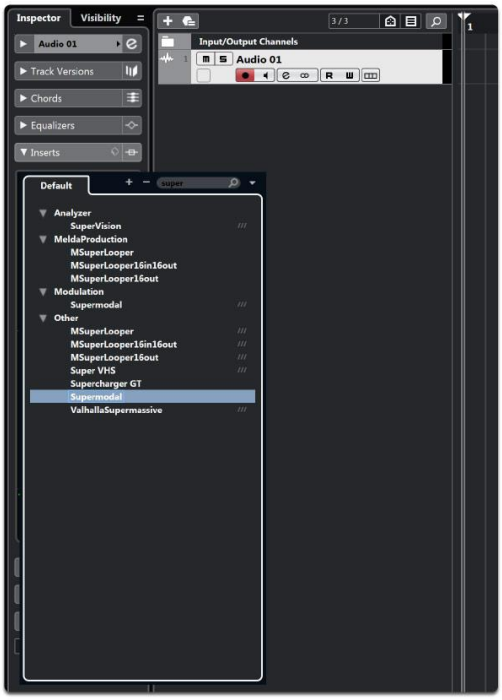
- Open a software instrument track.
- Click on the instrument slot to select Supermodal.
- Open a new audio track and place your audio file inside it.
- Open the Supermodal plugin interface. In the top right, select your sidechain input to be the same as the audio track.
- Mute the audio track, as its signal is now being routed through Supermodal.
- Select/Enable the plugin's instrument track.
- Play some MIDI notes as the audio streams through the plug-in.

Pro Tools

- Create a new audio track
- Add Supermodal as an insert effect
- Place an audio file in the track
- Create a new MIDI track
- Route the MIDI track's output to the plug-in
- Arm the MIDI track
- Play some MIDI notes as the audio streams through the plug-in.

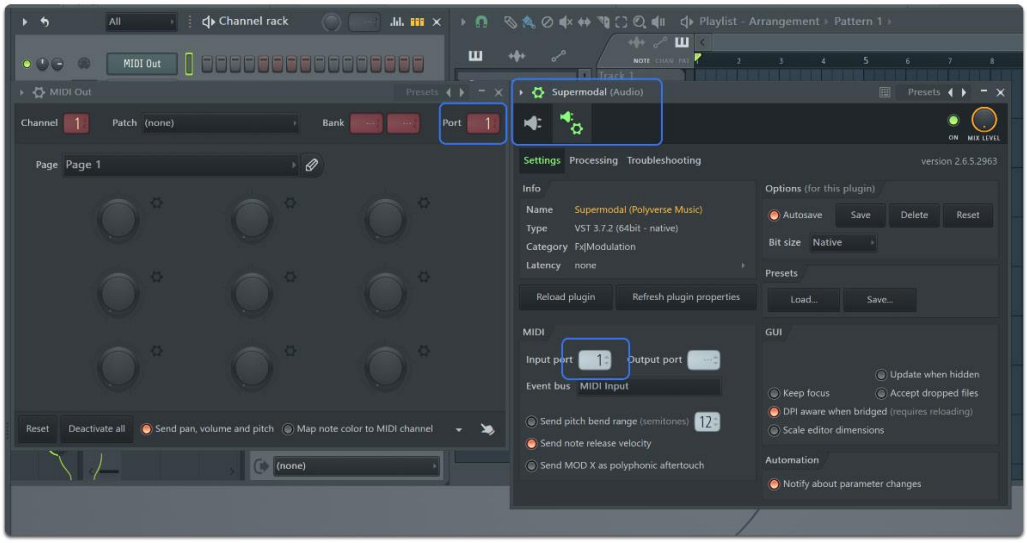
Cubase

- Add an audio track
- Add Supermodal as an insert effect
- Place an audio file in the track
- Add a MIDI track
- Set the MIDI track's output to the Supermodal plugin.
- Play some MIDI notes as the audio streams through the plug-in.



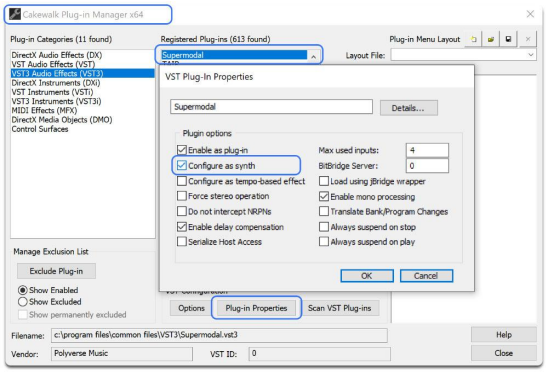
FL Studio

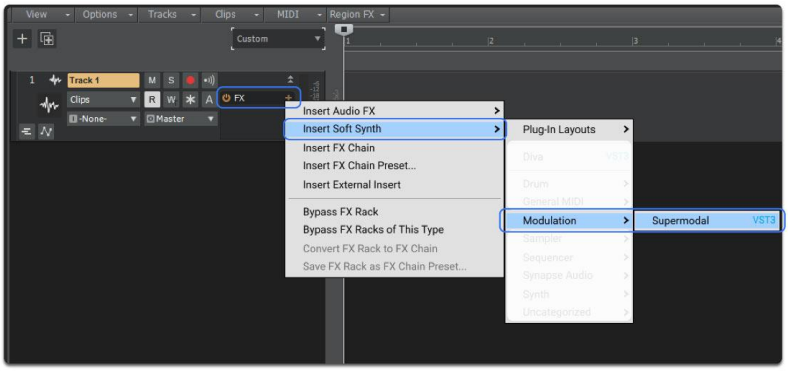
- Drag an audio file to your playlist and route it to “Track 1” on the mixer.
- Load Supermodal as an insert on “Track 1” on your mixer.
- Open a “MIDI Out” plug-in and set the Port to 1.
- Set the Supermodal MIDI input port to 1 as well
- Select the “MIDI Out” channel,
- Play some MIDI notes as the audio streams through the plug-in.

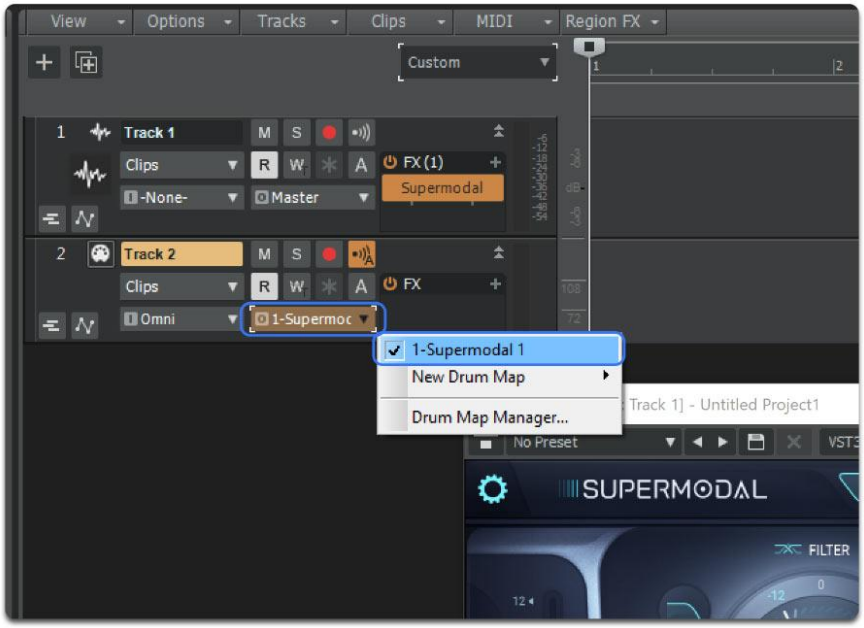


Sonar

- Configure Supermodal as a synth in “Utilities/Cakewalk Plug-in Manager”
- Import an audio file to an audio track ,
- Inset Supermodal as a “soft synth” on that track.
- Create a new MIDI track,
- Set the MIDI track’s output to Supermodal .
- Play some MIDI notes as the audio streams through the plug-in.







Introduction

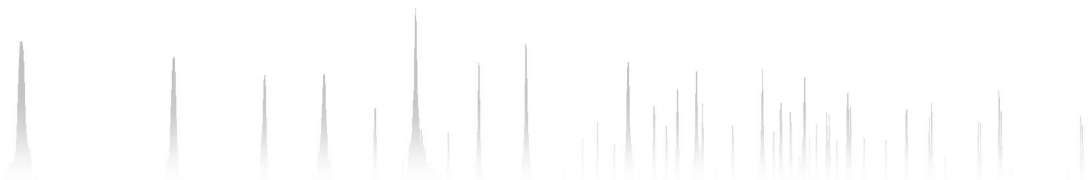
Supermodal is a “Meta-Filter” made up of hundreds of resonant bandpass filters. It contains 27 different filter models ranging from acoustic to synth-style to mathematical to special effects, all of which can be used to create a wide range of filtering effects

Supermodal is comprised of two filter sections working in parallel.
First is our classic state-variable filter. That means it can smoothly morph between lowpass, bandpass, and highpass modes. It’s very fat-sounding due to its internal saturation algorithm, and has a slope of 24dB per octave like the filters on many classic analog synthesizers.

Second is our Modal Filter, which is capable of modeling resonating bodies by the use of 100 bandpass filters per side. Don’t worry — you don’t have to adjust each of these individually! The Modal Filter has nine models, each of which has three variations. (For example, the vocal formant model features “Ah,” “Ih,” and “Oh” variants.) Not only that, but you can morph between both the main models and their variants using an X/Y “sphere” controller.

Both filters are stereo. Virtually all parameters can be modulation destinations, resulting in some awesome stereo effects.

As for modulation sources, Supermodal comes with a cool combination sequencer/LFO, random generator, an ADSR envelope, an envelope follower, MIDI/CV input (which means Supermodal parameters can be modulated by our Gatekeeper plug-in) and our Meta Knobs, which can control multiple parameters with a single control gesture. You can mix and match these modulation sources in up to four modulation slots.

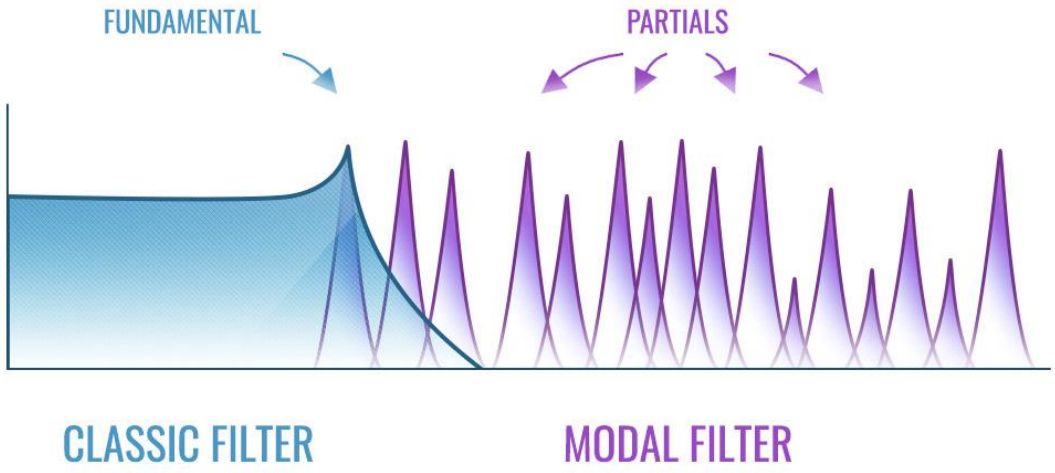


Structure of Supermodal

This basic structure of Supermodal consists of two filters that are routed in parallel and so can be blended — you can have more filtering from one and less from the other, or balance them evenly.

1. The **Classic Filter** is a classic 24dB-per-octave (four-pole) filter that can smoothly crossfade between lowpass, bandpass, and highpass modes. It has internal saturation, and a highly controllable resonance section.
2. The **Modal Filter** is a modeling filter, meaning it duplicates the characteristics of various resonating bodies and other things that affect the harmonic content of sounds occurring inside or around them.

Thus, where the Classic Filter gives you a relatively simple, synth-like slope, the Modal Filter is capable of emphasizing various harmonics (partials) in the source sound in a non-linear manner. The two are interrelated because they both affect the frequency spectrum of the source audio at the same time.



Main Controls

The main panel of Supermodal is where you adjust all the controls that have the most impact on its sound.

Control Tips

The controls in Supermodal have a few common behaviors meant to make working with the plug-in quicker and easier. Generally, you can do the following:

Shift-Drag To Fine Tune

Hold the shift key while dragging on a control to move it more slowly and thus make fine adjustments.

Double-Click for Default

Double-click on any graphical control to return it to its default value. Another double click will return it to the previous value.

Direct Entry

While you can drag up or down on any numerical or field, double-click on the field to enter a specific value right from your computer keyboard.

Padlock Icons

Certain settings — namely the In, Out, Drive, and Dry/Wet controls — can have a huge impact on the signal level in your track. These all have clickable padlock icons beneath them. When locked, the settings remain at their currently set values even when you change Presets. This lets you experiment with different effects without causing a large and unexpected change in gain.

Main Controls List

In

Adjusts the input volume of the filter and offers up to a 12dB boost of the input signal. Supermodal's filters have internal saturation, and boosting the input signal takes advantage of this feature.

Out

Adjusts the output volume of the processed signal. This can be very useful for taming the resulting gain in your track without having to reach for the fader in your DAW's mix window.

Freq

Adjusts the frequency of *both* the classic and the Modal Filters.

The filter curve corresponds to pitch. The zero in the 12 o'clock position above the knob is tuned to C5 by default, although this can be changed (see the Tuning section in Settings). Clicking on the numbers around the knob will result in jumps in octaves. This lets you tune the filter's behavior to the musical key of your source material.

You can click on the frequency (Hertz) field in the center of the knob as well.

Entering note value (for example: “C#4” or “Eb2”) in the frequency text field will tune it to the corresponding frequency — as interpreted by our scale tuning system.
Dragging on the Semi or Cent text sliders is another way of moving the frequency knob, which always references an increase or decrease in pitch from the zero position. Notice that the Hertz and Semi/Cent fields always track each other — you never again have to wonder what frequency corresponds to a certain pitch or vice-versa!

Type

This slider crossfades between the Classic Filter’s three filter types: lowpass, bandpass, and highpass. Click on the LP, BP, or HP icons if you want purely that type of filter.

Res

Resonance is a peak of frequencies around the cutoff frequency (lowpass and highpass) or center frequency (bandpass) of a filter, and is responsible for the “whistling” or “rubbery” character of many classic analog synth patches. This control applies resonance to the Classic Filter only. The Classic Filter is capable of self-oscillating and can go beyond that point. It has enough headroom for its resonance to be displaced by audio — if pushed with enough gain. Be careful with this!

Blend

Crossfades between the Classic Filter and the Modal Filter to achieve the perfect balance between the two

Drive

This will drive the input by up to 24dB into both filters, but not into the dry signal.

Decay

This is essentially the resonance of the Modal Filter, which unlike the Classic Filter cannot reach self-oscillation. Instead we have provided a curve tailored to treat it as a decay, meaning how long the resonance rings out.

Model

In the Modal Filter, you can morph between different models and their variants, which we call transformations (Xforms). A Model is a configuration of the 200 filters (100 per stereo side) frequencies and amplitudes. Move the Model slider to select between the different models.

Xform

There are three transformations for each mode, providing further sonic variation on the main resonant space or body behind the model. Move the Xform slider to morph between the transformations.

Sphere Control

The central display in the Modal Filter actually moves like a trackball. Main models are along the X-axis and their transformations are on the Y-axis. This lets you dial in any combination. Don’t worry if you get lost. You can always click the triangular icons along the Model and Xform sliders to get back to a specific model and transformation.

Models and Transformations

Noise	 Noise Slim	 Noise Exp	 Noise Lin

This model is all about randomness. Noise One starts with a very narrow randomized array of filters. Noise Two uses an exponential curve to spread the filters evenly across a range of pitches. Noise Three uses a linear curve to spread those frequencies out even more widely. Since the three models were created using random numbers, this filter is very good for synthesizing cymbals, and as a subtle stereo phaser.

Vowels	 “Ah”	 “Ih”	 “Oh”

This is our version of the classic vocal formant filter. Its transformations represent the three different vowel sounds. Tune the frequency knob of the Classic Filter to adjust the formant (-12 usually does the trick for the most vocal-like sounds).

Detune	 Detune 0C	 Detune 50C	 Detune Fifths

Detune consists of three resonating strings that can be detuned relative to each other. The first Xform has no detune, while the second has a wide amount of detune. The third Xform is detuned by a perfect fifth. Therefore, many interesting chords lurk between the second and third Xforms.

Struck	 Piano	 Vibraphone	 Bell

This model was created by analyzing recordings of a piano, a vibraphone, and a Bell and extracting the frequency content. Your source audio will sound like it is vibrating the inside of a piano, the bars of a vibraphone, or a bell.

Waveform	 Saw	 Square	 Hypersquare

This is a mathematical model, the frequencies are whole number multiplications of the fundamental frequency and the amplitude is a division of that number. Basically, it pushes the harmonic content of your source audio more towards that of the selected Xform. The saw wave contains odd and even harmonics. The square wave only contains odd harmonics and sounds more nasal. The hypersquare (batman) shape is made by skipping two harmonics, playing the third harmonic thereafter, and repeating the process.

Materials	 Metal	 Glass	 Wood

In this model, your audio excites these three materials. They all have a center pitch, but the harmonics are placed in different positions and can vary greatly depending upon the selected Xform.

Chord	 Chord Low	 Chord	 Chord High

This model allows the tuning of custom chords with three resonating strings. All three Xforms play a perfect fifth using the first two strings. Changing Xforms tunes the third string an octave up or down.

Interval	 Augmented	 Diminished	 Shepard's

Another chord model features augmented and diminished intervals that are great for phaser-like effects. The Shepard's Xform has the filters tuned in minor thirds throughout the entire series, approximating the "Shepard's tone" audio illusion where a pitch seems to be eternally rising or falling.

Special FX	Spring	Lazer	Cluster

This model is simply wild, featuring harmonics that become more and more condensed. Cluster places 100 cents (one semitone) between each filter. Spring is a band-limited delay model, and Lazer is a very narrow arrangement of the filters that can impart a laser-sweep effect to the sound.

Damping

This algorithm decreases the volume of the higher partials emphasized by the Modal Filter, resulting in a gradual dampening of the treble frequencies. The result is much like using a comb filter or a dampened reverb.

Partials High

This will cut partials in octaves relative to the fundamental frequency of the filter. The right-hand side of the slider cut will cut high frequencies, acting somewhat like an additional lowpass filter.

Partials Low

This also cuts partials in octaves relative to the fundamental frequency of the filter. The left-hand side of the slider will cut low frequencies, acting somewhat like an additional highpass filter.

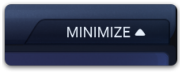
Dry/Wet Mix

Dry/Wet crossfades between the unprocessed and processed signals. At the top (wet), what you hear is fully affected by the filters. At the bottom (dry), you are not hearing any filtering at all.

Modulation

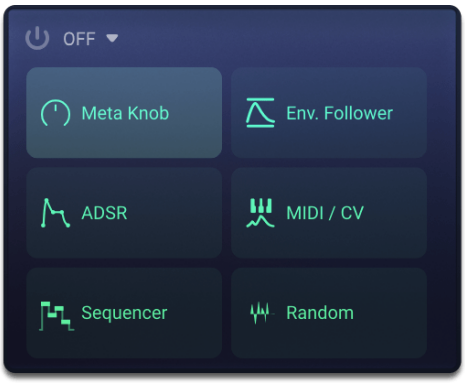
Supermodal's main parameters can all be modulated by a number of external and internal sources. You can use the various modulation sources to tune several parameters with a single knob, make the filtering responsive to MIDI or CV messages (or to the volume of the source audio using the envelope follower), modulate parameters with an LFO-like waveform or step-sequenced pattern, and more.

Open/Close MODS



Click the MAXIMIZE text at the lower right corner of the plug-in window to show the modulation section and MINIMIZE to hide it.

Selecting a Modulation Source



To modulate a parameter, first load a modulation source into one of the slots by clicking on its title and selecting from the choice of available modulators.

The four slots are color-coded from left to right: amber, purple, green, and red.

Once a slot is on, **Modulation Pop-up Buttons** will appear underneath any main control that's eligible to be a modulation source. These appear as small vertical lines that match the color of the modulation sources. Note that you will see only as many vertical lines as you have modulation sources active — any number from zero to four.


modulation button with no modulation


modulation button with active modulators

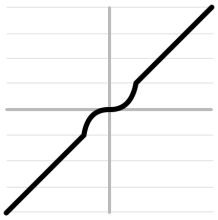
Assigning a Destination

Now, click the Modulation Pop-up Button for the parameter you want to modulate, to open the Modulation Pop-up Sliders. This button also has a monitor allowing you to see the amount of modulation on the parameter at a quick glance.

Modulation Pop-up Sliders

The modulation Pop-up contains modulation amount sliders. Again, modulation controls have the same color as the Modulation Source Slot they represent and will appear only if the slot is enabled.

The controls are bipolar, so sliding them up to the maximum will result in positive modulation, while sliding them down to the minimum will result in negative modulation. Double Click to set to 0 - and turn the modulation off.

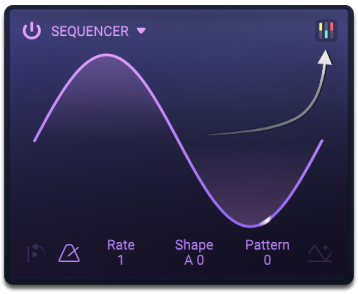


Most modulation amount sliders have a curve - which enables more resolution in values that are closer to zero until the 25% mark, and then linear action afterwards.

Stereo Modulation

Notice that Mod slot 2 looks different in the image of the sliders above. Click the circle icon below any modulation slider to toggle modulation from that source between mono and stereo. In stereo mode, you can set different modulation depths — even one positive and the other negative — for the left and right sides of a stereo signal. This can result in some truly wild modulation effects. Want the filter cutoff to sweep up for the left side as it goes down for the right? You can do that!

Cross-Modulation



Can you modulate the depth (amplitude) of one modulation source with another? Of course you can! Modulation sources have their own pop-up buttons as well.

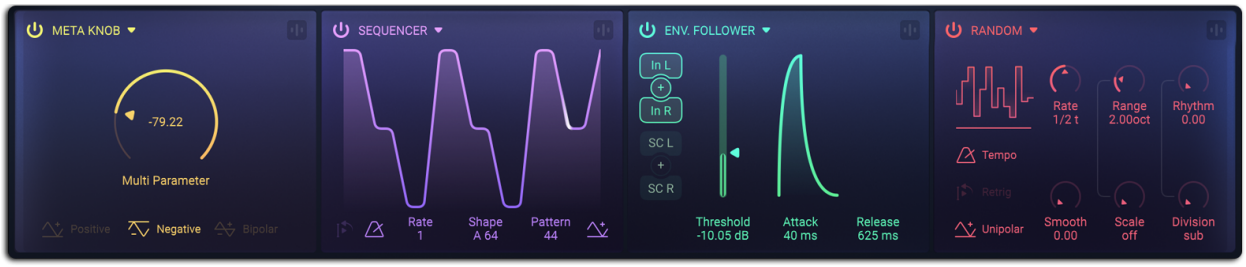
Click this button to bring up a pop-up of sliders similar to those in the main controls section. You'll see a maximum of three sliders, as a given modulation source cannot modulate itself.

When a slot is modulated, its level will change according to the behavior of the source(s) modulating it. For example, when an envelope is being modulated by MIDI velocity, it will act like a classic velocity sensitivity slider, where more modulation means more velocity range.

Here are several useful examples:

- Classic mod-wheel action: Control the depth of vibrato sourced from the LFO/sequencer using the modulation wheel (which is located in the MIDI/CV source).
- Fade in an LFO/sequencer by modulating it with an envelope.
- Control several Meta Knobs with one Meta Knob — a Meta-Meta Knob!
- A more elaborate example would be to modulate the Classic Filter's frequency parameter with an LFO and the Modal Filter's partials with an ADSR, while a single Meta Knob controls the *amount* of both modulations at the same time. The level of the Meta Knob can in turn be modulated by MIDI, aftertouch, or another performance control.

Modulation Slots



Four slots are available, each of which can hold one of the six modulation sources: Meta Knob, MIDI/CV, Sequencer/LFO, Random Generator, Envelope Follower, and ADSR Envelope.

The Modulation Source Slots are color coded to match their relevant Modulation Amount controls, as we have already seen when discussing the pop-up buttons and modulation depth sliders.

You can mix and match sources in the slots any way you like, including having multiple slots with the same type of source. Each slot is independent, of course, so you might have a "green sequencer", a “red sequencer”, etc., each with its own settings.

On/Off 

Use this switch to enable or disable a slot. If you disable a slot, all of its settings will remain intact for the next time you enable it. A disabled slot appears to be empty and will have no effect on the sound. Once a slot is turned on, its matching Modulation Amount controls will appear in the plug-in’s interface, and the modulation fun begins!

Modulation Sources

Now, let's have a look at each type of modulation source in detail.

Meta Knob

This is a “macro” that allows you to modulate several parameters with a single knob.

Polarity

The buttons across the bottom select the knob’s type. Knobs can be **positive-unipolar** (ranging from zero to 100% and marked “+”), **negative-unipolar** (ranging -100% to zero and marked “-”), or **bipolar** (ranging -100% to 100% and marked “B”).

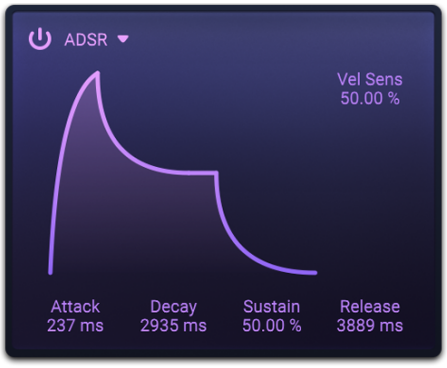
Name

Meta Knobs can be given meaningful names to clarify their action in a preset. To rename a knob simply double-click on its title (which is right below the actual knob) and type in a new name.

Value Monitor

The current output of a knob is displayed as a percentage value at the center of the knob. Changing the knob’s output is as easy as double-clicking the number and entering a new value.

ADSR



The ADSR is a classic four-stage envelope generator, triggered by incoming MIDI notes.

Attack

Sets the amount of time it will take for the envelope signal to climb from zero to 100% once a MIDI note is received.

Decay

Adjusts the amount of time it takes for the envelope signal to drop from 100% to the sustain level. The Decay stage is initiated immediately after the Attack stage is completed.

Sustain

Sets the level at which the envelope signal will be held after the decay stage is completed, for as long as the incoming MIDI note is held.

Release

Determines the amount of time for the envelope amplitude to drop back to zero after the MIDI note is released.

Velocity Sensitivity

Controls how much the MIDI note-velocity affects the volume of the envelope. High values will be more dynamic, while 0 will always play the envelope at full scale.

MIDI / CV

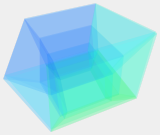
This very useful modulation source converts MIDI or CV (Control Voltage) messages into a modulation signal.
Simply highlight the type of modulation to use:

MIDI

- **Note:** A bipolar value based on the pitch of incoming MIDI notes, C3 being the center pitch (modulation amount = zero). Notes above C3 result in positive modulation amounts; notes below C3 send negative amounts.
- **Velocity:** A unipolar value mapping modulation depth to playing velocity (0-127) on a keyboard or pad controller.
- **Pitch Wheel:** A bipolar function that sends positive modulation amounts based on upward bends and negative amounts based on downward ones.
- **Modulation wheel:** Unipolar and positive; maps the modulation amount to the mod wheel position or value of MIDI CC 1.
- **After Touch:** Unipolar and positive; maps the modulation amount

CV

- **Sidechain L/R:** This treats a signal routed into the plug-in's sidechain input as if it were control voltage, with greater amplitude amounting to greater modulation depth. CV can be bipolar or unipolar. (Note: Sidechain routing varies greatly between DAWs, check your DAW's documentation for details.)



Word to the Wiz:

Different DAWs have different ways of routing MIDI notes and control messages to an effect plug-in residing on an audio track. Consult the section "With or Without MIDI" at the beginning of this manual for details on how to do this..

DAW Limitations on Sidechain for CV:

- **Apple Logic Pro** requires you to route through a bus channel for stereo CV applications.
- **Avid Pro Tools** does not support stereo sidechaining. Right and Stereo options will default back to the Left channel as the sidechain source.

We highly recommend using our **Gatekeeper** plug-in to generate CV signals for Supermodal.

Gatekeeper with Supermodal

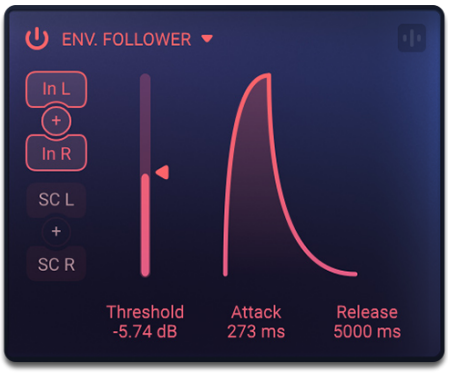
- Load Gatekeeper on a new audio track and **Mute the track***
- Right-click inside Gatekeeper's Editor and select - CV Output - Unipolar or Bipolar
- Route Gatekeeper into the side chain input of Supermodal (Please refer to your DAW's manual for details)
- Add the MIDI/CV to one of Supermodal's Modulation slots
- Under CV - Select "Sidechain" (Left or right) as the input source.
- Apply CV Modulation to any control in Supermodel
- Use the smooth knob to slow transitions between new CV values.
- For regular Audio, we recommend using the Follower Modulator.

*** IMPORTANT:** CV signals may damage your speakers if played too loudly, please mute your CV tracks ahead of time.

Smooth

The amount of smoothing applied to the modulation signal. Higher values will result in slower transition times when a value changes.

Envelope Follower



An envelope follower listens to the amplitude of an incoming audio signal and converts it into a modulation signal — often a filter cutoff in the case of envelope following effects pedals. In Supermodal, it can modulate any source you want.

Our envelope follower has a split personality. It can either function as a full-time follower or an attack-release envelope triggered by the audio reaching a certain threshold.

Inputs

Selects the input of the envelope follower.

In L: Left side of audio track's signal.
In R: Right side of audio track's signal.
(Click + icon to use both.)
SC L: Left side of sidechain input.
SC R: Right side of sidechain input.
(Click + icon to use both.)

A *sidechain* is a signal other than the current track's audio that is somehow being used to control an effect applied to the current track's audio. In a DAW, this could be another track, a bus, etc. Again, consult your DAW's instructions for how to route a sidechain input into a plug-in.

Threshold

When Threshold is set to minimum, the modulation source functions as a full-time envelope follower. Set to any other value, it determines the threshold that the incoming signal has to pass in order to trigger the attack-release Envelope.

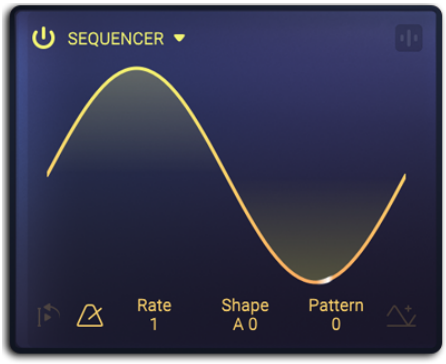
Attack

When the Threshold is set to minimum, Attack sets the amount of time it will take for the envelope signal to climb from zero to the input signal level. When the Threshold is set higher, it sets the amount of time it will take for the envelope signal to climb from zero to 100% once the Threshold is reached.

Release

When the Threshold is set to minimum, Release sets the amount of time it will take for the envelope signal to drop to a lower level of the input signal. When the Threshold is set higher, it sets the amount of time it will take for the envelope signal to drop to zero once the incoming signal drops back below the Threshold.

Sequencer



We call it a sequencer, but this source can also work like an LFO, and either free-run or be triggered by incoming MIDI notes.

Pattern

Loads one of 100 preset patterns (numbered from 0 to 99) into the Sequencer.

Once a pattern has been loaded, you can leave its shape as-is or edit its 16 steps manually and thereby change its shape in the Sequence Editor (see below).

Switching to another pattern will discard any edits. Notice that some of the patterns correspond to simple waveforms, like a sine in the case of pattern 0. Using these patterns and turning Retrigger off (see below) makes the sequencer equivalent to an LFO.

Random Pattern: Tuning the Pattern selector to the maximum (until it reads “Rndm”) will create a new, random pattern every time.

Shape

The Shape parameter varies the shapes of the transitions between individual steps of the sequencer, so a wide variety of sub-patterns can be created given a single setting of the Pattern parameter. Use this knob to gradually morph between five shaping methods:

A. Rounded transitions (great for creating curvy LFOs)
B. Linear interpolation between the steps
C. Sample and hold / Steps
D. Per-step drops (signal will decay back to zero after each step; good for grooves)
D 100. Curved per-step drops (same as previous method but more punchy).

There are 100 degrees of variation within each method (labeled A-D), so the variation you can create here is really quite precise.

Unipolar 

When The unipolar button is on, the sequencer will be scaled to operate on the positive polarity only (0 to 1). When it is off, it will be bipolar - taking both the negative and the positive polarities of the signal (-1 to 1).

Tempo Sync 

Click the metronome icon to quantize the LFO rate to the tempo of your project. This affects the Rate control.

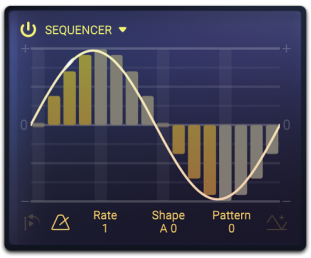
Rate

Drag on this field to set the rate of the Sequencer. When Tempo Sync is enabled, Rate will be set in multiples or divisions of the beat, including dotted and triplet feels (suffixed with d or t). When Tempo Sync is disabled, Rate will be set in Hertz.

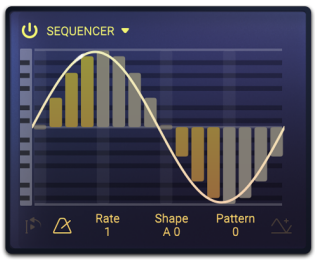
Retrigger 

This decides whether the sequencer free-runs or if it resets to the beginning of the waveform/pattern every time a MIDI note is received. If Retrigger is off while Tempo Sync is enabled, the LFO will be synchronized to the song position. If Retrig is active while Tempo Sync is enabled, the LFO will sync to the beginning of each incoming MIDI note.

Sequence Editor



Supermodal lets you either free-draw or carefully design your own sequences and LFOs. Hover with the mouse over the pattern/waveform display to show the editor. To edit the steps, use these techniques:



- **Click-drag** in the editor to draw a new **freehand** pattern.
- **Right-click individual steps** to have **fine** control over their value.
- **Shift-drag** to **quantize** the values of steps to quarters.
- **Alt-drag** to quantize the values of steps to 12ths. This editing mode can be used to facilitate a melodic sequence of **notes**.
- **Double click** a step to zero it out.
- **Command-drag** (Mac) or **Control-drag** (PC) to **zero** several steps at once.
- **Left or Right keys** to shift the **phase** of the steps
- **Up or Down keys** to invert the **polarity** of the steps
- **‘A,B,C,D,E’** keys to set the shape

Random Generator

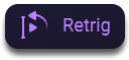
As its name implies, the Random pattern generator is capable of randomizing tempo divisions and note quantization, then converting the resulting output to a modulation source.

Tempo 

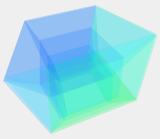
Click the Metronome icon to quantize the Random Generator's Rate to the tempo of your project.

Rate

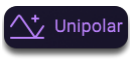
Drag on this field to set the rate of the Random generator. When Tempo Sync is enabled, Rate will be set in multiples or divisions of the beat, including dotted and triplet feels (suffixed with d or t). When Tempo Sync is disabled, Rate will be set in Hertz.

Retrigger 

When active, this generates a new random value every time a MIDI note is received and resets the Random Generator's clock. If Retrigger is off while Tempo Sync is enabled, the Generator's LFO will be synced to the song position. If Retrigger is active, the LFO will sync to each incoming MIDI note.



Word to the Wiz:
Dragging the graph left and right will adjust rate while dragging it up and down will adjust the smooth value

Unipolar 

When The unipolar button is on, the Random Generator will be scaled to operate on the positive polarity only (0 to 1). When it is off, it will be bipolar - taking both the negative and the positive polarities of the signal (-1 to 1).

Smooth

This determines the amount of smoothing applied to the modulation signal. Higher values result in slower transition times when a value in the random pattern changes.

Range

The range in octaves of the random signal. This control only has a significant effect when a modulation amount slider for a destination parameter is set at 100%.

Rhythm

This parameter sets the probability that a beat will be divided and the resolution at which that will happen. The higher the parameter's value, the more frequent and finer-grained the divisions will become.

Division

This selects a set of tempo divisions according to which the Random Generator performs its work.

Value	Result	Divisions
Sub	Divisions of 2	1, 2, 4, 8, 16, 32, 64, 128
Tuplet	Divisions of 3	1, 3, 6, 9, 12, 18, 24, 36
Sub+Tuplet	Divisions of 2 and 3	1, 2, 3, 4, 6, 8, 12, 16
Complex	Complex divisions of 5 and 7	1, 2, 3, 4, 5, 6, 7, 8
Prime	Divisions corresponding to prime numbers	1, 2, 3, 5, 7, 11, 13, 17

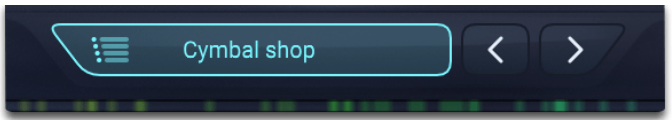
Scale

This parameter will quantize the random modulation signal to musical notes. Turning this knob will select different scales for quantization. This is meant to be used with the Random Generator applied to the Classic Filter's frequency knob, with the knob's modulation depth slider set at 100%. (It won't work correctly and really doesn't make sense with other destinations.)

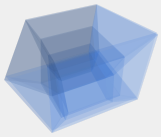
List of Scales

Value	**Description**	**Notes** (assuming C root)
Off	No quantization applied	None
Chromatic	12-tone chromatic scale	C, C#, D, D#, E, F, F#, G, G#, A, A#, B
Octatonic a	8-tone symmetric scale starting with a minor second	C, C#, D#, E, F#, G, A, A#
Octatonic b	An 8-tone symmetric scale starting with a major second	C, D, D#, F, F#, G#, A, B
Major	Major diatonic scale	C, D, E, F, G, A, B
Minor	Minor diatonic scale	C, D, Eb, F, G, Ab, Bb
Melodic	A melodic minor scale	C, D, Eb, F, G, A, B
Maj pent	Major pentatonic	C, D, E, G, A
Raag pent	Raag Vrindavani Sarang	C, D, F, G, B
Sus pent	Suspended pentatonic	C, D, F, G, Bb
Man pent	Blues minor based on Chinese scale	C, Eb, F, Ab, Bb
Yo pent	Yo Japanese scale	C, D, F, G, A
Min pent	Minor pentatonic	C, Eb, F, G, Bb
In pent	In Japanese scale	C, Db, F, G, Ab
Kokin pent	kokin-Joshi Japanese scale	C, Db, F, G, Bb
Han pent	Han - kumoi Japanese scale	C, D, F, G, Ab
Whole tone	Each interval is a whole-step only	C, D, E, F#, G#, A#
Diminished	Notes of diminished triad	C, Eb, Gb, A
Augmented	Notes of augmented triad	C, E, G#
Maj triad	Notes of major triad	C, E, G
Min triad	Notes of minor triad	C, Eb, G
Sus2	Notes of suspended-2 triad	C, D, G
Sus4	Notes of suspended-4 triad	C, F, G
fifths	Perfect fifth interval	C, G
Octaves	Octave intervals only	C3, C4, etc.

Presets



To browse Presets, click the Left/Right arrows located on either side of the Presets Bar. Clicking directly on the Presets Bar will open a pop-up menu which allows you to browse through the folders of factory presets, save an original preset, or load a new preset bank.
Once the button is clicked, it is possible to **browse the presets using the arrow keys** on the keyboard.
To save a preset without opening the preset browser, simply right click the presets button, Write your preset's name and press enter.



Word to the Wiz:

Saved presets can be found in the following locations:
MAC: <user>/Library/PolyVerse/Supermodal/Supermodal-Presets.ppb
PC: \Users\<user>\AppData\Roaming\PolyVerse\Supermodal\Supermodal-Presets.ppb

MIDI Program change

You may send program changes on MIDI CC #119. The control value will correspond to the preset order in the selected bank (the first 128).

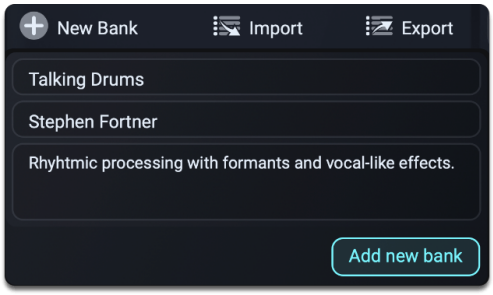
To select a bank use MIDI CC #118. The bank count starts at the first user bank which is also the default selected bank if CC #118 is not set.

Banks

Factory banks appear in white text and user banks in light blue. Select any bank to display its presets in the area to the right.

New Bank

Click the New Bank button to bring up the dialogue box where you can name your bank as well as add the author name and a brief description. Then, click “Add new bank” to add it to the list.

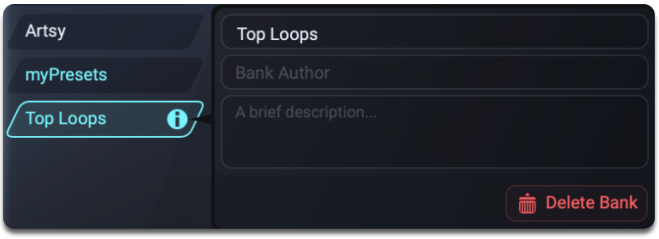


Import and Export

The Import and Export buttons both bring up OS-level dialogue boxes. *Import* prompts you to navigate to and select a bank file on your computer, then adds it to the bank list. *Export* saves the currently selected bank file to your computer. Bank files from Supermodal have the extension *.ppb*.

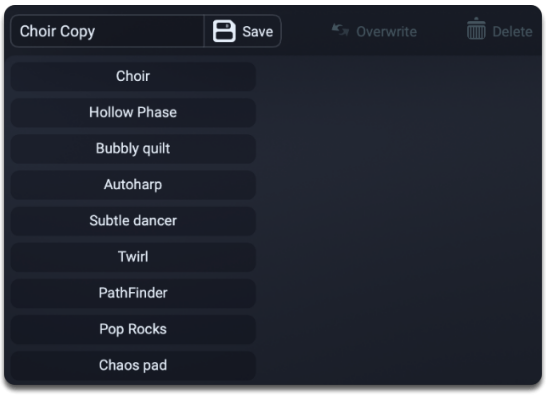
Bank Info Button

Hover over a bank to display its Info button on the right. Click the Info button to display a dialogue where you can edit the name, author, and description of the bank. Click “Delete Bank” to remove the bank.



Factory banks and the “myPresets” user bank cannot be deleted or have their info edited. Any other user bank you’ve created using the New Bank operation can.

The Preset List



The Preset list displays all the Presets in the currently selected bank. Clicking one will select it, exit the Preset Browser, and return you to the main controls view. This area has a few other tricks up its sleeve as well.

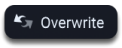
Save

You cannot overwrite a factory Preset using the Save icon. To create a user preset, type a new name into the name field just above the list, and the Save icon will become available. Clicking it will then save the Preset under the new name into the "myPresets" user bank, along with any edits you've made in the Main Controls or Modulation sections.

Click and Drag

You can also create a user-editable copy of a Preset by dragging it onto any light blue user bank. You cannot click-drag Presets into factory banks.

A note on the "myPresets" bank:
Since a Save operation saves your Preset into "myPresets," the idea is that "myPresets" functions as a repository of all Presets you have edited from the factory versions or created from scratch. You can then select this bank and drag Presets from it into other banks you've created for different purposes such as set lists for different gigs, for example.

Overwrite 

This simply updates the saved state of the current Preset with any control changes you've made since. It only functions on user Presets that are in banks you've created — not the "myPresets" bank.

Delete 

As you can imagine, this deletes the current Preset, subject to the same restrictions as Overwrite. The operation is immediate, with no “Are you sure?” confirmation box, however, you may undo this action if you have deleted this preset by mistake.

Sticky 

When active, this allows the loading of different presets without closing the Preset Browser. So, if you’re auditioning different Presets but don’t want to pop back out to the main controls every time you choose one, Sticky is your friend!

Close 

Click the X to the right of the Sticky icon to close the Preset Browser and return to the Main Controls view.

MIDI Learn

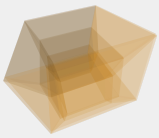
In addition to using the modulation sources that occupy the four slots, you can map Supermodal parameters directly to physical controls on a MIDI controller. This includes the main controls as well as parameters within the modulation sources themselves.

1. 

2. 

3. 

1. Right click on any parameter to display it's MIDI learn pop-up.
2. Now, click the Learn button to switch the display to activate recording mode.
3. Move the control you want to use on your MIDI device, and the display should change to reflect the newly learned assignment, e.g. CC 1 for the modulation wheel:



Word to the Wiz:

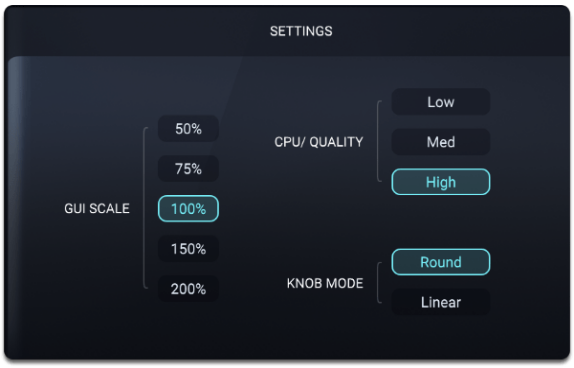
DAWs (e.g. Apple Logic Pro) may have their own native means of mapping physical MIDI controls to parameters in third-party plug-ins, which may conflict with or override Supermodal's procedure. When in doubt, always consult your DAW's documentation!

Settings

Click the gear-shaped icon to open the Settings panel, where three useful categories of settings reside: General, Tuning and MIDI.

These are global settings, meaning they affect all Presets equally and do not change at the Preset level.

General Settings



These govern the size of the Supermodal plug-in window and the behavior of its controls.

GUI Scale

You can resize the Supermodal window from 50% to 200% in five steps. Smaller sizes are good for situations where you may want to cram a lot of plug-ins onscreen. Larger ones are ideal for multi-display setups or working with Supermodal as a sound design tool all by itself.

You may also change the scale using the following key combinations:

- increase size: “ctrl =” on PC or “command =” on MacOS
- reduce size: “ctrl -” on PC or “command -” on MacOS

CPU/Quality

This controls the CPU intensity of the plugin and determines how many filters compose the modal filter. ‘Low’ will only use 32 filters, ‘Med’ will use 64 filters and ‘High’ will use 100 filters per side.
The less filters used the less detailed the modal filter will sound.

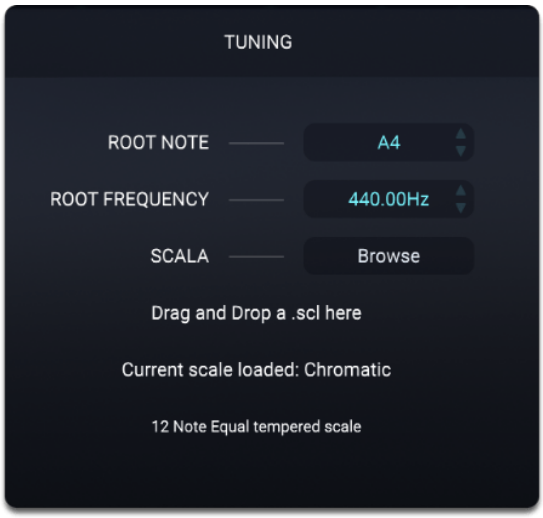
Knob Mode

This governs the response of the Classic Filter’s main Frequency knob as well as any other knob-shaped control in Supermodal’s interface (such as those in the modulation sources.

Round: Change the frequency by dragging around the circumference of the knob, almost like you were turning a physical knob.

Linear: Change the frequency by dragging up and down on the knob.

Tuning Settings



As we have seen, Supermodal is a very musical filter plug-in that “thinks” in terms of musical notes. Here, you can adjust the basis of that thinking, so to speak.

Root Note

In terms of pitch, this changes the musical note that corresponds to the zero (12 o’clock) position of the Classic Filter’s main Frequency knob, as well as the root note for the Scale parameter of the Random Generator, which is in turn meant to affect the Frequency.

Root Frequency

You can also adjust the root pitch in terms of frequency in Hertz.

Root note and frequency are two values that tie between pitch and frequency. Western music uses a chromatic scale (12 semitones 100 cents apart) with A4 corresponding to 440Hz as a standard. This however can change according to different musical styles and cultures. Authentic baroque musicians often tune their instruments to A4=415Hz. Some people believe in the healing powers of A4=432Hz. Scientific pitch is set by C4=256Hz, and ethnic music often is measured by the root note of flutes and hard-to-tune instruments.

The center of the frequency knob is always set to C5. The frequency of that note is determined by the root note, the root frequency, and the scale of the tuning system.

Scala

Supermodal supports Scala tuning files. These are files that determine the scale based on the selected root note, and have the extension *.scl*. Loading a Scala file that matches your source material can extend the sound-sculpting power of Supermodal, which uses the western equal-tempered chromatic scale by default.

Click “Browse” to open an OS-level dialogue and navigate to any Scala files on your computer. Or, simply drag and drop one from your desktop to the designated area in the Tuning settings.

Word to the Wiz:

To read more about scala:
https://www.huygens-fokker.org/scala
Download over 4000 different scales:
https://www.huygens-fokker.org/docs/scales.zip

MIDI

Voicing

Mono will cause Supermodal's envelopes to retrigger on every new note, and glide will be activated between all notes.
Legato will not retrigger envelopes and glide will only be activated when overlapping notes.

Pitch Wheel

Tune the range of the pitch wheel (when using MIDI notes as a modulator) in cents. You can set upward and downward wheel movement separately.

Thank you for using Supermodal!

Have fun!