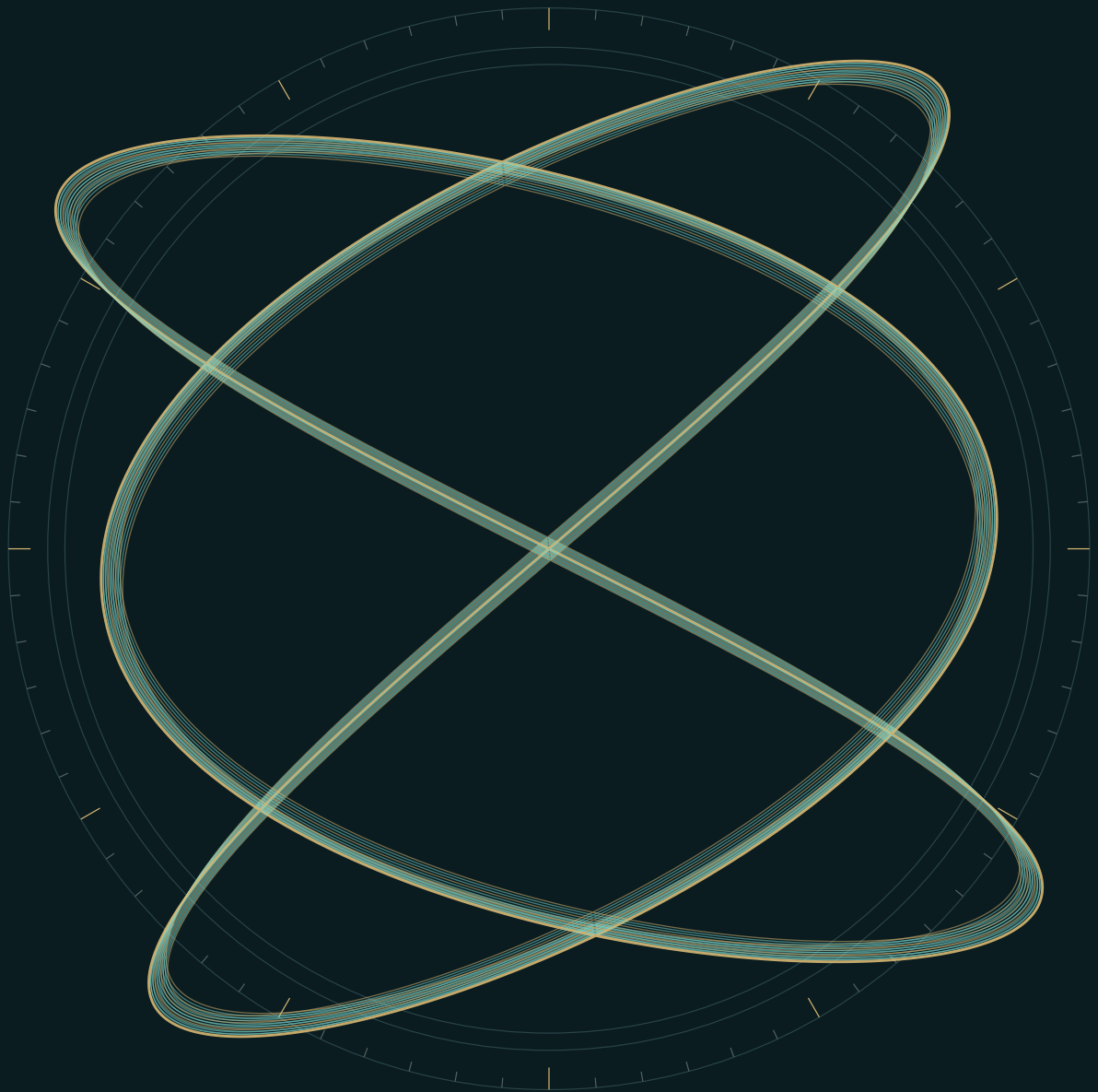

ACUSMAGIC

Sonicrama

User manual

Exploring relationships in sound, tuning and geometry



ENGLISH EDITION

Version 2.4.0

Disponibile anche in italiano · acusmagic.com/sonicrama/manual

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01 · Your first sound

Sonicrama combines a four-oscillator synthesizer with a live view of sound. You can play it from a keyboard, hold a continuous tone, connect oscillators through frequency relationships, and shape both sound and movement with modulation. The centre of the instrument shows sand patterns, liquid patterns or a Lissajous trace.

Start here if you want to make a sound immediately. The following chapters explain each part of the instrument and give repeatable exercises. Uppercase names such as ATHANOR and NEXVS refer to labels in the interface.

This manual is written for Sonicrama 2.4.0, the latest version at the time of writing. A newer version may differ in some details.

Standalone or plugin

The standalone application connects directly to your audio and MIDI devices. Open **OPTIONS** → **AUDIO & MIDI** and select an output and a MIDI input. If playback crackles, increase the audio buffer before making the patch more complex.

In a DAW, load Sonicrama as an instrument on a MIDI or instrument track, not as an effect on an audio track. The DAW supplies audio configuration and incoming MIDI. Enable the track's monitoring or record arm as required by that host, then open the plugin editor.

macOS provides the standalone application and AU, VST3 and CLAP formats. Windows provides the standalone application, VST3 and CLAP. Use the format your host supports. Audio-device settings in the standalone do not reconfigure your DAW.

A five-minute tour

1. Open the preset library, BIBLIOTHECA, and load a playable instrument preset.
2. Choose **KEYS** for keyboard playing. If a continuous sound starts when the preset loads, it uses **FIXED**: choose **KEYS** to leave the drone mode.
3. Play a note on the screen keyboard or your MIDI keyboard. In the standalone you can also play from the computer keyboard: switch on the keyboard button beside the **KEYS** / **FIXED** selector (shown below), then use **A W S E D F T G Y H U J K**, with **Z** and **X** shifting the octave. The button is off each time the application starts. It is absent from the plugin, where those keys belong to the host.
4. Adjust **VOL** in the **MASTER** section for a comfortable output level. Leave **LIMIT** enabled while exploring.
5. Select an oscillator in **ATHANOR**. Open **OSCILLATOR** and change its waveform. Open **MIX · AMP · ENV** to adjust its contribution.
6. Select **CYMATICS** and try **SAND**, then **LIQUID**. Select **LISSAJOUS** for a trace of the visual signal.
7. Save the result under a new preset name before exploring another sound.

Computer-keyboard button



The computer-keyboard button, beside the **KEYS** / **FIXED** selector. Click it to switch it on.

MUTE silences the audible output while the visual continues. EXCITE adjusts the visual excitation; it does not turn up the audio. These are useful when working on an image in silence.

Three things to check when nothing happens

Check the play mode first: in KEYS you need a note; in FIXED the drone supplies it. Then check that an oscillator is enabled and has gain. Finally, check MUTE, VOL and your output routing. A modulation source such as WHEEL has no assigned effect until you connect it to a destination.

A stationary image does not necessarily mean that the audio is stopped. A stable frequency relationship can produce a stable trace, and sand needs time to settle. LAB also needs a usable tone and a valid plate configuration.

02 · Find your way around

Main Sonicrama interface



The main Sonicrama window: synthesis, visual canvas, modulation and keyboard.

The interface is organised around the sound you are editing. Select an oscillator before changing its controls, and check whether you are editing QUICK or a META key. The same knob can affect the whole playable instrument or one selected key, depending on that scope.

Area	What you do here
ATHANOR	Select and edit the four oscillators: waveform, pitch, mix, phase, oscillator modulation, FX sends and visual feed.
SPECULUM (centre canvas)	Choose CYMATICS or LISSAJOUS and inspect the moving result.
MATERIA	Describe the plate, membrane or liquid and its excitation.
LVMEN · AESTHETICA	Set light, colour and visual appearance.
MOD	Configure LFOs, envelopes and performance sources; create modulation connections.
FX	Shape the sound with the effect chain and inspect oscillator sends.

Area	What you do here
NEXVS	Connect oscillator frequencies with ratios, arithmetic or binaural relationships.
TABVLÆ	Choose and apply tuning tables to selected oscillators.
BIBLIOTHECA	Load, organise and save presets.
MASTER	Set output volume, mute, limiting and visual excitation.
OPTIONS	Configure devices, display, export and application preferences.

ATHANOR is the column on the left. At its foot, below the oscillator drawers, MASTER holds the controls that act on the whole sound rather than on the selected oscillator: VOL (output level), MUTE, LIMIT, EXCITE (how strongly the sound drives the visual) and the left and right level meters.

Open only what you need

Click a drawer heading to open or close it. A closed drawer still shows a summary of its settings. Panels with expand/collapse controls let you open or close their sections together. Resize the window when you need more room; scroll within a panel to reach controls below the visible area.

Hover a control for its explanation. Small information buttons expand longer explanations. A right-click on a modulatable control opens its connection controls; it is also useful for finding why a parameter is moving even when its main value appears unchanged.

Read the base value and the movement separately

A parameter's number is usually its set value. A modulation indicator shows movement around or away from that value. For example, MORPH keeps its base setting while the gold waveform follows the modulated position. A purple gem in META indicates a local difference from QUICK; it is a reset control, not a modulation source.

Undo and safe exploration

Use Undo after an unwanted edit. A group edit is one gesture and can be undone together. Save a new preset for an experiment you want to retain. Loading another preset replaces the current sound, so save your changes first if you want to return to them.

Some settings belong to the application rather than the preset. These include the pitch-wheel range, voice-tail preferences, frame-rate preference and Plate harmonics. Record them separately when you need the same behaviour on another computer.

03 · Oscillators and waveforms

Each of Sonicrama's four oscillators can contribute a different part of a sound: a fundamental, a bright layer, a transient, a modulator or a visual axis. Click OSC 1, 2, 3 or 4 at the top of ATHANOR: the controls below always belong to the oscillator you picked.

Wave selection and morph



Pitch and unison



An oscillator with its waveform and tuning controls visible.

Choose a waveform

Open OSCILLATOR. Click the waveform name to browse, use the arrows to step through the current folder, choose IMPORT WAV, or drop a WAV file on the window. The basic choices include SINE, SAW, SQUARE, TRIANGLE and NOISE.

A single-cycle waveform repeats one shape at the note's frequency. A multi-frame wavetable contains a series of shapes. MORPH moves continuously through that series: 0 is the first frame and 1 is the last. With a single frame there is nothing to scan, so MORPH is inactive.

The gold curve in a multi-frame display follows the active morph position, including modulation. The MORPH knob and its number still show the base value. A single display cannot represent every simultaneous voice's different per-key morph position.

What happens to an imported WAV

Sonicrama reads the first channel. A file with at least two complete 2048-sample cycles is interpreted as a multi-frame table; incomplete trailing data is ignored. Shorter files are resampled to one 2048-sample cycle. The imported data is peak-normalised.

At most 64 frames are retained. Larger tables are sampled evenly across their length, and interpolation keeps movement between the retained frames continuous. Importing an ordinary recording therefore does not create a conventional sample player: the material is treated as a cyclic waveform or wavetable.

Tune the oscillator

TUNING & PITCH contains the base-frequency controls, octave and fine adjustments, OFFSET and UNISON. VOICES ranges from 1 to 7; 1 means no unison. DETUNE spreads those voices in pitch, while SPREAD opens their stereo positions. Both can receive modulation.

Current readout limitation: in FIXED, the frequency printed under the waveform name and in the TUNING & PITCH heading can show the selected key's tuning instead of the drone. The figure above shows 256.87 Hz beside a FREQ of 432. Read the FREQ control; chapter 5 describes the same limitation in NEXVS.

Osc Fixed (lock frequency) keeps that oscillator at one frequency while the instrument still responds to note events. This is different from the global FIXED drone. When the oscillator lock is off, its stored frequency can remain in memory without determining the pitch you hear. META keys can have their own frequency overrides.

For transposable layers, use the tuning table or a NEXVS ratio to a played oscillator. An absolute frequency lock is useful when you deliberately want a layer that stays at one pitch across the keyboard.

Shape its level, placement and timing

MIX · AMP · ENV sets GAIN, PAN and the amplitude-envelope assignment. Lower GAIN changes the balance of this oscillator and its contribution to the visual. To reduce the whole patch's output without changing its oscillator balance, use VOL in the MASTER section.

PHASE controls the oscillator's phase relationship. Phase is especially visible in Lissajous figures: two equal-frequency sine signals can form a line, ellipse or circle depending on their relative phase and axis routing. The oscillator's DELAY controls phase/time relationships and should not be confused with the echo effect in FX. NOISE has no repeating cycle for phase or oscillator delay to reposition.

FM and AM between oscillators

MOD OSC lets other oscillators modulate the selected oscillator. Choose the source row, select FM or AM, and raise the amount gradually. The mode you choose stays lit even while the amount is zero, so you can see at once what the pair will do; a dimmed OSC label tells you that the row is not sounding yet. FM changes frequency and adds spectral complexity; AM changes amplitude according to the source waveform.

A source may have zero direct output gain and still be essential as a modulator. Before removing a seemingly silent oscillator, check whether another one uses it. BYPASS lets you compare the selected oscillator without its oscillator-modulation processing.

Wave memory and portability

META can assign different waveforms to different keys and oscillators. Identical wave content is shared in memory. The per-key pool supports 8192 frames in use: 512 single-cycle waves fit, while 128 different 64-frame tables reach that frame budget. A frame uses roughly 160 KB at runtime because filtered versions are prepared for different pitches.

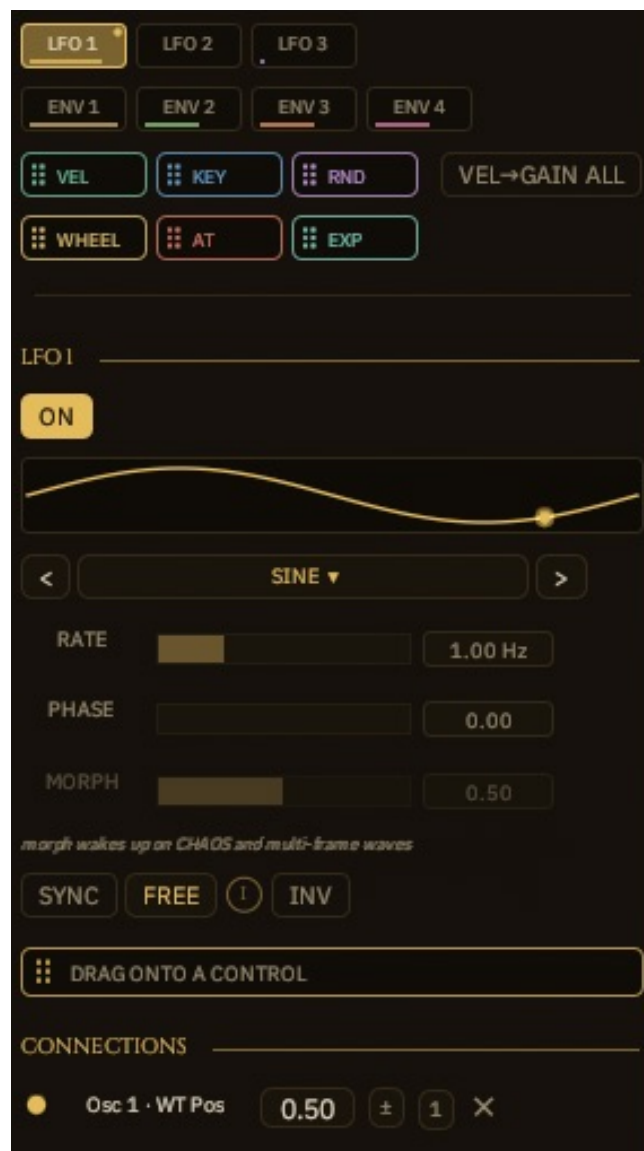
When the pool is full, Sonicrama reports Wavetable memory full and leaves the existing sound in place. Hover the wave name to inspect per-key usage. A library or package waveform is normally referenced by a preset; an external imported waveform is embedded. DAW state embeds the wave data used by the instrument. See chapter 13 before moving a preset between computers.

04 · Make a modulation connection

Modulation lets one signal move a parameter for you. An LFO repeats or evolves over time; an envelope follows a note gesture; performance sources follow velocity, key position, pressure, wheel or expression.

Destination: OSC 1 MORPH

Source and connection depth



An LFO connected to MORPH, with the destination listed in CONNECTIONS.

Exercise: move through a wavetable

1. Select an oscillator and load a multi-frame wavetable. Set MORPH near the middle.
2. Open MOD and select LFO 1. Choose a slow waveform and rate so the movement is easy to follow.
3. Drag the LFO's source handle or chip onto MORPH. Release when the destination indicates that it accepts the connection.

4. Open the source's CONNECTIONS list or right-click MORPH. Check that the route names the intended oscillator and destination.
5. Raise the connection depth gradually. Play a held note and watch the gold waveform move through the table.
6. Bypass the route to compare it with the unchanged sound, then restore it or disconnect it.

If the curve moves but the sound does not change, check that the table contains genuinely different frames. If it never moves, check the source depth, route depth, bypass state and whether MORPH is available for that waveform.

Depth, polarity and travel

Depth determines how much a connection contributes. The polarity control selects one-sided movement (+) or movement on both sides ($\pm$). Where offered, the travel selector switches between full travel (1) and half travel ($\frac{1}{2}$).

New connections use full travel. Presets made with earlier versions can keep half travel, so they move as they always did. Changing $\frac{1}{2}$ to 1 can double the span; it is not a harmless display preference. Several connections to the same destination combine, and the destination still has its own limits.

The indicator around a knob describes the route's extent. For multiplicative destinations such as gain and some rates, treat it as an indication of direction and activity rather than an exact prediction of the final value. A parameter can reach its limit before a modulator completes its cycle.

Choose when an LFO starts

Trigger	Behaviour
FREE	Runs continuously without restarting on notes.
ALL	Every new note restarts the common phase.
KEY	Each pitch has an independent progression; another pitch does not restart it.
FIRST	Restarts on the first note after all previous notes have been released.

KEY separates the temporal state, not the LFO's waveform and rate settings. Repeating the same pitch restarts that pitch's generator. Sustain and sostenuto keep the gate active and therefore affect when FIRST can restart.

The available shapes include regular waves, sample-and-hold, DRUNK, PERLIN, LORENZ and WAVE. The more irregular shapes are useful for evolving movement; do not expect them to trace one short repeating curve. WAVE can use a wavetable as the modulation shape.

Envelopes

The four envelopes provide attack, decay, sustain and release shaping. Choose an envelope for an oscillator in MIX · AMP · ENV. An attack rises toward the peak, decay falls to sustain, and release begins after the note is released.

An envelope can also be a source in the modulation matrix. Its MOD TRIG selector offers ALL, KEY and FIRST. That choice controls the envelope as a modulation source; the voice's amplitude envelope still follows its own note. FREE is not offered for envelopes.

Performance sources

Source	Input
VEL	Velocity of a note. Velocity already scales voice amplitude before any extra route.
KEY	Position of the played key.
RND	A random value associated with a note.
WHEEL	MIDI CC 1.
AT	Channel pressure or polyphonic key pressure.
EXP	MIDI CC 11.

Click a performance chip to see its value and connections. The small value bar is a quick input check. WHEEL and EXP need connections before they affect the patch. AT on a per-key destination can follow each key independently when the controller sends polyphonic pressure.

PER KEY, GLOBAL and META are different decisions

A route's PER KEY/GLOBAL selector chooses which source value the destination reads. Per-key sources can act independently on oscillator parameters and filter cutoff/resonance. Shared effects, master, plate and lighting have one common destination and use a global value. An LFO in KEY mode uses a common FIRST-style generator for global destinations.

META decides where the connection belongs. In META, an oscillator route belongs to the selected key or selected group; in QUICK it belongs to the shared patch. Selecting GLOBAL on a local META connection does not copy that connection to every key.

Modulate a modulator

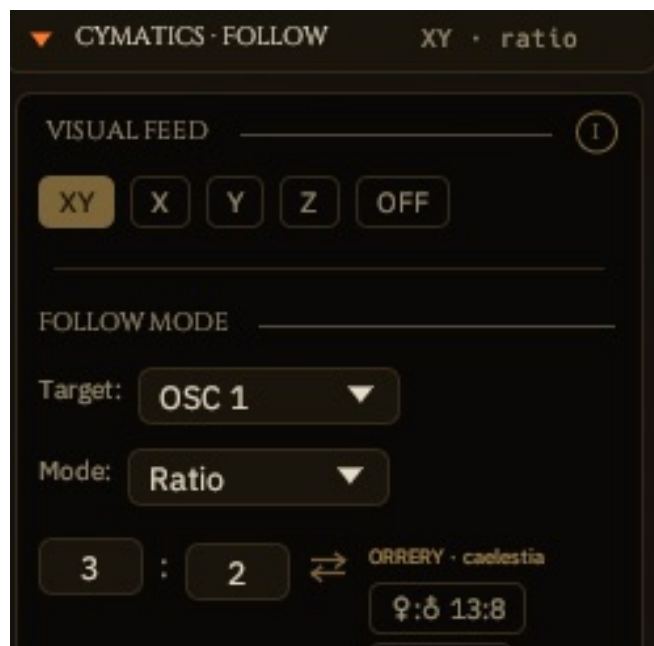
A modulation source can control another generator's available rate or depth destination. To make wheel-controlled vibrato, first connect an LFO to pitch, then drag WHEEL onto that LFO's chip to control its depth. Inspect the new connection and choose the two-sided polarity where needed so the wheel can suppress and restore the vibrato rather than only increase it.

Keep the first route small and confirm each connection independently. This makes a complex patch easier to understand than adding several movements at once.

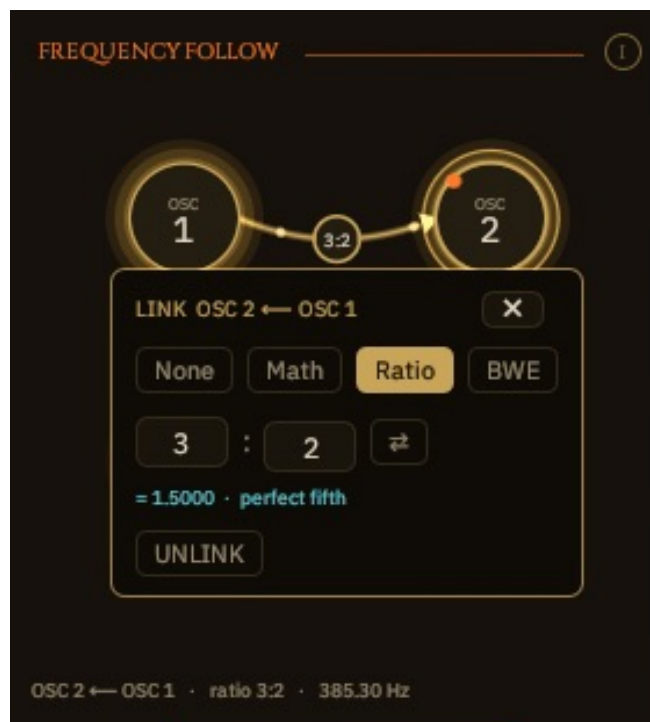
05 · NEXVS frequency relationships

NEXVS connects the frequencies of the four oscillators. It is useful for harmonic layers, geometric traces, slowly drifting relationships and binaural splits. A frequency link is separate from an FM/AM connection: it defines the follower's pitch relationship to its leader.

Follower and leader



NEXVS link editor



OSC 2 following OSC 1 through a 3:2 ratio in NEXVS.

Exercise: create a perfect fifth

1. Enable OSC 1 and OSC 2 and choose simple sine waves. Use modest gains. Clear pitch offsets and unison for an unambiguous first comparison.
2. Open NEXVS. Drag OSC 2 onto OSC 1. The oscillator you drag is the follower; the destination is its leader.
3. A new connection starts as a 1:1 ratio. The link editor offers None, Math, Ratio and BWE: choose Ratio and set 3:2.
4. In KEYS, read the frequencies below the nodes for the selected key. A 200 Hz leader with no additional offsets produces a 300 Hz follower at 3:2. See the FIXED readout limitation below.
5. Change the leader's pitch. The follower maintains the ratio. Play different keys in KEYS to hear the relationship transpose.

Click the follower node or the link's small mode badge to reopen its editor. UNLINK removes the relationship. Setting the link to None leaves a dormant thread while the oscillator uses its own frequency.

You can also make the connection through ATHANOR. Select OSC 2, expand CYMATICS · FOLLOW, set Target to OSC 1 and Mode to Ratio, then enter 3:2. Selecting a Target alone leaves the link dormant until you choose a

mode. The screenshot was prepared through these controls.

Next to the ratio fields, the ORRERY · caelestia buttons enter ratios taken from orbital relationships, such as 13:8 for Venus and Earth or 3:2 for Neptune and Pluto. Each button's tooltip names its source and says whether it is a true resonance or an approximation. They are shortcuts: a button does nothing that typing the same ratio would not do.

Current readout limitation: in FIXED, NEXVS can still display the selected key's tuning frequencies instead of the fixed drone frequencies. In the illustrated session it showed 256.87 and 385.30 Hz while the leader's FIXED control was 432 Hz. The ratio display is useful, but these numbers are not an audio measurement. Use the FIXED frequency controls and, for LAB's selected strongest tone, the Values overlay.

Gesture and signal direction differ: drag follower to leader to make the link; the displayed arrow then points from leader to follower. A red target would create a loop and is not accepted.

Ratios and arithmetic

Relationship	Example	Result for a 200 Hz leader
Ratio 1:1	Unison	200 Hz
Ratio 2:1	Octave	400 Hz
Ratio 3:2	Perfect fifth	300 Hz
Ratio 5:4	Pure major third	250 Hz
Math + 2	Fixed frequency offset	202 Hz
Math × 1.5	Frequency multiplication	300 Hz

An added number of hertz keeps a fixed frequency difference as you transpose; a ratio keeps a proportional interval. This distinction matters both musically and visually. A very small added offset produces slow relative phase drift rather than a perfectly closed stationary relationship.

Links can form a chain, but they cannot feed back into a cycle. Check the effective frequencies after adding octave or fine offsets: local pitch adjustments can change the simple result shown in the table.

Read the roughness: CONSONANTIA

In the NEXVS panel, the CONSONANTIA bar below the four nodes estimates the roughness of the partials that are sounding, using the Plomp-Levelt psychoacoustic model. A full teal bar means little roughness; a shorter bar turning orange means more. It measures roughness. It is not a judgement of the music.

Binaural split

The BINAURAL · BWE section splits one oscillator into slightly different frequencies for the left and right channels; the difference between them is the beat. There are two ways to use it. Choose BWE in a link's editor to split the follower, or press ENABLE BINAURAL SPLIT to split an oscillator on its own, with no second oscillator involved. A split on its own shows as a node with no line to another; click the node to edit it, and press REMOVE BEAT to remove the split.

Use headphones if you want the left and right signals to remain separate at your ears. On speakers or after mono summing, the two signals interact acoustically or electrically. Treat the beat frequency as a sound-design parameter. Sonicrama does not establish a medical or therapeutic effect from that setting.

Build a clear visual relationship

For a simple Lissajous exercise, use two sine oscillators. In CYMATICS · FOLLOW, set one oscillator's VISUAL FEED to X and the other's to Y. Choose a ratio in NEXVS, then alter the relative phase. Keep unison, FX and additional modulation off while learning what each relationship contributes.

Return to the richer patch once the basic curve is clear. A chorus, pitch modulation or chord can legitimately change the figure; it need not remain identical at every key and voicing.

06 · QUICK, META and key groups

QUICK is the common oscillator configuration used by keys without local changes. META gives a key its own configuration. Use META for a split keyboard, different percussion voices across keys, local tuning, or a sound that changes character from one note to another.

C4: a local PAN override



META key selection



A selected META key with local edits and purple override markers.

Make one key different

1. Start from a saved playable patch in KEYS.
2. Select META, then the key you want to edit. Click it on the keyboard, step to it with the arrows beside the key name, or press KEY DETECT and play the key on a MIDI keyboard, the computer keyboard or the screen.
3. Select an oscillator and change one obvious parameter, such as PAN or its waveform.
4. Play that key and a neighbouring key to compare them. The edited key carries a purple indication.
5. Click the purple gem beside the parameter to return just that value to QUICK.

The first local edit starts from the audible QUICK configuration. A stored frequency with Osc Fixed disabled does not suddenly become the key's pitch. Once a key owns a META configuration, later QUICK edits do not automatically replace its local sound. Always check scope before editing.

Reset only what you intend

A parameter gem resets that parameter. → QUICK resets the selected oscillator on the current key. × META clears the whole key's local configuration so all four oscillators return to QUICK. Undo restores a cleared configuration.

The keyboard context menu can clear the selected META keys together. Delete and Backspace perform that action in the standalone when no text field, dialog, popup or drag is active. In a plugin use the context menu: the DAW may reserve Delete for removing the plugin or another selected object.

Edit several keys together

Shift-drag across the keyboard to draw a selection. Command-click on macOS, or Ctrl-click on Windows, adds or removes individual keys. Esc cancels a selection gesture in progress. Selecting keys does not itself play notes or change their sound.

With at least two keys selected, the GROUP... button shows their number, for example GROUP 3, and a purple frame indicates group editing. The same button opens a selection grid with All, None and Existing META shortcuts. Selecting a member normally changes the key whose values are displayed; selecting outside the group or choosing SOLO returns to individual editing.

A group gesture changes only the parameter you touch. Changing PAN does not copy every other value from the displayed key. Unedited differences remain. Keys without META become local only when you make an edit. Global generators and effects still have global settings.

Keep group frequencies under control

When several keys are selected, most controls change all of them at once, but **FREQ** is treated with care. By default (**HZ: SOLO**) editing **FREQ** changes only the key whose values are on display, so each key keeps its own pitch. Octave, **FINE** and **OFFSET** still move together, without replacing each key's own base frequency.

Press **HZ: ALL** when you want your next **FREQ** edit to give every selected key the same frequency. Pressing it changes nothing by itself, and it goes back to **SOLO** when you change the selection, leave **META** or load a preset. A group selection is only a way of editing: it is not saved with the preset.

Copy, paste and graft

COPY and **PASTE** beside the oscillator controls transfer the displayed oscillator, including its waveform data, resolved modulation connections and **FX** sends. The destination is whichever oscillator and scope you display when pasting. **COPY KEY** copies all four oscillators of a **META** key. The **PASTE...** button beside it opens a key picker, so one copy can be pasted onto one or several keys; every destination becomes a **META** key, and a single Undo restores the whole paste. Generator settings and shared **FX** settings remain global.

GRAFT copies another oscillator into the selected one. Its destinations are explicit: **THIS KEY**, **QUICK**, **META** or **BOTH**. **THIS KEY** is the local choice when opening **GRAFT** in **META**. **META** replaces the destination on keys that already have **META** configurations; **BOTH** includes **QUICK**. Other oscillators remain intact.

Copying an oscillator can also copy its frequency, depending on source and destination scope. Inspect the resulting pitch before using it as a transposed instrument. **FOLLOW** cycles or insufficient matrix capacity cause **GRAFT** to refuse the operation rather than apply a partial copy. Group selection does not silently widen **COPY**, **PASTE** or **GRAFT** beyond the destinations shown in those interfaces.

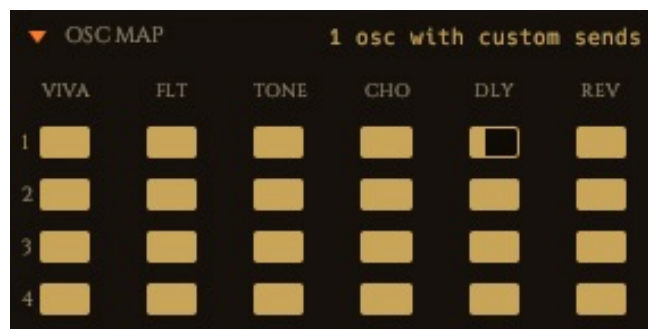
07 · Effects and oscillator sends

The FX panel contains VIVA, FILTER, TONE, CHORUS, DELAY and REVERB. The effect chain shapes the sound, while each oscillator's sends determine which stages receive it. Start with one effect at a time so you can hear and see what it changes.

Active delay and 35% send



The same send in OSC MAP



The FX panel and OSC MAP showing oscillator-specific send levels.

The effect chain

Module	Main purpose
VIVA	Introduce note-to-note variation and slow drift. SLOP varies the voice at note onset; DRIFT evolves its pitch over time.
FILTER	Shape frequency content. Cutoff determines the working frequency; resonance emphasises the region around it.
TONE	Change tonal balance and colour within the chain.
CHORUS	Add animated width and thickness.
DELAY	Repeat the sound with a controllable time, feedback and colour.
REVERB	Add a decaying spatial tail.

The main chain runs filter, tone, chorus, delay and reverb in series. VIVA acts within the voice and stays active when the insert-chain BYPASS is engaged. An effect can be enabled while a particular oscillator skips it; conversely, a send may be ready while the effect itself is off. Check both the send and the effect's active state.

Three views of the same sends

ATHANOR's FX SENDS drawer shows where the selected oscillator goes. The FEED row in an effect shows which oscillators feed that effect. OSC MAP provides the four-by-six overview. These controls edit the same routing, not three independent layers.

- Click a send to enable or disable it while retaining its level.
- Drag right or up to increase its level; left or down decreases it.
- Hold Shift while dragging for finer adjustment.
- Right-click to type a percentage from 0 to 100.
- ALL restores enabled sends at their remembered levels. DRY bypasses the wet chain while leaving VIVA as it was.

A full send is equivalent to the original enabled path; 0% is equivalent to bypass. An intermediate level splits the signal between passing through that stage and skipping it. The effect's own mix remains a separate control. VIVA's level instead scales the slop and drift contribution.

In META, sends belong to the selected key or group. Purple marks identify differences from QUICK. An approximately-equal marker means the group contains different values; editing one send assigns that send's new value across the group while preserving the others.

Exercise: keep the foundation dry

Use OSC 1 for a low foundation and OSC 2 for a brighter layer. Enable DELAY and REVERB, then disable OSC 1's DLY and REV sends. Reduce OSC 2's DLY send to taste. OSC 1 stays clear while OSC 2 creates the moving tail.

A skipped effect does not re-enter indirectly through another stage. An oscillator that skips delay does not gain echoes through its chorus signal. Different paths can require more processing; complicated combinations and per-key filters cost more than one shared path.

Delay timing

With SYNC enabled, DIVISION has a numerator, denominator and note type. A division of 3/16 is three sixteenths of a whole note. At 120 BPM it lasts 375 ms; 1/4 lasts 500 ms. Dotted and triplet choices modify the selected value.

TIME CHANGE selects how an existing tail responds when the time changes. TAPE glides toward the new time and bends the echoes' pitch. CLEAN moves between times with a crossfade to preserve pitch; while you keep dragging, it waits for a settled value or periodically realigns.

INERTIA controls the glide or crossfade duration. CLEAN affects time changes only: WOBBLE can still modulate pitch, and changing delay time on a sustained sound can alter the combined timbre through interference. Use TAPE when the pitch bend is part of the gesture; try CLEAN when changing tempo or delay division on a sustained pitched sound.

Per-key filtering

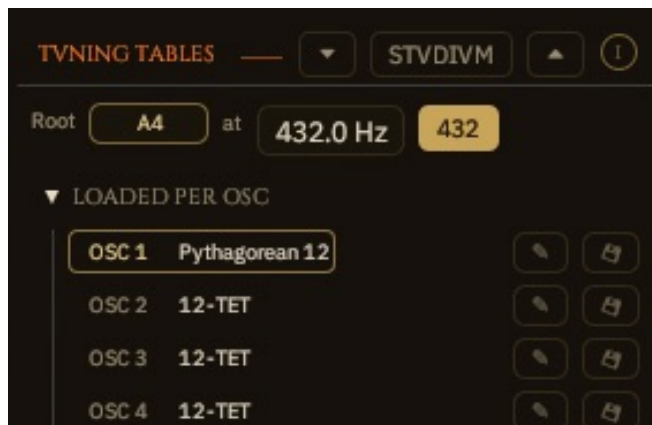
Connect a per-key source to CUTOFF or RES (the filter resonance) to make different notes filter independently. For example, KEY to CUTOFF can keep higher notes brighter while a low note stays dark. A GLOBAL connection instead gives the voices a common source value.

Per-key filtering has a finite pool. Different effect paths can use additional slots; when the pool is exhausted, additional keys use the shared filter for their path. This is a reason to simplify routing before assuming every note in an exceptionally dense patch has a completely independent filter.

08 · Tuning tables and scales

Sonicrama stores a tuning table for each oscillator. A table maps the keyboard to frequencies; NEXVS can then impose relationships between oscillators, and META can make selected keys exceptions. Keep these layers separate when diagnosing an unexpected pitch.

Root and loaded tables



Selected table and destinations



TABVLÆ with root settings, loaded tables and the oscillator destination mask.

Apply a scale

1. Open TABVLÆ and browse the scale library. STVDIVM provides a broader library view with filters.
2. Choose the root key and its frequency. Check both: a numeric frequency alone does not specify which keyboard key should play it.
3. Choose the oscillator destinations in the application bar at the bottom.
4. Apply with SET TVNING. Check LOADED PER OSC and TABVLA VIVA to see the tables that are actually in use.
5. Play a few keys, then an interval or chord. Save the preset if you want to retain the tuning with the sound.

The house tuning shortcut uses 432 Hz, but you can enter a different reference, such as 440 Hz. A preset may intentionally use another reference. Changing the number used as a tuning reference is a musical choice; it does not establish a special biological property of that frequency.

Scales versus absolute maps

A Scala .scl scale describes intervals that are realised around a root. An absolute .tun map provides its own key frequencies. Do not assume that changing a root gives both formats the same behaviour. Read the selected table's details before applying it.

SCRIPTORIVM is the editing area for a table or a copy of it. COMPOSE lets you create a table, and the library stores your tables for later use. Preserve an original by editing a copy when exploring a new tuning.

Which pitch wins?

In normal keyboard playing, a META key can have a local frequency. Otherwise an enabled Osc Fixed lock supplies a fixed oscillator pitch; without that lock the key uses its tuning table. A FOLLOW relationship and pitch offsets then contribute to the effective result. The global FIXED mode uses the continuous drone configuration rather than ordinary note triggering.

If applying a scale does not change a particular key as expected, inspect META, Osc Fixed and NEXVS before applying the scale again. Resetting a META key restores the currently loaded table; it does not restore an arbitrary factory tuning.

Pure ratios and equal temperament

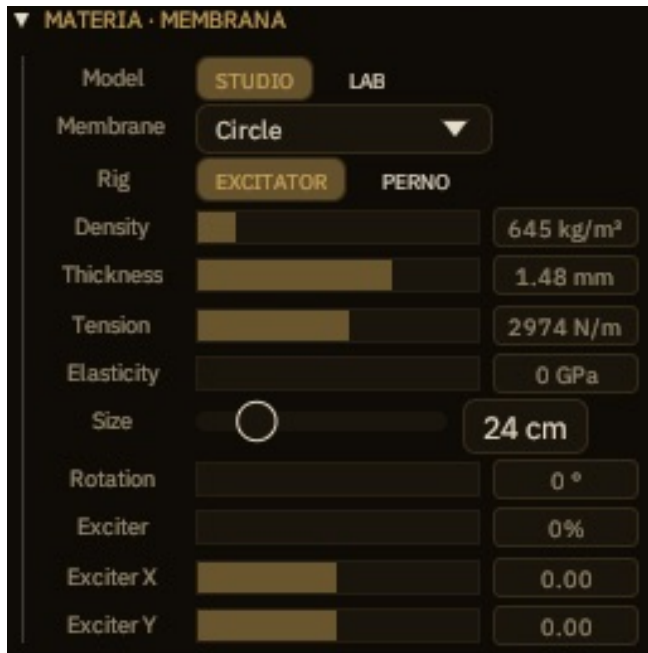
A ratio such as 3:2 is an exact proportion between two frequencies. Equal temperament distributes an octave into equal logarithmic steps. Both are useful, but they do not give identical thirds and fifths. A tuning centred on one root can sound very different when played far from that root.

Use a small number of sine oscillators to compare tuning relationships, then add more complex waves. The visual trace can make slow beating or phase drift obvious, but a visually closed figure is not a general measure of musical quality.

09 · Sand in STUDIO

Select CYMATICS → SAND. In MATERIA, choose STUDIO for the musical sand models. STUDIO is designed for playing notes, chords and changing timbres; it also retains the behaviour of earlier Sonicrama presets. It is the default for new sessions and for older presets without an explicit model choice.

STUDIO membrane controls



Live sand pattern



STUDIO sand with the MATERIA controls visible.

Start with a clear figure

Choose a simple sound and hold a note, or use FIXED for a continuous tone. Let the sand settle before changing another setting. Add a second oscillator, change a ratio, or open a filter to see how a richer input changes the pattern.

MATERIA controls describe the object and the drive. Changing Size alters the simulated system; it is not camera zoom. Shape, density, thickness, elasticity, tension and excitation can change the response. LVMEN changes how that response is lit and coloured.

PERNO and EXCITATOR

On the square and circle, STUDIO offers a Rig choice. PERNO is the original rig, the one earlier Sonicrama presets use. EXCITATOR uses point-driven stiff-plate models; the square and circle use different calculations. Do not expect the same figure after changing rig simply because the frequency is unchanged.

A zero Elasticity setting in STUDIO describes a tension-dominated membrane setting rather than supplying the bending stiffness of a metal plate. For a stiff-plate EXCITATOR experiment, use a suitable nonzero elasticity. LAB provides a separate thin-plate workflow in chapter 10.

The excitation position can select or suppress different patterns. In the STUDIO square EXCITATOR, the Exciter control sets the focus: it moves the effective drive from the centre toward the chosen X/Y position. The stiff circular EXCITATOR uses the selected coordinates directly. Keep position and focus together in your notes

when comparing settings.

How much of the sound reaches the plate?

Plate harmonics decides how much of your sound reaches the sand plate. You find it in **OPTIONS → GENERAL → CYMATICS**. The plate does not react to the waveform itself but to its strongest partials: each oscillator's fundamental and its harmonics (2×, 3×, 4× the pitch). With 5 · **CLASSIC**, the default, five harmonics per oscillator are sent, as in earlier versions of Sonicrama. With **CUSTOM**, a slider lets you send from 6 to 32, so changes high in the spectrum, such as a filter sweep, can redraw the figure.

Start near 8 when exploring **CUSTOM**. More harmonics do not always make a clearer sand figure: a low saw or dense chord can become diffuse, while a higher or filtered sound may remain legible. A sine has no extra harmonic structure to reveal. The setting changes the plate feed, not the audible oscillator waveform or the Lissajous signal.

This is an application preference, not part of the preset. A shared preset can therefore draw differently on another installation. **LAB** still chooses only the strongest tone for its structural response; increasing Plate harmonics does not turn **LAB** into a multitone solver.

Several tones at once: Studio mix

STUDIO is the model for playing. Chords, rich waveforms and two oscillators at a ratio all take part in the figure, and it moves with your music. In **OPTIONS → GENERAL → CYMATICS · MATERIA**, the Studio mix switch chooses the character of that figure. It is available while **STUDIO** is selected.

- **ENERGY** adds up the energy of every partial and gives a stable figure that follows your sound.
- **MORPH** lets the partials interfere with each other, so the figure wanders from pattern to pattern.

Plate harmonics, above, decides how many partials take part; Studio mix decides how they combine.

Sound and figure are related, not interchangeable

The sand responds to the tones each oscillator produces: its fundamental and its harmonics. It does not draw the complete final sound. For example, the extra frequencies that FM or AM between oscillators add to what you hear are not sent to the plate, so they do not create patterns of their own. **LISSAJOUS** works differently: it draws the signals themselves as they move over time.

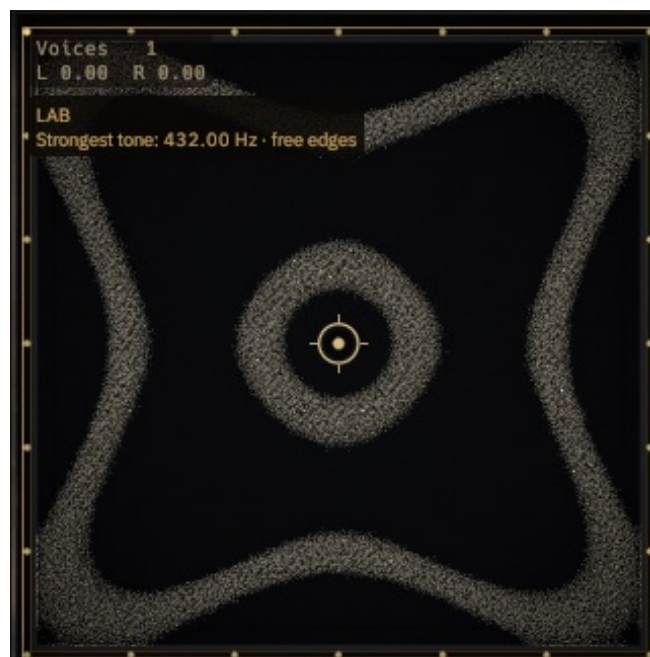
For musical work, explore these differences as parts of the instrument. For an experimental comparison, use the **LAB** procedure and record the physical settings. A frequency by itself does not uniquely identify a Chladni figure.

10 · Describe a plate in LAB

Choose CYMATICS → SAND, open MATERIA and set Model → LAB. LAB calculates the steady forced response of an idealised thin solid plate with free outer edges. You describe its geometry, material and drive. Use a single steady sine when learning the controls or comparing a documented experiment.

LAB plate and attachment controls

Live square-plate response



LAB with its plate dimensions, material, sand loading and attachment controls.

Set the plate

Front control	Meaning
Plate	Square, rectangle, circle, regular hexagon or equilateral triangle.
Ratio	Rectangle width divided by height. You can enter a ratio such as 355:203.
Material	A convenient starting combination of density, elasticity and Poisson ratio. Custom indicates edited values.
Size	The plate extent as defined below; it changes the physics.

Front control	Meaning
Thickness	LAB plate thickness, separate from STUDIO's setting.
Sand	Added sand mass in grams, represented as a uniform load.

For a square, Size is the side length. For a rectangle it is the width, with Ratio setting the height. For a circle it is the diameter. For a hexagon it is the corner-to-corner extent. For the upright equilateral triangle, the side length is approximately 0.866 times Size. Check the displayed units before typing a measurement.

The material choices are starting values, not measurements of your particular specimen. LAB has its own positive Elasticity setting, initially 69 GPa for aluminium. It cannot be set to zero. Its thickness range is 0.05-12 mm, but the existence of a control value does not mean every size/thickness combination satisfies thin-plate theory.

Under the plate

Open UNDER THE PLATE for exact material and attachment settings. The heading counts settings that differ from their defaults so hidden changes are not forgotten. Reset these restores that advanced group.

Control	What it describes
Density	Mass per volume, in kg/m ³ .
Elasticity	Young's modulus, in GPa.
Poisson	A dimensionless material ratio.
Loss	Modal damping; larger values broaden resonances and mix nearby responses.
Contact	Radius of the circular drive contact, normally in mm. It is not a diameter.
Mass	Moving mass at the contact, in grams.
Support	Translational support stiffness, in N/m. It does not clamp the plate perimeter.
Pretension	Uniform in-plane tensile load, in N/m. Use zero for an unstretched plate.
Exciter X/Y	Position of the drive on the plate.
Rotation	Orientation of the displayed plate.

Mass and Support model a simplified translating attachment. They do not create a rigid washer, edge clamp or complete shaker. The model assumes uniform thickness, isotropic material and small deflections. It is not a general structural solver for arbitrary mounted objects.

What Sand changes

Sand adds a uniform mass layer to the calculation. It lowers the plate's resonance scale. Zero means no added sand load. This is different from the visual Sand multiplier in OPTIONS (shown with a × suffix), which changes the number of displayed grains, and from the sand colour in LVMEN.

If an experiment did not report its sand mass, you may adjust Sand once to align a series, then keep it fixed across frequencies. Record that value as calibrated rather than weighed. Similar frequency scaling can also arise from uncertainties in thickness or material properties; fitting a sand value does not prove that real sand mass caused the original difference.

One pure tone, as in the laboratory

LAB is built for the way plates are studied in science: one pure tone at a time, with the figure compared against published photographs. That is why it follows the strongest tone in your sound and shows that tone's figure exactly as a plate driven by it would form it. A real plate driven by several frequencies at once draws a mixture of their figures; for that kind of sound, STUDIO is the model to use (chapter 9). With a rich waveform or a chord, LAB follows whichever partial is strongest, and the figure can change abruptly when another one takes over.

Enable LVMEN's Overlay, Values to see the selected tone and status. For a controlled comparison use one sine, no unison, and no frequency modulation or moving pitch routes. Keep the material and drive fixed while changing only frequency.

Wait for the calculation and the sand

After some changes, the previous plate or a quick preview remains visible while the new modes are prepared. Frequency and compatible material or uniform-size changes can reuse prepared modes. The sand then needs additional time to move into the new pattern. Calculation readiness and grain settling are separate processes.

Brightness and grain speed are visual quantities. They are not calibrated measurements of displacement, drive force or physical sand transport. Turning off Values hides the normal readout and advisories; an error that would leave the plate empty remains visible.

Understand the warnings

Message	What to do
Waiting for a steady tone	Supply a stable usable input; check enabled oscillators and their visual feed.
Computing / Refining plate modes	Wait for preparation; the currently visible field may be the preceding one or a preview.
Resolution warning	Treat this configuration as unresolved for quantitative comparison. More export pixels or longer settling does not fix numerical resolution.
Thickness outside thin-plate approximation	Check dimensions and whether a thin-plate model fits the specimen.
Short-wavelength warning	The frequency may be too high relative to thickness for the model's assumptions.
Contact clipped at plate edge	Move or reduce the contact so its whole footprint lies on the plate.

A warning-free result is not a certificate of experimental accuracy. Numerical convergence and agreement with a measured apparatus answer different questions.

What has been compared

The retained research includes several kinds of evidence. An independently measured free aluminium rectangle's first eleven natural frequencies agree within about 2.01% at worst without fitting; that is frequency evidence, not a photographic validation of every pattern.

For a published 240 mm aluminium square, twelve photographs met the recorded nodal comparison tolerance at the printed frequencies without fitted values. A published triangle met that tolerance for nine of twelve images without adjustment, and all twelve with one common 0.99 scale factor. These counts depend on the recorded comparison method and do not mean pixel identity.

PASCO square sequences and an aluminium disc were compared using one calibrated sand value per specimen. The acrylic hexagon comparison found corresponding shapes, but did not match the published frequencies. Those results support specific comparisons, not universal accuracy for every plate, material or mounting.

A reproducible experiment

1. Record the Sonicrama version and choose LAB and the reference shape.
2. Enter known dimensions and material properties. Record assumed contact, support, mass and damping values.
3. Use a single sine and inspect LAB's selected frequency. Keep the excitation location fixed.
4. Save a new preset for the plate. Capture the settings as well as the figure.
5. Change only frequency through the reference sequence and allow consistent settling time.
6. Compare nodal structure and symmetry. If you calibrate Sand, choose it once for the entire series and test additional figures not used to choose it.

Changing material or thickness separately for each photograph creates separate visual matches. It does not show that one plate reproduces the experiment.

11 · Liquid patterns and light

Select CYMATICS → LIQUID and hold a note. The liquid receives the sound's partials: frequency affects spatial scale, amplitude helps cross a formation threshold, and the envelope affects formation and relaxation.

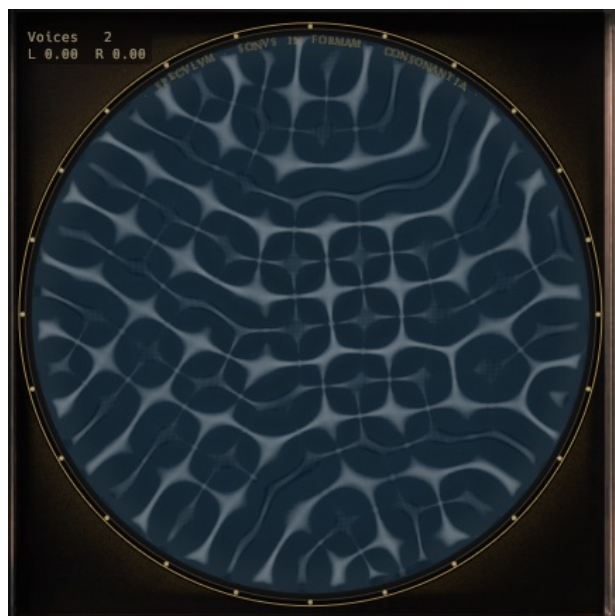
NATVRA material controls



LVMEN appearance controls



Live liquid surface



NATVRA liquid with physical controls and lighting controls visible.

Choose NATVRA or FIGVRA

NATVRA evolves a formation field over time. Patterns emerge and reorganise rather than appearing as an instant fixed drawing. It is useful for exploring how drive, dissipation and geometry influence the visible organisation.

FIGVRA builds ordered, stylised pattern families using a Faraday-derived spatial scale. It is more immediate and symmetric. Its rings, grids and related shapes are constructed intentionally; they are not a claim that the displayed symmetry emerged from a full fluid simulation.

Set the liquid and vessel

MATERIA control	Practical effect
Vessel	Selects circle, square, rectangle, hexagon or triangle and its boundary.
Density	Mass per volume. It enters the wave relation together with Surface and Depth.
Viscosity	Increases damping and formation threshold; high settings need stronger excitation.
Surface	Surface tension, in mN/m; water is about 72. A higher value gives longer waves, so larger cells, at the same frequency. It is set independently of Density.
Refraction	Refractive index of the liquid; water is 1.333. It changes how light bends and reflects at the surface, not the wave pattern.
Depth	Changes the influence of the bottom and the reduced wave dynamics.
Size	Changes how many spatial cells fit in the vessel. It is not camera zoom.
Rotation	Rotates the virtual vessel and its associated excitation coordinates.
Exciter	Moves from diffuse drive toward a localised drive.
Exciter X/Y	Positions that local excitation. Increase focus before expecting a large positional effect.

EXCITE is useful as the sensitivity control for this visual bench. Raise it until the surface develops a visible pattern, then reduce it slightly if the motion is too energetic. It does not change the audible output level.

Exercise: a readable emergent surface

1. Choose NATVRA and a simple held tone.
2. Start near density 1 g/cm³, viscosity 1-5 mPa s and depth 8-20 mm.
3. Use diffuse or weakly localised excitation.
4. Raise EXCITE until a pattern forms. Wait for it to organise before changing another control.
5. Change only Size, then only viscosity, and compare their different effects.

For a more ordered circular pattern, choose FIGVRA and Circle. Explore frequency and Size slowly while keeping the appearance settings constant.

Light is separate from the liquid

LVMEN changes the appearance of the same surface. Classic favours a softer body; Photo emphasises luminous filaments and highlights. Tint colours the body, while Light colours the virtual illumination. Light X/Y moves the apparent light direction.

Caustics emphasises curvature-derived filaments. Specular strengthens highlights. Exposure scales the final brightness. If bright lines merge into flat white patches, reduce Exposure or Caustics. These controls do not change the drive or fluid viscosity.

Overlay Dial and Values show or hide informational graphics. A dark tint with light illumination can make a delicate surface easier to read, but a more photographic look does not make the solver more accurate.

Model limits

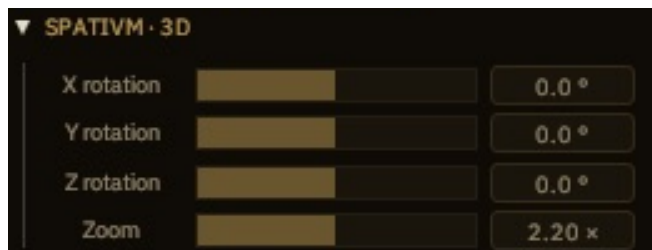
The liquid is a reduced real-time model, not a three-dimensional Navier-Stokes simulation. High-frequency spatial scale is deliberately compressed to keep the cells visible, so the cell size on screen is not a one-to-one measurement at high frequencies.

Do not interpret caustic brightness as measured optical power, or use visual resemblance alone to infer a real fluid's properties. Surface and Refraction are separate material settings: entering the values of a real liquid makes the model consistent with that liquid's wave relation and optics, within the reduced model described here.

12 · Lissajous and visual routing

LISSAJOUS draws relationships between signals over time. Unlike a sand pattern, it does not depict a vibrating plate. It is a useful way to explore phase, frequency ratios, waveform geometry and stereo motion.

Camera rotation and zoom



Two sine waves at 3:2



A two-oscillator Lissajous relationship with axis routing and camera controls.

Send an oscillator to an axis

In ATHANOR, open CYMATICS · FOLLOW and inspect VISUAL FEED. The choices include XY, X, Y, Z and OFF. X, Y, Z and XY all excite the sand/liquid plate; OFF removes the oscillator from both visual systems while leaving it audible. Axis selection is distinct from the oscillator's audible PAN and from its NEXVS frequency relationship.

Start with OSC 1 feeding X and OSC 2 feeding Y. Choose sine waves, a simple NEXVS ratio and moderate levels. Equal frequencies with a phase difference form an ellipse; a zero or half-cycle relationship collapses toward a line. Unequal rational ratios create more complex closed traces.

OFF is useful for an oscillator that contributes sound or modulation but should not directly draw an axis. A Z feed is useful in a spatial view. Inspect both audible and visual routing when a layer appears to be missing.

Change the view

CHART provides a direct view of the trace. SPHERE presents spatial information through a camera projection. EMBED uses delayed versions of the signal to build a spatial trace; its added depth comes from the signal's temporal structure rather than a third independent oscillator alone.

Open SPATIVM · 3D for X rotation, Y rotation, Z rotation and Zoom. These controls accept modulation and DAW automation. Use them to change framing and orientation. Camera movement changes your view of the figure, whereas changing oscillator pitch, phase or routing changes the figure itself. This distinction makes deliberate animation easier: first build a stable shape, then animate its presentation.

Animate the camera

Start with a stable spatial figure. Drag a slow LFO onto Y rotation in SPATIVM · 3D and inspect the connection depth. Add a smaller movement to X rotation if desired. Keep Zoom moderate so the trace stays inside the frame. Recorded takes preserve the camera movement for a later bounce.

Why a figure drifts or opens

A rational frequency ratio can repeat. A small frequency offset makes relative phase keep changing. Unison detune, VIVA, pitch modulation and effects add further motion. A chord combines more than one voice, so it can replace a clean single-note shape with a complex trace.

To diagnose an unexpected change, return temporarily to two sine oscillators, one note, a simple ratio and no extra processing. Restore the other layers one at a time. The appearance of a curve is sensitive to phase and routing as well as frequency.

Build the final image

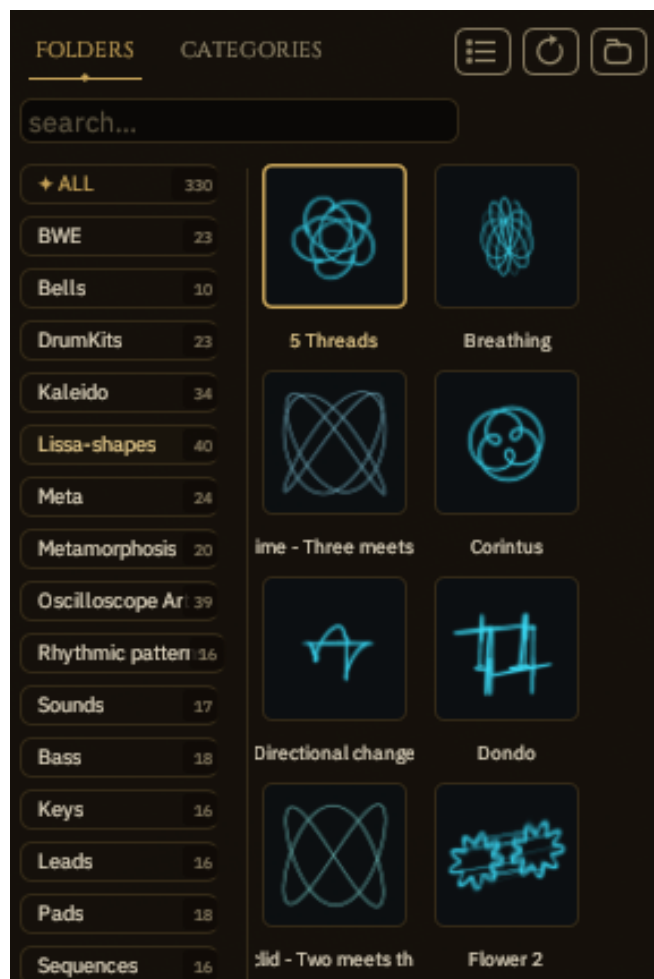
Set trace thickness, trail, exposure and colour for the intended output size. Excessive trail can obscure a rapidly changing shape; too little can make it difficult to read. Inspect a still at its final resolution before committing to a long video.

Use MUTE when you want to continue visual work silently. SNAPSHOT and RECORD export the canvas; a full-interface screenshot is a separate operating-system capture and is useful when documenting the controls behind the result.

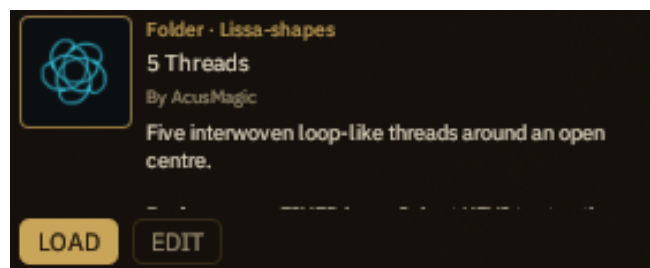
13 · Presets, libraries and projects

A preset stores an instrument configuration so you can return to a sound and its visual settings. A DAW project stores the instance's state independently of the original preset file. Save both when the patch and the arrangement matter.

Folders and preset thumbnails



Selected preset details



BIBLIOTHECA with a selected preset and its details.

Load and save

Open BIBLIOTHECA to browse the library. The FOLDERS and CATEGORIES tabs give two ways of grouping the same presets, and the search field narrows either list as you type. Click a preset once to select it: its details appear below the list and the current sound does not change. Double-click it, or press LOAD, to load it.

Inspect the description when the intended playing method is not obvious: a drone, a keyboard split and an oscilloscope drawing can require different gestures.

After editing, use Save to update your own preset or Save As to create a new one. The modified indication tells you that the current sound differs from its saved identity. Imported V1 presets are read-only; save a new version instead of expecting to overwrite the legacy file.

Give each preset a name you will recognise later; the description you add shows next to it in BIBLIOTHECA. The small picture in the list (its thumbnail) only helps you spot a preset: it does not store or change any setting. Before changing a sound you rely on, save it under a new name so you can go back to it.

PICK and FORGE

The die can either choose an existing sound or generate a new one. PICK chooses from the signed LUMINA collection. FORGE creates a configuration using its generation rules and offers different creative directions. Select the die behaviour in OPTIONS.

A generated result becomes a sound to inspect, edit and save. Generation does not guarantee that every output suits the same instrument role or image. Check gain, playing mode and controller response before using it in a performance.

What travels with a preset

Library and package waves can be stored as references so the preset remains small. A wave imported from outside the library is embedded. If a referenced package is absent, a warning identifies the missing content and the intended wave may be replaced by a neutral sine. The preset loading successfully therefore does not prove it sounds as intended.

Before sharing, verify that the recipient has the required wave content or use a workflow that includes the imported wave data. Test the copy on the destination system when portability is important. Do not assume an older Sonicrama can play newer per-key wavetable features.

DAW recall

A saved DAW project restores its own sound state rather than reloading the original .srm2 file. In the current implementation, the displayed preset name, metadata and modified indication are also retained per instance. Moving or changing the source preset file does not replace the sound stored in the project.

If the original path has disappeared, Save falls back to Save As. Older projects without the stored identity retain their sound, but Sonicrama cannot reliably infer the old preset name. Save the project again after loading the intended preset if you want to retain that identity in future sessions.

Where your files live

Content	Location relative to the AcusMagic user folder
Presets	Sonicrama V2/Presets
Photos and videos	Sonicrama V2/Snapshots
Retained video takes	Sonicrama V2/Snapshots/Takes
Shared wavetable library	Wavetables

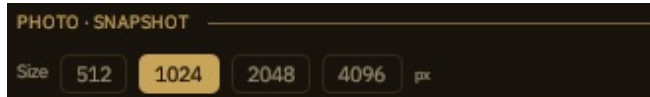
On macOS the AcusMagic user folder is in your user's Library/Application Support. On Windows it is under %APPDATA%. Installed factory packages can also live in a machine-wide package location; keep your own work in the user library rather than editing the installed factory payload.

Back up your presets, custom wave content and retained takes. A video file alone is not the retained source data needed for a later high-resolution bounce.

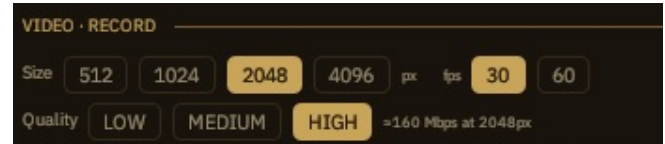
14 · Photos, recording and bounce

SNAPSHOT saves a still of the visual canvas. RECORD captures a performance as video with audio. BOUNCE re-renders a retained take offline at a larger size. These outputs are different from a screenshot of the entire application window.

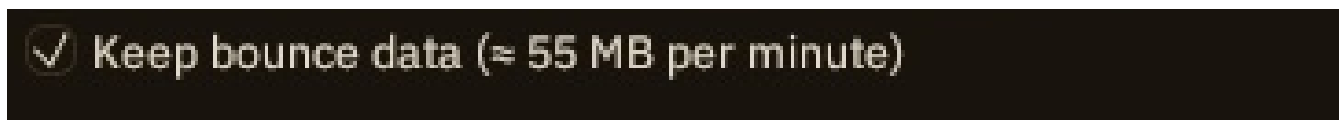
Photo resolution



Video resolution, frame rate and quality



Retain the data for later bounces



OPTIONS → EXPORT: photo size, video settings and retained takes.

Save a still

1. Set the desired view and let the pattern settle.
2. Open OPTIONS → EXPORT and choose the PHOTO · SNAPSHOT size.
3. Decide whether the visual overlays should be present.
4. Use SNAPSHOT on the canvas or in the export controls.
5. Inspect the saved PNG in the Snapshots folder at full size.

Available sizes reach 4096 pixels square when the GPU supports the required texture size. The larger image is rendered at that size; it is not simply an enlargement of the window screenshot. A large capture can take a moment.

Record a performance

Set VIDEO · RECORD frame rate, size and quality before starting. The live recording stays at 512 pixels square; larger requested sizes use the offline bounce workflow. Choose quality with the material in mind: fine moving sand is more demanding for compression than broad smooth shapes.

Start RECORD, perform the desired changes, then stop it. Wait for the completion indication before closing the application. The recording's audio is taken after the master and limiter. Check the file rather than assuming that the visual moving on screen guarantees a complete saved recording.

Keep the take for later

Enable Keep bounce data if you want to re-render the performance later. The retained take stores source data alongside the live video. The take browser in EXPORT lets you return to saved takes and request a BOUNCE.

A bounce can take longer than the performance. Its speed depends on resolution, visual mode and GPU. Keep the take until you have checked the larger video, audio and duration. If the encoder refuses the requested dimensions, read the reported actual output size.

Changing a preset after recording does not rewrite a retained take. Likewise, increasing the window size is not how you request a higher-resolution video: choose the export size and render the take.

Export checklist

- Check framing, overlays, colours and bright highlights in a still first.
- Watch the L/R meters and LIMIT while recording audio.
- Keep the take data if future revisions or sizes may be needed.
- Verify the completed file's duration, resolution and audio.
- Preserve the preset and relevant application preferences with an important capture.

On Windows, video uses the system's Media Foundation codecs. Windows N/KN installations need the Media Feature Pack for that functionality. A video-export problem does not necessarily mean the synthesizer or the GPU renderer has failed.

15 · MIDI, level and performance

Use VOL in the MASTER section to set the output level of the whole patch. Use oscillator GAIN to change the patch's internal balance. These controls have different visual consequences, so choose the one that matches your intention.

Read the meters and LIMIT

The L/R meters show the output after limiting. Their cool-coloured region extends to -6 dBFS, gold runs from -6 to -1 dBFS, and red is above -1 dBFS. Red means the output is near the top of the scale; it is not, on its own, proof that a saved waveform has clipped.

LIMIT is enabled by default. It becomes orange while reducing gain; its tooltip reports the reduction. The limiter's sample-peak ceiling is approximately -0.3 dBFS. It is not a true-peak limiter for a later lossy encoder.

The output has a fixed 6 dB headroom allowance. Voices still add together: playing more notes can make the patch louder and make LIMIT work harder. If the patch spends too much time limiting, lower VOL or rebalance the sound. There is no automatic gain compensation that makes every chord equally loud.

The limiter's lookahead adds about 2 ms of latency, reported to the host. This delay remains when LIMIT is bypassed, so toggling it does not change the plugin's timing. That is separate from your audio-device buffer latency.

MIDI controls

Input	Response
Note on/off	Plays and releases voices in KEYS. FIXED instead supplies the drone.
Pitch bend	Bends the instrument; set the range in OPTIONS → GENERAL → VOICES.
CC 1	WHEEL modulation source.
Channel or poly pressure	AT modulation source.
CC 11	EXP modulation source.
CC 64	Sustain: holds released notes until the pedal rises.
CC 66	Sostenuto: holds notes already down when the pedal is pressed.
CC 67	Soft: new notes enter more quietly.
CC 120 / 123	Releases notes and resets held-controller state; the FIXED drone remains.
CC 121	Resets controllers and pedals while keeping physically held notes.

The input is omni: MIDI channels are not used to provide independent per-note expression. MPE is not supported. Generic MIDI learn, program change, MIDI clock and CC 7 volume are not provided by Sonicrama. In a plugin, use your host's parameter mapping and automation for other controls.

The pitch-wheel range offers ± 2 , ± 7 , ± 12 and ± 24 semitones. It is an installation preference, not a preset setting. A controller's remote bend-range message does not replace this preference.

Voice behaviour

OPTIONS → GENERAL → VOICES contains Repeated notes and Other keys' tails. STACK lets a previous same-pitch release overlap a repeated note; RESTART restarts that pitch's voice. RING leaves other keys' release tails in place; CHOKE fades those tails when a new note arrives. Held notes are not the same as release tails.

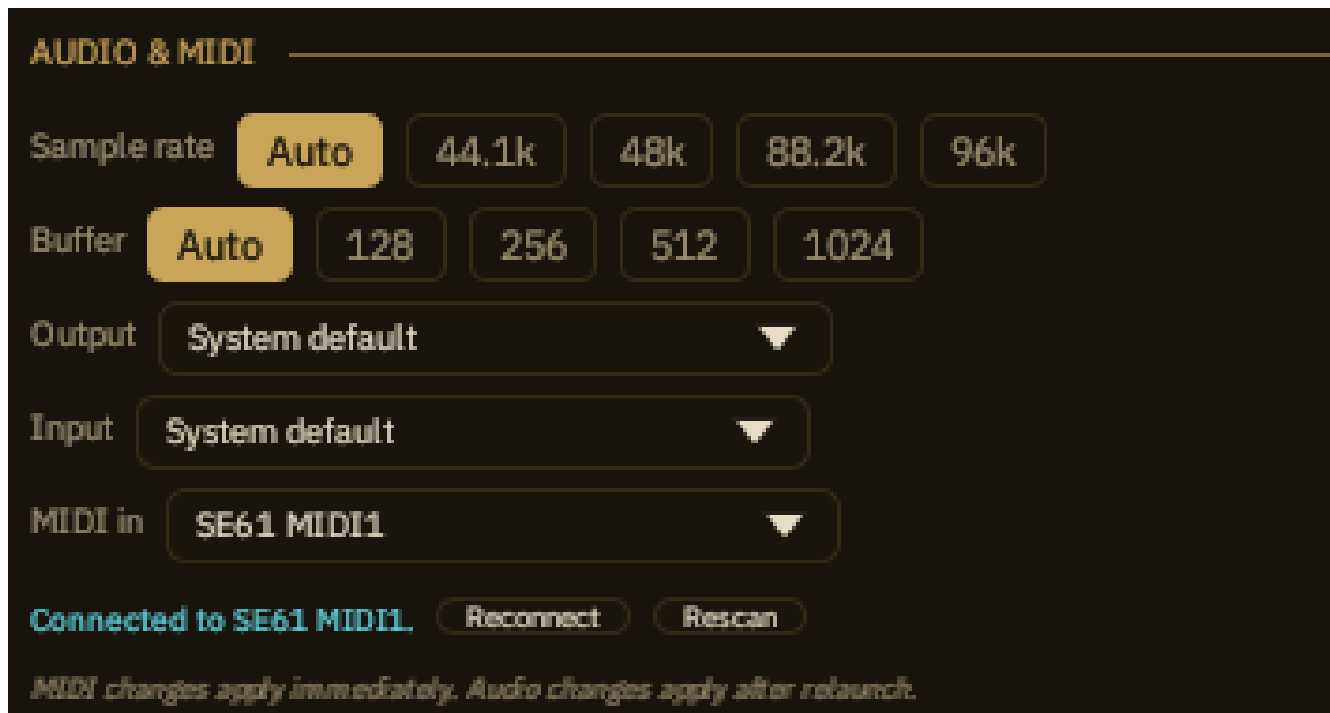
Preset transition sets the changeover fade from 0 to 500 ms. A zero setting makes a hard change. These voice and transition preferences apply across presets and projects on the installation.

Reduce load without changing the patch unnecessarily

Try OPTIONS → GENERAL → CYMATICS → Frame rate → 30 FPS when the graphics are too demanding. This reduces the update rate of the whole interface while preserving simulation time. It does not lower the audio sample rate or change the recording frame-rate choice.

If audio crackles, increase the device or host buffer. Then simplify costly unison, dense polyphony and elaborate effect routing. High-resolution export is a separate workload; render one large job at a time on a modest GPU.

Standalone audio settings and MIDI status



Standalone audio settings with a connected MIDI keyboard. Reconnect and Rescan are beside the status line.

The line under MIDI in reports the state of the connection. "Connected to" followed by the device name means the input is open. "Waiting for" the device means it is selected but absent, and Sonicrama reconnects by itself when it returns. "MIDI connection failed" is followed by the reason. A device name in the list alone does not confirm a working connection: read the status line.

If the connection fails or the keyboard does not respond, check that the device is available, then use Reconnect to close and reopen the selected input; use Rescan to refresh the audio and MIDI device lists. Audio setting changes take effect after relaunch; MIDI selection changes apply immediately.

16 · Troubleshooting and quick reference

Check the scope, signal path and current mode before rebuilding a sound. Most surprises become easier to diagnose when you temporarily use one oscillator and one note.

Symptom	First checks
No sound	KEYS needs a note; check enabled oscillator, GAIN, MUTE, VOL, output device and DAW monitoring.
Sound will not stop	Choose KEYS to leave FIXED. Check sustain and release tails. All Notes Off does not stop a FIXED drone.
MIDI keys work, wheel does nothing	Watch the WHEEL value bar, then check its connections. It has no fixed destination.
Only one key sounds different	Inspect META, its frequency and local oscillator routes.
A scale seems ineffective	Inspect META frequency overrides, Osc Fixed and NEXVS.
MORPH does nothing	Check that the waveform has more than one frame.
Modulation is too large	Check full versus half travel, polarity and other routes to the same destination.
An effect is inaudible	Check its active switch, global bypass, effect mix and that oscillator's send.
Wavetable warning	Check the required library/package; a missing wave can be replaced by a sine.
Sand is diffuse	Simplify input, reduce excessive harmonic content and allow settling.
LAB changes suddenly during a chord	LAB selects the strongest component; use one steady sine for controlled work.
LAB gives a resolution warning	Change to a configuration within the model's useful resolution; export size is unrelated.
Liquid stays flat	Check input, EXCITE, viscosity and formation time.
Figure changes when Size changes	Expected: Size changes the simulated object.
Graphics are sluggish	Try 30 FPS and a smaller window; inspect GPU load.
Large video is absent	Check whether the take is retained and BOUNCE has completed; inspect the reported size or error.

Opening this manual

Click the ? button in the top bar and choose User manual (PDF) to open this manual at any time; OPTIONS → GENERAL → MANUAL does the same. The installer places the English edition on your computer. In the same menu, Italian edition online opens acusmagic.com/sonicrama/manual, where the Italian edition and the latest version of both are available.

Demo, activation and updates

The demo has a limited audible session. When the 15 audible minutes are exhausted, restart the application or the DAW to begin a new session. The interface describes the current licence state and available activation actions. Follow that flow rather than changing saved licence files.

For update notifications, use OPTIONS → GENERAL → UPDATES. Automatic checking can be disabled there; CHECK NOW requests a check explicitly. A notification opens the download information rather than silently replacing the running instrument. Save your work before installing a different version.

This manual describes Sonicrama 2.4.0; later versions may differ in some details. When reporting a problem, include the Sonicrama version, your operating system, whether you use the standalone or a plugin (and in which host), and if possible a small preset that shows the problem.

Terms used in this manual

Term	Meaning
Base value	The set value before modulation is applied.
Destination	A parameter receiving modulation.
Frame	One waveform in a wavetable.
Leader / follower	Oscillators related by a NEXVS frequency link.
META	A key's local oscillator configuration.
Partial	One frequency component used in a sound representation.
QUICK	Shared oscillator configuration for keys without local overrides.
Route	A connection from a modulation source to a destination.
Take	Retained recording data used to render a later bounce.
Wavetable	A sequence of cyclic waveforms that MORPH can scan.

Where to begin next

For a moving timbre, follow the LFO-to-MORPH exercise in chapter 4. For a clear geometric relationship, connect two sine oscillators in NEXVS and route them to X and Y as described in chapters 5 and 12. For a plate study, save one LAB configuration and sweep only its frequency using chapter 10.