

NOEMI

NON-DETERMINISTIC COMPOSITION MACHINE

MANUAL - VERSION 1.0.3 - 2026-08-09

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QUICK START GUIDE

This chapter gets you making music in under five minutes. For full details on any topic, see the rest of the manual.

FIRST LAUNCH

The first time you open Noemi, a welcome dialog appears offering two ways to begin: pick a bundled demo project to see Noemi in motion, or start with an empty canvas. Untick "Show on startup" if you'd rather skip it next time. You can always reach the demos later via File > Demo Projects.

1. ADD A SOUND SOURCE

Click the Modules button (top-left) or right-click the canvas. Choose a source node:

```
Pattern - Draw notes on a piano roll
Generator - Let Noemi compose probabilistic melodies for you
Rhythm - Program drum beats on a step grid
Waveform - Play back and mangle audio samples
```

The node appears on the canvas. Most sources come with default content so you'll hear something right away.

2. ADD AN INSTRUMENT

Click Modules again and choose an instrument -- Chirusa (synth), Leeroy (drums), Cantia (voice), or any installed VST3/AU/CLAP/LV2 plugin. It appears as a second node on the canvas.

3. CONNECT THEM

Drag from the source node's output port (right side, orange dot) to the instrument's input port (left side, blue dot). A connection line appears. You can also select a node and press C, then click the target node.

4. CONNECT TO THE MIXER

Every project has a Mixer node on the right side of the canvas. Drag from your instrument's output port to one of the Mixer's input ports. This routes audio to the master output.

5. PRESS PLAY

Click the Play button in the transport bar (bottom-left) or press Space. You should hear your composition playing.

ADDING EFFECTS

Add an effect node (internal effects like Delay, Reverb, Filter, or any external audio plugin) and insert it between the instrument and the Mixer. Disconnect the instrument from the Mixer, then wire: Instrument -> Effect -> Mixer.

MODULATION

Open the Modulation panel (bottom bar). Add an LFO, Envelope, or Step Sequencer modulation source, then route it to any parameter. This adds movement and variation to your sound automatically.

SCENES

Save the current state of your entire project as a Scene with Cmd+Shift+1 (or any number 1-0). Recall it with Cmd+1. Scenes remember all node states, modulation, and mixer settings -- great for live performance.

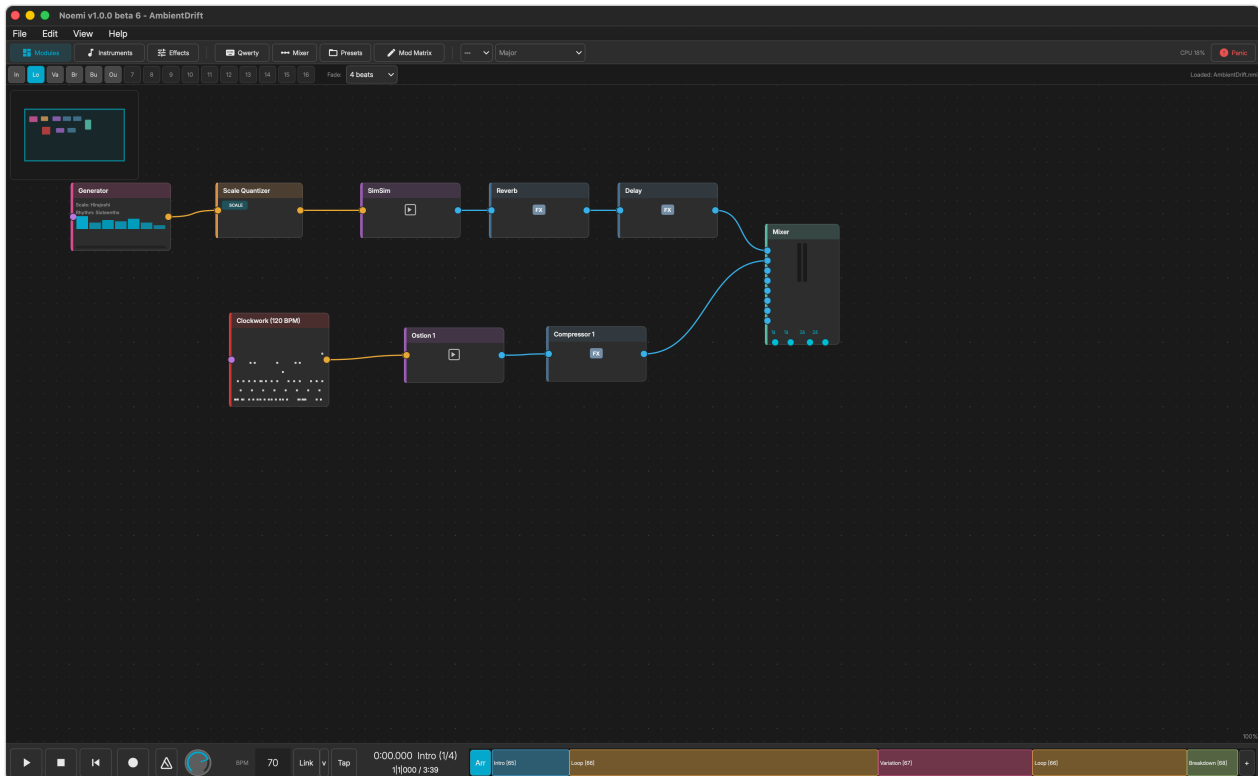
SAVING YOUR WORK

Cmd+S saves the project. Cmd+Shift+S saves as a new file. Projects are saved as .nmi files that include all node data, connections, modulation, and embedded audio.

TIPS

Right-click any node for context actions (duplicate, delete, rename, disconnect)
Tab toggles the minimap for navigating large graphs
Cmd+Z / Cmd+Shift+Z for undo/redo (100 levels)
F1 opens this documentation inside the app
Each source node has a Randomize button (!!!) to quickly generate new content
Use the Sequencer node to automate state changes on Pattern/Generator/Rhythm for evolving arrangements

OVERVIEW



Noemi is a non-deterministic composition machine. Instead of traditional linear sequencing, it uses a node-based graph where you wire together different composition building blocks to create evolving, generative music.

SIGNAL FLOW

Audio and MIDI signals flow left-to-right through the node graph:

```
Source Nodes (Pattern, Generator, Rhythm, LiveCode, Waveform, Slicer, Granular)
-> Transformer Nodes (modify notes/timing)
-> Instrument/Effect Nodes (produce/shape sound)
-> Mixer (master output)
```

Source nodes generate or play back musical data. Transformers process that data in real-time. Instruments convert MIDI to audio. Effects process audio. Everything routes to the Mixer for final output.

NODE TYPES

```
Pattern - MIDI piano roll with 4 independent playheads
Generator - Rule-based probabilistic note generation
Rhythm - 8-lane drum step sequencer
LiveCode - Text-based pattern generator using mini-notation
Waveform - Audio sample player with 4 playheads
Slicer - MIDI-triggered audio slicer with transient detection
Granular - Granular synthesis with free-running and MIDI-triggered modes
Sequencer - Automates state changes on Pattern/Generator/Rhythm
MIDI Output - Sends notes to external hardware or other apps
MIDI Input - Receives from external MIDI controllers or apps
MIDI Splitter - Routes incoming MIDI to multiple outputs by channel
OSC Input - Receives OSC note messages from external controllers
OSC Output - Sends generated notes as OSC messages
```

Audio Input - Receives live audio from system input or DAW (plugin mode)
Transformer - Processes notes in real-time (12 types)
Cantia - Formant voice synthesizer with phoneme sequencing
Chirusa - Built-in 4-oscillator subtractive synth
Leeroy - Synthesis-based drum machine with 8 channels
Ostion - Built-in 8-slot drum sampler
SimSim - Wavetable morphing synthesizer with dual oscillators
Internal Effects - Chorus, Compressor, Delay, EQ, Multimode Filter, Phaser, Reverb
Plugin - Hosts external AU/VST3/CLAP/LV2 instruments and effects
Mixer - Master output with per-track mixing and spectrum analyzer

MULTI-STATE

Pattern, Generator, and Rhythm nodes support up to 16 states (labeled A through P). Each state stores independent data -- different notes, different hits, different generation rules. Switch states manually with the State Selector widget, or automate state changes with a Sequencer node.

CONNECTIONS

Nodes connect via ports. MIDI signals (note data) flow from sources through transformers to instruments. Audio signals flow from instruments through effects to the mixer. You can create complex routing by wiring multiple sources to the same instrument, or splitting one source to many destinations.

CABLE COLORS

Connection cables are color-coded by signal type:

Amber - MIDI (note data)
Blue - Audio (sound)
Gold - Control signals (sequencer state changes, modulation)

CANVAS & CONNECTIONS

THE NODE CANVAS

The canvas is your workspace for building compositions. Nodes appear as colored blocks that you can arrange freely.

CREATING NODES

Use the toolbar buttons at the top of the window:

```
Modules - Add Pattern, Generator, Rhythm, Waveform, Slicer, Granular, LiveCode, and more
Instruments - Add Chirusa, Leeroy, Cantia, SimSim, Ostion, or external AU/VST3/CLAP/LV2
plugins
Effects - Add internal or external audio effect plugins
```

You can also right-click the canvas background to open a context menu with all node types, including the preset clip libraries for Pattern, Rhythm, and Waveform.

SELECTING AND MOVING NODES

```
Click a node to select it (highlighted border appears)
Drag a node to reposition it on the canvas
Click-drag on empty canvas to rubber-band select multiple nodes
Cmd+click a node to add/remove it from the selection
Drag any selected node to move all selected nodes together
Click the canvas background to deselect
```

RENAMING NODES

```
Double-click a node's editor panel header to set a custom display name.
The custom name appears on the canvas and in mixer strips.
Clear the name to revert to the default auto-generated name.
```

CREATING CONNECTIONS

```
Drag from a node's output port (right side) to another node's input port (left side)
A cable appears connecting the two nodes
MIDI connections carry note data; audio connections carry sound
```

COPY, CUT, AND PASTE

```
Cmd+C copies the selected node(s)
Cmd+X cuts the selected node(s)
Cmd+V pastes -- creates new nodes with unique IDs and reconnected internal wiring
```

Multi-node copy/paste preserves connections between the copied nodes.

DELETING

```
Select a node and press Delete or Backspace to remove it
Multi-select and delete removes all selected nodes at once
Right-click a connection cable to delete it
```

NODE GROUPING

Select 2 or more nodes and press Cmd+G to group them into a single macro node
Double-click a group to enter group view and edit the subgraph inside
Press Escape to exit group view
Select a group node and press Cmd+Shift+G to ungroup (dissolves back to individual nodes)

Groups have I/O nodes that define signal routing in and out of the group. Internal connections are preserved.

ZOOM AND PAN

Cmd+= or mouse wheel up to zoom in
Cmd+- or mouse wheel down to zoom out
Cmd+F to fit all nodes in view
Home to reset zoom to 1.0 and pan to origin
Middle-mouse drag or Space+drag to pan the canvas
Click the zoom readout (bottom-right) for presets (50-200%) and Zoom to Fit

Timeline editors (piano roll, drum grid, automation lane, Arrangement View, Waveform, Slicer) have their own scrollbars with +/- zoom buttons; Cmd+wheel zooms and trackpad horizontal swipes pan.

RESETTING PARAMETERS

Double-click or Cmd-click any knob or slider to reset it to its default value.
The same gestures reset a modulation route's depth arc to 0%.

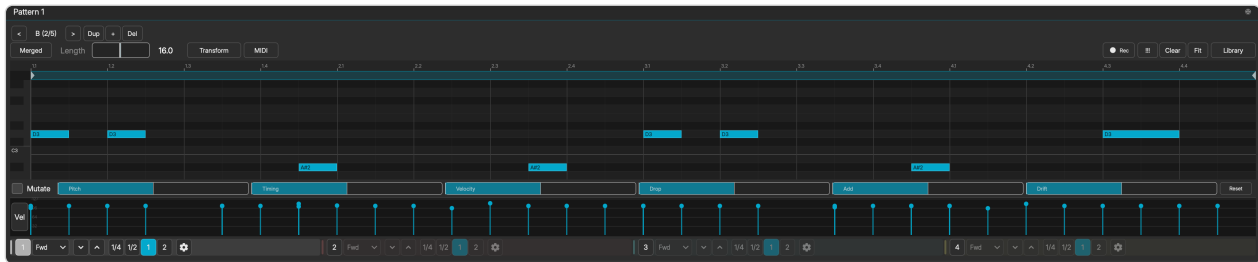
MINIMAP

A small overview in the top-left corner shows all nodes as colored rectangles
The cyan rectangle shows the current viewport
Click or drag on the minimap to quickly pan to any location
Press Tab to toggle minimap visibility

DRAW AND DROP

Drag a MIDI file (.mid) onto the canvas to create a Pattern with those notes
Drag an audio file onto the canvas to create a Waveform
Drag an audio file onto an existing Waveform node to replace its audio

PATTERN



The Pattern node is a MIDI piano roll with 4 independent playhead lanes.

STATES (A-P)

Pattern supports up to 16 states. Each state stores its own set of notes, loop region, lane configs, mutation settings, and output routing. Use the State Selector below the editor to navigate between states, duplicate the current state, or add new ones. A Sequencer node can automate state switching during playback.

PIANO ROLL EDITOR

Open the Pattern editor by double-clicking the node or selecting it and pressing Enter. The editor shows a grid with pitch on the vertical axis and time (beats) on the horizontal axis.

- Double-click to place a note (keep the second click held and drag to set its length)
- Double-click or right-click a note to delete it
- Click and drag on empty space to lasso-select multiple notes
- Drag a note to move it (a selected group moves together)
- Drag the right edge of a note to resize it
- Click a note to select it; Shift-click to add or remove from the selection
- Scroll vertically to see more pitches
- Use the scrollbars and zoom buttons to navigate

4 PLAYHEAD LANES

Each Pattern has 4 independent playhead lanes, color-coded:

- Lane 1 (White) - Enabled by default
- Lane 2 (Coral)
- Lane 3 (Teal)
- Lane 4 (Yellow)

Each lane can be configured independently:

- Speed Ratio - Playback speed multiplier (e.g., 0.5 = half speed, 2.0 = double)
- Direction - Forward, Reverse, or Pendulum (alternating)
- Pitch Offset - Transpose in semitones
- Inverted - Mirror pitches around middle C
- Velocity - Velocity multiplier for notes on this lane

Multiple lanes reading the same notes at different speeds and directions create polyrhythmic textures.

LOOP CONTROLS

- Loop Start - Where the loop region begins (in beats)
- Loop End - Where the loop region ends

All lanes share the same loop region. The loop points define which portion of the pattern plays back.

OUTPUT ROUTING

Merged - All lanes output together (default)
Per Lane - Each lane outputs separately (4 independent outputs)

Per-lane routing lets you send each playhead to a different instrument.

TRANSFORMS

The Pattern editor toolbar provides non-destructive transforms:

Transpose - Shift all notes up or down by semitones
Reverse - Flip the pattern backwards in time
Stretch - Time-stretch the pattern (affects note positions and durations)
Quantize - Snap note start times to a grid

MUTATION

Mutation adds controlled randomness to pattern playback. When enabled, notes gradually drift from their original positions each time the pattern loops.

Pitch Drift - Probability of pitch shifting per note
Timing Drift - Maximum timing offset in beats
Velocity Drift - Maximum velocity variation
Note Drop - Probability of dropping a note
Note Add - Probability of adding a note
Drift Accumulate - 0 = fresh each loop, 1 = cumulative drift
Max Pitch Dev - Maximum semitones a note can drift from baseline

Use "Capture Baseline" to save the current pattern state, and "Reset to Baseline" to restore it.

RECORDING

Arm recording on a Pattern to capture live MIDI input:

1. Select the Pattern node
2. Click the Record button in the transport
3. Play notes via MIDI controller or the on-screen QWERTY keyboard
4. Notes are recorded at the current playback position

SAVE / DRAG OUT AS MIDI

The Pattern toolbar includes a Save MIDI button that exports the pattern's loop region as a standard MIDI file (Type 0, 480 ticks per quarter note).

Click the button to open a save dialog and choose where to write the .mid file.
Or drag the button straight onto a DAW track or the Finder/Explorer to drop the clip -- no dialog needed.

This is handy for capturing a generative moment and continuing it in another tool.

VELOCITY & EXPRESSION LANES

Below the piano roll, the expression lane editor provides 5 modes for per-note expression data. Click the lane mode selector to switch between:

Vel - Velocity: per-note strike intensity (0-127)
AT - Aftertouch: per-note channel pressure
Prs - Pressure: MPE polyphonic pressure (per-note continuous)
Sld - Slide: MPE slide / CC 74 (per-note continuous)
PB - Pitch Bend: MPE per-note pitch bend

Click and drag in the lane to draw expression values. These lanes enable full MPE (MIDI Polyphonic Expression) output when connected to MPE-capable instruments.

MODULATION TARGETS

Transpose - -24 to +24 semitones
Velocity Scale - 0.0 to 2.0
Swing - 0.0 to 1.0

Generator

A [T] S > Dsp > Del

Scale: Hingsholt Root E

Octave Range Base Octave

Degree Weights

Rhythm: Straight Quarters Note Prob Rest Prob

Source: Library

Motive Length Vary Draw Prob Variation

Phrase Phase Len Root Flat Resolved

Humanize Contour Arch Strength Phrase

☐ Chord Prog Probabilistic Chord Tone Bias

☐ Follow Conductor

Reg Stability Metric Axes Voice Leading

Pra Min Pra Max SS Min Sol Max PB Min PB Max

Learn Style Generate Variations

STATES (A-P)

Generator supports up to 16 states. Each state stores its own scale, harmony, rhythm, contour, and dynamics rules. Use the State Selector to switch between different generation configurations. A Sequencer node can automate state switching during playback.

SCALE RULE

Scale - Choose from the scale library (Major, Minor, Dorian, etc.)
 Root Note - The tonic pitch (default: Middle C)
 Octave Range - Number of octaves to span (default: 2)
 Base Octave - Center octave (default: 4)

RHYTHM RULE

Note Probability - Base chance of generating a note (0-1)
 Rest Probability - Chance of silence (0-1)
 Duration Weights - Relative probability of different note lengths

Library - Select from preset rhythm patterns
L-System - Algorithmic patterns from L-System grammar rules
Preset and iteration count configurable
Density Curve - Shape-based density (0 = sparse, 1 = dense)
Nested Euclidean - Two layers of Euclidean rhythm combined
Outer and inner hits/steps configurable

Chord Progression - Enable harmonic movement
Chord Change Prob - How often chords change (per bar)

Chord Tone Bias - Preference for chord tones (0 = none, 1 = strong)
Voice Leading - How strongly successive notes move smoothly between chords (0-1)

Progression Mode:
Probabilistic - Choose next chord based on music theory
Template - Follow a preset progression from the library

CONTOUR RULE (MELODIC SHAPE)

Shape:
Free - No constraint
Ascending - Upward motion
Descending - Downward motion
Arch - Up then down
Valley - Down then up
Random Walk - Stepwise motion
Pendulum - Sinusoidal bias

Strength - How strongly the contour affects generation (0-1)
Phrase Length - Notes per phrase cycle
Step Bias - Preference for stepwise motion vs. leaps (0-1)
Max Leap - Maximum interval in scale degrees

MOTIVE RULE

The generator can build phrases from a short repeating motive rather than one note at a time, then develop that motive over the course of a phrase for more musical, thematic melodies.

Motive Length - Notes in the motive (2-8)
Development - How the motive is transformed on repeats:
Repeat, Transpose, Invert, Retrograde, Augment, Diminish, Vary
Dev Prob - Probability of applying a development on each repeat (0-1)
Variation - Amount of variation applied when developing (0-1)

PHRASE RULE

Shapes how notes are grouped into phrases and how those phrases begin and end.

Phrase Length - Phrase duration in beats
Phrase Rest - Beats of silence between phrases
Tension Arc - Dynamic/harmonic shape across the phrase:
Flat, Rising, Falling, Wave, Build & Release
Phrase End - How each phrase resolves: Sustain, Rest, or Resolve

DYNAMICS RULE

Base Velocity - Starting velocity level (0-1)
Velocity Range - Amount of random variation
Accent Prob - Chance of an accent
Accent Amount - Extra velocity for accents

HUMANIZATION

Adds random timing and velocity variations for a more natural feel (0-1).

MUSICALITY

Three refinement controls make raw generation feel more intentional:

Register Stability - Keeps the melody within a consistent octave range instead of leaping across registers (0-1)
Metric Awareness - Biases note placement and accents toward strong beats (0-1)
Voice Leading - Smooths motion between successive chords (0-1; same value shown in the Harmony rule)

FOLLOW CONDUCTOR

By default every Generator rolls its own dice, so multiple generators playing together may drift harmonically. Turn on Follow Conductor to lock a generator to Noemi's shared musical "conductor":

Voice-leads to a single global chord clock, so all following generators outline the same harmony at the same time.
Rides a shared energy curve, so parts swell and settle together.

Enabling Follow Conductor on any generator automatically switches on the project-wide conductor, so a single toggle is enough to hear the effect. Add it to two or three generators and they immediately move together as an ensemble. The conductor's chord progression follows either a Markov walk over the diatonic transition table or a named progression template, changing on a shared harmonic-rhythm clock; its energy curve is driven by the current Song Arrangement section (see Song Arrangement).

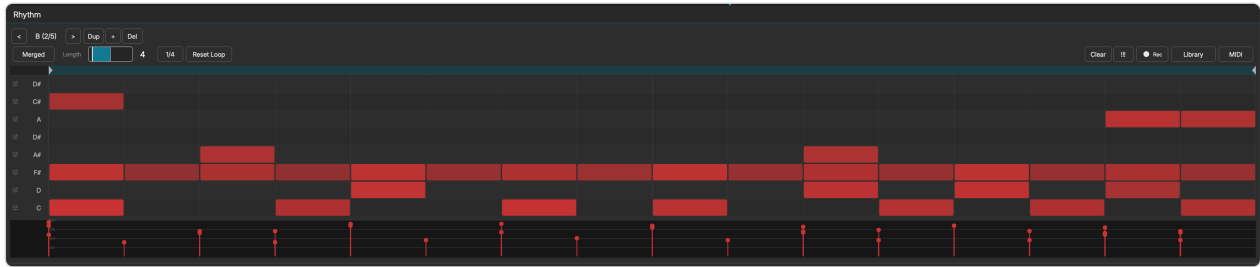
FREEZE

Click "Freeze" to capture the generator's output as a fixed Pattern.
Useful for keeping a particular generation you like.

MODULATION TARGETS

Density - 0.0 to 1.0 (note probability multiplier)
Pitch Center - 36 to 96 (MIDI note)
Pitch Range - 0 to 48 semitones
Velocity - 0.0 to 1.0
Duration - 0.125 to 4.0 beats
Humanize - 0.0 to 1.0
Metric Awareness - 0.0 to 1.0
Register Stability - 0.0 to 1.0
Voice Leading - 0.0 to 1.0
Motive Length - 2 to 8
Development Prob - 0.0 to 1.0
Variation Amount - 0.0 to 1.0

RHYTHM



The Rhythm node is an 8-lane drum step sequencer.

STATES (A-P)

Rhythm supports up to 16 states. Each state stores its own hits, lane configurations, and loop region. Use the State Selector to switch between different drum patterns. A Sequencer node can automate state switching during playback.

DRUM GRID

The editor displays 8 horizontal lanes. Double-click a grid cell to add a hit; double-click or right-click a hit to remove it. Click a hit to select it (Shift-click to add or remove from the selection), or click and drag on empty cells to lasso-select multiple hits. Each hit has a velocity value, editable for the whole selection in the velocity lane. **DEFAULT DRUM MAP (General MIDI)**

```
Lane 1 - Kick (MIDI 36)
Lane 2 - Snare (MIDI 38)
Lane 3 - Closed HH (MIDI 42)
Lane 4 - Open HH (MIDI 46)
Lane 5 - Clap (MIDI 39)
Lane 6 - Low Tom (MIDI 45)
Lane 7 - Crash (MIDI 49)
Lane 8 - Ride (MIDI 51)
```

You can reassign any lane to a different MIDI note to match your instrument.

EDITING HITS

```
Click a cell to toggle a hit on/off
Drag up/down on a hit to adjust its velocity
Right-click a lane label to change its MIDI note assignment
Use "Clear" to clear a single lane or all lanes
```

LOOP CONTROLS

```
Loop Start - Where the loop begins (in beats)
Loop End - Where the loop ends
```

The single playhead traverses all 8 lanes simultaneously.

OUTPUT ROUTING

```
Merged - All lanes output together (default)
Per Lane - Each lane outputs on a separate channel (8 independent outputs)
```

Per-lane routing lets you send each drum to a different effect chain.

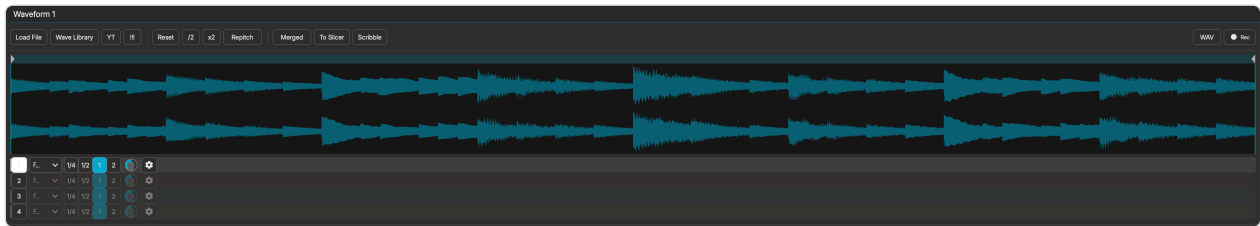
RECORDING

Arm recording to capture live drum input. Play notes via MIDI controller and hits are placed at the current beat position in the matching lane.

MODULATION TARGETS

Velocity Scale - 0.0 to 2.0
Swing - 0.0 to 1.0

WAVEFORM



The Waveform node is an audio sample player with 4 independent playhead lanes.

LOADING AUDIO

Drag an audio file onto the Waveform node on the canvas
Or use the "Load File" button in the editor toolbar
Or select from the built-in Wave Library presets
Supported formats: WAV, AIFF, FLAC, MP3, OGG

The waveform display shows the audio file with draggable markers for regions.

4 PLAYHEAD LANES

Like the Pattern node, each Waveform has 4 independent lanes:

Lane 1 (White) - Enabled by default
Lane 2 (Coral)
Lane 3 (Teal)
Lane 4 (Yellow)

Each lane has:

Speed Ratio - Playback speed (affects pitch in Repitch mode)
Direction - Forward or Reverse
Gain Scale - Volume multiplier for this lane
Looping - Whether the lane loops or plays once

SAMPLE REGION

Defines which portion of the audio file is active:

Sample Start - Beginning of the active region
Sample End - End of the active region

Drag the sample region markers on the waveform display to adjust.

LOOP REGION

Within the sample region, the loop region controls what portion repeats:

Loop Start - Beginning of the loop
Loop End - End of the loop

All lanes share the same loop region.

TIME-STRETCH MODES

Repitch - Changing speed also changes pitch (classic sampler behavior)
Stretch - Maintains original pitch when changing speed (time-stretching)

ZERO-CROSSING SNAP

Loop and sample markers automatically snap to the nearest zero crossing in the audio waveform, reducing clicks and pops at loop points.

BEAT LENGTH SNAP

When loading audio, the waveform length can be snapped to clean bar lengths (1, 2, 4, 8, or 16 bars) based on the current tempo.

OUTPUT ROUTING

Merged - All lanes output together (default)
Per Lane - Each lane outputs separately (4 independent outputs)

SCRIBBLE (AUDIO SCRUBBER)

Scribble lets you click-drag over the waveform to scrub and capture audio, like scratching a vinyl record.

1. Click "Scribble" in the toolbar -- button turns red and shows "Done"
2. Click and drag on the waveform display:
 - Mouse X controls playback position in the sample
 - Mouse Y controls pitch (center = original, top = 2 octaves up, bottom = 2 octaves down)
3. Release the mouse to stop scrubbing. Click and drag again for more gestures.
4. Adjust the Window slider (10-500 ms) to control the chunk length -- shorter = more choppy/glitchy, longer = smoother playback
5. Click "Done" to finalize -- the captured audio replaces the original waveform content

Multiple gestures accumulate into a single captured recording. Scribble is great for creating stuttery, pitch-mangled remixes of your samples.

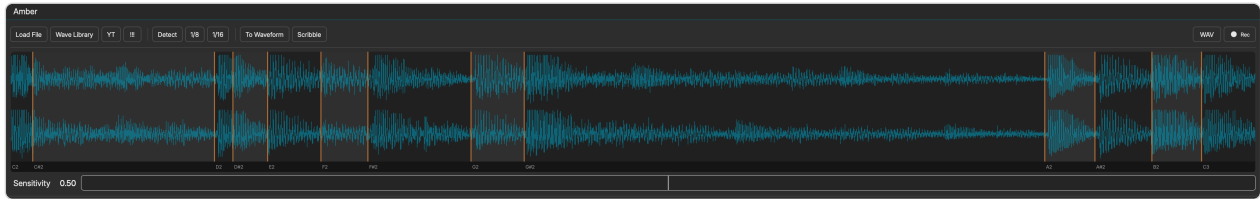
AUDIO SOURCE RECORDING

If the Waveform has an audio input connection, hold the Rec button to capture live audio from the connected source.

MODULATION TARGETS

Gain - 0.0 to 2.0

SLICER



The Slicer node is a MIDI-triggered audio slicer. It loads an audio file, divides it into slices, and plays individual slices triggered by incoming MIDI notes.

LOADING AUDIO

Use "Load File" to browse for an audio file
Use "Wave Library" to select from built-in audio
Use "YT" to fetch audio from a YouTube URL (requires internet)
Supported formats: WAV, AIFF, FLAC, MP3, OGG (and REX/RX2 when available)

The waveform display shows the audio with colored slice markers.

SLICE MODES

Detect - Energy-based transient detection (automatic slice placement)
1/8 - Even division at 8th-note intervals
1/16 - Even division at 16th-note intervals

TRANSIENT DETECTION

When using Detect mode, the Sensitivity slider controls how aggressive the detection is:

Low sensitivity - Only the strongest transients become slice points
High sensitivity - More slices from quieter transients

Slice markers automatically snap to the nearest zero-crossing for clean playback.

TRIGGERING SLICES

Each slice maps to a MIDI note starting at C2 (MIDI note 48):

Slice 1 = C2, Slice 2 = C#2, Slice 3 = D2, ...

Connect a Pattern, Generator, or Rhythm node to the Slicer's input, and notes in the C2+ range will trigger the corresponding slices.

PREVIEW

Click on a slice in the editor waveform display to preview it. Active slices glow during playback.

TO WAVEFORM

Click "To Waveform" to copy the loaded audio to a connected Waveform node for further manipulation.

SCRIBBLE (AUDIO SCRUBBER)

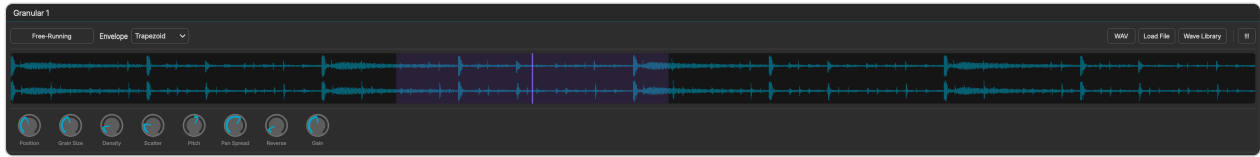
Slicer also supports Scribble mode. Works the same as Waveform Scribble, with the addition that scrubbing across slice boundaries auto-snaps playback to the start of each new slice. When you click

"Done", the captured audio replaces the slicer's content and transient detection is automatically re-applied.

AUDIO SOURCE RECORDING

If the Slicer has an audio input connection, hold the Rec button to capture live audio from the connected source.

GRANULAR



The Granular node is a granular synthesis engine that generates clouds of tiny audio fragments (grains) from a loaded sample.

LOADING AUDIO

Use "Load File" to browse for an audio file
Use "Wave Library" to select from 9 built-in presets (Amber, Breeze, Crystal, Drift, Echo, Frost, Glaze, Haze, Ivory)
Or drag an audio file onto the node
Supported formats: WAV, AIFF, FLAC, MP3

MODES

Free-Running - Continuous grain generation based on Density setting
MIDI-Triggered - Grains spawned by incoming MIDI notes; pitch derived from MIDI note relative to C4

PARAMETERS

Position - Read position in the sample (0-1)
Grain Size - Duration of each grain in milliseconds
Density - How many grains per second (Hz)
Scatter - Random spread around the position (0-1)
Pitch - Pitch shift in semitones
Pan Spread - Stereo spread of grains (0-1)
Reverse Prob - Probability of playing a grain backwards (0-1)
Gain - Output level (dB)

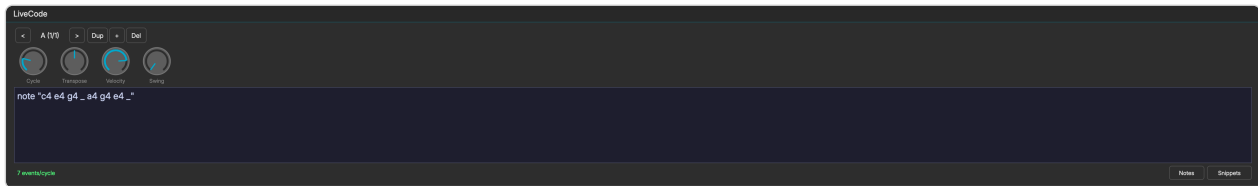
All parameters are modulatable.

GRAIN ENVELOPE SHAPES

Hann - Smooth cosine window (default, click-free)
Triangle - Linear fade in/out
Trapezoid - Flat top with short fades (more sustained sound)

The engine supports up to 64 simultaneous grains. Click the Randomize button (!!!) to explore random parameter combinations.

LIVECODE



The LiveCode node is a text-based pattern generator inspired by TidalCycles and Strudel. Type patterns using a mini-notation syntax and hear them play back in real-time.

MINI-NOTATION BASICS

Space-separated elements divide one cycle evenly:
`c e g -- 3 notes, each 1/3 of a cycle`

Square brackets subdivide a slot:
`c [e g] -- c gets half, e and g share the other half`

Tilde for rest:
`c ~ e ~ -- notes with rests between them`

Asterisk for repeat:
`c*4 -- c repeated 4 times`

Forward slash for stretch:
`c/2 -- c stretched over 2 cycles`

OPERATORS

`<a b c>` - Alternation: pick one element per cycle
`[a,b,c]` - Stack: play simultaneously (chords)
`a(3,8)` - Euclidean: 3 hits distributed over 8 steps
`a?0.5` - Probability: 50% chance of playing
`a|b|c` - Random Choice: pick one randomly
`a:0.3` - Velocity: set velocity to 0.3 (0-1)
`a@2` - Elongation: 2 weighted time slots

PATTERN TRANSFORMATIONS

`rev` - Reverse the pattern
`fast 2` - Double the speed
`slow 2` - Half the speed
`off 0.5` - Offset by half a cycle (creates echo/canon)
`degrade 0.3` - Randomly drop 30% of events
`every 4 rev` - Apply reverse every 4th cycle

CONTINUOUS FUNCTIONS

`sine`, `saw`, `square`, `tri`, `rand`, `perlin`

These generate continuous value streams useful for modulating velocity or other parameters.

SLICER MODE

Toggle between Notes mode (MIDI pitches) and Slices mode (slice indices for triggering a connected Slicer node).

MULTI-STATE

LiveCode supports up to 8 states with the State Selector. Each state stores a different pattern text. Use a Sequencer to automate state switching.

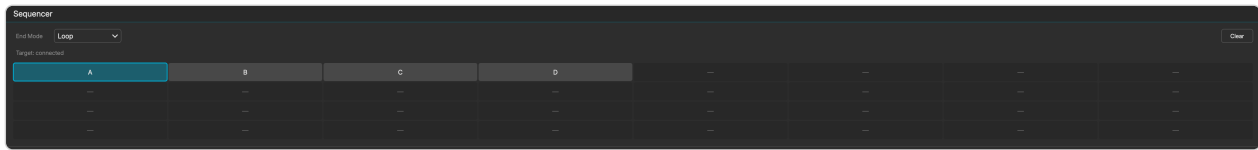
PARAMETERS

Cycle Length - Duration of one cycle in beats (0.25-16)
Transpose - Pitch offset in semitones (-24 to +24)
Velocity - Velocity scale (0.0-1.0)
Swing - Swing amount (0.0-1.0)

SNIPPET LIBRARY

Click the book icon to access 80+ categorized pattern examples that you can insert into your code.

SEQUENCER



The Sequencer node automates state switching on a target Pattern, Generator, or Rhythm node. It holds a sequence of up to 32 steps, each referencing a state (A-P). When the target node completes a loop, the Sequencer advances to the next step and switches the target's active state.

STEP GRID

The editor shows an 8x4 grid (8 columns, 4 rows = 32 steps). Click a cell to set which state that step activates. Steps are labeled with the state letter (A-P). Empty steps are skipped.

CONNECTING TO A TARGET

1. Connect the Sequencer's output to a Pattern, Generator, or Rhythm's control input
2. The Sequencer automatically detects the target's available states
3. Only valid state indices are shown in the grid

END MODES

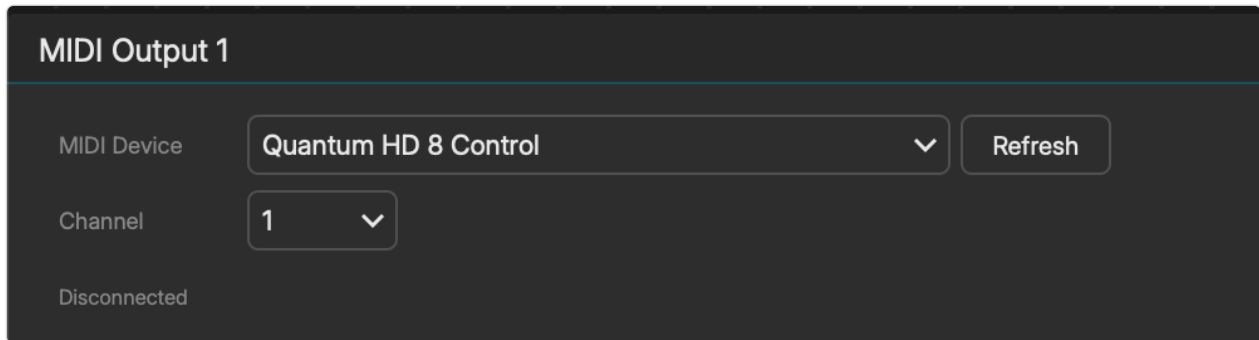
Loop - Restart from the beginning after the last step
Hold Last - Stay on the final step after reaching the end
Jump to Step - Jump to a specific step number after the last step

EXAMPLE

To create an evolving drum pattern:

1. Create a Rhythm node with 4 states (A, B, C, D) -- each with different hits
2. Create a Sequencer node and connect it to the Rhythm
3. Set steps: A, A, B, C, A, B, D, C
4. The Rhythm will cycle through these states as it plays

MIDI OUTPUT



The MIDI Output node sends generated notes to external MIDI hardware or other applications. It is a terminal MIDI sink on the canvas.

SETUP

1. Add a MIDI Output node via Modules > MIDI Output
2. Connect any MIDI-producing node (Pattern, Generator, Transformer, etc.) to its input
3. Select a MIDI output device from the dropdown
4. Choose a MIDI channel (1-16)

The node shows an activity indicator when notes are being sent.

DEVICE SELECTION

The device dropdown lists all available MIDI output devices on your system. If you connect a new MIDI device while Noemi is running, use the refresh button to update the list.

HOST (DAW) OUTPUT

When Noemi runs as a plugin, the device dropdown adds a "Host (DAW)" entry at the top. Select it to send the generated MIDI back out through the plugin into the host DAW, where you can route it to another track to drive your DAW's own instruments with Noemi's generative parts. See "Sending MIDI to Your DAW" below for the exact per-host routing steps. This entry appears in the VST3, CLAP, and LV2 builds (and the iOS AUv3), which deliver MIDI to the host. It is hidden in the desktop Audio Unit (AU) build, because no common AU host (Logic, GarageBand, Ableton Live) routes an instrument plug-in's MIDI output - so use the VST3 or CLAP for DAW MIDI, or an IAC bus (see below). In the standalone app the dropdown lists hardware and virtual MIDI ports only.

NOTE TRACKING

The MIDI Output node tracks active pitches so note-offs are always sent, even if the source node is disconnected or deleted.

SENDING MIDI TO YOUR DAW

Noemi works as a generative MIDI plug-in: its Pattern, Generator, Rhythm, Sequencer and Transformer nodes produce notes, and a MIDI Output node set to "Host (DAW)" streams them back out to the host, where you route them to your DAW's own instruments.

REQUIREMENTS

1. Use the VST3 or CLAP build (not the desktop AU - see "Host (DAW) Output" above).
2. Add a MIDI Output node (Modules > MIDI Output) and connect a MIDI-producing node to it.
3. Set the MIDI Output node's device to "Host (DAW)". The panel should read "Connected".
4. Noemi follows the host transport - press Play in your DAW to start the generative parts.

ABLETON LIVE

1. Put Noemi (VST3) on a MIDI track - the "Noemi track".
2. Create a second MIDI track holding the instrument you want to drive.
3. On that second track, set "MIDI From" to the Noemi track.
4. In the dropdown just below it, select "Noemi" (the plug-in's name) - NOT "Pre FX", "Post FX", or "Track In". Only the plug-in-name entry taps Noemi's MIDI output.
5. Set that track's Monitor to "In".
6. Press Play. Noemi's notes now play the second track's instrument.

REAPER

Add a MIDI send from the Noemi track to the destination track (or route the track's MIDI output), and input-monitor / record-arm the destination track so it plays incoming MIDI.

BITWIG / OTHERS

Hosts that expose plug-in note output (Bitwig and similar) list Noemi's MIDI output as a note source you can wire to another device or track.

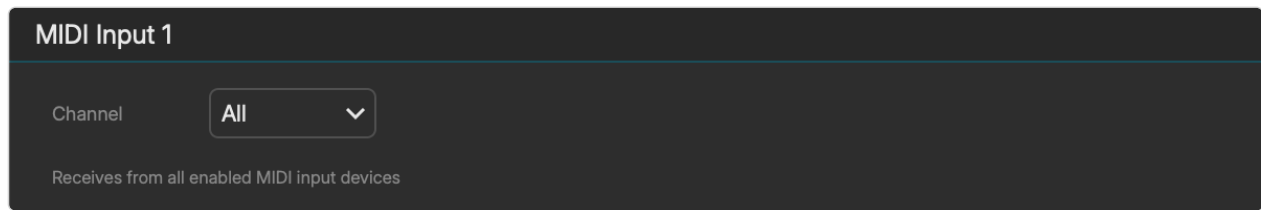
NOTES vs. CC

Over VST3, some hosts (notably Ableton Live and Bitwig) pass note-on/note-off but drop MIDI CC and pitch-bend at the VST3-to-host bridge. Noemi's Pattern/Generator send notes, so this is usually not a concern - but MPE/expression data will not arrive over VST3 into Live.

AU WORKAROUND (IAC BUS)

If you must use the AU, route the MIDI Output node to a macOS IAC Driver bus (a normal MIDI device, enabled in Audio MIDI Setup > MIDI Studio), then set that IAC bus as the MIDI input of a track in your DAW. This sidesteps the plug-in MIDI-out path that AU hosts don't support.

MIDI INPUT



The MIDI Input node receives notes from external MIDI controllers or applications and feeds them into the composition graph.

SETUP

1. Add a MIDI Input node via Modules > MIDI Input
2. Select a MIDI input device from the dropdown
3. Choose a MIDI channel (1-16, or All to receive on all channels)
4. Connect the node's output to instruments, transformers, or other MIDI-accepting nodes

Multiple MIDI Input nodes can coexist, each listening to a different device or channel. The node shows an activity indicator for incoming notes. Use the refresh button to detect newly connected MIDI devices.

MIDI SPLITTER

The MIDI Splitter routes incoming MIDI to multiple outputs by channel. Use it to split a multi-channel source - a hardware controller, or a hosted plugin like Maschine, Reaktor, or VCV Rack - across different instruments.

SETUP

1. Add a MIDI Splitter via Modules > MIDI Splitter (I/O section)
2. Connect a MIDI source to its input: a MIDI Input node, or a plugin's MIDI out port
3. In the editor panel, set the number of outputs (1-16) and assign each output a channel
4. Connect each output to its instrument

Each output passes only events on its assigned channel; set an output to Omni to pass everything. Notes and controller data (CC, pitch bend, pressure) both follow the per-channel routing. Splitters can be chained for further filtering. The canvas node labels each output port with its channel.

OSC INPUT / OUTPUT

Noemi supports Open Sound Control (OSC) for communication with external software and hardware.

OSC SETTINGS

Access via File > OSC Settings:

```
Enable/Disable - Master toggle for all OSC communication
Receive Port - Port to listen on (default: 9000)
Send Host - Destination IP address (default: 127.0.0.1)
Send Port - Destination port (default: 9001)
```

BUILT-IN OSC COMMANDS

```
/transport/play - Start playback
/transport/stop - Stop playback
/transport/tempo [float] - Set tempo in BPM
/score/1 through /score/16 - Recall scenes
```

OSC INPUT NODE

Add via Modules > OSC Input. Receives OSC note messages and converts them to MIDI events for the composition graph. Configure the note-on and note-off OSC addresses.

OSC OUTPUT NODE

Add via Modules > OSC Output. Sends generated notes from the graph as OSC messages to the configured destination.

OSC MODULATION SOURCE

In the Modulation panel, add an OSC source to use any incoming OSC address as a continuous modulation signal. Supports address learning (listen for the next incoming message), range mapping, bipolar mode, and smoothing.

AUDIO INPUT

Audio Input receives live audio from the system audio device (or from the DAW's effect chain in plugin mode). Use it to process live audio through Noemi's effects and modulation system.

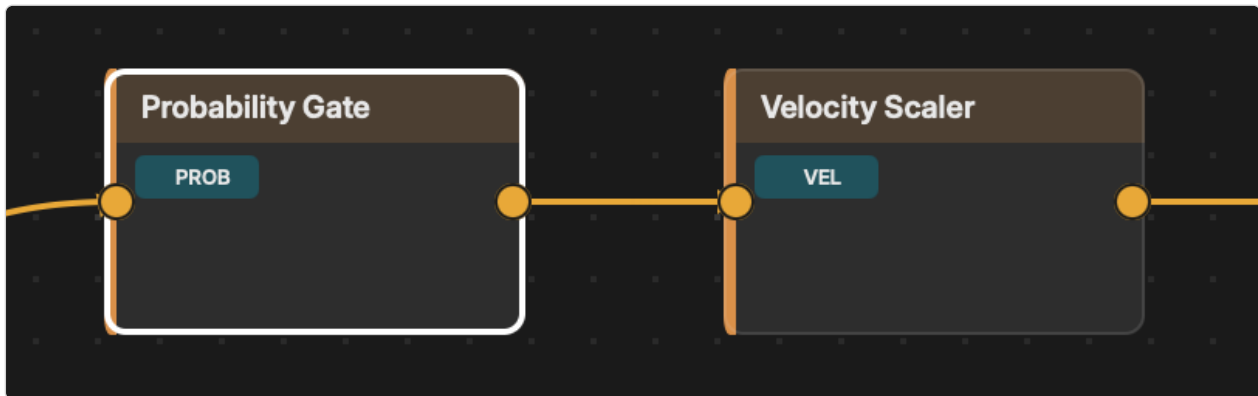
CONTROLS

Gain - Input level (-inf to +12 dB)
Mono - Sum stereo input to mono
Device - Select audio input device (standalone mode only)

ROUTING

Audio Input has a single audio output. Connect it to effects or directly to the Mixer. In plugin mode (AU/VST3/CLAP/LV2), Audio Input receives the audio passed into Noemi by the host DAW, making Noemi function as an audio effect.

TRANSFORMERS



Transformers process notes in real-time as they flow through the graph. Connect a source node's output to a transformer's input, then connect the transformer's output to an instrument. Each transformer can be enabled or bypassed.

PROBABILITY GATE

Randomly passes or blocks notes based on a probability value.

Probability - 0.0 (block all) to 1.0 (pass all)
Modulatable: Probability

TRANSPOSE

Shifts all notes by a fixed number of semitones.

Semitones - -48 to +48
Modulatable: Semitones

VELOCITY SCALER

Adjusts note velocities with a multiplier and offset.

Scale - 0.0 to 2.0 (velocity multiplier)
Offset - -1.0 to +1.0 (velocity offset added after scaling)
Modulatable: Scale, Offset

NOTE FILTER

Only passes notes within specified pitch and velocity ranges.

Min Pitch - 0 to 127
Max Pitch - 0 to 127
Min Velocity - 0.0 to 1.0
Max Velocity - 0.0 to 1.0

CHORD GENERATOR

Takes each incoming note and outputs a full chord.

Chord Type - Major, Minor, Diminished, Augmented, Major7, Minor7, Dominant7, Sus2, Sus4, Power, Octave
Inversion - 0 to 3

ARPEGGIATOR

Holds incoming notes and plays them as an arpeggiated sequence.

```
Pattern - Up, Down, UpDown, DownUp, Random, Order
Rate - 0.0625 to 2.0 beats per note (default: 0.25 = 16th notes)
Octave Range - 1 to 4 octaves
Gate Length - 0.1 to 1.0 (note length as fraction of step)
Modulatable: Rate
```

EUCLIDEAN RHYTHM

Applies a Euclidean rhythm pattern (Bjorklund's algorithm) to incoming notes. The editor shows the pattern as a row of dots, with the current step highlighted during playback.

```
Steps - 1 to 32 (pattern length)
Hits - 0 to Steps (active beats)
Rotation - 0 to Steps (pattern rotation offset)
Step Length - Beats per step (default: 0.5 = 8th notes)
```

HUMANIZE

Adds random timing and velocity variations for a natural feel.

```
Timing Amount - 0.0 to 1.0 (max ~50ms offset at full)
Velocity Amount - 0.0 to 1.0
Modulatable: Timing, Velocity
```

SCALE QUANTIZER

Forces notes to the nearest pitch in a chosen scale.

```
Scale Name - Select from scale library (Major, Minor, Dorian, etc.)
Root Note - C through B (0-11)
```

RANDOM TRANSPOSE

Randomly transposes each note within a semitone range.

```
Min Semitones - -24 to +24
Max Semitones - -24 to +24
Modulatable: Min Semitones, Max Semitones
```

MARKOV CHAIN

Learns pitch transition probabilities and generates variations.

```
Order - 1 to 3 (number of previous notes considered)
Mode - Learn (absorb input), Generate (output variations), Both
Temperature - 0.0 (deterministic) to 1.0 (fully random)
Modulatable: Temperature
```

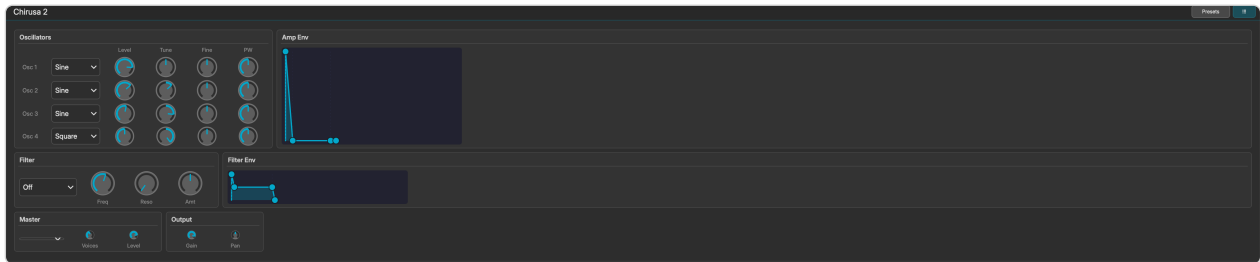
The Markov chain builds a transition matrix from incoming notes and uses it to generate melodically related variations. Lower temperature stays closer to learned patterns; higher temperature adds more randomness.

STYLE LEARNER

Learns patterns from a connected source and generates stylistically similar variations.

Record - Enable to learn from incoming notes
Generate - Enable to output learned variations
Temperature - Variation amount (0-1)
Modulatable: Temperature

INSTRUMENTS & EFFECTS



CANTIA (FORMANT VOICE SYNTHESIZER)

Cantia is a voice synthesizer that models the human vocal tract using formant synthesis. A glottal pulse drives three parallel bandpass filters (formants F1, F2, F3) to produce vowel and consonant sounds. Voice Types: Soprano, Alto, Tenor, Bass, Whisper (noise-only), Robot (narrow/metallic) Lyric Input: Type plain text and Cantia parses it into syllables. Use IPA brackets for specific phonemes (28 available), glide arrows for transitions (e.g., [aa>ow]), uppercase for stress, and trailing underscore for sustain.

Parameters:

```
Voice - Type, Breathiness, Vibrato Depth, Vibrato Rate, Formant Shift
Amp - Attack, Decay, Sustain, Release
Phoneme - Speed, Consonant Sharpness, Vowel Blend
Chorus - Toggle with Speed, Depth, Mix settings
Reverb - Toggle with Size, Damping, Mix settings
Master - Level, Voice Mode (Mono/Legato/Poly), Voices (1-8)
```

Lyrics support up to 16 states with the State Selector. 12 factory presets: Soprano, Alto, Tenor, Bass, Whisper, Robot, Choir Pad, Gregorian, Ethereal, Beatbox, Vowel Drone, Chant. The Presets button loads a built-in preset, saves the current voice as a user preset ("Save as Preset..."), or opens the full preset browser ("Browse All..."). User presets are stored in your preset library and load live into Cantia.

CHIRUSA (4-OSCILLATOR SUBTRACTIVE SYNTH)

Chirusa is Noemi's built-in synthesizer. Add it via Instruments > Chirusa. New instances load a random preset for instant sound.

PRESETS

Click the "Presets" button to choose from 10 factory presets:

```
Pluck - Bright saw pluck with LP filter sweep
Velvet - Warm sine pad
Blade - Aggressive detuned saws
Glass - Bell-like sine harmonics
Drift - Evolving filtered square pad
Ember - Warm mono bass
Frost - Airy high-passed triangle texture
Volt - Punchy square lead
Haze - Soft noise-layered atmosphere
Spark - Short metallic stab
```

PARAMETERS

```
4 Oscillators, each with:
Waveform - Sine, Triangle, Saw, Square, Pulse
Level - Volume (0-1)
```

Tune - Coarse tuning in semitones (-48 to +48)
Fine - Fine tuning in cents (-100 to +100)
Pulse Width - Width of pulse wave (0-1)

Filter:
Type - Low Pass, High Pass, Band Pass, etc.
Frequency - Cutoff frequency (20-20000 Hz)
Resonance - Filter resonance (0-1)
Amount - Filter envelope depth

Amp Envelope (ADSR):
Attack, Decay, Sustain, Release

Filter Envelope (ADSR):
Attack, Decay, Sustain, Release

Master:
Level - Master volume
Voices - Number of polyphony voices
Mode - Mono or Poly

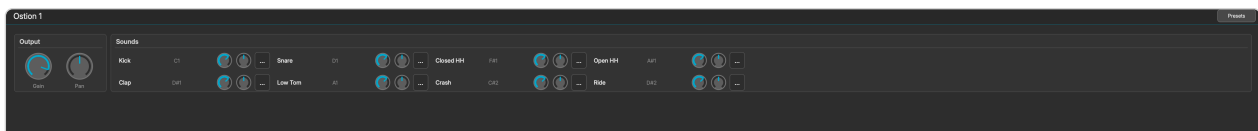
Randomize ("!!!") - Randomizes all parameters for sound exploration

LEEROY (SYNTHESIS DRUM MACHINE)

Leeroy is a synthesis-based drum machine with 8 channels. Unlike Ostion which uses samples, Leeroy generates sounds from oscillators, noise, and envelopes -- giving you deep control over every drum sound. Uses the same MIDI note mapping as Ostion (36, 38, 42, 46, 39, 45, 49, 51). Per-Channel Parameters:

Oscillator - Wave Shape, Tune (-24 to +24 st), Pitch Decay
Noise - Level, Color (200 Hz - 16 kHz lowpass)
Amp - Attack, Hold, Decay (AHD envelope, no sustain)
Tone - Filter Cutoff, Resonance
Character - Drive (soft-clip saturation)
Output - Level, Pan

The pitch envelope is key to Leeroy's character: the oscillator starts at 4x base frequency and decays to 1x, creating the characteristic analog drum punch. 8 preset kits: Default Kit, 808 Classic, 909 Analog, Minimal Techno, Industrial, Lo-Fi, Trap, Electro. The Presets button loads a built-in kit, saves the current kit as a user preset ("Save as Preset..."), or opens the full browser ("Browse All..."). Randomize button randomizes the current channel only, and leaves the output level untouched.



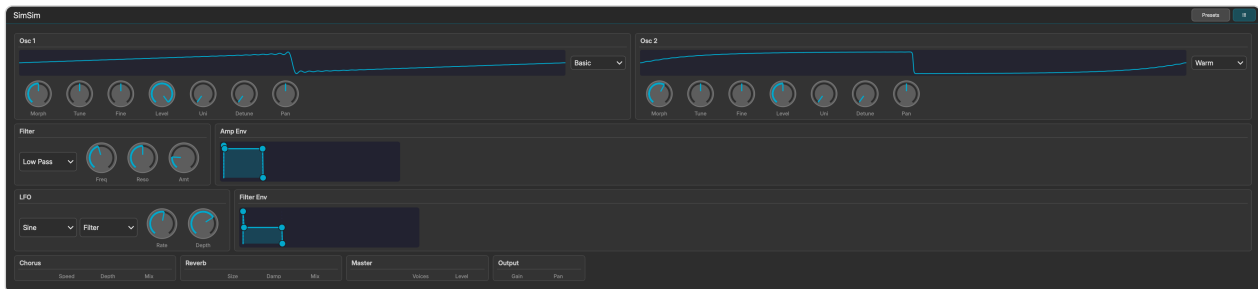
OSTION (8-SLOT DRUM SAMPLER)

Ostion is Noemi's built-in drum machine. Add it via Instruments > Ostion.

8 sample slots, each with:
Sample - Audio file name (load via "...") button
Note - MIDI note trigger (36-43 for slots 1-8)
Gain - Volume (0-2)
Pan - Stereo position (-1 left to +1 right)

Load your own samples or use the built-in drum sounds (Kick, Snare, Closed HH, Open HH, Clap, Low Tom, Crash, Ride).

SIMSIM (WAVETABLE MORPHING SYNTHESIZER)



SimSim is a dual-oscillator wavetable synthesizer where each oscillator morphs between waveforms within a wavetable stack. Oscillators (x2):

Wavetable - 8 stacks: Basic, PWM, Formant, Digital, Metallic, Warm, Ethereal, Vocal
Morph - Crossfade position within the wavetable (0-1)
Tune - Coarse tuning (-24 to +24 semitones)
Fine - Fine tuning (-100 to +100 cents)
Level - Volume (0-1)
Unison - 1-4 voices with Detune spread
Pan - Stereo position (-1 to +1)

Filter (Cytomic SVF):

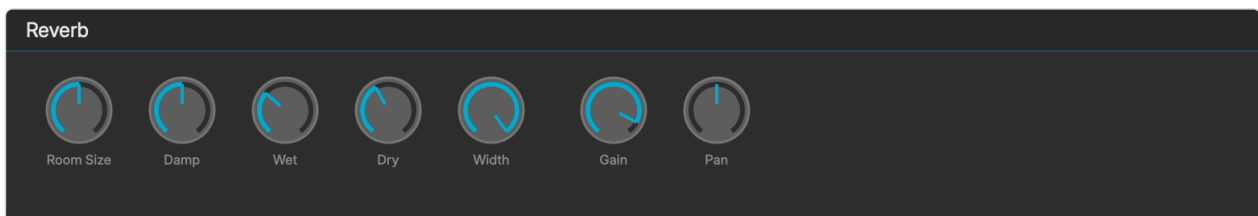
Type - Off, Low Pass, High Pass, Band Pass
Frequency - 10 Hz to 22 kHz
Resonance - Filter resonance
Env Amount - Filter envelope depth

Envelopes & LFO:

Amp ADSR, Filter ADSR
LFO: Sine/Triangle/Saw/Square/S&H
LFO Route: Osc1 Morph, Osc2 Morph, Pitch, Filter
Rate (0.1-20 Hz), Depth

Effects: Chorus (Speed, Depth, Mix), Reverb (Size, Damping, Mix) Master: Level, Voice Mode (Mono/Legato/Poly, 1-8 voices) 12 factory presets: Morphscape, Digital Pluck, Warm Bass, Crystal Bell, Vocal Drift, Glitch Lead, Ethereal Strings, PWM Lead, Texture Wash, Formant Stab, Metal Pad, Sub Wobble. Real-time waveform display.

INTERNAL EFFECTS



Noemi includes 7 built-in audio effects that require no external plugins. Each effect has 8 factory presets and a Randomize button. All parameters are modulatable. Every internal effect can also save the current settings as a user preset and browse the full library, and user presets load live into the effect. Randomize shuffles the sound but never changes the effect's output level.

```
Reverb - Room Size, Damping, Mix, Width
Delay - Feedback, Mix, Length
EQ (4-band) - Frequency, Gain, Q per band
Compressor - Threshold, Ratio, Attack, Release, Output
Chorus - Depth, Width, Speed, Mix
Phaser - Depth, Rate, Feedback
Multimode Filter - Frequency, Type (LP/HP/BP)
```

EXTERNAL PLUGINS

Noemi hosts AU, VST3, CLAP, and LV2 plugins for both instruments and effects:

```
Instruments > (plugin list) - Add external synths/samplers
Effects > (plugin list) - Add external audio effects
```

Supported plugin formats by platform:

```
macOS - AU, VST3, CLAP, LV2
Windows - VST3, CLAP, LV2
Linux - VST3, CLAP, LV2, LADSPA
```

External plugin windows open in separate floating windows. CLAP plugins render their native GUI within Noemi. Plugin states are saved with the project.

PLUGIN SEARCH PATHS

Noemi scans standard system directories for plugins on each platform. To view the default scan paths or add custom plugin directories, go to File > Plugin Settings. The Plugin Settings dialog shows each plugin format with its default search paths (read-only) and a list of custom paths you have added. Use the Add button to browse for additional plugin folders and the Remove button to delete custom paths. Custom paths are saved automatically and persist across sessions. Default plugin locations:

```
VST3:
macOS - ~/Library/Audio/Plug-Ins/VST3, /Library/Audio/Plug-Ins/VST3
Windows - %LOCALAPPDATA%\Programs\Common\VST3, %ProgramFiles%\Common Files\VST3
Linux - ~/.vst3, /usr/lib/vst3, /usr/local/lib/vst3
```

```
CLAP:
macOS - ~/Library/Audio/Plug-Ins/CLAP, /Library/Audio/Plug-Ins/CLAP
Windows - %LOCALAPPDATA%\Programs\Common\CLAP, %ProgramFiles%\Common Files\CLAP
Linux - ~/.clap, /usr/lib/clap
```

```
LV2:
macOS - ~/Library/Audio/Plug-Ins/LV2, /Library/Audio/Plug-Ins/LV2, ~/.lv2
Windows - %APPDATA%\LV2, %COMMONPROGRAMFILES%\LV2
Linux - ~/.lv2, /usr/lib/lv2, /usr/local/lib/lv2
```

```
AU (macOS only):
Discovered automatically by the system - no directory configuration needed.
```

```
LADSPA (Linux only):
Uses LADSPA_PATH environment variable, or /usr/lib/ladspa, /usr/local/lib/ladspa, ~/.ladspa
```

After adding custom paths, rescan plugins to discover newly added plugins.

MIDI EFFECT PLUGINS

Noemi automatically detects MIDI effect plugins (AU aumf type, VST3 with zero audio I/O). MIDI effects display blue MIDI pins and a "MIDI FX" badge. Chain them between a source and instrument: Pattern -> MIDI Effect -> Instrument -> Mixer.

PLUGIN MIDI OUT PORT

Plugins that produce MIDI (arps, sequencers, Rack-style hybrids) get a second output port carrying that MIDI, below the audio port. Patch it into an instrument, a Transformer, a MIDI Splitter, or a MIDI Output node - the plugin drives other modules while its own audio keeps flowing to the mixer. The two cables stay independent: notes generated inside Noemi never leak into the MIDI port, and captured plugin MIDI never doubles into the audio chain.

GAIN AND PAN

Every instrument and effect node has per-node gain and pan controls:

Gain - -60 dB to +6 dB
Pan - Left (-1) to Right (+1)

MODULATION

Modulation

+ Add

Sources

Step Seq

+ Route

Rate

Steps

OSC

+ Route

/slicer/position

Learn

0.000

1.000

Smooth

Routes

Show all

The modulation system lets you animate any parameter over time using modulation sources routed through the modulation matrix. Open the modulation matrix panel via View > Show Modulation Matrix or press it in the toolbar. When a route targets a knob's parameter, the knob shows a small dot in the modulator's color, so you can see at a glance which controls are being animated.

MODULATION SOURCES

Add a source by clicking "Add Source" in the modulation panel and choosing a type: LFO (Low Frequency Oscillator)

Shapes: Sine, Triangle, Square, Saw, Reverse Saw, Random
Frequency: Rate in Hz (free-running) or synced to tempo
Phase: Initial phase offset (0-1)
Unipolar: Toggle between 0-1 and -1 to +1 output
Sync Mode: Free or tempo-synced
Note Division (synced): Whole, Half, Dotted Quarter, Quarter, Dotted Eighth, Quarter Triplet, Eighth, Dotted Sixteenth, Eighth Triplet, Sixteenth, Sixteenth Triplet, Thirty-Second

Envelope (ADSR)

Attack: Rise time in seconds
Decay: Fall time to sustain level
Sustain: Hold level (0-1)
Release: Fade time after note off
Trigger: Select which node's note events trigger the envelope

Step Sequencer

Steps: Number of steps (default 8)
Values: Per-step level (0-1), click and drag to draw
Rate: Steps per beat in Free mode (the caption shows the current value)
Sync: Locks each step to a musical division (1/1 to 1/32, dotted and triplet)
Smooth: Toggle interpolation between steps

Random (Sample & Hold)

Mode: Sample & Hold, Smooth, or Noise
Rate: Triggers per beat
Smoothness: Interpolation amount (0-1)
Seed: Random seed for reproducibility

Envelope Follower

Tracks the amplitude of an audio source and outputs it as a modulation signal. Select which audio track to follow.

Audio Sidechain

Triggers an envelope or gate from an audio input. Select the source track and configure threshold and response.

Macro Knobs

User-defined knobs that map to multiple targets with individual scaling. Macro sources appear in the modulation panel and can be assigned to MIDI CC for hardware control.

In plugin builds, the first 8 macro sources are also exposed to the host DAW as automatable parameters named Macro 1 through Macro 8. Automate them from your DAW, or MIDI-learn them in the host, to drive whole banks of Noemi parameters from a single automation lane. The bridge

is bidirectional -- twisting a macro card in Noemi writes automation back to the host, and host automation moves the card.

ROUTING

To create a modulation route:

1. Add a modulation source
2. Click "Add Route" on the source
3. Choose a target parameter from the dropdown
4. Adjust the depth knob

DEPTH

The depth control (-1.0 to +1.0) sets how strongly the source affects the target. Negative depth inverts the modulation. Multiple sources can modulate the same target (their effects are added together).

ADVANCED FEATURES

Rate Multiplication - Double or halve modulation speed relative to tempo
Response Curves - Custom curves (exp, log, S-curve) per route
Cross-Modulation - Modulation sources can modulate other modulation parameters (e.g., LFO rate -> another LFO)
MIDI-to-Modulation - Map incoming MIDI CC, velocity, or aftertouch as modulation sources

MICROTUNING

Noemi supports microtuning via the MTS-ESP standard, allowing alternative tuning systems beyond standard 12-tone equal temperament. Access microtuning settings via File > Microtuning Settings.

MODES

```
Off - Standard 12-TET tuning (default)
Client - Connect to an external MTS-ESP master plugin
Master - Act as the MTS-ESP master, loading custom tunings
```

CLIENT MODE

In client mode, Noemi receives tuning data from an external MTS-ESP master plugin running in your DAW or another application. All internal instruments (Chirusa, Ostion) automatically retune to match.

MASTER MODE

In master mode, Noemi broadcasts tuning data to other MTS-ESP client plugins. Load custom tunings via:

```
Load SCL File - Scala scale definition file (defines intervals)
Load KBM File - Keyboard mapping file (maps MIDI notes to scale degrees)
Reset to 12-TET - Return to standard tuning
```

SCL/KBM FILES

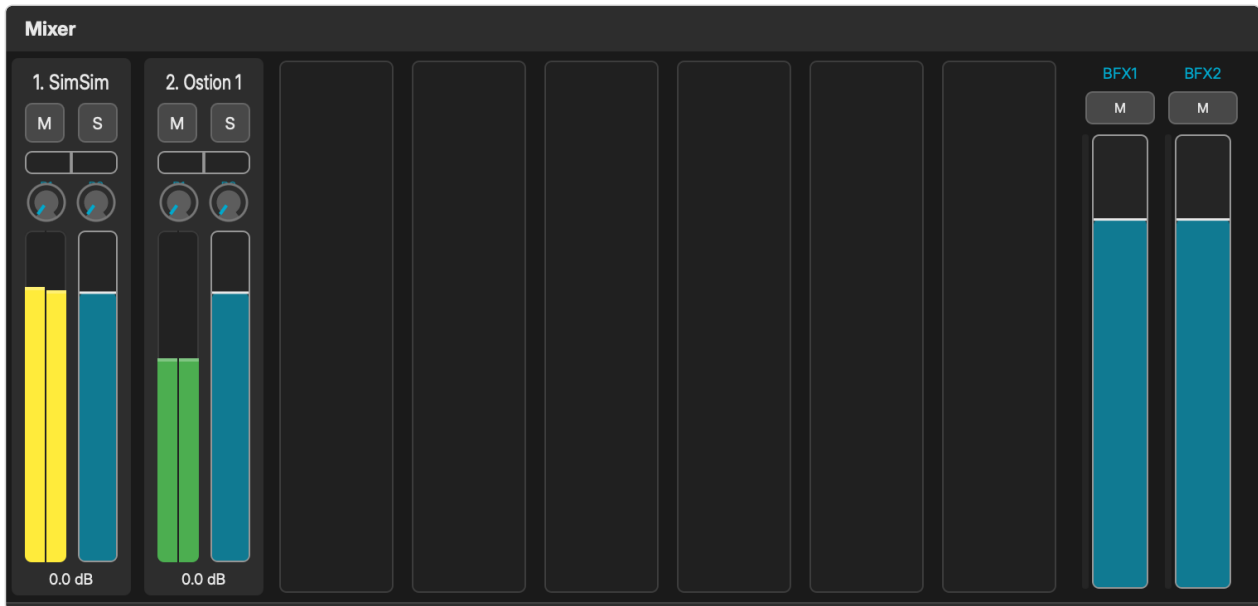
SCL (Scala) files define the intervals of a tuning system. Thousands of historical and experimental tunings are available in Scala format online.

KBM (Keyboard Mapping) files define how MIDI note numbers map to scale degrees, allowing you to set the reference pitch and key mapping.

MPE (MIDI POLYPHONIC EXPRESSION)

When microtuning is active, Noemi uses MPE-style per-note pitch bend to achieve accurate intonation. Each note is allocated its own MIDI channel (2-16) so that pitch bend messages don't interfere between simultaneous notes.

TRANSPORT & MIXER



TRANSPORT CONTROLS

The transport panel sits at the bottom of the window:

Play - Start playback (spacebar)
Stop - Stop playback (spacebar when playing)
Reset - Return to beat 0

Tempo - Current BPM, displayed in the transport bar
Position - Current playback position shown as bars:beats
Panic - All-notes-off button, silences all active voices immediately

TAP TEMPO

Click the tap-tempo button in the transport bar rhythmically to set BPM. The algorithm averages up to 5 tap intervals for a stable reading. If you stop tapping for 2 seconds, the counter resets so your next tap sequence starts fresh.

TEMPO MODULATION

Tempo is available as a global modulation target. Route an LFO, Envelope, Step Sequencer, or Random source to "Tempo" in the Modulation Matrix to create tempo changes over time. Modulated tempo stays local and does not propagate to Ableton Link peers.

ABLETON LINK

Noemi supports Ableton Link for tempo and transport synchronization with other Link-enabled apps and devices on your network.

Enable/Disable - Toggle Link via the transport bar Link button
Tempo sync - When Link is active, tempo changes propagate bidirectionally
Transport sync - Start/stop commands sync across all Link peers

When Link is active, the tempo display reflects the shared Link session tempo. Tap-tempo changes propagate to Link peers. Tempo modulation from the Modulation Matrix stays local to Noemi and does not affect Link peers.

MASTER KEY

The master key selector in the toolbar sets the global key for the project:

Root - Select the root note (C through B)
Scale - Select the scale type

The master key influences generators and scale quantizers throughout the project.

MIXER

Toggle the mixer panel with the Mixer toolbar button. The mixer supports up to 16 channel strips. Each channel has independent controls, even when multiple channels share the same sound source.

PER-CHANNEL CONTROLS

VU Meters - Stereo level meters with graded color (green, yellow above -18 dB, red above -6 dB) and peak hold
Volume - Channel volume fader with dB readout
Pan - Horizontal stereo pan slider (-1 left to +1 right)
Mute (M) - Silence the channel (pre-bus-send -- muting does not affect bus sends)
Solo (S) - Solo this channel, muting all others
BFX1 / BFX2 - Send knobs for Bus Effect 1 and 2 (see Bus Effects below)
Track Label - Numbered label (e.g., "1. Chirusa", "2. Delay")

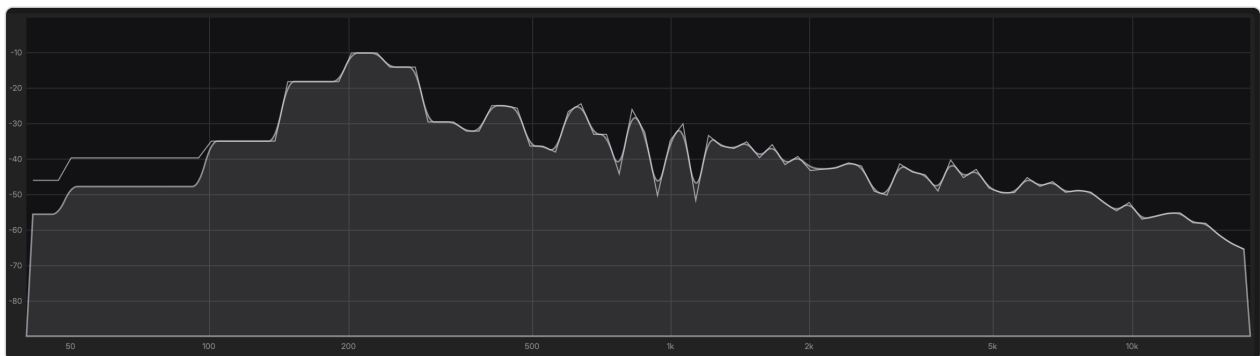
CHANNEL LABELS

Channel strips show numbered labels in "1. Name" format for clear identification. Double-click any label to rename it (e.g., "2. Ambience"). Custom names persist in the project file.

8ch / 16ch - Toggle button to switch between 8 and 16 channel slots

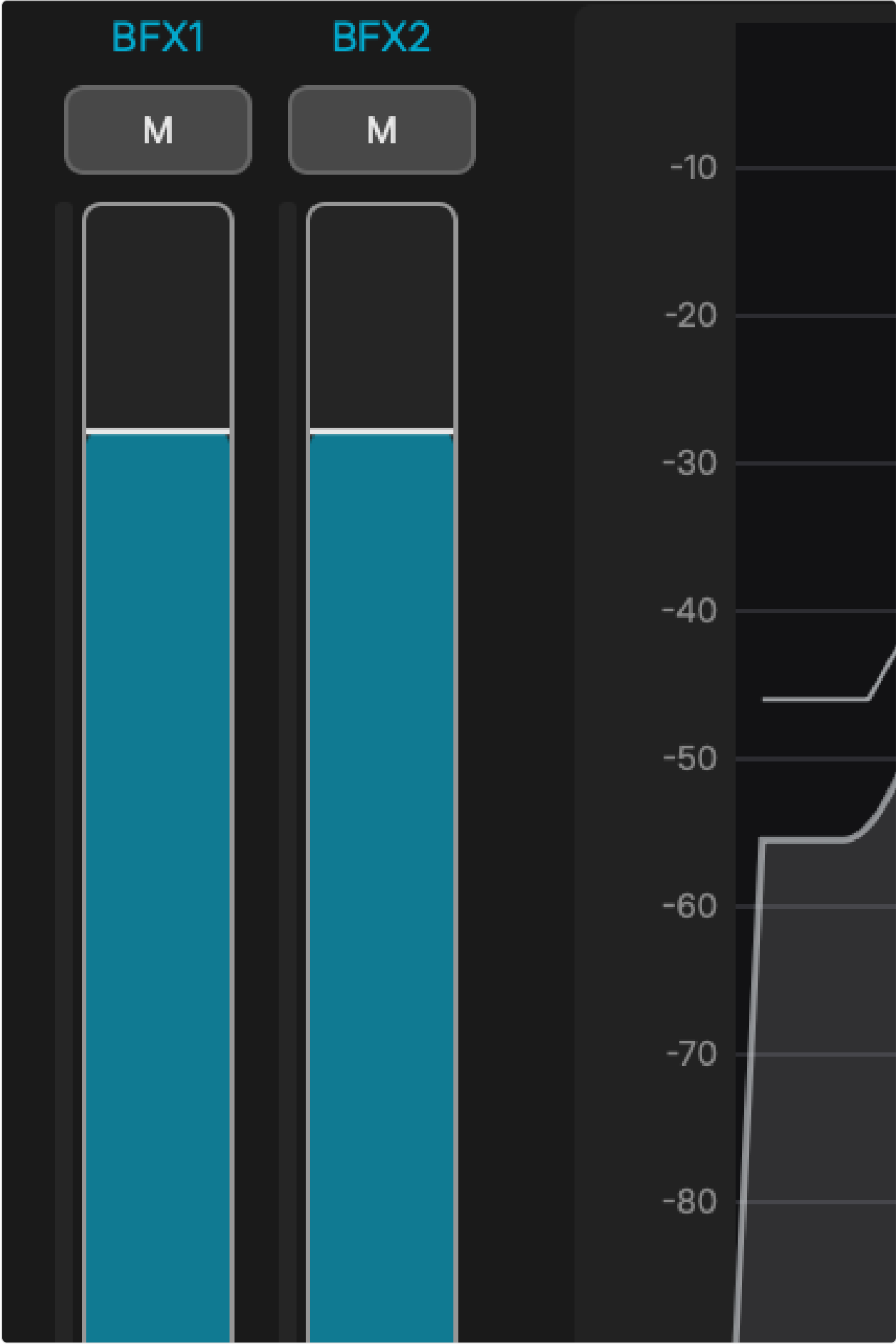
Right-click a volume or pan control to assign a MIDI CC for hardware control.

SPECTRUM ANALYZER



Click the Spectrum button in the mixer header to toggle a merged spectrum analyzer to the right of the channel strips. The spectrum displays 96 logarithmic frequency bands from 40 Hz to 18 kHz.

BUS EFFECTS



The mixer provides 2 send/return effect buses (BFX1, BFX2) for shared effects like reverb and delay.

Bus Sends - Each channel strip has BFX1 and BFX2 send knobs (0.0 to 1.0) that control how much signal is sent to each bus

Pre-Fader - Bus sends are pre-fader, so a muted or silenced channel can still feed its bus effects

Bus Returns - Each bus has a return volume fader and mute button at the right side of the mixer

Bus VU Meters - Small level indicators on each bus return strip show audio activity

CANVAS BUS ROUTING

The Mixer node on the canvas has Bus Out and Bus In ports on its bottom edge. To set up a bus effect chain:

1. Connect Bus Out 1 to an effect node (e.g., Delay or Reverb)
2. Connect the effect node's output to Bus In 1
3. Adjust the BFX1 send knobs on each channel strip to taste
4. Repeat with Bus Out 2 / Bus In 2 for a second bus effect

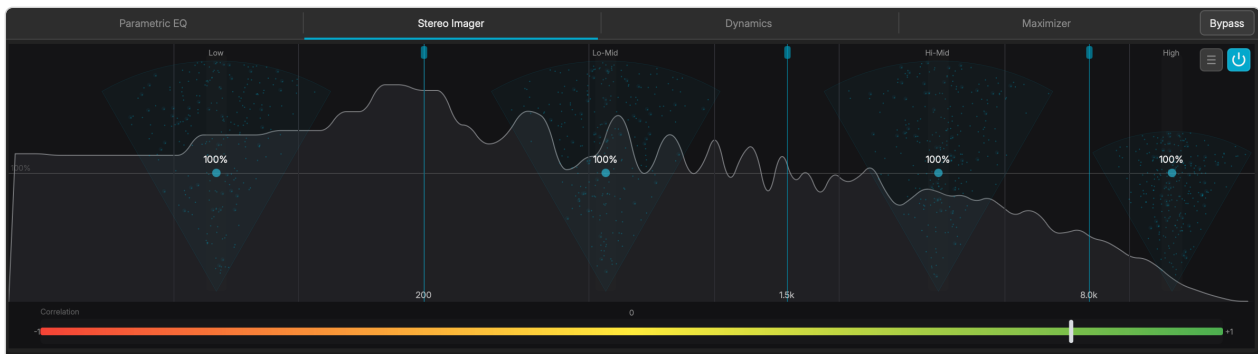
MASTERING CHAIN

The mastering chain is a 4-stage processor on the master output, accessible from the Mastering button in the mixer panel header. Each stage can be independently bypassed, and the entire chain has a global bypass toggle. The four stages process audio in fixed order: STAGE 1: PARAMETRIC EQ (8 BANDS)



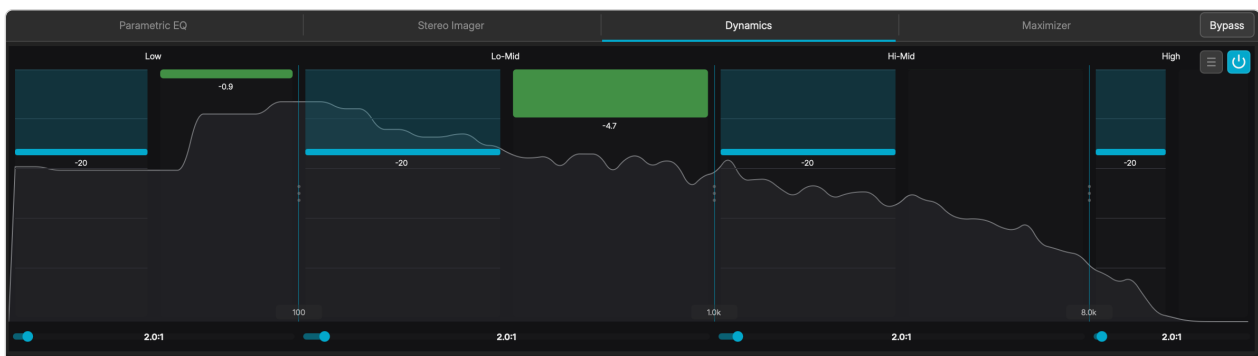
Band Types - High Pass, Low Shelf, Bell, High Shelf, Low Pass
Per Band - Frequency, Gain (dB), Q (bandwidth), Enable toggle
Spectrum - Rainbow gradient analyzer when active, grey when EQ is bypassed

Use the EQ to shape the overall tonal balance of your mix. STAGE 2: STEREO IMAGER (4 BANDS)



Crossovers - 3 adjustable crossover frequencies dividing audio into 4 bands
Width - Per-band stereo width (0 = mono, 1 = normal, 2 = wide)
Correlation - Meter showing stereo phase correlation (-1 to +1)
Visualization - Animated particle fan display per band showing stereo field spread

Narrow the low end for a tight center, widen the highs for air and space. STAGE 3: MULTIBAND DYNAMICS (4 BANDS)



Crossovers - 3 adjustable crossover frequencies
Per Band:
Threshold - Compression threshold (-60 to 0 dB)
Ratio - Compression ratio (1:1 to 20:1)
Attack - Attack time (0.1 to 100 ms)
Release - Release time (10 to 1000 ms)
Makeup - Makeup gain (0 to 24 dB)
Knee - Soft knee width (0 to 12 dB)
Gain Reduction - Per-band GR metering

Control dynamics independently across frequency bands for a polished, balanced master. **STAGE 4: MAXIMIZER**



Threshold - Limiting threshold (-12 to 0 dB)
Ceiling - Output ceiling (-3 to 0 dB)
Release - Release time (10 to 500 ms)
Metering - Gain reduction meter and output peak meters (L/R)
Waveform - Rolling waveform history showing input/output peaks and gain reduction

Push the overall loudness while preventing clipping.

MASTERING PRESETS

Each stage has its own preset library. Click the preset button on any stage tab to browse and load presets. Imager and Dynamics presets also reset crossover frequencies to their default positions. The mastering chain state persists in the project file.

SCENES

The scene system lets you save and recall snapshots of your entire project state. Noemi provides 16 scene slots for storing and switching between different configurations during a performance or composition session.

WHAT A SCENE CAPTURES

A scene stores a complete snapshot of your project's current parameter state:

- Node states - Active state index (A-P) for each Pattern, Generator, and Rhythm
- Modulatable params - All per-node modulatable values (transpose, velocity scale, swing, etc.)
- Plugin patches - Full instrument and effect plugin state (Chirusa, Ostion, external VST/AU)
- Gain and pan - Per-node gain and pan settings
- Modulation routing - All modulation source configurations and route topology
- Modulation depths - Per-route depth values
- Tempo - Current BPM
- Master key - Root note and scale

SCENE PANEL

The scene panel is a horizontal strip at the top of the canvas area showing 16 numbered scene slot buttons and a crossfade beat selector.

- Cmd+Click a slot - Capture the current project state into that slot
- Click a slot - Recall the scene stored in that slot
- Right-click a slot - Context menu: Capture Here, Rename, Clear

Empty slots appear dim. Populated slots show their name or number. The active scene is highlighted with an accent color.

SCENE HOTKEYS

- Cmd+1 through Cmd+9, Cmd+0 - Recall scenes 1-10
- Cmd+Shift+1 through Cmd+Shift+9, Cmd+Shift+0 - Save to scenes 1-10

Scene recall via hotkeys respects the crossfade beat setting in the scene panel. Slots 11-16 are accessible via the scene panel UI.

CROSSFADE

When recalling a scene, you can choose how the transition happens using the fade duration dropdown:

- Instant - Immediate switch with no interpolation
- 1 beat - Crossfade over 1 beat
- 2 beats - Crossfade over 2 beats
- 4 beats - Crossfade over 4 beats (default)
- 8 beats - Crossfade over 8 beats
- 16 beats - Crossfade over 16 beats

During a crossfade, float parameters (gain, pan, tempo, modulatable params, modulation depths) interpolate smoothly from the current values to the target scene values. Discrete content (note patterns, plugin patches, modulation routing, master key) switches at the end of the crossfade window.

BAR-QUANTIZED RECALL

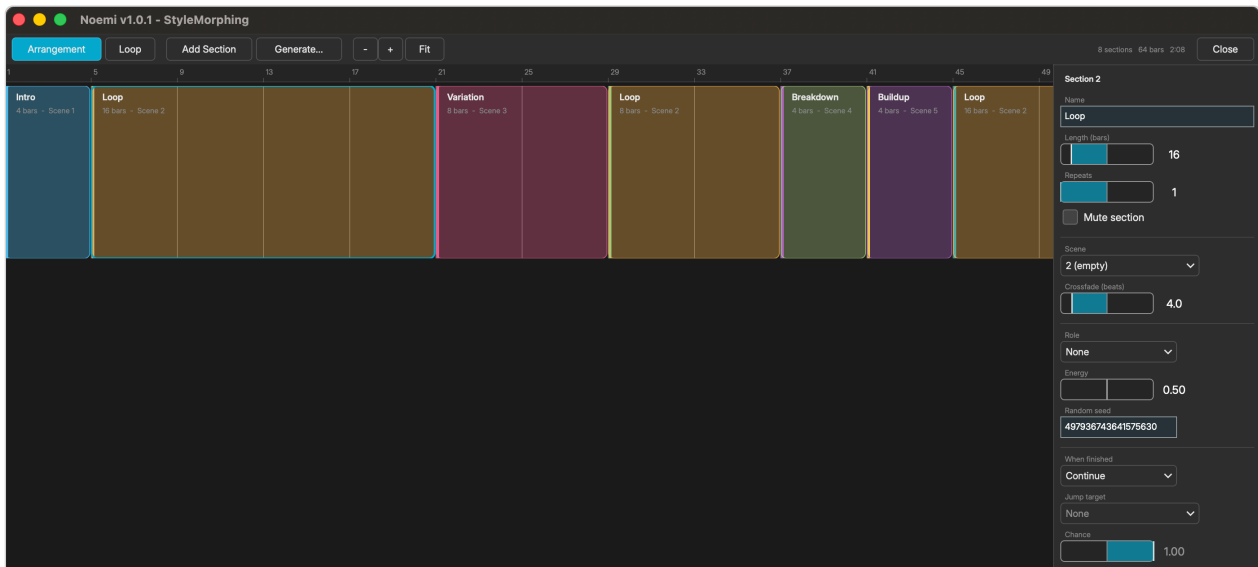
When the transport is playing and a non-instant crossfade is selected, scene recalls are queued until the next bar boundary. This keeps transitions rhythmically aligned. The pending scene slot pulses on the scene strip until the bar boundary triggers the change. When the transport is stopped, scenes are recalled immediately regardless of fade setting.

SERIALIZATION

Scenes persist across project save and load. All 16 slots (including names, captured data, and the active scene index) are stored in the .nmi project file.

SONG ARRANGEMENT

The Song Arrangement system organizes your composition into a timeline of sections, each referencing a scene.



ARRANGEMENT VIEW

Open the full editor with F10 or View > Arrangement View. Press Escape to exit. This is where arrangements are built.

Toolbar - Enable the arrangement, toggle Loop, add sections, generate a structure, zoom in/out or fit the whole song in view
Ruler - Numbered bars across the top
Timeline - Section blocks showing name, scene, length, repeats and follow action; the current section is outlined while playing
Lanes - Each automation source gets its own labelled lane underneath
Inspector - Every property of the selected section, on the right

Click to select; Cmd/Shift-click to add to the selection
Drag a section body to reorder it
Drag either edge to resize (dragging a left edge resizes the section before it)
Double-click to rename in place
Right-click for rename, duplicate, mute and delete
Delete removes the selection, Cmd+D duplicates it, Cmd+A selects all
Left/Right arrows move the selection; Shift+Left/Right changes section length
Scroll to pan, Cmd/Ctrl+scroll to zoom

ARRANGEMENT MINI-MAP

A read-only strip in the transport bar shows the sections and the playhead while you work on the canvas:

Click "Arr" to enable/disable the arrangement
Double-click or right-click the strip (or click "...") to open the full view
Scroll to pan, Cmd/Ctrl+scroll to zoom

SONG STRUCTURE GENERATOR

Use File > Generate Song Structure to automatically create arrangements:

Template - Select a structure (Verse-Chorus, ABAB, Build-Drop, etc.)
Intensity - Controls overall dynamic range (0-1)
Seed - Random seed for reproducibility

SECTION PROPERTIES

Name - Display label for the section
Length - Duration in bars
Repeats - How many times to play the section before moving on
Mute - Skip the section during playback without deleting it
Scene - Which scene to recall (None = no scene change), picked from your scene names. Scenes are numbered 1-16 throughout Noemi.
Crossfade - Transition length in beats, run BEFORE the section starts
Role - Musical role (Intro, Verse, Chorus...), published to the conductor
Energy - Target energy for the conductor's energy curve (0-1)
Seed - Random seed for generators (0 = free)

By default sections play in order. Noemi recalls each section's scene as the section begins. A crossfade runs during the END of the previous section, not the beginning of this one, so every section starts cleanly and fully transitioned. Give a 16-bar chorus a 2-bar crossfade and the blend occupies the last 2 bars of whatever came before it; bar 1 of the chorus is already the chorus.

FOLLOW ACTIONS

"When finished" decides what plays after a section's repeats are done:

Continue - Move to the next section (the default)
Repeat self - Play the section again
Random other - Jump to any other unmuted section, chosen at random
Jump to - Jump to a specific section

Chance sets how often the action fires; the rest of the time playback just continues to the next section. Set it below 100% and the same arrangement takes a different path each run. Turn on Loop to send playback back to the start instead of stopping at the end. Note that a song using loops, repeats, mutes or follow actions has no fixed length, so the total duration readout only appears for a straight linear arrangement.

CONDUCTOR ENERGY

Each section carries an energy value (0-1). When the conductor is active (any Generator has Follow Conductor turned on -- see Generator), the arrangement drives the conductor's shared energy curve from these per-section values. Energy ramps smoothly toward each new section's target over a couple of seconds, so following generators swell and settle in step with the song's structure instead of jumping abruptly.

PERFORMANCE VIEW

Performance View is a full-screen simplified interface designed for live performance. Activate with F11 or View > Performance View. Press Escape to exit.

LAYOUT

Transport Strip - Play, Stop, Reset buttons, BPM display, position (bars:beats:ticks)
Scene Grid - 4x4 grid (16 pads) for scene recall. Click to recall, Cmd+Click to capture.
Macro Knobs - Horizontal sliders for all macro modulation sources, with bidirectional MIDI CC sync
Mixer Strip - Per-track stereo VU meters with peak hold and vertical volume faders

KEYBOARD SHORTCUTS (Performance View)

Space - Play / Stop
Escape - Exit Performance View
F11 - Toggle Performance View
End - Panic (all notes off)
Cmd+1 - Cmd+0 - Recall scenes 1-10
Cmd+Shift+1-0 - Save scenes 1-10

PRESETS & PATCHES

PRESET BROWSER

Open with Cmd+Shift+P or the toolbar button. The browser shows a searchable library organized by categories with tags and favorites.

Click a preset to load it into the selected node
Click a preset's star to toggle it as a favorite; the Favorites filter shows only starred presets
Use the search bar to filter by name or tag

All built-in instruments (Chirusa, SimSim, Cantia, Leeroy, Ostion) and all internal effects support saving user presets and browsing the full library. Chirusa, SimSim, Cantia, and Leeroy also have a Presets button in their editor with quick access to built-in presets plus "Save as Preset..." and "Browse All...". Saved user presets load live into the target node the moment you select them.

RANDOMIZE

The Randomize button ("!!!") on any source node, instrument, or effect shuffles its sound-shaping parameters for quick exploration. It deliberately leaves each node's output level alone, so randomizing never causes sudden jumps in loudness.

EXPORT / IMPORT PRESETS

Export - Save a single node preset as a .nmp file
Import - Load a .nmp file into the selected node

MULTI-NODE PATCHES

Edit > Export Selection - Saves selected nodes as a .nmpatch file, including connections and modulation routes between them
Edit > Import Patch - Loads a .nmpatch file, creating new nodes with unique IDs and reconnected internal wiring

FILE OPERATIONS

NEW PROJECT

File > New Project (Cmd+N) creates a fresh empty project. If you have unsaved changes, you'll be prompted to save first.

OPEN PROJECT

File > Open (Cmd+O) opens a file browser to load a .nmi project file. You can also use File > Open Recent to access previously opened projects.

SAVE / SAVE AS

File > Save (Cmd+S) saves to the current file, or prompts for a location if this is a new project.
File > Save As (Cmd+Shift+S) saves a copy to a new location.

Project files use the .nmi extension and contain all node configurations, connections, modulation routes, plugin states, and embedded audio data.

RANDOMIZE PROJECT

File > Randomize Project generates a complete random composition -- random nodes, connections, instruments, and effects. Useful for inspiration or exploring what Noemi can do.

DEMO PROJECTS

File > Demo Projects opens a submenu of bundled example compositions that demonstrate various Noemi features and techniques.

PROJECT DETAILS

File > Project Details opens a free-text notes field stored with the project -- use it for liner notes, credits, tempo/key reminders, or performance instructions. If a project you open has details saved, Noemi shows them in a dialog on load so nothing important gets missed.

UNDO / REDO

Cmd+Z undoes and Cmd+Shift+Z redoes, with up to 100 steps of history. Undo is snapshot-based over the whole project, so it covers canvas and editor edits, mixer changes (volume, pan, mutes, sends), modulation matrix edits (sources, routes, depths), and mastering chain changes. Undo history is cleared when you open or create a project.

EXPORT AUDIO

File > Export Audio (Cmd+E) renders your composition to an audio file.

RENDER SCOPE

Entire Song - Renders the full composition
All Arrangements - Renders each arrangement section separately
Time Duration - Renders a specified number of seconds

TRACK OUTPUT

Single Mixed WAV - One stereo WAV file with all tracks mixed
Multitrack WAV - Separate WAV files per track

MULTITRACK OPTIONS

When multitrack is selected, additional toggles appear:

Include Bus FX - Include bus effect return tracks in the multitrack export
Include Mastering - Apply the mastering chain to the mixed output

MP3 EXPORT

Check "Also export MP3" to create an MP3 alongside the WAV file.

EXPORT FILENAMES

Exported files are saved to a timestamped folder inside your chosen directory. Filenames include tempo and master key when available (e.g., "MyProject_120bpm_Cmaj_Mix.wav").

MIDI DRAG AND DROP

Drag a standard MIDI file (.mid) from your file browser onto the Noemi canvas to create a new Pattern node with the imported notes. Timing, pitch, and velocity are preserved. MIDI can also go the other way: drag a Pattern editor's Save MIDI button onto a DAW track or the Finder/Explorer to drop the pattern out as a .mid clip. Click the same button to open a save dialog instead. See the Pattern chapter for details.

AUDIO DRAG AND DROP

Drag an audio file onto the canvas to create a new Waveform node. Drag an audio file onto an existing Waveform node to replace its audio content. Supported formats include WAV, AIFF, FLAC, and MP3.

EXPORT / IMPORT PATCHES

Edit > Export Selection saves selected nodes as a .nmpatch file, including connections and modulation routes between them.
Edit > Import Patch loads a .nmpatch file, creating new nodes with unique IDs and reconnected wiring.

Individual presets can be exported/imported via the Preset Browser panel using the Export and Import buttons (.nmp files).

AUTOSAVE & CRASH RECOVERY

Noemi autosaves your work periodically. If the app crashes or is force-quit, the next launch will offer to recover your unsaved work.

CRASH REPORTS

If Noemi ever crashes, it writes a small crash report (crash_<pid>_<time>.txt) into its Logs folder before exiting. The report records the app version, operating system, the project file that was open, and a stack trace, alongside the per-session .log. If you report a bug, attaching these files makes the crash far easier to track down. The Logs folder lives in Noemi's application-data directory.

USING NOEMI AS A PLUGIN

Alongside the standalone app, Noemi ships as audio plugins so you can run its generative graph inside a DAW.

FORMATS

```
macOS - AU, VST3, CLAP, LV2
Windows - VST3, CLAP, LV2
Linux - VST3, CLAP, LV2
iOS - AUv3
```

TWO VARIANTS

Each format is built in two flavours:

```
Noemi - The instrument variant. Load it on an instrument/MIDI track. It accepts MIDI from the
host and outputs audio.
Noemi FX - The effect variant. Load it on an audio track so the track's audio flows into Noemi
via an Audio Input node, letting you process host audio through Noemi's effects and
modulation. It still accepts MIDI too.
```

HOST-EXPOSED PARAMETERS

Noemi exposes a compact set of automatable parameters to the DAW:

```
Master Volume - Overall output level (-60 to +6 dB)
Host Sync - When on (default), Noemi locks to the host's timeline: tempo, transport, and
playback position. Starting playback in the DAW starts Noemi aligned to the host position, and
locate jumps and loop regions are followed. Turn it off to run Noemi's own clock independently
of the DAW.
Macro 1-8 - The first 8 macro modulation sources (see Modulation). Automate or MIDI-learn
these in the host to drive whole banks of Noemi parameters. The bridge is bidirectional.
```

HOST MIDI OUTPUT

A MIDI Output node can target "Host (DAW)" in plugin builds, sending Noemi's generated MIDI back out through the plugin to drive your DAW's own instruments. See MIDI Output.

WHAT'S DIFFERENT IN PLUGIN MODE

```
The File menu is trimmed to Microtuning Settings and Keyboard Shortcuts (project open/save,
audio device, and OSC settings are handled by the host).
The QWERTY computer-keyboard input is disabled (the host owns keyboard focus).
The welcome dialog does not appear.
Noemi's full graph, mixer, modulation, mastering, and scenes are saved inside the DAW's
session state, so your patch travels with the project.
```

QWERTY KEYBOARD

Noemi includes a virtual QWERTY keyboard for playing notes without a MIDI controller.

TOGGLE

Press Cmd+K or click the Qwerty button in the MIDI toolbar to enable/disable.

LAYOUT

The bottom row (Z-M) maps to one octave of chromatic notes (C through B).
The top row (Q-U) maps to the next octave up, with black keys on the number row.

Bottom row: Z S X D C V G B H N J M
C C# D D# E F F# G G# A A# B

Top row: Q 2 W 3 E R 5 T 6 Y 7 U
C C# D D# E F F# G G# A A# B

Use the +/- octave buttons or MIDI Settings to change the base octave and velocity.

SHORTCUT INTERACTION

When the QWERTY keyboard is active, bare letter and number key shortcuts (like Tab for minimap) are automatically suppressed so they don't conflict with MIDI input. Shortcuts with modifier keys (Cmd, Shift, etc.) continue to work normally.

KEYBOARD SHORTCUTS

All keyboard shortcuts can be viewed and customized via File > Keyboard Shortcuts.

CUSTOMIZING SHORTCUTS

Click a command row to enter listening mode, then press the desired key combination
Press Escape while listening to cancel
Press Delete or Backspace while listening to unbind
Right-click a command to reset it to its default binding
Click "Reset All" to restore all defaults

Custom bindings are saved automatically and persist across sessions.

DEFAULT SHORTCUTS

File:
Cmd+N New Project
Cmd+O Open Project
Cmd+S Save
Cmd+Shift+S Save As
Cmd+E Export Audio
Cmd+, Audio Settings
Cmd+. MIDI Settings

Edit:
Cmd+Z Undo
Cmd+Shift+Z Redo
Cmd+C Copy
Cmd+X Cut
Cmd+V Paste
Delete Delete Node
Cmd+G Group Selection
Cmd+Shift+G Ungroup

Transport:
Space Play / Stop
End Panic (all notes off)

View:
Cmd+= Zoom In
Cmd+- Zoom Out
Cmd+F Fit to Window
Cmd+Shift+M Toggle Modulation Matrix
Cmd+Shift+N Toggle Mixer
Cmd+Shift+P Toggle Presets
Cmd+Shift+T Toggle Tooltips
F1 Documentation
F10 Arrangement View
F11 Performance View

Canvas:
Escape Exit Group View
Home Reset View
Tab Toggle Minimap
Cmd+K Toggle QWERTY Keyboard

C Connect Node
D Disconnect Node

Scenes:
Cmd+1 - Cmd+0 Recall Scenes 1-10
Cmd+Shift+1 - Cmd+Shift+0 Save Scenes 1-10

COLOR THEMES

Noemi includes 3 color themes selectable from View > Theme:

```
Dark - Default flat, minimal dark theme
Light - Inverted for bright environments
High Contrast - Accessibility-focused, maximum contrast ratios
```

Theme preference persists across sessions. All UI elements -- canvas, nodes, editor panels, mixer, modulation matrix, transport, dialogs -- respond to theme changes, including switching while a project is open.

UI SCALE

View > UI Scale lets you resize the entire interface from 50% to 200%. This is useful for high-DPI displays or when you want to see more of the canvas at once. The setting is saved per session.

LINUX GRAPHICS

On Linux, the standalone app uses GPU-accelerated (OpenGL) rendering when a compositor is detected. Desktops without a compositor (i3, dwm, and other bare window managers) automatically fall back to software rendering, which avoids a freeze at launch on those setups. Plugin builds always use software rendering. View > GPU Rendering lets you override the automatic choice (Auto / On / Off); changes take effect on the next launch. The setting is stored in `~/.config/Noemi/preferences.xml` as `openGLMode` (0 = auto, 1 = on, 2 = off), which can be edited by hand if the app will not start. Setting the environment variable `NOEMI_NO_OPENGL=1` always disables GPU rendering, for both the standalone app and plugins (launch your host with the variable set).

ACCESSIBILITY

Noemi supports macOS VoiceOver for screen reader navigation across the entire UI.

CANVAS & NODES

The canvas is an accessible group container. Each node exposes:

- Title - Display name of the node
- Description - Node type and connection counts
- State - Focusable and selectable
- Actions - Press to select, Show Menu for context actions

VOICEOVER ANNOUNCEMENTS

Noemi announces key events:

- Node added, deleted, or selected
- Connection created or deleted
- Transport play/stop
- Project save/load

CONTROL LABELS

All interactive controls have accessibility titles: sliders, combo boxes, buttons, and toggles across the transport, mixer, modulation matrix, arrangement editor, and all node editors.

KEYBOARD NAVIGATION

- Press C with a node selected to open the connection target picker
- Press D with a node selected to list and disconnect connections
- Standard Tab and arrow keys navigate between controls