NOEMI

NON-DETERMINISTIC COMPOSITION MACHINE

MANUAL - VERSION 1.2.0 - 2026-10-22

TWEAKBENCH.COM

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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), click + Add on the canvas (Cmd+Shift+A) and type a name, 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.

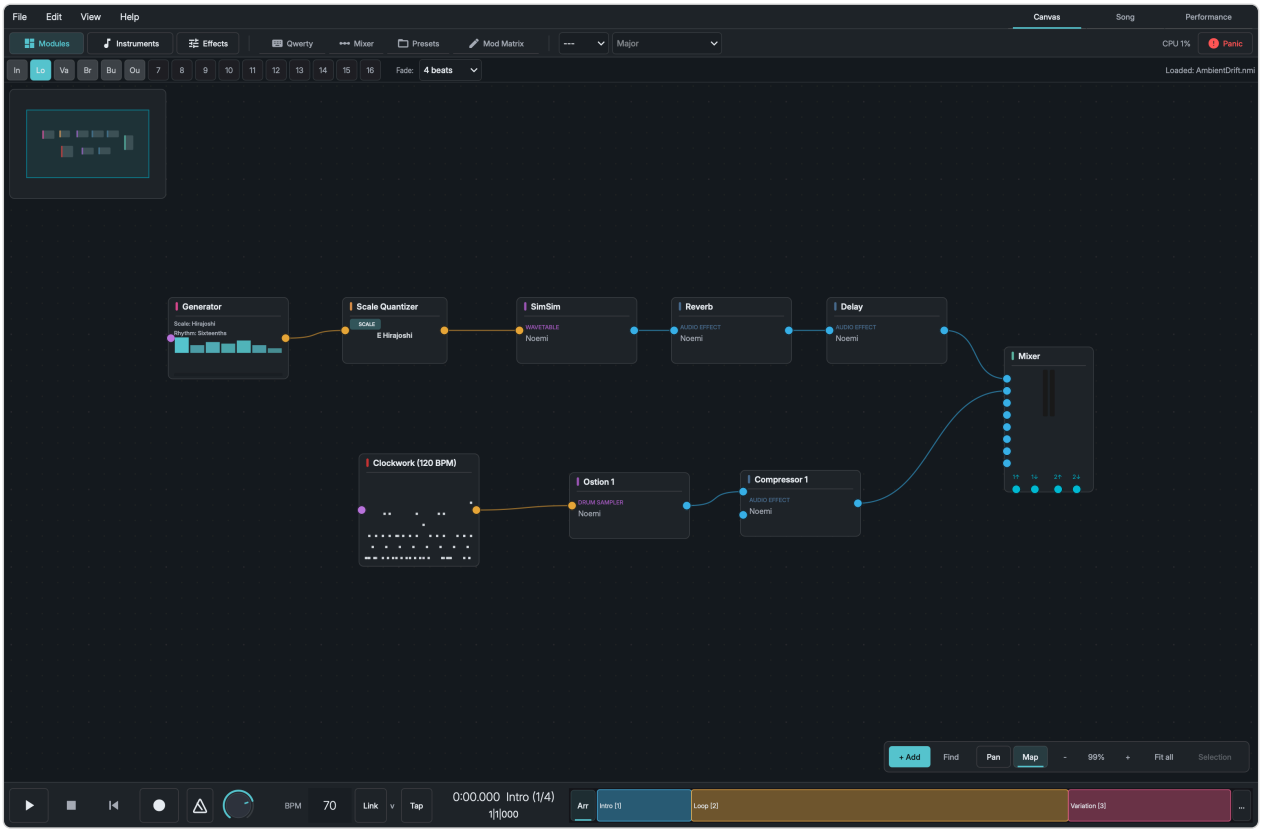
SAVING YOUR WORK

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 - Filters incoming MIDI to multiple outputs by channel
MIDI CC Out - Sends a modulatable value out as a MIDI controller
```

```
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 (18 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, Utility
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.

ADD AND FIND PALETTE

The searchable palette is the keyboard-first way to create and locate nodes. Open it with the + Add and Find buttons on the canvas navigation bar (bottom-right), or with Cmd+Shift+A (Add Node) and Cmd+Shift+F (Find Node). The shortcuts also work from the Song and Performance workspaces and the mastering editor, bringing the canvas forward first. Two tabs switch between the modes:

```
Add node - Lists every module, instrument, effect and installed plug-in from the canvas menu:
sources, I/O, transformers, the internal instruments and effects, and external plug-ins by
format and manufacturer. Each entry shows its category beneath its name.
Find in graph - Lists the nodes in the graph you are looking at (inside a group, the group's
contents), each with its type and connection counts. Choosing one selects it and frames it on
the canvas.
```

Type to filter: every word you type must appear in the entry's name or category, so "reverb int" finds the internal Reverb. Up and Down move the highlight, Enter adds (or frames) the highlighted entry, double-click does the same, and Esc closes the palette.

WORKSPACES

The Canvas, Song and Performance tabs at the right of the window header switch between the node graph, the Song arrangement (see Song Arrangement) and the Performance view (see Performance View). Song and Performance each have a Back to Canvas button; Escape also returns.

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
```

Connections can also be made without dragging: right-click a node and choose Connect. A node with several output ports - a multi-output plugin, a plugin with a MIDI out - lists each port as its own submenu, named the way its tooltip names it ("Out 3/4", "MIDI out"). Disconnect lists each cable separately, so one of several can be removed on its own. This is also the way to reach every port on iPad.

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
```

Deleting an effect leaves the instrument behind it without a path to the mixer, so that instrument goes silent rather than playing dry around your effect chain. Reconnect it - to the Mixer, to another effect, or into a group - and it comes right back.

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 (Cmd+Shift+F opens Find instead)
Home to reset zoom to 1.0 and pan to origin
Middle-mouse drag or Space+drag to pan the canvas
```

The navigation bar in the canvas's bottom-right corner keeps these within reach:

```
1. Add / Find - Open the Add and Find palette (see above)

Pan - Hand tool: while it is on, dragging the canvas background pans instead of rubber-band
```

```
selecting
Map - Show or hide the minimap
- / + - Zoom out / in
Zoom readout - Click for presets from 25% to 200%
Fit all - Fit every visible node in view
Selection - Fit the selected nodes in view
```

In a narrow window the bar wraps onto two rows. Saving a project saves the view with it, so reopening a file frames what you were looking at when you saved. The view is stored as the point at the centre of the canvas rather than a scroll position, so it survives a different window size or a different set of panels being open. Projects saved before Noemi 1.0.7 carry no view and open fitted around their modules. 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%.
```

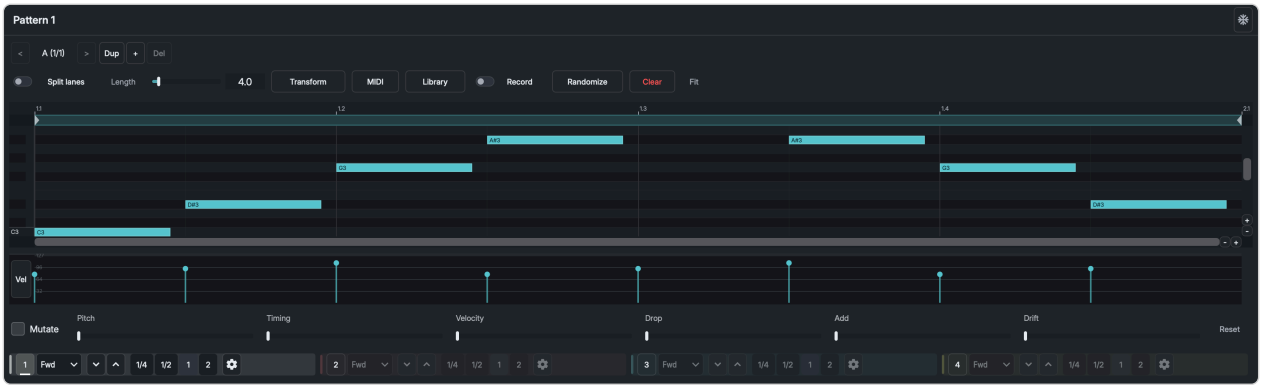
MINIMAP

```
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 or click Map on the navigation bar to toggle minimap visibility
```

DRAG 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

The Split lanes toggle in the editor toolbar chooses how the lanes leave the node:

```
Off (Merged) - All lanes output together (default)
On (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:

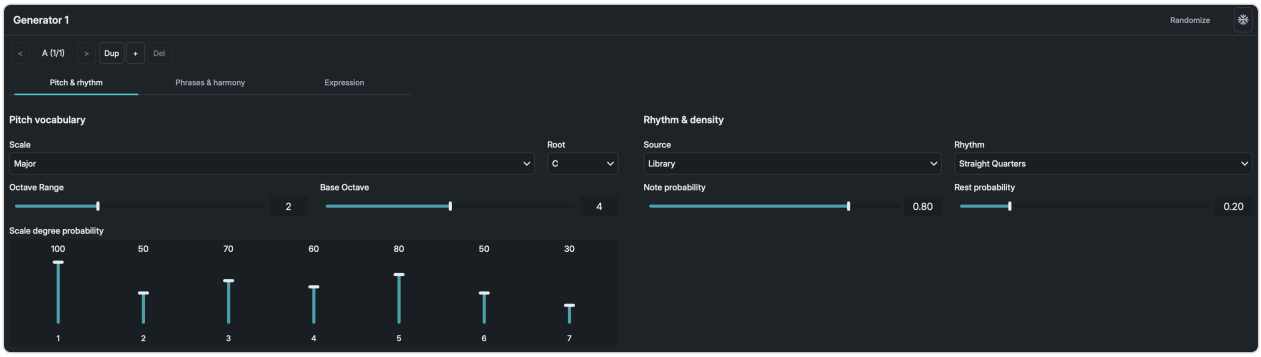
```
Vel - Velocity: per-note strike intensity (0-127)
AT - Aftertouch: per-note channel pressure
Prs - Pressure: MPE polyphonic pressure (per-note continuous)
Sld - Slide: MPE slide / CC 74 (per-note continuous)
PB - Pitch Bend: MPE per-note pitch bend
```

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



The Generator node creates notes algorithmically using configurable musical rules. Instead of fixed notes, it generates new material each time it plays, guided by probability and music theory.

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

Controls which pitches the generator can use:

```
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)
```

DEGREE WEIGHTS

Each scale degree (1 through 7) has a probability weight controlling how often it appears. Higher weight = more likely. For example, boosting the 1st and 5th degrees creates music that emphasizes the tonic and dominant.

RHYTHM RULE

Controls when notes occur:

```
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
```

RHYTHM SOURCES

Choose how rhythmic patterns are generated:

```
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
```

HARMONY RULE

```
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

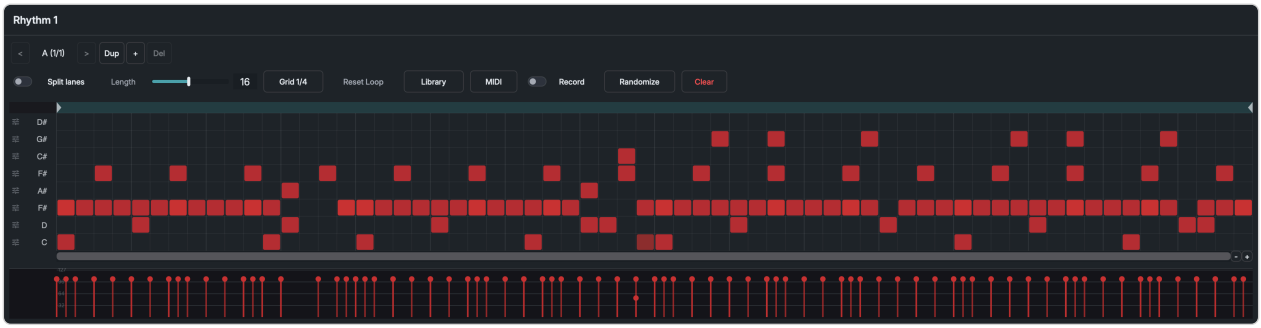
```
Click "Freeze" to capture the generator's output as a fixed Pattern.
Useful for keeping a particular generation you like.
```

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 (drags notes off the grid; see below)
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
```

Humanize drags each generated note slightly late rather than pushing it early - playback is realtime with no lookahead, so there is nothing to pull a note ahead of its beat. (Fixed in 1.0.4: Humanize previously had no audible effect.)

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

The Split lanes toggle in the editor toolbar chooses how the lanes leave the node:

```
Off (Merged) - All lanes output together (default)
On (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.

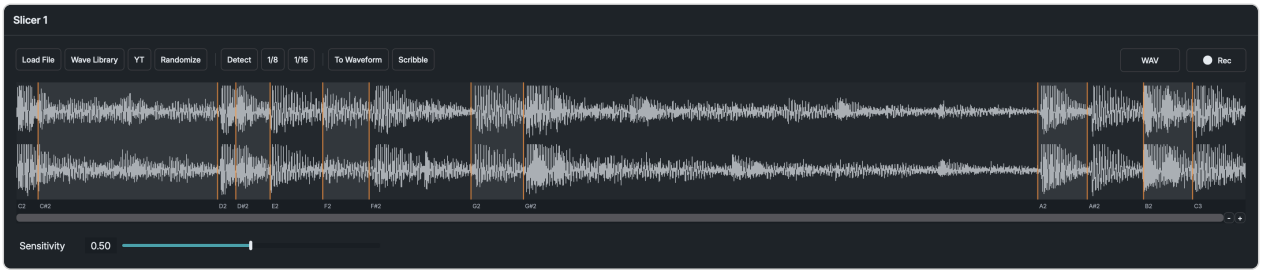
AUDIO SOURCE RECORDING

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)
```

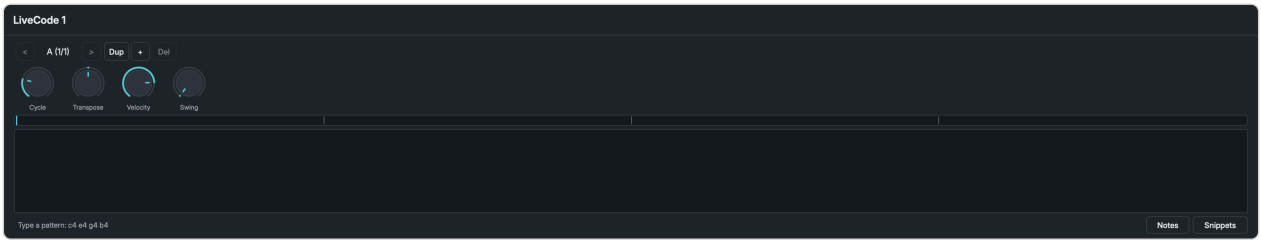
All parameters are modulatable.

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).

PLAYHEAD

The strip above the text shows the cycle laid out left to right: tick marks for the beat grid, a mark for every note the pattern played, and the playhead moving across them. The mark under the playhead lights up as it sounds. The marks are the notes Noemi actually played, not a reading of the text, so a pattern using degrade, ?, or | shows the rhythm you heard rather than one of its other possible outcomes. The strip shows the cycle just completed while the next one fills, so editing a pattern takes a cycle to appear - which is also when the new pattern takes over.

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.

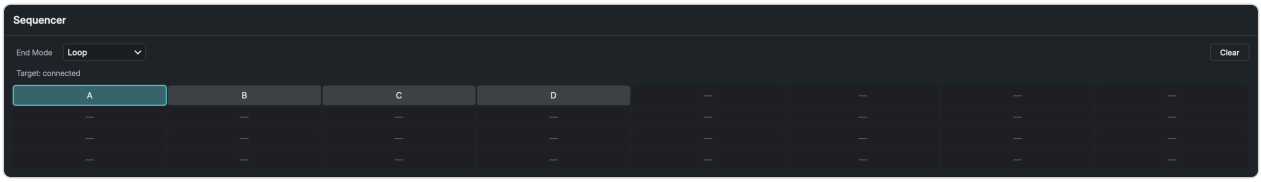
PARAMETERS

```
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:

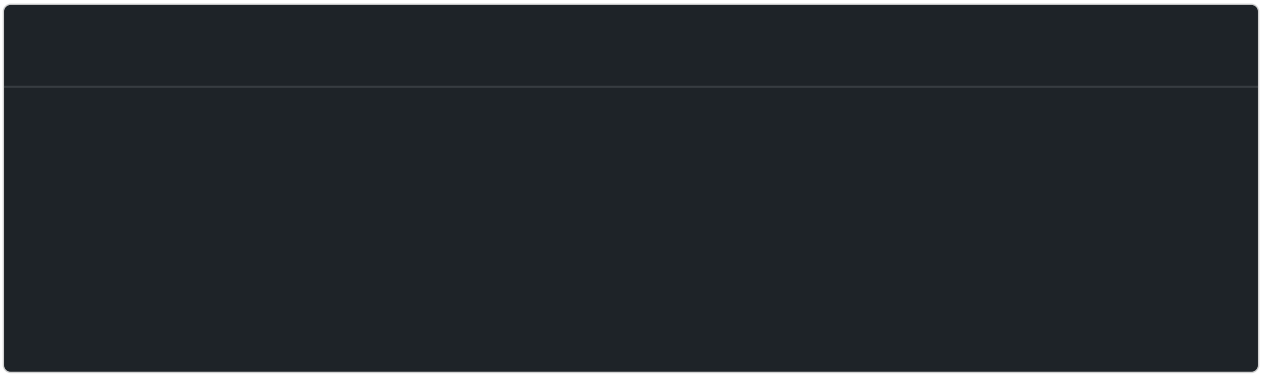
1. Create a Rhythm node with 4 states (A, B, C, D) -- each with different hits

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, or "From note"
```

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

CHANNEL

A fixed channel of 1-16 stamps every outgoing note onto that channel. "From note" instead sends each note on whatever channel it already carries, so an upstream Set MIDI Channel or MIDI Round Robin can address several parts of a multitimbral instrument through a single MIDI Output. New nodes default to channel 1.

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.

SEND MIDI CLOCK

Tick "Send MIDI Clock" in the node's editor to send MIDI beat clock on its device, so drum machines, sequencers and arpeggiators lock to Noemi - including its tempo drift, pulse by pulse.

```
24 pulses per quarter note, at the beats Noemi's clock actually plays
Start when playback begins at the top; Song Position Pointer + Continue when it starts or
jumps anywhere else (rounded up to the next sixteenth)
Stop when Noemi stops
One clock per device: several MIDI Output nodes on the same port share it
```

In plugin builds a node set to "Host (DAW)" can send clock too, placed sample-accurately in the plugin's MIDI output. Whether the host passes it on depends on the format: LV2 and the iOS AUv3 deliver it; VST3 and CLAP hosts drop system realtime messages, so for DAW-side clock use Ableton Link or the host's own MIDI clock instead.

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.

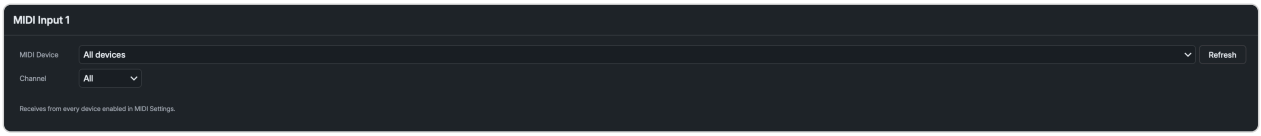
NOTES vs. CC

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. Which devices Noemi listens to at all is set once for the whole project, in File > MIDI Settings (Cmd+.). Each MIDI Input node then picks which of those it wants: a single device, or All devices.

SETUP

```
1. Enable the controllers you want in File > MIDI Settings

2. Add a MIDI Input node via Modules > MIDI Input

3. Pick a MIDI device, or leave it on "All devices"

4. Choose a MIDI channel (1-16, or All to receive on all channels)

5. Connect the node's output to instruments, transformers, or other MIDI-accepting nodes
```

Multiple MIDI Input nodes can coexist, each on its own device, its own channel, or both - so two controllers can drive two separate chains without touching each other. Two nodes set the same way both receive the same notes. Use the refresh button next to the device list to pick up a controller plugged in after the node was made. Notes played on the QWERTY keyboard reach every MIDI Input node, whichever device it is set to. They have no device behind them, so filtering them out would make the computer keyboard stop working the moment a node was bound to a controller. A device that is unplugged is remembered rather than reset - the node keeps filtering on it, shows "(not connected)", and starts receiving again when the controller comes back. To split one controller's channels out to different destinations, set each MIDI Input node to a different channel - or use a single node set to All feeding a MIDI Splitter, which sorts by incoming channel. The node shows an activity indicator for incoming notes.

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 "in Ch N" as a reminder that the port FILTERS by incoming channel - it does not assign one. Noemi's own Patterns, Generators and Rhythms all emit on channel 1, so a splitter placed directly after one has nothing to sort and only its Ch 1 port will fire. To drive a multitimbral instrument from Noemi, put a Set MIDI Channel transformer before the splitter (or before the instrument) to stamp the channel on.

MIDI CC OUT

The MIDI CC Out node sends a modulatable value out as a MIDI controller. Noemi has always been able to receive CC - the Mod Matrix can map an incoming controller onto any node parameter - but until 1.0.4 it had no way to send any, which left LFOs, automation and mini-notation sources unable to shape a hosted plugin or an external synth.

SETUP

```
1. Add a CC Out via Modules > MIDI CC Out (I/O section)

2. Pick the CC number and channel in the editor panel

3. Connect its output to a plugin, a MIDI Output node, or a MIDI Splitter

4. In the Mod Matrix, route a modulator to the node's Value parameter
```

SETTINGS

```
CC - 0 to 127, with the common controllers named (1 Mod Wheel,
7 Volume, 10 Pan, 11 Expression, 64 Sustain, 74 Cutoff, …)
Channel - 1 to 16
Value - 0 to 127; this is the modulation target
Send every tick - off by default
```

By default a controller is only sent when the 7-bit value actually changes. A modulator runs every clock tick and MIDI CC carries only 7 bits, so most ticks hold no new information and sending them anyway floods a hardware MIDI bus for nothing. Turn on "Send every tick" for devices that expect a continuous stream. The node re-sends after a transport stop, since a device may have been reset in the meantime.

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
/scene/1 through /scene/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. Every transformer shows its current setting on the canvas node, under the type badge - "Ch 3" on a Set MIDI Channel, "+7 st" on a Transpose, "5/16" on a Euclidean Rhythm - so several nodes of the same type can be told apart without opening any of them. In the editor panel each knob shows its value beneath the dial.

DRIVING A MULTITIMBRAL INSTRUMENT

Noemi's own sources all emit on MIDI channel 1. To address separate parts of a multitimbral plugin or hardware synth, assign a channel first:

```
Pattern -> Set MIDI Channel (Ch 2) -> instrument
```

Repeat per part, or use MIDI Round Robin to spread one part's notes across a range of channels. Downstream, a plugin module sends on whatever channel a note carries, and a MIDI Output set to "From note" does the same. A MIDI Splitter placed after the channel assignment will then dispatch per channel; placed directly after a Pattern it has nothing to sort, because every note is still on channel 1.

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 response curve, multiplier and offset.

```
Curve - 0.1 to 4.0 (response curve; 1.0 is linear)
Scale - 0.0 to 2.0 (velocity multiplier)
```

```
Offset - -1.0 to +1.0 (velocity offset added after scaling)
Modulatable: Curve, Scale, Offset
```

The curve is applied first, so Scale and Offset still frame the final range. Below 1.0 it lifts quiet notes, compressing the dynamic range; above 1.0 it pushes them down, expanding it. Scale and Offset alone can only tilt the whole range.

SET MIDI CHANNEL

Stamps a MIDI channel onto every note passing through. Noemi's own sources all emit on channel 1, so this is what makes multitimbral instruments reachable: put one per part to address separate timbres of a hosted multitimbral plugin, or separate parts of a hardware synth.

```
Channel - 1 to 16
Modulatable: Channel
```

The channel is applied to note-ons and note-offs alike, so held notes release correctly. Downstream, a plugin node injects the note on the channel it arrives carrying, and a MIDI Output node set to "From note" does the same - set it to a fixed channel to override. A MIDI Splitter placed after Set MIDI Channel will then dispatch per channel as expected.

MIDI ROUND ROBIN

Cycles each incoming note onto the next channel in a range. Where Set MIDI Channel pins everything to one channel, this spreads successive notes across several - the distributor half of multitimbral routing.

```
Mode - Cycle, Random, or Ping-Pong
First Ch - 1 to 16
Last Ch - 1 to 16
```

Feed it into a MIDI Splitter to fan those channels out to separate instruments, or straight into a multitimbral plugin. A note-off always leaves on the channel its note-on was assigned, so nothing hangs when the rotation moves on.

NOTE DELAY

Echoes each note, with feedback.

```
Delay - 0.015625 to 8.0 beats between echoes
Repeats - 1 to 16
Feedback - 0.0 to 1.0 (velocity retained by each successive echo)
Pitch - -24 to +24 semitones added to each successive echo
Modulatable: Delay, Feedback
```

Each repeat is a delayed copy of both the note-on and its note-off, so echoes keep the original note's length and release cleanly. Repeats stop early once feedback has faded them to silence or the pitch offset walks them off the keyboard.

GATE LENGTH

Scales how long notes sound.

```
Amount - 0.05 to 4.0 (multiplies each note's length; 1.0 leaves it unchanged)
Modulatable: Amount
```

Works off the note's duration, which Patterns and Rhythms set. A note that arrives with no duration - live MIDI, or a plugin's MIDI out - has no length to scale and passes through untouched.

LATCH

Holds notes on after their keys are released, until the next phrase begins. Note-offs are swallowed while any input note is still held. Once everything has been released, the next note-on releases the whole latched set and starts a new one - the usual chord-memory behaviour. Useful for holding a chord under an Arpeggiator.

STRUM

Spreads simultaneous notes out in time, so chords roll rather than land flat.

```
Direction - Up (lowest first), Down (highest first), or Random
Spread - 0.0 to 1.0 beats between successive chord notes
Modulatable: Spread
```

Notes arriving together are treated as one chord and ordered as a group, so the whole chord is scheduled up to one clock tick (about 1ms) after it arrives. Each note's note-off is pushed by the same amount, so every note keeps its length.

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 variation for a natural feel.

```
Timing Amount - 0.0 to 1.0 (drags each note by up to 0.1 beats at full)
Velocity Amount - 0.0 to 1.0
Modulatable: Timing, Velocity
```

Timing works as a drag: each note is held back by a random amount, and its note-off by the same amount so the note keeps its length. Notes are only ever pushed later, never earlier - the graph runs in realtime with no lookahead, so there is nothing to pull a note ahead of the moment it arrives. Set Timing to 0 for no delay at all. (Fixed in 1.0.4: the timing control previously had no audible effect.)

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 in the Voice phrase section 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. The compiled syllables appear below the text as you type, so you can see exactly what Cantia will sing. Parameters:

```
Voice character - Type, Breathiness, Vibrato Depth, Vibrato Rate, Formant Shift
Amp - Attack, Decay, Sustain, Release
Articulation - 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
```

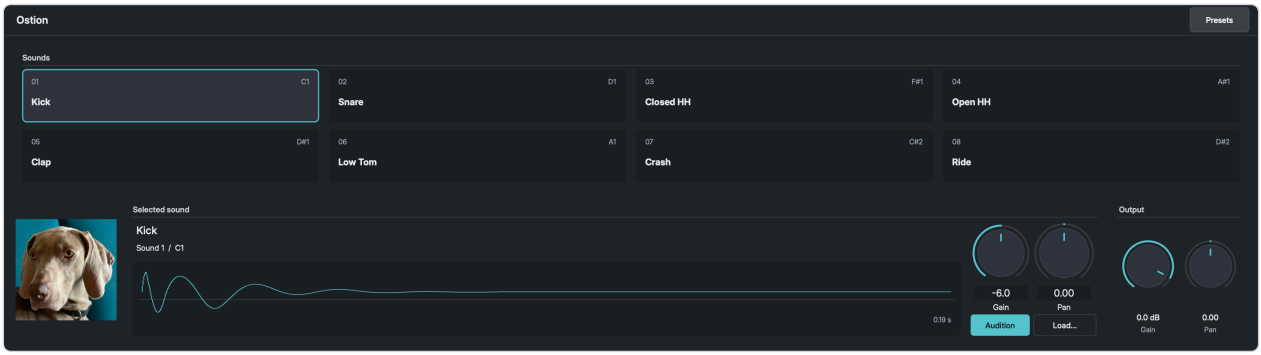
```
Randomize ("!!!") - Randomizes all parameters for sound exploration
```

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, shown as pads in the Sounds section. Click a pad to select it; the Selected
sound section then shows its waveform and controls:
Sample - Audio file (load via the "Load…" button)
Note - MIDI note trigger (36-43 for slots 1-8), shown beside the sound's number
Gain - Volume (-24 to +12 dB)
Pan - Stereo position (-1 left to +1 right)
Audition - Hold to hear the selected sound
```

```
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:

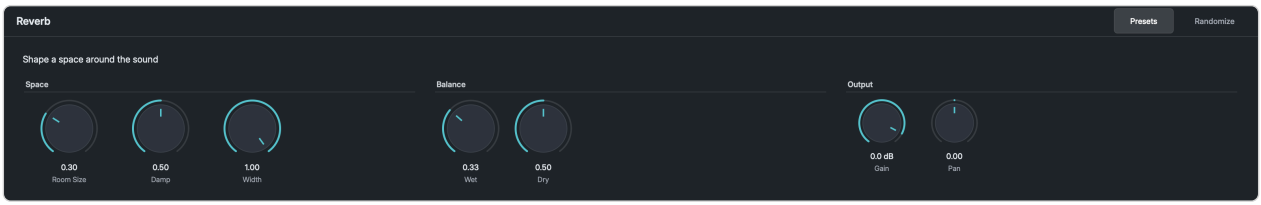
```
Amp ADSR, Filter ADSR
LFO: Sine/Triangle/Saw/Square/S&H
LFO Route: Osc1 Morph, Osc2 Morph, Pitch, Filter
Rate (0.1-20 Hz), Depth
```

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.

INSTRUMENT PORTRAITS

The SimSim, Chirusa, Ostion and Leeroy editors show a portrait of the dog each instrument is named after, and Cantia shows a matching photograph beside its voice phrase. To hide one, hover over it and click the close button in its corner (on iPad the button is always shown); the editor gives that space back to its controls. Hiding one portrait leaves the others alone. View > Instrument portraits lists all five instruments: tick or untick each to show or hide its portrait individually. On iPad, the View menu is inside the menu button at the top-left of the screen. Portraits are a personal display preference. The choice is kept with your own Noemi settings, not saved in projects or in a DAW session, so opening someone else's project never changes it.

INTERNAL EFFECTS



Noemi includes 8 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)
Utility - Gain, Width, Balance, plus Mono, Swap L/R, and per-channel polarity invert toggles.
The channel toolbox: trim a level mid-chain, fold a stereo source to mono, widen or narrow it,
or fix a flipped cable.
```

SIDECHAIN

An effect whose plugin has a sidechain input - a compressor, gate, or ducker with a key input - grows a second input port on its node once it loads. Wire any audio source into that port and it becomes the key signal: the classic move is a kick drum keying a compressor on a bass or pad, so the sustained part ducks on every hit. The key source keeps its own place in the mix - the cable feeds the effect's detector, not its audio path. The internal Compressor accepts a key this way too (wiring it switches its detector to the sidechain input). One key per effect: connecting a new source replaces the old. Hover the port to

check which is which: the tooltip reads "Sidechain in". The Connect menu offers sidechain-capable effects twice, once normally and once as "- Sidechain". A multi-output plugin cannot take a sidechain key (and a sidechain-capable plugin that starts using its extra output pairs gives its key up) - the two live on different hosting mechanisms.

MIDI INTO AN EFFECT

Some audio effects are played, not just patched: harmonisers, vocoders, MIDI-keyed filters and pitch tools listen to notes while they process audio. An effect whose plugin declares a MIDI input grows a "MIDI in" port once it loads, and anything that emits MIDI drives it - a Pattern, a Generator, MIDI Input, a Transformer, or another plugin's MIDI out port. The cable carries notes only; the effect still takes its audio from its main input as usual. Drop a MIDI cable anywhere on the node and it snaps to the MIDI port rather than the audio one, so there is no small dot to aim for. The port takes as many cables as an instrument does, and CC, pitch bend and MPE expression travel down it alongside the notes - which is what makes a plugin's MIDI learn work from a controller patched into Noemi. Hover to confirm: the tooltip reads "MIDI in", and the pin takes the MIDI colour while the audio input and any sidechain key stay audio-coloured. The Connect menu lists these effects as "- MIDI in". A plugin with both a key input and a MIDI input shows all three ports, in that order. As with the sidechain key, a multi-output plugin using its extra output pairs cannot take MIDI this way.

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
```

All of these support multi-output plugins, as instruments and as effects. See Multi-Output Plugins below. External plugin windows open in separate floating windows. CLAP plugins render their native GUI within Noemi. Plugin states are saved with the project. Each plugin node shows which format it is running - a small VST3, AU, CLAP or LV2 badge under the plugin name, repeated in the node's tooltip and in the plugin window's title bar. This matters more than it sounds: the same plugin installed in two formats is otherwise indistinguishable once loaded, and the two builds are not always equivalent. Several plugins ship a stereo-only AudioUnit alongside a multi-out VST3.

MULTI-OUTPUT PLUGINS

A plugin with more than one stereo output - a drum sampler with a pair per pad, a modular host, a multitimbral sampler - shows those extra pairs as additional output ports on its node. Wire each one wherever you like: its own mixer channel, an effect chain of its own, or nowhere at all. This works in every format Noemi hosts - AU, VST3, CLAP and LV2 - and for both instruments and effects.

```
1. Load the plugin and open it

2. Configure its outputs inside the plugin, if it needs that (Kontakt and Battery do; VCV Rack
   and Cardinal expose theirs immediately)

3. Close the plugin window - the node now shows one port per available pair

4. Drag from any port to a mixer channel or an effect
```

Hover a port to see which pair it carries: "Out 5/6". Port 1 is always the plugin's main output, and a MIDI-producing plugin keeps its MIDI port after it, before the audio pairs. Multi-output effects work the same way. The effect still processes the chain it sits in - audio arrives, is processed, and leaves on the main pair as always - while its extra pairs branch off to wherever you send them. Each pair gets its own mixer strip, named after the plugin and its pair ("Kontakt 3/4") until you rename it, with its own fader, pan, and mute. Multitrack export writes each wired pair as its own stem, and each pair can be assigned to its own Noemi output pair independently (see Multiple Audio Outputs). Three things worth knowing:

```
The pairs appear once the plugin has loaded and told Noemi how many it has. A plugin that
gains outputs later - Kontakt, when you add channels on its Outputs page - may need its window
closed and reopened before the new ports show up.
Format matters. If a plugin offers only one stereo pair when you expect more, check the badge:
NI's AudioUnits are stereo-only where their VST3s are multi-out, and some plugins ship
separate stereo and multi-out variants (Cardinal is 8-in/8-out, while Cardinal Synth and
Cardinal FX are stereo by design).
A plugin with several outputs is hosted in a rack behind the scenes so its extra pairs can
escape a stereo track. This is automatic and needs no setup, but it is why a multi-output
plugin's entry in the mixer looks slightly different from an ordinary one.
```

IF A HOSTED PLUGIN LOOKS WRONG

Plugins draw their own interfaces, so Noemi's theme and colours never reach inside a plugin window. If a plugin's UI looks black, blank, or oddly lit, check the plugin's own display settings before assuming Noemi is at fault - modular hosts in particular have rack and room brightness controls that can be turned down to nothing by accident.

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. When Noemi is running as an instrument or FX plugin, choosing Scan for Plugins opens the scanner in the installed Noemi standalone app. Keep that scanner open until it finishes; the plugin list in the hosted instance refreshes automatically. The standalone app must be installed for scanning from a hosted Noemi plugin. 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. On Windows, WaveShell is scanned in this foreground helper. If Waves asks where its libraries are installed, choose the requested folder in the Windows file picker; the scan then continues and adds the plugins bundled inside WaveShell.

IF A SCAN MISBEHAVES

Each plugin is examined in a separate helper process, so a plugin that crashes during inspection can never take Noemi down - it is marked as failed (blacklisted) and skipped from then on. Only a genuine crash earns that mark: a scan that fails for environmental reasons (a slow machine, an interrupted scan) leaves your plugins alone and simply retries next time. If a plugin you trust ends up blacklisted, open File > Plugin Settings, use the options menu to remove blacklisted files, and rescan. To test a single plugin from a terminal, run the standalone app with --scan-file:

```
macOS - /Applications/Noemi.app/Contents/MacOS/Noemi --scan-file <path to plugin>
Linux - ./Noemi --scan-file <path to plugin>
```

It scans just that file through the normal machinery and prints everything it finds - handy output to include in a support report.

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. An instrument plugin can also be switched into MIDI-effect mode with "Use as MIDI Effect" in its editor panel, which is how MIDI-producing plugins that classify themselves as effects (arpeggiators, step sequencers) are used. A MIDI effect reaches the rest of the graph one of two ways, chosen automatically from what you patch it into:

```
Wired straight to a single instrument, the plugin is inserted into that
instrument's own plugin chain, so its MIDI arrives sample-accurately.
```

```
Anything else - a Transformer in between, a MIDI Output node, a MIDI Splitter, or
fan-out to two instruments - routes its MIDI through Noemi's graph instead, which
costs about a millisecond of timing accuracy but lets every module see it.
```

You do not choose between these; patching decides it. Before 1.0.4 only the first case worked at all: a MIDI effect in any other arrangement was silent, could not drive a MIDI Output, and its cables never animated.

PLUGIN MIDI OUT PORT

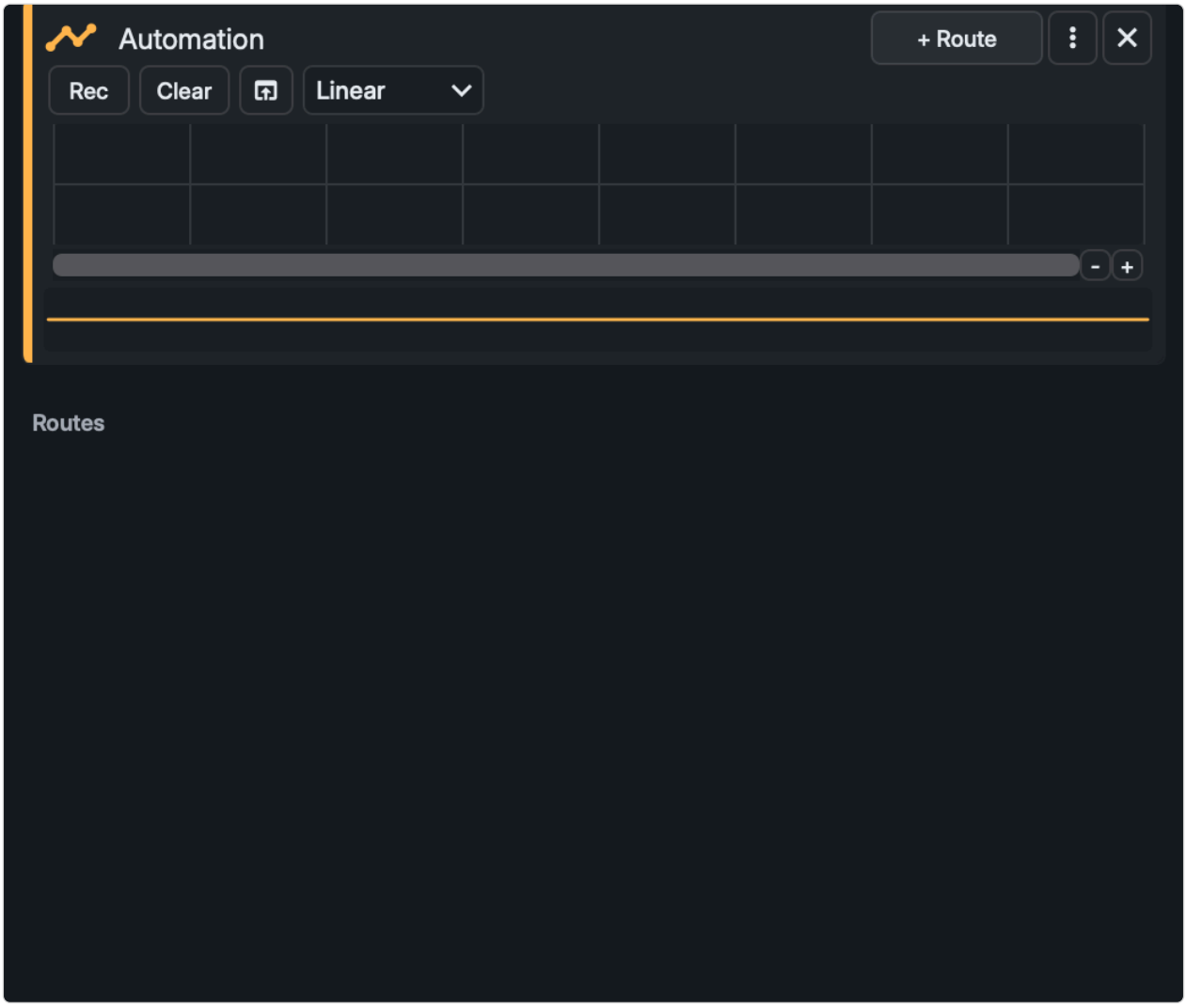
Plugins that produce MIDI (arps, sequencers, Rack-style hybrids) get a second output port carrying that MIDI, below the audio port. Patch it into an instrument, a Transformer, a MIDI Splitter, or a MIDI Output node - the plugin drives other modules while its own audio keeps flowing to the mixer. The 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



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 is not confined to Noemi: route a source to a MIDI CC Out module's Value parameter and it leaves as a MIDI controller, shaping a hosted plugin or an external synth. See "MIDI CC Out".

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
```

CENTRED MIDI AND MACRO SOURCES

MIDI and Macro sources output 0 to 1, so on their own they only push a target one way. The +/- button on their card makes them centred: the middle of the knob (CC 64) means "no change", and the two ends swing the target down and up. Use it for anything that should move both ways from where you set it - a tempo drift knob centred on the project tempo is the classic case. Switching it on parks a Macro at the middle so nothing jumps. In plugin builds MIDI sources listen to the MIDI the host sends to Noemi as well, so a DAW controller lane or a hardware controller routed through the DAW drives them (and MIDI Learn on a MIDI source learns from it).

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.
```

```
Both formats are read the way other Scala tools read them, so files padded with blank lines,
spaces or tabs load fine.
```

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. That is fifteen channels, so fifteen notes can sound at once. Past that, the note held longest gives up its channel to the new one - the note you just played always sounds. The same applies to a MIDI Output node with MPE enabled.

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 DRIFT

Tempo is a modulation target, so the whole composition can wander in time - speed up, slow down, breathe - while you stay in charge of where it is centred. Patterns, generators, modulation, the metronome, MIDI out, MIDI clock and Waveform audio all follow the drifting tempo together. Right-click the BPM field in the transport bar (or open the Modulation panel's Add menu > Tempo drift) for:

```
Drift range… - Low and High BPM the tempo is held between. "Centre on tempo" sets a sixth
either side of the current tempo (120 -> 100-140).
Add drift source - One step to a working drift: a slow LFO (a ~30 second tide), smooth random,
a MIDI CC (the next CC you move is learned), or a Macro knob. Each is routed to Tempo at full
depth, and a range is added if the project has none.
```

With a range set, a route at 100% depth reaches the bounds exactly: a bipolar LFO or random source sweeps from Low to High whatever your tempo is, and a centred MIDI CC or Macro puts Low at one end, your tempo in the middle and High at the other. Lower depths drift less. Several routes add up, and the result never leaves the range. Without a range, Tempo routes keep their original scaling (depth x 280 BPM). You can also set the range from any route that targets Tempo: right-click its pill in the Modulation panel and choose "Tempo drift range...". The BPM readout shows the tempo that is playing and turns the modulation colour while it drifts. Dragging, scrolling or typing in it moves your own tempo - the centre the drift moves around - and that is the tempo saved with the project and captured by scenes. Waveform audio follows drift by running the audio timeline at the clock's speed: Stretch mode keeps pitch, Repitch mode bends it like tape. Tempo drift stays local: it is off while Ableton Link is on, and never reaches Link peers. Song view playback uses the Song tempo lane instead (see Song Arrangement > TEMPO LANE).

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 drift is switched off while Link is active, so Noemi stays on the session tempo.

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 balance slider (-1 left to +1 right). Center passes both channels at
unity gain.
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")
```

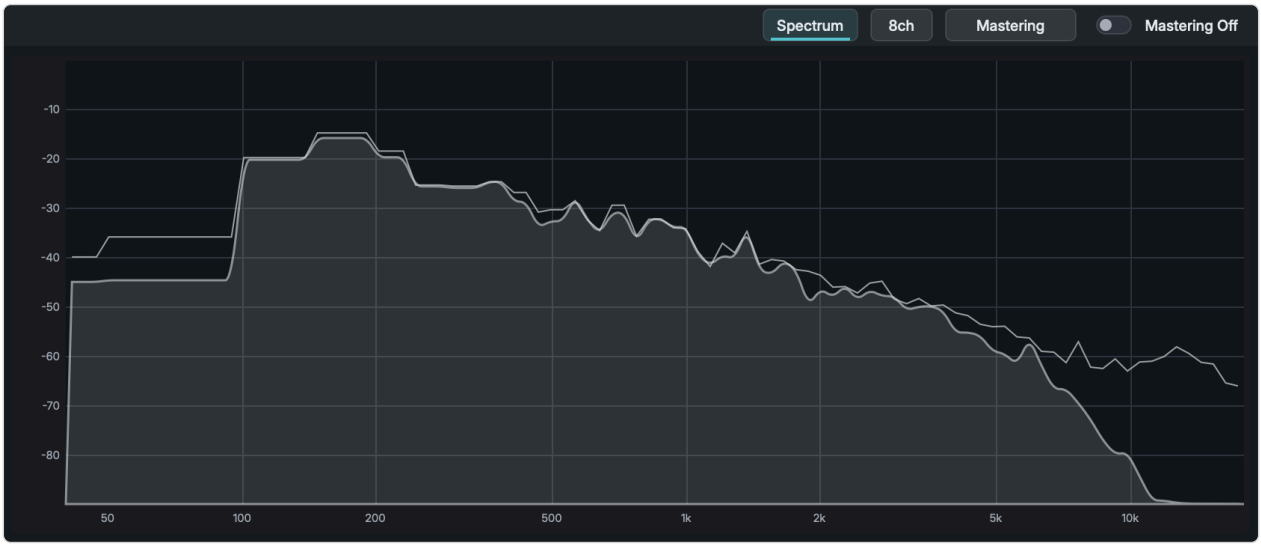
CHANNEL LABELS

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
```

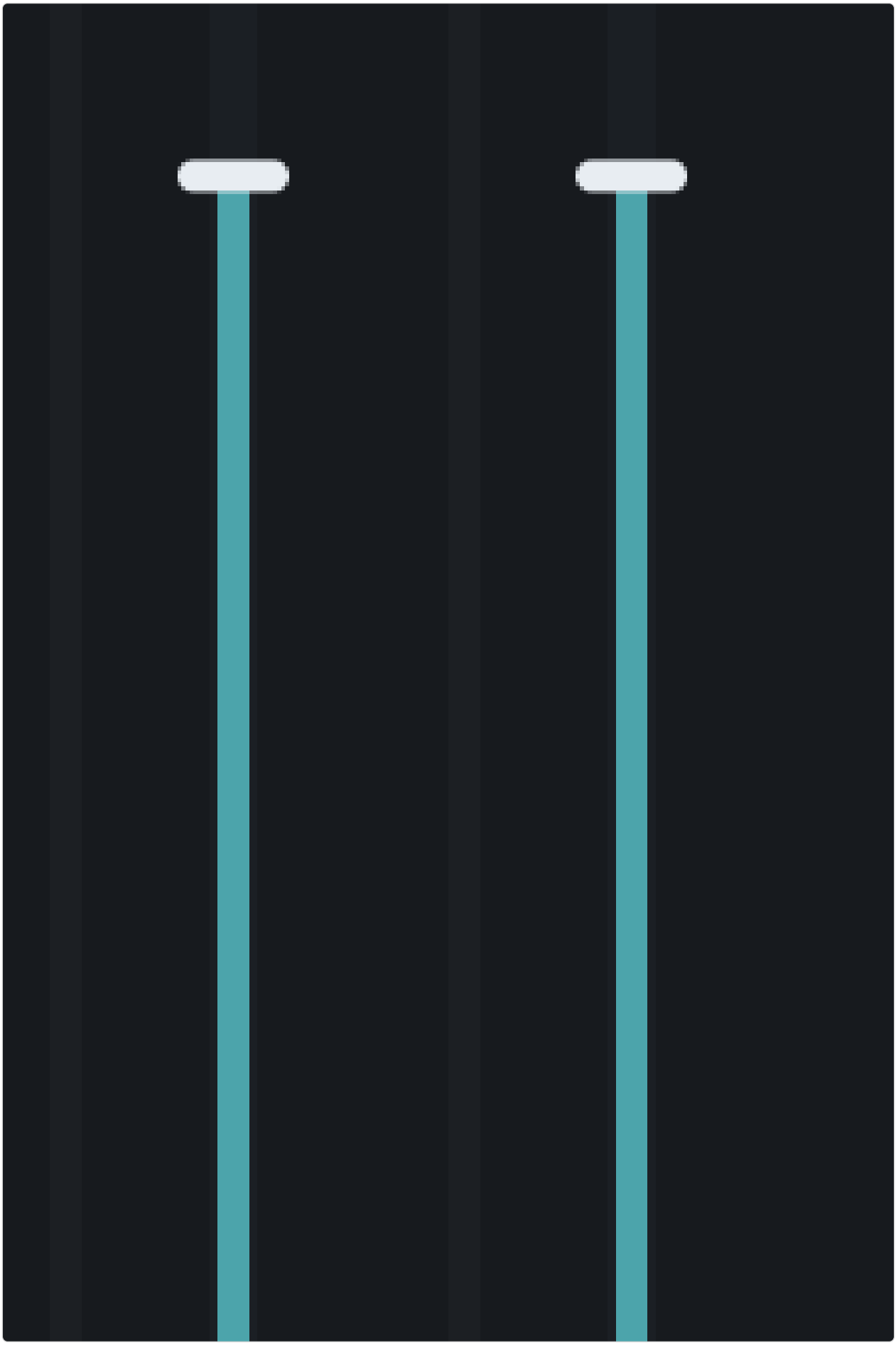
Right-click a volume or pan control to assign a MIDI CC for hardware control.

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

New projects start with mastering Off, set to Natural, ready for when you switch it on. There is no setup or analysis step before playback. Mastering On/Off is an independent switch in the mixer toolbar. Off passes audio through untouched and adds no latency. On adds the chain's latency (about 7 ms at 48 kHz), and switching either way briefly rebuilds the audio graph, so expect a short gap if you switch during playback. Mastering opens the visual editor inside the mixer, including short-term loudness, true-peak, and limiting meters. With mastering Off nothing limits the mix, so the internal instruments leave headroom: every factory preset of a newly added Chirusa, SimSim, Cantia or Leeroy peaks at about -6 dBFS or lower, even on a dense chord clip, and Ostion's pads start at -6 dB. Several instruments together can still pass 0 dBFS; pull node or mixer levels down, or switch mastering on to catch the peaks. Mastering On/Off is always visible, including during Deep Mastering and background rendering. Off saves processing work after a brief fade while preserving playback timing; paused meters are shown explicitly. Switching the live chain off does not change an already-running render, which uses its captured settings. Cancel stops that background task separately. Natural follows the audio through its dynamics processors. It does not continually choose a genre, retarget the tone, or force every section to the same loudness.

VISUAL MASTERING EDITOR

Open Mastering in the mixer toolbar for four tabs: Chain, Takes, Compare, and Deliver. The visual editor fills the editing area within the mixer. The application toolbar and transport remain available. Back to Mixer restores the channel strips and your previous mixer height. Opening the editor or its tabs does not start capture, analysis, or rendering. Hiding the controls stops audition playback while capture or rendering can continue. Closing the mixer cancels its background work.

CHAIN

Choose Performance for responsive live work or Finalize for higher-quality processing with more CPU use and latency. Captured comparisons and delivered masters use Finalize quality. The chain has seven modules:

```
EQ - Eight bands with filter type, frequency, gain, Q, stereo/mid/side targeting, and optional
dynamic gain.
Clean - Bounded resonance reduction within a chosen frequency range.
Bass - Separate weight, punch, sustain, and harmonic controls.
Dynamics - Broadband glue or four-band compression, with maximum reduction, attack, release,
knee, makeup, and detector filtering.
Color - Saturation and optional peak clipping.
Imager - Four-band stereo width and adjustable crossovers.
Maximizer - Drive, output ceiling, release, and stereo linking. Output protection stays last.
```

Select one of the seven visible module tabs to open its large visual editor. Shape the response directly with graph handles and use the grouped controls below for precise values. EQ shows its response and bands; Dynamics shows compression curves; Imager shows frequency-dependent width and stereo position; Maximizer shows input/output history and limiting. Clean, Bass, and Color visualize resonance control, low-end shaping, and saturation. Module On/Off, Lock, and chain-order controls stay above the graph. Lock assistant changes prevents proposals from changing that module; you can still edit locked modules yourself. Optional modules can stay off when the music does not need them.

DEEP MASTERING

Deep Mastering is an explicit request for the heavier analysis workflow. With a selected take, the header button analyzes the complete performance and prepares three proposals. Without a take, it opens Capture for Deep Analysis; recording starts only when you press that action. Play your composition, then

choose Finish capture and analyze. Analysis begins after the complete take has been written. You can also import audio and choose Analyze selected take. These jobs use additional CPU and offer Cancel; they never silently retarget live playback.

TAKES

Use Capture performance to record the unmastered mix while your composition plays, then Stop capture. Capture stores a fixed performance so mastering decisions can be compared against identical music. Capture is bounded to ten minutes; a recording failure is reported instead of accepting an incomplete take. Import audio stores a separate copy for mastering. Choose a take and Analyze entire take to measure the complete recording. Suggest three masters offers Open, Balanced, and Dense proposals. A proposal does not alter the live chain. Takes and references are stored as audio files. The project remembers their locations; keep those files available when reopening the project.

COMPARE

Select the current chain or a proposal, choose a preview start, and Render comparison. The preview uses Finalize processing on the captured performance. Audition switches between the original take, processed master, a reference, and their difference. Stop audition returns to the live mix. Import reference stores a reference recording for comparison. Reference start chooses its comparison region independently. Match playback loudness measures the selected regions and applies a fixed monitoring adjustment; it does not lower the delivered master. Difference playback helps locate changed audio, but a difference by itself is not evidence of a defect. Render MP3 comparison auditions the decoded result at 128, 192, 256, or 320 kbps. Its audition choices compare the exact PCM master sent to the encoder with Decoded MP3; Codec artifacts isolates their difference. This check reveals codec peak changes before delivery; it does not automatically adjust the preview to hide them. Review proposal visually opens all seven module graphs with the proposed settings and current assistant locks applied. A clear PROPOSAL PREVIEW banner identifies settings that have not been committed. Editing is disabled during this view, and live output telemetry is hidden; use Compare to hear an actual rendered proposal. Return to current leaves the live chain untouched. Apply proposal commits the selected settings. Apply and lock changed modules also protects those changes from subsequent assistant proposals. Existing locks are respected. All state changes participate in project undo.

DELIVER

Choose a take and the current chain or a proposal, then choose WAV format and sample rate. Delivery supports 16-bit PCM, 24-bit PCM, or 32-bit float. Integer output is dithered; float output is not. Sample-rate conversion occurs before final file verification. MP3 delivery supports 128, 192, 256, or 320 kbps at 44.1 or 48 kHz. The encoded file is decoded and measured; when necessary, delivery reduces the level before encoding to meet the selected decoded-peak ceiling. Its report records the result. This can sound slightly quieter than an uncorrected codec preview. Render and verify writes a new file, decodes it, and reports measured loudness, true peak, loudness range, and the ceiling check. Choose a new filename to preserve existing masters. Show delivered file opens its location. Measurements are estimates; the delivery report identifies their verification limits. A loudness proposal is not a guarantee of a particular integrated LUFS result. Judge the rendered result at matched playback loudness as well as reading its meters.

OPENING OLDER PROJECTS

Noemi 1.2 uses one mastering engine and editor for every project. When an older project with the original four-stage chain opens, Noemi automatically replaces that chain's settings with the current Natural settings and preserves its Mastering On/Off state. A four-stage chain with all four stages bypassed was already passing audio through untouched, so it opens with mastering Off. Scenes that captured the old chain are converted the same way. The old sound is not reproduced; review the new chain while listening to your mix. Projects already using the current engine keep their saved mastering settings. Saving the project writes the current mastering format. There is no separate upgrade step or

older mastering panel. Projects saved by Noemi 1.2 use a newer project format that Noemi 1.1 and earlier refuse to open. If you may still need to open a project in 1.1, keep a copy of the 1.1 file before saving it in 1.2.

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

Open the visual Song workspace with the Song tab in the window header, F10 or View > Arrangement View. Back to Canvas (top-right) or Escape returns to the canvas. Song is a separate, project-owned timeline: it does not consume the sixteen live scene slots or inherit the legacy 64-section limit. The Song playback switch at the left of the toolbar turns arranged playback on; switch it off to return to your live composition.

BUILD A SONG

Drag a state from the left palette onto a part lane. Each instrument or audio source has its own lane, so a bass variation can repeat while the drums change. Drag a scene to place its captured parts together. The overview shows the whole song; scroll to pan, Cmd/Ctrl+scroll to zoom, and Fit frames the song. Section blocks above the parts describe the form. Move a section to move its music and automation together. Drag its right edge to change its length. Double-click a section name to rename it. The end marker sets an explicit song end; reset it to follow the content. The Loop handles define a rehearsal range. Clips show the notes that were actually prepared, or a waveform for audio. Click a clip to open its captured recipe in the native visual editor below. Resize the divider to make more room for editing. This editor changes the song recipe without changing the original state on the live canvas.

```
Drag a clip body to move it; drag an edge to trim it
Cmd/Ctrl+D duplicates independently; the context menu also offers linked copies
Cmd/Ctrl+C/X/V copies, cuts and pastes; Shift+Paste creates a linked copy
Place the playhead inside a clip and choose Split to divide it
Loop clip repeats its chosen performance to fill its visual extent
New variation chooses a new seed; ordinary recipe edits reuse the existing seed
Lock notes keeps the chosen musical events while you work on the sound
Mute and Solo on part headers isolate the parts you are arranging
```

Recipes prepare on a background worker. A sounding clip keeps its previous performance while an edit prepares, and changes over at a phrase boundary. Missing instruments, samples or externally driven sources show an explicit status; use capture when a recipe cannot be reproduced independently.

VISUAL AUTOMATION

Use + Automation, or the Show Automation menu on an actual parameter control. Each lane has a value scale and an editable curve. Double-click to add a point; drag points to change their time and value, and double-click a point to remove it. Context menus choose stepped, linear or curved transitions. Integer and choice controls use their discrete values. Clip automation follows its clip; song automation describes the larger form and moves with its section. Select an automation lane as the recording target, then choose a mode:

```
Read - Follow the arranged curves; a manual override lasts until Return to Song
Touch - Record a control while it is touched, then return to the arranged curve
Latch - Keep writing the last touched value until stopped or Return to Song
```

The parameter browser includes composition controls, exposed instrument and effect parameters, modulation sources and routes, mixer channels, sends, returns and mastering controls. Shared processors have one owning lane. Structural choices that require replacing a graph are not realtime automation. Tempo-modulated or externally driven live performances can be captured with Record to Song; fixed Song playback does not run the legacy modulation writer.

TEMPO LANE

A Song can speed up, slow down and drift too. Click + Automation and choose "Tempo lane" at the top of the menu: a Tempo row appears above the parts, flat at the project tempo. Double-click it to add

points, drag them up and down, and use the point menu for Linear ramps, Steps (an instant tempo change) or Curves. Where the lane has no envelope, the project tempo applies. The whole Song follows the lane: the playhead, MIDI clips, live clips, the metronome, MIDI clock out and audio export. Rendered audio clips are placed by beat, so they play faster or slower with the tempo, pitch included, like tape. Editing the tempo lane never re-renders clips, so it is instant. The BPM readout shows the tempo at the playhead. The tempo lane is inactive (the project tempo applies) while Ableton Link is on, and in a plugin with Host Sync on, where the DAW's tempo rules. A tempo-drifting Live performance can still be captured with Record to Song; it lands at the project tempo.

RECORD, FREEZE AND EXPORT

Record performs the live composition and captures each part's audible PCM and complete MIDI, including pitch, pressure and controller expression. Press Stop to append the captured take as song sections. The take is locked; mixer and mastering automation can continue shaping it. A capture that overflows or loses its timing is rejected rather than silently saving an incomplete performance. Freeze audio on a selected clip freezes its captured instrument or native audio source into audio. It uses the chosen note performance, including locked notes. Audio assets are stored with the project and streamed during playback. Frozen audio stays on its source part; move editable MIDI to another instrument when you want that instrument to play the chosen notes. Audio export uses the same prepared song performances. Entire Song follows the end marker, and All Arrangements exports the sections. Wait for pending edits to prepare before exporting. Freeze explicit Live clips first if you need a repeatable export.

EXISTING ARRANGEMENTS

Projects from earlier versions keep their scene-based arranger and modulation behavior until you explicitly convert them. Convert legacy arrangement expands simple ordered sections and repeats into the new timeline, preserving a backup. Record to Song preserves live follow actions, scene crossfades and modulation whose result depends on performance. The new Song timeline does not recall a live scene at every section boundary. Generate Song Structure creates editable song sections and captured part variations from the selected template. Add transitions with visual automation. The original live arrangement remains available through the Song playback switch.

PERFORMANCE VIEW

Performance View is a full-screen simplified interface designed for live performance. Activate with the Performance tab in the window header, F11 or View > Performance View. Click Back to Canvas (top-right) or press Escape to exit.

LAYOUT

The view is organised in three sections - scene state, macro gestures and mixer levels - under a transport header.

```
Transport - Play, Stop and Reset buttons, BPM display, position (bars:beats:ticks), and Back
to Canvas
Scenes - 4x4 grid of 16 scene pads. Click a pad (or focus it and press Enter or Space) to
launch its scene; Cmd+Click captures the current state into it. Each pad shows its number and
name, an empty slot shows "+", and a tag marks the ACTIVE scene, a QUEUED recall waiting for
the next bar, or the TRANSITION target while a crossfade runs, with a progress bar along the
pad. The Transition dropdown above the grid sets the crossfade length (Instant to 16 beats).
Macros - Horizontal sliders for all macro modulation sources, with bidirectional MIDI CC sync.
The section appears only when the project has macros: beside the scenes in a wide window,
below them in a narrow one.
Mixer - Along the bottom: one strip per track with its name, stereo VU meters with peak hold,
a vertical volume fader and a dB readout. Double-click a fader to return it to 0 dB. Scroll
sideways when there are more channels than fit.
```

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 (labelled "!!!" on the instruments and internal effects) 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. Saves are atomic: the new file replaces the old one only after it is completely written, so a crash or a full disk mid-save can never corrupt a project. Opening a file validates it first - a damaged or newer-version project is refused without touching whatever you have open.

RANDOMIZE PROJECT

File > Randomize Project generates a complete random composition from scratch. Every roll is built on a shared musical frame - one tempo, one key, one scale, set as the project's master key - so the parts belong together, and then every layer inside that frame is rolled independently:

```
One to three melodic voices, each drawing its notes from a bundled MIDI clip, a Generator with
randomized rules (rhythm sources, melodic contours, chord progressions), or a LiveCode mini-
notation snippet.
Signal flows that actually differ: voices pick up arpeggiators, chord generators, strums, note
delays, euclidean gates and random transposes, plus feel processors like Humanize and
Probability Gate - each with randomized settings, and always quantized back into the shared
key.
Real preset sounds. Instruments roll Chirusa, SimSim or Cantia with a factory preset applied,
drums roll Ostion or a Leeroy kit preset, and every effect in a chain loads one of its factory
presets rather than stock settings.
Drums come from the groove library or from a freshly generated euclidean kit.
Some rolls add bus effects with sends from the voices, and LFOs modulating whatever synth and
effect parameters that roll created.
```

Roll it until something catches your ear, then edit from there - it is an ordinary project like any other. If you have unsaved changes, you'll be prompted to save first.

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
```

A multi-output plugin exports one stem per wired pair, named after the plugin and pair ("Kontakt 3_4.wav") or after the mixer strip if you renamed it.

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. With mastering Off (the default), connecting Audio
Input to the Mixer passes the track through unchanged.
```

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.
```

MULTIPLE AUDIO OUTPUTS

By default everything Noemi makes is summed through the master bus, past the Mastering Chain, and leaves on one stereo pair. You can instead send individual parts out on their own pair, so each one arrives in the DAW - or on your audio interface - on its own channel, ready to mix, process, or record as a stem. In plugin builds Noemi offers eight stereo output pairs: the main pair plus Out 3/4 through Out 15/16. The extra pairs start switched off, so a fresh instance looks like an ordinary stereo plugin until you ask for more. How you switch them on depends on the host - Live adds them as extra channels on the track, Logic wants the multi-output version of the instrument, and most others expose them as an output list on the plugin. In the standalone app the same routing goes to your audio interface: on any interface with more than two outputs, the Output menu lists its stereo pairs by their own names ("Output 3 + 4"). Assigning a pair opens those device channels automatically. If the project later runs on a smaller interface - or the instrument variant of the plugin - the part plays through the main mix until the pair exists again; the assignment itself is always remembered. To send a part to its own pair, right-click its channel strip in the mixer, or right-click its node on the canvas, and choose a destination under "Output". "Main mix (mastered)" is the default. A node routed away from the main mix shows a small badge with its pair ("3/4") in its header. For a multi-output plugin the menu goes one level deeper - each of its pairs can go to its own destination. Two things worth knowing:

```
A part routed to its own pair leaves the main mix entirely, which means it also skips the
Mastering Chain. That is usually the point - you want the raw stem and you will do the
mastering in your DAW - but it does mean a part will sound different on Out 3/4 than it did in
the main mix.
Its BFX send knobs still work, and the returns still land on the main mix. So a stem with
reverb sent to a bus return will be dry on its own pair, with the reverb tail arriving on the
main pair. If you want the part to leave the buses alone while it is aux-routed, tick "Mute FX
sends on aux out" in the same Output menu - the send levels come back untouched when the part
returns to the main mix.
```

The routing is saved with the project. The FX plugin and the iPad app are main-pair only.

TEMPO DRIFT IN A HOST

A plugin can't change the DAW's tempo, but Noemi can drift against it. With Host Sync on, the host's tempo becomes the centre of the drift and Noemi still follows the host's play, stop, locates and loop wraps - it just isn't pulled back onto the host's beat while a route is moving the tempo. Remove or bypass the route and Noemi locks back onto the host at its next bar line. With Host Sync off, Noemi runs its own tempo and transport, and Waveform audio drifts with it. The quickest host-automatable drift control: add a Macro drift source (Modulation > Add > Tempo drift > Add drift source). While it is among the project's first eight macros it appears in the DAW as one of Macro 1-8, and its middle is the host tempo. Or send a MIDI CC from a DAW lane to a MIDI drift source. Offline bounces and freezes render the drift too, block by block against the host's tempo. While drifting under Host Sync, Waveform audio stays on the host's timeline (the host positions it every block), so it doesn't follow the drift; generated notes do.

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.

HOST INTEGRATION DETAILS

```
With mastering Off (the default), Noemi adds no latency. With mastering on, it reports the
chain's latency (oversampling and limiter lookahead) so the host can compensate: 345 samples
at 48 kHz (about 7 ms), 331 at 44.1 kHz, and more with Finalize quality. It doesn't depend on
the host's buffer size. Switching mastering on or off updates the reported latency, and the
host re-aligns its tracks.
In a plug-in, a new session's master level starts at 0 dB, matching the Master Volume
parameter the host shows. The standalone keeps 3 dB of headroom on new projects.
Transport follows the host's actual start/stop - in a host without a rolling transport (AUM
and friends), Noemi's own Play keeps playing instead of being stopped by the idle host.
Offline bounces and freezes drive Noemi's clock deterministically, so the render matches what
you heard live.
Mono tracks and instrument slots with no audio input are accepted; the FX variant also offers
a sidechain input bus.
Noemi reports a real effect tail, so renders keep reverb and delay tails instead of cutting
them off.
```

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

On Windows and Linux, read Cmd as Ctrl (Cmd+Shift+A is Ctrl+Shift+A).

```
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:
Cmd+Shift+A Add Node (opens the Add palette)
Cmd+Shift+F Find Node (opens the Find palette)
```

```
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
```