Calamus UI Specification
Library Dialog Framework

Version 1.0 — December 2025

Overview

Calamus uses a consistent **Library Dialog Framework** for managing presets across multiple domains: DNA sequences, envelopes, easing functions, vibrato settings, and gestures. This framework provides a unified user experience while accommodating type-specific editing and preview capabilities.

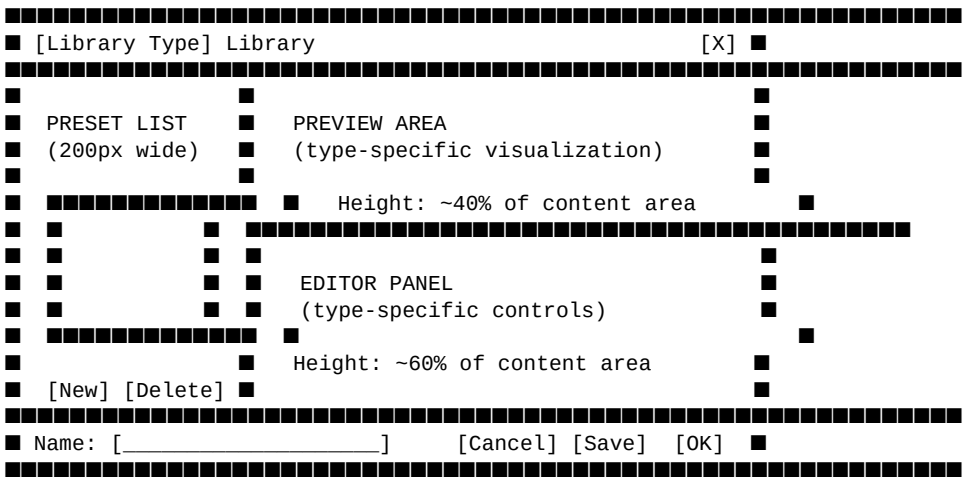
Design Principle: One pattern, many payloads. Users learn the library interaction once and apply it everywhere.

Common Framework

Window Properties (All Libraries)

Property	Value
Modal	Yes
Size	500 × 400 px (resizable)
Minimum Size	400 × 300 px

Layout Structure



Preset List Panel

Element	Description
List widget	Scrollable list showing all presets
Selection	Single-select; clicking loads preset into Editor Panel
Visual indicator	Selected item highlighted; modified item shows bullet (•)
[New] button	Creates blank preset, adds to list as "Untitled"
[Delete] button	Removes selected preset (with confirmation)

Preset Categories:

- **Factory** — Built-in presets (read-only, cannot delete)
- **User** — User-created presets

Factory and User presets shown in the same list with subtle visual distinction (e.g., factory presets in italics or with icon).

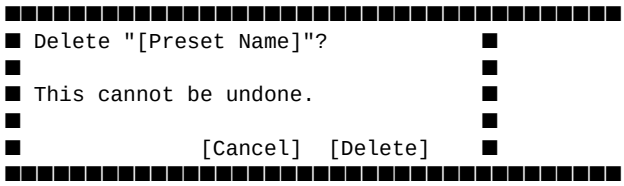
Bottom Bar

Element	Description
Name field	Editable preset name
[Cancel]	Close dialog, discard all changes
[Save]	Save current editor state to selected preset
[OK]	Save (if modified) and close, applying selection

Common Behaviors

Action	Result
Select preset	Load into Editor Panel and Preview; Name field updates
Edit any parameter	Preset marked as modified (•); [Save] enables
[New] clicked	Create "Untitled" preset, select it, clear Editor Panel to defaults
[Delete] clicked	Confirmation dialog; if confirmed, remove preset, select next
[Save] clicked	Write current state to selected preset; clear modified flag
[OK] clicked	If modified, prompt to save; apply selection to caller; close
[Cancel] or Escape	If modified, prompt "Discard changes?"; close without applying
Edit Name field	Preset marked as modified
Double-click preset	Same as select + [OK] (quick apply)

Delete Confirmation


Delete "[Preset Name]"?
This cannot be undone.
[Cancel] [Delete]

Library-Specific Implementations

1. DNA Library

Window Title: "DNA Library"

Opened From: Sound menu → DNA Library...

Purpose: Create and manage harmonic distribution presets that define the instrument's "genetic identity."

Preview Area:

- Spectrum bar graph showing harmonic amplitudes (1–64)
- X-axis: harmonic number
- Y-axis: relative amplitude
- Updates in real-time as parameters change
- Interactive when Sequence = Custom (click/drag to edit)

Editor Panel:

Control	Type	Description
Sequence	Dropdown	Base pattern: All, Odd, Even, OddDominant, Fundamental+, Octaves, Custom
Purity	Slider 0–100%	Blend: 0% = pure sequence, 100% = all harmonics
[Edit Table...]	Button	Opens table view for precise numeric entry (visible when Sequence = Custom)

Custom Pattern Editing:

- Click on spectrum bar to select harmonic; drag up/down to set amplitude (0–100%)
- Shift+click to toggle harmonic on/off
- Drag across multiple bars to "paint" a curve
- [Edit Table...] opens scrollable table for precise numeric entry

Factory Presets:

- All Harmonics
- Odd Only (Clarinet)
- Even Only (Hollow)
- Odd Dominant
- Fundamental+ (Near-sine)
- Octaves Only (Organ)

2. Envelope Library

Window Title: "Envelope Library"

Opened From: Sound menu → Envelope Library..., Note Inspector [Edit...]

Purpose: Create and manage arbitrary envelope curves for parameter modulation over note lifetime.

Preview Area:

- Curve graph with time (0–100%) on X-axis, value (0–100%) on Y-axis
- Control points shown as draggable handles
- Grid lines at 25% intervals

Editor Panel:

Control	Type	Description
Curve canvas	Interactive	Click to add points; drag to move; right-click to delete
Point list	Table	Time, Value, Curve Type for each point
Curve Type	Dropdown per segment	Linear, Smooth, Step (extensible at code time)
Loop Mode	Dropdown	None, Loop, Ping-pong
[Reset]	Button	Clear to default two-point envelope (0,0 → 100,100)

Point Editing:

- Minimum 2 points (start and end)
- Points snap to grid when Shift held
- Drag beyond canvas edges to delete

Factory Presets:

- Linear Rise • Linear Fall • Attack-Decay • Swell
- Fade Out • Bell Curve • Step Up • Step Down

3. Easing Library

Window Title: "Easing Library"

Opened From: Sound menu → Easing Library...

Purpose: Create and manage easing functions that shape parameter transitions.

Preview Area:

- Curve graph showing easing shape
- X-axis: progress (0–1)
- Y-axis: eased value (0–1)

Editor Panel:

Control	Type	Description
Easing Type	Dropdown	Linear, Quad, Cubic, Quart, Quint, Sine, Expo, Circ, Back, Elastic, Bounce
Mode	Radio buttons	In, Out, InOut
Strength	Slider	Available for Back, Elastic (controls overshoot/oscillation)

Factory Presets:

- Linear • Ease In (Quad) • Ease Out (Quad) • Ease In-Out (Quad)
- Ease In (Cubic) • Ease Out (Cubic) • Ease In-Out (Cubic)
- Bounce Out • Elastic Out • Back Out

4. Vibrato Library

Window Title: "Vibrato Library"

Opened From: Compose menu → Vibrato Library...

Purpose: Create and manage vibrato presets applicable to phrases or notes.

Preview Area:

- Waveform visualization showing vibrato shape over time
- Displays rate, depth variation, onset ramp, development curve

Editor Panel:

Control	Type	Range	Description
Rate	Slider + field	0.1–20 Hz	Vibrato speed
Depth	Slider + field	0–100 cents	Pitch deviation
Onset	Slider + field	0–100%	When vibrato starts (% into note)

Development	Dropdown	Instant, Linear, Exponential, S-Curve, Envelope	How vibrato grows
Dev. Envelope	Selector	(from Envelope Library)	Visible when Development = Envelope
Regularity	Slider + field	0–100%	0 = mechanical, 100 = organic
Physics Min	Numeric input	0–10000	Minimum mass
Physics Max	Numeric input	100–10000	Maximum mass

Factory Presets:

- None (flat) • Subtle • Classical • Romantic
- Wide & Slow • Tight & Fast • Late Entry • Building

5. Gesture Library

Window Title: "Gesture Library"

Opened From: Compose menu → Gesture Library...

Purpose: Create and manage reusable gesture templates that can be applied to notes.

Preview Area:

- Stroke visualization showing gesture path
- Line thickness varies with pressure data
- Tilt indicated by slight offset/shadow

Editor Panel:

Control	Type	Description
Gesture preview	Canvas	Visual representation of captured stroke
Duration	Display (read-only)	Length of gesture in ms
Parameter Assignments	Table	Six rows: X, Y, Pressure, TiltX, TiltY, Rotation → Parameter dropdown each
[Capture New]	Button	Opens Gesture Capture Dialog
[Scale to Fit]	Checkbox	Stretch/compress gesture to match note duration

Parameter Assignment Targets:

- None • Pitch Offset • Brightness • Breath • F1 Offset • F2 Offset • Dynamics
- *(extensible per sounit parameters)*

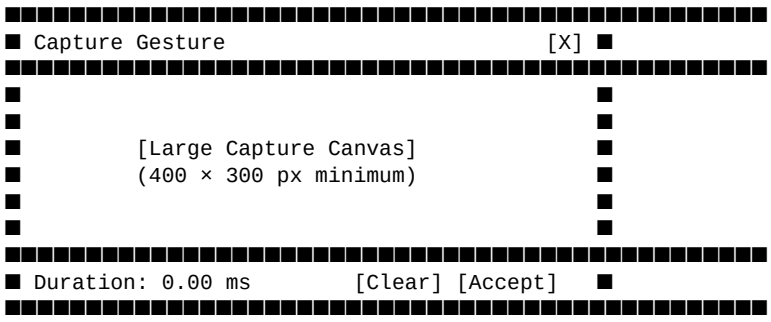
Factory Presets:

- Linear Swell • Accent Attack • Fade Out

• Scoop Up • Fall Away • Tremolo Pressure

Gesture Capture Dialog

When [Capture New] is clicked in the Gesture Library, a separate dialog opens providing adequate space for natural gesture capture.



Action	Result
Draw on canvas	Captures gesture; Duration updates in real-time
[Clear]	Resets canvas for another attempt
[Accept]	Returns to Gesture Library with captured data
Escape or [X]	Cancels, returns without changes

Vibrato Editor (Separate Dialog)

The **Vibrato Editor** is distinct from the Vibrato Library. It edits vibrato parameters for a *specific note*, with the option to load presets from the library.

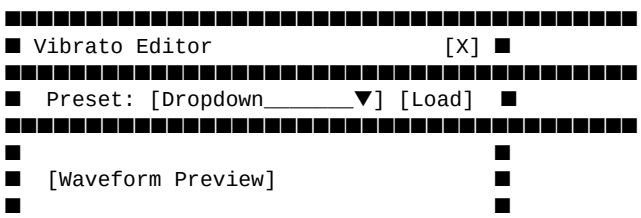
Window Title: "Vibrato Editor"

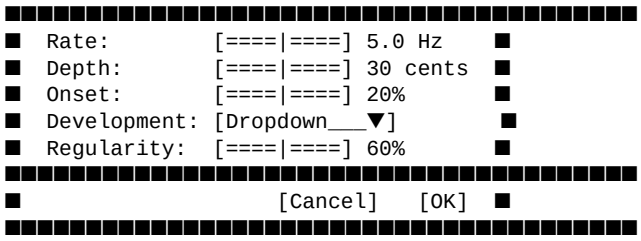
Opened From: Note Inspector → Vibrato [Edit]

Window Properties:

Property	Value
Modal	Yes
Size	350 × 300 px
Resizable	No

Layout:





Behavior:

Action	Result
Preset dropdown	Lists all Vibrato Library presets
[Load]	Copies selected preset values into editor fields
Adjust any slider	Updates preview; values now differ from loaded preset
[OK]	Apply values to note's vibrato; close
[Cancel]	Discard changes; close

Note: The Vibrato Editor does not save back to the library — it only applies values to the current note. To save a new preset, use the Vibrato Library dialog.

Menu Integration Summary

Menu	Item	Opens
Sound	DNA Library...	DNA Library
Sound	Envelope Library...	Envelope Library
Sound	Easing Library...	Easing Library
Compose	Vibrato Library...	Vibrato Library
Compose	Gesture Library...	Gesture Library
Note Inspector	Vibrato [Edit]	Vibrato Editor
Note Inspector	Parameter Curves [Edit...]	Envelope Library

File Storage

All user presets stored in:

```
[User Documents]/Calamus/Presets/
    DNA/
    Envelopes/
    Easing/
    Vibrato/
    Gestures/
```

File format: JSON with `.calamus-[type]` extension (e.g., `.calamus-dna`, `.calamus-env`)

— End of Specification —