Calamus UI Specification

Score Canvas

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Overview

The Score Canvas is the primary composition workspace in Calamus. It displays horizontal scale lines with note curves, phrase containers, and gesture data. This is where music is drawn, edited, and visualized.

The Score Canvas appears in the Canvas Window when the Composition Tab is active. It works in concert with the Control Panel, which provides inspection and editing of selected elements.

Canvas Layout

The Score Canvas is organized from top to bottom as follows:

Element	Description
Toolstrip	Drawing tools, selection, zoom controls
Timeline	Tick marks, time labels, 'now' marker, loop region
Track Selector	Left edge — colored vertical bars for each track
Score Area	Scale lines, notes, phrases — the main drawing surface
Transport	Play/Stop buttons, playback time, tempo, time signature
Status Bar	Cursor time, cursor pitch, tempo, time signature

Scale Lines

Unlike traditional staff notation with fixed chromatic spacing, Calamus displays the current scale as the visual infrastructure. Lines represent scale degrees, with spacing proportional to actual pitch intervals in Hz or cents.

Color System — ROYGBIV

Scale degrees follow the light spectrum, cycling back to red at each octave:

Degree	Color	Example (C Major)
1 (Tonic)	Red	C
2	Orange	D
3	Yellow (ochre/gold)	E

Degree	Color	Example (C Major)
4	Green	F
5	Blue	G
6	Indigo	A
7	Violet	B

Chromatic and Extended Scales

Scale Type	Color Treatment
Chromatic notes	In-between colors (C# = red-orange, F# = blue-green)
Pentatonic	Uses base colors from corresponding C scale degrees
Scales with 8+ notes	Extended spectrum blends

Line Properties

Aspect	Specification
Spacing	Proportional to Hz/cents (not equal grid)
Thickness	Tonic and Fifth slightly thicker than other degrees
Hz Labels	Fixed at left edge, always visible regardless of horizontal pan

Note Visualization

Notes appear as 'split blobs' — shapes divided horizontally in the middle, with parameter curves displayed on the top and bottom edges. This visualization shows the note's sonic character, not just pitch and duration.

Default Display

Edge	Shows
Top edge contour	Amplitude waveform (loudness evolution)
Bottom edge contour	Spectrum (timbral content)
Horizontal position	Time
Vertical position	Pitch
Horizontal extent	Duration
Color	Sounit/track color

Data Source

The amplitude waveform and spectrum are derived from pre-rendering just that note and extracting the visualization data. This is less expensive than calculating for all composition data at once. The visualization updates when the note changes.

View Modes

A toolbar toggle switches between two view modes:

Mode	Behavior
Global Default	All notes show amplitude (top) + spectrum (bottom)
Local Per-Note	Each note shows whatever parameters are set in its inspector

Per-Note Customization

When a note is selected, all parameters appear in the Inspector. Any parameter with an envelope or easing shows a small preview visualization. A toggle in the Inspector allows showing that parameter on the score with a choice of top or bottom position. This replaces the default amplitude/spectrum view for that note only.

Phrase Visualization

Phrases have two visual components: a hull for selection and a line for parameter display.

Hull (Boundary)

Aspect	Specification
Shape	Contour following notes — consistent width around note curves
Color	Matches track/sounit color but 25% transparent
Purpose	Click to select phrase

Parameter Line

Aspect	Specification
Display	Single line following phrase contour
Parameters	One parameter visible at a time
Toggle	Cycle through available parameters

Selection Visuals

Dimming

State	Appearance
Selected items	Full opacity, true colors

State	Appearance
Unselected items	Moderate dimming (40-50% opacity)
Multi-select	All selected items at full visibility

When multiple items are selected, the Inspector shows only parameters common to the entire selection.

Selection Rectangle — Notes

A selected note displays a rectangle with manipulation dots:

Aspect	Specification
Rectangle style	Solid line, neutral gray
Top edge dots	4 dots (round) — shape top parameter curve
Bottom edge dots	4 dots (round) — shape bottom parameter curve
Left edge dots	3 dots — middle is square (resize start), others round
Right edge dots	3 dots — middle is square (resize end), others round
Total default dots	14
Adding dots	Click on edge
Corner dots	None by default, can add
Curve response	Linear interpolation

Upper half dots affect the top parameter curve; lower half dots affect the bottom parameter curve. Square dots on the middle of vertical sides are resize handles.

Selection Rectangle — Phrases

Same structure as notes (gray rectangle with dots on edges), but all dots affect the single visible parameter line.

Parameter Change Behavior

When you change parameters in the Inspector, the selection rectangle resets to default dot positions (except resize squares). You can then shape the newly visible parameter.

Edit Acceptance

Action	Result
Deselect, select other, or change parameter	Accept current edit
Ctrl+Z	Undo

'Now' Marker

The 'now' marker indicates where playback will resume when you press Play.

Aspect	Specification
Appearance	Medium thick red line
Location	Timeline only (not full canvas height)
Position behavior	Fixed in time, moves with timeline during pan
Setting	Double-click timeline

Loop Region

Loops are for quick preview while working — this is a composition tool, not a DAW.

Aspect	Specification
Location	Timeline background only
Color	Orange, 50% transparency
Start point	The 'now' marker
End marker	Inverted triangle pointing at end moment

Loop Workflow

Step	Action
1	Set 'now' marker where loop starts (double-click timeline)
2	Press L
3	Scroll or Goto to make end point visible
4	Click timeline at end point

Loop Deletion

Click end triangle + Delete key to remove the loop. Loop markers are not draggable.

Composition Settings Bar

Located at the top of the Composition Tab, this bar provides global composition settings.

Element	Description
Time Mode Toggle	Switch between Absolute and Musical time
Tempo	Optional — BPM setting
Time Signature	Optional — beats per bar

Time Representation

Mode	Format	Example
Absolute	Minutes:Seconds:Milliseconds	1:23:456

Mode	Format	Example
Musical	Bars:Beats:Milliseconds	4:2:240

Milliseconds is the universal smallest time unit — no arbitrary tick resolution needed.

Time Mode Effects

Mode	Timeline	Score Canvas
Absolute	Min:Sec:Ms labels	No bar lines
Musical	Bars:Beats labels	Black vertical bar lines top to bottom

Mid-Piece Changes

Tempo and time signature changes are marked on the timeline at the moment they occur.

Toolstrip

Located above the timeline. Contains drawing tools and other canvas controls. Tools must be selected before recording — cannot change during capture.

Drawing Tools

Tool	Mode	Description
Draw Notes Discrete	Drawing	Pen stroke → note, snaps to scale lines
Draw Notes Continuous	Drawing	Pen stroke → note, literal pitch
Draw Phrase	Drawing	Pen stroke → phrase contour
Record Notes Discrete	Recording	Time scrolls, pitch snaps to scale
Record Notes Continuous	Recording	Time scrolls, literal pitch
Record Phrase	Recording	Time scrolls, phrase contour

Drawing mode: X = time, Y = pitch (you draw in pitch-time space). Recording mode: time scrolls automatically, you control Y as time advances.

Other Tools

Tool	Function
Selection	Click to select — rectangle with dots for editing
Zoom	Zoom in/out controls

Drawing Behavior

Aspect	Specification
Track assignment	New notes go to currently selected/active track
Note creation	Immediately on pen-up
Undo	Ctrl+Z

Track Selector

Located on the left edge of the Score Canvas.

Aspect	Specification
Appearance	Colored vertical bars
Bar height	Spans register range of that track's sounit
Bar width	All same width
Position	Corresponds to Hz/pitch of that register
Active track	Full color
Inactive tracks	Dimmed
Click	Selects that track as active

Zoom and Pan

Navigation uses Photoshop-style conventions for familiarity.

Zoom

Method	Behavior
Mouse wheel	Zoom in/out
Ctrl+Space + drag	Magnifier cursor, zoom from start position

Pan

Method	Behavior
Alt+Space + drag	Hand cursor, pan canvas
Arrow keys left/right	Pan horizontally

Scope

Zoom affects both axes together (proportional).

Cursor Feedback

Mode	Cursor
Ctrl+Space held	Magnifier

Mode	Cursor
Alt+Space held	Hand

Transport Controls

Located at the bottom of the canvas, below the score area.

Element	Specification
Buttons	Play (▶), Stop (■) — icons only
Position display	Current playback time
Tempo display	Repeated from Composition Settings
Time signature display	Repeated from Composition Settings

Stop Behavior

State	What Happens
Press Stop	Window freezes at current playback position
After stop	Set new 'now' marker, OR hit Play to resume from old 'now' position

Status Bar

Located at the bottom of the canvas, below transport. Elements arranged left to right with separators.

Element	Format
Cursor time	Current time mode (absolute or musical)
Cursor pitch	Hz; Note name; Scale degree
Tempo	BPM
Time signature	e.g., 4/4

Example: 1:23:456 | 440 Hz; A4; 6 | 120 BPM | 4/4

Keyboard Shortcuts

Transport

Key	Action
Space	Toggle play/stop
Home	Go to beginning
End	Go to end
G	Open Goto dialog

Navigation

Key	Action
Ctrl+Space + drag	Zoom (magnifier cursor)
Alt+Space + drag	Pan (hand cursor)
Mouse wheel	Zoom
Arrow left/right	Pan horizontally

Editing

Key	Action
Ctrl+Z	Undo
L	Enter loop mode
Delete	Delete selected item (or loop end marker)

Time Display Locations

Location	Shows
Timeline	Tick marks + labels
Status bar	Cursor position
Goto dialog	Input field for target time
Transport area	Current playback position

Related Documents

Document	Relationship
Composition Tab Specification	Parent document — Score Canvas is the canvas for Composition Tab
Input Engine Specification	Defines gesture capture and pen input behavior
Sound Engine Tab Specification	Sounit Builder — where sounds are designed before composing