Scale Lab

scale · melody · modes · chords · sequencer · diagrams

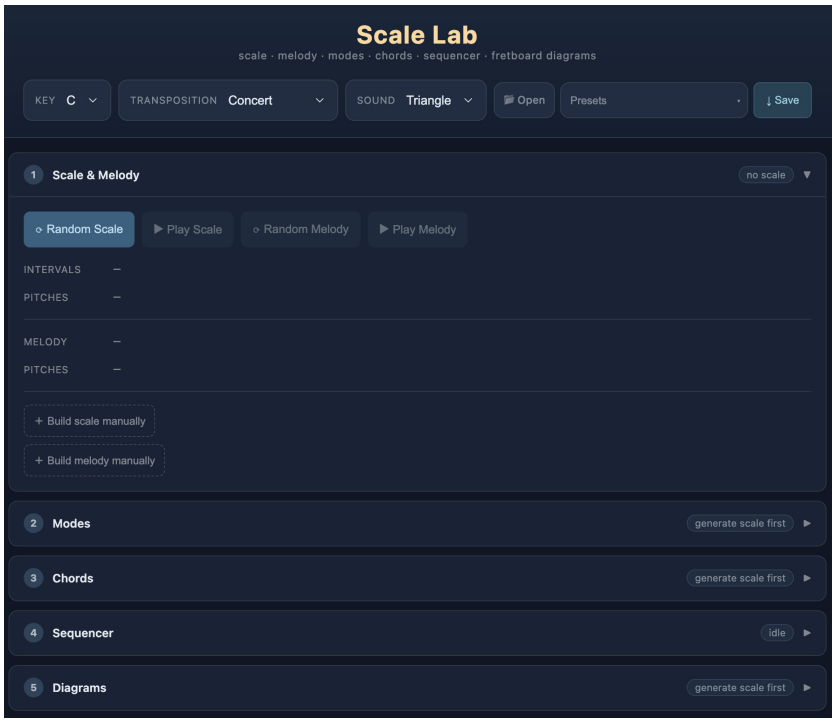
User Manual

Scale Lab is a browser-based music theory practice tool for musicians to explore and experiment with scales, pitch sequences (melodies), modes, custom printable diagrams, and chord progressions using a sequencer, with random or user-defined parameters, all in one place. It runs as a Progressive Web App (PWA): visit the URL once, install it to your device, and it works fully offline from that point on, with no App Store, no subscription, and no installation file to manage.

Table of contents

Scale Lab has five core sections: **Scale & Melody, Modes, Chords, Sequencer, and Diagrams**. Each section is collapsible. Click a section header to open or close it. A status badge in the top-right corner of each header shows what is currently active.

Scale Lab includes multiple visual representations of musical content. In addition to the fretboard, which is highly customizable, you can view scales, chords, and melodies on a piano keyboard or in standard staff notation. These views stay synchronized with your selections and update automatically as you explore.



Getting Started

Scale Lab works in any modern browser without installation. For the best experience — offline access, a dedicated app icon, and a clean full-screen window — install it as a standalone app using the instructions below.

Chrome or Edge — Mac & Windows

This is the easiest install path on desktop.

1. Visit sebastiancruznotes.com/ScaleLab/ in Chrome or Edge.
2. Look for the ⊕ icon, or install icon, in the far-right side of the address bar.
3. Click it, then click Install.
4. Scale Lab opens in its own window and appears in your dock or taskbar like any native app.

> **Note** If you do not see the ⊕ icon or install icon, make sure you are using Chrome or Edge (not Safari or Firefox) and that the page has fully loaded.

Safari — Mac *(macOS Sonoma or later)*

1. Visit sebastiancruznotes.com/ScaleLab/ in Safari.
2. Click File in the menu bar, then choose Add to Dock…
3. Confirm the name and click Add.
4. Scale Lab appears in your Dock and opens as a standalone window.

This feature requires macOS Sonoma (14) or later. On older Macs, use Chrome or Edge instead.

Safari — iPhone & iPad
1. Visit sebastiancruznotes.com/ScaleLab/ in Safari.
2. Tap the Share button — the box with an arrow pointing upward.
3. Scroll down in the Share sheet and tap Add to Home Screen.
4. Tap Add.

Scale Lab appears on your home screen with its icon and opens full-screen with no browser navigation.

Chrome — Android
1. Visit sebastiancruznotes.com/ScaleLab/ in Chrome.
2. Tap the three-dot menu in the top-right corner.
3. Tap Add to Home Screen or Install app.
4. Tap Install.

Offline use — Once installed on any platform, Scale Lab works fully offline. Updates happen silently in the background the next time you open the app with an internet connection.

You can also install Scale Lab directly from within the app. At the bottom of the interface, expand the “How to install as a standalone app” section to view step-by-step instructions for your device and browser.

Scale Lab checks for updates automatically when you are online. If a new version is available, a small notification will appear at the bottom of the screen. Click “Reload” to update instantly. Once loaded, updates are saved for offline use.

Global Controls

The control bar at the top of the app is always visible and affects the entire session:

Key — sets the root key for the whole app. All displayed pitches, modes, chords, and the fretboard diagram update immediately.

Transposition — shifts audio playback by a fixed interval without changing displayed note names. Select from the list or define a custom transposition. Selecting “Custom…” in the Transposition menu opens a small panel where you can define your own interval. Choose the interval (for example, m2, M3, or P5), and the direction (up or down).

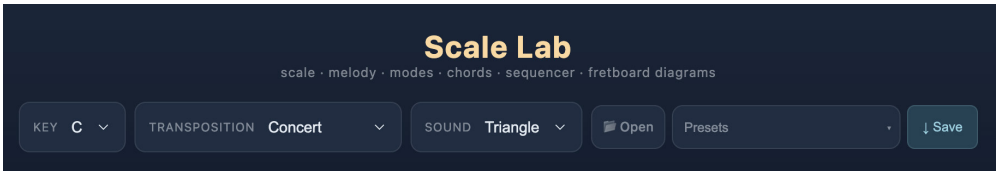
Sound — selects the oscillator wave type used for all playback: Sine, Triangle, Sawtooth, or Square. Applies to every part of the app.

Open — Browse for and open your own saved sessions.

Presets — Choose from a comprehensive glossary of scales that are stored on the app server. The list can grow over time as they are uploaded. Loading a preset sets the scale only and clears derived content (melody, chords, modes, fretboard). The current key stays as-is — loading “Dorian” in G gives you G Dorian.

Save — Click the Save button. A prompt asks for a name — the default includes the current key and today’s date. In Chrome or Edge, a native Save dialog appears so you can choose exactly where the file goes. In Safari or Firefox, the file downloads to your Downloads folder. Either way, the result is a plain .json file you can store anywhere, back up, rename, or share.

Each session file contains: the current key, scale intervals, melody with octave positions, chord pool (generated and manual), chord progression, and — if you defined a custom instrument — the string count and tuning.



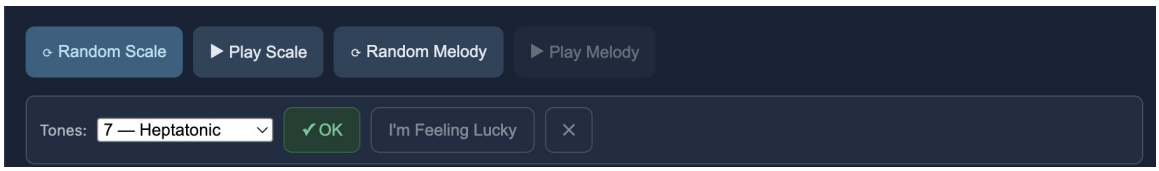
The Sound dropdown affects all playback simultaneously.

To stop all playback: on desktop, press the space bar; on mobile, double-tap anywhere on empty space.

Scale & Melody

Generating a Scale

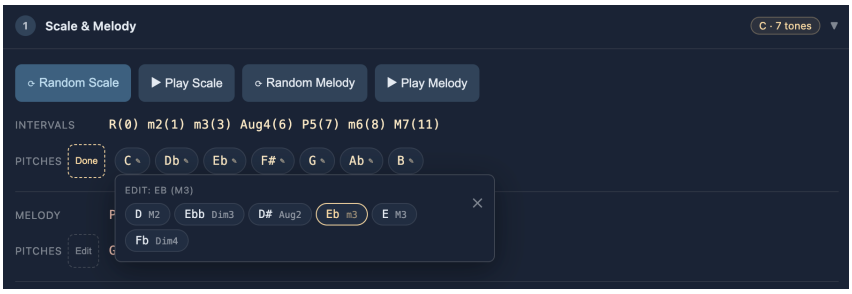
Random Scale — Click and select the number of tones (4-12) for the scale and click OK. ‘I’m Feeling Lucky’ will also randomize the number of tones and will instantly generate a random scale.



Generating a new scale clears all dependent content: modes, chords, melody, chord progression, and the fretboard diagram.

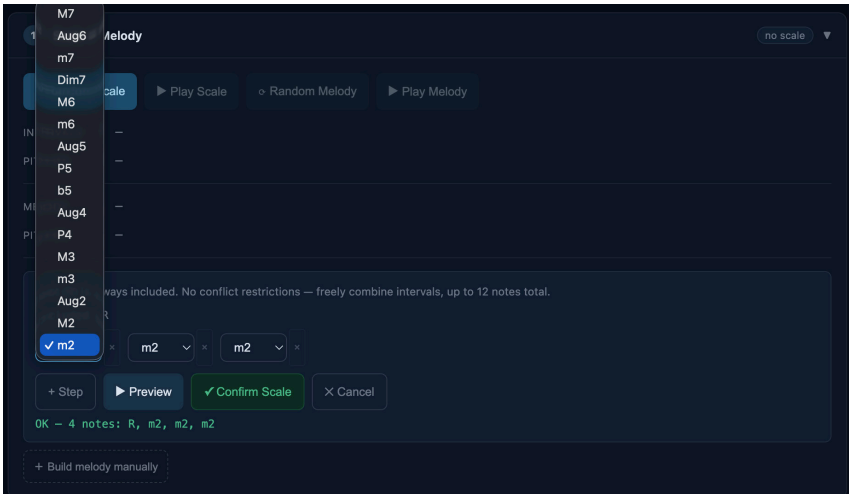
Editing Scale Pitches

Once a scale is generated, an Edit button appears next to the Pitches label. Click Edit to enter edit mode — each pitch becomes a tappable chip. Tapping any pitch (except the root, which is locked) opens a popover showing all valid re-spellings at the same semitone as well as the adjacent semitones above and below, letting you change a note or respell it enharmonically. Select an option to update the scale in place. Click Done to exit edit mode. All derived content (modes, chords, melody, and the fretboard diagram) is cleared when you make a change.



Manual Scale Builder

Click “+ Build scale manually” to open the builder. Pick intervals after the root from the dropdowns. Remove any unwanted note by clicking on the ‘×’ next to it. You can preview the scale before confirming. Click ‘Confirm Scale’ to set it as the active scale.



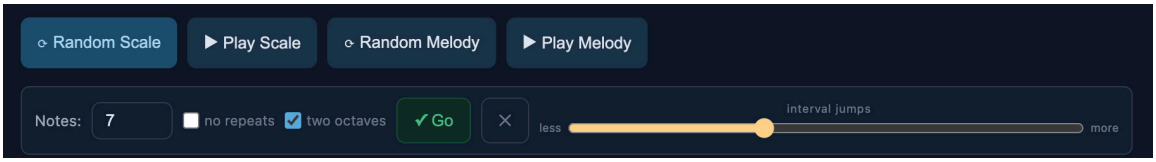
Scale Lab uses the term melody loosely to denote simply a pitch sequence. The melodies do not have any rhythm other than quarter or eighth notes. This is useful to explore interval structures, arpeggios, scale fragments, etc.

Random Melody

Generates a random melody from the current scale. Select the number of notes, whether the melody stays within one octave or spans two, and whether repeated notes are allowed.
A slider labeled “interval jumps” appears to the right of the Go button. It runs from less to more. Moving right progressively introduces wider intervals. At the far left, the melody moves mostly in steps, and the far right allows any interval with no stepwise bias at all. At intermediate settings, the generator uses weighted randomness, so smaller intervals remain more likely even when larger ones are permitted, so the result feels natural rather than mechanical. The default sits at the lower-middle range, favoring steps with occasional leaps.

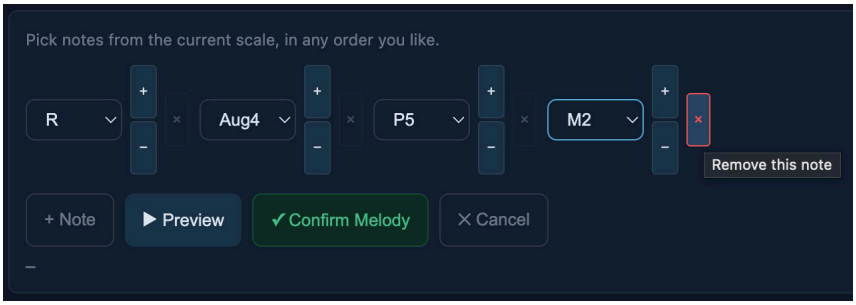
To create a random 12-tone row from a chromatic scale, click ‘Random Melody’ and choose 12 notes, no repeats, and leave ‘two octaves’ unchecked

Play Scale / Play Melody — plays the scale or melody as a sequence of tones using the current Sound setting.



Build Melody Manually

Click “+ Build melody manually” to open the builder. Each note row shows:
A dropdown to pick any scale degree.
+ / – buttons (stacked) — shift that note’s octave up (+) or down (–).
The dropdown label updates to show the octave shift as a suffix:
, — one octave down
(no suffix) — default octave
' — one octave up
'' — two octaves up
The dropdown turns amber when the note is shifted from its default octave. Click + Note to add more notes. Remove any unwanted note by clicking on the ‘×’ next to it. Click Preview to audition, click Confirm Melody to set it active.

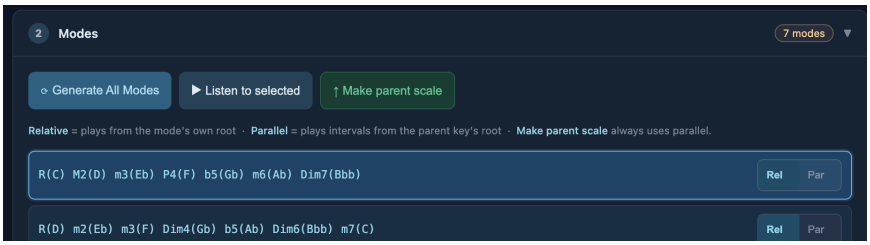


Editing Melody Pitches

Once a melody exists, an Edit button appears next to the Pitches label in the Melody section. Clicking Edit enters edit mode, where each note in the melody shows a dropdown and a pair of + and – octave buttons. You can click on Play Melody while you edit to preview changes. The dropdown lists all available scale degrees by pitch name and interval label. Selecting a different degree updates that note in place. The + and – buttons shift that note’s octave up or down, with the current octave shown as a small suffix (’ for up and , for down) between the dropdown and the buttons. Both the Pitches row and the Melody intervals row above it update immediately to reflect any change. Clicking Done collapses everything back to clean plain-text display. Edit mode exits automatically when a new melody is generated or the scale is regenerated.

Modes

Click ‘Generate Modes’ to derive all modes of the current scale. Each mode is displayed as a labeled card showing its interval names and pitch names in the active key.
Click a mode card to select it.
Listen to selected — Plays back selected mode
Make Parent Scale — replaces the active scale with this mode’s intervals
Relative / Parallel (Rel | Par) Toggle — Relative plays the mode starting on its own root within the key; Parallel transposes it to start on the current key root.



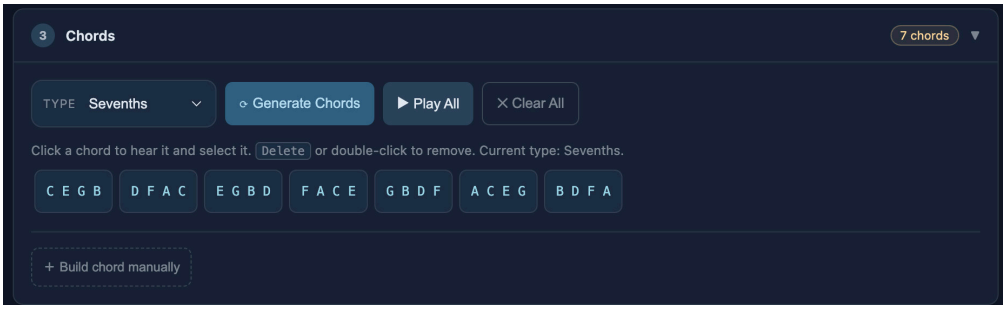
Chords

Generate Chords — **First, c**hoose Triads, Sevenths, quartal triads, or quartal tetrads from the Type dropdown, then click ‘Generate Chords’ to build one chord per scale degree.

> For thirds and seventh chords, Scale Lab stacks thirds. When a third isn’t available, it’ll grab a fourth or a 2nd. Seventh chords, where the fourth tone is the Root again, show up as triads. Quartal chords stack fourths, and when a fourth isn’t available, it’ll grab a third.

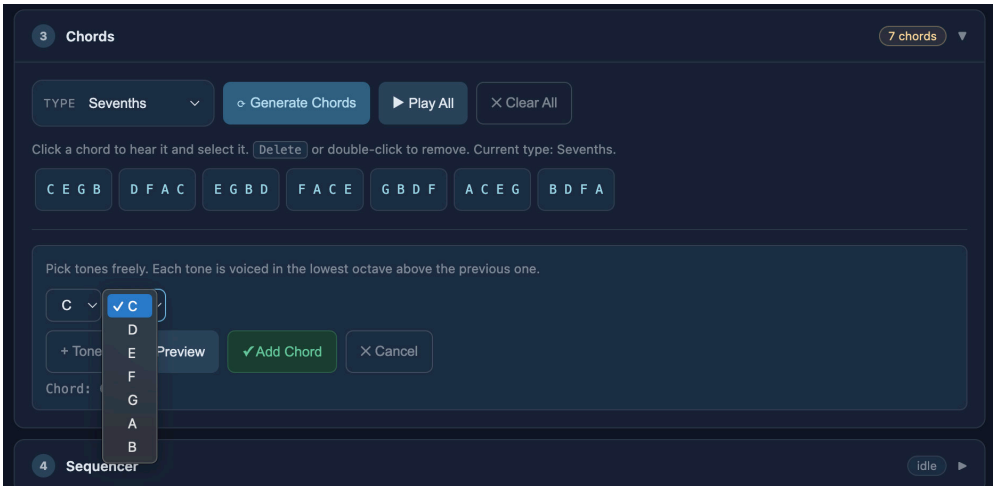
Play All —Plays all generated chords in order.

Each chord in the pool supports three interactions:
Tap — plays the chord as a stacked block and selects it. You can hit ‘delete’ or backspace to remove a selected chord.
Hold (500 ms) — plays the chord as a block first, then immediately arpeggiates it one note at a time from low to high.
Double-click / double-tap — removes the chord from the pool.



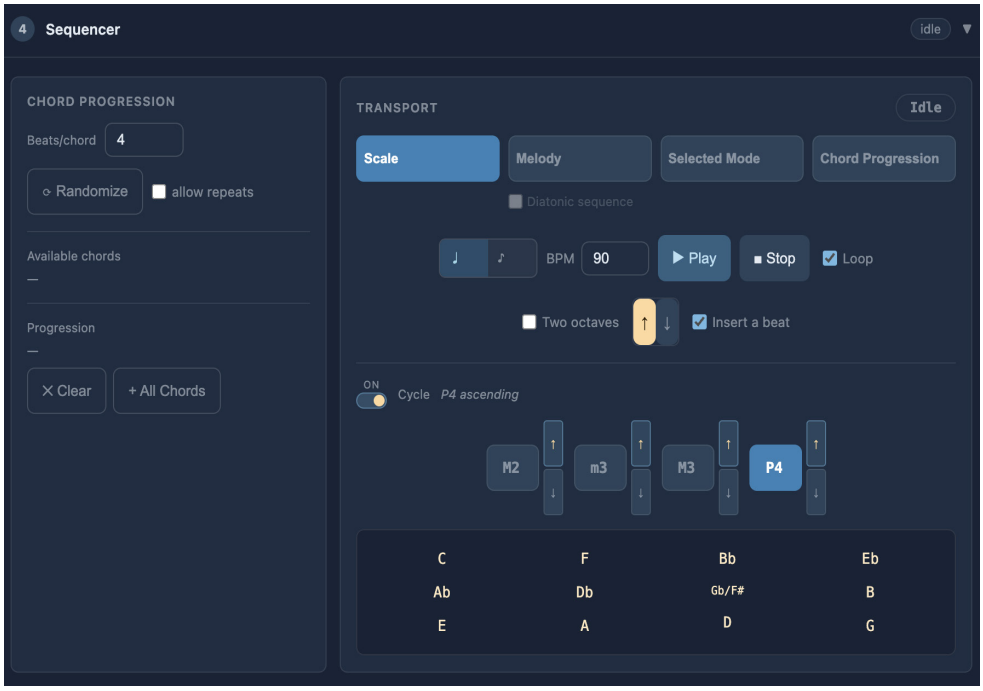
Manual Chord Builder

Scale Lab looks for thirds or fourths to stack as chords. Beyond this basic behavior, the manual chord builder allows you to explore even more alternatives. Click “+ Build chord manually” to open the builder. Add scale tones one at a time — each tone is voiced in the lowest octave above the previous. Click ‘Add Chord’ to add it to the pool.



Sequencer

The Sequencer section has two panels: Chord Progression and Transport.



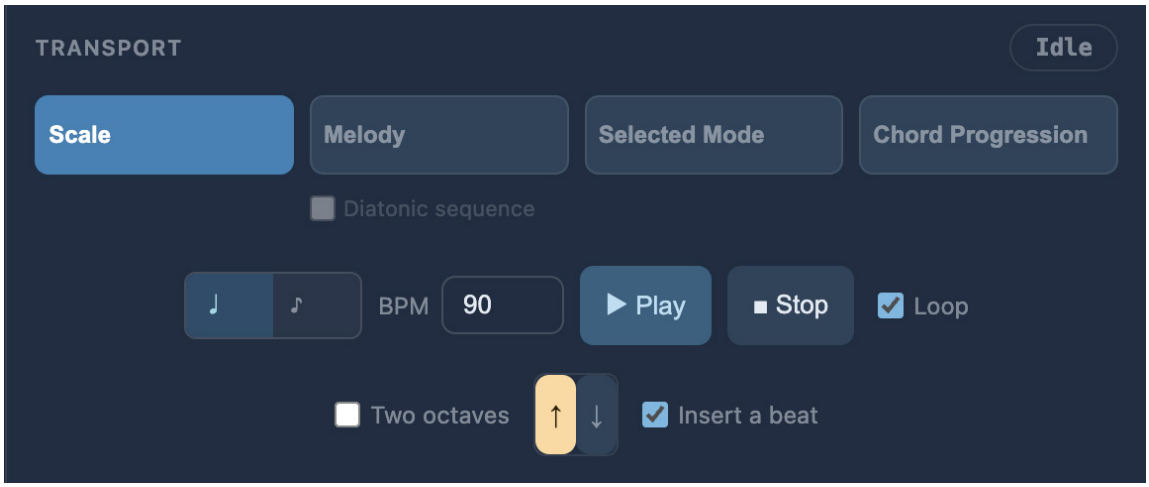
Chord Progression Panel

Beats/chord — how many beats each chord in the progression lasts.
Available chords — click any chord to append it to the progression.
Randomize — builds a random progression. Set the count and whether repeats are allowed.
Progression — displays the built sequence. Click ‘Clear’ to reset, or ‘+ All Chords’ to append every chord once.

You can rearrange the chord sequence using the arrows in front of each chord

Transport Panel
The four large buttons select what plays on each key in the cycle:
Scale — plays the active scale (respects direction and Two Octaves).
Melody — plays the active melody in its exact written order. Two Octaves appends the same sequence an octave higher.
Diatonic Sequence — when checked, the melody is transposed stepwise through the scale. The direction arrows, two octaves option, and the loop toggle applies.
Selected Mode — plays the currently selected mode (respects direction and Two Octaves).
Chord Progression — plays the built chord progression using the current key only; ignores the cycle.

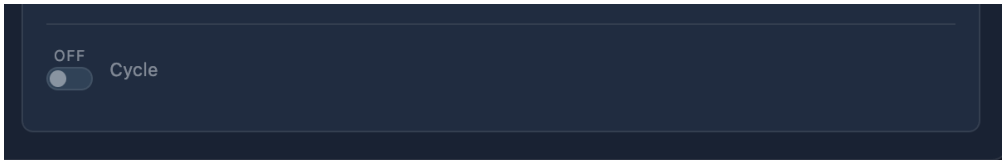
Controls row
quarter / eighth notes — sets the note duration for all Transport playback. Quarter notes play one note per beat; eighth notes play two per beat. Applies to all modes.
BPM — defines the tempo in beats per minute.
Play/Stop — start or stop playback of the selected mode. On desktops, the space bar stops playback of any playback within the app.
Loop toggle — toggles between playing back one cycle or on a loop.
Two octaves — when checked, the sequence plays once then repeats an octave higher before moving to the next key. For example, C Eb F G Bb becomes C Eb F G Bb C' Eb' F' G' Bb'. It applies to Scale, Melody, and Selected Mode.
Ascending / descending arrows — choose only ascending, only descending, or both ascending and descending playing direction. They apply to Scale, Melody, and Selected Mode.
Insert a beat — adds a beat of silence between instances within a cycle. Checking it off will remove the silence and make playback continuous.

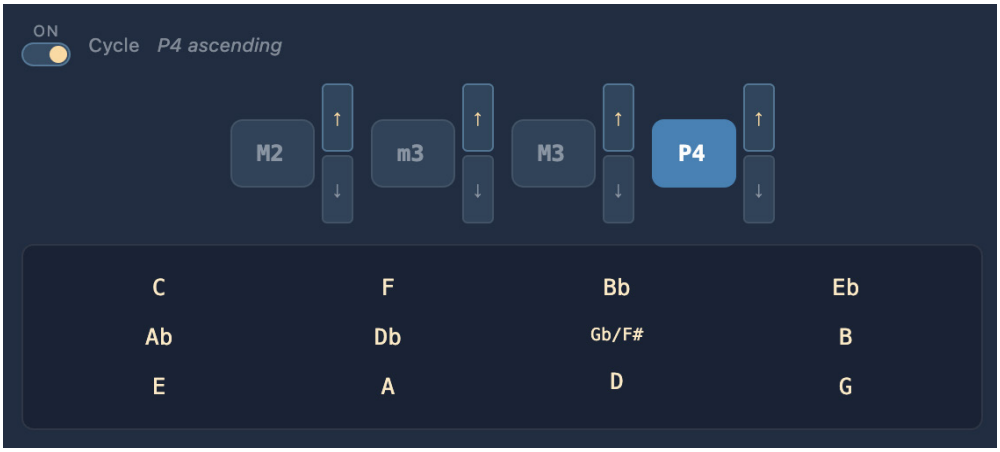


Cycle — In the ‘off’ position, scales, melodies and modes are played back only in the key set globally for the app. In the ‘on’ position, the material will cycle through all 12 keys by different ascending or descending intervals, according to your selection on the Cycle selector.
Cycle selector — four interval cycle types, each with ascending and descending arrow buttons. The selected cycle and direction appear as a small label (e.g., “P4 ascending”):
M2 — whole-tone cycle in two groups: C D E F♯ G♯ B♭ C, then F G A B C♯ D♯ F
m3 — minor third cycle in three groups a P4 apart, 5 keys each
M3 — major third cycle in four groups a P4 apart, 4 keys each
P4 — standard cycle of fourths through all 12 keys

Key display grid — The key cycle is displayed as a grid, with each column representing a step in the sequence. The active key is highlighted during playback, making it easy to follow along visually. Enharmonic equivalents (such as F♯ and G♭) are grouped together for clarity.

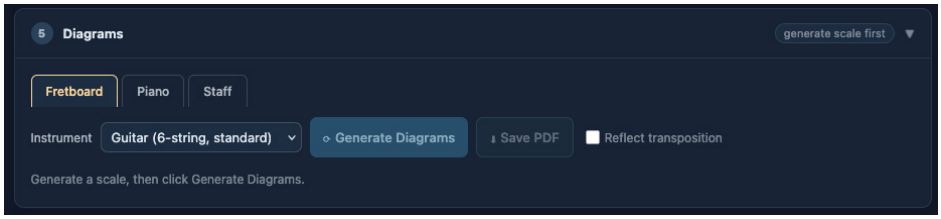
A 4-beat click count-off plays before playback begins.





Diagrams

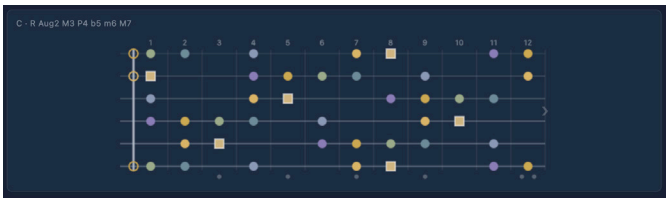
Scale Lab provides three ways to visualize musical content: Fretboard, Piano, and Staff view. These can be accessed using the tabs within the diagram section.

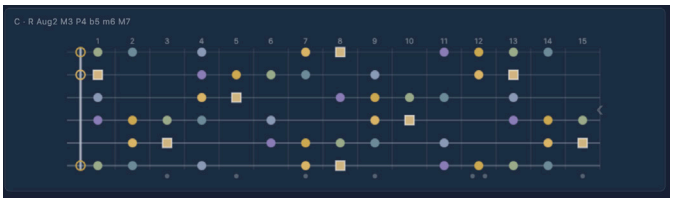


Fretboard View

Displays a full-neck map of your current scale across the entire fretboard, colored by pitch class, for your chosen instrument. The ‘Reflect transposition’ checkbox will reflect the transposition set in global settings and adjust the audio so that your transposed instrument sounds the same as the audio from the app.

Generating a diagram — Select your instrument from the dropdown — Guitar (6-string, standard), Bass (4-string, standard), Bass (4-string, fretless), Guitar (7-string, standard), or Custom — then click Generate Diagrams. The diagram will redraw automatically whenever you change the key. Each pitch class has its own color, consistent throughout the app. Root notes appear as squares; all other scale tones appear as circles. Open strings are shown as hollow shapes on the nut line. Standard fret position markers appear at frets 3, 5, 7, 9, and 12 (except for custom instruments).
Extending the neck — A subtle › chevron on the right edge of the fretboard expands the diagram from 12 frets to 15. Click it again to return to 12. The diagram redraws immediately and all interactive features work across the full range.



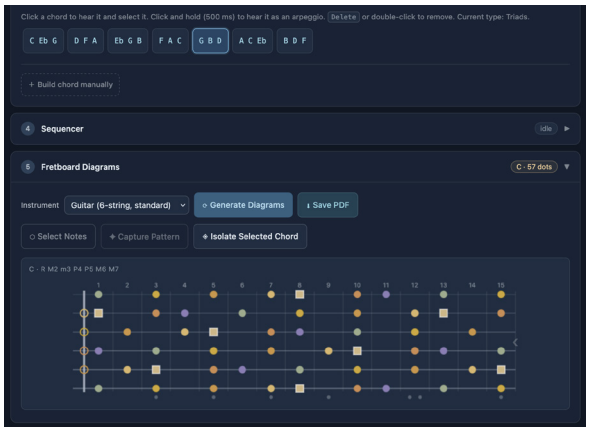


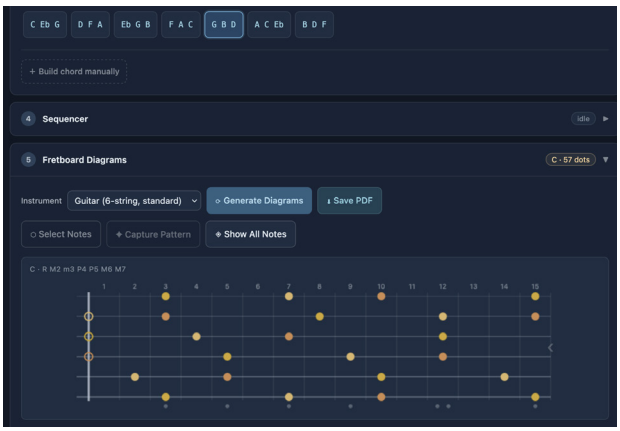
Custom instruments — Choosing Custom reveals a string builder. Enter the number of strings (3–12), click Build String Fields, then set the open-string pitch for each string. String 1 is the highest/thinnest; the last string is the lowest/thickest. Click Use this tuning to apply the tuning and redraw the diagram. Click OK to close the builder. Position markers are hidden for custom instruments.

Fretless Mode (Custom Instrument)
When building a custom instrument, a Fretless checkbox appears at the top of the setup area. Enabling it changes the diagram to reflect the physics of fretless playing: on a fretted instrument a note lives in the space between two frets, but on a fretless instrument the pitch is determined by where the finger contacts the string, which corresponds to the fret line itself. With Fretless checked, note dots sit directly on the fret lines rather than between them, and the lines are drawn slightly heavier since they serve as pitch landmarks rather than dividers. Tapping any dot to hear it works the same way, with the touch mapping adjusted to match the new dot positions. Captured patterns also reflect the fretless layout. The Bass (4-string, fretless) preset in the instrument list uses this display automatically, with no setup required.

Playing notes — Once a diagram is generated, tap or click any note dot to hear that pitch. This works in both normal and Select Notes mode.
Selecting notes and capturing patterns — Click Select Notes to enter selection mode. Tap any note to select it. An amber ring appears around selected notes. Tap a note again to deselect it. Selected notes still sound when tapped. When you have the notes you want, click Capture Pattern to save the selection as a mini diagram. The selection clears automatically and you return to normal mode. Click Clear Selection at any time to start over without capturing.

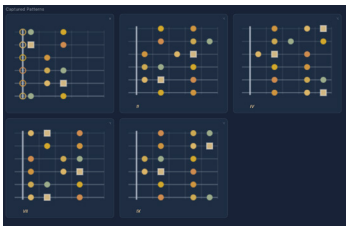
Isolate Selected Chord — With a chord selected in the Chords section, click this button to show only the notes of that chord across the fretboard. Click again to restore the full scale view. The button is inactive when no chord is selected.





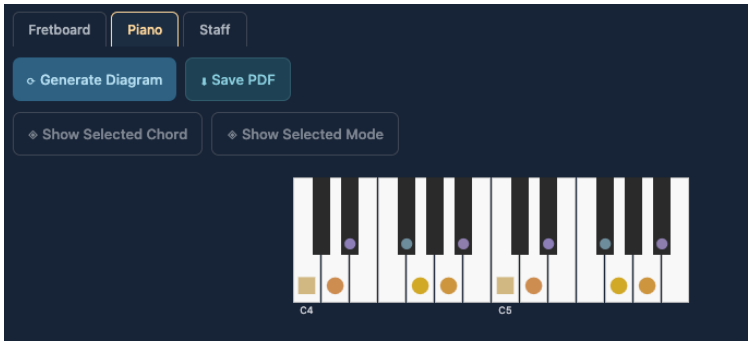
Captured Patterns — Captured patterns appear in a three-column grid below the full fretboard, sorted from lowest to highest position. Each mini diagram shows the same pitch-class colors and root squares as the main diagram, trimmed to the fret span of the selection. Patterns starting above

the nut show a Roman numeral (II, IV, VII, etc.) indicating the lowest fret of the pattern. Double-click or double-tap any pattern card to delete it.



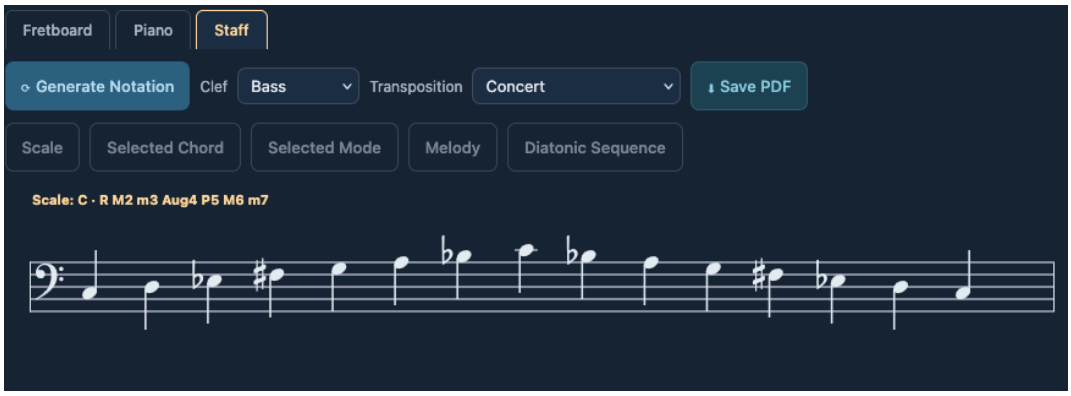
Piano View

The Piano view displays notes on a full keyboard layout. The notes appear as dots with the same color system as in the fretboard view, and the root note shown as a square for clarity.
Selecting ‘Show Selected Chord’ or ‘Show Selected Mode’ isolates those notes on the keyboard. A ‘Show All’ option allows you to return to the full scale view.



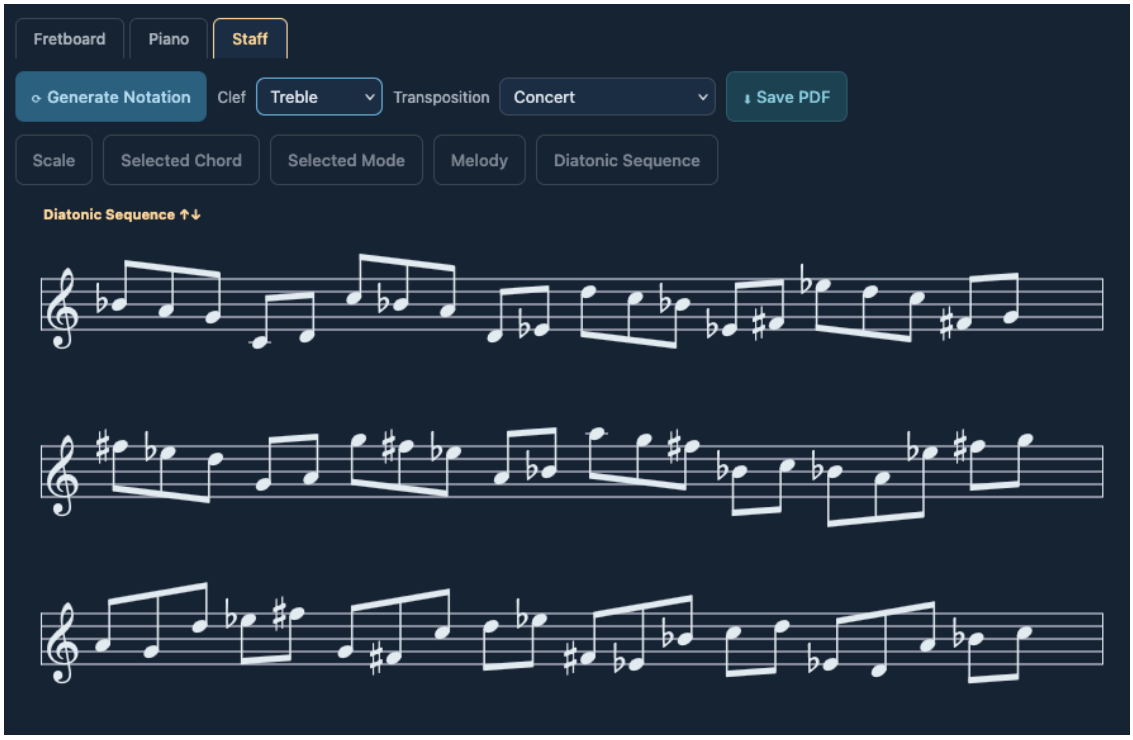
Staff View

The Staff view displays music using standard notation. You can select both clef and transposition. Unlike the global transposition setting, where the visuals stay the same and only the audio changes, the Staff view updates the notation itself to match the sounding pitch. To hear concert pitch while playing a transposing instrument, leave Global Transposition set to concert and apply transposition within the Staff view.



You can choose to display the full scale, a selected chord, a selected mode, the melody, or the melody as a ‘diatonic sequence’ (the melody pattern transposed stepwise through each degree of the scale).

The Diatonic Sequence behaves like the same feature on the sequencer (checkbox under ‘Melody’). The melody is transposed stepwise through the scale. The Staff View defaults to showing the sequence ascending and descending through one octave.



Saving PDFs

Scale Lab allows you to export visual content as clean, print-ready PDFs.

Fretboard Export

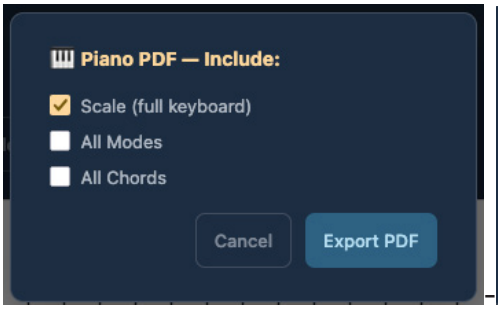
The Save PDF button in the Fretboard Diagrams section generates a document that includes the full fretboard diagram, a pitch-color legend, and any captured patterns with position markers.

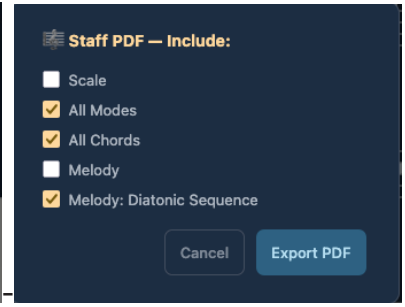
Piano Export

In Piano view, you can export a keyboard diagram and choose from the current scale, all chords, or all modes.

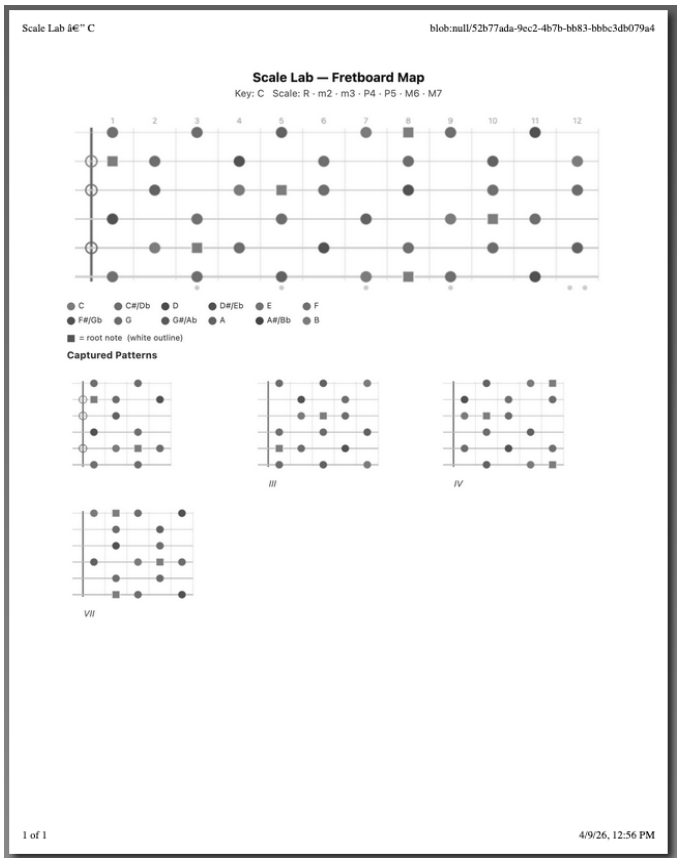
Staff Export

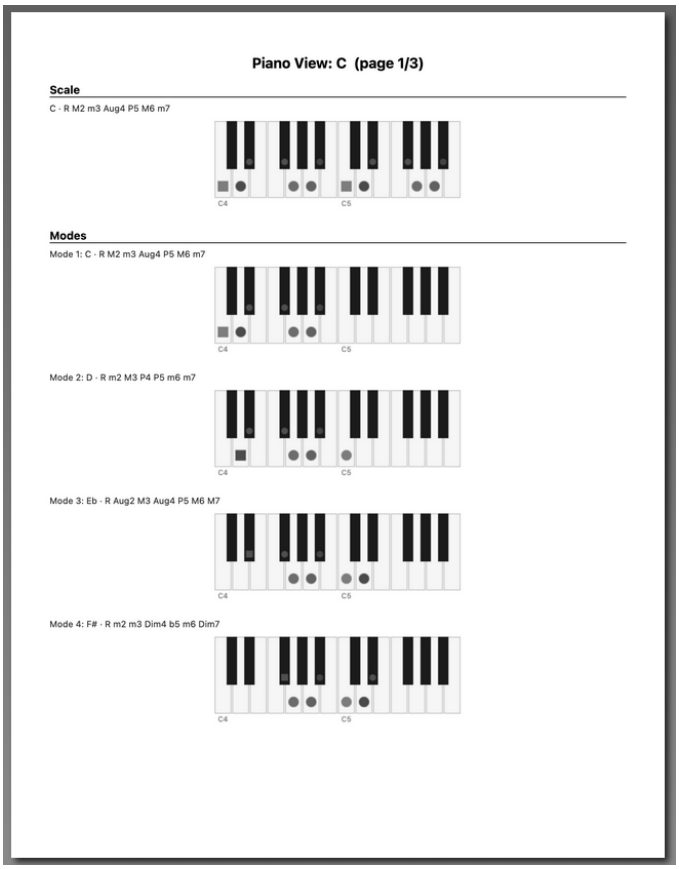
In Staff view, you can export standard notation for the selected content from Scale, All Modes, All Chords, Melody, and Melody: Diatonic Sequence

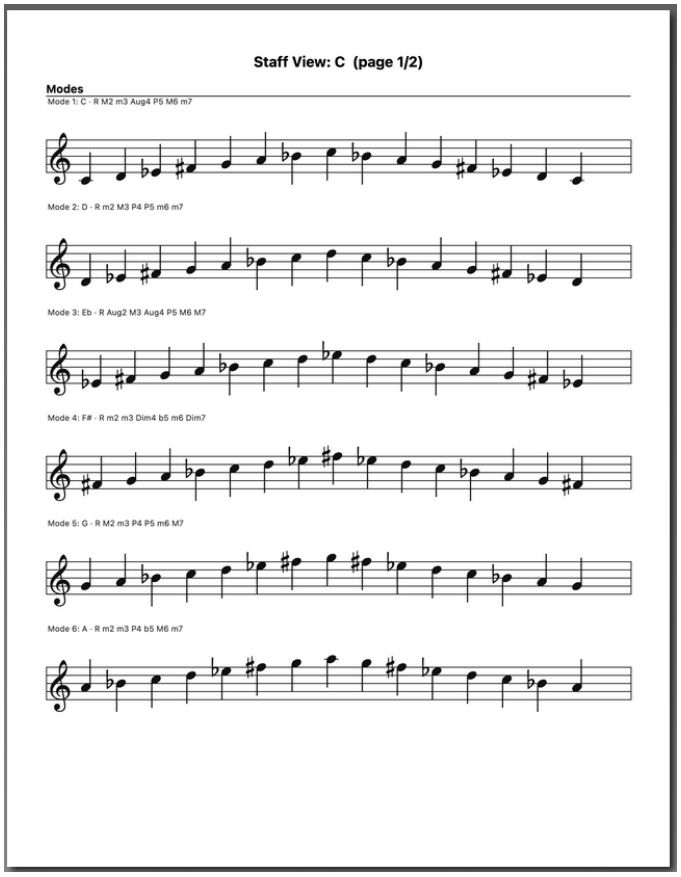


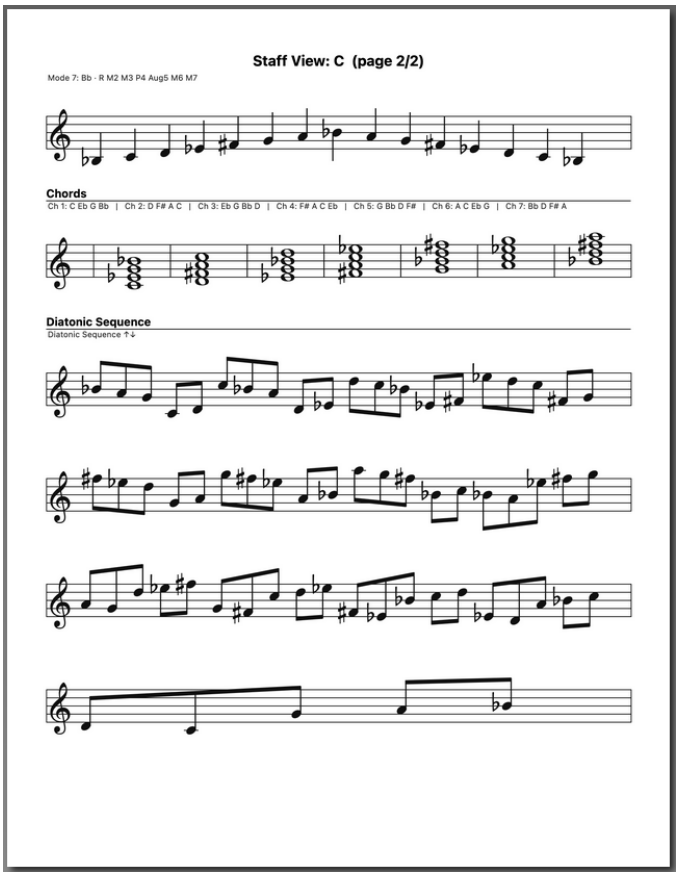


Each export opens in a new tab as a print preview. From there, you can print or save the file using your browser's print options.









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