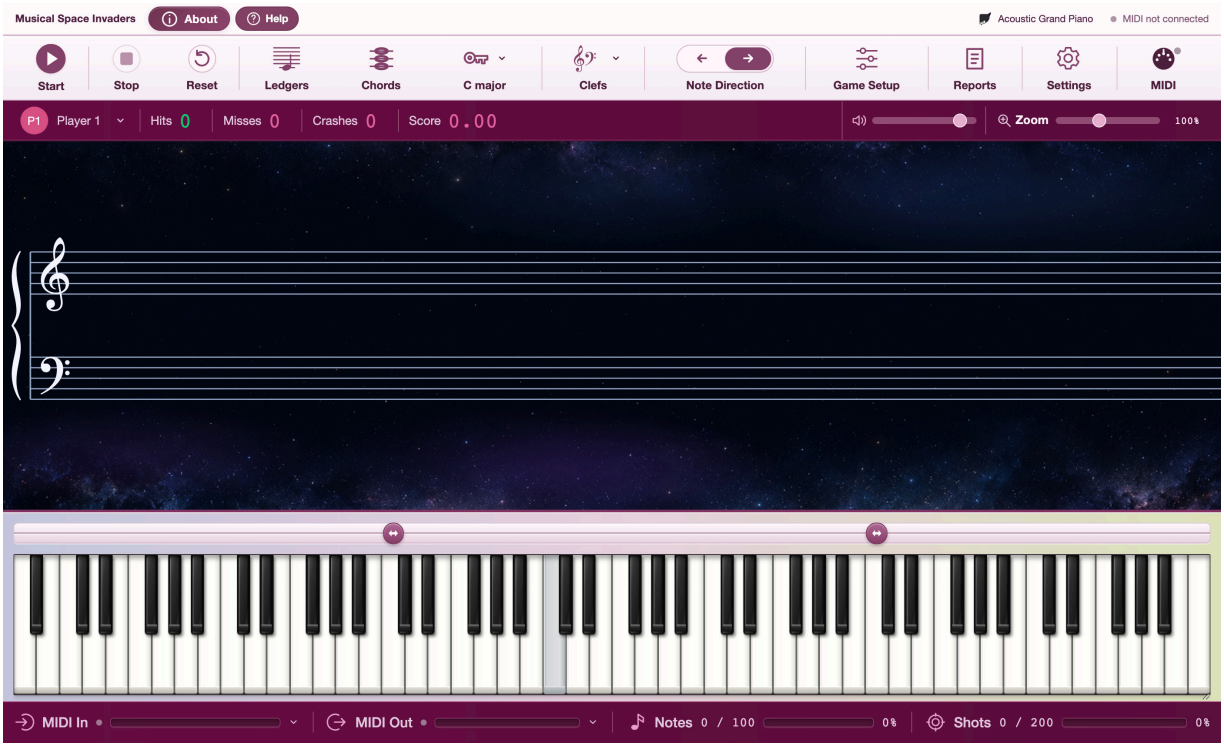
MUSICAL SPACE INVADERS

User manual

Learn to read music, practise notes and chords, and track your progress while exploring a moving galaxy.



The main workspace in landscape view. Your selected settings and score may differ.

Inside this guide Getting started | Playing | Practice controls | MIDI | Settings | Players and reports | Troubleshooting

Screens include web examples. Button placement and features can vary by screen size and platform.

1. Get started

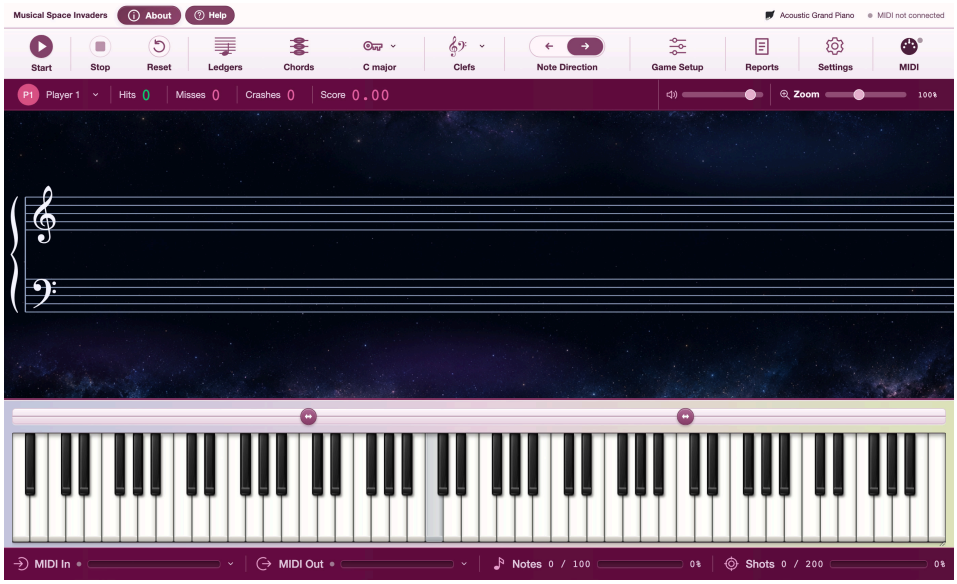
Musical Space Invaders presents notes or chords on a music staff. Play the matching notes on the on-screen piano or a connected MIDI keyboard before the target reaches the end of its path.

Your first game

- Open the app. On an iPad, use the landscape view. Wait until the sound engine is ready.
- Choose **Chords** and select **Single notes** for a simple first exercise. Choose a key and clef if you wish.
- Open **Game Setup** to choose a comfortable note speed and game length.
- Tap **Start**. Read the moving note and tap the matching key on the on-screen piano.
- Continue until the game ends, or tap **Pause** to take a break.

What is on the screen?

The top toolbar contains game and practice controls. The score strip shows the player, hits, misses, crashes and score. The staff is the play area. The piano and its range handles sit underneath; the bottom status bar shows MIDI activity and progress.



Main screen: toolbar and score at the top, staff in the middle, piano below.

Player bar: volume and zoom

Use the speaker slider in the Player 1 bar for both instrument and game sound. The Master volume slider in MIDI setup stays in sync. Device or browser media volume is separate.

On the web, Zoom changes the size of the staff and background from 80% to 130%. It starts at 100% in a new browser and saves your choice. Click the percentage to return to 100%. The piano and toolbars stay the same size.

In a narrow browser window, scroll a toolbar horizontally to reach controls that are off screen.

2. Play and understand your score

Play a note or chord

Identify the pitch shown on the staff and play the matching piano key. For an exercise with several notes, play the required notes together. You can use the on-screen keys or a selected MIDI keyboard.

Controls during a game

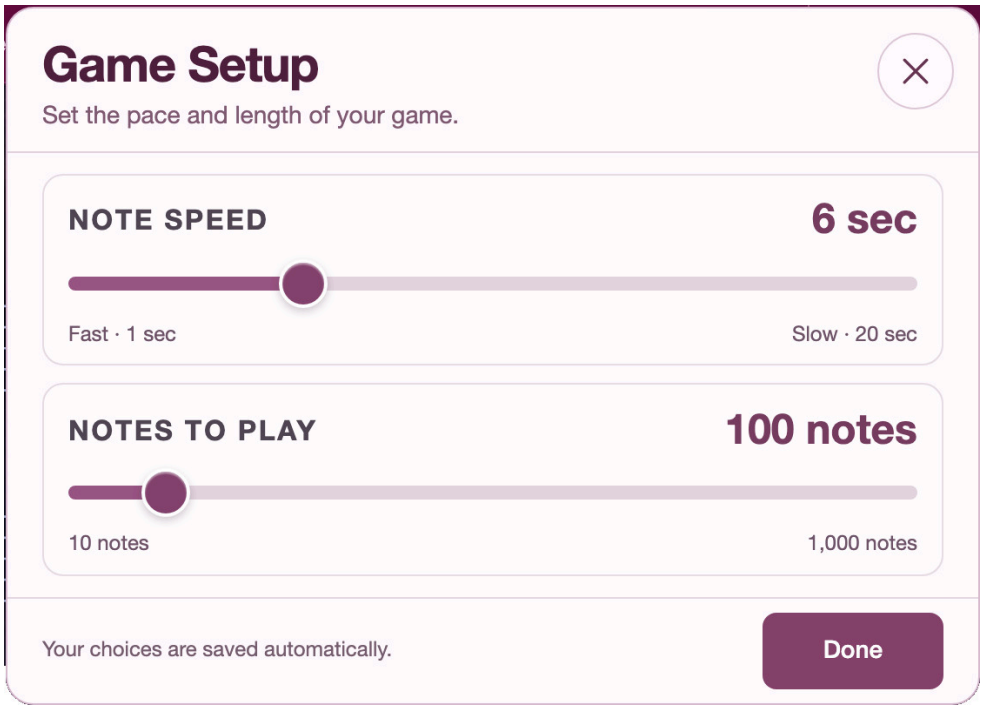
- **Start / Pause / Resume:** start play, pause it, or continue from where you paused.
- **Stop:** stop the game and clear the live score, notes and held keys. The stopped game is saved to your history.
- **Reset:** clear the game and start fresh. A stopped game is recorded before the live display is cleared.

Score and progress

- **Hits** are correct answers. **Misses** are incorrect attempts; a target that escapes also counts as a miss and a crash.
- **Score** is hits divided by hits plus misses. **Notes** shows completed targets against the game length; **Shots** shows attempts used against the allowance.
- A result summary appears when the game is completed or the available shots are exhausted. The allowance is twice the planned note count.

Tip: Start slowly and enable key hints in Settings if you want help locating the notes.

3. Set the pace and game length



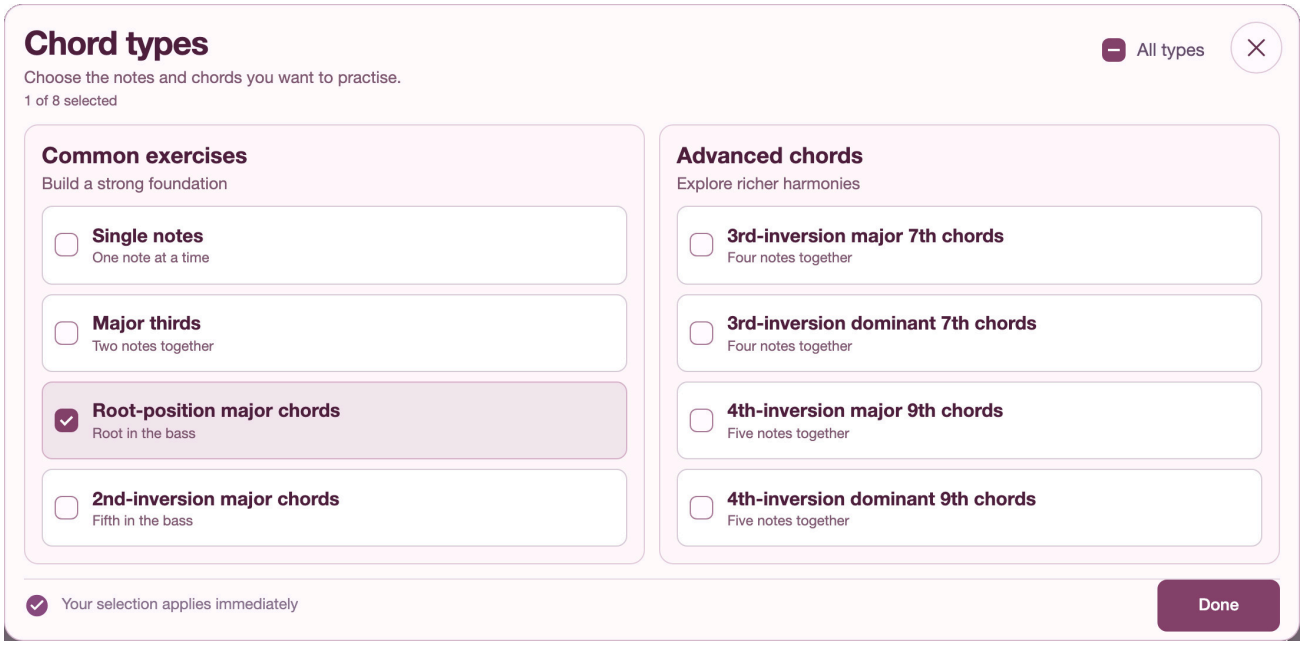
Game Setup controls note speed and the number of targets.

- Tap **Game Setup** on the toolbar.
- Drag **Note Speed**. The value is the travel time: 1 second is fast and 20 seconds is slow. Speed changes take effect immediately.
- Drag **Notes to Play** to choose 10 to 1,000 notes, in steps of 10. Stop the current game before changing its length.
- Tap **Done**. Your choices save automatically.

Choose the direction

Use the two arrows under **Note Direction** to send notes from right to left or from left to right. Choose whichever direction feels comfortable.

4. Choose notes and chords

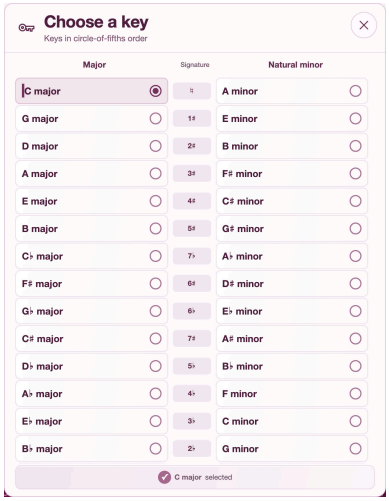


Chord types: select one or more exercises. The list may scroll.

- Tap **Chords** in the toolbar. The button may show the name of the selected exercise instead.
- Select **Single notes**, **Major thirds**, or one or more chord types. Use **All types** to select the complete set. Changes apply immediately.
- For intervals and chords, play all notes shown together. Use **Done** to close the picker.

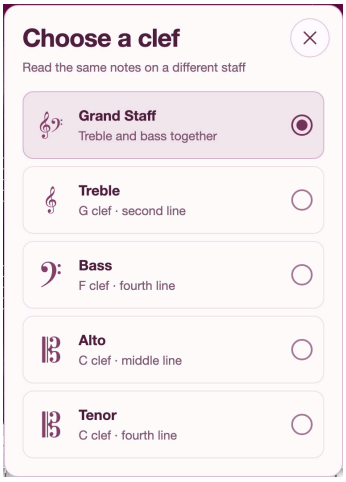
If an exercise needs a wider range in the chosen key, widen the active piano range or use the chord range expansion option in Ledgers. Opening practice pickers can pause a game; use Resume when ready.

5. Key signature and clef



Key picker: choose a major or natural minor key.

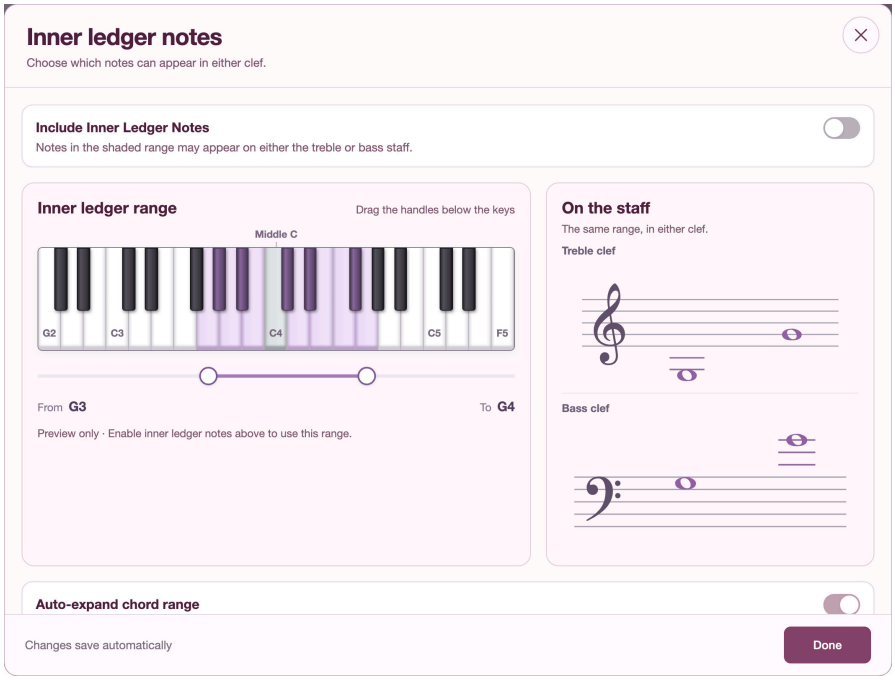
- Tap the current key in the toolbar, then select the key you want to practise.
- Tap **Clefs** to choose Grand Staff, Treble, Bass, Alto, or Tenor. The staff changes to the chosen reading view.



The clef picker controls how the notes are displayed.

Tip: If the new key or chord does not fit your current range, widen the range before starting.

6. Piano range and ledger notes



Ledger settings show the selected range on a keyboard and on both clefs.

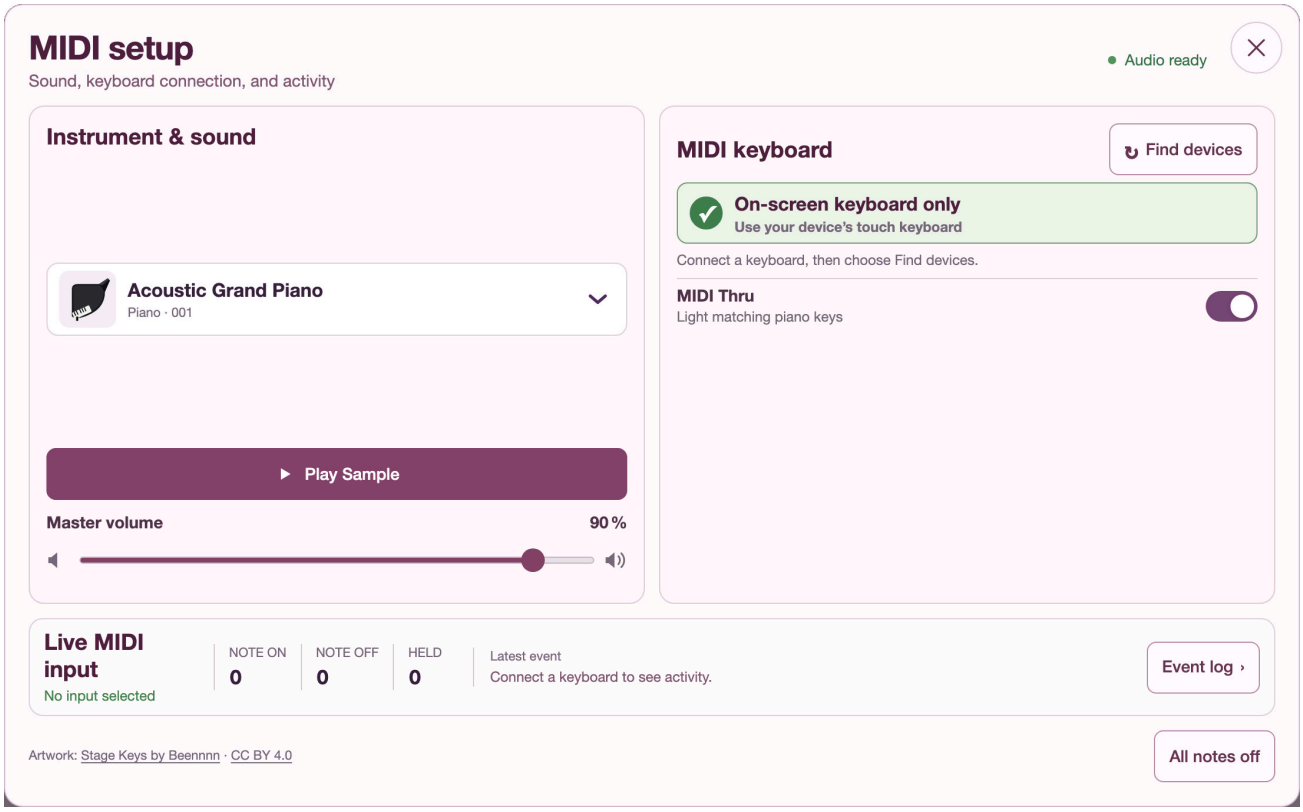
Active piano range

Drag the two handles above the main piano to set the lower and upper limits of the notes used for practice. Make the range wider when a chosen chord needs more room.

Inner ledger notes

- Tap **Ledgers**, then enable **Include Inner Ledger Notes** to let the shaded notes appear on either treble or bass staff.
- Drag the lower and upper handles to choose the inner ledger range. The previews show how that range looks in each clef.
- **Auto-expand chord range** widens the range when needed for selected chords. Some exercises require this expansion. Tap **Done** when finished.

7. Sound and MIDI keyboard



MIDI setup: instrument, master volume, keyboard connection and live activity.

Choose a sound

Open MIDI, choose an instrument, and select Play Sample. The Master volume slider here mirrors the speaker slider on the Player 1 bar.

Connect a MIDI keyboard

Connect the keyboard, open MIDI, and choose Find devices. Select an available keyboard and confirm that it shows Connected.

Play and release keys. Live MIDI input should show Note On and Note Off activity. Open Event log for recent messages.

Choose On-screen keyboard only to play without an external keyboard. MIDI Thru lights matching on-screen keys. Use All notes off if a note remains stuck.

8. MIDI on the iPad simulator

The iPad simulator is a virtual device on the Mac. It does not see the Mac MIDI inputs directly, so its debug build uses a local bridge. A physical iPad uses its native MIDI connection instead.

Connect the simulator bridge

- Connect the MIDI keyboard to the Mac. In Terminal, from the project folder, run:

```
sh scripts/start-simulator-midi-bridge.sh
```

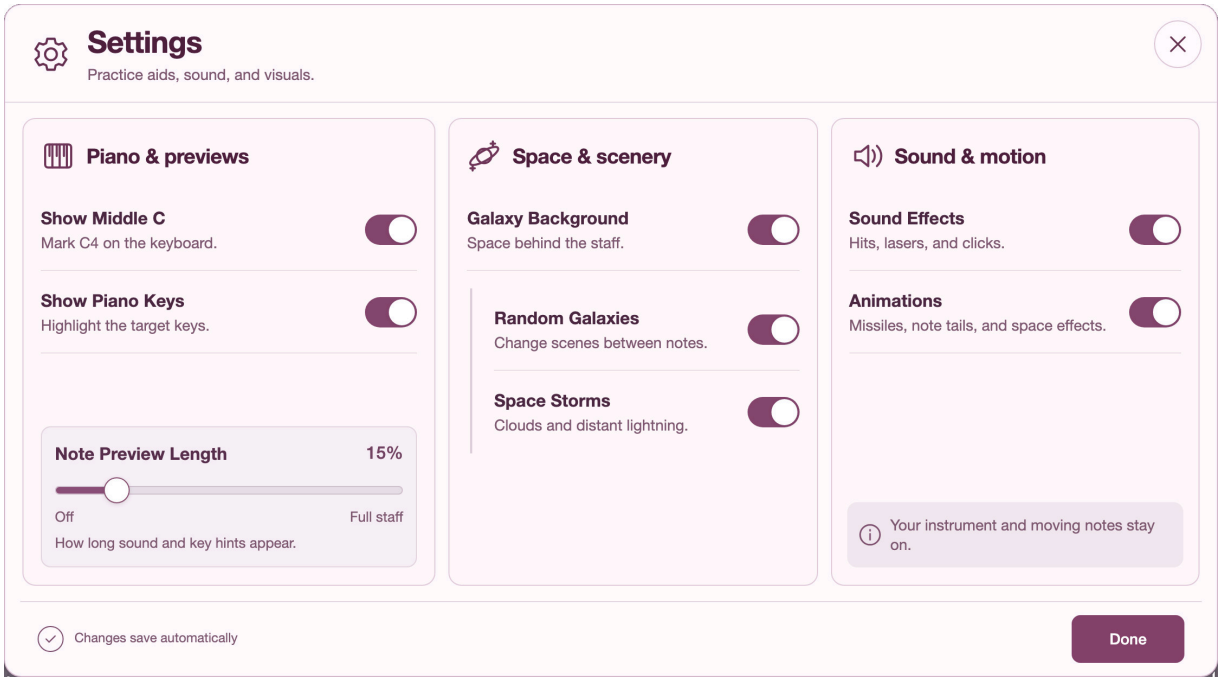
- Leave the helper running. In the simulated app, open **MIDI**, tap **Find devices**, and select the input labelled **Mac bridge**.
- Play and release a key. Check the live counters in MIDI setup. To choose a different source, give part of its name to the helper, for example:

```
sh scripts/start-simulator-midi-bridge.sh "IAC Driver Bus 1"
```

- If the keyboard is reconnected, restart the helper; in the app select **On-screen keyboard only**, then find and connect the bridge again.

The bridge is a simulator development aid. Keep the Mac awake and the helper running while testing.

9. Practice aids, scenery and sound



Settings are grouped into piano, scenery, and sound and motion.

Piano & previews

Show Middle C marks C4. **Show Piano Keys** highlights target keys. **Note Preview Length** controls how long the sound and key hints appear, from Off to Full staff.

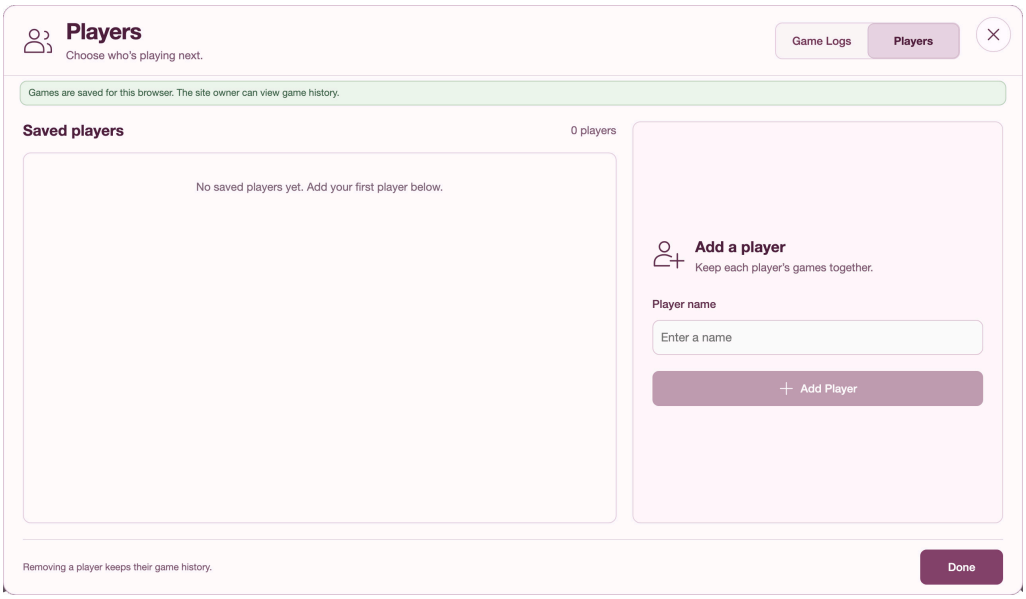
Space & scenery

Galaxy Background displays space behind the staff. **Random Galaxies** changes scenery between notes; **Space Storms** controls the occasional background effects. The latter two depend on the galaxy being enabled.

Sound & motion

Sound Effects turns game effects such as hits and clicks on or off. The speaker slider on the Player 1 bar controls the overall game and instrument volume; MIDI setup displays the same master volume. Animations controls visual effects. Instrument sound and moving notes remain available. Settings save automatically.

10. Players

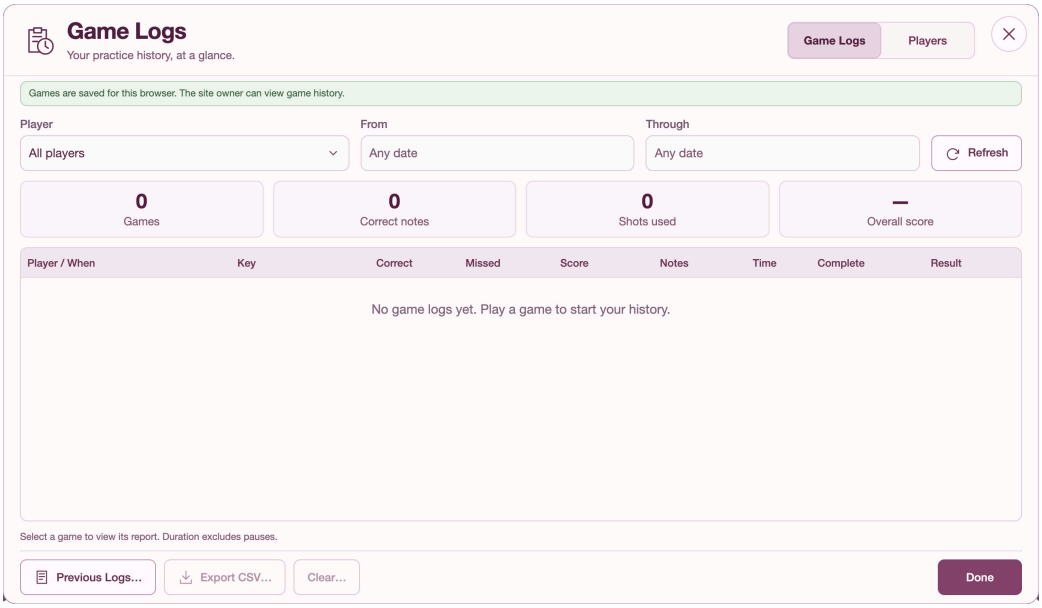


Players: add a player or select one from your saved list.

- Tap the player name in the score strip, or open **Reports** and choose **Players**.
- Select a saved player to associate the next game with that profile.
- To add a player, enter a name in **Add a player**, then tap **Add Player**.
- To remove a player from the list, use the remove control beside the name and confirm. Their game history is retained. Adding the same name restores the profile.

The dashboard may abbreviate a long name. The complete selected name is retained for the Players screen and reports.

11. Reports and game history



Game Logs: filter games, view summaries, and export results. The values shown are examples.

- Tap **Reports** to open **Game Logs**. Filter by player, start date and end date; tap **Refresh** if needed.
- Select a game to see its report, including score, rating, notes, shots, active time and best streak. Paused time is excluded from duration.
- Use **Export CSV** to save or share the displayed results where supported. A report may also offer **Email Report**; it opens a draft for you to review and send.
- **Clear** moves the displayed games to **Previous Logs**. Open Previous Logs to view archived results and restore displayed logs.

The list and export are limited to the latest 500 matching sessions. Native reports are stored locally. On the web, game-history storage depends on the site settings.

12. Troubleshooting and tips

No sound

Check that the Player 1 speaker slider is above zero. Open MIDI, check Audio ready, and choose Play Sample. Check your device or browser media volume and audio output. In a browser, interact with the page first if sound is blocked.

MIDI keyboard is not detected

Check the cable and any adapter, then tap Find devices in MIDI setup. Select the device and watch Note On / Note Off in Live MIDI input. For the iPad simulator, use the Mac bridge described in section 8. Physical iPads use native MIDI.

A note is stuck

Open MIDI and tap All notes off. If necessary, disconnect and reconnect the keyboard, then find and select it again.

Notes or effects are hard to see

Increase Note Preview Length or enable Show Piano Keys. Turn off Galaxy Background, Space Storms, or Animations in Settings if you prefer a simpler screen. Moving notes remain enabled.

A chord cannot be selected or played

Check the current key and active range. Widen the main range or enable Auto-expand chord range under Ledgers. Make sure all notes in the displayed chord are played together.

Need to change game length?

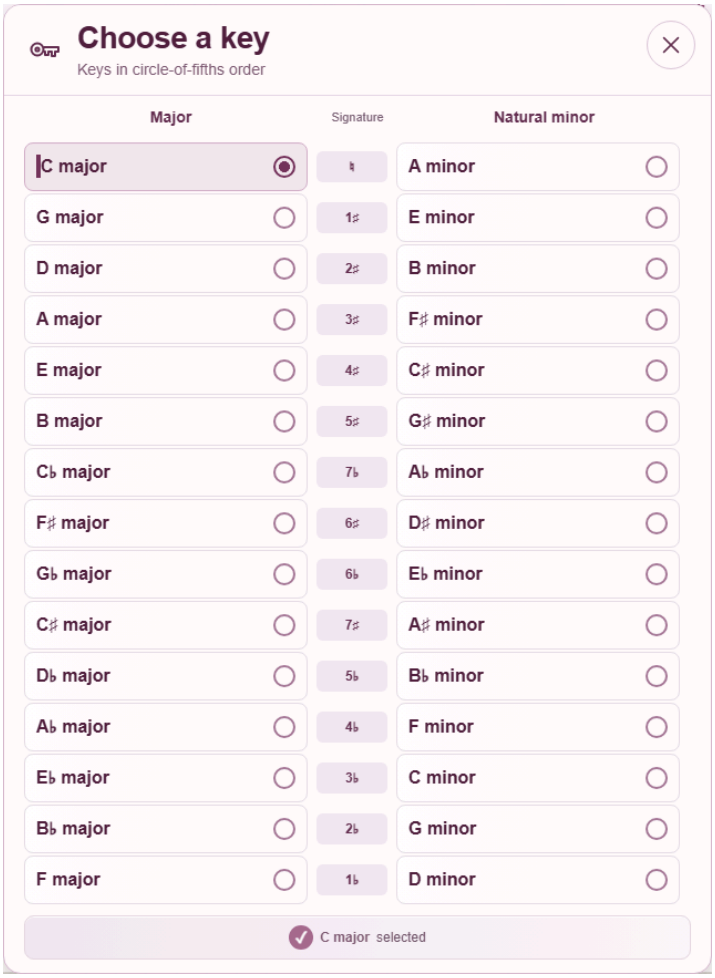
Stop the current game, then use Game Setup. Use Pause and Resume for a temporary break without clearing the game.

About opens information about the app and its creator. Screens and available integrations may vary by platform and version.

Choose a key

> November 2026 update. These pages replace earlier key-picker instructions in this guide. The rest of the guide still applies. The layout follows the available window space on Windows, macOS, iPad, iPhone, Android, and the web.

1. Tap or click the current key name in the toolbar to open **Choose a key**.
2. Find your key under **Major** or **Natural minor**. On a narrow or short screen, choose the mode tab first.
3. Select a key to apply its signature and return to the staff. Your saved key preference is retained.



Paired layout in a roomy window. Browser capture; the same layout adapts to supported devices.

Relative keys stay together

When the window has room, both modes appear side by side. Each row pairs relative major and natural minor keys around their shared signature. **C major / A minor** starts the list with no sharps or flats.

Tall windows show all **30 choices** at once. Shorter paired layouts scroll both columns together, keeping each pair aligned. The highlighted choice identifies the current key when you reopen the picker.

Compact screens and key spellings

On a narrow or short screen, including a phone in landscape, use the **Major** and **Natural minor** tabs. Each tab contains all **15 spellings** for its mode. Scroll inside the picker if needed, then select a key.



Compact layout with mode tabs. Browser capture illustrating the phone-style layout.

The list follows the circle of fifths, keeping enharmonic alternatives beside one another. Spellings such as F♯ major and G♭ major remain separate choices because their written signatures differ.

Major	Shared signature	Natural minor
C major	No sharps or flats	A minor
G major	1 sharp	E minor
D major	2 sharps	B minor
A major	3 sharps	F♯ minor
E major	4 sharps	C♯ minor
B major	5 sharps	G♯ minor
C♭ major	7 flats	A♭ minor
F♯ major	6 sharps	D♯ minor
G♭ major	6 flats	E♭ minor
C♯ major	7 sharps	A♯ minor
D♭ major	5 flats	B♭ minor
A♭ major	4 flats	F minor
E♭ major	3 flats	C minor
B♭ major	2 flats	G minor
F major	1 flat	D minor

Changing the key changes the notes available within your selected practice range. If an exercise no longer fits, widen the range within your device's limits or choose another exercise.

Theory reference: University of Puget Sound, *Music Theory for the 21st-Century Classroom*: Major Key Signatures and Minor Key Signatures.