

Hexatone User Manual

For version 1.4. Hexatone is an isomorphic hexagonal keyboard and microtonal instrument for iPad.

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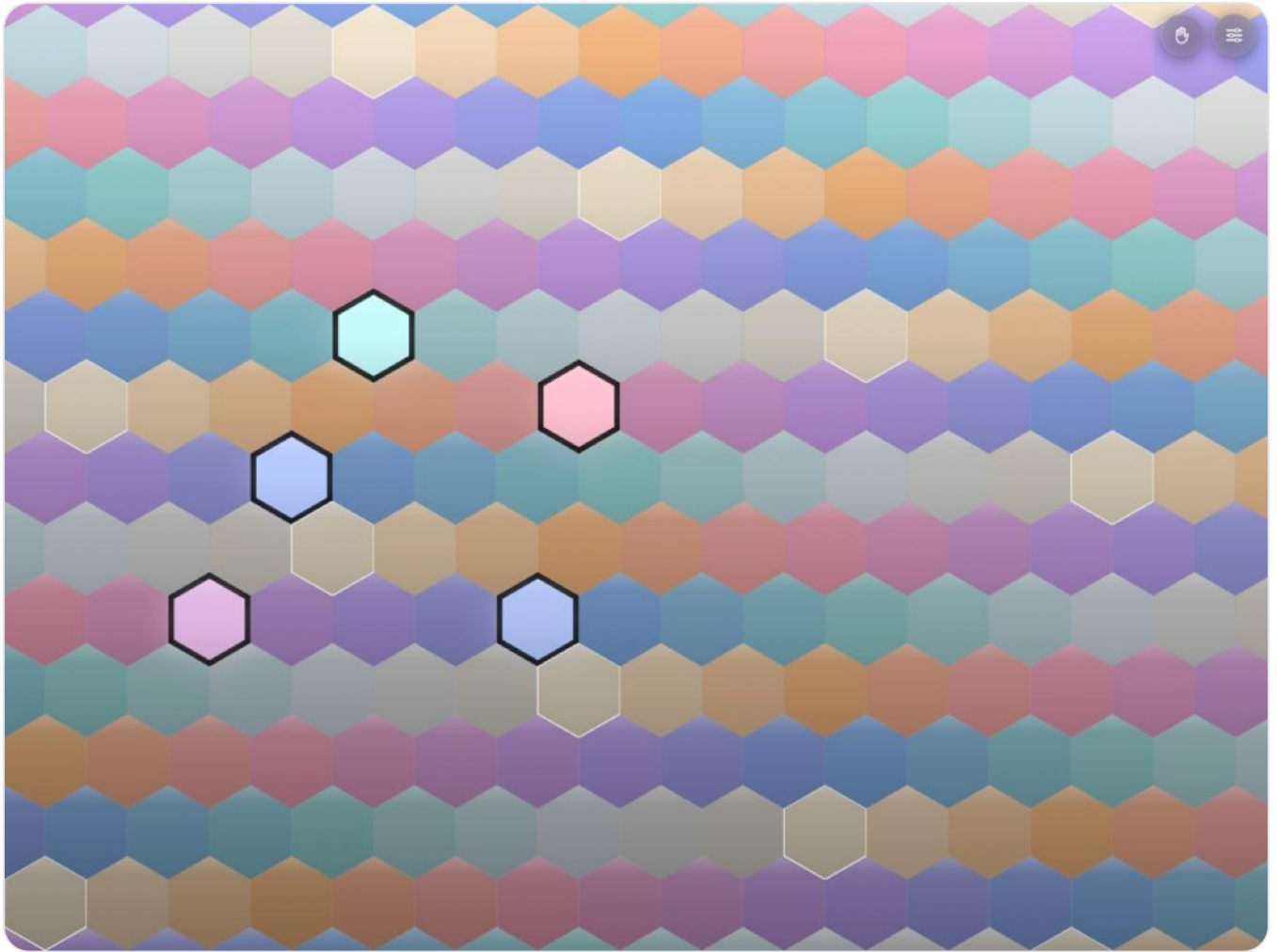
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1. Welcome

Hexatone turns your iPad into a microtonal instrument you can actually play. The keys form a honeycomb where every interval has the same shape no matter where your hand sits, so a chord you learn in one place works everywhere, and any scale transposes by sliding the same shape around.

It plays any tuning, from the familiar twelve notes per octave to far beyond, and it makes its own sound with built-in voices and a sampler, so you do not need any other app to get started. It can also drive MPE-capable synths in tune, and run as a plugin inside your favourite music app.



the main keyboard with a held chord glowing, Pastel palette

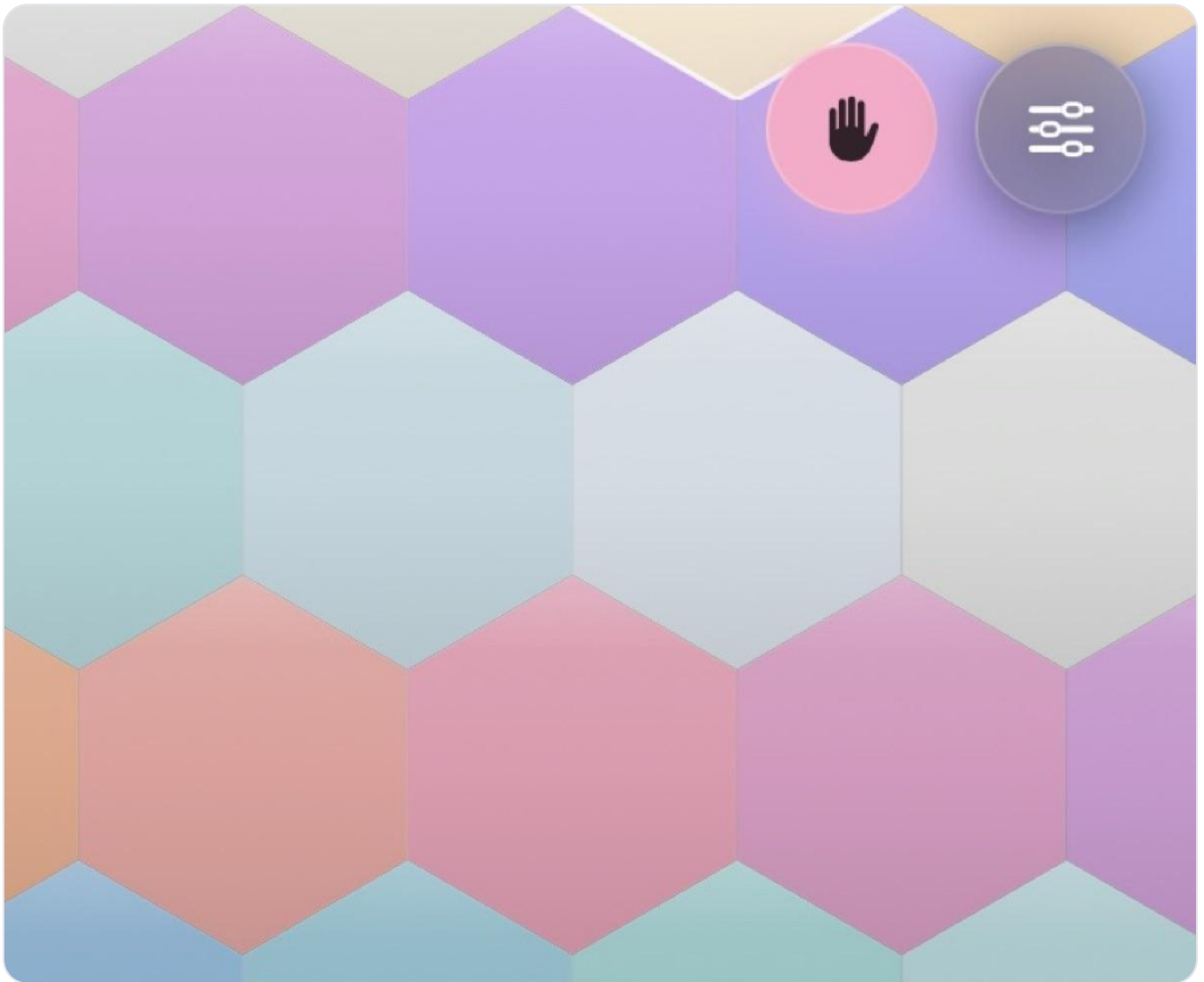
2. Quick start

1. Open Hexatone. You will see the hexagonal keyboard.
2. Tap some keys. By default you will hear the built-in **Hexatone Bell** voice.
3. Tap the **settings** button (top right, the sliders icon) to change the tuning, layout, colours, and sound.
4. To hear a sustaining sound, open settings, set **Built-in sound** to **Hexatone Glass**, close settings, then turn on **Hold** (top right, the hand icon) and play a chord. Lift your hands and it keeps ringing.

That is the whole loop: play, open settings to shape it, use Hold to sustain.

3. The main screen

The main screen is almost entirely the keyboard, with three floating buttons in the top right corner.



close-up of the top-right buttons (Panic, Hold and Settings)

- **Panic button** (exclamation mark). Silences everything at once: notes under your fingers, notes held by Hold, and the arpeggiator. It changes no settings, so Hold stays on and you can carry straight on playing. Use it if a note ever gets stuck, or to cut the sound instantly on stage.
- **Hold button** (hand icon). Turns Hold (latch) mode on and off. It lights up when on. See [Hold mode](#).

- **Settings button** (sliders icon). Opens the settings menu, where everything else lives.

The keyboard fills the rest of the screen. Keys light up as you press them, and the colour of each key tells you something about its pitch (see [Appearance](#)).

4. Core ideas in one minute

You do not need theory to enjoy Hexatone, but three ideas make it click.

- **Isomorphic layout.** Every interval is the same physical shape anywhere on the grid. Learn a chord once and it works in every key. Move it up or sideways to transpose.
 - **Microtonal tuning.** Western music usually splits the octave into 12 equal steps. Hexatone can split it into any number (19, 24, 31, and so on), or use a custom scale you import. More steps means more pitches between the familiar ones.
 - **MPE for in-tune MIDI.** To play those in-between pitches on an external synth, Hexatone sends each note on its own MIDI channel with its own pitch bend. This is called MPE. Its own built-in sound is always in tune with no setup.
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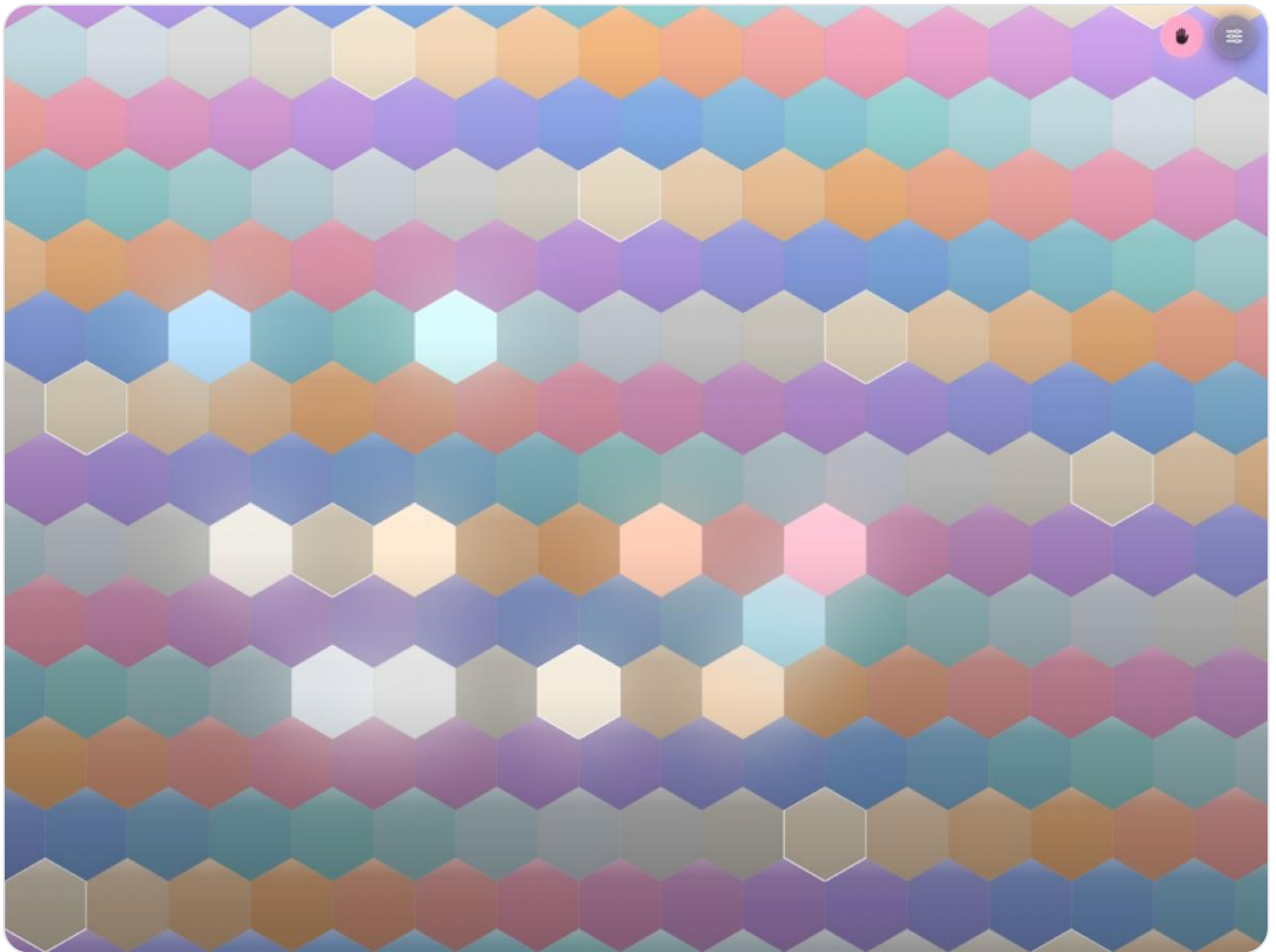
5. Playing

Touch, chords, and sliding

Press keys with one or more fingers to play notes and chords. You can hold many notes at once (see [Voices](#) for the limit). Slide a finger across the grid to glide from one note to the next, which is a natural way to play runs on an isomorphic layout.

Hold mode

Hold (latch) mode lets you sustain notes without keeping your fingers down.



Hold button lit, with several held keys glowing

- Turn it on with the **Hold** button (top right). It lights up when active.
- Press keys to build a chord. When you lift your fingers, the notes keep sounding.
- Tap a key that is already held to drop just that note.
- Turn Hold off to release everything at once.

Held keys show a steady glow so you can see what is latched. Hold works with the built-in voices and with the MIDI you send to other synths.

Note: the **Hexatone Bell** voice fades away on its own (it is a struck sound), so to truly hear Hold sustain, use **Hexatone Glass** or a sustaining instrument you imported.

Arpeggiator

The arpeggiator plays the keys you are holding one at a time instead of all together. Turn it on with **Arpeggiate** in the **Arpeggiator** section of the settings.

It works best with Hold. Turn Hold on, press a chord, lift your fingers, and the pattern keeps running on its own. You can then add a key to bring another note into the pattern, or tap a held key to take it out, all without stopping. The pattern carries on from where it was rather than starting over.

While the arpeggiator is on, pressing a key no longer sounds it directly. The keys you press or hold are the notes the pattern draws from, and the arpeggiator does the playing. Held keys glow as usual, and the note currently sounding shows as a press travelling across them.

The controls:

- **Pattern.** Up, Down, Up-down, As played, or Random. Up, Down and Up-down go by pitch. As played follows the order you pressed the keys in. Random never plays the same note twice in a row.
- **Rate.** The note value each step lasts: 1/4, 1/8, 1/8T, 1/16, 1/16T or 1/32. The ones marked T are triplets.
- **Tempo.** 20 to 300 BPM.
- **Gate.** How much of each step the note is held for, from 5% to 100%. Low values are short and detached, 100% runs the notes together.
- **Octaves.** 1 to 4. Above 1, the whole shape repeats an octave higher before the cycle restarts. It transposes by your tuning's own octave, so it stays in tune in any scale.

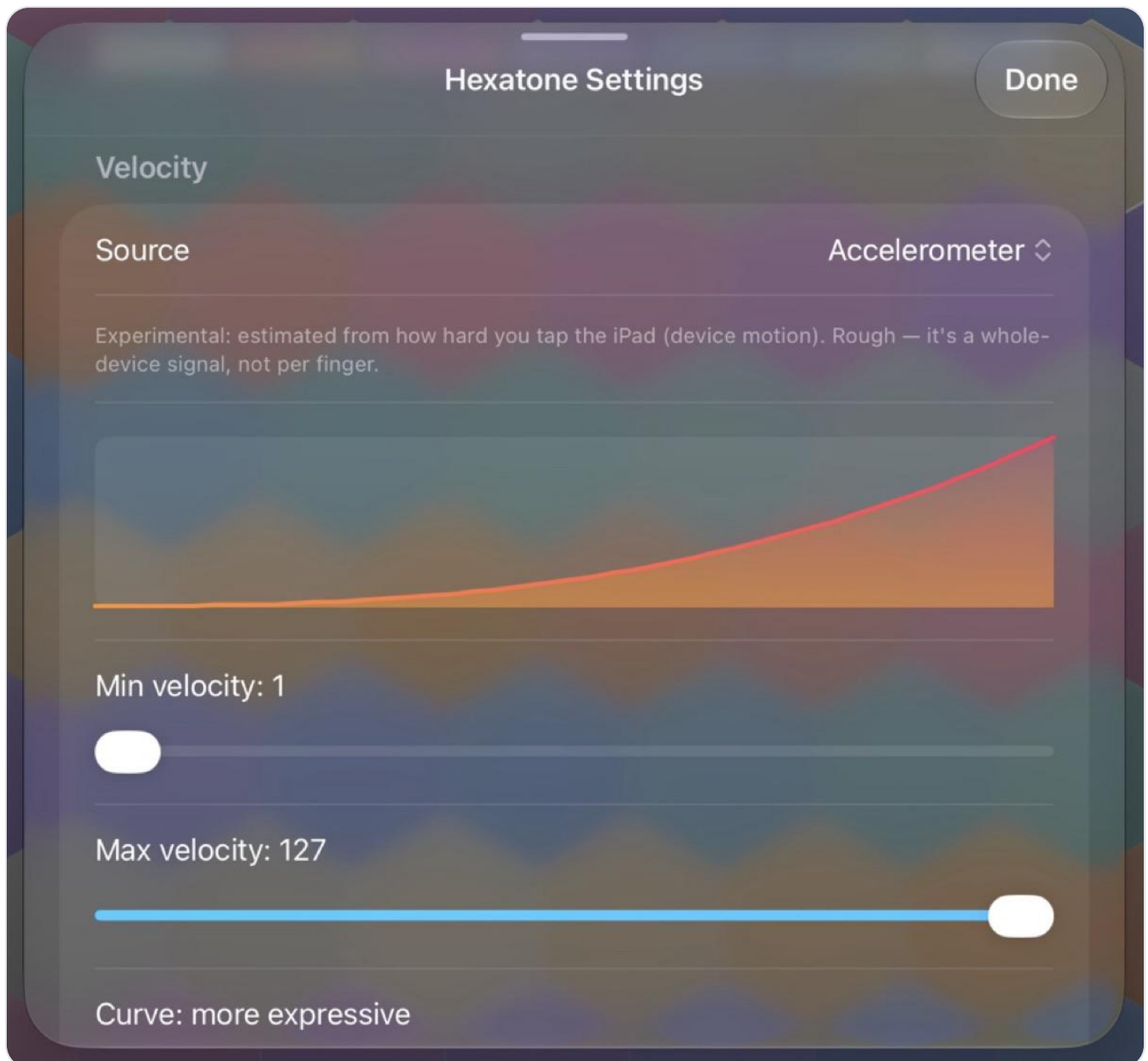
In a DAW, the arpeggiator follows the host tempo and locks to its bars and beats, so recordings line up with your project. When the host transport is stopped it keeps running at its own tempo, so you can still play freely. Standalone it always uses the Tempo setting.

Velocity

Velocity is how hard each note plays. Set how it is decided in settings under **Velocity**.

- **Fixed.** Every note plays at the same loudness, which you set with a slider.
- **Accelerometer (experimental).** Estimates loudness from how hard you tap the iPad. It is a whole-device signal, not per finger, so it is rough.
- **Pencil / Force.** Uses Apple Pencil or 3D-Touch force where available, and falls back to the fixed value otherwise.

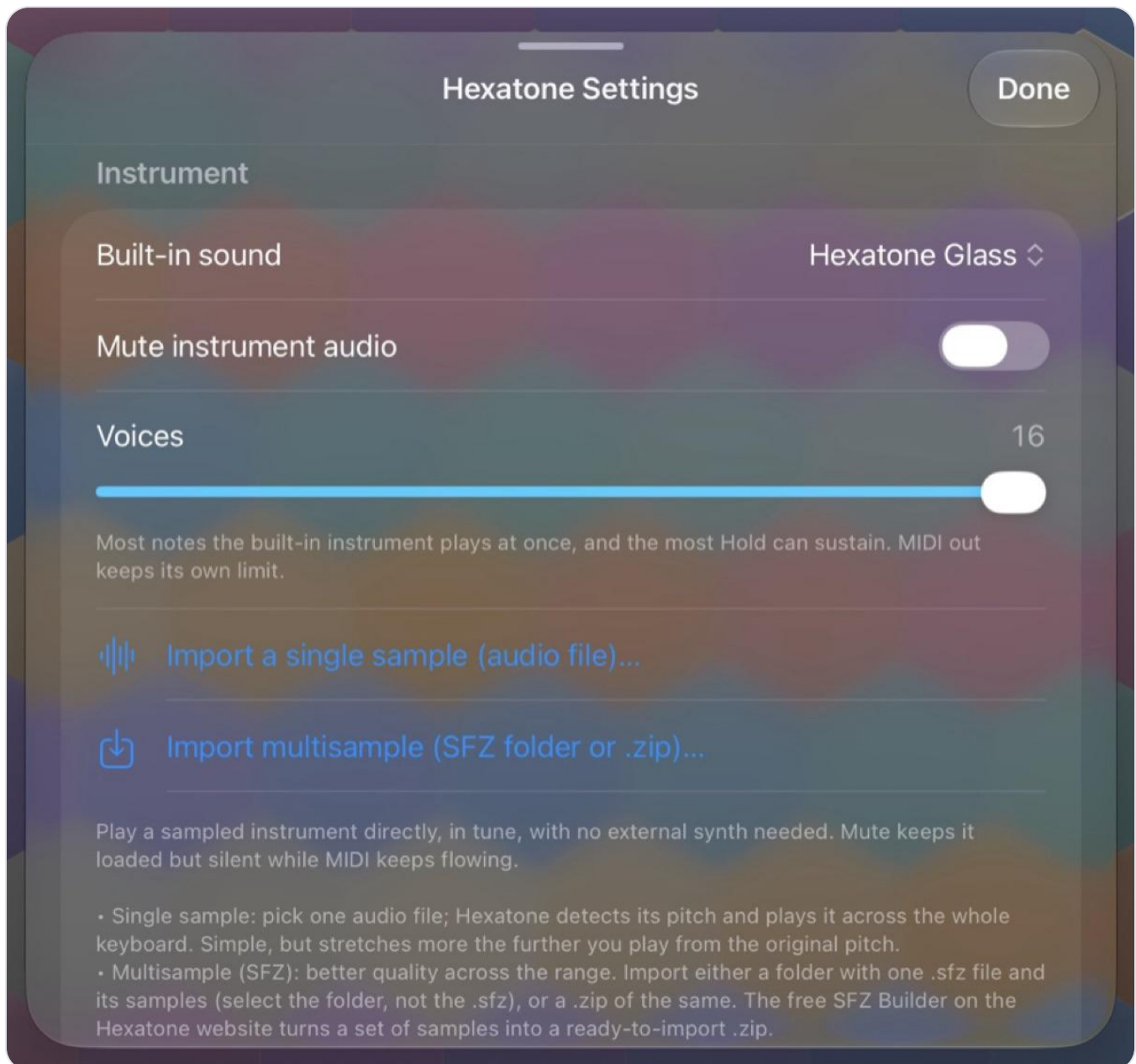
For the two sensing modes you also get a **velocity curve**: a minimum and maximum velocity, and a curve shape (from "eases to loud" through "linear" to "more expressive").



Velocity settings with the curve graph visible

6. Sound: built-in voices and the sampler

Open settings and find the **Instrument** section. This is where you choose what Hexatone sounds like. Everything here also feeds the MIDI output, so your external synths play along too.



the Instrument settings section

Built-in voices

Under **Built-in sound** you can choose:

- **None (MIDI only).** No internal sound. Hexatone only sends MIDI. Use this when you are driving another synth and do not want the built-in voice.
- **Hexatone Bell.** A struck, bell-like tone that rings and decays. Great for melodies and plucked chords.
- **Hexatone Glass.** A sustaining, glassy tone that holds for as long as you play. The right choice for pads and for hearing Hold mode sustain.

- **Any instrument you imported.** Your single samples and multisample packs appear in the same list.

There is also a **Mute instrument audio** toggle (shown when a sound is selected). It silences the built-in instrument while still sending MIDI, which is handy when you only want to drive an external synth but keep the instrument loaded.

The **Sine preview tone** toggle at the bottom adds a simple sine voice, useful for checking a tuning by ear without loading an instrument.

Voices (polyphony)

The **Voices** slider (1 to 16) sets how many notes the built-in instrument can play at once, and how many notes Hold can sustain. If you exceed the limit, the oldest note is released to make room. The MIDI output keeps its own limit (see [MPE](#)).

Import a single sample

Tap **Import a single sample (audio file)**. Pick one audio file (WAV and AIFF work best; CAF, M4A, AAC, ALAC, and MP3 usually work; OGG is not supported). Hexatone detects the file's pitch and plays it across the whole keyboard, in tune.

This is the quickest way to get a custom sound. It stretches more the further you play from the sample's original pitch, so it is best for a range around that pitch.

Build an instrument from a folder of samples

If you have a set of recordings but no `.sfz` file, you do not need one. Tap **Build instrument from folder** and choose a folder of audio files. Hexatone detects each sample's pitch, splits the keyboard between them, and shows you the detected map.

- Review the map: each sample and the pitch it was placed at. You can confirm it as is, or adjust a sample's pitch if a detection looks off, before anything is imported.
- When the map looks right, confirm to build the instrument.

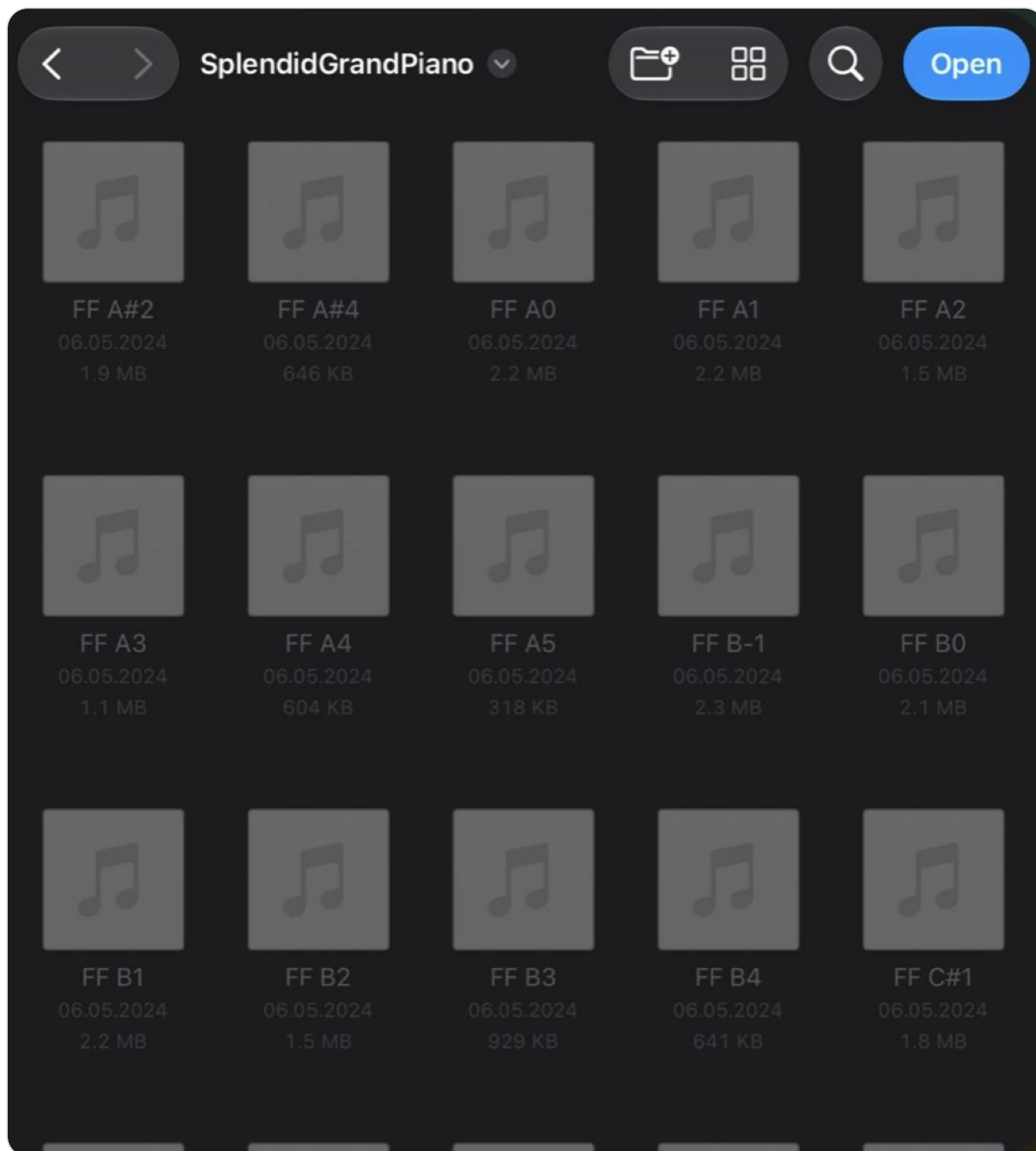
Because the app builds the instrument itself from your folder, it can never mismatch its samples the way a hand-written `.sfz` can. There is no `.sfz` file and no web tool needed.

Import a multisample instrument (SFZ)

For better quality across the whole range, import a multisample instrument in SFZ format. Tap **Import multisample (SFZ folder or .zip)** and choose either:

- a **folder** that contains one `.sfz` file plus its audio samples (select the folder, not the `.sfz` file, so Hexatone can read the samples too), or
- a **.zip** of the same, which is what the free web SFZ Builder gives you.

Multisample instruments map different recordings to different parts of the keyboard, so a piano sounds like a piano high and low, not like one note stretched.



the Files browser, choosing a multisample folder to import

The free web SFZ Builder

If you would rather prepare a pack on a computer, or want a saved `.sfz` to reuse, the free SFZ Builder on the Hexatone website does the same mapping in your browser. It runs entirely in the browser (nothing is uploaded), detects each sample's pitch from its filename or by listening to the audio, maps the keyboard

automatically, lets you audition and adjust, and exports a ready-to-import `.zip`. Save that `.zip` to Files, then import it with the step above.

How much can I load?

Sample libraries now load up to what your device can actually handle, rather than a single fixed limit, so larger packs work on more capable iPads. If an instrument is too big for your device to load, Hexatone tells you the reason instead of failing quietly, so you know to choose a smaller pack.

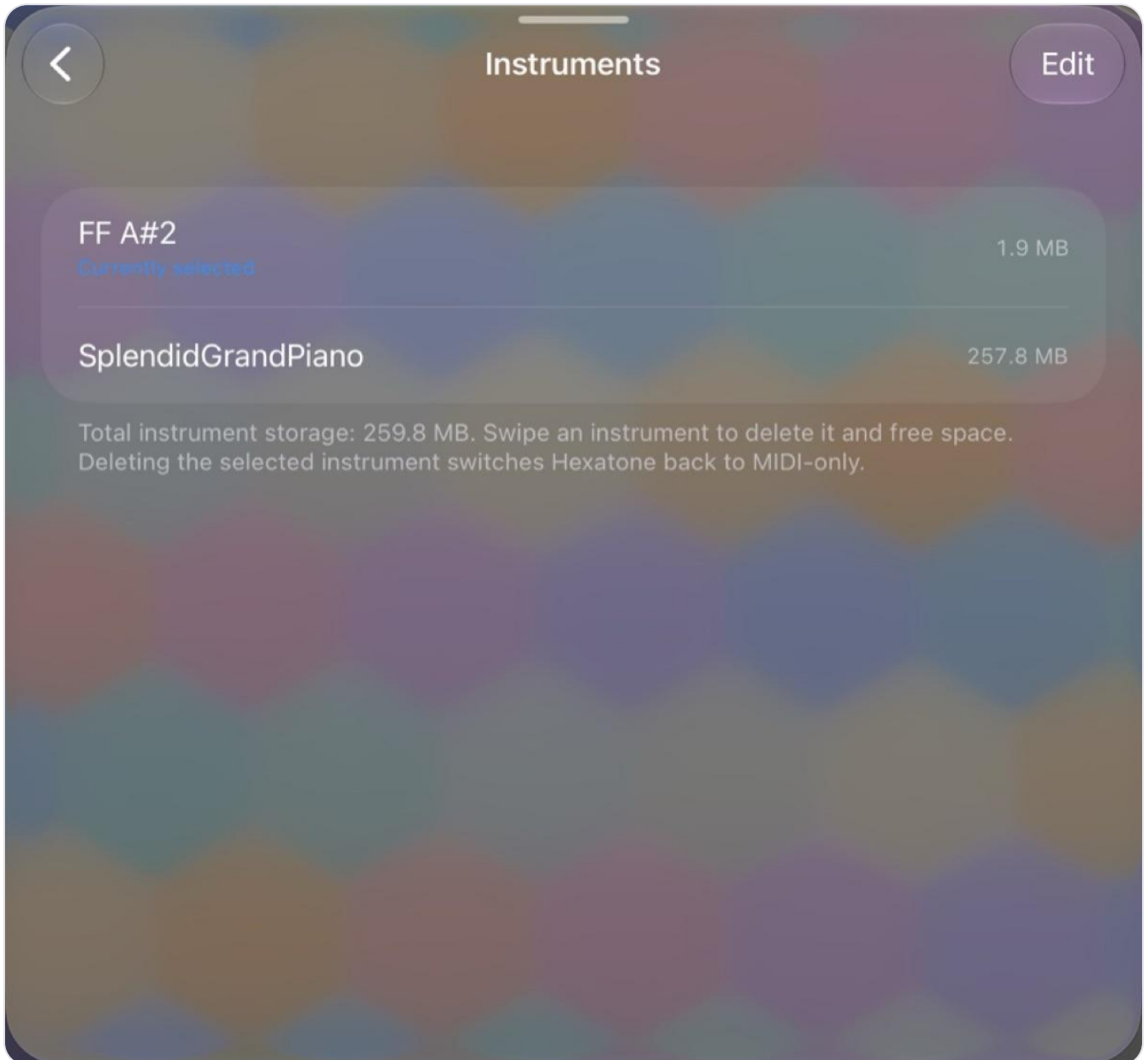
Loading is also clearer about problems. A pack that is missing some of its samples, or cannot read them, warns you and tells you what is wrong rather than playing the wrong sound for the keys it could not fill. A single-file import that cannot be decoded now fails with a clear message instead of creating a silent instrument.

Managing instruments

When you have imported instruments, a **Manage instruments** row appears. It shows your library and its total size. Open it to:

- See each instrument and its size.
- **Rename** an instrument (swipe right on a row, then Rename).
- **Delete** an instrument to reclaim space (swipe left, or use Edit). Deleting the one you are playing switches Hexatone back to MIDI only.

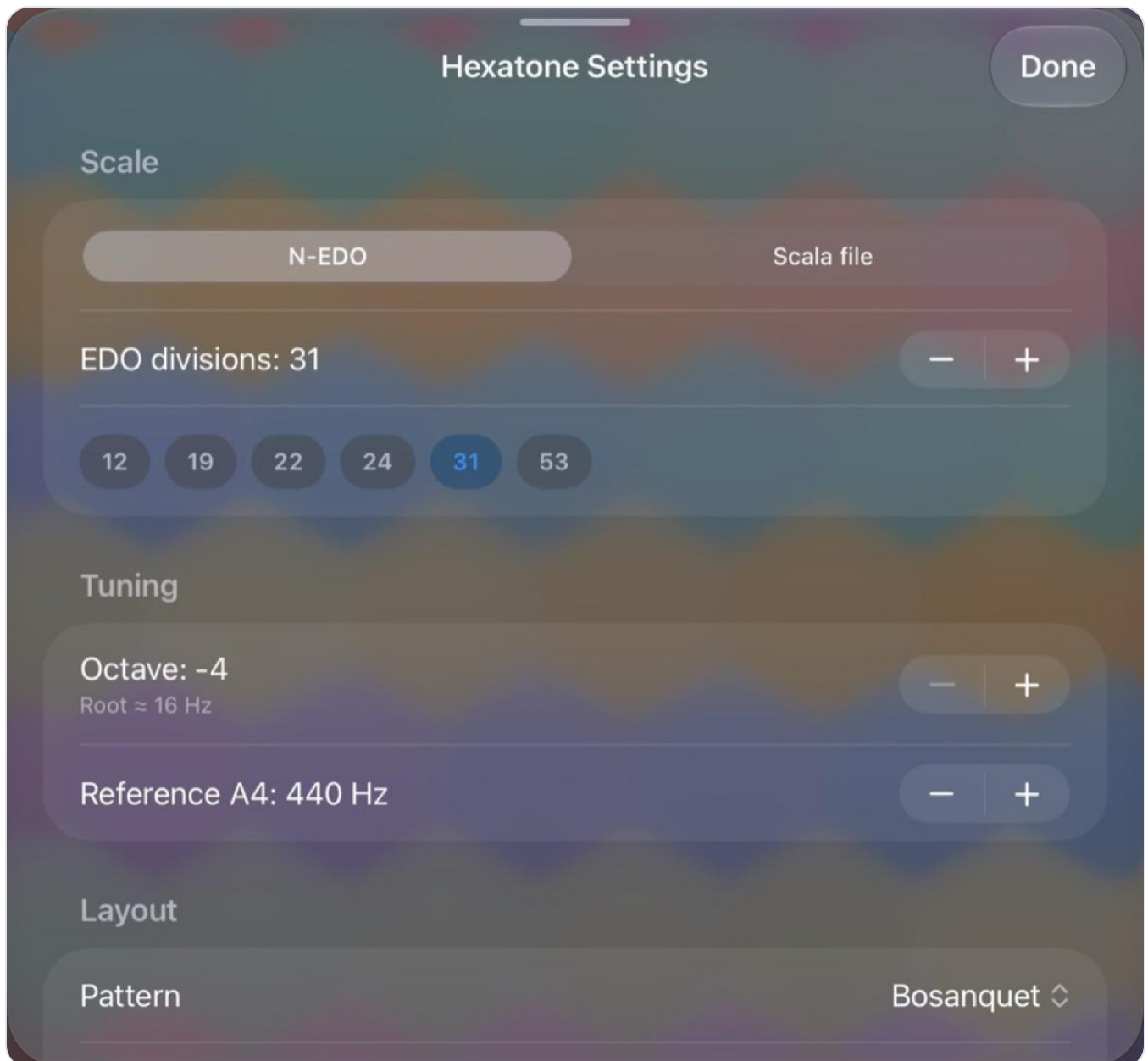
Imported instruments take their name from the file or folder you imported.



the Manage Instruments screen

7. Scales and tunings

Open settings and find the **Scale** section. Choose between an equal temperament and a Scala file with the **Source** switch.



the Scale section in N-EDO mode, with Tuning and Layout below

Equal temperaments (EDO)

EDO means "equal divisions of the octave". 12-EDO is standard Western tuning. Higher numbers add more pitches between the familiar ones.

- Use the **EDO divisions** stepper to set any value from 2 to 96.
- Quick buttons offer common choices: 12, 19, 22, 24, 31, and 53.

Scala (.scl) scales

Scala files describe custom scales (just intonation, historical temperaments, world tunings, and more). Switch **Source** to **Scala file**, then:

- Pick a scale from the list. A few example scales are included.
- The note below the picker shows how many notes the scale has per period.
- Tap **Import .scl file** to add your own. Imported scales are shared with the plugin automatically.
- With a Scala scale active, the keys show each note's ratio.

Managing scales

When you have imported scales, a **Manage scales** row appears. Open it to see your imported scales and swipe to delete ones you no longer want. Deleting the selected scale switches to another available scale. Bundled example scales are always available and are not listed here.

Octave and concert pitch

In the **Tuning** section:

- **Octave** shifts the whole keyboard up or down by whole octaves. The line underneath shows the resulting root frequency in Hz.
 - **Reference A4** sets concert pitch from 400 to 480 Hz (440 is standard; 432 is a common alternative).
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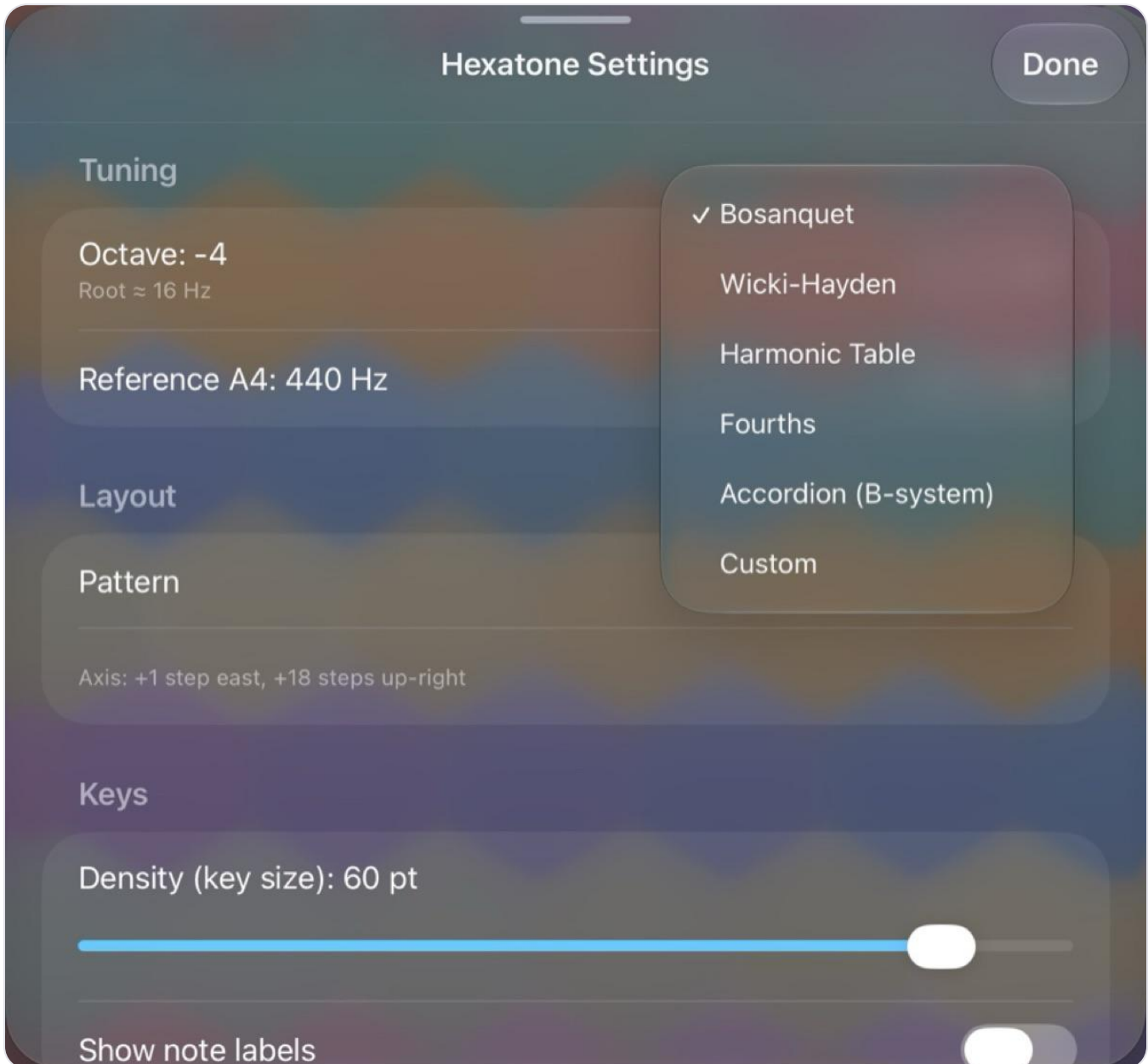
8. Layouts

In the **Layout** section, the **Pattern** picker chooses how intervals are arranged on the grid. Each is a classic isomorphic layout:

- **Bosanquet**
- **Wicki-Hayden**

- **Harmonic Table**
- **Fourths**, the stacked-fourths layout, which is the guitar-like one
- **Accordion (B-system)**
- **Accordion (C-system)**, the mirror image of the B-system
- **Park**, a relative of Wicki-Hayden where the chromatic scale runs vertically
- **Gerhard**, which puts the minor and major thirds next to each other
- **Custom**, where you set the step sizes yourself with the **East** and **Up-right** steppers.

The line under the picker shows the current axis steps. Because the layouts are defined in fractions of the period, they adapt to whatever tuning you have chosen.



the Layout picker open

9. Appearance and key options

Appearance sets the colour palette:

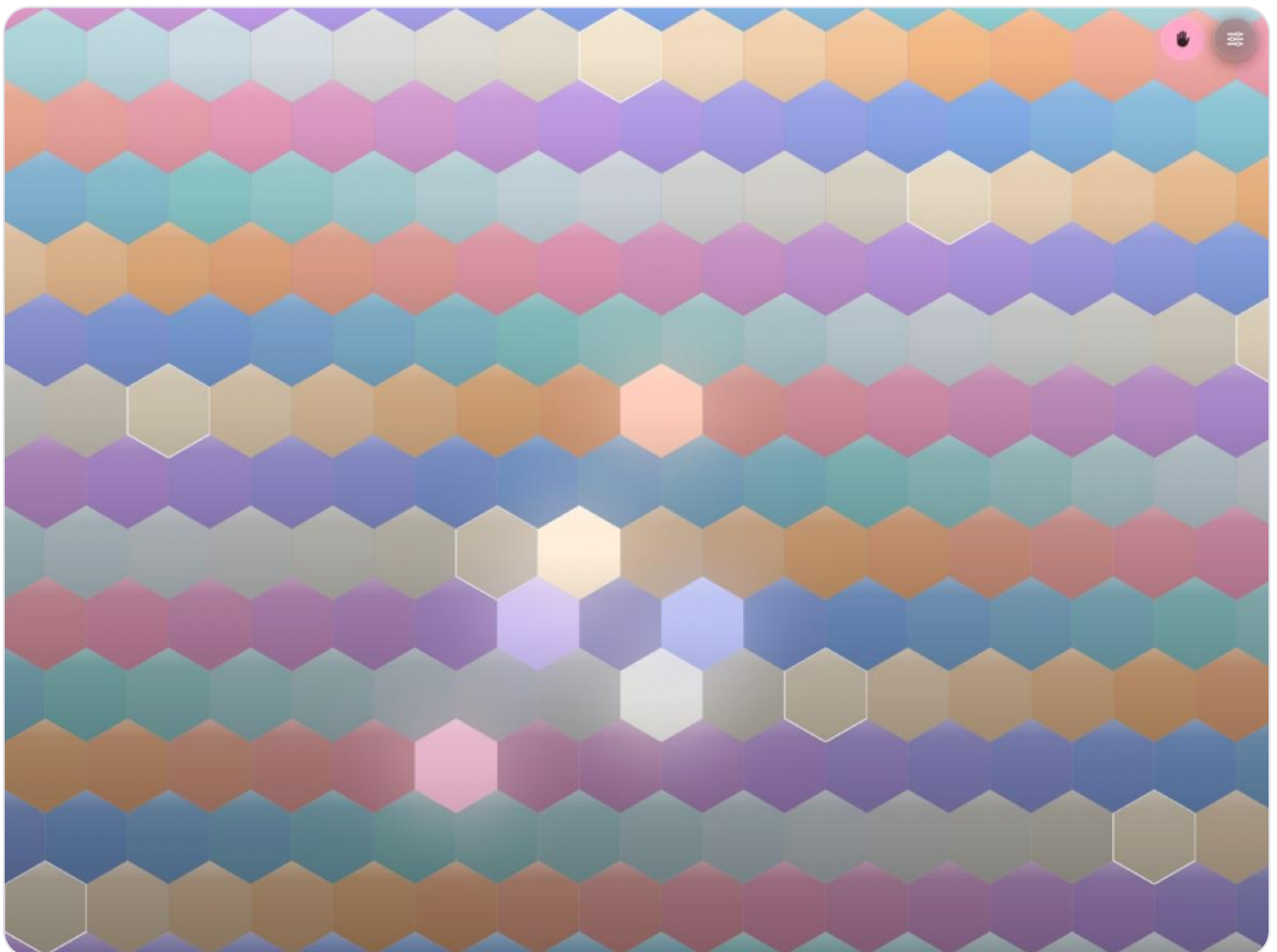
- Hexatone Pastel
- Inferno
- Turquoise
- Campfire

- **Signal**, a brighter set running from gold through greens and cyans to periwinkle. Its colours are all matched in lightness, so octaves separate more clearly than in the softer palettes.

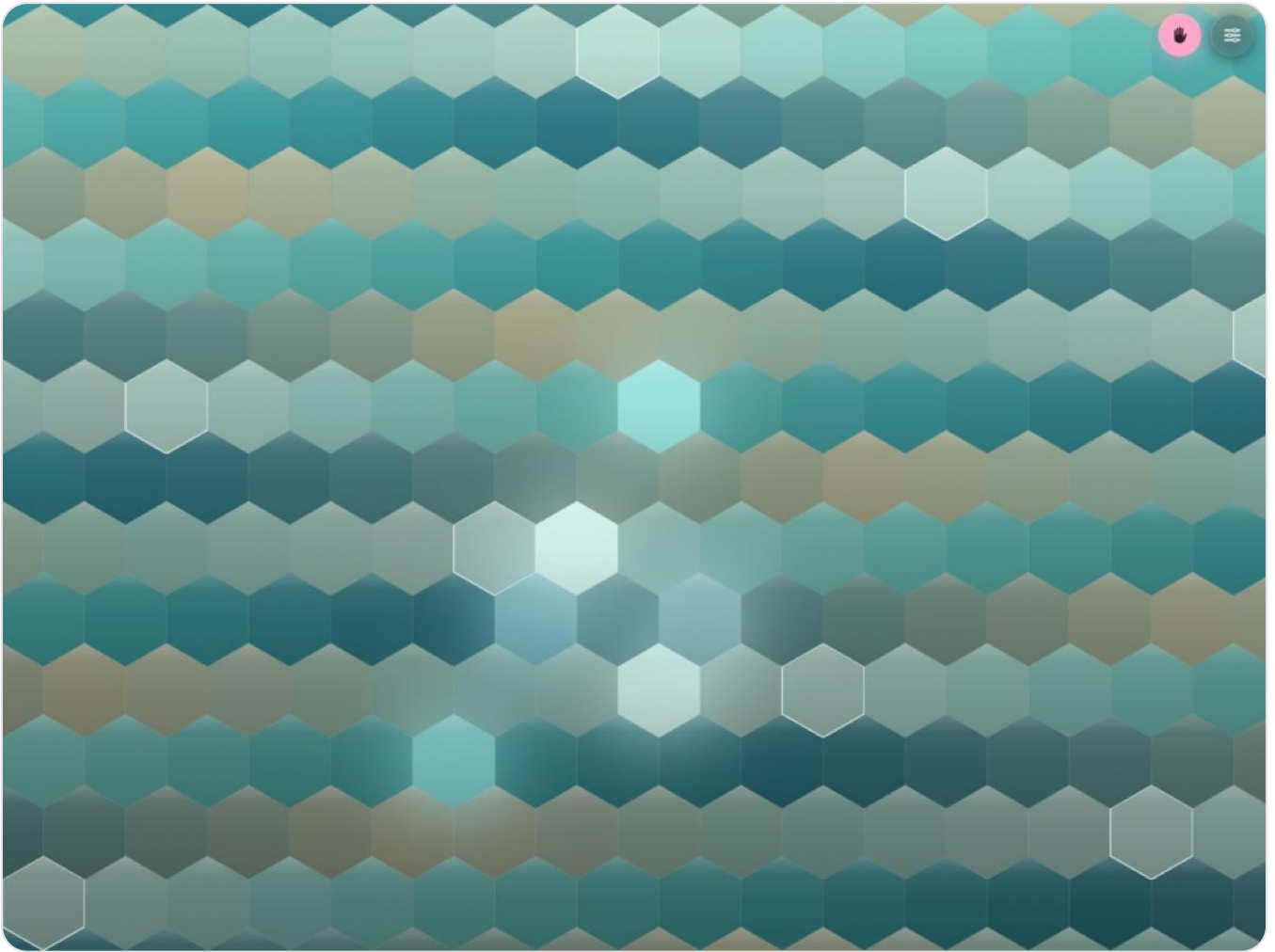
In every palette, the hue of a key shows its pitch class and the brightness shows its octave, so you can read the keyboard at a glance. A row of swatches previews the palette.

The **Keys** section has two options:

- **Density (key size)** sets how big the keys are, from 26 to 64 points. Smaller keys mean more of them on screen.
- **Show note labels** turns the text on each key on or off.



the keyboard in the Pastel palette



the same keyboard in the Turquoise palette

10. Using Hexatone with other apps (MIDI and MPE)

As an AUv3 plugin

Hexatone ships as two Audio Units (AUv3), and it matters which one you load:

- **Hexatone** (instrument). Makes its own audio with the built-in voices and sampler, and sends MIDI at the same time. Load it in an instrument slot in AUM, Logic Pro, GarageBand, Cubasis, Loopy Pro, or Drambo.
- **Hexatone MIDI** (MIDI plugin). Makes no sound of its own: it is the same keyboard published as a pure MIDI source, for the hosts that only accept MIDI from plugins in their MIDI slots. Load it in a MIDI slot (Drambo's MIDI section,

AUM's MIDI processing slot, Logic's MIDI FX) and route it to any instrument. Its settings hide the Instrument section, because there is nothing to hear.

Everything else is the same in both: layouts, scales, Hold, the arpeggiator, and the settings (the gear button). Scales and instruments you imported in the main Hexatone app appear in the plugins automatically.



Hexatone running as a plugin inside a host like AUM

Sequencing Hexatone in Drambo (and similar hosts)

Some hosts only record MIDI from plugins loaded in their MIDI slots. In Drambo:

1. Add **Hexatone MIDI** to a track's MIDI section (before the instrument).
2. Use an **MPE-capable synth** as the instrument after it (Continua, for example), and set its pitch-bend range to match Hexatone's (48 by default, in both places).

3. Play Hexatone and record; the notes land in Drambo's sequencer like any other MIDI.

The MPE-capable part matters. Hexatone sends each note on its own MIDI channel with its own pitch bend, which is how microtonal pitch travels, and an MPE synth applies that bend from the very start of the note. Drambo's own oscillator modules do not: they take pitch from the note number alone and only apply pitch bend once a note is already sounding, so through them, notes start on plain semitones. That is a property of the receiving module, not of the recording; the full microtonal detail is in the MIDI either way.

Recording and playing back in a DAW (incoming MIDI)

The Audio Unit now responds to incoming MIDI, so Hexatone fits into a normal recording workflow.

- **Record what you play.** Arm a MIDI track on Hexatone in your host (Logic Pro, AUM, Cubasis) and record. The notes you play are captured, and you can play them back through Hexatone or bounce them to audio.
- **Drive it from outside.** Hexatone can be played by an external MIDI keyboard or a sequencer routed to it, not only by touching the on-screen keys.
- **Your tuning survives playback.** Hexatone records per-note pitch bend, and it reads that back, so microtonal performances play back in tune rather than snapping to twelve notes.

Driving an external synth over MPE

Hexatone sends microtonal pitch using MPE (MIDI Polyphonic Expression): each note plays on its own MIDI channel with its own pitch bend, which is what places it at its exact microtonal frequency.

For a synth to play Hexatone in tune:

1. **Route the MIDI** from Hexatone to the synth. In a host, take MIDI from the Hexatone instrument or use the Hexatone MIDI plugin. Standalone, the app publishes a virtual MIDI source named "Hexatone Out" that other apps can read. (Before 1.4 this port was named "Microtonal Hex Keyboard Out"; if a

saved session lost the connection after updating, reselect the port under its new name.)

2. **Turn on MPE** in the synth. A synth that is not in MPE mode cannot voice microtonal chords.
3. **Match the pitch-bend range.** Hexatone defaults to plus or minus 48 semitones. Set the synth's MPE pitch-bend range to 48 as well. Many MPE synths follow Hexatone's setting automatically; ones that do not must be set by hand. In Hexatone you can also choose plus or minus 24, 12, or 2 in the **MPE Output** settings to match a simpler synth, as long as both numbers are equal.

If chords sound out of tune on the external synth, it is almost always the pitch-bend range not matching, or the synth not being in MPE mode. A fuller setup guide and a list of tested synths live on the website.

11. Settings reference

A quick map of every settings section.

- **Scale.** Source (N-EDO or Scala file). For N-EDO: divisions (2 to 96) and quick buttons. For Scala: scale picker, import, and manage scales.
- **Tuning.** Octave (minus 4 to plus 3) and Reference A4 (400 to 480 Hz).
- **Layout.** Pattern (named layouts or Custom). Custom sets the East and Up-right steps.
- **Arpeggiator.** Arpeggiate on or off, then Pattern, Rate, Tempo, Gate, and Octaves.
- **Keys.** Density (26 to 64 pt) and Show note labels.
- **Appearance.** Palette, with a swatch preview.
- **Velocity.** Source (Fixed, Accelerometer, Pencil / Force) and, for the sensing modes, a velocity curve (min, max, shape).
- **MPE Output.** Pitch-bend range (plus or minus 48, 24, 12, or 2).

- **Instrument.** Built-in sound, Mute, Voices, import single sample, build instrument from folder, import multisample, manage instruments, and the Sine preview tone.
 - **About.** App name and version, the built-in user guide, and the release notes (the same notes appear once after each update).
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12. Uninterrupted playing (iPad gestures)

When you play with several fingers, iPad's own system gestures can sometimes pull you out of the app. Hexatone reduces this where it can (it asks iOS to defer the edge swipes and hides the home indicator), but two of iPadOS's gestures cannot be disabled by any app:

- the **four and five finger multitasking gestures** (swipe to switch apps, pinch to go home).

For a performance with no interruptions:

- Turn off **Settings, Home Screen and Multitasking, Gestures** (the four and five finger gestures), or
 - Use **Guided Access** (Settings, Accessibility, Guided Access). Triple-click the side or home button to lock into Hexatone, and triple-click again to leave.
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13. Troubleshooting

An imported instrument fails to load or makes no sound, but still shows in the list. The most common cause is that the sample file names in the `.sfz` do not match the actual files (file names are case sensitive). Hexatone now tries to match names flexibly and will tell you exactly what is wrong (for example, how many samples it could not find). Re-export from the SFZ Builder, or check that the `.sfz` and its samples are in the same folder, then import again.

Microtonal chords sound out of tune on my external synth. The synth's MPE pitch-bend range does not match Hexatone's, or the synth is not in MPE mode. Set both to 48 (or any equal value), and make sure MPE is on. See [Driving an external synth over MPE](#).

A held chord goes silent on its own. The Hexatone Bell voice decays naturally. Use Hexatone Glass or a sustaining instrument for notes that ring forever under Hold.

Only some of my notes sound when I play a big chord. You have reached the Voices limit (or, for external synths, the MPE channel limit). Raise the Voices slider, or play fewer notes.

The app keeps switching away while I jam. That is an iPad multitasking gesture, not Hexatone. See [Uninterrupted playing](#).

An imported instrument is too large. Hexatone loads up to what your device can handle, which is more on capable iPads. If a pack is too big for your device, Hexatone tells you the reason instead of failing quietly. Use a smaller pack on that device.

Some keys play the wrong sound or are silent after importing a pack. A pack may be missing some of its samples, or unable to read them. Hexatone warns you and says what is wrong rather than playing the wrong sound for those keys. Re-export the pack with all its samples, or use the folder build, which lets the app map the samples itself.

14. FAQ

Do I need any other app to make sound? No. The built-in voices and sampler play in tune on their own. Other apps are optional.

Is there a subscription or in-app purchase? No. One price, every feature included. No accounts, no ads, no data collection.

What audio formats can I import? WAV and AIFF are best. CAF, M4A, AAC, ALAC, and MP3 usually work. OGG is not supported.

Can I use my own scales? Yes, import Scala `.scl` files. Imported scales are shared with the plugin.

Does it work on iPhone? Hexatone is iPad only for now. iPhone support is planned.

Does it support full MPE expression like a Seaboard? Hexatone sends per-note pitch (the microtonal dimension) plus velocity. The continuous timbre and pressure dimensions of touch controllers are on the roadmap. A flat screen cannot natively sense those, so they need careful design.

15. Privacy

Hexatone collects no data, has no tracking, and requires no account. Your scales and instruments stay on your device (and in the shared container that lets the app and the plugin see the same library).

16. Support and links

- Website: the Hexatone site (promo page, the free SFZ Builder, and the synth setup guide).
- Support and feedback: nrrrm@icloud.com

Thanks for playing Hexatone. If you make something with it, I would love to hear it.