

SintraWorks

METRON: FOLLOW THE BEAT!

User guide to the sequencing
metronome for iOS



Preface

Back in the dark ages of computing history, when choices of computer and operating system brands were plentiful and graphical user interfaces were scarce, I happened to be studying the violin at a conservatory of music. One day, our orchestra was presented with a modernist score for a violin concerto and I was asked to lead the second violins in that project.

I liked to prepare well for such tasks, so I set off to learn our part. As it turned out, this was a bit of a challenge: Pretty much every bar had a different time signature, whether 1/4, 3/16 or 7/8 and what not. On top of that there was hardly a note that aligned to a beat. Nearly all notes were syncopated across complex rhythmic patterns. So, being a computer hobbyist, I decided to try my hand at a metronome that could render the beats of this piece and allow me to practice whole sections, or the complete composition, slowly, and gradually speed up as I mastered the notated intricacies.

That first metronome had mostly numeric input, but it worked a treat and allowed me to arrive at the first rehearsal eminently prepared. It was also the inspiration for the metronome that is the subject of this book: Metron, a sequencing metronome, that can be used to efficiently practice scales and runs with gradually increasing speed, as well as to render complex rhythmic input that can easily be scored by you, the user.

This manual aims to teach you all the ins and outs of working with Metron. From the easy basic playback controls to the more powerful advanced features.

Nice to know for the techies amongst us: Metron lays out its rendering of beats and rhythms dynamically, by individual samples at a sample rate of 44.1Khz. Or, as I like to call it, it uses SamplePerfect™ technology, where each sample is laid out just in time, so that Metron can very quickly react to live tempo changes on the front panel. This means that if you record a session with beats at 60 beats per minute (BPM), then inspect the resulting sound file in a wave-form editor, you will see that each sample starts bang on the second, with no deviation. This however, does not mean that no deviation will take place during playback, as each individual device will play back at an ever so slightly different tempo, due to minute variances in the crystals that set the pace in a device. Yet, as metronomes go (or any sound player for that matter), this is as accurate as it's going to get, and these are deviations that for most intents and purposes are negligible. (Metron currently has no provision to sync with a master clock.)

A Sequencing Metronome

METRON

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At a Glance

Metron is designed to be very easy to use right out of the box. When you first start Metron you are presented with the most basic **sequence** that will show and play a single beat at a speed (tempo) of 80 beats per minute (BPM). You just hit the play button at the bottom of the screen and visual and audio playback starts. Increase or decrease the tempo by pressing the **+** or **-** buttons while paused or during playback. (There are several other ways to efficiently control the tempo, which are explained in the Controlling Playback chapter.) You can even **record** playback sessions, including any manual tempo changes you apply during a performance.

But Metron does more: it allows automated tempo changes per beat, per bar or per sequence, or even completely custom tempo changes by creating your own sequences with **tempo markers** and **accelerando** (speed up) and **ritardando** (slow down) markers, complex rhythms and multiple custom time signatures.

For live performers there is support for setlists. A **setlist** is a list of the songs a band or singer intends to perform at a concert. Setlist support is very flexible, with both automatic and manual interval control (Auto Advance settings and Pause duration).

A **pitch pipe** is available to support instrument tuning and more. The pitch pipe can even be on permanently during playback.

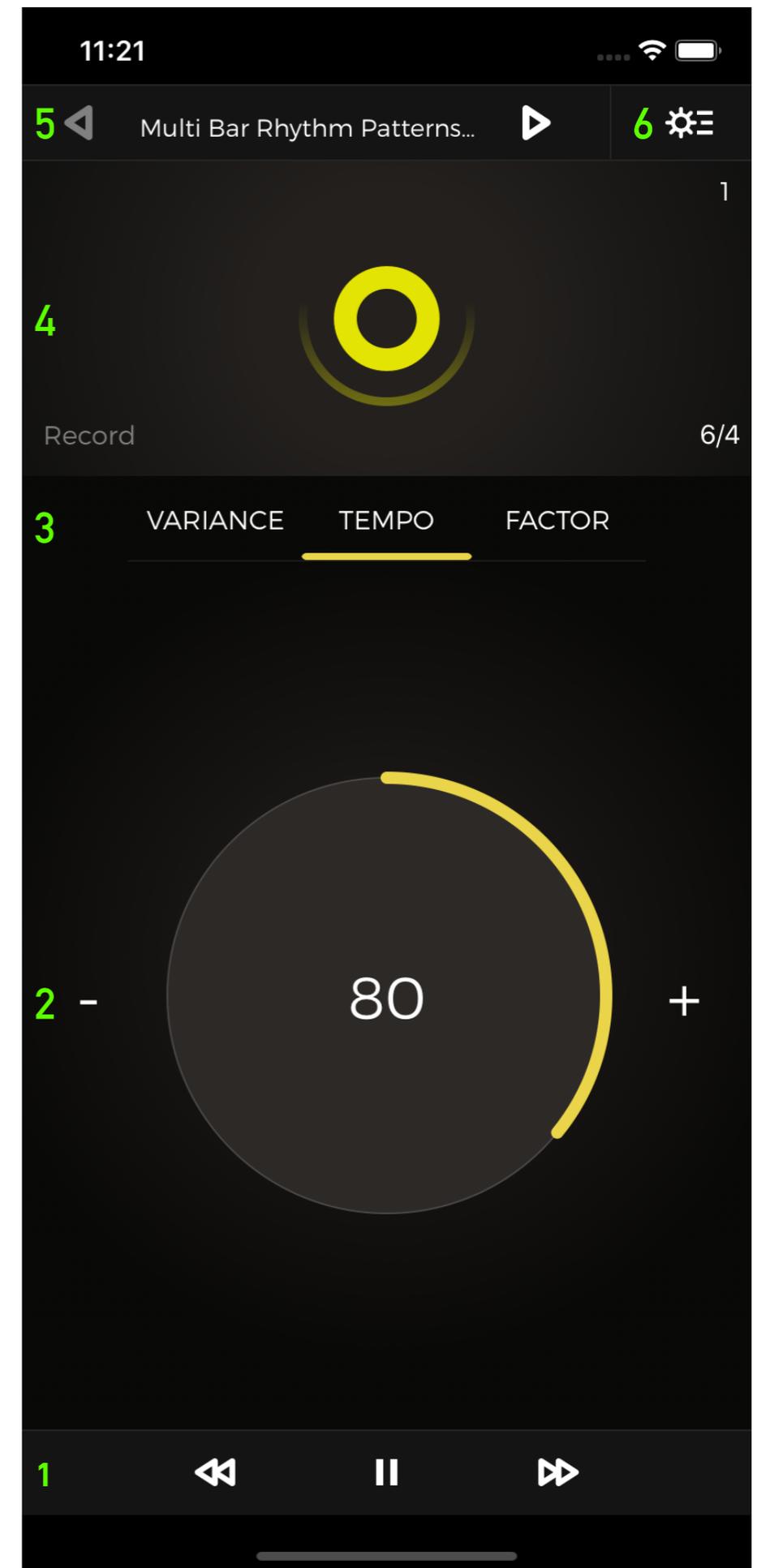
Sequences can be shared with other Metron users through the standard system sharing controls.

MAIN PANEL MAP

1. Resp. Rewind, Play/Pause and Fast Forward Buttons
2. Tempo Dial
3. Tempo Dial Mode Control
4. Beat and Bar Number Visualisation and Recording control
5. Sequence name and Setlist Navigation
6. Back Panel Access

Some buttons are only shown when appropriate:

- The Rewind and Fast Forward buttons are only shown for sequences that have multiple bars.
- The Setlist navigation buttons are only shown when Setlist Mode is active.



CONTROLLING PLAYBACK

The basics of playback control are very simple: Tap the **Play** button at the bottom of the screen and playback will start, at whatever tempo is currently displayed in the tempo dial. The play icon will change into a **Pause** icon. Tap it to pause playback.

When a sequence has more than one bar, the **Rewind** and **Fast Forward** buttons are shown. Tap them to move to the previous or the next bar. Double tap the Rewind button to quickly move to the start of the sequence. The current bar is shown at the top right of the beat visualisation area. A dot there indicates the countdown position.

Tempo Dial Modes

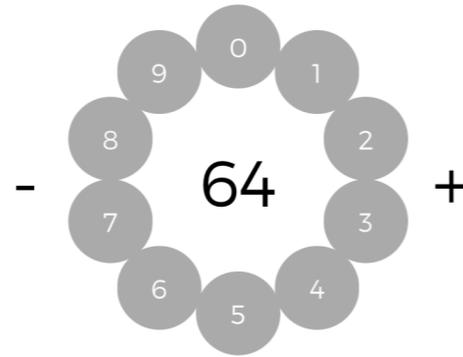
The **Tempo Dial Mode Control** controls the functioning of the **Tempo Dial**. Tap **Variance**, **Tempo** or **Factor** to activate the respective mode.

- In **Tempo mode** the dial controls the main playback tempo. It is used to set or change the tempo before and during playback. As you change the tempo, playback will immediately adjust to the new tempo, but other factors (e.g. variance or sequence settings) may again alter the tempo dynamically.
- In **Variance mode** the dial controls the acceleration or slow down of music over time (**accelerando** and **ritardando**). It will adjust the tempo by the specified amount. The adjustment can be done **per beat**, **per bar** or **per sequence**. Tap the **variance mode button** below the amount indicator to change to the desired variance mode. For single bar sequences the per bar and per sequence mode are effectively the same.
- In **Factor mode** the dial controls an overall factor that is applied to the current tempo. This is mainly useful in sequences that set their own tempo(s) and that you want to start practicing slowly, and then gradually faster, as your mastery grows. You can set a factor from 1/4 to double the indicated tempo values.

Tempo Dial Operation

You can operate the tempo dial in various ways:

- **Tap within the dial and drag** your finger clockwise or counterclockwise to respectively increase or decrease the tempo. The closer the tap is to the center of the dial, the faster, but harder to control, the tempo change is. The further away from the center of the dial (even to outside the dial bounds), the slower, and easier to control, the tempo change is. This allows easily jumping to a distant tempo by starting close to the center and moving away from it as you drag.



- **Tap and hold within the dial** to access a circular numerical dial. You can tap the desired number to move immediately to the desired tempo. The dial will disappear shortly after you've entered the number.

When the tempo dial is in variance or factor mode there is no numerical dial. In those modes you can tap and hold in the center to quickly reset the variance or factor.

- In tempo mode, the center of the dial also doubles as a **tempo pad: tap within the dial repeatedly** to set the tempo according to the pace at which you tap. This can be especially useful to find out a tempo you feel internally, or hear externally (e.g. the tempo of a song you are listening to).
- Tap the **+** or **-** buttons to increase or decrease the tempo by a single bpm. Double tap a button to alter the tempo by 10 bpms at a time. Tap and hold for auto increasing or decreasing. The longer you hold, the faster the acceleration or deceleration.

Visualisation and Recording

Above the tempo dial mode control is the **visualisation area**. This is where the beats are shown during playback (and the current bar in the top right if the sequence has multiple bars). If you want to record a playback session, tap the **Record button** to activate it, before tapping the play button. Tapping the Record button again will deactivate recording mode. Recorded sessions are saved and available on the back panel amongst the details of the recorded sequence, where they can be played back and/or shared with others.

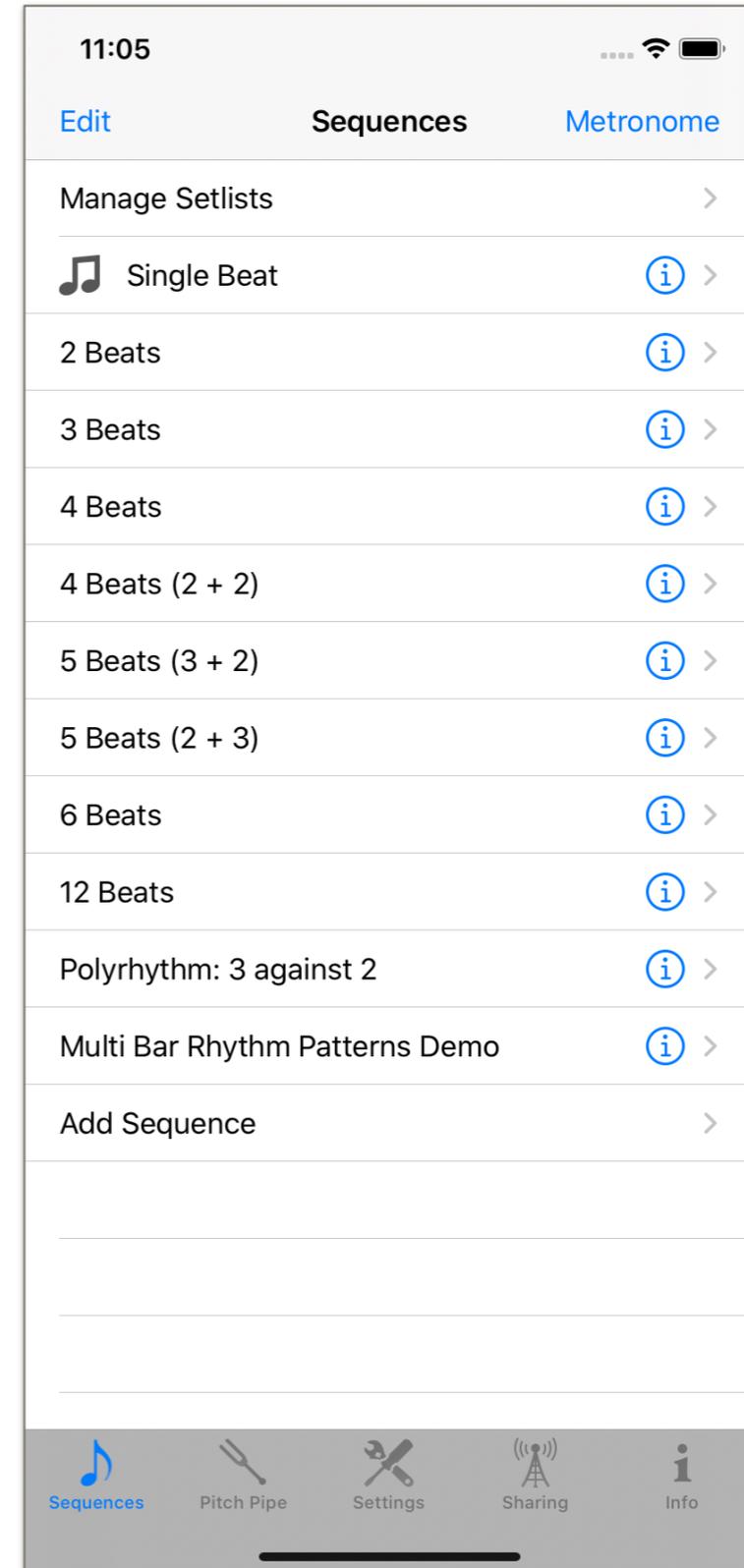
BACK PANEL



You access the **back panel** by tapping the tools icon in the top right of the main panel.

The back panel provides access to the **Sequences, Pitch Pipe, Settings, Sharing** and **Info** screens.

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MANAGING SEQUENCES

The sequences screen provides access to the list of available sequences and to the setlists. Metron provides a number of default sequences, but you can edit, add and remove sequences at will.

Tapping the top row takes you to the **setlist manager**.

When a setlist is active, its name will be shown in the top row.

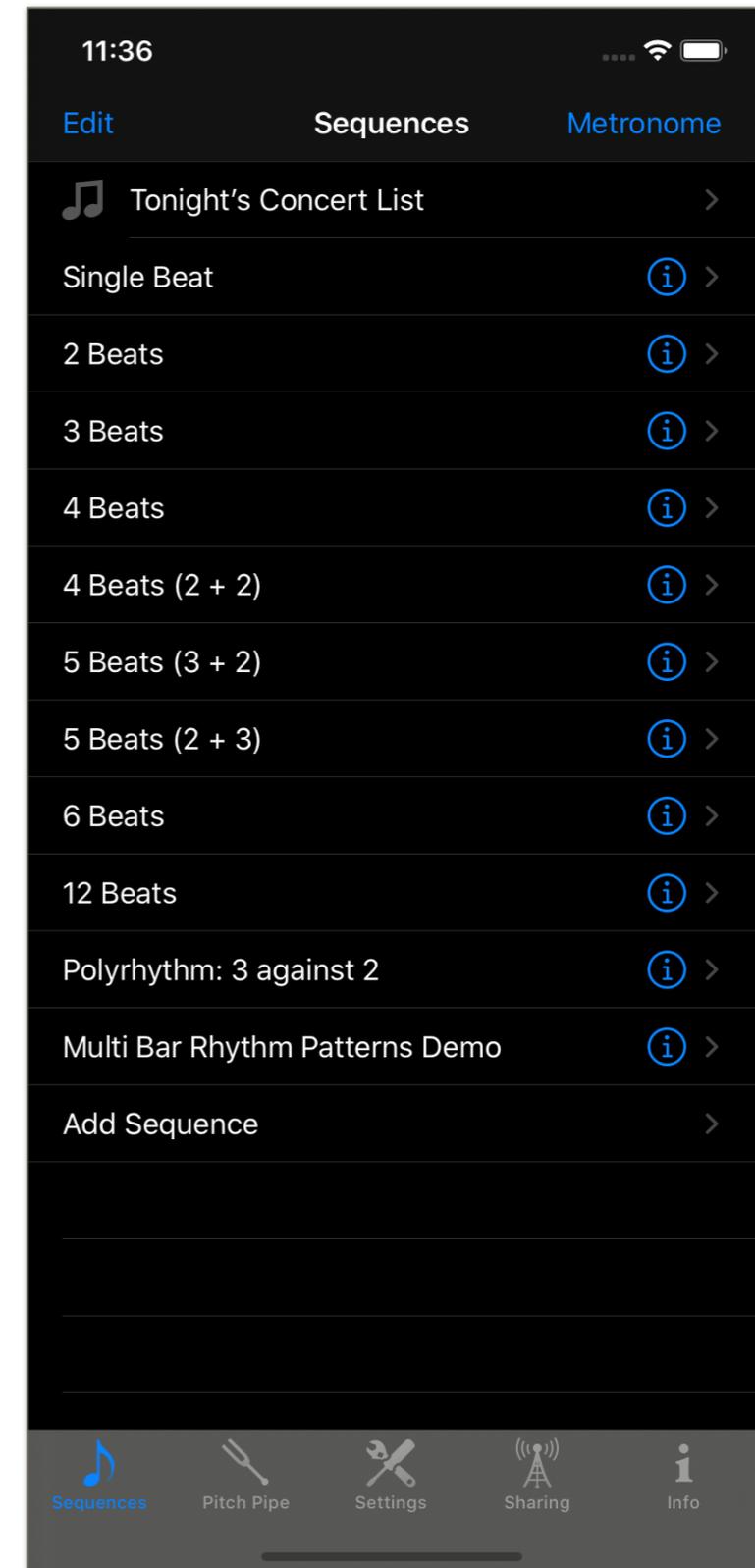
The **music icon indicates the active sequence** (or setlist).

Tap a sequence to select it. (You cannot select sequences from the list when setlist mode is active.)

Tap the **info button** to access the **sequence editor**. This provides access to sequence settings and the score editor.

Tap and hold a sequence name for a contextual menu that offers to **duplicate a sequence**.

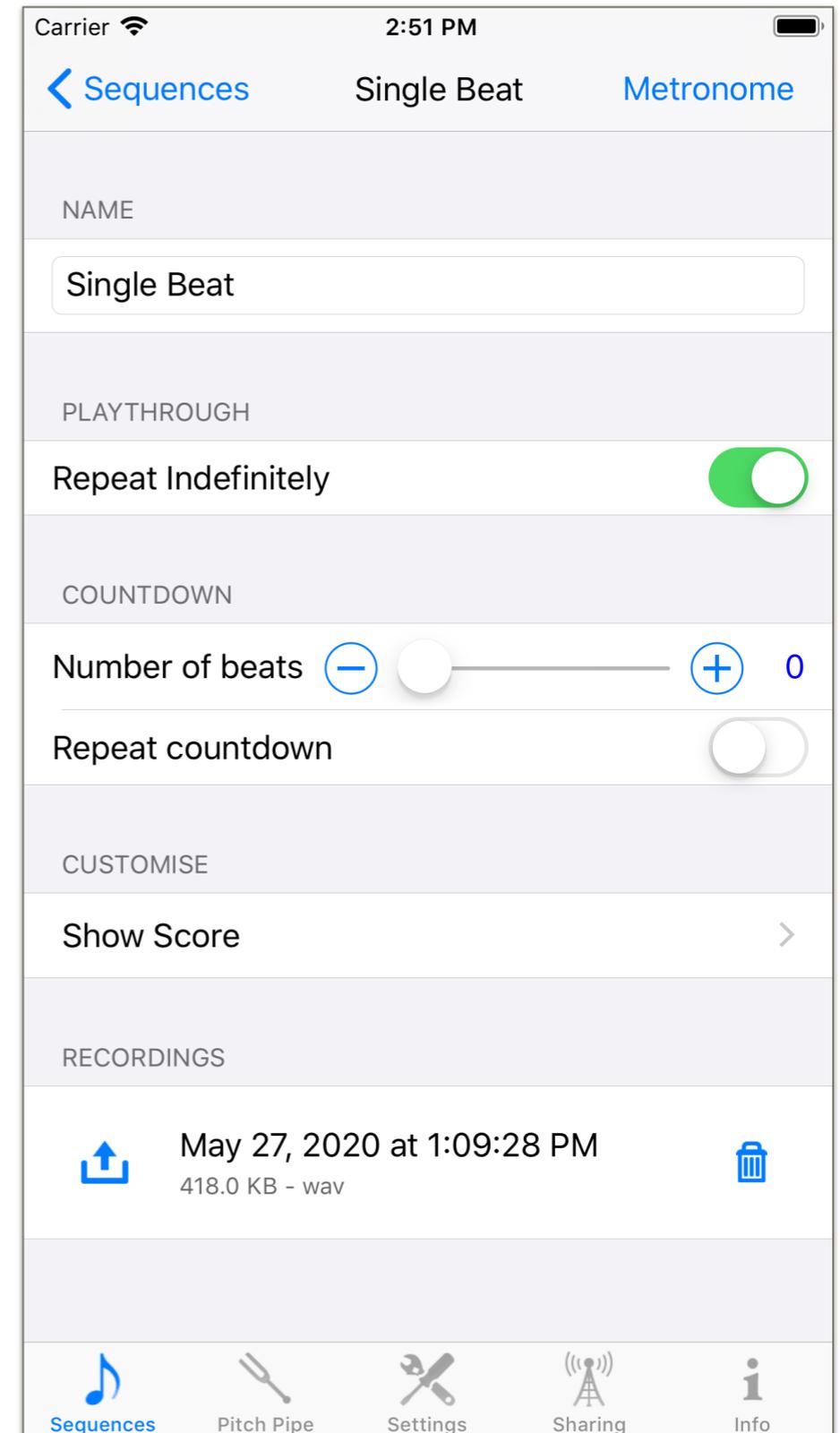
Tap the **Edit button** to edit the list of sequences.



SEQUENCE EDITOR

The **Sequence Editor** allows setting sequence properties, as well as providing access to the score editor. The **Score Editor** is where you compose a sequence.

- **Name:** The name of the sequence.
- **Playthrough:** Whether to repeat the sequence indefinitely or to stop playback at the end of the sequence. (This is on by default).
- **Countdown:** The number of beats for the countdown and whether the countdown is repeated when the sequence restarts from the beginning (needs Repeat Indefinitely to be activated for it to have an effect).
- **Show Score:** Show the score editor where you can compose your sequence.
- **Recordings:** Recorded sessions appear here. Tap the date to play, or the share button to share the recording.



Tap the trash icon to remove the recording.

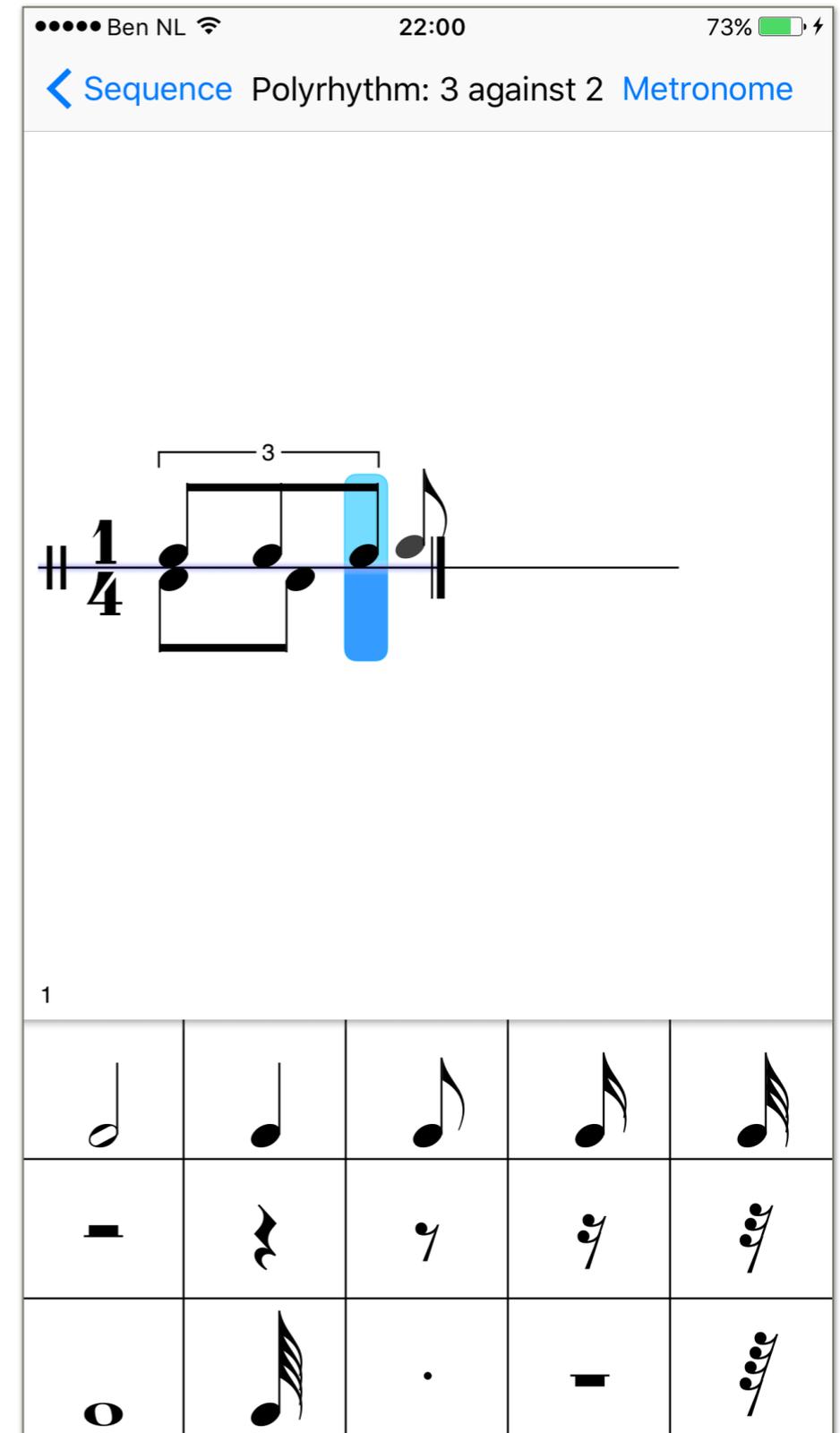
SCORE EDITOR

The score editor is easily the most complex, but, for many, also the most fun part of Metron. This is where you can **compose a sequence**. Sequences can have up to two **voices**, so that you can mixed rhythms (polyrhythms).

To **edit an element** in the score, simply tap and hold it. A contextual menu will appear with choices appropriate for that item, or for the selected items in the case of a multiple selection.

To add notes and rests drag them from the bottom menu to the desired location in the score. A bicolored cursor will indicate where the entry will be dropped. It is possible to create templates of groups of notes to facilitate efficiently adding commonly used rhythmical patterns to a score.

To add (or remove) bars, tap anywhere within a bar and select the **Bar** menu item. This will present a number of **bar editing options**: Remove Bar, Insert Bar Before, Insert Bar After, Duplicate Bar, Edit Repeats, Reset Beams. (The last



bar in a sequence cannot be removed.)

To **remove an element** from the score tap and hold it, then drag it down, to outside the score area. It will vanish in a puff of smoke.

When adding notes or rests, drag an element up to above the bar line to add it to the top voice. Drag it to a bit under the bar line to add it to the bottom voice. When a bar has a single voice, the entries are centred over the bar line.

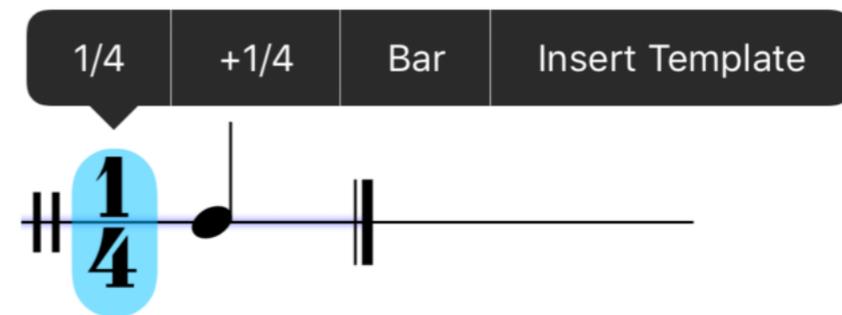
When there are two voices, the top voice is placed above the bar line and the bottom voice below it.

Beaming

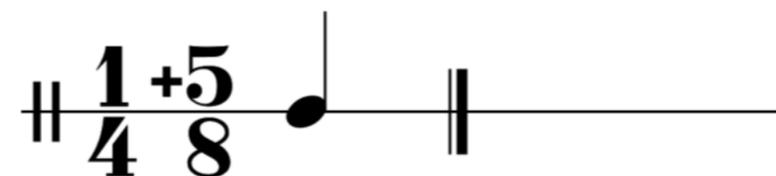
Notes can be beamed together: to beam notes, or break beams, swipe a finger up or down between the notes. In the top voice swiping down will beam, swiping up will break beams. In the bottom voice this is reversed. In normal layout mode, especially with short note values, beaming can be a bit challenging. You can double tap the score to enter **wide mode**, this will result in a wider spacing between the notes and a greater focus on beaming. Double tap the score again to exit beaming mode. Depending on the context, a single swipe up or down may beam, or break, one or multiple beams.

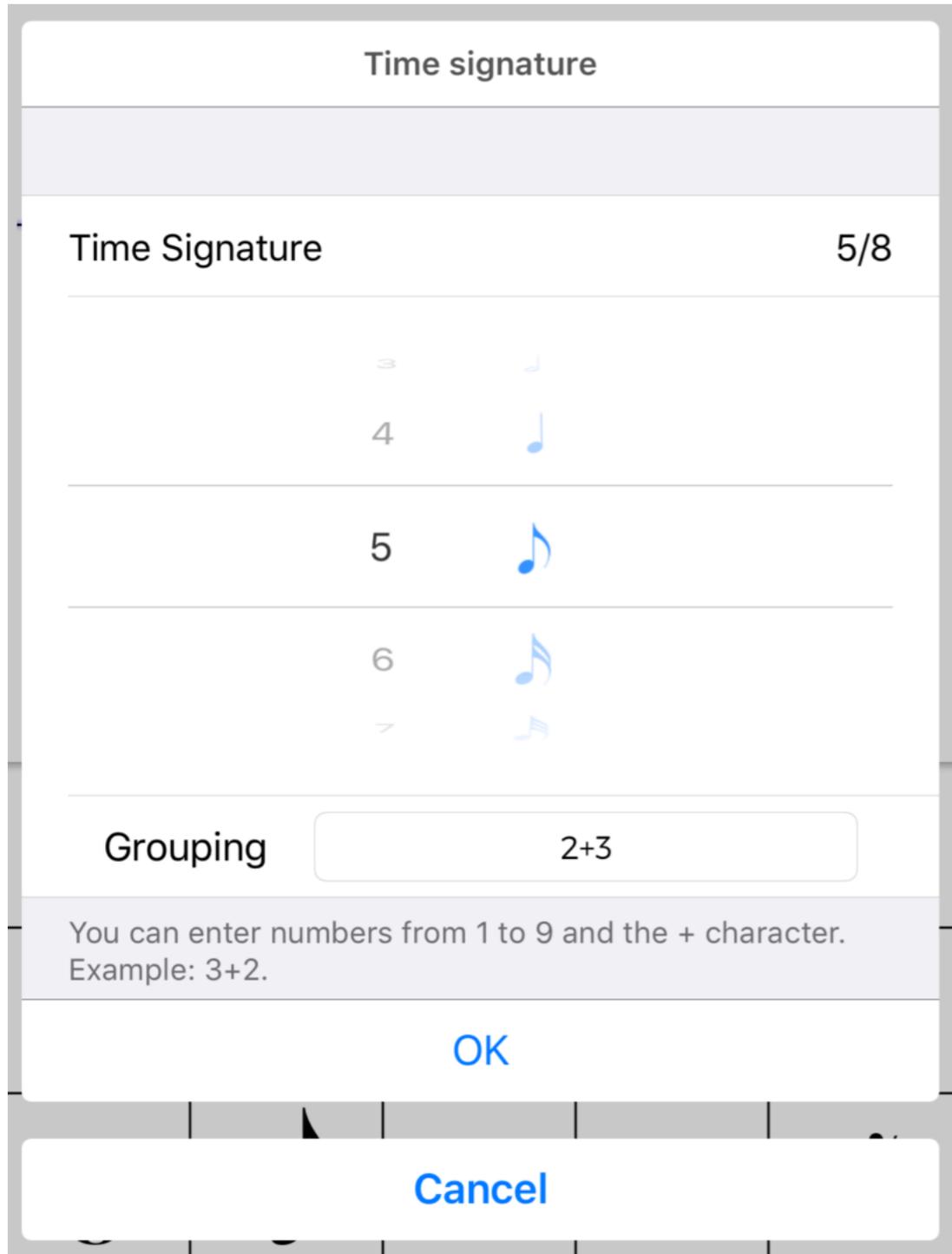
Time signatures

You can add multiple time signatures per bar to form complex time signatures, and each time signature can define groupings that will result in different accents during playback. For instance, music in 5/4 time is usually beamed either in groups of 2 + 3 or groups of 3 + 2. You can define the groupings when editing a time signature.



To **edit a time signature** tap and hold it until the contextual menu appears. To add a time signature tap and hold anywhere within a bar. If you tapped on a time signature, the contextual menu will show as its first item the signature values, including any defined groupings. Tap the item to edit it. To **add a time signature** select the menu item with a + prefix.

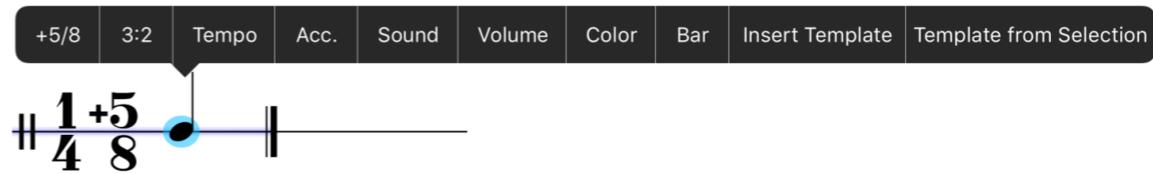




In the **time signature editor** select the desired values, and if grouping is needed, enter the grouping into the **Grouping** box.

Editing notes

Tap one or more notes to select them. Hold the tap on the last selected note until the contextual menu item appears:



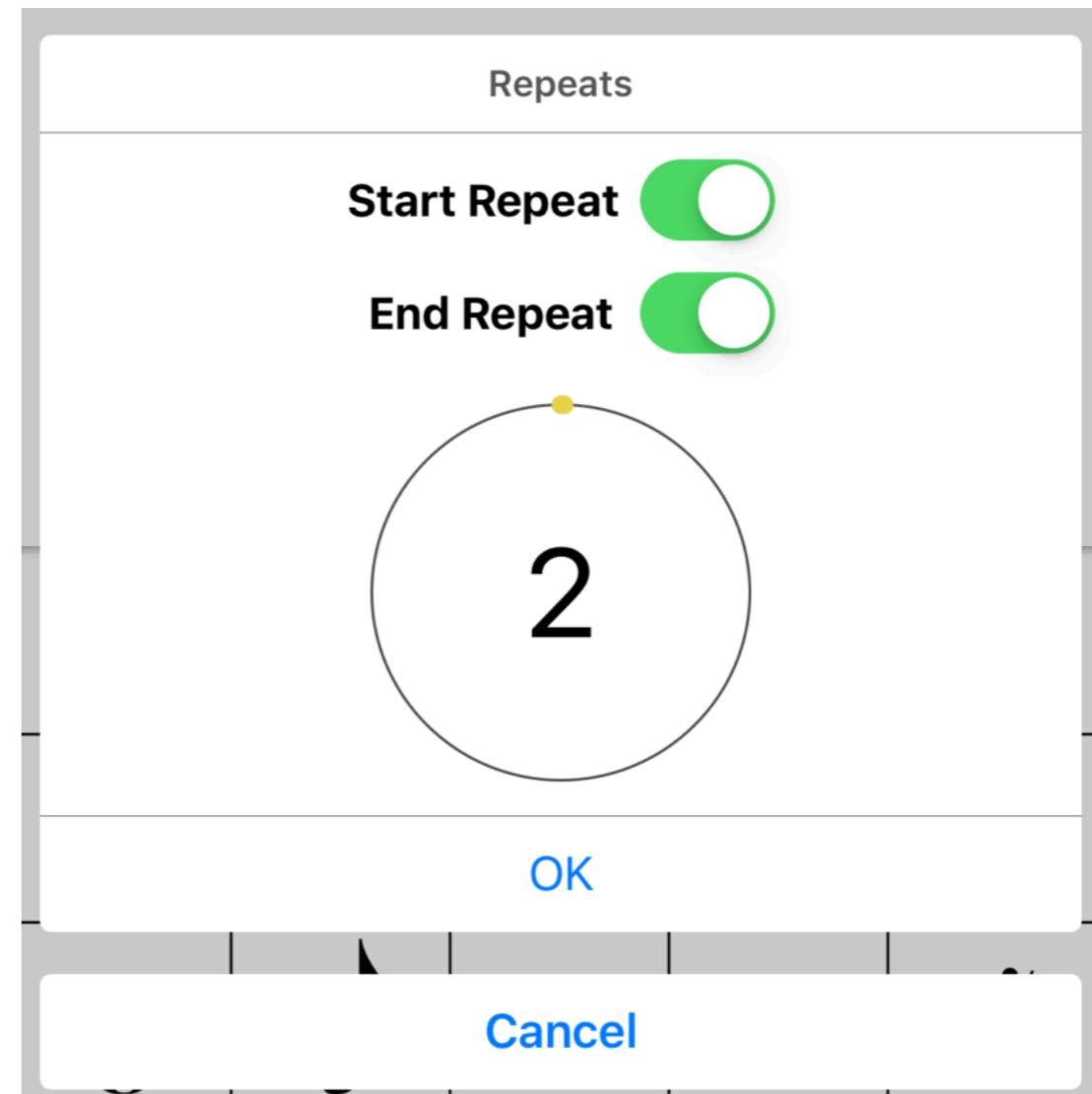
The following note/rest related items are available:

- **Tuplets** Select the notes that will be in the tuplet and then select 3:2 from the contextual menu to enter the tuplet editor. There you can define any tuplet you wish. Tuplets can be nested. To remove a tuplet drag a note or rest of the same nominal value from the toolbar and drop it on the first note of the tuplet. The tuplet will be removed.
- **Tempo** Set a tempo change on any note or rest.
- **Acc.** Start an accelerando (speeding up) or ritardando (slowing down) on any note or rest. These dynamic tempo changes can be set to alter tempo per beat, per bar, each time they are hit as the sequence repeats, or stepwise from the current tempo until the next tempo.

- **Sound** Set a custom sound on each selected note. A custom sound overrides the default beat sound. It is possible to import your own sound files, this will be explained a bit further on.
- **Volume** Set a custom volume on each selected note. This allows the creation of accents during playback.
- **Color** You can set a custom color per note. This is the color with which the note will be visualised on the front panel during playback.
- **Insert Template** This option will show a list of defined templates. A template is a predefined group of notes and rests. Select the desired template to enter the pattern after the last entry in the current selection. (To delete a template swipe to the left on its entry in the list, then tap the **Delete** button.
- **Template from Selection** If you have one or more notes and or rests selected, choose this option to define a pattern template. You will be asked to name the template, and it will subsequently be shown in the template list.

Editing Repeats

Through the Bar option in the contextual menu on a bar you can access the repeats editor by selecting **Edit Repeats** from the list of available options.



For each bar you can define whether it starts and/or ends a repeat, and how many times it should repeat.

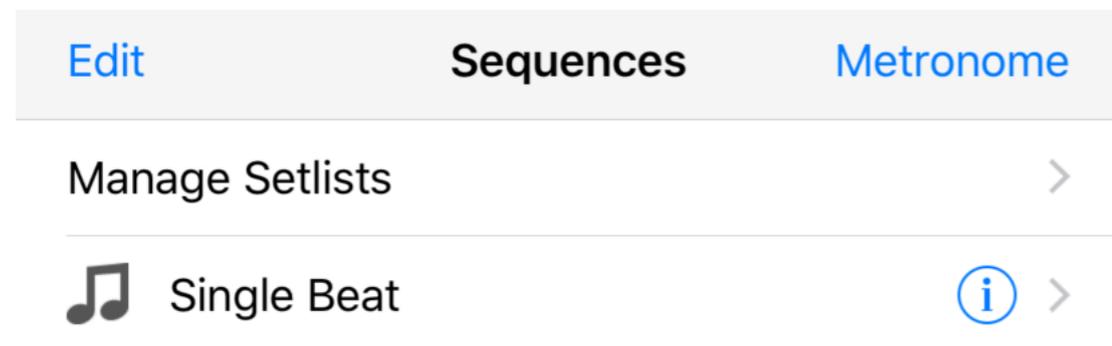
Importing custom sounds

Metron comes with a rich selection of factory-provided sounds for playback, but if you have a preference or need for other sounds, that are not available by default, you can import sound files into Metron. To import a sound file, find a way to get it onto your device. For instance by emailing it to yourself, from another device or computer, or by Airdropping it or through iCloud drive if available. Tap the sound file on your device, and if it is in one of the supported formats, you should see Metron listed in the list of apps that can open the file. Tap **Open in Metron** to import the sound file. If the Open in Metron option doesn't appear, tap the **More...** button and select **Open in Metron** from there. Supported sound file formats are: **wav, caf, aif/aiff, m4a.**

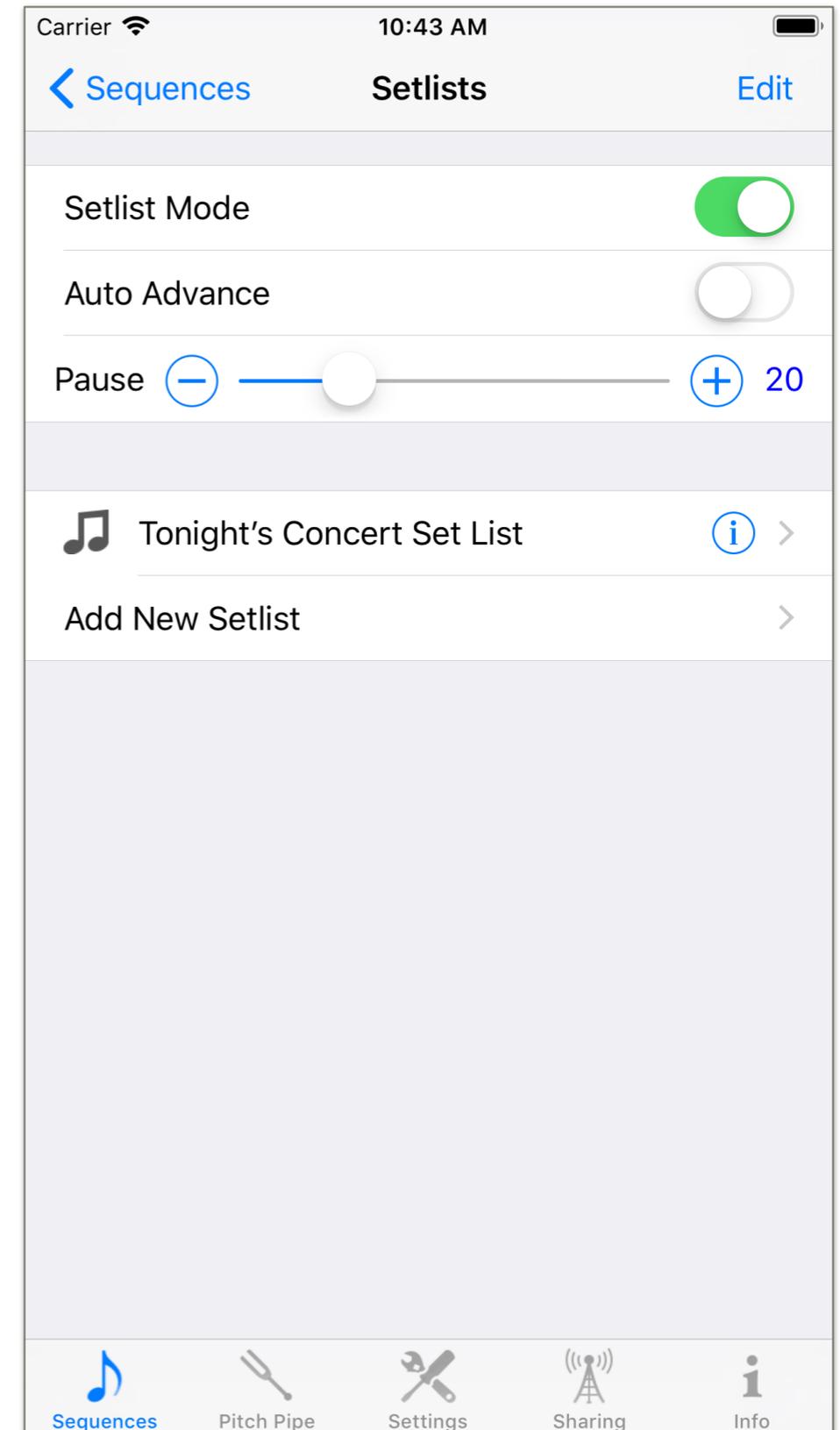
MANAGING SETLISTS

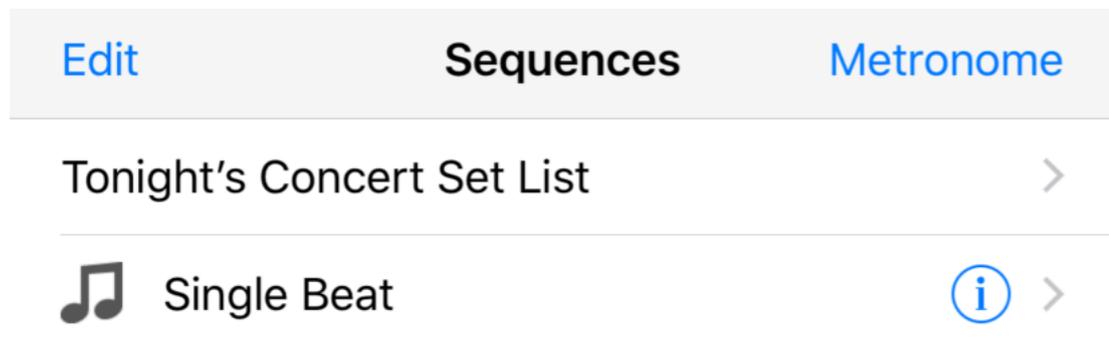
A **setlist** is a list of the songs a band or singer intends to perform at a concert. Metron provides flexible support for setlists as an aid during performances. Setlists can be manually navigated from the front panel, or they can auto-advance through their listed songs, with a custom interval (the **Pause**) of up to 90 seconds, between each song.

To edit setlists, tap the top row in the list of sequences. If no setlists exist yet, the row will be titled **Manage Setlists**.



Otherwise, it will show the name of the setlist selected in the setlists editor.

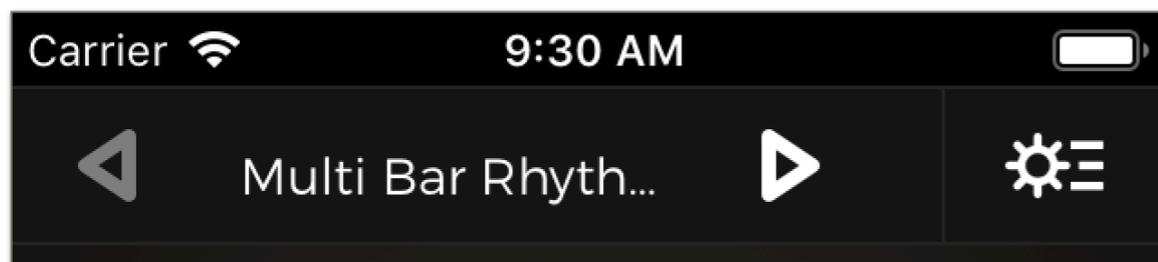




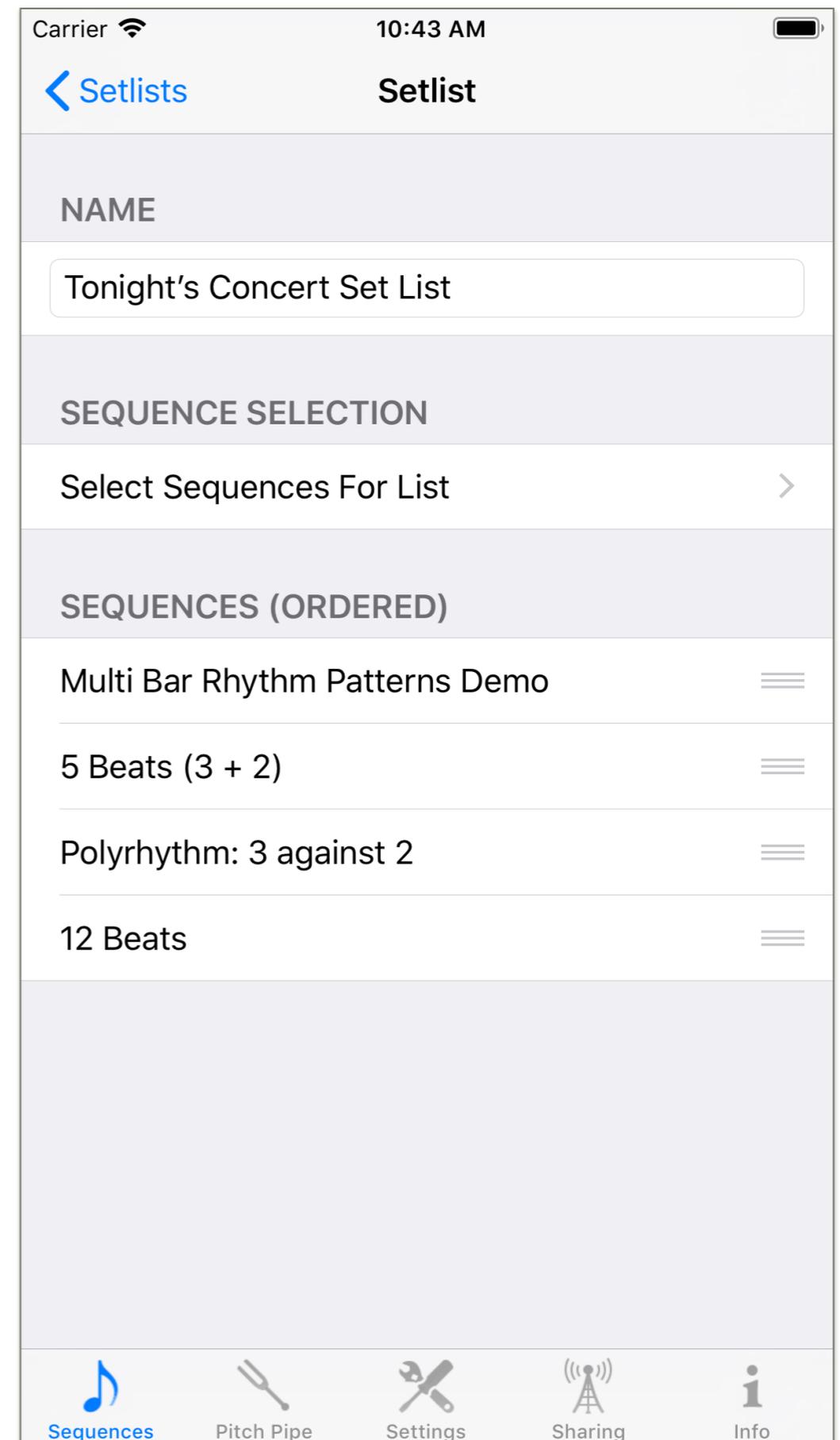
To activate setlist mode, tap the **Setlist Mode** button. **Auto Advance** enables advancing automatically between the sequences in a setlist, with a **Pause** of a custom amount of seconds between each song (from 0 to 90).

You create setlists by tapping the **Add New Setlist** button. This will take you to the setlist editor, where you can set a name for the setlist and select and order sequences.

During a performance, with setlist mode activated, the sequence name area becomes the setlist navigator.



A back and a forward button surround the current sequence's name. Setlist playback starts by tapping the play button. If Auto Advance has been activated, and a sequence is finite (i.e. **Repeat Indefinitely** is off), then



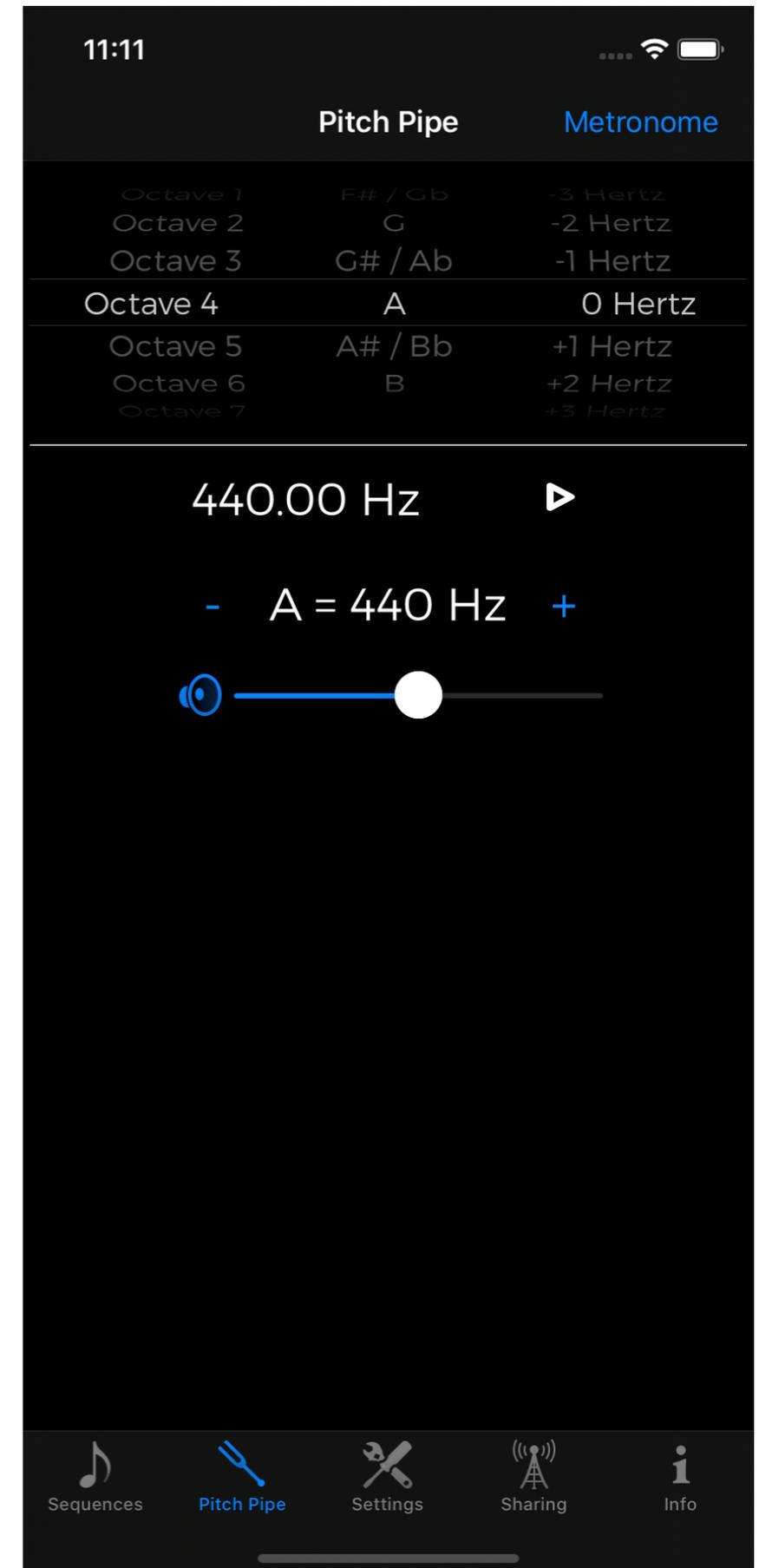
Metron will advance and start playing the next sequence after **Pause** number of seconds, as set in the setlist editor. If a sequence is infinite, then, to move to the next sequence in the list, you need to use the forward button. If Auto Advance is deactivated and the sequence is finite, then playback will stop at the end of the sequence.

You can manually move to the next sequence by tapping the forward button, and then tapping the play button to start playback. If the sequence is infinite, tapping the forward button will move to the next sequence and continue playback. You may also first pause playback and then move to the next sequence, and tap the play button to resume playback.

PITCH PIPE

The Pitch Pipe is primarily intended as a tuning aid, but, since it can be on permanently during playback, can also be used as a drone during practice.

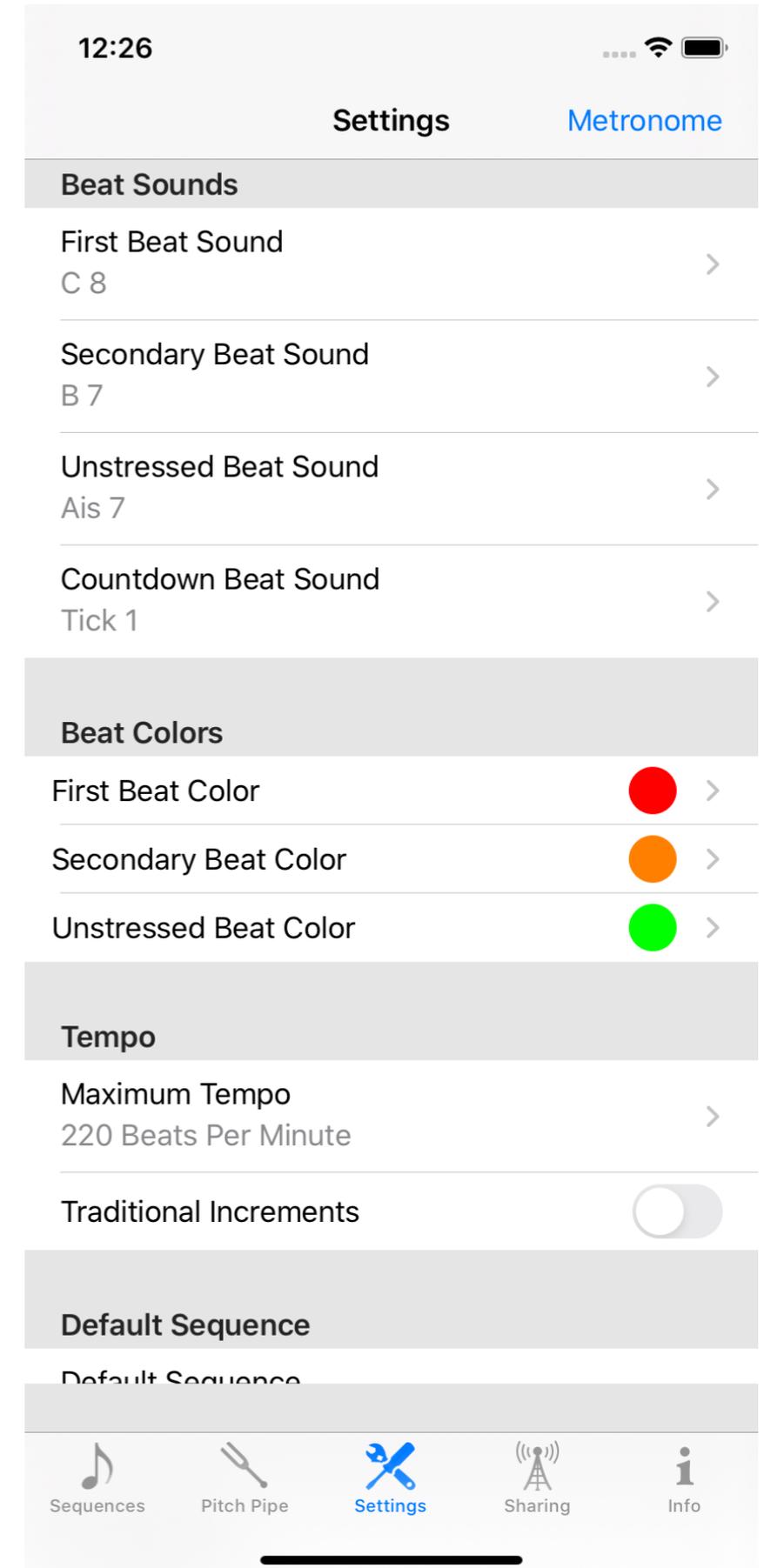
The Pitch Pipe editor allows you to select an octave and a note and play it back at a desired volume. The tone can be adjusted by individual hertz or cent units, and the base tuning of the pitch pipe itself can be adjusted per hertz as an offset from 440 herz. So, if you want to tune to A4 = 435 Hz that is easily done.



SETTINGS

Under the **Settings** tab you can change the following settings:

- **Beat sounds** These are the default sounds Metron uses to render the various types of beats. In the score editor, custom sounds can be assigned to beats. These will override the default beat sounds.
- **Beat colours** These are the default colours Metron uses to visualise the various types of beats. In the score editor, custom colours can be assigned to beats. These will override the default beat colours.
- **Maximum Tempo** You can decide the range of available tempi on the front panel, all the way up to 999 beats per minute. The default is 220. You can also constrain tempi to the commonly available values of traditional mechanical metronomes. Between the maximum upper range here, and the Factor control on the front panel, Metron has an effective BPM range of 1 beat per 4



minutes, up to $999 * 2 = 1998$ beats per minute.

- **Default sequence** Whether Metron, when it is started, shows the first sequence in its list of sequences, or the last active sequence.
- **Note Names** Metron can show note names in its interface, in its default (C, D, E, F, G, A, B) style, or in alternative German (C, D, E, F, G, A, H) or Latin (Do, Re, Mi, etc.) name styles.
- **Pitch Pipe** Here you can set whether pitch pipe adjustments under the Pitch Pipe tab are made available by Herz or Cent units, and whether the pitch pipe will play on the front panel during playback.
- **Audio/Playback**
 - Mix with background music** When this setting is on, Metron will play while music from another source is already playing.
 - Prevent screen lock** Turn this feature on to ensure the screen doesn't go to sleep and locks while a sequence is playing.
- **Factory Settings.** Under this heading you can reset to the factory provided sequences and rhythm templates.

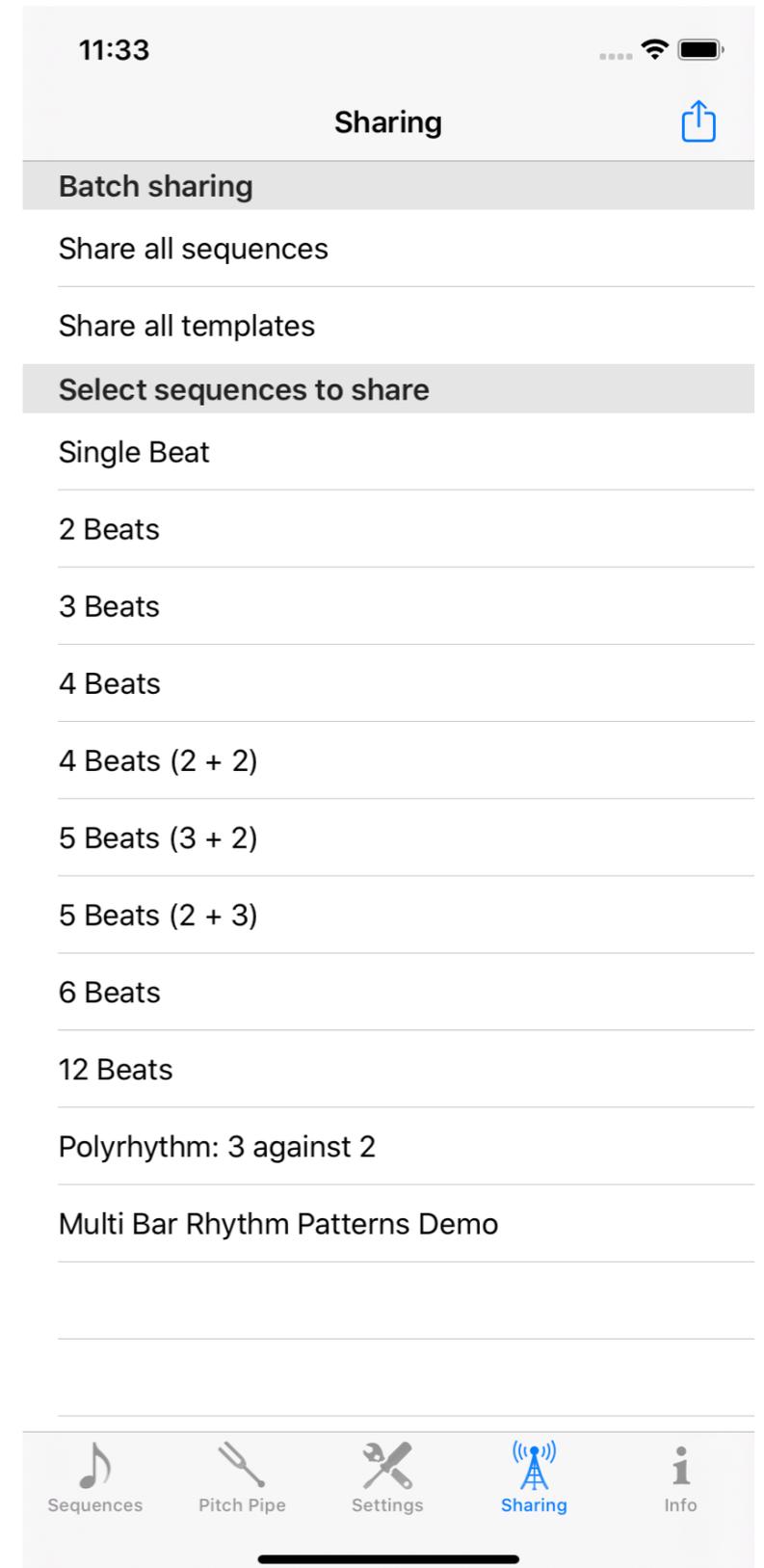
Be aware that this will remove any custom sequences you may have added.

- **Tips and Usage.** Here you can reset the tips and usage alerts so that they will be shown again the next time you access any screen that shows such an alert.

SHARING SEQUENCES

You can share sequences (and pattern templates) from the **Sharing** tab. Select the desired sequences from the list and then tap the share button at the top right of the screen. You will be presented the standard iOS sharing interface, from where you can share your sequences, for instance through email, iCloud or Airdrop.

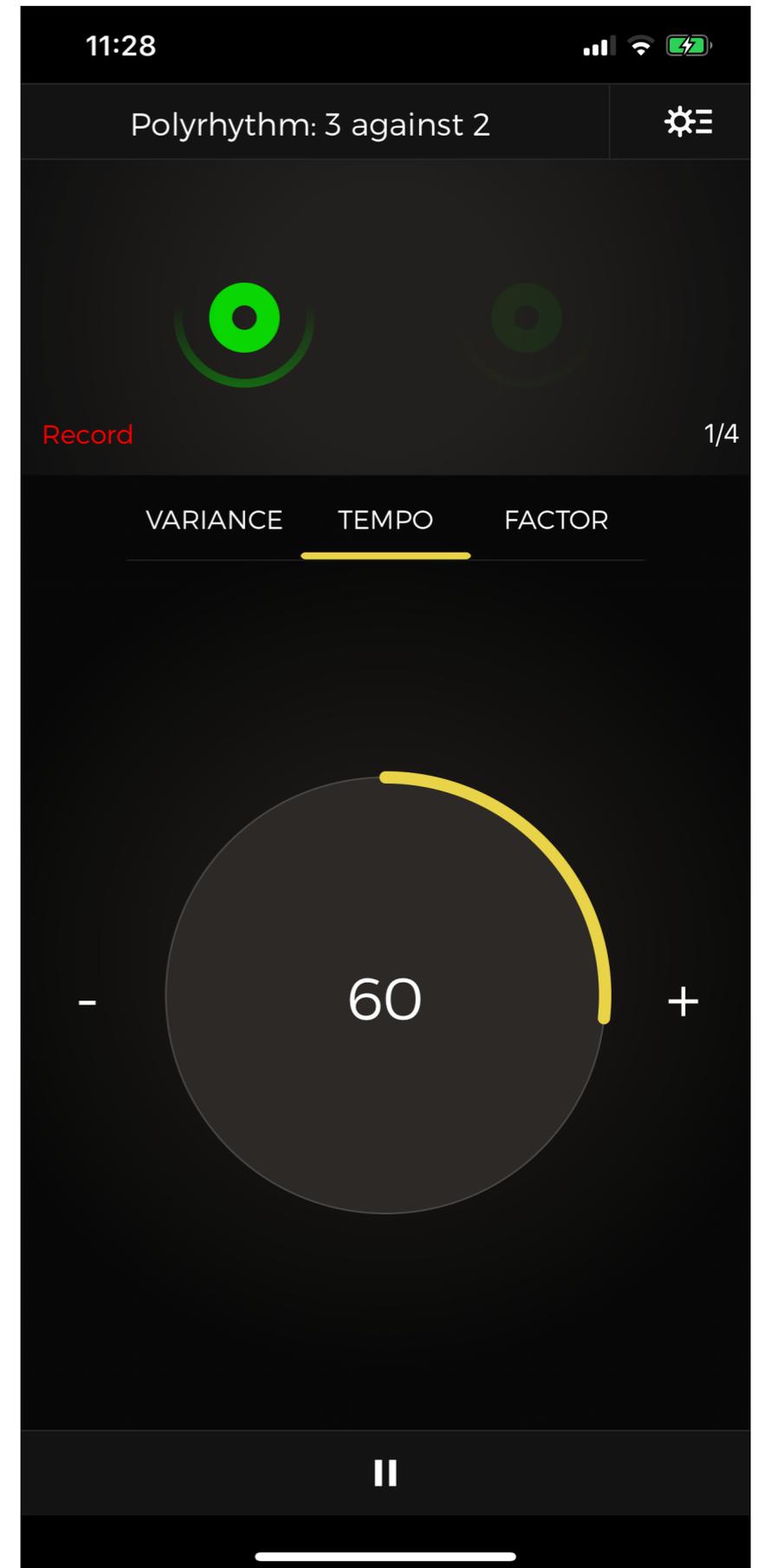
Sequences are shared through a proprietary, but humanly readable format.



RECORDING PERFORMANCES

To record a performance, tap the **Record** button at the bottom left of the visualisation area. It turns red to indicate that recording will take place. Recording starts when you tap the play button. Recording stops when you tap the pause button. To turn off recording altogether tap the Record button again. It will grey out. The recording will faithfully record any live tempo changes you make during the session.

Once the recording session has finished, the recordings are made available in the [sequence editor](#), where you can listen to them, or share them with others.



TECH SPECS

- Sample Rate: 44.1Khz. Sample deviation: 0.0.
- Nominal Beats Per Minute (BPM) range: 1–999. Effective BPM range: 0.25–1998.
- Pitch Pipe range from 0Hz to over 8000Hz (i.e. Octave 0 C to Octave 8 B, plus micro adjustments).
- Polyphony: 2 voices. (Three voices counting the pitch pipe as a drone during sequence playback).

