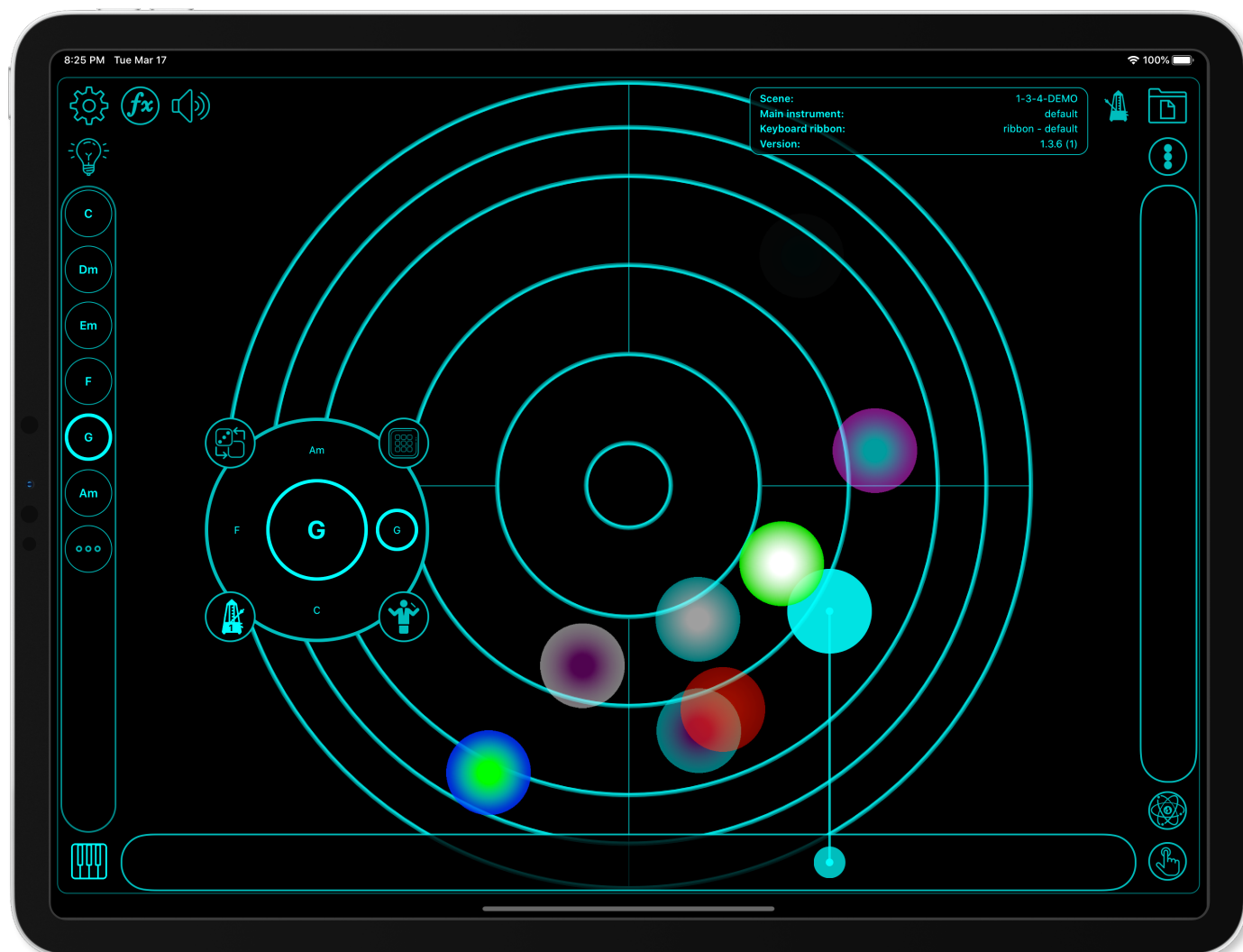# touchscaper user guide - v1.3.6

Welcome

Welcome to the touchscaper user guide! I wanted to create an app that's fun and easy to use, but also expressive and powerful for musicians and non-musicians alike.

I've tried to make this user guide fairly detailed, but please do check out demo and tutorial videos on YouTube. Doug at The Sound Test Room has done some great demos of the arranger and sequencer which should be very inspiring! You can also support Doug via Patreon so he can keep on doing what he's doing.

I really hope you enjoy touchscaper and I look forward to hearing your creations!

Rob Jackson, touchscaper developer.

What is touchscaper?

Touchscaper is an instrument designed to be played by touching the screen and changing the sounds by touch movement. You don't have to be a "proper musician" to get satisfying results, but if you are, touchscaper is very configureable under the hood. Want an F# diminished chord or a double harmonic minor scale? No problem!

In the screen above, the small circles show the initial touch location, and the larger circles and lines track movement as you play the instrument. There are two basic building blocks used in touchscaper.

"Scenes" are a collection of chords and corresponding scales. A simple example would be a C, F and G major chord progression linked together with a C major scale. You could then save this scene as "just about every Country & Western song". Chords are selected from the list on the left of the screen shown above.

"Instruments" are created by combining two of touchscaper's built-in sounds to create interesting and evolving layered effects. Each layer voice is then configured to handle horizontal and vertical touch movement. Moving touch up or down for example, could control the volume level of that voice, and left to right could control the pan position. Expressive instruments can be created by mixing and matching these controllers for different characteristics. You can even add touch automation and drums and bass accompaniment using the built-in 16 step probability sequencer.

Getting started

Touchscaper comes with several preset scenes and instruments accessible from the browser, opened by tapping the folder button, top right. Scenes have an associated instrument, so as you select scenes, the corresponding instrument will also be loaded.

Browse the presets and take a look at how they've been configured to get a better understanding of the more technical details of the app. Often a preset is a good jumping-off point for creating your own scenes and instruments.

Now would be a good time to have a play with the app if you haven't done so already, before going into more detail!

Main instrument views

There are three main playable areas of the screen. The central main "radar" view, the scale "ribbon" to the right, and a conventional piano-style keyboard or additional ribbon accessible from the button, bottom left.

Radar

The "radar" view is probably where you'll make most of your music. Don't worry too much about the lines or circles - they're simply approximate visual guides. The main things to remember about the radar view are:

- Centre rings - low notes
- Outer rings - progressively higher notes
- Lower quarters - more basic chords (increased probability of root notes)
- Upper quarters - less basic chords (reduced probability of root notes)
- Right hand quarters - potentially, more interesting chords!

By design, the radar view does not allow you to specify exactly what notes you will hear even if you keep tapping the exact same location. Instead, touchscaper is driven by a probability-based engine that tries to select "good" notes for you depending on where you touch the screen. There's a whole bunch of other stuff going on under the hood too, but that's secret!

I hope that once you get accustomed to this slightly unconventional interface, you'll grow to trust the app to pick good notes for you, and you'll never want to play a major triad on a conventional piano keyboard again! Only joking!

The radar is potentially the most musically expressive part of the app, so please do experiment and explore, in order to get a feel for how the app responds to your touch, just as you would with any other musical instrument.

Hold & orbit modes

Hold (hand icon) mode allows you to hold notes that are currently being touched. Orbit (satellites icon) mode will animate the controllers to create evolving and shifting sounds.

## Performance note about orbit mode

Orbit mode animation can be quite demanding on the CPU, especially for older generation devices. In the advanced settings options, you can turn off the animation while still hearing the orbit variation in the sounds. This uses the same technique used in background mode to save CPU. When orbit animation is disabled, the controller graphics are highlighted with the orbit icon.Special note about iOS multitasking

The radar view can handle multiple touches, however iOS can also interpret multiple touches as multitasking control gestures. You can either limit your radar touches to three (not ideal) or turn off this option from *Settings -> General -> Multitasking & Dock*:
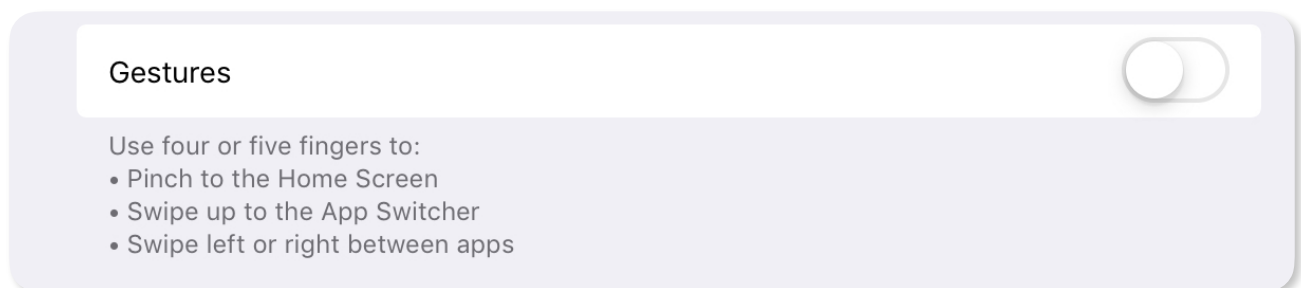
Ribbon (side bar & keyboard ribbon)

The ribbon view is the strip on the right hand side of the screen. It has two modes of operation denoted by the button above it.
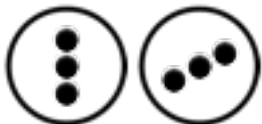
The vertical stacked dots represent "chord mode" and the staggered dots, "scale mode". Depending on the mode, touching within the ribbon controller allows you to rapidly zip through the notes in the current chord or scale in that scene like a prog-rock keyboard wizard!

Keyboard

Occasionally you may find the need for a conventional keyboard so one is provided, accessible from the keyboard button bottom left. Alternatively, you can have a ribbon style keyboard with a different sound.


You can also highlight scale notes on the keyboard (via the settings / cog button) and change its theme colour.

Keyboard Ribbon

You can also have a horizontal ribbon style keyboard which works in chord or scale notes mode as per the side ribbon. Please note the behaviour of this ribbon is different to the sidebar ribbon in several ways:

1. You can assign a different instrument to the keyboard ribbon, for example as a lead vs. pad sound.
2. The keyboard ribbon tracks pitch change horizontally so you can whizz up and down chord arpeggios or scales and still have control over volume with vertical touch position.
3. You can add vibrato to notes with side-to-side finger movement whilst holding notes.

Keyboard ribbon instruments are assigned and edited from the Settings view:
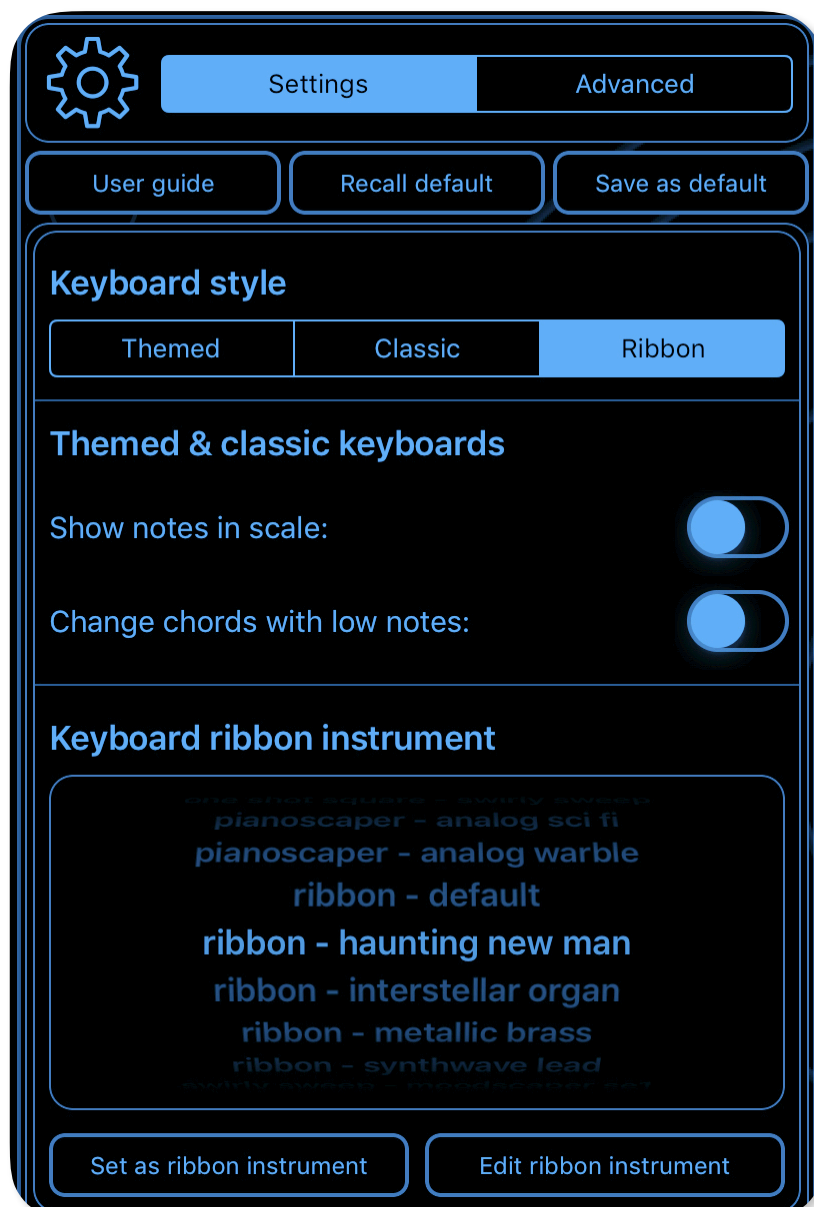
Scenes

Scenes are a way of describing one or more chords and associated scales. The way a scene is configured, determines the notes you hear when the radar or ribbon area is touched. Typically, a scene will represent a chord change in a song so you can use touchscaper to play along with other instruments or musicians.

Creating and editing scenes can go down two separate paths. Simple and advanced. It's quite possible that the simple view will get you to where you want to be 90% of the time, so don't worry if the advanced view looks a bit overwhelming at first.

Creating a new scene starts off with specifying a key and initial chord. This helps touchscaper later on when deciding on scales to use alongside subsequent chords added to the scene. Create a new scene by tapping the light bulb "idea" button.
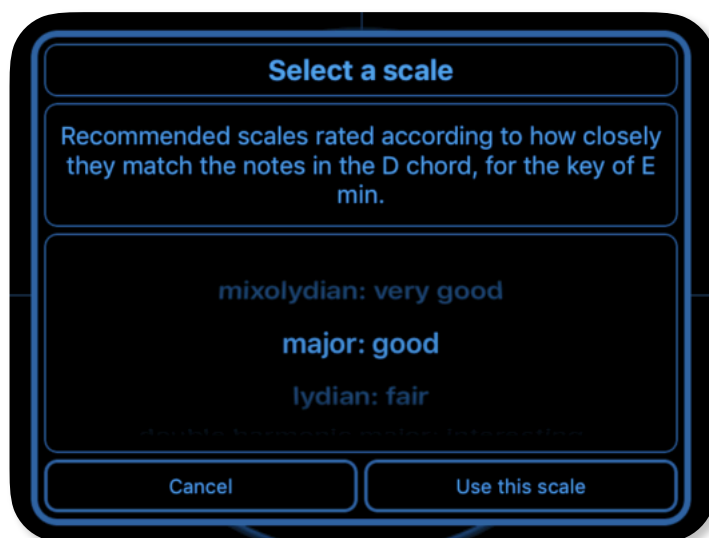

In this example we're kicking off in the key of C major, but don't worry too much about your initial key and chord as they can both be changed later.

Once a key and initial chord have been selected, you can use the simple scene view to build up your chord progression. Here's one with a few chords added already.

As you add chords to the scene, touchscaper will try to find a scale that fits well with that chord in the key that you originally specified. However, you're free to specify a different scale if you like, and touchscaper will try to help you out by ranking them according to "fit" as seen here:

Select a scale

Recommended scales rated according to how closely they match the notes in the D chord, for the key of E min.

mixolydian: very good

major: good

lydian: fair

Cancel   Use this scale

If none of these "conventional" chords or scales are to your tastes, you can specify exactly what notes you want to use from the advanced view. You can also generate chords using the notes of the scale for the root chord. For example, if your scene is in the key of Am, and your scale the A minor natural scale, touchscaper will generate chords that will probably sound good in this key.

As you add chords, you can audition them by enabling the audition button - little man listening icon. Tap the chord in the segmented control to audition the chord.

If you're looking for inspiration when trying to come up with chord progressions, the chord navigator may be useful - check out the next section! Open the chord navigator by tapping the navigate / "compass" button.

Chord navigator

The chord navigator allows you to see chords that share one or more of the same notes. Sometimes this is a good way to build chord progressions that have a sense of a thread running through them. Obviously, you don't need to do that with every chord, but it can be useful if you're trying to figure out a way of getting from one chord to another - for example in a bridge section of a song to get back to the chorus - that sort of thing.
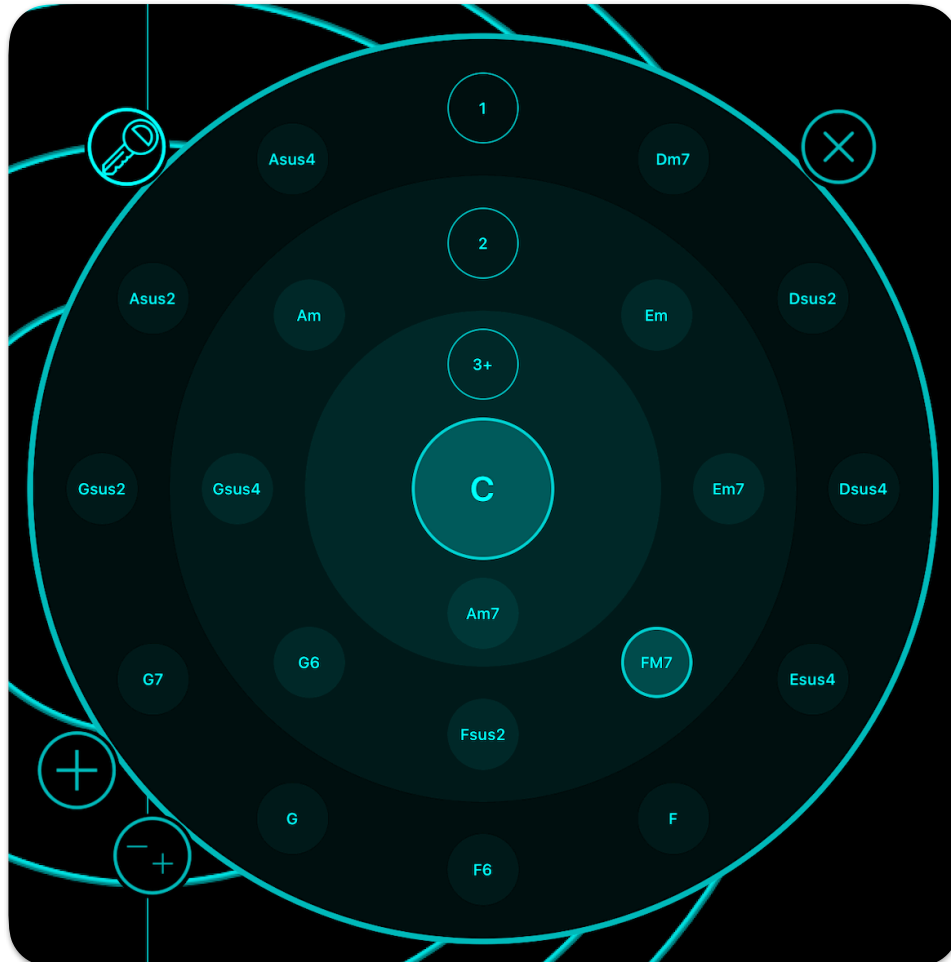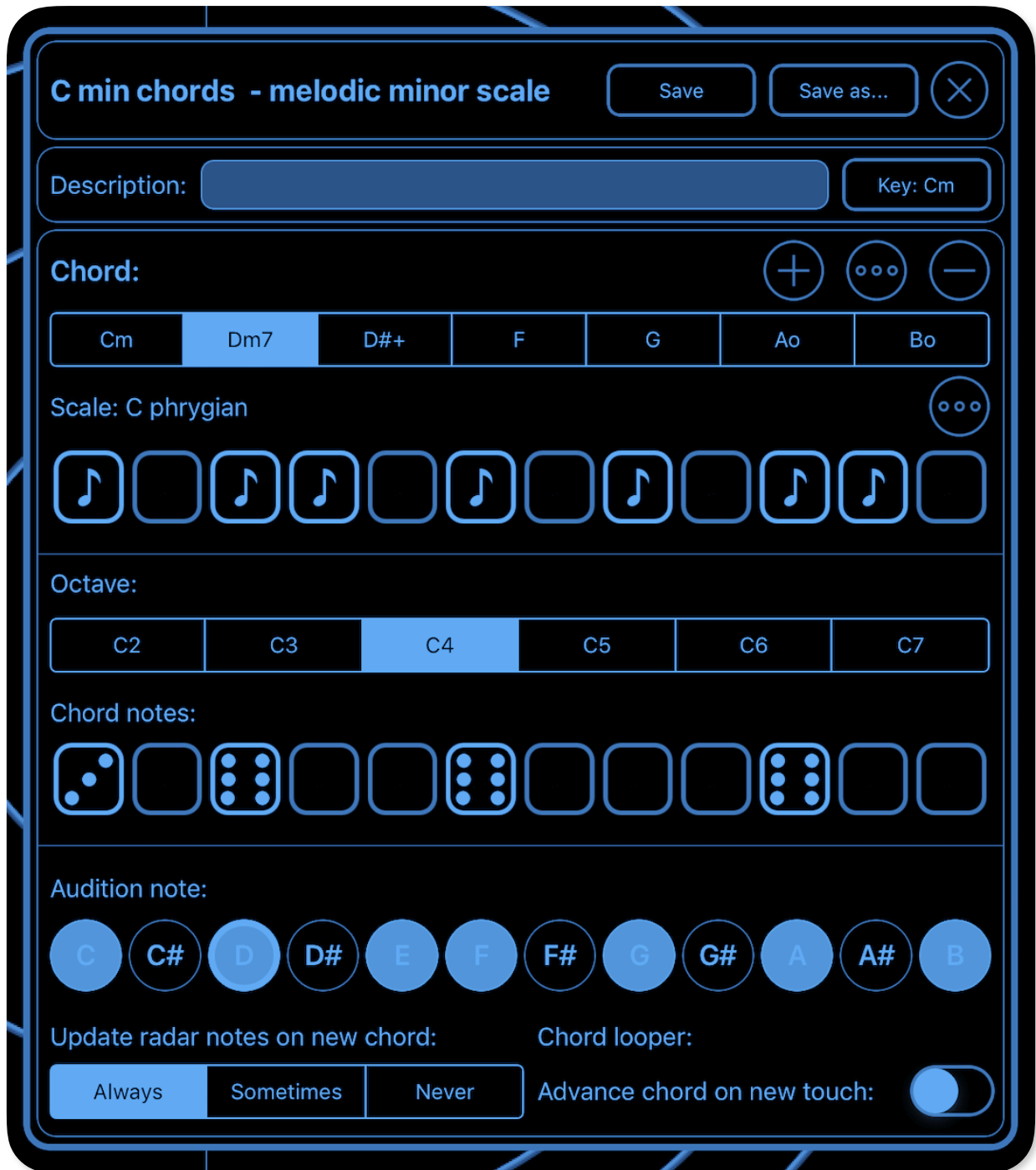

In this example, we're in the key of C and the current chord is C. The chords are arranged by closeness to the current chord in terms of common notes. For example, Am7 has 3 or more notes that are the same as the C chord, its relative major, so it's in the circular "zone" of 3+ common notes. If you're familiar with the key of C, you probably know that a C to Am chord change is very common. Note though, that G6 and FM7 also contain 2 of the same notes, so might be more interesting chords to go to from C. Things also get really interesting if you turn off the key filter. This will result in any chord that contains some of the same notes as your current chord. This can be a good way to generate unusual / "ear grabbing", but still "musical" sounding chord changes and is often how a lot of EDM producers come up with chord changes that "just sound good" without adhering to a specific scale or key.

Suggested chords are based on the current chord selected from the scene view. The large plus button adds a chord, and the - / + changes the current one.

I hope you find the character navigator interesting, useful and inspiring and I have a few ideas for some further enhancements down the line!

Advanced scene editing

In this example, we're looking at a Dm7 minor chord (in the key of Cm) and the app has pre-populated the C phrygian scale and notes for an Dm7 chord for us already. Note the dice values for the simple minor triad (D, F, and A) are all sixes, whereas the C note that makes the seventh chord is a three. The dice values feed into touchscaper's probability engine so it's possible to get some truly unique and interesting results by tweaking these values or even adding very low probability "accidentals" and so on.

One last thing to note with the advanced view chords, is that you specify the probability values across touchscaper's full 6 octave range (C2, C3, etc.). This allows, for example, touchscaper to only play root only, or root and 5th notes in the lower octaves, which happens to be the default for most automatically populated chords, as 3rd can sound a little "crowded" in the lower registers.

Finally there are options to change chord looper and radar behaviour when new chords are selected from the chord selector strip, so let's look at the selector now.

Chord selection

Chords within the current scene are displayed in a list on the left hand side of the screen. You change chords by tapping the chord you want. The nice thing here is that you don't have to worry about releasing any notes that you already have playing in the radar view as touchscaper will adjust any notes that don't sound "good" with your new chord. You can now switch chords faster than most keyboard players can! And every time you switch, you're very likely to get different inversions of that chord without moving your fingers, similar to the way a keyboard player adds variation to the same chord progression by selecting different notes nearby to the ones currently being played.

For convenience, there is also a shortcut button at the bottom of the chord list that opens the scene view.

Chord looper

The chord looper and arrangement view feature in touchscaper allows you to specify a simple sequence of up to 16 chords, or a more complex song structure using the arrangement view.

The chord looper also has an automatic play mode which changes chords according to the beats and tempo settings accessible from the metronome button. Tap the loop button to start / stop. When the chord loop is playing, the button changes to a metronome with a beat counter.

Chord arrangements can be saved with the scene. You can advance through the chords (in a clockwise direction) quickly and easily by tapping the large central button.

There is an advanced scene chord looper option (advance chord on new touch) to advance through the chord arrangement whenever touchscaper detects a new touch.

The chord looper start / stop function also controls the sequencer.

You can also open the sequencer and grid views from the main chord looper view which are covered later in this guide.

Arrangement view

To populate the list of chords tap the "conductor" button which opens the arrangement view. Select the chord you want to add or change in the main selector strip on the left.
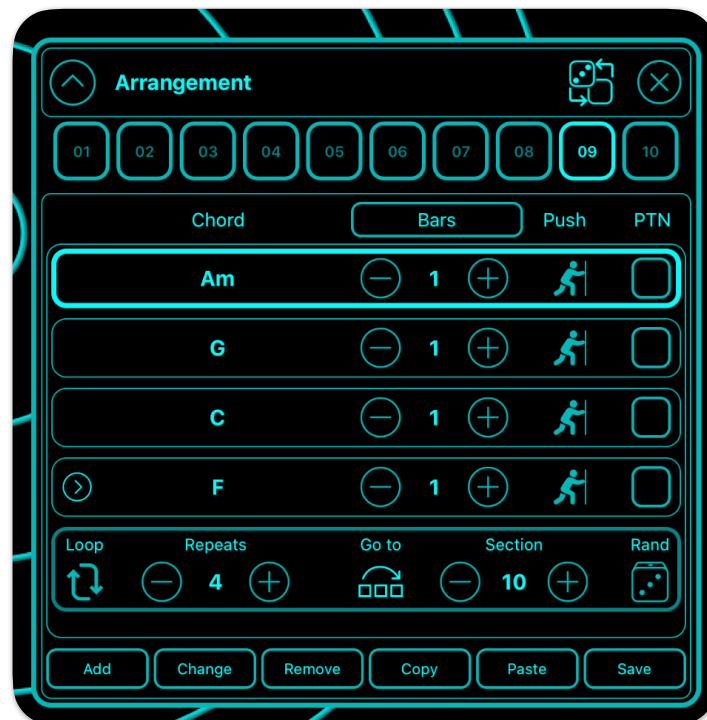
You can add, change and remove chords from the arrangement view, set the duration of the chord in beats or bars (toggled with the Bars / Beats button), and set whether the chord should be "pushed".

Turning push on for a chord will result in that chord changing a half-beat (or 1/8 note) ahead of the downbeat for the bar. For example, say you have 4 beats in a bar, and you count: 1-and-2-and-3-and-4-and-1*... etc. Instead of the next chord playing on the 1* beat, it will play on the "and" before it. This technique is very popular in dance music and can create a nice "drive" to a chord progression, or "push" - hence the name.

You arrangement can also have up to 10 sections allowing for verse, chord and bridge type song structures. You can allow each section to loop (as per for footer view shown above) or you can go to another section after a certain number of repeats. You can even go to some other random section for some generative type fun!

For each chord, you can also optionally specify a pattern to use in the sequencer. This pattern will continue to be used until a pattern number is set in another chord change. No value in the PTN box, means that the pattern won't change. To enable / disable pattern changing, tap the sequencer "dice" button.

When changing sections, touchscaper will wait until the current section has completed before moving on to the next section. The section coming up will flash during the final loop of the current section.

TIPs: If you intend to switch sections manually during a performance, best to set the sections to loop mode otherwise the touchscaper will try and change the sections for you and possibly override the changes you want. If you want to have the same chord change but with a different pattern playing, you can copy and paste the chord progression to a different section and change the pattern.

The arrangement view also has a "mini mode" which shrinks the window to only display basic control info for use during performances.

Sequencer view

There are so many great sequencers available in iOS apps, so why do yet another one? Well, first and foremost, the sequencer in touchscaper is never going to out-do or out-grow your favourite iOS sequencer app, but it does have some features that I hope you will find both interesting and useful.

Firstly, the sequencer is integrated with touchscaper's music engine, so it already knows about your chord changes, keys and so forth, so you can get fairly decent bass lines and melodic rhythmic parts up and running without having to worry about specific notes. This is really what touchscaper is all about, so go with the flow and you will hopefully be pleasantly surprised!

Secondly, Integration with the arrangement view means that it's also (I hope) very easy to create quite complex arrangements based on section and corresponding sequencer pattern changes.
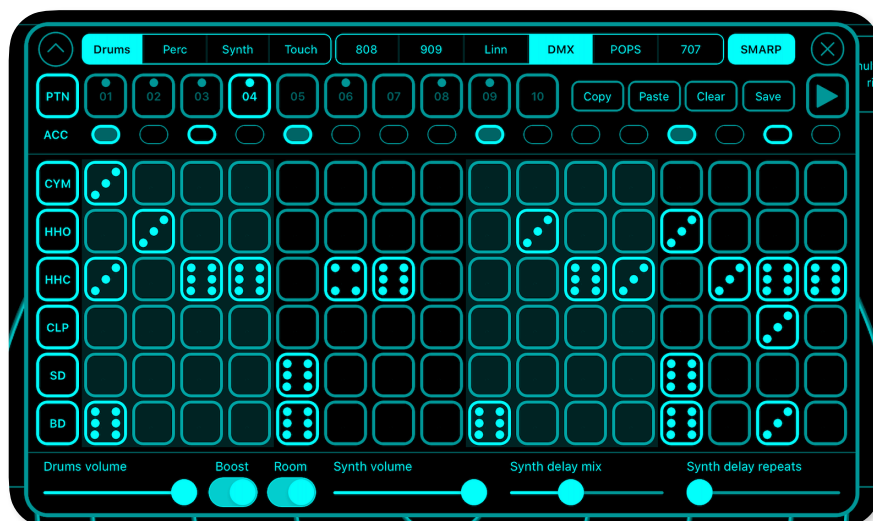
The sequencer has four parts - touch, drums, synth and perc, with four corresponding options for each part. For touch, options relate to whether sequenced touches orbit or not. For synth, perc and drums, different "instruments" can be selected. The drums instrument can also be enhanced with some compression / limiting "boost" or room ambience. A tempo-based ping-pong delay can also be applied to the synth instrument. SMARP mode affects the synth sound and re-directs the upper C5, 6, and 7 octaves to one of the alternative synth voices, which has a different arpeggiator-based playing style and also has added reverb for spacious dreamy arps!

Touch parts can also be re-assigned to piano chords in their designated octaves - chord 1 has a short decay, and chord 2 has a longer decay. If you don't like the color orb effect, this can be turned off globally in settings.

Up to ten patterns can be stored with each scene's sequence and different options can be set for each pattern allowing the drum sound to change for example going from one pattern to the next. Patterns can either be changed manually or automatically by the arrangement view when the chord looper is running. To set a pattern in the arrangement view, select the pattern you want in the sequencer view, then tap the PTN box for the chord where you want the pattern to change. When the pattern is about to change, the one coming up will flash briefly beforehand.

To activate a step in the pattern, simply tap it. Similar to scene setup, the step is probability-based, so a value of 6 means, always play, down to a value of 1 which means play very occasionally. You can use varying probability values to achieve quite interesting variations automatically.

For some dynamics, you can also vary accents on a per-step basis by tapping the step indicator buttons on and off. By default, the accents are on steps 1, 5, 9 and 13. Accents are applied to all sounds on that step.

For the drum parts, the steps correspond to beats. For the touch and bass / synth parts, a random note from the corresponding octave will be selected (C2 is low, C7 is high). Please note there is currently no way to specify exactly which note will occur as this is driven from the scene config, although you might notice that the lower octaves are predominantly root notes in the example scenes.

Sequencer grid view

The grid view is an alternative / top level view of all your sequences for each part in the current scene. You can show and hide the grid view from the main looper view by tapping the grid icon button. The grid view gives you greater flexibility around which pattern(s) you want to hear.

You can get a general idea of what all the patterns are from the "thumbnails" for the steps and the names of the voices you've selected for each pattern. For example, the Drums part at location 01 is a "four on the floor" kick drum pattern using the DMX drum samples.
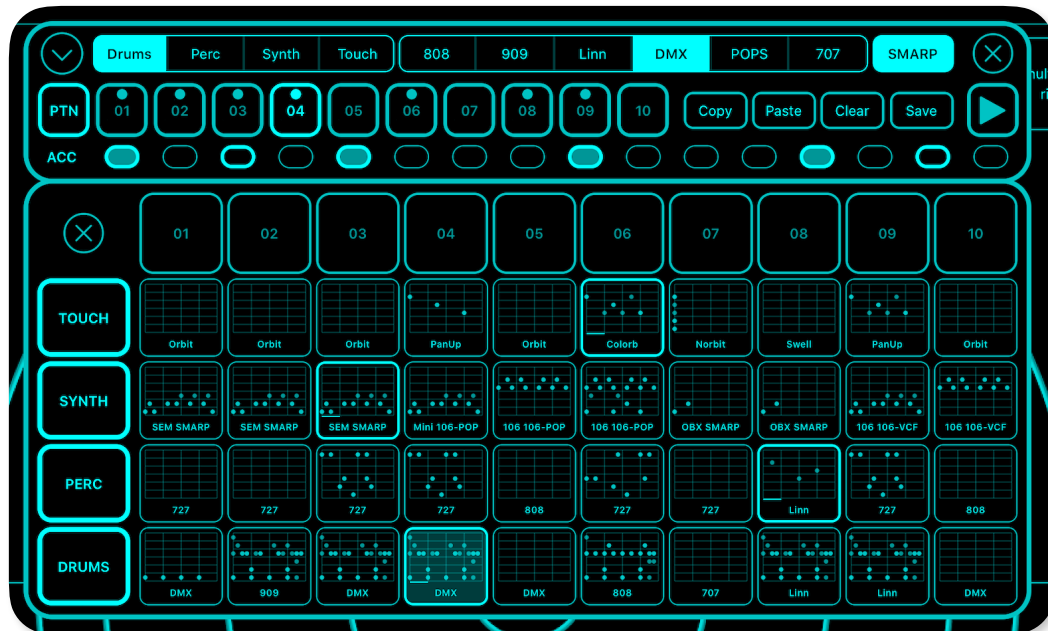
Behaviour of the grid is slightly different depending on whether you're in play mode or not. When you're not in play mode, tapping one of the patterns in the grid will select that pattern. This is quite handy if you decide you need to tweak that pattern - simply tap the top left arrow to drop down the detailed pattern view then you can edit the steps in that pattern.

In play mode, tapping a pattern will either play that pattern next once the current arrangement section has completed, or will mute the pattern if it is already selected. The behaviour is very similar to popular clip / loop based grid controllers so hopefully it will make sense.

You can also mute and unmute parts by tapping the part buttons on the left.

Tapping the top number buttons will cue-up all the parts at that location.

Tempo view

The tempo view is accessible via the metronome button in the top right of the main view. You can sync delay times and save the beats and tempo as part of the scene's arrangement.

You can also apply variable shuffle or "swing" to add a dance-like feel to your sequence patterns. This is especially effective for beats around 120 BPM.
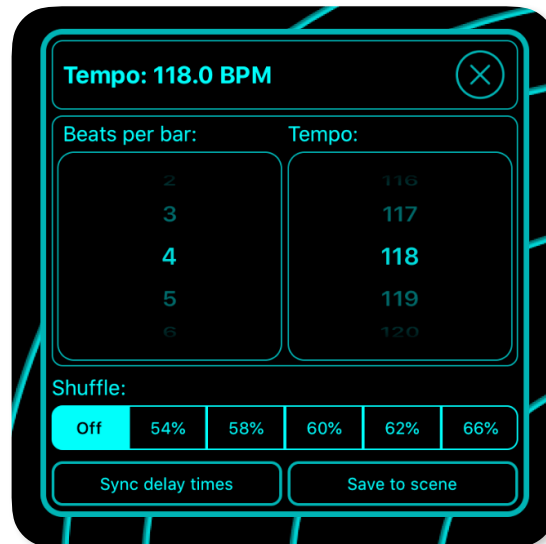
Ableton Link

Ableton Link is a new technology that synchronizes beat, phase and tempo of Ableton Live and Link-enabled iOS apps over a wireless network. It lets you play devices together with the freedom of a live band. Anyone can start and stop their part while others keep playing, and anyone can adjust the tempo and the rest will follow.

You can use Link to play with several instances of Ableton Live, with Live and iOS apps, or even without Live in your setup: using Link-enabled apps on multiple devices, or multiple apps on the same device.

Ableton Link is enabled from the advanced section of the config (cog) settings view. You can use Ableton Link to synchronise the chord looper and sequencer with other music apps, and if all your apps are in the same time signature, the current beat count (shown on the chord looper metronome) should be the same. When starting and stopping apps, you may notice a slight delay, which is normal due to the apps aligning with each other to the same beat.

When Sync Start/Stop is enabled in your Ableton Link preferences, you can start and stop other apps in the session from touchscaper and vice versa.

Please note that the behaviour of the play / stop button on the chord looper is slightly different depending on your Ableton Link preferences. If Sync Start/Stop is enabled, the chord looper will start playing straight away. When this setting is not enabled, the looper will initially go into a "waiting" mode (denoted by the flashing metronome) allowing you to decide when the chord looper starts.

Changing the tempo from the tempo view in touchscaper will change the tempo of the Ableton Live session, and changes in tempo from other apps in the session will be adopted by touchscaper. Changes in tempo will also update delay times.

Instruments

Instruments are essentially a combination of two of touchscaper's built-in sounds with some configuration around how the instrument responds to touch movement. Here's an example from one of the presets looking at the "B" voice:
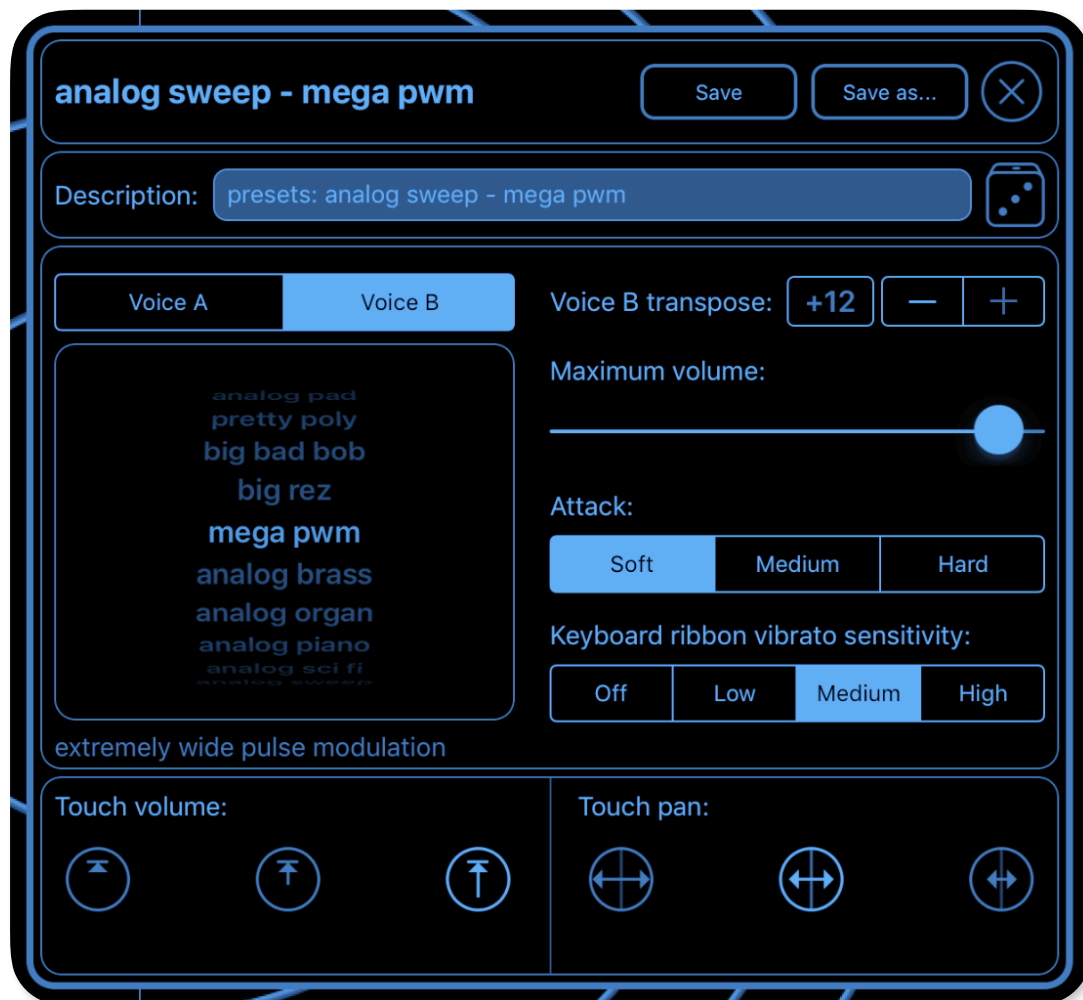
Hopefully voice selection, transpose, volume and attack are fairly self-explanatory, and the best thing to do is experiment!

Tap on the dice button to generate random combinations and settings. Currently there are over 600 possible combinations of voices alone, plus when you factor in touch control, that's quite a lot of potential for different sounds.

If you use the keyboard ribbon option, you can adjust the touch vibrato sensitivity for each voice for interesting expressive possibilities. For example, assign one voice to have low, or no vibrato and the other to have medium or high to create classic lead type sounds.

The touch volume and pan controls are worth looking at in a bit more detail.

Touch control

Touch control is hopefully one of the more interesting and unique elements of touchscaper, hence the name!

With a touch movement, you're not just controlling the instrument, but the actual voice making up that layer, and the note that is currently playing for that touch.

This allows for example, you to play a 3 note chord by holding down three fingers and then pan and control the volume of each individual layer of each note independently, simply by moving your fingers around, thus opening up a new dimension in expression that you don't normally get with most controllers.

Touch control is currently available for volume and pan.

Touch volume

Voice volume is controlled by vertical movement and its configuration has three presets that can be toggled via the following buttons.

This button denotes maximum volume range, meaning the sound for this voice will start from zero volume level and increase as you slide your finger upwards. Sliding your finger back down will reduce the volume of this voice eventually back to zero. This is great for string type swells, especially if your other voice is configured to handle volume differently.

This setting also controls volume with vertical movement except the volume will never be reduced to zero. Instead, minimum volume is around half maximum. Use this setting if you want to hear the sound as soon as you touch the screen, but still want some control over dynamics.

This setting essentially disables any volume control for that particular voice and always plays sounds at the volume determined by the maximum volume setting for that voice.

Note that some of the built-in touchscaper sounds are "one shot" samples (piano type sounds for example) so it doesn't really make sense to control volume of these sounds dynamically. One-shot samples are highlighted in the sound list, and the touch volume button selectors are disabled for that sound.

Touch pan

Voice pan is controlled by horizontal movement according to three presets in a similar way to volume.

This setting allows maximum pan range from hard left to hard right.

This setting reduces the range of pan movement to around half the maximum width.
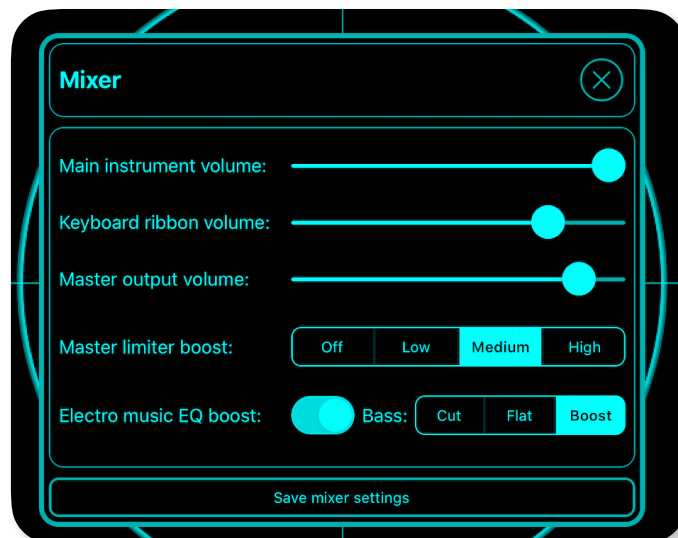
This setting disables pan control for that voice.

Please note that touchscaper automatically "spreads" notes by panning (not just voices or instruments) to create a "big" and interesting mix, so even if panning is disabled, you should still get a nice stereo spread for all instruments.

Mixer

The mixer is accessed from the speaker icon at the top left of the screen.

The volume sliders let you adjust the overall balance between the main / touch instrument and keyboard ribbon as well as the overall master volume.

The master limiter boost has variable pre-gain settings, from light to heavy pre-gain boost for a punchy overall sound.

The electro music EQ boost is a 10 band graphic equaliser tuned to add some extra bottom end, reduce muddiness in the mids, and some sparkle to the highs. Note that switching this on will increase the overall volume so you may need to adjust other levels accordingly. You can also separately attenuate or boost the low end.

Effects

Touchscaper includes some popular time-based effects as shown here, accessible from the *fx* button.
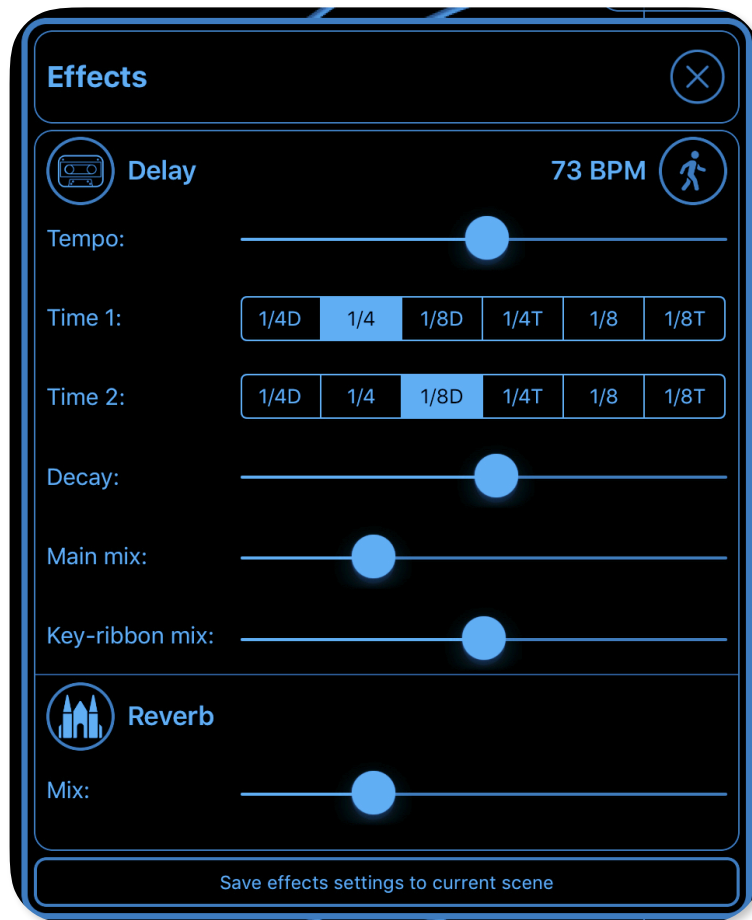
The delay type (tape style or digital) can be selected from Delay button. There are also several reverb types ranging from small room (spot the toilet humour…), up to a 20 second decay time "planetary" reverb.

For convenience, the delay times are calculated from an overall tempo and note values. There is a tempo x2 / x1 multiplier button next to the tempo BPM value. Two delay lines are used, although this is not a traditional stereo ping-pong delay, it's something a little bit different. You can also adjust the mix of the keyboard ribbon instrument separately.

Other features

- Scenes and instruments can be shared from the main browser view and touchscaper supports the native iOS Files app.
- IAA (Inter-App Audio) is supported and touchscaper is implemented as a generator so you can record its audio output in a suitable IAA host.
- The chord looper and sequencer can be synchronised with other apps using Ableton Link.

And finally…

I hope you enjoy touchscaper, and if you have any questions or comments, please feel free to get in touch: www.touchscaper.com

Also, please do share your musical creations - I can't wait to hear and see what you do with touchscaper!

Happy touchscaping, -Rob