# Strumpy Pro
# User Guide (version 3.1.0+)

**Thank you for downloading Strumpy Pro**

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# 1 Background

As is often the case with many applications, it was conceived to satisfy a personal need of its creator.

As a keyboard based amateur home recordist there came a time when I just needed the sound of a strumming guitar in one of my projects. As I'm not able to play a guitar this presented a challenge. Anyone who has attempted to simulate the strumming of guitar strings on a midi keyboard in real time will understand how difficult it is to get an authentic sounding strum. Just as fiddly and difficult is trying to enter the midi notes representing the plucking of each string in a chord strum using a digital audio workstation's piano roll view.

I wondered whether it would be possible to write some software to simulate the subtle timing delays introduced when you strum the strings on a guitar and then capture this in the midi domain so that the results can be imported into a digital audio workstation (DAW) for use in a home recording project.

Once in a DAW a suitably compiled strumming clip can be mapped to an authentic guitar sound on either an external keyboard or an internal soft synth and then used in the same way as any other midi clip. No need to have to manually generate the complex timings that separate each midi note in a chord.

So, given the basic idea, in what technology should it be built?

Recent advances in mobile technology has generated an explosion of useful software applications that can be used whilst on the move. What better than to build the software in a mobile technology so that fellow musicians and home recordists could compose strum patterns (or even complete songs) whilst travelling to or from work, maybe emailing the finished project midi file to their main computer for loading into a DAW.

Strumpy was born!

Android was chosen as the technology of choice simply because it was easier and cheaper to develop on that platform when compared to Apple's rival technology (the author didn't have a Mac). Android is available on a growing range of manufacturer devices because of its more open nature. In time this may allow Strumpy to reach a much larger audience than if it had been built on Apple technology.

# 2 Concepts

## 2.1 Projects

In ***Strumpy Pro*** you create one or more projects based on a set of pre-configured templates. The 'default' template has no pre-configured set of phrases and associated strum patterns. It's essentially an empty project. The other project templates are simply the sample projects delivered as templates so that you can create your own project based on one of the delivered samples.

The default template is a good place to start if you want to build something completely new rather than inheriting sample patterns.

A project is constructed from one or more tracks.

## 2.2 Tracks

### 2.2.1 Overview

A Strumpy track is a collection of one or more phrases (parts) the content of which sources one or two associated midi output track streams during playback (Primary and a Secondary tracks). When two midi track streams are configured for a Strumpy track it's output is sent to two separate midi tracks, each containing an exact copy of the note events generated by its configured phrases.

Each of these output midi tracks can be assigned their own midi track parameters (as shown below) resulting in quite pleasing creative effects, particularly when a timing delay is introduced between them. For example, configuring a strumming guitar track in this way can generate a much richer and fuller sound.

All Strumpy tracks have at least one primary midi output track and a user can optionally configure a second one on all tracks other than drum tracks (i.e. those assigned to midi channel 10). The second midi output track receives exactly the same musical content as the primary midi output track (i.e. a duplicate note event stream).

A user has control over the following Strumpy track parameters.

- Primary instrument (disabled on drum tracks)
- Primary midi channel (1-16)
- Primary delay (0-127)
- Primary volume (0-127)
- Primary pan (0-127)

- Primary enhanced mode suppression (on/off)
- Secondary instrument (disabled on drum tracks)
- Secondary midi channel (1-16)
- Secondary delay (0-127)
- Secondary volume (0-127)
- Secondary pan (0-127)
- Secondary enhanced mode suppression (on/off)

### *2.2.2 Primary Instrument*

The midi instrument assigned to the primary midi output track. You can select from the set of general midi instrument sounds each of which has a corresponding midi program number. How it sounds will be down to its specific implementation on your particular device but generally speaking the same midi program numbers should generally sound like the same instrument regardless of device manufacturer. Note that this parameter is disabled on drum tracks (midi output tracks assigned to channel 10) as percussion instrument sounds are determined by individual note pitches and these are configured in individual track phrases (see later).

### *2.2.3 Primary midi channel*

The midi channel assigned to your Strumpy track's primary midi output channel. Midi channels are automatically assigned to midi output tracks by Strumpy itself which will attempt to assign unused midi channels (other than channel 10) to all new midi output tracks that require them. It will do this until it runs out (there are only 15 available midi channels excluding the drum channel). When it runs out it will assign an already assigned midi channel. Channel 10 (the standard midi drum channel is not automatically assigned but you can manually assign it to a midi output channel if you wish to include a drum track in your composition. If you do this the currently assigned midi channel is made available for reassignment.

You should generally leave midi channel assignment to Strumpy unless you specifically want to override its choice (such as in configuring a drum track). Bare in mind that Strumpy does not prevent a user from assigning the same midi channel to different midi output tracks, and whilst allowed it's undesirable because it can lead to unpredictable effects. For example, how your playback device reacts to multiple note on events occurring at the same time on the same midi channel. Some devices cope with this by simply assigning another available sound production engine to allow the notes to sound at the same time, others may be less flexible.

One other thing to note is that Strumpy sends pan and program change events (i.e. setting an instrument) at the start of each track on playback. If more than one track is assigned to the same midi channel the likelihood is that the last track wins and that the settings for the last track in your sequence of tracks (see the track list) are what dictate the shape of the sound that you hear for all

midi output tracks mapped onto the same midi channel. Drum tracks are less sensitive to this than instrument tracks as the drum sounds you hear are dictated by note event pitches rather than the configured midi program for a given midi channel, but pan settings set on the last Strumpy track assigned to channel 10 ( the standard midi drum channel) will apply to all strumpy tracks assigned to channel 10. When building a series of drum tracks bare in mind that the pan position cannot be set for each individual drum track, only a single pan position can be set for all drum tracks in your composition and its setting will be taken from the pan setting associated with the last drum track present in your track list.. Of course should you eventually export your project midi file and import it into a separate Digital Audio Workstation (DAW) you may have far more flexibility in configuring the components of each midi track in order to influence instrument stereo field placement. This is simply a restriction when playing back your multi-track compositions on your android device's media player.

The volume setting of each track is used to modify individual note on event velocity settings. At its maximum setting the velocity (aka volume) of each 'note on' midi event reflects the velocity setting values specified in the context of the phrase in which the associated notes (strum elements) were established (or as may have been overridden on a note by note basis – see velocity parameter overrides later). Reducing the track volume proportionally lowers those velocity values for all 'note on' events generated for that track. This is particularly useful for drum tracks, all of which have to share the same midi channel. By altering the track volume of each drum track where each is mapped to a different drum instrument, you can alter the relative volume of each to provide a more balanced mix.

### *2.2.4 Primary delay*

All midi output tracks associated with Strumpy tracks start at time zero. You can introduce a relative time delay such that the primary midi output track of a Strumpy track can be made to lag other midi output tracks by a user specified amount. The maximum configurable delay is in the order of about 0.5 seconds.

### *2.2.5 Primary Volume*

Sets the volume of the associated strumpy track relative to other strumpy tracks. If set to the maximum value the volume heard on playback will be based on the velocity parameters set for each strum element (i.e. how hard you play the note, hence its volume). If you reduce the volume from its maximum setting you will reduce its volume relative to other strumpy tracks that are playing at the same time. Use these controls on each track to control the overall balance of your mix of tracks. This is in effect a mixing desk volume fader. Note that this does not generate midi controller events.

### *2.2.6 Primary Pan*

Determines the position in the stereo field of its associated output midi track. Low values pan the sound to the left of the sound field and higher values to the right. Note the playback impact on your android device of mapping more than one midi output track to the same midi channel number. A single pan controller midi event message is generated at the start of each track on the assigned midi channel therefore the pan setting of the last strumpy track mapped to that same midi channel will take precedence in setting the stereo position of the associated instruments. As all drum events must be sent on midi channel 10 all strumpy drum tracks will appear in the same stereo position as set by the pan setting of the last drum track mapped to midi channel 10 in the project track list.

### *2.2.7 Primary Enhanced Mode Suppression*

Enhanced mode can be set at a project level and has the effect of doubling up each phrase note with a note an octave higher, plus it adds a slight delay between each. It simulates the difference in timbre you might hear between a six string guitar and a twelve string guitar. This effect may not be appropriate for many instruments so the option to configure it off on a track by track basis is provided. For example, its not particularly useful on drum midi tracks where each note pitch determines the percussion instrument heard. You have no control over the second pitch (it’s always an octave higher) therefore the slightly delayed second note could trigger another (possibly undesirable) percussion instrument. Similarly it might not be appropriate to have this feature operative on lead or bass line tracks., but it is left to end users to find the creative potential of using this feature with different instrument settings.

### *2.2.8 Secondary instrument*

Instrument assigned to a Strumpy track's second midi output track (if configured). Refer to ***Primary Instrument*** above for more details.

### *2.2.9 Secondary midi channel*

Midi channel assigned to a Strumpy track's second midi output track (if configured). Refer to ***Primary Midi Channel*** above for more details.

### *2.2.10 Secondary delay*

User configured timing delay added to a Strumpy track's second midi output track (if configured). Refer to ***Primary Delay*** above for more details.

### 2.2.11 Secondary volume

User configured volume setting added to a Strumpy track's second midi output track (if configured). Refer to ***Primary Volume*** above for more details.

### 2.2.12 Secondary pan

User configured stereo field positioning applied to a Strumpy track's second midi output track (if configured). Refer to ***Primary Pan*** above for more details.

### 2.2.13 Secondary enhanced mode suppression

Allows a user to suppress the Enhanced Mode feature for a Strumpy track's second midi output track (if configured). Refer to ***Primary Enhanced Mode Suppression*** above for more details.

### 2.2.14 Track Naming

Each track is assigned a default name on creation in the form 'Track n' where 'n' is one greater than the current track count. You can of course change this name to something more meaningful using an option available from the context menu available from the track list display on the mixing desk page. Tracks are logically identified by their ordinal position within a project (as shown in the track list discussed above) and not by their displayed names. The names are simply there to make it easier for a user to identify a particular track (e.g. 'Bass', 'Guitar Track', 'Drums' etc). Strumpy doesn't stop you assigning the same name (i.e. label) to more than one track so be sensible when assigning track names. The reader is encouraged to assign appropriate names to every project track.

### 2.2.15 Mixing Desk (Track List)

As you build your composition you will frequently want to manipulate your tracks as a whole and the mixing desk view/display is where you achieve this. From the mixing desk you can achieve the following functions.

- Add a new track
- Play your composition
- Toggle the mute status of all tracks
- Toggle the solo status of all tracks

- Toggle the mute status of a single track
- Toggle the solo status of a single track
- Move the position of a track within the track list
- Copy an existing track as a new track
- Clear any parameter overrides configured for a track
- Rename a track
- Remove a track
- Call up a tracks details page to configure other track parameters that were described in the track overview section above.
- Synchronise a track with the start of a selected phrase in another track by appending one or more rest(s) to achieve the desired synchronisation.
- Transpose the notes (strum elements) in a track up or down the musical scale by a number of semitones (more appropriate for instrument rather than drum tracks).

The mixing desk (or track list view) displays a project's tracks and allows access to the above functions either through controls at the head of the page (for functions that apply to all tracks) or via a context menu attached to the track list (for functions relevant to a single track).

New tracks are always added to the end of the track list but can always be reposition afterwards using the 'Move' context menu functions. Tracks can be removed simply by accessing their context menu (long click) and selecting the 'Remove Track' option.

When you play your project composition from the mixing desk the mute and solo status of your tracks is respected. Muted tracks are excluded from the mix unless they are also have solo status. If there are any tracks with solo status then only those tracks are included in the mix. You can toggle the mute and solo status of all tracks in the track list at the touch of a single button. This can sometimes be quicker than having to call up the corresponding context menu functions on each track in the track list. Use the context menu to change the mute and solo status of individual tracks.

### *2.2.16 Track Lanes View*

From the Mixing Desk view you can choose to view your tracks in lanes using the 'Track Lanes' view. From here you can view each track's content mapped out over time making it very easy to see how individual phrases align with one another across tracks. For example, you can see where the notes of a bass line align with those of a guitar track. If alignment issues are found you can make the most likely required corrections without switching to another view thereby streamlining your workflow.

You can scroll displayed track content in time. When the view first opens it displays the whole project content in a single screen width, the size of which will differ depending on whether the device is in portrait or landscape mode.

If there are more tracks in the project than can be displayed within the available vertical space the

content can be manually scrolled in the vertical direction to reveal more track content.

The display can be scaled (horizontal direction only) using a typical pinch-to-zoom gesture to reveal more detail about each phrase and the strum elements they contain. Think of this as zooming time in and out. The more you zoom the content it will occupy increasing numbers of pages. You can scroll through those pages using typical 'move' and 'fling' gestures in both directions as you search for content of interest. The width of content elements drawn in the horizontal direction reflects the duration of the corresponding strumpy objects they represent (i.e. tracks, phrases and strum elements) and their drawn start and end point positions correspond with their start and end times (determined by the project's tempo and the musical duration of the elements concerned based on a midi resolution of 960 clock ticks per quarter note).

In addition to viewing and editing track content, the view also supports a wide variety of playback options allowing you to inspect how various phrases and strum elements sound simply by long clicking (i.e. touching) a strum element associated with the component of interest and choosing the appropriate option from the subsequently displayed context menu. There is also an option to play all non-muted tracks from a position in time selected using a seekbar control. Playback visualization is assisted by a scrolling cursor that overlays track content to mark the playback position notified by the audio engine. Think of it as a sort of 'bouncing ball' simulation, although without the ball, or indeed the bounce! The cursor can be hidden when not required if you are trying to conserve device battery.

From the 'Track Lanes' view you carry out or initiate the following

- Edit the contents of a phrase
- Edit track details
- Move a phrase within the same track
- Copy a phrase within the same track
- Add a new phrase to a track
- Move a track's position within the track content displayed
- Copy an existing track as a new track
- Mute and/or solo individual tracks
- Remove a track from the track list (and hence project)
- Remove a phrase from a track
- Transpose an individual track or the whole project up or down by a specified number of musical semitones
- Synchronise a track with the start of a phrase within another track
- Play a single track (without having to mute or solo)
- Play a track from the start of a selected phrase
- Play a single phrase
- Play all tracks from the start of a selected phrase
- Play a selected note (strum element)

- Play all tracks from a selected note (strum element)
- Mute/Un-Mute all tracks
- Solo/Un-Solo all tracks
- Play all tracks from the beginning or from a selected point within the project's overall duration
- Show or hide the playback cursor
- Switch back to the Mixing Desk (Track List)
- Switch to the 'Track Explorer' View

## 2.3 Phrases and Strum Elements

### 2.3.1 Overview

A phrase contains a series of strum elements, each of which share the same set of up to six musical note pitches. The note pitches form the basis of the chord that each strum element within the phrase plays using a particular strumming technique (and which is configurable for each strum element).

Think of an individual strum element in a phrase as being a stroke (a strum) across a set of six guitar strings in a particular direction where the individual note pitches represent the position the guitar player has held each string on the guitar's fretboard.

The strings 'ring' for a particular period of time as determined by the player in keeping with the nature of the music being played. The duration of each strum therefore aligns on standard music time division boundaries and can therefore be represented using standard music notation.

Strumpy uses standard music notation to visualize the duration of each strum element (upward or downward stroke). Supported musical note durations are semibreve, minim, crotchet, quaver, semiquaver, demisemiquaver, hemidemisemiquaver and further related derivations (see later).

Just as important as stroking a phrase's pitches (strings) in a particular direction is not stroking at all (a rest). These introduce interest and ***rhythm*** into the music being played and Strumpy treats a rest just like another strum technique except it introduces a period of time when no sound is being played. This is equivalent to a guitarist not stroking across the strings of a guitar for a particular period of time (as determined by the rest's note duration).

Think of the set of strum elements associated with a phrase as being a strum pattern, a series of strums elements that when played exhibit a particular feel or ***rhythm***.

In the above we have discussed phrases and strum elements as though they were traditional musical instruments (i.e. string/wind or brass). These generate interesting tonal characteristics when several

pitches are played at the same time. Different mathematical relationships between concurrently sounding notes (i.e. interval patterns) give rise to different tonal effects which can be recognised for their emotional effect. A key element of composing music is exploring and using these 'chords' to emotional effect. The same cannot be said for percussion instruments which are generally single pitch instruments and are rarely 'chorded'.

In the midi world it was decided to use midi note pitch to determine which percussion instrument (i.e. single pitch instrument) sounded when a note event occurred as it was fairly pointless in using midi pitch numbers to determine the pitch of the percussion instrument itself as most (although not all) percussion instruments are single pitched.

In Strumpy, if you configure a track to generate its note events on midi channel 10 (the channel which midi instruments assign to percussion instruments where the note pitch determines the actual instrument triggered) then all the phrases in that track are treated as percussion phrases. Instead of six traditional note pitches, what you see when you edit a phrase is essentially up to six percussion sounds that can be triggered at the same time. Instead of being presented with up to six note pitch selection drop downs where you can select note pitches between C1 to B7, you instead see the range of percussion instruments that correspond to the 128 midi pitch values (0-127).

Midi standards bodies have assigned particular percussion instruments to the majority of these 128 values and the names of these instruments are what you see in Strumpy when you configure a phrase in a percussion/drum track. Originally there was the General Midi 1 percussion instrument set, but this was later extended by the General Midi 2 specification. Instruments from both specification are mapped in Strumpy and can be distinguished by their names which include GM1 or GM2 prefixes.

Note that not all 128 pitch values are mapped by the General Midi standard. They have still been left selectable (based on just their pitch note numbers) because some midi device implementations provide mappings to pitches outside the General Midi mapped range. By all means try the unmapped ones out on your device to see if they fire a percussion instrument but don't be surprised if you don't hear anything from an unmapped drum track pitch note if purposely chosen.

Typically you would only configure one drop down (usually the first) to specify the desired percussion instrument for a given phrase and then use the associated strum elements to map out an appropriate rhythm, however Strumpy does not restrict you from configuring different percussion instruments in the drop downs, essentially configuring multiple drum sounds to play at the same time. The ability to hear more than one drum sound played at exactly the same time (on the same midi channel) will depend on the capabilities of the device upon which you are playing the midi file.

Note that the chord wizard (see later) is not available when editing phrases associated with Strumpy tracks that are configured as drum tracks (i.e. assigned to midi channel 10).

### *2.3.2 Phrase configuration parameters (velocity/delay)*

Each phrase has a set of associated phrase configuration parameters. These determine how the note

pitches in a phrase are triggered.

Minimum and maximum strum delay percentages determine the range over which delays are introduced between the triggering of each note pitch of a phrase whilst playing a strum element. This primarily affects strum elements configured with the 'down' and 'Up' strum technique.

When you strum a guitar you can strum either quickly or slowly, If you strum quickly all the strings will ring together for a greater proportion of the strum element's note duration than if you strum slowly. The configuration percentages are designed to vary the time it takes to stroke across the strings within a strum element's overall note duration.

If both parameter percentages are set to the same value the application calculates a percentage of the duration of the strum element's note duration (in midi ticks) that will be reserved for the allocation of time delays between the firing of each note pitch during a strum and then it divides this equally between each of the note pitches to be strummed (i.e. the time between hitting each string on a guitar during a strum action)

For example, if the the minimum and maximum are set to 40% and there are 6 notes to strum the software allocates (note duration * 40)/((6-1) * 100) ticks to the delay between the triggering of notes 2-6 (midi note ons). After 40% of the note's duration all notes will be sounding together and will remain so until the corresponding note off midi events are generated at the end of the note duration.

The higher the percentage the longer it takes to sound all the notes giving a more pronounced strum (you can more easily hear each note being strummed as it appears to be slower).

If you introduce a difference between the minimum and maximum percentage this introduces a more random feel to the delays between the triggering of each note during the strum (feels less mechanical and more human). The system randomly calculates the delay between the minimum delay percentage and the maximum delay percentage as each note is prepared for playback during the strum.

A further configurable parameter is the midi velocity used when triggering each note in the strum to simulate the 'hardness' with which each note (i.e. string) is plucked. This is controlled with three parameters, the minimum velocity, maximum velocity and velocity allocation respectively.

You can set the velocity to any of the available midi velocity numbers. If the minimum and maximum parameters are set differently the software allocates a velocity value to each note from the available velocity range in conjunction with the velocity allocation parameter.

The higher the number the louder the note. With a suitable hard or soft synth in your DAW the timbre of the note can also change depending on the velocity value, however this effect is only likely to be realised when you transfer the generated project midi file to your DAW set-up as Android device midi players are unlikely to provide support for that feature.

The velocity allocation configuration parameter determines how the velocity values are applied to the notes during the strum.

The value ***Both*** allocates the calculated velocity values in both the 'Up' and 'Down' strum technique directions.

The value ***Down*** only applies the calculated velocity values in the downward strum direction (from lowest to highest note if notes are arranged in that order). Similarly ***Up*** only applies the calculated velocities in the 'Up' strum direction (i.e. from the highest to the lowest note).

In the direction of the strum the velocity value allocated varies between the maximum and minimum values (a linear incremental decrease). This is a natural strum as the player is more likely to play the earlier notes harder than the later notes.

If the ***Equal*** option is chosen then velocity values are all set the same for each note regardless of whether the strum is in a downward or upward direction (set to the maximum velocity value). You can also configure a more unnatural reverse allocation of velocities to get some more unnatural effects. In this scenario the notes get louder as each note in the strum is triggered. See ***Up reverse***, ***Down reverse*** and ***Both Reverse***.

The ***Random*** option does not use a linear allocation of velocity values within the available range, a more random selection of velocities is generated.

Note that you are unlikely to configure drum track phrases with more than one note pitch set as each note pitch drop down selects an individual percussion instrument. These single pitch instruments are rarely 'chorded' (and hence 'strummed') in the same way as other more tonal instruments, nevertheless, Strumpy does not prevent you doing this. If you do configure more than one then the behaviour described above regarding velocity allocation (volume/loudness) and strum delay is identical. You may be able to use this to generate some interesting creative effects.

### *2.3.3 Delay and velocity overrides*

By default, both velocity and strum delay configuration parameters set on the phrase edit page apply to all strum elements configured in that phrase, however there maybe occasions when a desired effect requires a change in these parameters on a strum element by strum element basis. This can be achieved by setting velocity and/or delay overrides on individual strum elements within a phrase as and where such changes are desired.

The setting of velocity and/or delay overrides is made available from the strum element context menu. Simply select and hold the strum element image to display the context menu and then select the appropriate override option and follow the displayed dialogue. Visual indicators on the strum element image show when either a velocity or delay is active on a given strum element.

You can clear velocity, delay or both overrides from the strum element context menu to clear the overrides for a single strum element. You can clear velocity, delay or both overrides from the phrase element context menu to clear the corresponding overrides from every strum element in the phrase.

You can clear overrides associated with all the phrases in a track or your complete project using similar options from the track list context menu and from the from the project page options menu

respectively.

The override options avoid having to create additional phrases just to get a particular effect on a specific strum element or set of strum elements in a phrase. Creating additional phrases to achieve the same is more work, particularly if the chord notes making up each phrase is identical.

### *2.3.4 Editing a phrase*

The list of phrases that make up a project are sensitive to short and long clicks. If you touch them briefly control is passed to the phrase edit view which shows the note pitches making up the phrase, phrase configuration parameters and if on a large device the list of strum elements. On smaller devices the strum elements can be called up using a sliding window.

If you touch and hold a phrase object in the list of project phrases for a short duration a context menu appears with a range of options for moving or copying the selected phrase relative to other phrases within the project. You can also edit a phrase by long touching a note (strum element) in the ‘Track Lanes’ view and selecting the relevant option from the presented context menu.

### *2.3.5 Editing the default name of a phrase*

When you create a new phrase it is given the a default name of 'New Phrase'. You can edit the name simply by long clicking it (holding your finger on it) to start the edit process which will trigger the appearance of the soft keyboard. Repeat the action to save your changes and dismiss the keyboard.

### *2.3.6 Phrase note pitches and the chord wizard*

You can select the note values of a phrase using one of the six note pitch selection drop down controls, including switching them off by choosing the value 'None' in the list of available note values.

Whilst this mechanism provides a great deal of control over the choice of notes to be sounded it is not a particularly efficient or natural method of setting chord notes.

The chord wizard provides an alternative way of setting the notes. Just click the chord wizard button to open the chord wizard dialogue. From here a user can instruct the application to automatically generate the notes to be sounded in the strum by specifying the root note, the chord type (i.e. major, minor, seventh, major seventh, diminished etc), the octave in which to pitch the root note, the number of notes to be sounded, the chord inversion and finally the sequence in which the individual chord notes are to be played.

The normal sequence in which the chord notes are generated by the wizard is from the root note upwards with each successive note in the sequence higher than the last respecting the chosen chord

pattern as determined by the selected chord type. This behaviour can be modified in a number of ways. The first way is by changing the inversion from its default value of zero. The default value starts the sequence at the chord root as described above. Selecting an inversion of between 1-3 has the effect of displacing the base chord note by one for each inversion value above zero, adding further notes at the top of the chord in chord pattern sequence to maintain the required number of chord notes selected.

The following example demonstrates the effect of using increasing inversion settings with a C seventh chord played over 6 notes

| | |
|---|---|
| Inversion = 0 | C E G Bb C E |
| Inversion = 1 | E G Bb C E G |
| Inversion = 2 | G Bb C E G Bb |
| Inversion = 3 | Bb C E G Bb C |

For triad chords using an inversion of 3 is equivalent to having set the octave setting one octave higher.

A further way to influence the sequence is to select a sequence value other than normal. The value 'Normal' assumes chord notes are generated in ascending note order, a typical arrangement when strumming a chord on a guitar. Typically as you strum the notes each string plucked is higher than the last when strumming in the downward direction and in reverse when strumming in the upward direction. This normal sequence can be altered by selecting ***Shuffle***, ***ShuffleAllbutFirst*** and ***Reverse*** respectively.

The value ***Shuffle***, randomly sequences the chord notes. This has the effect of simulating a player picking different notes of the chord (e.g. strings) during the strum rather than playing chord notes in their natural sequence.

The value ***ShuffleAllbutFirst*** is similar to ***Shuffle*** but only shuffles the notes above the base note of the chord. This may be useful when you want the root note of a chord to always be the first note played say in a downward strum but for effect are happy for the remaining chord notes to be played in an alternative sequence to one of strictly increasing pitch.

The ***Reverse*** option does what it implies, it reverses the sequence of notes in the chord so that the first note is the highest and the last note is the lowest.

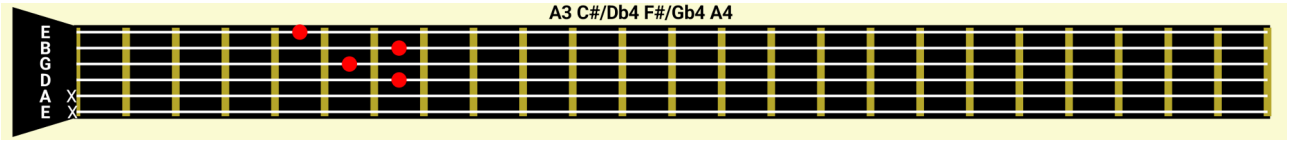
Note that the inversion settings and sequence settings can be used together. The inversion pattern is applied first.

Those familiar with chord types should find the chord wizard a quicker and more natural way of setting the note pitches that define a phrase than having to select them individually. Of course there may be situations where the exact sequence of notes required is best selected manually and this can be used to good effect and shouldn't be overlooked when trying to get a particular strum sound//timbre.

The note pitches generated by the chord wizard or set manually are displayed on a keyboard widget in the Track Explorer view. This helps the user visualize the chosen pitches.

The selected pitches (up to 6) are shown in textual form in the centre of the keyboard just above the keys. The keys representing the selected pitches are also highlighted on the keyboard.

The keyboard widget also appears in the Phrase Editor view but additionally in this context it can be morphed into a guitar to show pitch fret positions (see example below).




A guitar visualization is included for users more familiar with that instrument, but it may not articulate all selected pitches, only the keyboard visualization will do that.

As guitar players will know, the strings have overlapping note pitches and making it possible to play the same chords in many different fret positions along the guitar neck and not all pitch fret positions are physically playable. It's possible for a user to manually select pitches that are either not possible to pitch on a standard tuned guitar, or that are not physically possible to fret on a guitar without dropping some of them. Strumpy uses an algorithm in order to map the selected pitches onto a guitar.

You can cycle between the keyboard and guitar pitch visualizations simply by touching the widget. Where strumpy's algorithm has found a number of guitar fret positions within the scope of its algorithm it allows you to page through each of them simply by continuing to touch the Keyboard/Guitar widget.

The guitar fretting algorithm operates as follows.

Finds the lowest string fret position of the centre pitch (i.e. the pitch in the centre of the lowest and highest pitches selected. If this falls outside the range of pitches available on a guitar Strumpy simply frets the selected note pitches S1-S6 across the 6 strings of the guitar where S1 (E), S2 (A), S3 (D), S4 (G), S5 (B), S6 (E). No attempt is made to optimize the fret positions on the basis that if the central pitch isn't mappable the chances are that other notes aren't either so it just does its best to map what it can. Unplayable pitches are simply articulated as an unplayable string (X at the top of the string).

Locating a fret position for the central pitch nearest to the guitar nut is designed to place the fret positions nearest to the top end of the guitar neck (i.e. near the nut), more favoured by guitarists.

Having chosen a base fret position the algorithm then determines a range of fret positions with that fret position at the centre. For example, if the range scope was 4 frets in both directions and the central pitch fret was fret 8, then the fret range would be frets 4-12.

Having chosen the fret range Strumpy goes on to search for the selected pitches across each string (from the low E string to the high E string) but only within the calculated fret range (to increase the possibility of it being physically possible for a human hand to fret it. If it finds a suitable fret position it remembers it and removes the associated string's fret positions from the remaining fret positions to search. At the end of this, any strings with no fret positions allocated are simply marked as unplayable strings (X at the head of the string).

The algorithm makes up to six passes through the above algorithm (depending on the number of selected pitches), each time it starts the pitch search from a different pitch position. For example, S1 (first pass), S2 (second pass) and so on. This has the effect of picking pitches from different strings thereby delivering different fret positions for the selected pitches.

The fret positions output from each pass are remembered and visualized on the guitar widget by paging through them each time you touch the guitar widget.

### *2.3.7 Strum techniques*

In addition to specifying the musical note duration of a strum element you can also specify the strum technique used to shape its sound.

The ***Down*** option simulates strumming the phrase notes from the first to the last note in the list of phrase notes. Think of this as strumming guitar strings from top to bottom (assuming the phrase notes selected are arranged logically in the same direction, i.e. from the lowest to the highest note). The notes are triggered individually until they are all sounding and they remain sounding until the end of the note's duration.

The ***Down (Staccato)*** option is identical to the ***Down*** technique above except that instead of them ringing until the end of the note's duration they stop when the last note has been triggered. This is a simulation of a guitarist damping the strings as soon as all the notes have been played. The note will still occupy the same note duration so there is no need to worry about inserting a ***Rest*** to stay in time, a crotchet is still a crotchet even when you strum it using the staccato technique. The software generates the necessary timing delay to align the next note (i.e. strum element) on the expected musical boundary.

The ***Up*** option simulates strumming the notes in the opposite direction, equivalent to strumming a guitar strings from bottom (the highest note) to the top (the lowest note).

The ***Up (Staccato)*** technique does the same for the ***Up*** technique above as the ***Down (Staccato)*** option does for the ***Down*** technique.

The ***Down*** and ***Up*** techniques described above simulate a natural guitar strum with each note starting slightly later than the last in the direction of the strum until all are sounding (i.e. overlapping each other) for the remainder of the strum element's note duration.

The ***Picked*** option differs in that the individual notes do not overlap, each note sounds individually occupying it's own proportion of the overall strum element's note duration. This provides a

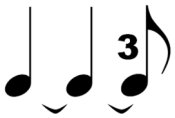
reasonable simulation of 'picking' the notes of a chord rather than strumming them.

The ***First Note Picked*** option simply plays the first note for the whole note duration.

The ***Rest*** option simply means do not sound any of the phrase notes for the strum element's note duration. It is essentially a suspension of the strum for its configured duration.

The final option is the ***tie***. The ***tie*** strum element technique is used to extend the duration of the preceding strum element by that of the duration of the ***tie*** strum element. It is equivalent to tied notes in standard musical notation and achieves the same effect.

In the above example we have a leading crotchet with a trailing ***tied*** crotchet. This has the effect of extending the duration of the leading crotchet by the duration of a further crotchet. The midi 'note on' s are triggered by the leading note and the midi 'note off's are triggered at the end of the duration of the tied note. You can tie several elements of different durations to achieve the desired overall strum duration. This includes a mixture of triplet and non-triplet duration styles.




The nature of an individual strum is wholly defined by the first element in a series elements that are tied. The tied elements only serve to extend the duration of the leading element. For example, the direction of the strum, its velocity, delay and span overrides are defined by the settings of the leading element only. In fact the application will prevent the application of overrides on strum ***tie*** elements as they would have no effect.

When you choose the tie strum technique the application will make some decision based on the context of the topic strum element. If the strum element is the first in a phrase it will not accept the ***tie*** strum technique choice and will automatically change it to a ***rest*** technique on the basis that there is no preceding element. This prevents Strumpy generating midi note 'off' events without any corresponding note on events. In later versions of the app, the user is prevented from selecting the ***tie*** technique for the first strum element in a phrase.

If a non-first element is changed to a tie, any overrides are removed and the display of the tied element will reflect the nature of the element it is tied to. For example, if a down strum element of crotchet duration is tied to a preceding rest element it will subsequently be displayed as a tied rest. Similarly if a rest element is tied to a down strum element it will be displayed as an equivalent duration musical note.

Arpeggio styles are supported by the technique options ***ARP I Up***, ***ARP I Down***, ***ARP I Up/Down***, ***ARP II Up***, ***ARP II Down*** and ***ARP II Up/Down***.

These are all similar to the Picked option in that the individual note pitches are played in sequence with each one being completely played (both note on and note off) before the next is started (i.e. the pitches do not ring until the end of the strum element's duration). The key difference with the arpeggio styles is that the supplied note pitches are extended into higher octaves, so that more note pitches are played than are actual supplied, although the additional notes added are derived from those supplied thereby reflecting the musical 'mood' of any configured chording.

These styles make it relatively easy to build wandering melodic patterns that add colour and interest to compositions. Whilst equivalent passages could be derived by stringing together 'Picked' style strum elements you will find using the arpeggio styles significantly reduce the overall number of composition elements you need to configure.

There are essentially two arpeggio algorithms, ***ARP I*** and ***ARP II,*** both with variations that generate a rising sequence (***Up***), a falling sequence (***Down***) and both a rising and falling sequence (***Up/Down***).

The ARP I algorithm takes the note pitches that make up the surrounding phrase and plays them in sequence (left to right for '***Up***' or right to left for '***Down***'). When it reaches the end of the list of supplied note pitches it plays them again in the same sequence but this time an octave higher (for '***Up***') or lower (for '***Down***'). The number of note pitches sounded will be twice the number of supplied note pitches for the '***Up***' and '***Down***' variations and four times for the '***Up/Down***' variation.

For example, supply phrase note pitches G3 B3 D4, strumpy sequences G3 B3 D4 G4 B4 D5 in the '***Up***' variation, D5 B4 G4 D4 B3 G3 in the '***Down***' variation and G3 B3 D4 G4 B4 D5 D5 B4 G4 D4 B3 G3 in the '***Up/Down***' variation. You will see from this that if you generate a chord of 6 notes that rises into a second octave that this algorithm can play pitches more than once in a sequence.

For example G3 B3 D4 G4 B4 would generate G3 B3 D4 G4 B4 G4 B4 D5 G5 B5 which adds 'punctuation' to a sequence in both directions.

Of course you don't have to supply note pitches that simply rise from left to right, you can make them as random as you like, but of course they will need to blend in musically with the rest of your composition so whatever pitches are selected they will need a relationship to the chording of other tracks.

You control the speed of the arpeggio using strum element duration (crotchet, minim etc), the number of supplied note pitches in the phrase and the arpeggio variation (Up, Down, Up/Down). The more notes that are configured to play in a given unit of time (strum duration) the faster the sequence will appear to run.

The ARP II algorithm takes the supplied note pitches and plays them in sequence (left to right for '***Up***' or right to left for '***Down***'). When it reaches the end of the list of supplied note pitches it generates additional notes by propagating the intervals present between the supplied note pitches . At the end of the list (in the '***Up***' variation) it uses the interval between the right most note pitch and the left most note pitch (in an assumed ascending pitch sequence) and vice versa in the '***Down***' variation. It propagates exactly twice as many notes as the supplied note pitches in either direction (or both) depending on the variation chosen (Up, Down, Up/Down).

Again, the supplied note pitches do not have to be in ascending pitch sequence, negative as well as positive intervals are handled, all you need to do is ensure that the pitches are musically related to their surroundings. In all other senses ***ARP II*** is the same as ***ARP I***.

Note that the arpeggio style strum element techniques described above are not subject to phrase parameter overrides, so for example you can't at this time change the way velocities are applied to individual arpeggiated strum elements within a phrase, however the note pitches played in arpeggio sequences are sensitive to phrase velocity parameters. You can easily configure arpeggio sequences that get quieter as they rise and louder as they fall (or vice versa) using the phrase minimum/maximum velocity parameters, but these settings will apply to all arpeggiated strum elements configured in the same phrase.

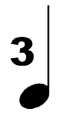
Also note that 'enhanced mode' is not effective with the arpeggio style strum techniques, so if you set this global feature on do not expect it to be operative with strum elements configured as arpeggios.

### *2.3.8 Extending note durations using 'dot' notation*

A strum element's musical note durations can be extended further by half of their duration and then by half their duration again using normal dot notation. You can choose to dot or double dot any standard note duration (including those using the '***Rest***' technique) by selecting the number of dots between zero and 2 when creating/editing a strum element.

### *2.3.9 Specifying triplet strum element note durations*

You can modify strum element note durations to introduce a triplet feel.




This has the effect of dividing the chosen note's duration by three. To create crotchet triplet strum pattern you would create three strum elements each consisting of a crotchet with the triplet option set. This generates three strum notes played in the time (equivalent note duration) of a crotchet (a crotchet triplet).

### 2.3.10 Editing strum elements

The list of strum elements in a phrase are sensitive to short and long clicks.

If you touch them briefly a strum element editing window opens allowing you to change its parameters. If you touch and hold a strum element for a short duration a context menu appears with a range of options for moving or copying the selected strum element relative to other strum elements within the same phrase.

### 2.3.11 Strum Span override

A further degree of strum control is available in the form of adding span overrides.

When a guitarist strums a pattern, even if the chord stays the same with each strum the number of strings being hit may vary. A guitarist will sometimes deliberately sound different notes in order to make the strum pattern interesting and more rhythmic.

The term 'span' refers to the note pitches in a chord and it's breadth will depend on how many of the chord notes (i.e. pitches) are to be sounded.

By default Strumpy assumes a 100% span is required, equivalent to sounding all the pitches in the chord (or a guitarist hitting all strings in the direction of the strum). You can override this behaviour be setting a strum span override on the strum elements in a phrase where you want to hear the effect.

When you set a span override you can set the percentage of the pitches you want to sound and the loading. The loading determines where the percentage of pitches you want to sound are to come from the available pitches. This can be set to one of 'Front', 'Back' or 'Middle'.

For example if you have a six string strum in the downward direction and want the second strum element to only sound the first three strings you would set a strum override of 50% with a loading of 'Front'.

If you wanted the last three strings to sound then choose the 'Back' loading option, or choose the 'Middle' loading option if you want those in the middle part of the range. Through careful setting of the percentage you can control the number of pitches that sound down to a single note.

If your strum element is in an upward direction the loadings work in reverse. The 'Front' option selects the first notes in the upward direction and the 'Back' option the last notes in that direction.

Span overrides only operate on the Down, Down Staccato, Up and Up Staccato strum techniques, the options to set and/or clear span overrides are not available on strum elements with other strum technique settings.

Strumpy will always sound at least one note regardless of how low you set the span percentage.

Span overrides were purposely designed to be reasonably generic so that they could be saved away in pattern templates. This allows them to be used within the context of any phrase (where the number of chord pitches can vary on a phrase by phrase basis). If explicit references had been made to chord pitch positions they could be rendered invalid on application within a template to a target phrase. By using a percentage the span override dynamically adjusts itself to the phrase to which it

is being applied.

You can combine span overrides with delay and velocity overrides to give a wide range of creative possibilities in generating patterns.

### 2.3.12 Adding Pitch Bends

Being able to vary the pitch of struck notes away from their naturally 'tuned' home is a technique used by many instrument players. It is a particularly popular technique when using stringed instruments, such as the guitar, where the physical nature of the instrument makes it very easy to alter pitch simply by stretching the strings on the fretboard having struck one or more notes in a chord.

To simulate this effect in Strumpy you can add pitch bend to individual strum elements allowing you to add the effect as and where appropriate for effect.

Each strum element represents the triggering of its associated phrase note pitches using a particular strum technique, and you can add pitch bend to strum elements configured with either the 'Down' or 'Up' strum element technique. These techniques allow triggered pitches to ring for the duration of a musical note's time value and it is during this time when pitch bending is both appropriate and possible. The staccato strum techniques result in pitches being dampened as soon as they have all sounded so just as with a guitar, bending a set of dampened strings has little musical value as the strings have stopped 'ringing' and would yield no creative effect. Also note that you are not able to add pitch bends to strum elements associated with drum tracks. In this context it is the note pitch itself (in midi terms) that determine the actual percussion instrument to be played, you have no control over the pitch of the percussion instrument itself, so the effect is inappropriate in this context and is therefore disabled.

You can control a pitch bend in a number of ways. You can determine its depth, i.e. how far the pitch varies from the struck (or 'tuned') note pitch that is its source. Behind the scenes Strumpy generates a number of midi pitch bend events in the midi event stream to implement your pitch bend effect. These affect all instruments sounding on a given midi channel (i.e. typically those assigned to the track whose strum elements you are editing in the feature).

There are 16,384 midi values available in the midi specification for pitch bend variation with 8,192 being the centre position (i.e. no pitch bend operative – the tuned note as struck/triggered). Note values above 8192 raise the pitch up and values below lower the pitch. The actual pitch variation per midi value depends on individual midi device manufacturers so the same set of values played back through different midi targets may sound slightly different.

You can also control the time delay between the triggering a strum element's associated pitches (read chorded strings on a guitar) and the point at which the bend actually kicks in. Of the 'ringing' time left, after taking into consideration any configured delay and during which the bend effect will take place, you can additionally control the speed of the bend. A low speed will take up more of that available time than a high speed setting. With a high speed setting the bend effect will execute and note pitches will continue to ring at their normally 'tuned' pitch levels until the end of a note's musical time duration. If you set the speed at its maximum, it might be so fast that you don't actually hear it, so be careful when setting the speed parameter (less is more in this case!).

Four different bend types are available 'Up and Down', 'Down and Up', 'Down Only' and 'Up Only'.

The first two initially raise or lower the pitch and then return to the starting 'tuned' pitch.

The last two types simply raise or lower the pitch during bend execution and the pitch variation on the midi channel is not reset to normal until after the strum element's notes have stopped ringing (i.e. after the midi note offs have taken place).

All of the above variations have their individual applications for creative effect, try them out and see for yourself.

Behind the scenes, Strumpy works out the number of clock ticks available after all note pitches have been struck (will vary depending on your phrase strum delay settings or any override at the strum element level.

It then works out a percentage of that remaining time that's allocated to any pitch bend delay. The delay pitch bend property is essentially a percentage of that remaining time. Obviously if it is set to its maximum (100%) there would be no time for any bending to take place at all, so bare that in mind when setting your pitch bend delay parameter.

Strumpy then takes the pitch bend 'speed' property setting and applies it to to the remaining time to determine the period of time (in clock ticks) over which the pitch bend effect is to operate.

The slowest speed will use all the available time to implement the pitch bend effect. The fastest speed will execute the bend in as short a time as possible, in fact you might not even hear so avoid setting the speed to its absolute maximum setting. The quicker the speed, the quicker the bend effect will execute within the remaining 'ringing' time period.

On high settings the bend will execute and still leave the notes ringing at their tuned pitches until the end of the associated strum element's configured musical note duration (crotchet, quaver etc).

Once Strumpy has worked out how many clock ticks it has within which to apply the effect it generates a series of midi pitch bend events in the midi stream, increasing and/or decreasing the pitch accordingly with each generated event using appropriate midi pitch bend values.

To ensure pitch bends sound as smooth as possible they are generated at the maximum midi clock resolution supported by Strumpy (i.e. 960 clocks ticks per beat) so that each clock tick will have its own pitch bend event during the time period the bend is executing. This does mean that pitch bend events do not come cheaply and therefore should be used sparingly in your compositions, primarily to minimise the time you have to wait after initiating playback before you actually hear your composition being played. Pitch bends can generate a lot of midi events, particularly slow ones, and this can have a visible impact on the performance of the tool.

Note that all the bend types are linear in nature. Pitch will increase and/or decrease in time equal pitch increments.

## *2.4 Transposing the pitch of your project*

In the phrase edit page you can raise or lower the pitch of the chord notes that define the phrase using the transpose up/down buttons and this is fine when building your project. When you have completed your project you may feel its overall pitch is either too low or too high. Of course you can fix this by visiting each phrase in your project and transposing them one by one but this is time

confusing and error prone.

Strumpy provides a way to achieve this in a single action using an option from the project selection view. Simply select the option and choose the number of semitones by which you wish to raise or lower the project's overall pitch.

Strumpy will only present an appropriate range of semitone +/- values, it will not present values that would cause the note pitches that make up a phrase to go beyond the available pitch range (possibly corrupting chords).

On accepting the selected semitone transposition value (the 'ok' button) strumpy applies it to each project phrase. Press the 'play' button to hear the result of the change.

Note that tracks configured as drum tracks are not transposed (i.e. those assigned to midi channel 10). To do so would alter their percussion instrument sounds and this is undesirable. If you want to change the percussion instruments you will need to visit the individual tracks and alter each phrase individually.

## 2.5 Previewing a phrase

You can play an individual phrase to see how its strum elements sound by touching the play button whilst editing a phrase. You can also preview a phrase from the Track Lanes view

## 2.6 Previewing your complete project

You can play your complete project to see how it sounds (all phrases) by touching the play button on the main project page as well as from the /track Lanes view.

## 2.7 Previewing an individual track

An individual track can be played from either the main project page (also referred to as the track explorer), the mixing desk or the Track Lanes view. On the track explorer a track is selected as the current track in a track selection drop down control. The tracks phrases are also shown in this display. The track play button only plays the currently selected track and ignores its mute and solo status so that it always plays regardless of those settings. In the Track Lanes view simply long touch a strum element/phrase in the target track’s lane and select the relevant option from the context menu displayed. Note that the track must not be muted in this context.

## 2.8 Synchronising Tracks

As you add more tracks to your compositions they tend to become less populated with musical events. They often add interest to particular areas of the overall composition and these events usually coincide with key musical events in one or more existing tracks.

Strumpy doesn't employ a 'piano roll' style user interface when laying out musical events over time. In a piano roll style interface you simply lay out where events start and stop on a time grid and the system is able to account for the gaps in between (i.e. musical rests). In Strumpy, all time has to be accounted for which means explicitly specifying musical rests, such as you might do when writing sheet music.

In busy tracks this is reasonably straight forward as you are able to keep track of time through reference to previous phrases/elements within a track (despite the free form approach with no time signatures and measures), but on less populated tracks containing events that need to be synchronised with events in other tracks this can be a harrowing experience as you have to calculate and add the necessary rest strum elements to account for the gaps.

To address this, Strumpy makes this task easier using a track synchronisation feature.

When you have a track that needs event synchronisation with key events in another track you are able to address this as follows.

Synchronisation is possible at the 'phrase' level. Ensure that key phrases you want to synchronise with are given easily identifiable names. For example, 'Chorus Start', 'Final Verse' or 'Instrumental Riff'. You could even use lyric fragments as names if this makes identification easier. By default Strumpy allocates the name 'New Phrase' to any new phrase you create although these are very easy to change to something more meaningful at any time.

Having chosen a track you wish to synchronise (which may or may not already be populated with phrases and their associated strum elements) you should trigger its context menu in the Mixing Desk view. A menu option provides the synchronisation feature. On selecting this option you are presented with a dialogue where you can choose the synchronisation track (from the others available) and when chosen the list of phrase 'instances' in that track that occur later in time than the current end of the topic track.

Simply select the desired synchronisation phrase from the presented list and behind the scenes Strumpy calculates the time necessary (in midi clock ticks) to fill the gap between the end of the last phrase strum element on the topic track and the start of the chosen synchronisation phrase in the synchronisation track. It then factors this time into the smallest possible number of phrases populated with 'rest' strum elements. It uses phrase repetitions to minimise the number of phrases required to fill the gap. The generated 'rest' phrase fills are then appended to the topic track. All you then have to do is add any new phrases required from that synchronisation point.

Be mindful that if you attempt to synchronise with a track that has no phrase instances that occur after the last phrase in the topic track you will not see any synchronisation phrases in the synchronisation list.

A synchronisation option is also available from the Track Lanes view, simply long touch the track lane you wish to synchronise and select the relevant option from the presented context menu.

## 2.9 How Strumpy plays your projects

When you click one of the play options (in local play mode) to preview either a single track, phrase or your complete project, the application generates a midi file behind the scenes that contains a series of midi events that make up the phrase set within context. It then passes the generated midi file to the resident media player on your Android device in a background thread. You can stop playback at any time by pressing the accompanying stop button. The play option is disabled whilst the media player is running.

If your project contains a single track with no secondary midi output track configured then Strumpy generates a type 0 midi file containing a single midi track. In all other cases Strumpy generates a type 1 multi-track midi file which contains a separate block of events for each output midi track (including secondary instrument tracks).

You can specify the tempo the media player uses to play your previews from the Track Explorer View (i.e. the page where the current projects currently selected track's phrases are listed). Tempo is expressed in standard beats (i.e. crotchets) per minute.

Strumpy generates a program change event at the beginning of each output track to set the relevant instrument for that midi track and a pan controller midi event is generated for each track to reflect the Pan settings configured for each midi output track (both primary and secondary output midi tracks).

For advanced users there is an alternative play mode called 'Live Play mode' which is described in some detail later on in this document.

## 2.10 Strum Pattern Templates

The application includes a set of pre-packaged pattern templates referred to as ***Strumpy*** pattern templates. These are a great way to start building a project, you simply pre-populate a phrase in your project by selecting one from the supplied set.

Pattern templates can be previewed before they are copied into a phrase in your project. Like the addition of any single pattern element they can be inserted at any position in a phrase. Using Strumpy templates you can quickly generate realistic sounding strums.

Not satisfied with the supplied Strumpy patterns, then why not create your own. The application also supports the creation of ***user*** pattern templates. Simply develop a cool set of strum elements in a project phrase, call up its context menu and choose to save it as a user pattern template under a name of your choice. The saved user pattern then becomes available for use in other phrases or even future projects.

When you want to use a saved user pattern template simply choose a strum element in the phrase in which you want to insert the template's content and then invoke its context menu. A ***template*** menu option group provides access to a range of options that determine where a template's content is to be pasted relative to the selected strum element.

By default, Strumpy pattern templates are presented for selection, but you can change the view to show user pattern templates for selection instead.

When you select a pattern template in the pattern selection dialogue the tool lists the strum elements associated with selected pattern in another column of the same dialogue and plays the template's strum elements through the media player. Pattern template strum elements are displayed as images that illustrate strum duration (using standard music notation) and strum technique (e.g. Down, Up, Picked etc).

Velocity and delay parameter overrides are also stored in a pattern template's configuration and are used during playback preview but are not visible in the images that show content from the selected template's set of strum elements. They will of course appear when a template's elements are copied into a chosen project phrase.

Views of the strum pattern template selection dialogue is shown below. The dialogue first opens in ***Strumpy*** template display mode. The image at the top of the dialogue shows the ***Strumpy*** logo as an indication that it is in ***Strumpy*** template mode.

In Strumpy template mode the displayed pattern templates are the ones that are pre-packaged with the application. A wide range of patterns are provided in a range of time signatures. The naming convention for the supplied Strumpy patterns is as follows.

patternName_tt_nn

where.....

tt = time signature  e.g. 24 = 2/4, 34 = 3/4, 68= 6/8, 108 = 10/8 etc
nn = number of strum elements in the pattern

For example, the template Basic010_44_6 has a pattern name that indicates it is the tenth in the basic set, assumes a 4/4 time signature and consists of 6 strum elements (i.e. equivalent to strokes across the strings of a guitar or rests).

The majority of Strumpy patterns are one bar in length however there are a few that are two bars in length. A few templates end with very short notes and really need to be followed by another strum element on the first beat of the next bar. They may sound a little strange during preview but they are really designed to be followed by further strum elements in a project phrase.

Whilst in Strumpy template mode you can switch to ***user*** template mode by clicking on the image that sits between the ok and cancel buttons. This is a toggle control so you can switch to ***Strumpy*** template mode by clicking on the image control once again. In ***user*** template mode the application displays previously saved user pattern templates.

When a pattern is selected its name is displayed as the title of the dialogue so that the user knows which pattern is currently being previewed. This is the one whose elements will be copied into the target phrase when the ok button is actioned.

When previewing a pattern template the application uses the chord notes, and default velocity and delay parameters associated with the targeted phrase which it plays at the project's tempo. This enables a user to hear how the pattern template's elements will sound should it be pasted in. Any delay, velocity and strum span overrides present in a templates strum elements are active and applied within the target phrase during preview  This behaviour can be changed using an option on the opening application screen which on selection will cause future previews to play patterns in their raw form. Note that if a phrase doesn't yet have any chord notes set then Strumpy will ignore the template preview option and preview the template in its raw form, otherwise no sound would be heard.

Patterns are saved in a similar form to projects. They contain a single phrase (containing the actual pattern elements) and are pitched with a single C note. In raw form pattern templates sound quite thin, but this does allow a pattern's phrasing to be heard much more clearly.

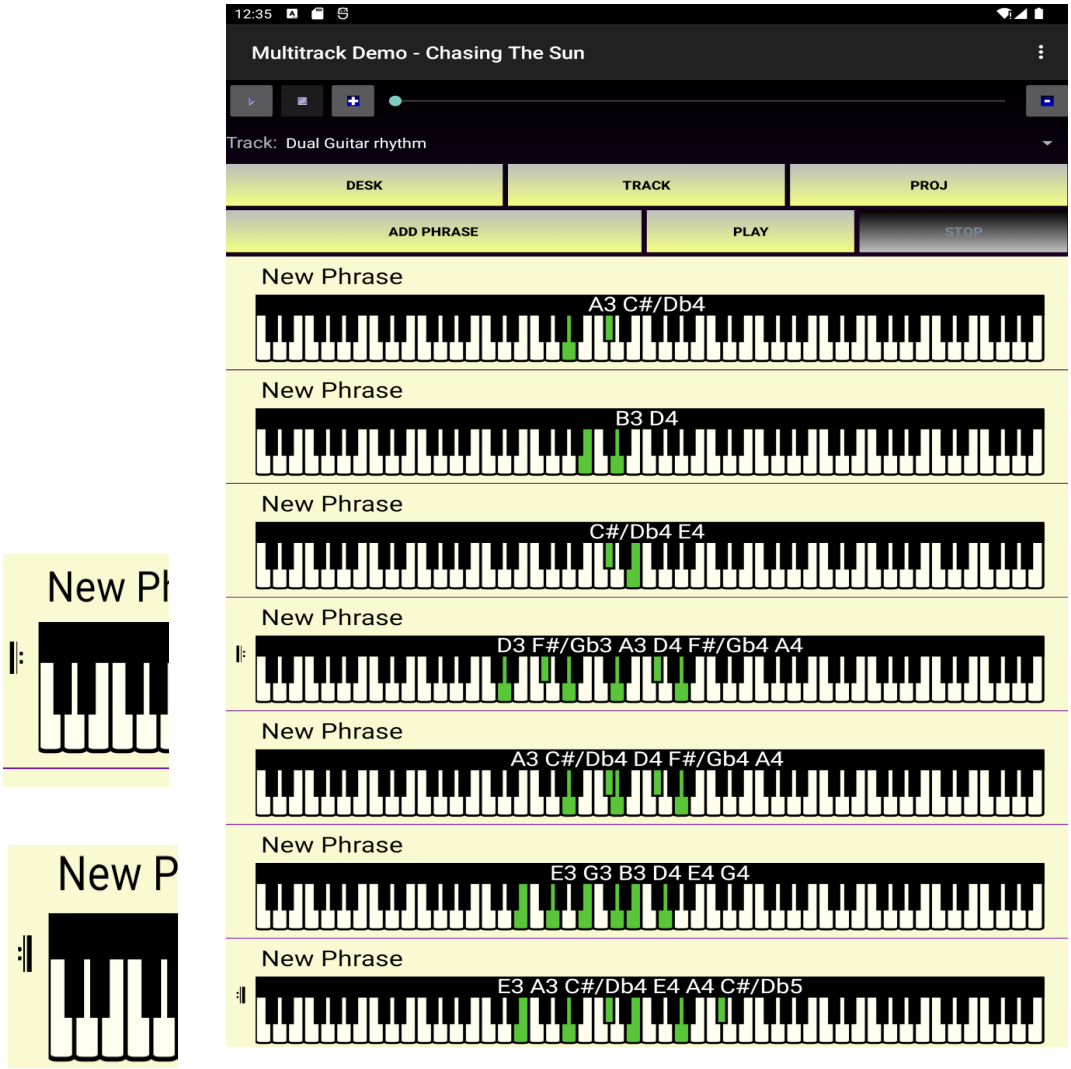
An option available from the opening application screen allows access to a facility where you can

manage ***user*** created templates. In this release user pattern templates displayed in this facility can only be previewed (in raw form) and deleted when they are no longer required,

Strumpy templates cannot be directly managed by end users. A user can of course copy and edit Strumpy templates by inserting them into an empty project phrase, editing them using standard Strumpy features and then saving the phrase away as a user template for future use.

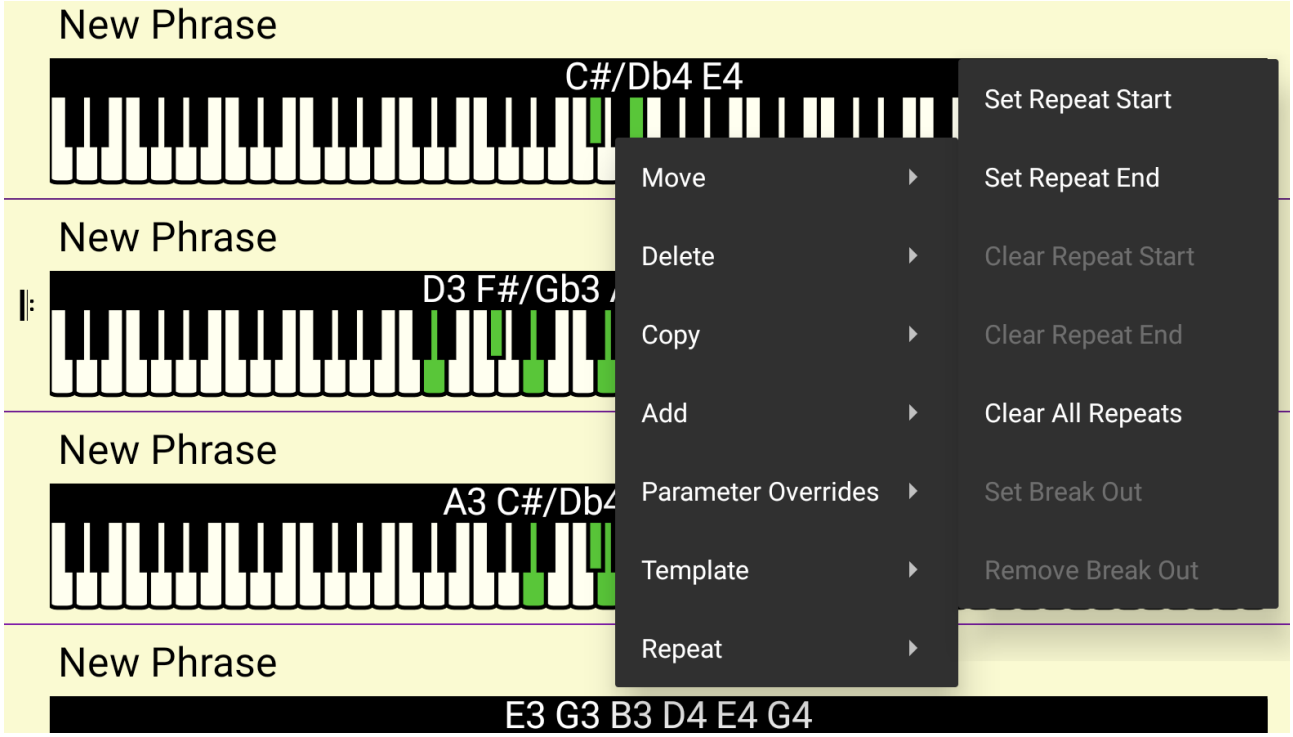
## *2.11 Repeating Phrases*

When building projects you will often want to repeat phrases to avoid having to copy them. You can do this from the Track Explorer View where the phrases associated with the current project track are listed (see below).

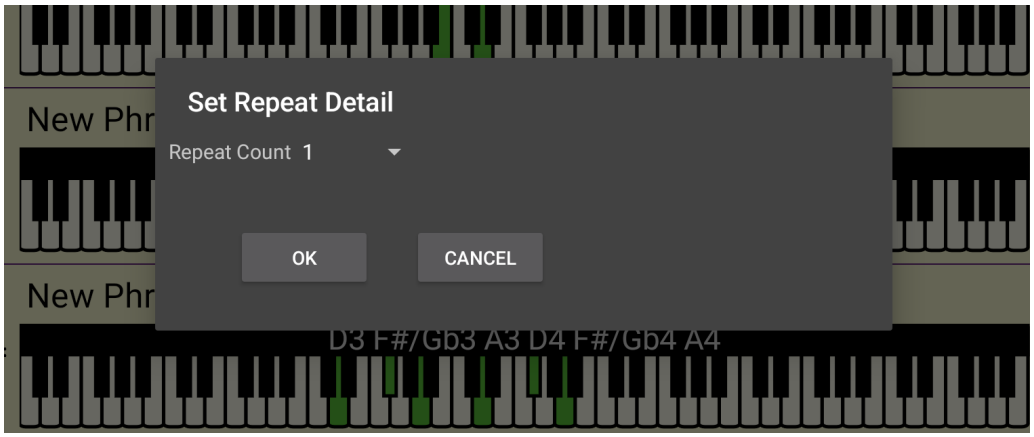


Each phrase in the list has a phrase repeat icon shown to the left of its name that is used to indicate phrase repeat group start and end points. When you initially add phrases (or view the phrase lists of previously created projects) you will see an empty icon against each phrase. This indicates that a phrase is not subject to a phrase group repeat. You create repeat points using the context menu associated with a phrase.

To set up a repeat end point, simply select and hold the target phrase until the context menu is shown.

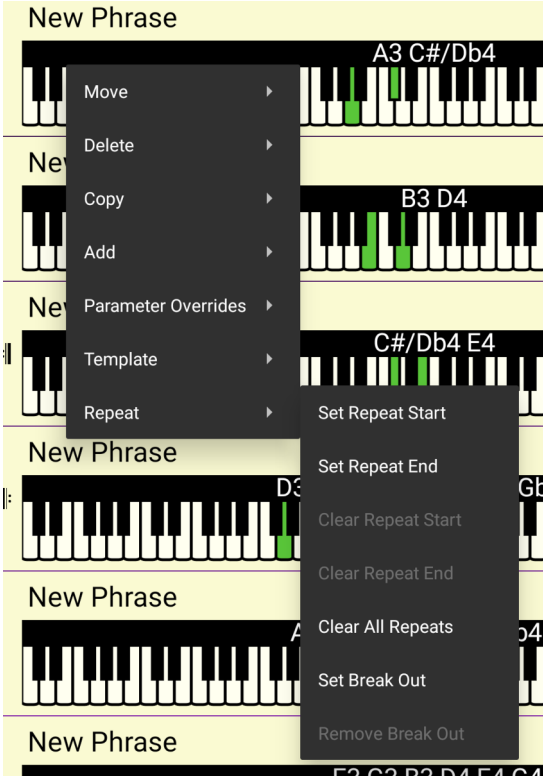



Select the 'Repeat' menu item and then the 'Set Repeat End' sub menu item. A dialogue is displayed which prompts you to select the repeat count.



Simply select the number of repetitions you require from the repeat count drop down control. If no preceding phrase is marked as a repeat start point Strumpy will repeat all phrases between the first phrase in the project and the phrase that has been marked with the repeat end.

If you set a preceding start point (another option off the Repeat sub menu) Strumpy will repeat all phrases between that phrase and the one marked with the repeat end.



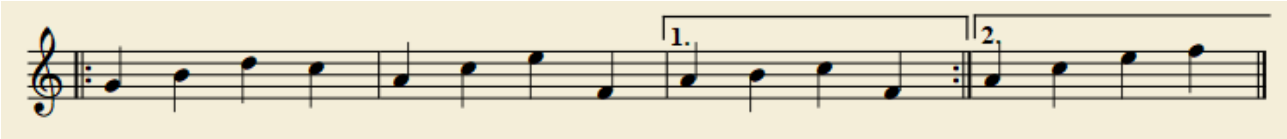

Following screenshot shows a project with a single start and end point set. Note that standard music symbols are used to denote repeat start and end points.

To edit the number of repetitions previously set for a phrase repeat end point, simply invoke the 'Set Repeat End' option once again from the repeat context sub menu on the topic phrase. Strumpy displays the current repeat count which you can change.

You can set multiple start and end points to achieve a desired phrasing but repeat start/end pairs may not overlap. The context repeat sub menu controls which options are allowed for a topic phrase.

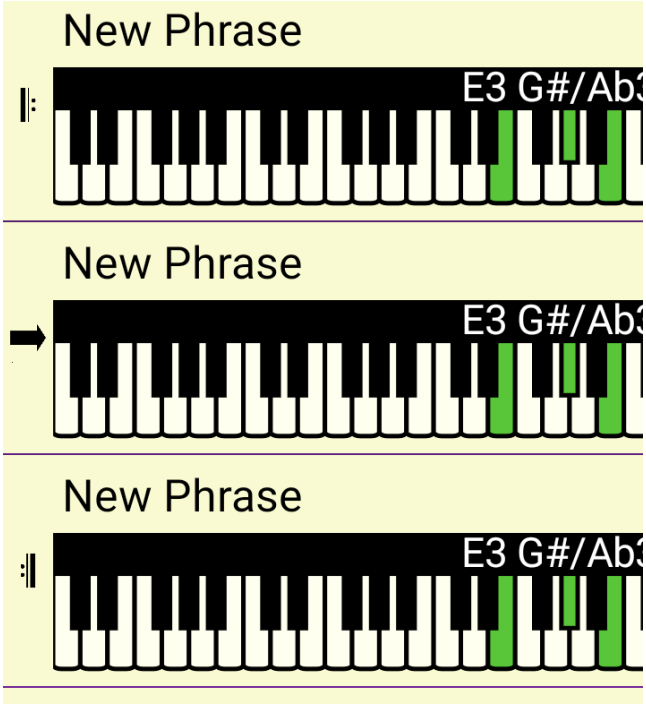
If a second phrase group repeat end is added below another, the start point for the new end point is considered to be the first phrase after the preceding phrase end point. A start point can be added between the two to bring the repeat start point associated  with the second end point closer to it. Any intervening phrases between the first repeat end and the start point associated with the second repeat end will not be repeated (i.e. they will only play once).

Music scores often include sections that repeat a number of times but have a different ending on the last repetition cycle. The flow of control breaks out of the repeated section to play a different set of phrases to those that would otherwise have been played on previous iterations of the repeated section. This is generally referred to in music notation as ‘first and second endings’ and an example of how this is represented in music notation is shown below.




The bar labelled ‘1’ is played on the first pass through the repeat section. On the second pass through the repeat section only its first two bars are played and flow continues from the bar labelled ‘2’.

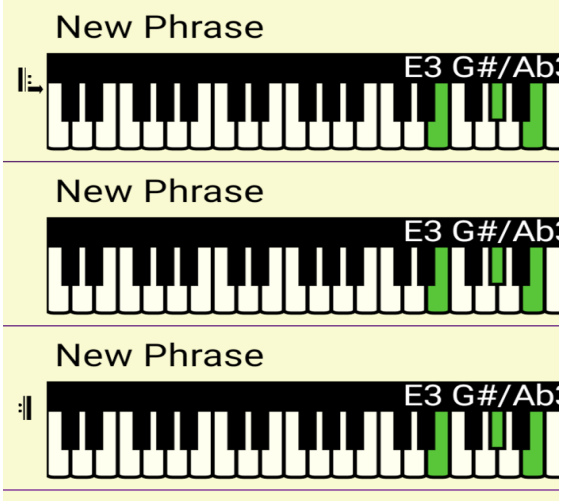
We can simulate this in strumpy by marking a phrase within a repeated phrase block as a ‘break out’ point.




In the above image you can see a phrase repeat group has been created between what are the second and fourth phrases in a particular track's phrase list (Track Explorer View). A break out has been configured on the phrase that sits within the repeat group. With a repeat count of 1 set on the phrase marked as the repeat group end Strumpy will play the following sequence of phrases.

1,2,3,4,2,3,5

The break out occurs on the last iteration of the repeat group after all the notes in the break out phrase have been played and play continues with the phrase that follows the repeat group end phrase.
You can mark any phrase within a repeat group as a break out phrase other than the phrase marking the end of the repeat group, and this includes a phrase marked as the start of a repeat group. In the latter case the phrase marker is slightly different to articulate the phrase is both the start of a repeat group and a break out point. The following is an example of how that looks in the phrase list if so configured.



In the above you can see that the first phrase shown is both a repeat start and a repeat break out point.

You can only configure a single break out point in a phrase repeat group and you cannot configure a break out point if a following phrase does not have a repeat group end marker.

Break out's help to promote the use of phrase repeat groups, reducing song composition time by eliminating the need to manually copy phrases in repeated sections of music. They minimise the number of phrases that you might otherwise have to configure when tackling repeated sections of a composition. The author strongly encourages liberal use of this feature.

Options are available from the repeat context sub menu to clear start, end and break-out points as well as to remove all phrase repeat articulation markers in a track (i.e. all start, end and break-out points).

Phrase repeat groups can significantly reduce the time it takes to build projects. Using phrase repeat groups, any changes you make to a phrase that resides within a phrase repeat group are instantly available in its repetition. If you copied the phrases instead to achieve repetition you would have to apply your changes multiple times.

# 3 Sharing your project files (import/export/email)

Having built a number of projects you may wish to share your files with other fellow musicians, or even amongst several devices you own.

You can share both project midi files and project configuration files.

You might share a project configuration file with a fellow 'Strumpy' user in order to give them a leg up if you are more experienced at using the tool and wish to help them along. You may just want to demonstrate your level of 'Strumpy' expertise.

You send a project file as an attachment to an email or attach external storage to your android device and  copy the file to a location (folder) on that attached storage.

Project files can be imported onto another device by saving a received email attachment on the device or by loading external storage containing the project file. The export and import feature is available in the options menu. Project files have a .sey extension and are obfuscated to protect the software. A project file cannot be imported if the software detects it has been tampered with.

A project midi file can be shared in a similar way, either by email attachment or through use of external storage. These files are standard midi files and should play on any platform with a midi playback facility.

The most likely use of the midi file export facility would be to transfer the file to a device containing a digital audio workstation where you can import the file into a home recording project

for use in a wider composition. The hard work of creating the strum patterns has been done in Strumpy and you can concentrate entirely in your DAW on deciding where to use the clip in your composition. In the DAW you can transpose the imported midi file content just like any other midi clip. You can also convert it into the audio domain using a suitable soft or hard instrument as and when ready.

# 4 Other Features

## 4.1 Live Play Mode

### 4.1.1 Overview

You can have great fun developing your strumming projects using the default playback facilities of local play mode. This mode is set following installation and is the only way to develop projects on the go (i.e. away from your home recording set up).

For many users this initial mode of play will be fine, however advanced users might find this restrictive for the following reasons.

- Playback is limited to the standard midi sounds implemented on your device
- Immediate playback in a home recording studio environment is cumbersome as it requires a series of steps to transfer the project midi file to the machine hosting the studio DAW (e.g. export to portable storage or email), load the midi file into the DAW and finally to play it.

Wouldn't it be great if you could simply invoke play on your Strumpy Android device and hear your project (or selected phrase) play through one of your DAW software instruments using its vast array of sounds, or even have your DAW redirect midi events through an available external midi interface to drive an external midi instrument with yet more sounds, and all without any wires.

Well you can, it's what ***Live Play Mode*** was designed to support.

### 4.1.2 Architecture

***Live Play Mode*** requires an additional ***Stumpy Server*** component which can be downloaded from the Strumpy website.

The Strumpy Android application provides a facility to configure live play mode through which you configure the Strumpy Server host name (or alternatively its IP address) and listening port. The facility is available from the options menu on the project selection screen (the opening page of the

application). Once configured, live play mode can be activated by invoking another function from the same options menu that toggles between local and live play modes.

The Strumpy server software is written in Java which means installing a Java runtime environment (JRE) on the machine on your local area network that hosts your Digital Audio Workstation (DAW) such as Cakewalk's SONAR X1, Steinberg's Cubase (and many others).

The server software uses the Java environment's built in sound API's which include a built in sequencer that is able to play midi files and stream the encapsulated events to locally available midi devices.

This solution was considered more reliable than attempting to stream the midi events directly over a user's local area network. Support for midi on Android is fairly basic, there is no facility to stream midi events in strict time sequence based on their individual event times, this is essentially what a sequencer does.

The author did consider building an embedded sequencer component for the Strumpy app but decided against it, mainly due to the complexity involved and in particular concerns about the minimum time resolution that might be achievable. Using a server based approach ensures that the stream of midi events are generated as close as possible to the target midi device thereby minimizing delays during sequence playback. The Java environment's sequencer is also a tried and tested piece of software.

The Strumpy Server software should run on any compatible Java runtime environment and across operating systems where a Java implementation is available, however the author has only specifically tested the software on Windows. The server software installation package includes run files for Windows only but with a little knowledge they could be configured for other operating systems (e.g. Linux).

When you request to play a project (or project component, such as a note, phrase or track) in live play mode, Strumpy sends a midi file representation of your project to the server software which it then stores (or overwrites) in the ***midifiles*** directory. It then passes a request to play the midi file to the java environment's built in midi sequencer. This in turn generates a stream of midi events from the midi file to the midi device you configured earlier. If this is an external midi port on your computer the events are then relayed to the midi device connected to that midi port and you should then hear the effect.

Note that a project midi file generated from a Strumpy project with a single Strumpy track and with a second instrument configured will be a type 1 midi file containing two tracks, track one containing the primary instrument events assigned to midi channel 1 and the other containing the second instrument events assigned to midi channel 2 (the midi channels are configurable). You may need to take this into consideration when configuring your remote midi setup.

You may have an internal midi instrument on the Strumpy server host that offers a virtual output midi port and if you've configured that device as the target midi device the midi stream generated by the sequencer will be directed at it (e.g. a  local (software) sound synthesizer).

Note that to use live play mode the application requires 'Internet' permission to be able to communicate with the remote Strumpy server.

### *4.1.3 Advanced Midi Usage*

Users with extensive home recording setups may prefer to play Strumpy projects through their Digital Audio Workstation (DAW) setup where there is access to a variety of software instruments and therefore a wealth of guitar patches to use, far more than say on an externally attached keyboard instrument attached to a midi output port.

Achieving this requires the implementation of a midi loopback mechanism on the Strumpy server/DAW host that is able to redirect midi events destined for some midi receiver device (either external or internal within the operating system) to be redirected so that they appear to midi software running on the same computer as though they were presented through a midi input device.

In this way your DAW can respond to those events and redirect them to any software instrument within its control. It could even redirect the events to a device connected to the host computer's attached midi output port.

This configuration gives a tremendous amount of control over where your Strumpy projects are played. Having used this facility the author can vouch for how brilliant it is. It's amazing to hear how your Strumpy phrases can sound played live in this way, without having to import a midi file into a track in your DAW first.

You could even record your Strumpy phrases into a DAW track live allowing the slight timing delays added by the local streaming process to add to the creative feel, thereby taking the edge off the strictly 'on the beat' accuracy that would otherwise come from importing the associated midi file. Of course both options are available and each has its own merits.

The clever tricks necessary to implement a Window's based midi loopback mechanism fall outside the author's immediate knowledge framework, however their are a number of 3rd party midi loopback software tools available on the web, some of which are free to use in non commercial applications (i.e. ideal for the amateur home recordist).

The author has direct experience of the free virtual midi driver from....

***http://nerds.de/en/loopbe1.html***

The driver is called ***loopBE1*** and is free to use in a non commercial context.

Just install the software and it will, appear as an available midi device when you run the Strumpy server configuration tool. Choose this device as your Strumpy output midi device.

Make sure your DAW is also configured to receive input from this loopback midi device and then off you go. You can now direct your Strumpy 'Live Plays' wherever you like using the full range of instruments available within your home studio.

Other midi loopback software is available, use whichever is best for your particular circumstances.

Just to be clear, you ***do not*** need the midi loopback software to use live play mode as it will still

work with instruments connected to the server's midi output port or any server installed software synths that expose a midi receiver device. The real power comes from looping the midi into your DAW thereby allowing it to control which instrument is used to preview your Strumpy creations.

There's nothing better than configuring your midi strumming guitar clips in Strumpy on a tablet device over a wireless network and then being able to hear the results in real time using any guitar sound you have at your disposal. Look ma, no hands!

One final note on Live Play mode, it doesn't support playback song position monitoring on your android device so you won't see a cursor tracking playback position in the Track Lanes view. This is by design.

### *4.1.4 Strumpy Server Installation*

**Step 1 - Get A Java Runtime Environment (JRE)**

Download and install a Java runtime environment (jre) from the Oracle website (jre6 or above). Recommend using jre6 or jre7as the author has tested with both those particular versions, however it should work on later versions (as long as its dependent features have not been removed from the Java environment). Watch the website for newer versions of the server software tested and compiled against more recent Java versions. Any problems getting started, then please email the author.

Should work equally well on Windows and any flavours of Unix that support the required level of Java (e.g linux), however command files to launch the server tools have only been supplied for windows. If you can't figure out how to create corresponding command files on a flavour of unix the author can probably help you out.

Apologies, no Apple support.

You can obtain the Java Standard Runtime Environment (i.e. Jave SE jre) from the following link.

http://www.oracle.com/technetwork/java/javase/downloads/jre-6u25-download-346243.html

Other JRE versions are available from the link below.

http://www.oracle.com/technetwork/java/javase/downloads/index.html

**Step 2 - Install the Strumpy Server Software**

Simply unzip the strumpyserver.zip file into a new directory that will host the strumpy software,

associated support files and downloaded midi files.

**Step 3 - Edit command files to specify the jre location**

Open the command files in the 'run' directory and replace the value of the java path to the java run time environment.

e.g. @set java=c:\program files\java\jre6\bin

The path must point to the 'bin' directory

**Step 4 - Configure the server software**

The server software must be configured before first use so that it is able to receive play and stop requests from the android device you are using to run Strumpy.

In the run directory execute the following file.

**configserver.cmd**

This fires up the configuration software which in turn will request the following pieces of information.

1. The midi device through which you will playback uploaded midi files
2. Choice regarding the stripping (or not) of the program change midi event message embedded in downloaded midi files
3. The port number on which the server will listen for incoming Strumpy requests. This also has to be configured on your Strumpy device and they both must correspond for successful communication to take place.

Simply follow and respond to the on screen prompts. You can exit at any time (x) resulting in none of your changes being stored. You must complete all the response for changes to be saved.

The following screen shot shows an execution of the server configuration facility.

```
C:\WINDOWS\system32\cmd.exe
Select the target midi device from the list below.....

1 SB Audigy 2 MIDI IO [B400] mxr=0 mxt=-1
2 SB Audigy 2 MIDI IO 2 [B400] mxr=0 mxt=-1
3 LoopBe Internal MIDI mxr=0 mxt=-1
4 Microsoft MIDI Mapper mxr=-1 mxt=0
5 SB Audigy 2 MIDI IO 2 [B400] mxr=-1 mxt=0
6 SB Audigy 2 Synth A [B400] mxr=-1 mxt=0
7 SB Audigy 2 Synth B [B400] mxr=-1 mxt=0
8 SB Audigy 2 MIDI IO [B400] mxr=-1 mxt=0
9 Microsoft GS Wavetable SW Synth mxr=-1 mxt=0
10 LoopBe Internal MIDI mxr=-1 mxt=0
11 Real Time Sequencer mxr=-1 mxt=-1
12 Java Sound Synthesizer mxr=-1 mxt=0

Select the device number or X to cancel
10
Remove program change midi message on playback? (Y or N) or X to cancel
y
Enter the server listener port number (e.g. 8080) or X to cancel
8080
Press any key to continue . . .
```

Before prompting for a midi device to use the software searches the environment to find available midi devices. Each computer is different so the range of midi devices can vary widely. The devices shown will depend on any midi related hardware and software you have installed.

It is assumed that if you are using this software you already have some some degree of midi configuration understanding, if not there are plenty of resources on the web to help.

You will need to choose an appropriate midi output device from the list shown. Sometimes the names are not obvious but with access to the documentation that may have accompanied any midi related hardware and/or software you have installed you should be able to choose a suitable device. If not, it's down to trial and error.

When the configuration utility displays the available midi devices you will see output that looks as follows for each located midi device.

n. Java Sound Synthesizer mxr=-1 mxt=0

mxr indicates the number of midi receivers supported by the device with -1 indicating an unrestricted number (i.e. no restriction, will support an unrestricted number of connected concurrent midi transmitters).

mxt indicates the number of midi transmitters supported by the device in the same way as the midi receivers indicator above.

For a successful configuration you must only choose mxr devices with a displayed value of -1 or a value that is greater than zero. These are devices that will support a connection from a sequencer (i.e. a transmitter) such as the Strumpy server. This could be a midi output port device physically plugged into your computer where its associated operating system sound driver advertises it as a midi receiver.

The configuration facility simply creates a StrumpyServer.properties file in the run directory containing the supplied parameters in the required format required by the software. You can edit these manually once you are confident in doing so to avoid the need to invoke the configserver command.

**Step 5 - Start the server and start Live Playing!**

Having configured the server all you need to do now is fire up the server. Run the following command to start the server.

**startserver.cmd**

Ths starts a new operating system process that will listen for incoming Strumpy requests. The first time you run the command it will create a new sub directory under the run directory which it will use to store uploaded midi files from your Strumpy device (midifiles).

The server displays the port it is listening on and then the process blocks until you stop it. When you have finished a Strumpy 'Live Play' session you can simply kill, the process using ctrl+c on windows and answering Y to the prompt to end the session. This is the desired method of shutting it down although you can get away with just closing the command shell window.

You can now test live play mode from a Strumpy Android device that is suitably configured to connect to the Strumpy server using its wireless networking capability.

## 4.2 Setting Enhanced Mode

By default the software uses only the 1-6 note pitches configured in a phrase to play strum elements but by selecting 'Set Enhanced Mode' from the options menu you can configure the software to double up each note pitch by adding a further note pitch for each pitched one octave higher. A slight delay is added between the triggering of each note in the pair. With six note pitches set and a midi guitar instrument patch selected a reasonable simulation of a twelve string guitar can be achieved on your local device. This feature can be turned off by selecting 'Set Normal Mode' from the options menu when in enhanced mode. This feature can be used with any midi patch. Note that you have no control of the slight delay that's introduced by the software between base and octave intervals this is set by strumpy, however if you wish to have more control simply create a second track with the notes transposed an octave higher and introduce a custom delay on the second track.

## 4.3 Sample Project Files

A number of sample projects are delivered with the application and are installed every time the application is loaded.

This behaviour will overwrite any project with the same name and it was designed this way to reset sample projects to their factory settings in case they are destructively edited by a user in learning to use the application.

This feature can be useful if you are experimenting with the delivered samples but always want them set back to their original settings.

For advanced users, having the sample projects reappear or reset themselves each time the application is run may become an unwelcome hindrance, particularly if a user normally deletes them in order to concentrate on their own projects.

You can suppress the automatic installation/re-installation of the sample projects by selecting the option 'No Sample Refresh' option from the Project Selection View options menu. You can restore the default action at any time by selecting the option 'Refresh Samples' from that same options menu.

# 5 Exploring the User Interface

## *5.1 Overview*

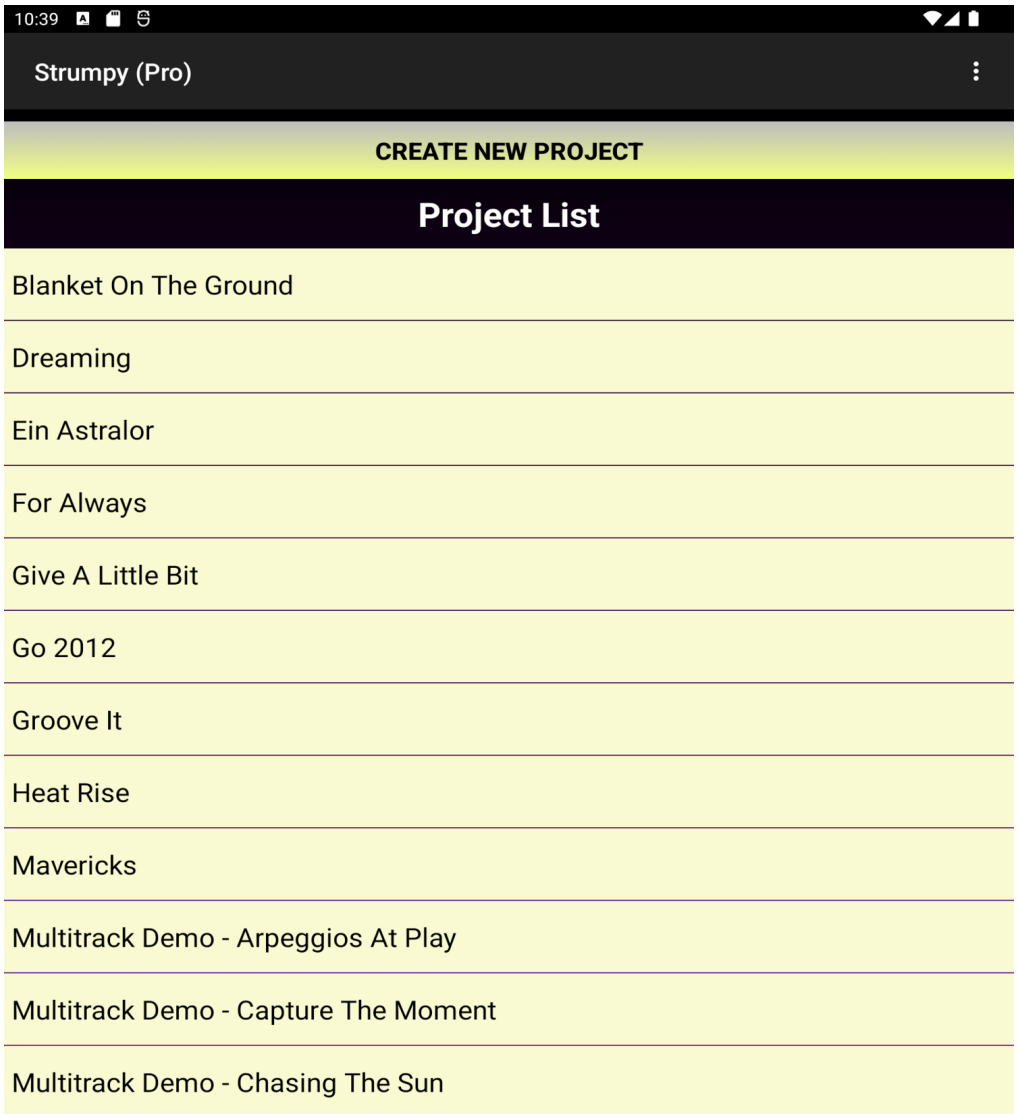
The screen shots shown in this section were taken from a combination of Samsung Tablet devices (Tab 10.1 and Galaxy Tab S3) which have large screens. Strumpy Pro comes with screen resources set for larger tablet device (as shown) as well as a screen set for smaller smart phone devices. The main difference is that the additional screen real estate of the larger devices is used to display phrase strum elements alongside phrase configuration parameters. On smaller devices strum elements have to be called up using a sliding drawer control.

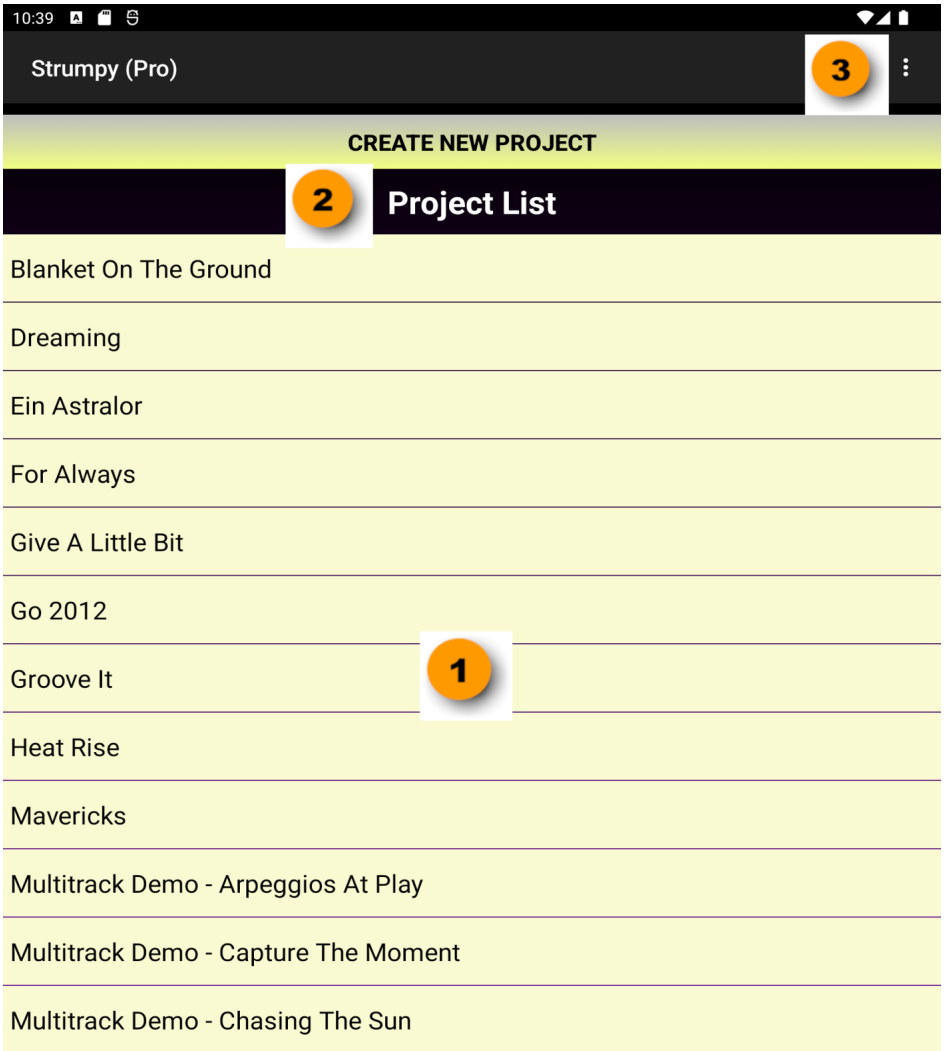
The screen shots are in portrait mode and only a portion of a screen may be shown to save space.

## 5.2 Project Selection View

### 5.2.1 View Context and Navigation

When Strumpy Pro is launched it first displays the Project Selection View (below).




10:39
Strumpy (Pro)
3
CREATE NEW PROJECT
2
Project List
Blanket On The Ground
Dreaming
Ein Astralor
For Always
Give A Little Bit
Go 2012
Groove It
1
Heat Rise
Mavericks
Multitrack Demo - Arpeggios At Play
Multitrack Demo - Capture The Moment
Multitrack Demo - Chasing The Sun

## 1 Project List

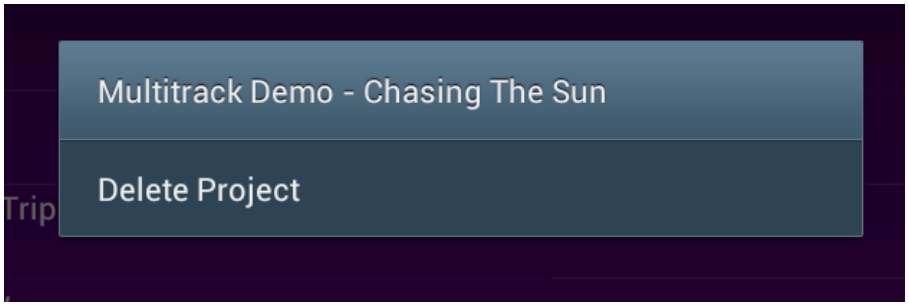
The application lists all known projects in alphanumeric order in a scrollable list. On loading the application for the first time the projects listed are the sample projects. By default the configuration files of these projects are automatically reset to their installed state every time the application loads. If the sample projects are deleted they will be restored next time the application loads.

This option may be is useful for beginners as it allows them to explore and change the configuration of the sample projects in order to see the effect of their changes without fear that they will not be able to restore them back to their original form.

An option is available to suppress this behaviour allowing users to remove the sample projects from the project list without them being restored each time the application is launched. This will reduce the size of the project list as users add their own customized projects.

If you click/touch a project in the displayed project list the application proceeds to open the Track Explorer view using the selected project as its topic.

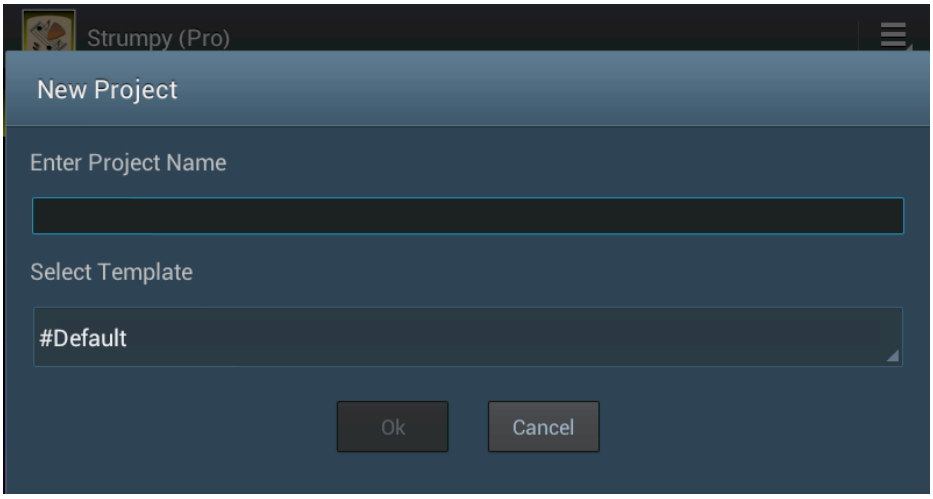
The following context menu is displayed when you touch and hold a project in the project list.




A single option is available to delete the selected project. To cancel the operation simply click on the background screen or press your device hard or soft back button. If you select the delete project option you are further prompted to confirm the action. If you confirm the deletion action at that prompt all record of the project is removed from your device.

## 2 Create New Project

Pressing this button initiates the creation of a new project. The following dialogue is displayed to capture contextual information for the new project.




The application prompts you for a project name. As the project name is used as a file name the range of characters available is restricted so don't be surprised if your hard or soft keyboard fails to respond to certain character key presses whilst keying in the name. Simply select another character.

You can select a template to use from the 'Select Template' drop down control. The default template is shown selected by default and is the usual choice if you wish to start with an empty project (i.e. build one from scratch). You can however select one of the available sample templates to start your new project off with some initial tracks and phrases. The built-in templates are simply the sample projects.

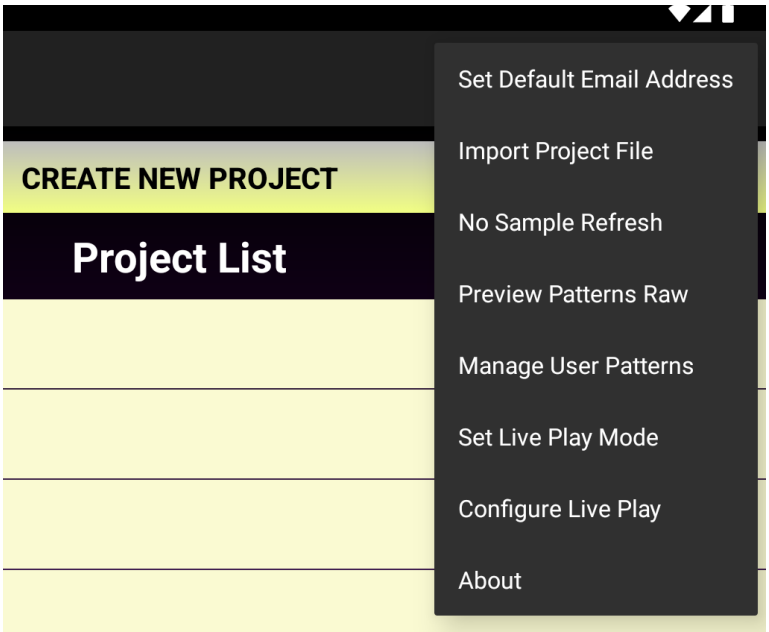
You can cancel the operation by selecting the appropriate option or continue to create your project using the 'ok' button.

On creating a new project the application proceeds to open the Track Explorer view with the newly created project as its topic.

## 3 Options Menu

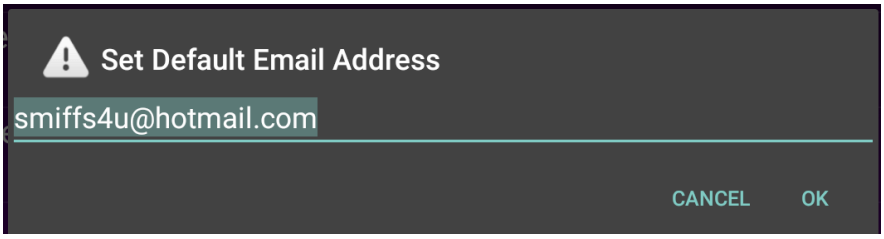
Depending on your device the options menu will be available from either a soft (screen widget) or hard (physical button on device) control. If you activate the options control the following options menu will be displayed revealing a number of global options you can configure.

### *5.2.2 Option Menu - Set Default Email Address*




The application supports the emailing of both project configuration and project midi files
Use this option to predefine the default email address that will be presented to your chosen email program to pre-populate the 'To' address field when you choose one of the project related email options. The provided email address is stored as an application preference.

When you select the option you will be prompted with the following dialogue to collect the information.




The entry box will be pre-populated with any previous email address that you may have set earlier.

Simply edit the email address and activate the 'Ok' button to save your changes in the application's preferences store, or 'Cancel to abandon any changes made.

### *5.2.3 Option Menu – Import Project File*

Use this option to import a project configuration file (i.e. a file with a '.sey' file extension). Project configuration files are exportable so you can send them to fellow Strumpy users so they can load and extend your compositions.

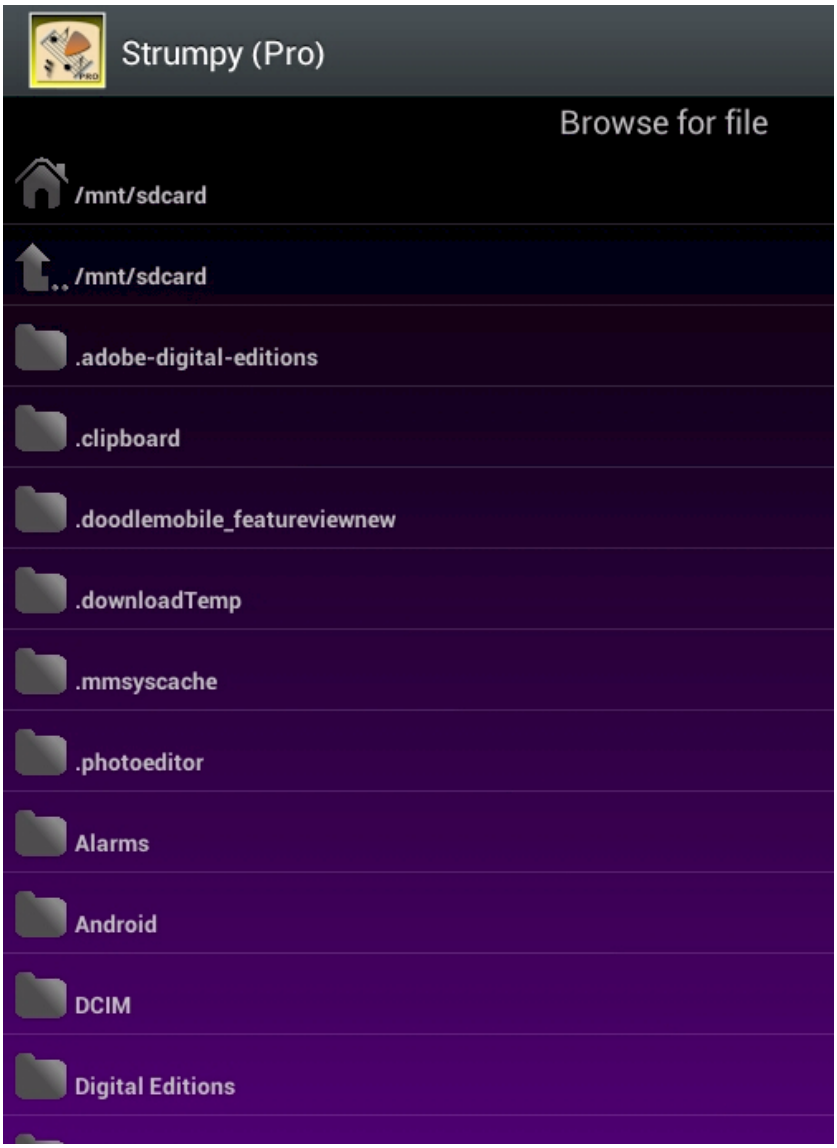
On selecting the option you will be prompted to navigate to the folder location hosting the file to be loaded. Depending on the Android platform API level of your device you will either be directed to use an external file management application installed on your device or to a built in Strumpy file locator tool.

When using the built in Strumpy file locator, when you have located your file hold it (i.e. long click) to inform the application that you have located the correct file. The application will then attempt to move the file to the application's private data storage area and load it into the Track Explorer view so that you can use it.

If a file with the same name as the project being imported already exists in the application's private storage area the user is prompted to provide an alternative name before proceeding to process the file. Note that the Export/Import process is one way you can effectively rename an existing project file. Simply export/import it under a different name and then delete the original project.

Note that if you wish to cancel your search for an import file from the tree file explorer view then simply use your hard/soft 'back' button to return to the Project List View.

The following screen shot is an example of the built in file locator facility that’s built into the Strumpy application.




### *5.2.4 Option Menu – No Refresh/Refresh Samples*

The application comes pre-configured with a number of sample project configuration files which are displayed in the project list when you first open it.

By default the samples are treated as 'sticky'. If you delete them then they reappear the next time you open the application. If you change them during a session they are reset to their installed state the next time you open the application.

This 'sticky' ('Refresh Samples') preference option is the initial setting and may be useful for beginners as it allows them to tweak the samples and hear the results without fear that in the process they may have destroyed them for good.

More advanced users may wish to suppress this behaviour so that they can remove the samples in

order to tidy up the project list. To do this just activate the 'No Refresh Samples' menu option. You will see that the next time the options menu the name of this particular option has changed to 'Refresh Samples' allowing you to switch the 'as installed' behaviour back on again at a later date should you wish to do so. This preferences is a simple toggle that switches between the two settings.

### *5.2.5 Option Menu – Preview Patterns Raw/Live*

The application supports the use of pattern templates. These are pre-installed sets of strum elements that can be inserted into a project phrase to save effort in recreating a particular rhythm by piecing together the strum elements manually. Apart from a large number of pre-packaged pattern templates Strumpy users can also save their own (user pattern templates).

When you find the need to add the strum elements from a pre-defined pattern template into a phrase in your project you call up a dialogue to display a list of either pre-installed Strumpy templates or user created templates from where you can preview them before inserting them into the topic phrase.

This preference option provides choice over how the patterns are played when you preview them before selecting them for insertion into a topic phrase.

This option is a simple toggle that switches between 'Preview Patterns Live' and 'Preview Patterns Raw' each time you activate it from the options menu.

In 'Preview Patterns Raw' mode the application plays back the patterns in a very simplistic manner using a middle 'C' note so that you can clearly hear the phrasing of the strum elements it contains. This is entirely to support the selection process itself, the strum elements will always inherit the characteristics of the Track/Phrase into which they are being inserted. The 'Preview Patterns Live' option plays the selected pattern template using the full characteristics of the topic phrase into which it may be inserted (should it be selected for insertion following playback).

### *5.2.6 Option Menu – Manage User Patterns*

This option launches the 'Manage User Patterns' view which provides access to functions that operate on end user created pattern templates.

### 5.2.7 Option Menu – Set Live/Local Play Mode

This preference option toggles between 'Set Local Play Mode' and 'Set Live Play Mode'. Live play mode allows playback of your Strumpy projects in a remote Digital Audio Workstation (over a local area network). This frees a user from the limited midi instrument set available on their Android device.

Following installation the preference is pre-set to 'Set Local Play Mode' so the initial menu option will be set to 'Set Live Play Mode' to enable you to switch this preference on as and when needed.

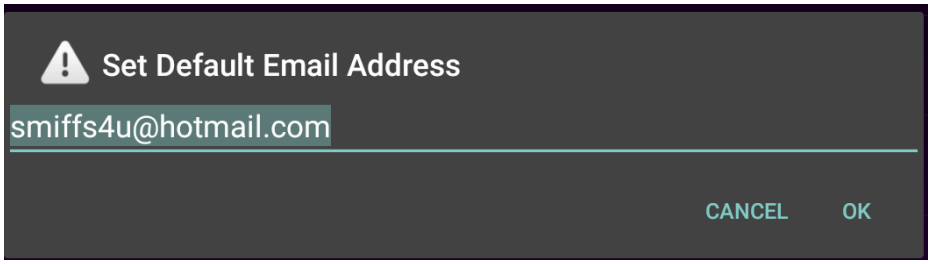
Live play mode requires the installation of some server software, the details of which can be found in the relevant section of this user guide that is dedicated to describing the Live Play Mode feature so it is not repeated here.

Assuming you have configured Live Play Mode to work, use this option to simply switch it on and off as and when required (i.e. before or after a live play session).

### 5.2.8 Option Menu – Configure Live Play

Before you can use the Live Play Mode feature the application needs to know the location of the remote server that will be listening for Strumpy commands to play and to stop playback of transmitted project midi files.

By selecting this option from the menu a dialogue is displayed to prompt for the required remote server address details. The address fields are pre-populated with any previously set address details as these are stored away in application preferences.




Enter the IP address of the server hosting the Strumpy Server software in the first entry field and the port number where that software will be listening for commands on that server in the second entry field. Choose 'Ok' to save the updated details away to preferences, otherwise choose 'Cancel' to abort any changes.

### *5.2.9 Option Menu – About*

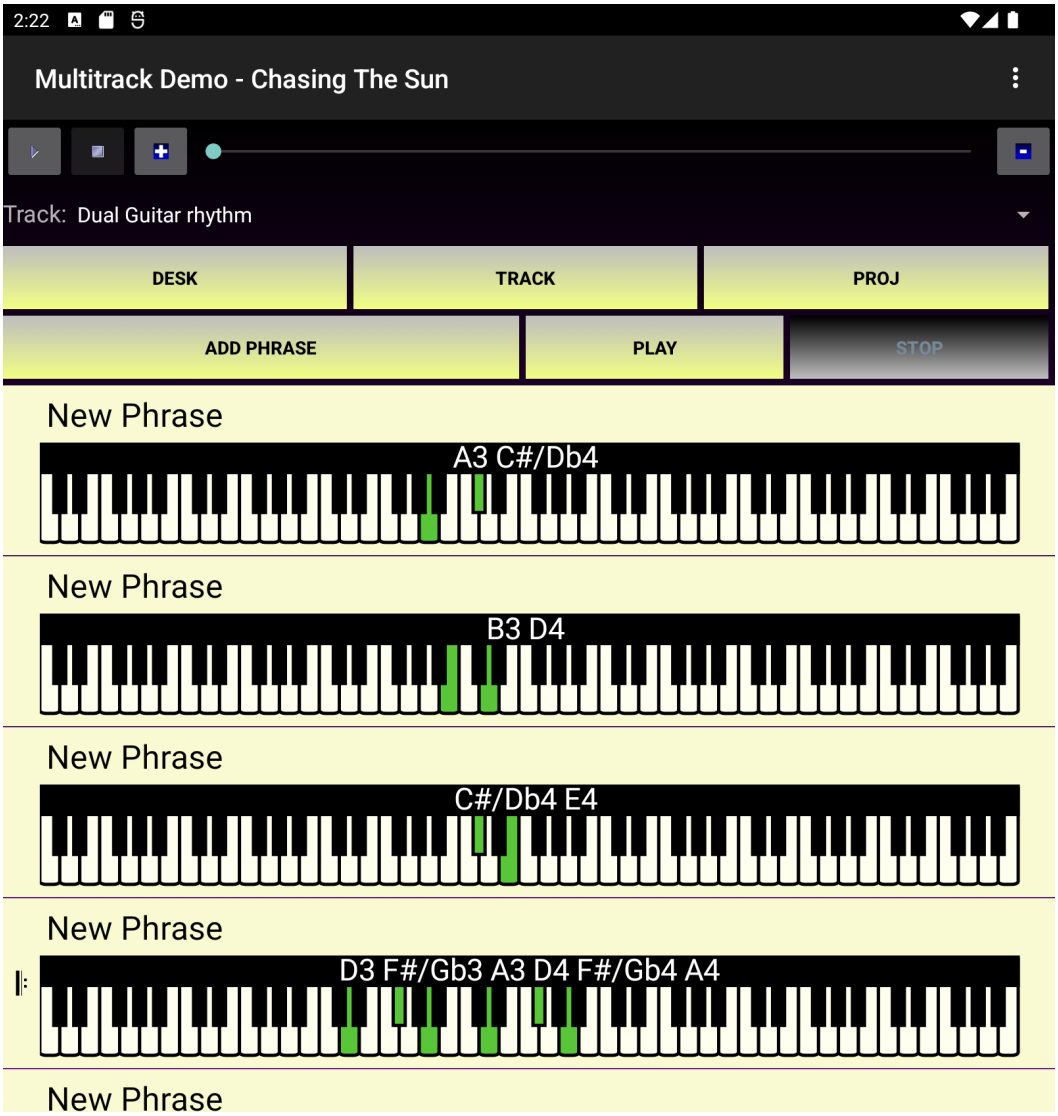
This option generates an informational display that shows you key details about the application, such as its version.

## 5.3 Track Explorer View

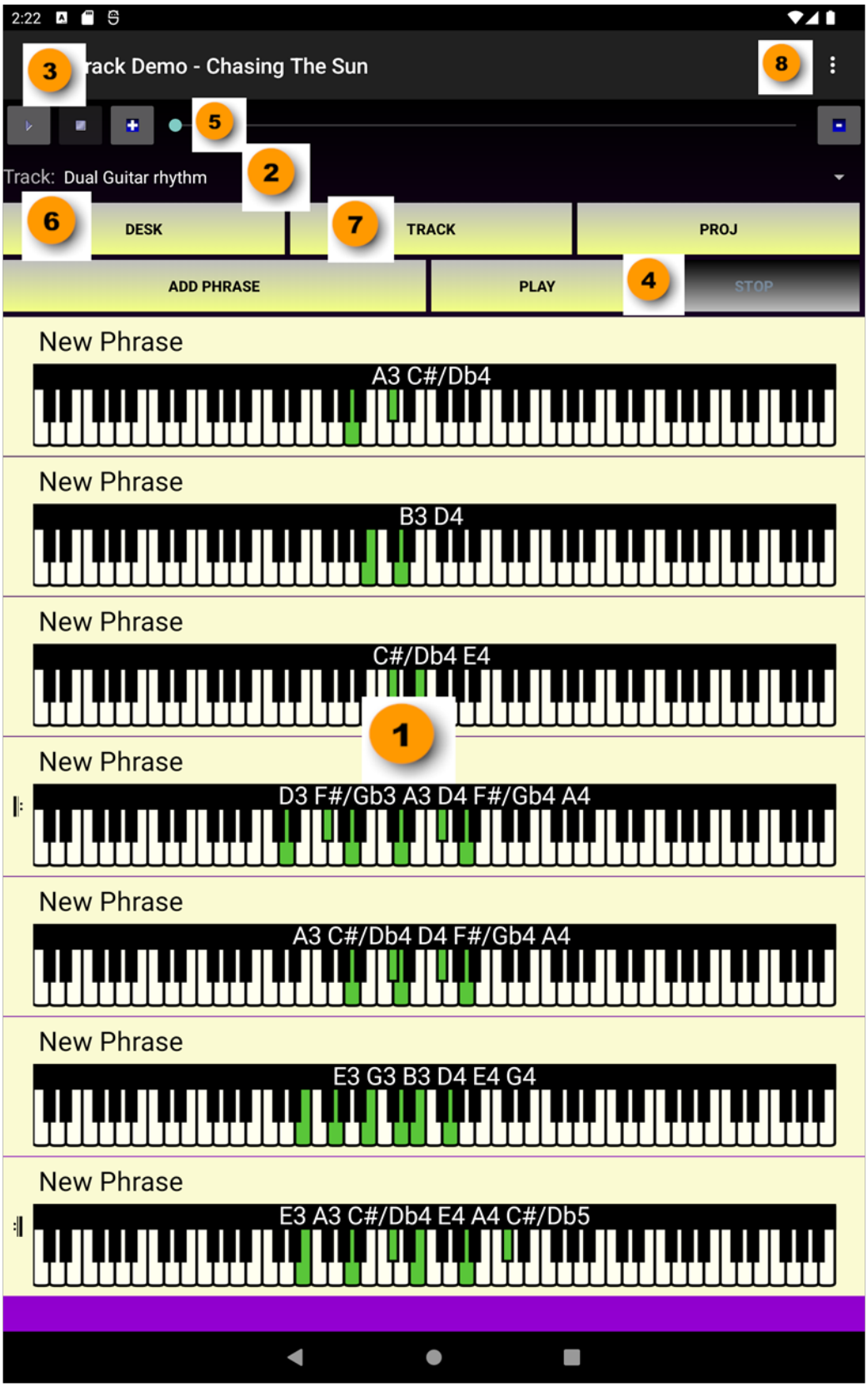
### 5.3.1 View Context and Navigation

The track explorer view is the initial view shown when a project is opened from the Project Selection view, either by activating a project from the displayed project list or by importing a project configuration file. The view's primary role is to display the phrase list associated with the currently selected track as it provides access to a number of functions that manipulate phrases. It also provides access to the Mixing Desk View as well as providing functions to play back either the currently selected track or the complete project (respecting any mute and solo track status settings).

The Mixing Desk provides a route back to the Track Explorer so you can switch between them depending on the functions you wish to perform.



The view will be explored further in the following paragraphs by reference to the numbers shown in the annotated Track Explorer View image as shown below.


2:22
3
rack Demo - Chasing The Sun
8
5
Track: Dual Guitar rhythm
2
6
DESK
7
TRACK
PROJ
ADD PHRASE
PLAY
4
STOP
New Phrase
A3 C#/Db4
New Phrase
B3 D4
New Phrase
C#/Db4 E4
1
New Phrase
D3 F#/Gb3 A3 D4 F#/Gb4 A4
New Phrase
A3 C#/Db4 D4 F#/Gb4 A4
New Phrase
E3 G3 B3 D4 E4 G4
New Phrase
E3 A3 C#/Db4 E4 A4 C#/Db5

## 1 Phrase List Area

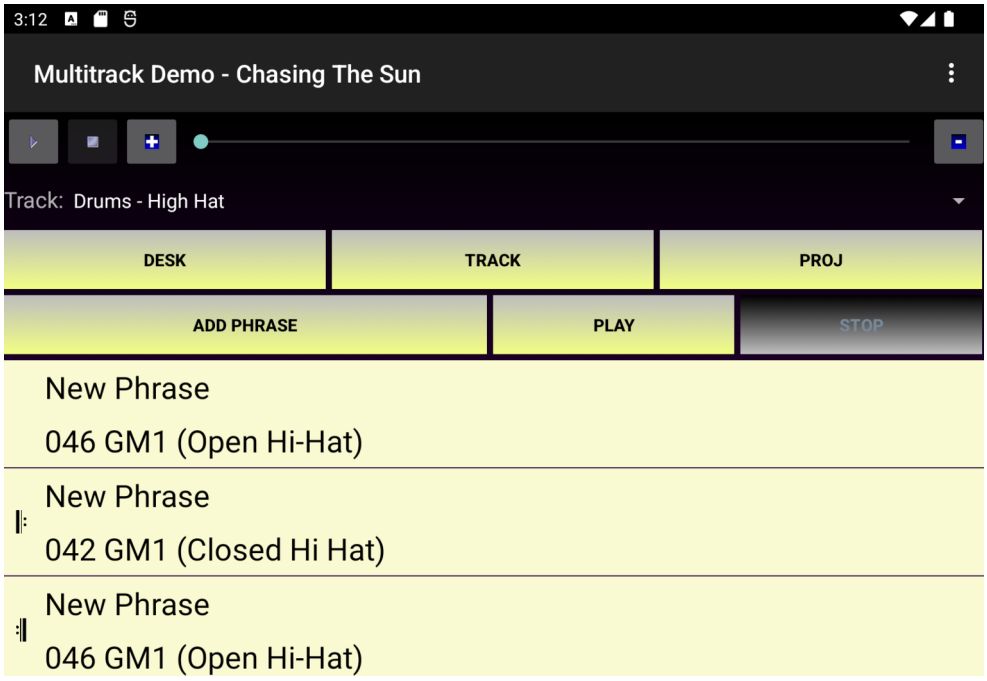
This area contains the list of phrases that have been configured within the currently selected track. The list may be empty, such as when you first create a new project. On creating a new project a new track will be automatically created and you will be presented with a Track Explorer View showing an empty phrase list as a newly created track has none.

The order in which phrases are listed here determines the sequence of the midi events generated for the associated track, so changing the positioning of phrases can have a dramatic effect on the sound heard during playback. Pay particular attention to the musical timing of the strum elements that make up each phrase and position them in the correct order to generate the desired musical result.

Each phrase in the phrase list has an associated name (defaults to 'New Phrase' but can be changed by the user). A user should exercise some creativity in naming track phrases as they help in identifying phrases amongst all others. For example, using lyrics can be useful in locating particular phrases within a song or clip. The phrase name is therefore used to label key parts of a composition to aid song positioning when trying to locate phrases to edit or when locating key musical points in a composition for track synchronisation purposes (refer to the separate topic on Track Synchronisation).The author expects users to develop their own strategies for naming track phrases.

In an instrument track, each phrase in the phrase list is visualized on a keyboard which shows the six pitches (i.e. notes) that were selected by the user in the phrase editor, either manually, by selecting individual pitches from a drop down list, or by using the provided chord wizard. (refer to the Phrase Editor for further information). The selected pitch names also appear in textual form above the keys in the centre of the keyboard.

For percussion tracks Strumpy lists the midi percussion/drum patches associated with the phrase as shown below.



An image to the left of the keyboard provides visual cues as to where phrase repeat groups start and end along with any repeat group break-outs.

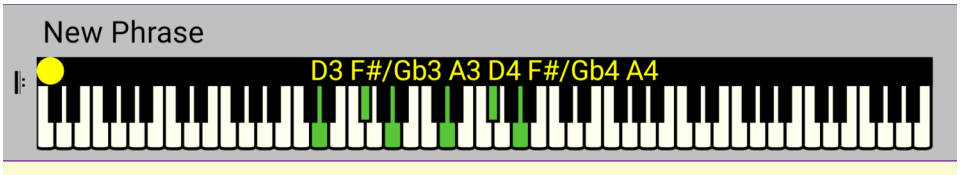
If an instrument track phrase is configured with no selected notes/pitches then no keys are highlighted on the keyboard image. Similarly on a percussion track with no percussion/drum patches selected the area that would normally list the patches will be blank. The phrase name will be shown in both cases.

The phrase name is configurable in the Phrase Edit View and can be edited out so that it doesn't appear if that is preferred.

If you activate and hold a phrase in the phrase list (long click) you are presented with a context menu that provides access to a number of phrase related functions. These are covered in detail in following sub-sections.

If you activate a phrase (short click) you launch the Phrase Edit View for the selected phrase (covered later) This provides access to functions that allow you to change a phrases note pitches/percussion patches and strum element phrasing.

When you initiate playback of the full project composition or just the topic track whose phrases are listed in this view then Strumpy follows the order of play by highlighting in-play phrases. In addition to changing the background colour of the relevant phrase row, for instrument tracks Strumpy also places a dot in the left hand upper corner of the keyboard as illustrated below.




## 2 Current Track

The name of the currently selected track is shown here in a drop down list control. You can select another track using the drop down list control and the list of phrases in the phrase list area will change to reflect the phrases in the newly selected track.

## 3 Project Playback Controls

These image buttons control the playback of your complete project composition. The first button starts playback and the second stops playback. In local play mode the play button is disabled whilst playback is in progress and the stop button is disabled. When playback has completed the stop button is disabled and the play button is enabled. You can stop play back at any time during playback by activating the stop button.

These buttons control playback of your complete composition (i.e. all tracks), however track mute

and solo status is respected. For example, if you have muted a track from the mixing desk view it will not be heard when you activate the play button. Similarly if you have set any solo tracks then only those tracks will be heard when you initiate playback.

In live play mode your Android device does not have direct control over the remote system that plays your project midi file. There is no feedback loop to tell the application when playback of the midi file completes (necessary to change the enabled state of the image buttons). To accommodate this, the play and stop image buttons are always enabled in live play mode. If you attempt to play the project whilst it is already playing the remote Strumpy server will simply ignore the command. Similarly if you attempt to stop playback when the remote server isn't actually playing your midi file it will just ignore the command. Please note that there is no playback visualization in live play mode.

## 4 Track Playback Controls

These buttons control playback of the current track only. Note that track mute and solo status is respected even in track play mode so if the track is muted (refer to Mixing Desk View) then it may not sound when you attempt to play the current track. Check the current track isn't muted (and does not have solo status) in the Mixing Desk View if it fails to play. Like the project playback controls the play button is disabled once activated until track playback completes. The stop button is disabled until the play button is activated when it is enabled to allow it to be used to stop playback. In live play mode such tight control over the enabled status of these buttons is not possible and they are both left active. The remote server ignores any redundant commands such as play when a track is already playing or stop when not track is being played.

Note that in local play mode, the application prevents playback of an individual track should a complete project composition playback have been requested and vice versa.

Please note once again that there is no playback visualization in live play mode.

## 5 Song Position Controls

These control the position at which playback starts next time a playback action is executed and consists of a song position increment control (+), a current song position pointer indicator (seek bar) and a song position decrement control (-). The song position pointer seek bar control is calibrated as a percentage of the overall length of the project composition. For example, if it is situated in the middle of its range this indicates playback should start at a point that is 50% the duration of the overall composition (i.e. half way through).

The song position increment and decrement controls allow finer control over the song position pointer by incrementing or decrementing its position by a single unit (i.e. percentage point).

You can drag the pointer to a particular position where you wish playback to start and then fine control that position using the increment and decrement controls as appropriate.

When constructing your project you might find it useful to use the song position controls to avoid having to listen to the whole composition (or track) each time you action a playback yet still hear all tracks playing. This allows you to focus more effectively on a specific area of the overall

composition.

If you long click on the increment control it automatically resets to zero. This ensures playback will start from the beginning should that be desired and is a more robust way of ensuring the song position pointer is set at the beginning than simply dragging the seek bar.

When you open a project the song position pointer is always set to zero (i.e. the beginning of the composition. Also if you set the pointer in the Track Explorer view its current setting is carried forward to the Mixing Desk view and vice versa.

## 6 Launch The Mixing Desk View

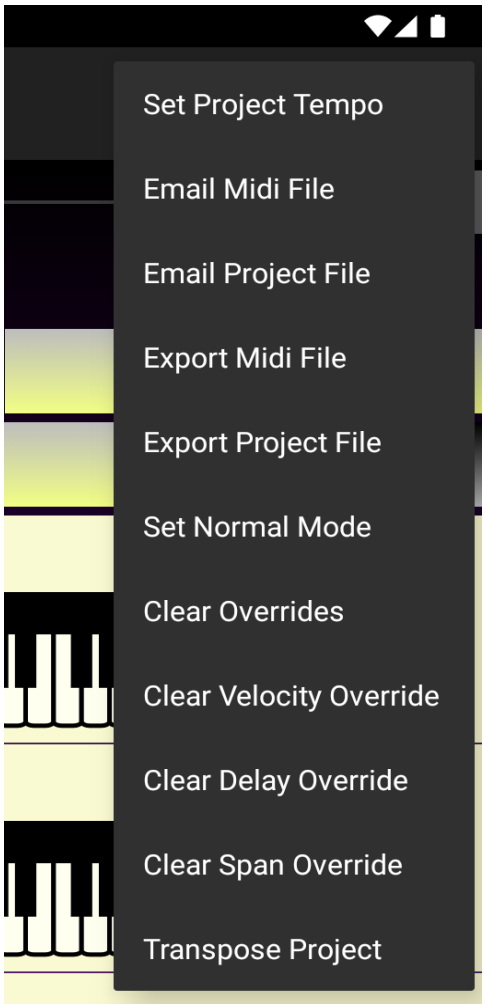
This button launches the Mixing Desk View. This view provides access to a number of track related functions and is a gateway to the Track Lanes view (see later for a more detailed description of that view).

## 7 Launch The Track Details View

This button launches the Track Details View. This view also provides access to a number of track related functions. See later for a more detailed description of that view).

## 8 Options Menu

The options menu associated with the Track Explorer view provides access to range of project related functions ( see below). Activate the hard or soft options menu control on your device to display this menu. Each of the options presented in this menu are described in a later sub-section.



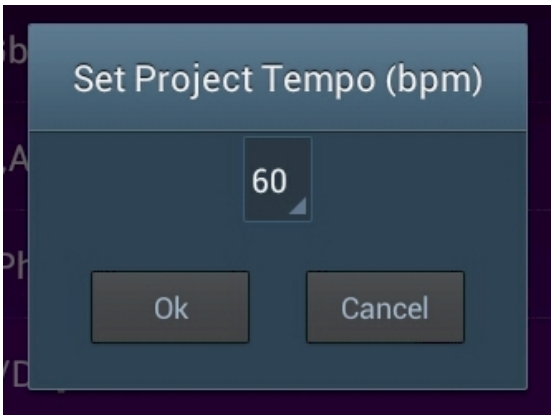

### *5.3.2 Options Menu – Set Project Tempo*

Use this option to change your project composition tempo. Currently you can only set a single tempo which will apply throughout your complete composition. Tempo is expressed in Beats Per Minute (BPM) where a 'beat' refers to a crotchet in musical terms. A tempo of 60 BPM means that sixty consecutive crotchets would play in a minute at that tempo.

When you select this option from the menu the following dialogue is displayed to capture the tempo data.

The previously set project tempo will be selected in the drop down control. Simply select a new tempo from the values available in the drop down list control and activate the 'Ok' button to change the tempo or activate 'Cancel' to abandon any tempo change.

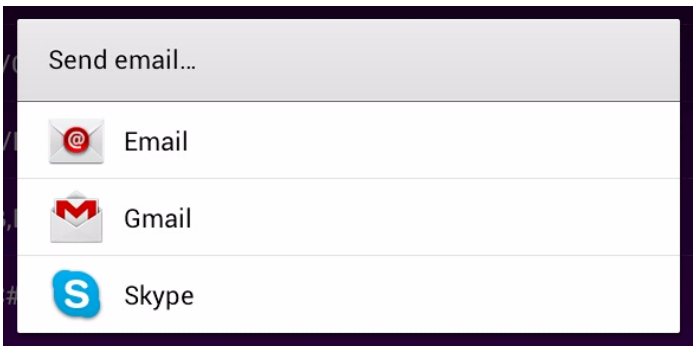
The new tempo is effective immediately and will be heard the next time you activate any of the playback controls.



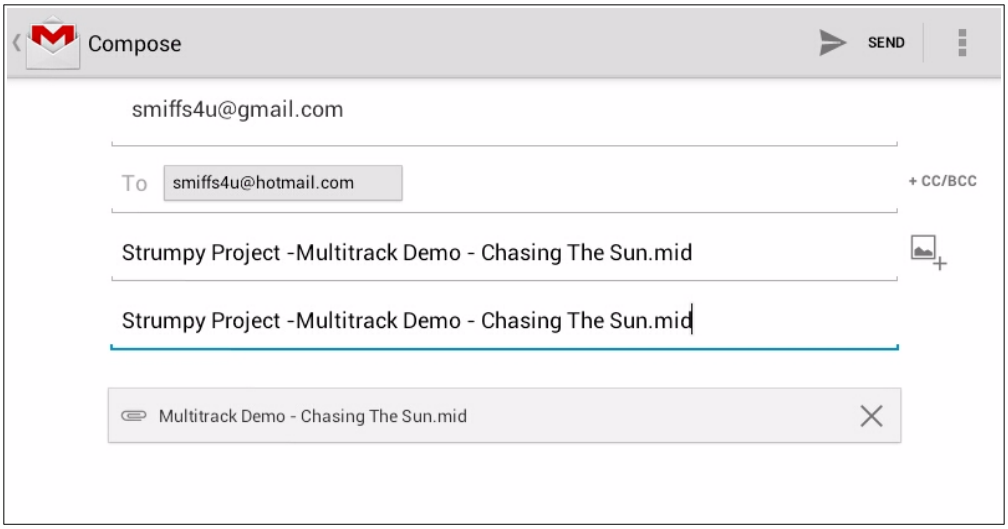

### *5.3.3 Options Menu – Email Midi File*

Use this option to email your project composition midi file to a friend or colleague. An email is created in an email client of your choice (should there be more than one installed on your device). The midi file is added as an attachment and the 'To' address is set to the email address that you pre-configured in the email address menu option available from the Project Selection View.

If you have more than one email program installed you may see a dialogue like the following appear. Simply select the email client required.




Your chosen client will be launched with the the created email prepared and ready to send. All you will need to do is add any further text to the body of the email (if required) or add any further recipients and send. The following example is how this might appear in google's Gmail Android client.

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### *5.3.4 Options Menu – Email Project File*

Use this option to email your project configuration file to a friend or colleague. An email is created in an email client of your choice (should there be more than one installed on your device). The project configuration file is added as an attachment and the 'To' address is set to the email address that you pre-configured in the email address menu option available from the Project Selection View.

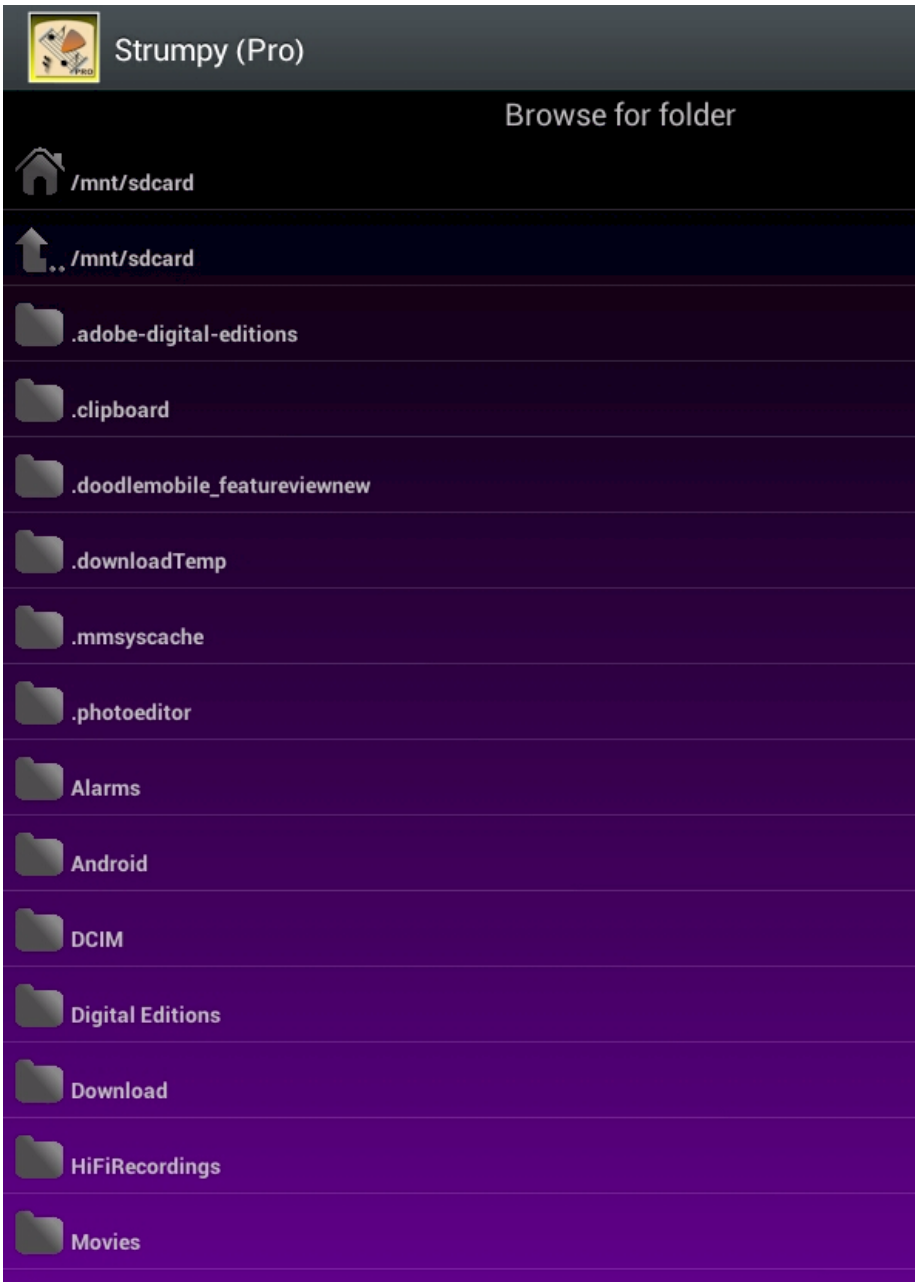
The process for completing the despatch of the generated email is identical to that covered in the section for emailing project midi files and is not repeated here.

Note that project configuration files are exported as files with a '.sey' extension and are obfuscated to help protect against potential application failures should users have otherwise been tempted to manipulate them by means other than the application itself. They will appear unreadable if opened in an editor program and if they are changed in any way Strumpy will detect this and will refuse to import them.

### *5.3.5 Options Menu – Export Midi File*

Use this option to export your project midi file onto storage media available to your device, either internal or external storage (e.g. the internal memory mapped storage or an externally attached SD card or USB stick). When you attach external storage to your device it normally presents as an additional folder structure which you can browse using a file browser application. Depending on the Android platform level of the user's device Strumpy will either delegate folder location to an external file management application installed on the user's device or to a built in tree based file explorer tool.

With the built in facility, when you activate the menu option you are presented with the following file explorer type page which you can use to navigate in order to find the target folder sought.




You navigate by activating (with a short click) the folder and navigation icons listed in the display. If a folder has sub folders and you activate it in this way the display will show the contents of that folder as the topic of the display. The home and navigate up a level icons are also shown to allow you to navigate back up the tree.

When you locate the desired folder activate and hold it (i.e. long click) to inform the application that you have identified the target folder. The application copies the current project midi file to the target folder location and returns to the Track Explorer page. You should be able to see the file in the target location using any file explorer application you have available on your device.

### 5.3.6 Options Menu – Export Project File

Use this option to export your project configuration file to the storage media available to your device, be it either internal or external storage (e.g. the internal memory mapped storage or an externally attached SD card or USB stick). When you attach external storage to your device it normally presents as an additional folder structure which you can browse using a file browser application. Strumpy contains a tree based file explorer toll to enable you to find the folder to which you want to export the configuration file.

Navigating the presented file explorer page to locate the target folder is identical to exporting a midi file and so is not repeated again here. Refer to that section for further details and an example screen shot of the file explorer tool used to locate the target folder.

When you have located and selected the target folder the application creates an obfuscated copy of the file with a 'sey' file name extension and copies it to the target location.

The exported file can be imported back into your local copy of Strumpy, or given to a friend or colleague so they can explore your project in their own personal copy of the Strumpy application.

### 5.3.7 Options Menu – Set Normal/Enhanced Mode

This preference option is used to specify whether or not the application should double up phrase pitch notes with another pitch one octave higher in order to achieve a 'twelve string guitar' type effect. Following initial installation this option will be turned off but users can change it at any time. This setting is a global setting for the whole project but it can be overridden on a track by track basis (enhanced mode suppression).

This is a simple toggle option, to set enhanced mode simply activate the 'Set Enhanced Mode' option displayed in the menu. If you do this then the next time you open the menu it will be shown as 'Set Normal Mode' inviting you to switch the feature back off (should you wish to do so).

Bare in mind that this feature doubles the number of midi note on events that are played at the same time so it will challenge the sound generation hardware on any target device upon which you play the midi file so use it sparingly (i.e. suppress it on tracks that don't really need it).

### 5.3.8 Options Menu – Clear Overrides

This option clears any velocity, delay and span overrides currently set against any project phrase strum elements. It provides a simple way of clearing down all overrides should you be dissatisfied with their effect and want to remove them. You may wish to do this first before you start reapplying them again in a more sensible fashion. Note that this can also be done at the individual track level from the Mixing Desk View. For more information on overrides please refer to the concepts section of this guide.

### 5.3.9 Options Menu – Clear Velocity Override

This option clears any velocity overrides currently set against any project phrase strum elements. It provides a simple way of clearing down all velocity overrides should you be dissatisfied with their effect and want to remove them. You may wish to do this first before you start reapplying them again in a more sensible fashion. Note that this can also be done at the individual track level from the Mixing Desk View. For more information on overrides please refer to the concepts section of this guide.

### 5.3.10 Options Menu – Clear Delay Override

This option clears any delay overrides currently set against any project phrase strum elements. It provides a simple way of clearing down all delay overrides should you be dissatisfied with their effect and want to remove them. You may wish to do this first before you start reapplying them again in a more sensible fashion. Note that this can also be done at the individual track level from the Mixing Desk View. For more information on overrides please refer to the concepts section of this guide.

### 5.3.11 Options Menu – Clear Span Override

This option clears any span overrides currently set against any project phrase strum elements. It provides a simple way of clearing down all span overrides should you be dissatisfied with their effect and want to remove them. You may wish to do this first before you start reapplying them again in a more sensible fashion. Note that this can also be done at the individual track level from the Mixing Desk View. For more information on overrides please refer to the concepts section of this guide.

### 5.3.12 Options Menu – Transpose Project

Use this option to transpose the pitch of the notes in your project composition upwards or downwards by a user specified number of semitones.

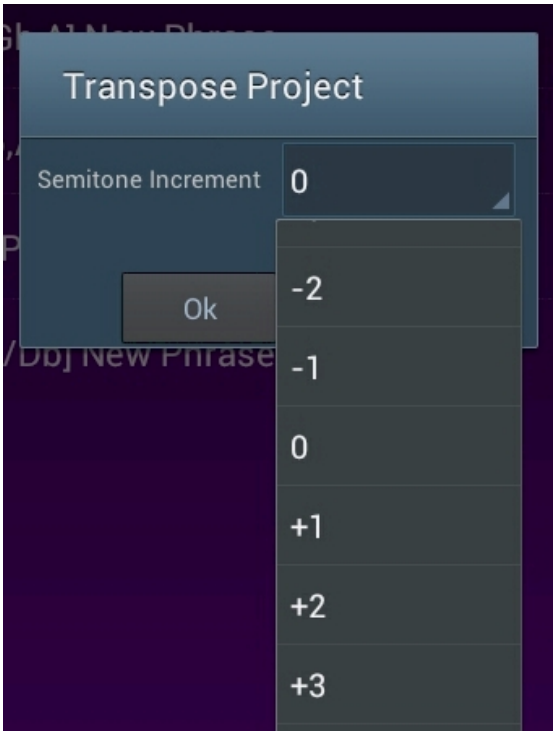
Note that drum track phrases will not be transposed (those assigned to midi channel 10) as the note pitches on these tracks represent percussion instruments so altering the midi pitch note numbers would actually change the percussion instrument(s) being used in a phrase and this would be undesirable in such a global feature.

For non percussion tracks this moves instrument pitches (i.e. guitar string notes) up or down the musical scale.

You may need to transpose your composition to allow it to be more easily integrated into a project

you've been developing elsewhere (i.e. in a DAW), and you want to do this before you integrate.

When you activate this option the following dialogue is shown to capture the transposition parameters.




Specify the semitone increment/decrement required by selecting the appropriate semitone shift value from the drop down list control shown.

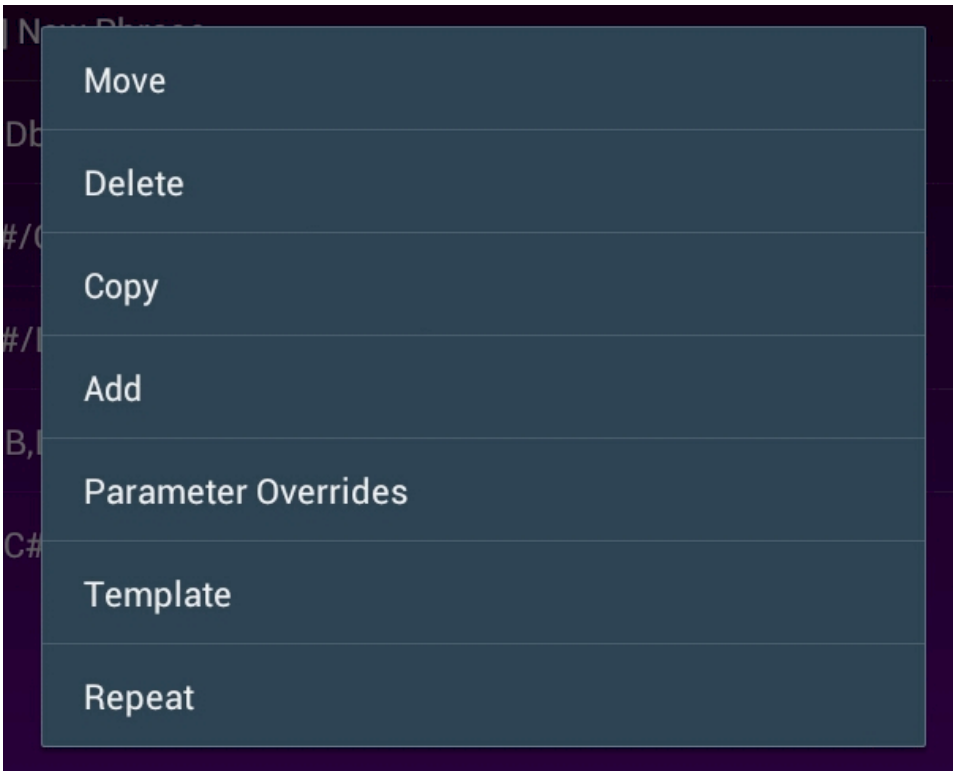
Note that you will only be presented with appropriate values. The application will not allow you to transpose your project in a way that would corrupt your phrases by dropping pitches that went above or below the pitch range supported by Strumpy. For example, if you transposed a 6 note chord too high the highest note pitches may be transposed to values that fall outside the supported range, thereby causing them to be dropped, effectively corrupting your configuration as you couldn't then easily get them back if you were to simply transpose back down again. You can safely transpose away in either direction with no fear that your phrases will be destructively broken.

When you have selected the appropriate semitone shift simply activate the 'Ok' button to implement the change. The application goes through every phrase of every track transposing the note pitches by the required semitone interval (excluding drum tracks). Click 'Cancel' to abort any changes.

### *5.3.13 Phrase List Context Menu – Group Menu*

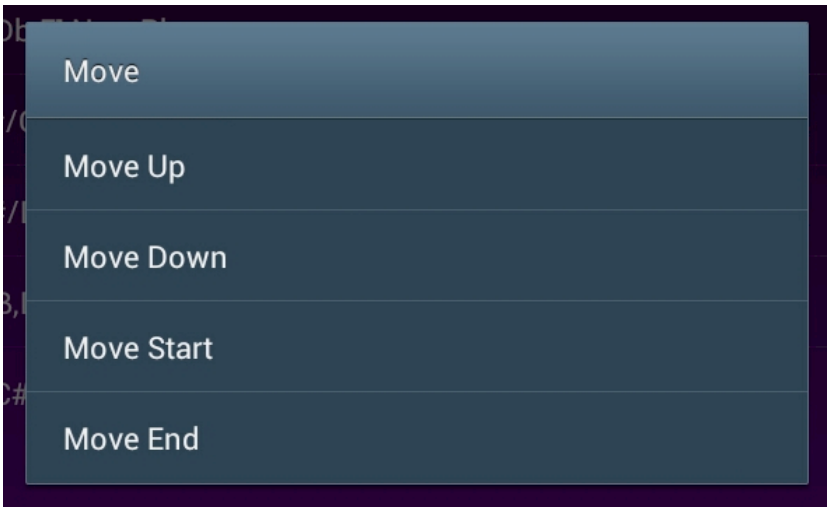
When you activate and hold a phrase in the phrase list you are first presented with a top level (group) menu that lists the high level options you have available for manipulating phrases within

the Track Explorer context. You must make a choice to trigger the next level of menu that makes actual functions available within the group category chosen by the user. The group menu is shown below.




### *5.3.14 Phrase List Context Menu – Move Sub Menu*

When you select the 'Move' category from the Phrase List group context menu you are presented with a list of move options as shown below.




Some of these options may not be available depending on the context of the phrase used to activate the context menu set. For example, the option to move a phrase up in the sequence doesn't make sense for the first item in the list so it will be disabled.

**Move Up:** Moves the phrase up the list by one position

**Move Down:** Moves the phrase down the list by one position.

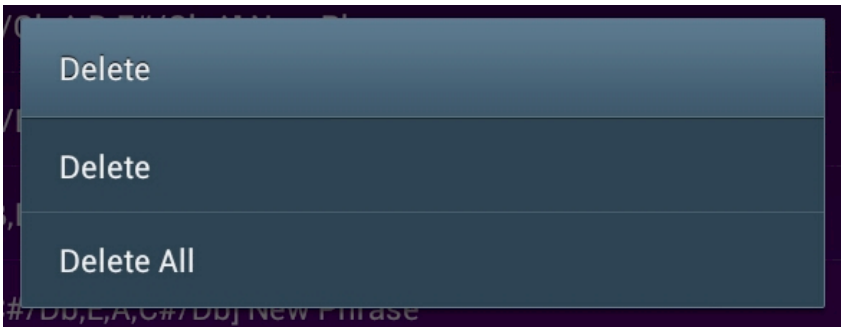
**Move Start:** moves the phrase to the top of the list.

**Move End:** moves the phrase to the bottom of the list.

After activating an option the application returns to the Track Explorer View having refreshed the phrase list so you can see the effect of the chosen option.

### *5.3.15 Phrase List Context Menu – Delete Sub Menu*

When you select the 'Delete' category from the Phrase List group context menu you are presented with a list of delete options as shown below.



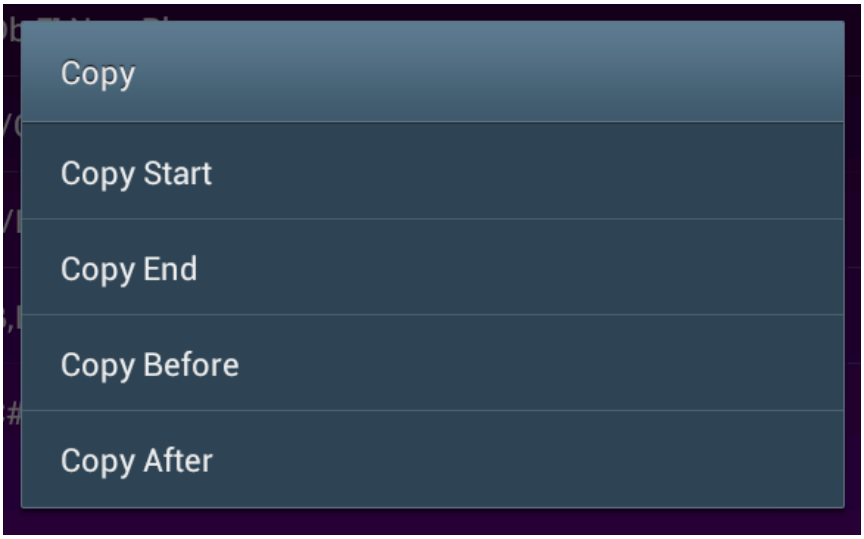

**Delete:** Removes the phrase from the current track.

**Delete All:** Removes all the phrases from the current track (empties the phrase list)

After activating an option the application returns to the Track Explorer View having refreshed the phrase list so you can see the effect of the chosen option.

### *5.3.16 Phrase List Context Menu – Copy Sub Menu*

When you select the 'Copy' category from the Phrase List group context menu you are presented with a list of copy options as shown below.




**Copy Start:** Creates a copy of the topic phrase and places it at the top of the phrase list

**Copy End:** Creates a copy of the topic phrase and places it at the bottom of the phrase list

**Copy Before:** Creates a copy of the topic phrase and places it before that phrase in the phrase list

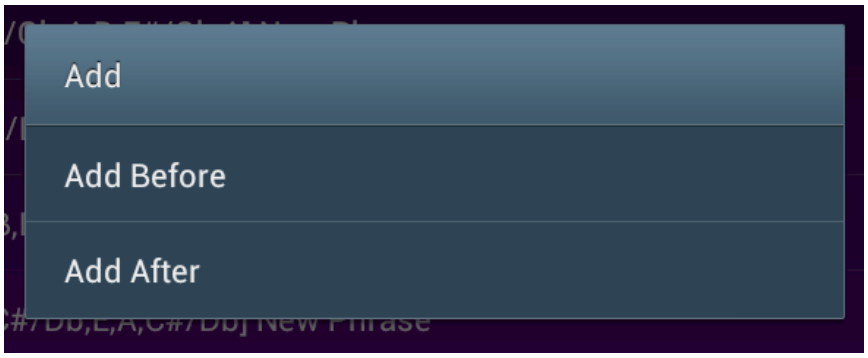
**Copy After:** Creates a copy of the topic phrase and places it after that phrase in the phrase list

Note that these are true 'copies' and not links to the original phrase such that if you change the original the effects are automatically propagated to the linked copy. The new copy is an independent phrase in its own right and is in no way linked to the original from which it was sourced.

After activating an option the application copies the contents of the activated (selected) phrase to the requested position in the phrase list and automatically launches the Phrase Edit View to allow the user to review the copied configuration and make any changes thought necessary.

### *5.3.17 Phrase List Context Menu – Add Sub Menu*

When you select the 'Add' category from the Phrase List group context menu you are presented with a list of add related options as shown below.



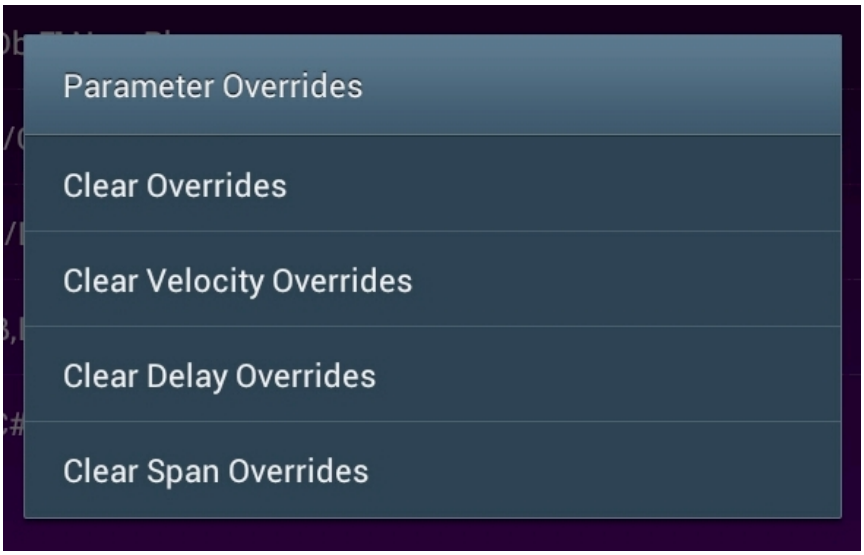

These options add a new phrase to the phrase list and automatically launch the Phrase Edit View to allow the user to configure its properties from their initialised (default) state.

**Add Before:** Adds a new phrase and places it before the topic phrase in the phrase list

**Add After:** Adds a new phrase and places it after the topic phrase in the phrase list

### *5.3.18 Phrase List Context Menu – Parameter Overrides Sub Menu*

When you select the 'Parameter Overrides' category from the Phrase List group context menu you are presented with a list of parameter override options as shown below.




**Clear Overrides:** Removes any configured velocity, delay and span overrides set for the strum elements associated with the topic phrase.

**Clear Velocity Overrides:** Removes any configured velocity overrides set for the strum elements associated with the topic phrase.

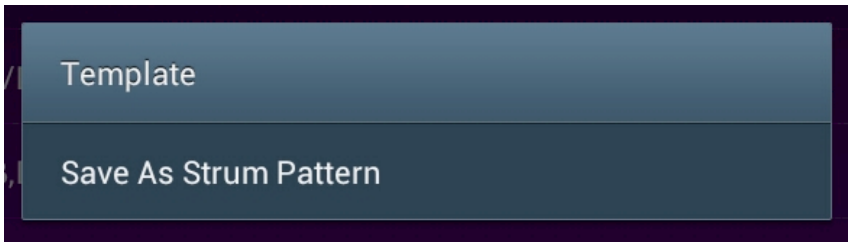
**Clear Delay Overrides:** Removes any configured delay overrides set for the strum elements associated with the topic phrase.

**Clear Span Overrides:** Removes any configured span overrides set for the strum elements associated with the topic phrase.

On activating the chosen option the application makes the corresponding changes to all strum elements associated with the topic phrase and then returns the user to the Track Explorer View.

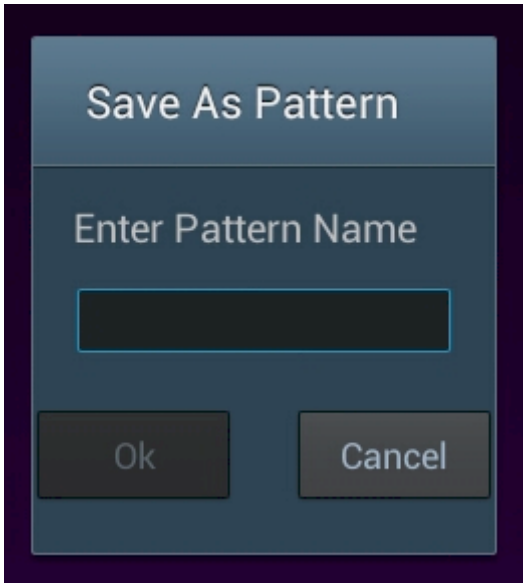
### *5.3.19 Phrase List Context Menu – Template Sub Menu*

When you select the 'Template' category from the Phrase List group context menu you are presented with a list of strum pattern template related options as shown below.



**Save As Strum Pattern:** Saves the strum elements associated with the topic phrase as a user pattern template.

When you select the 'Save As Strum Pattern' option you are prompted for a name that will be given to the user strum pattern template as follows.

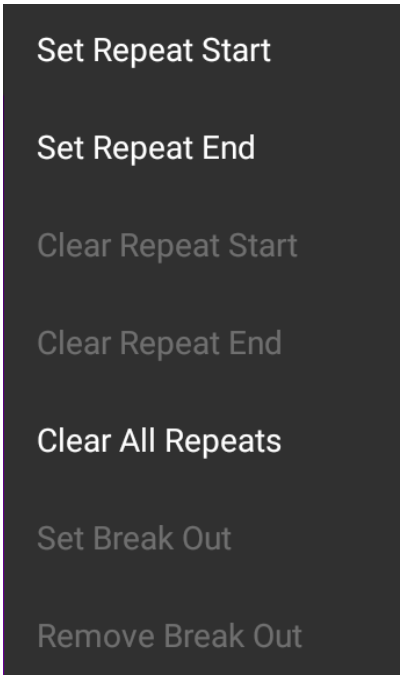



Simply enter a name for the template so that you will recognise it should you later wish to insert its contents into a phrase in an existing or new project composition. Note that as this name is used as a file name some characters may not be allowed. If during entry of a chosen name you press a key on your hard or soft keyboard and it doesn't register it is probably being filtered out so just choose a different character and continue.

Select 'Ok' to save your template under the given name or 'Cancel' to abandon the creation of a user strum pattern template. For more information on strum pattern templates please refer to the concepts section of this guide.

### *5.3.20 Phrase List Context Menu – Repeat Sub Menu*

When you select the 'Repeat' category from the Phrase List group context menu you are presented with a list of repeat options as shown below.




The options provided affect how groups of phrases can be configured to repeat thereby avoiding having to manually create duplicate phrases in order to extend the length of your composition.

The results of some of the changes made here can be seen in the phrase list as they effect the image displayed at the start of each phrase listed in the phrase list. The latter gives a visual clue as to where repeats start and end. The only information that's not visible is the repetition count but it can be easily accessed using the 'Set Repeat End' option from this context menu.

Set Repeat Start: Marks the topic phrase as the start of a repeated phrase block.

Set Repeat End: Marks the topic phrase as the end of a repeated phrase block.

Clear Repeat Start: Clears 'Repeat Start' status associated with the topic phrase.

Clear Repeat End: Clears 'Repeat End' status associated with the topic phrase.

Clear All Repeats:  Clears all repeat group phrase properties set in the current track.

Set Break Out: Sets the phrase as a break-out point. Can only be set for phrases that fall within a phrase repeat group which means they must be followed by a phrase marked as a repeat end point. Only one phrase in a phrase repeat group can have a break-out designation and this includes phrases configured as repeat group start points.

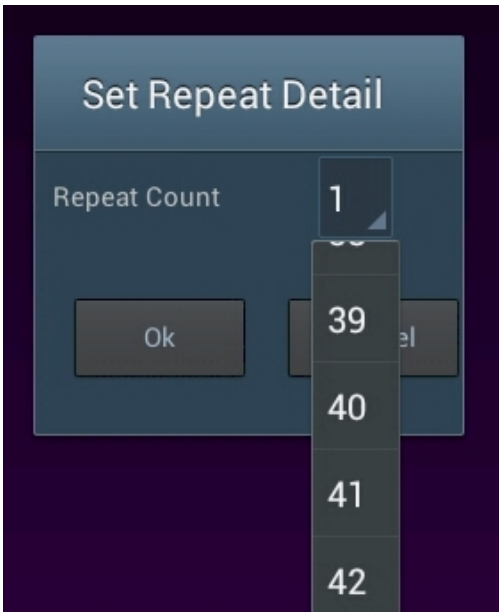
All options other than 'Set Repeat End' return you to the Track Explorer View with an updated phrase list for the current track so you can see (and via playback , hear) the effects of your changes.

Note that you can't set a repeat start point for a phrase that has no following phrase repeat end set further down the phrase list.

There is an implicit 'repeat start' at the top of the phrase list so if you want to repeat from the beginning you don't need to mark the first phrase in the list with an explicit 'Repeat Start' flag, one is assumed.

The clear start and end repeat options, and the remove break-out repeat option are only enabled if the topic phrase has the corresponding repeat flag status set.

If you activate the 'Set Repeat End' option the application prompts you for a repetition count by displaying the following dialogue.




Simply select the number of required repetitions and select 'Ok' to apply, otherwise select 'Cancel' to abandon any changes. If the topic phrase already has an associated repeat count set that value will be pre-populate the selected item in the drop down list control.

Note that a repeat count value of 1 means that the phrase will be heard twice, a value of 2 means it will be heard three times, and so on.

## 5.4 Phrase Edit View

### 5.4.1 View Context and Navigation

This view is launched from the Track Explorer View when a phrase in the phrase list is activated or if you 'Copy' or 'Add' a phrase. It allows you to edit the contents of an existing and/or a newly created phrase. It can also be launched from the Track Lanes View when you select the edit phrase option from the context menu displayed when you execute a long touch/click gesture on a particular phrase of interest.

This view is the heart of the Strumpy application as it is where you build up your note patterns, primarily focussed on strumming patterns, although as will have been seen from the concepts section you can still build patterns from single pitches without having to configure a strum across up to six pitches (i.e. as in lead or bass lines).

You can also configure percussion instrument events here as well by selecting a suitable percussion instrument patch using one of the note pitch selectors (drum track phrases on midi channel 10 only).

It's from here that you string together note events of different durations to effect a pleasing rhythm, particularly important if you are trying to recreate believable strumming patterns. Musical notation is used to represent note durations as it is expected that users will have some degree of musical knowledge in order to create a composition.

Before creating a set of strum elements in a new phrase you can set some global parameters that apply across all the strum elements configured in the topic phrase. These are as follows.

- The note pitches that will be sounded for each strum element in the phrase. You can set up to six pitches, each tuned to a different musical note (non drum tracks). Typically these make up notes of a chord and a wizard is available to automatically generate the relevant pitches. You can manually set phrase note pitches using the six note name drop down lists or by using a separate keyboard widget (see the ‘Note Picker’).
- A repeat count for the phrase.
- Strum Delay parameters that effectively determine the 'speed' of each strum (where more than one note pitch is present)
- Velocity parameters that determine how loud the note pitches are sounded, equivalent to how hard, for example, you might strike the strings on a guitar.

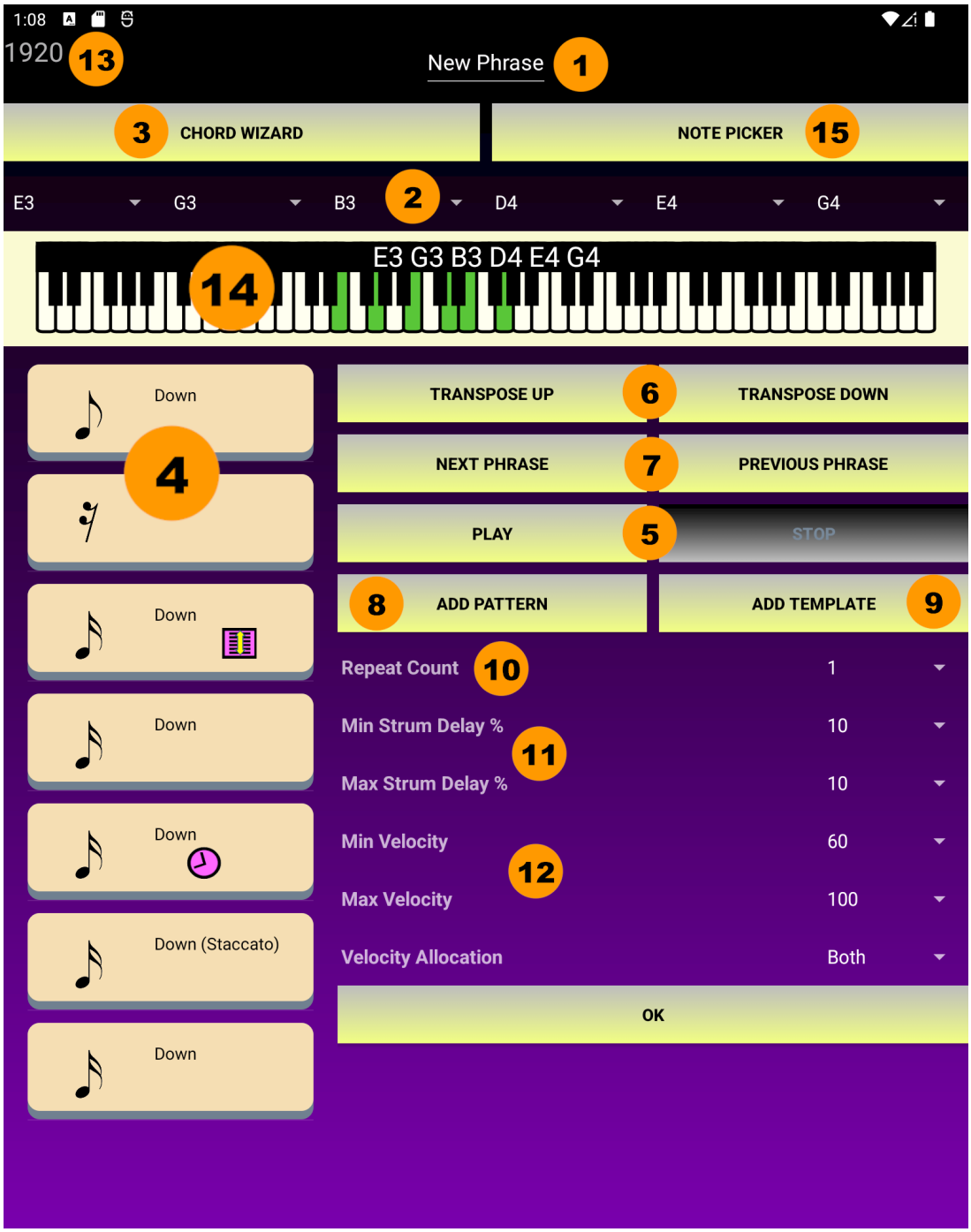
You can override the delay and velocity parameters on a strum element by strum element basis.

Having decided on your base parameters you can then start to add strum elements to construct your rhythm. As you add strum elements you build a list of strum actions of different musical note durations, including rests which serve to add interest and punctuation within your rhythm pattern. Facilities to remove, copy and move strum elements in the strum element list are available to speed creativity should your initial pattern ideas not work out.

Note that the strum element list will only appear alongside other phrase configuration parameters

and controls on extra large displays (xlarge). On most smart phone devices with smaller screen real estate the strum element list has to be revealed and hidden as required using a 'Sliding Drawer' control. This control has the Strumpy icon on it. Apart from that slight difference all the functions operate the same.

A more detailed description of the key areas of the view and the functions it supports are described further in the following paragraphs.



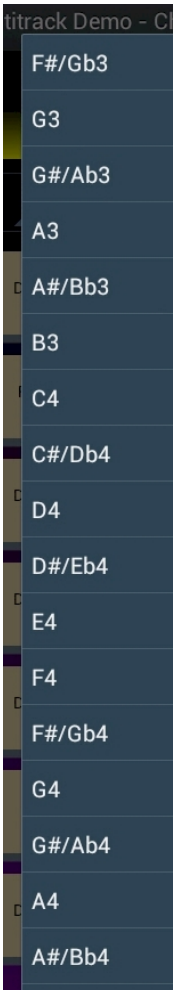

## 1 Name

When you create a new phrase it is given a default name which is displayed here. You can change this name simply by long clicking it to activate it for editing. The name forms part of the identifying text for a phrase wherever it appears (e.g. in the Track Explorer View phrase list or within a track lane in the Track Lanes View. Use the name sensibly to help you locate phrases in a

long phrase list. Naming phrases is also useful when you want to synchronise one track with another as it will help you identify the phrase in the track that you wish to synchronise with.

## 2 Note Pitches

For normal multi-pitch instrument tracks, this is where you set the note pitches that make up a chord to be strummed. They can be set manually using the individual drop down list controls but most users will use the chord wizard to set the six note pitches automatically based on a required chord pattern. A sample image of the note pitches presented in the drop down control for instrument tracks is shown below.

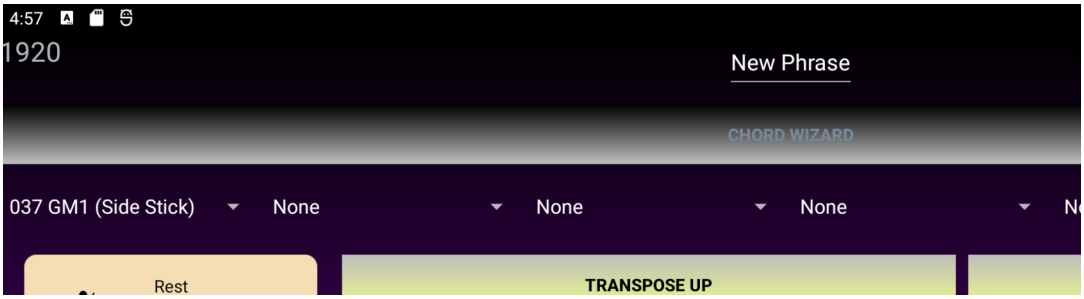



The note pitches are presented in increasing pitch order. The number represents pitch octave and note pitches run from C1 to B7.

The order of the note pitches is important as the application assumes the normal direction of a strum across the available note pitches is from left to right (equivalent to a downward strum on a six string guitar. Some of the strum techniques you can apply to strum elements can change the order in which the notes are strummed (e.g. reverse, shuffle etc) to give interesting strumming effects. The chord wizard assigns its generated chord notes in ascending pitch order to each of the drop down note pitch controls from left to right to be consistent with the conceptual model described above. Of course if you manually set the controls Strumpy respects your chosen order of pitch assignments.

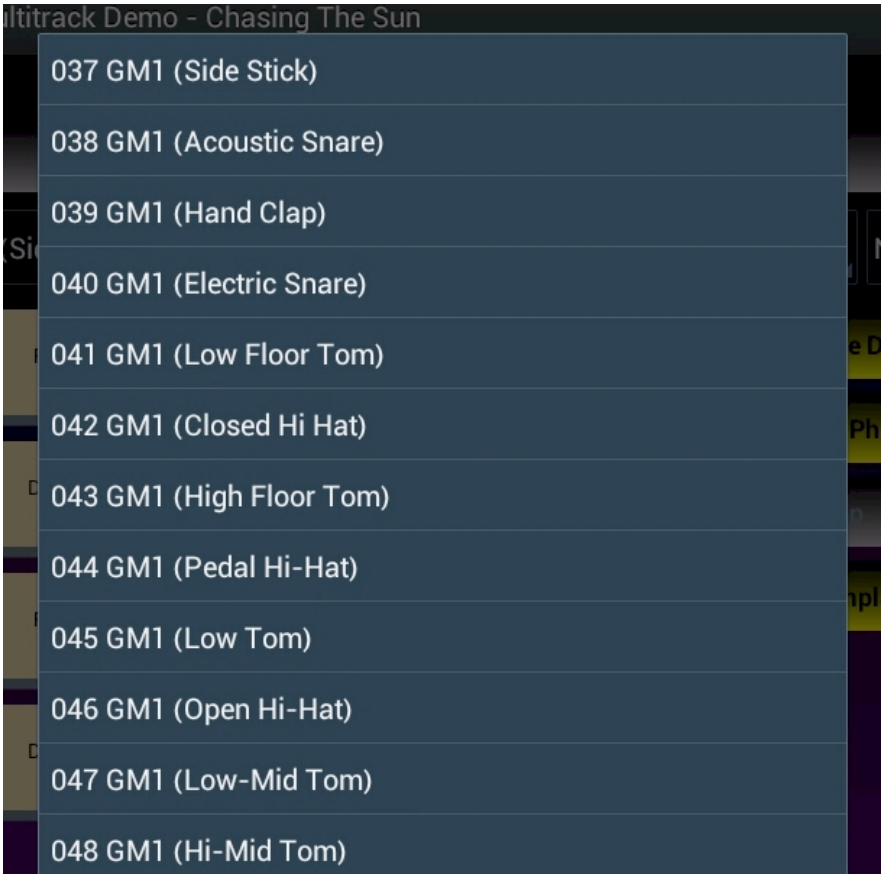
You can set individual note pitches to the value 'None' (located at the head of each drop down list control). This effectively turns that note pitch off and it won't be strummed on playback. It will appear as if there is one less note pitch to be strummed (like there being less strings to strum on a guitar). If you are building bass or lead lines you will likely only set one of the drop down controls to a value and set all the others to 'None'. In a typical lead or bass line you do not strum multiple note pitches, you simply play single pitch notes.

The note pitch drop down controls are set differently for phrases in a drum track. Instead of note pitches the controls instead contain a list of percussion instruments. The following example shows the first control set to a side stick (midi pitch number 37) and the others are set off.




For drum tracks you would typically only set the first control but the application doesn't prevent you setting others. Whilst it is fairly unnatural to strum percussion instruments the application does allow you to simulate this in order to achieve some interesting percussion effects. It would be equivalent to a drummer triggering different percussion instruments at the same time whilst playing out your phrase rhythm as described by its associated strum elements. By tweaking the delay parameters that determine the speed of the strum you can build interesting effects such as flams (i.e. a short delay between two sticks hitting the same percussion instrument such as a snare drum).

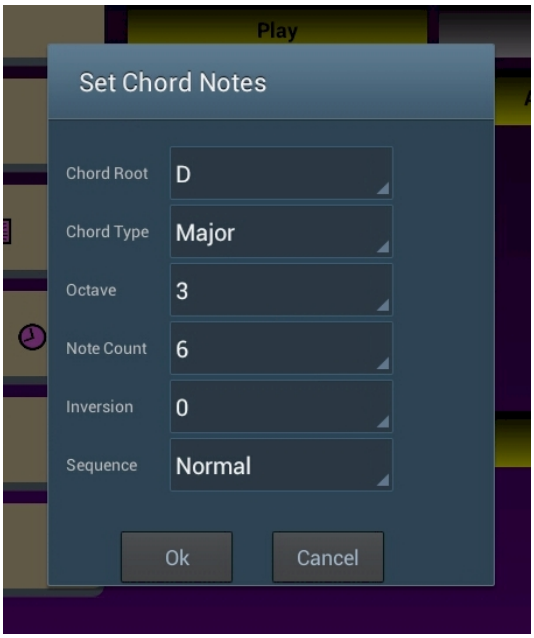
The following image shows a sample of some of the percussion instruments available from the drop down control for drum track phrases.




## 3 Chord Wizard

The chord wizard saves you the effort of working out the note pitches that make up a desired chord in order to set the note pitch drop down controls. The wizard works this out for you and automatically sets the note pitch controls.

On activating the Chord Wizard button the following dialogue is displayed.




**Chord Root:** The base note pitch for the chord.

**Chord Type:** The nature of the chord (implies a mathematical interval pattern between pitches0.

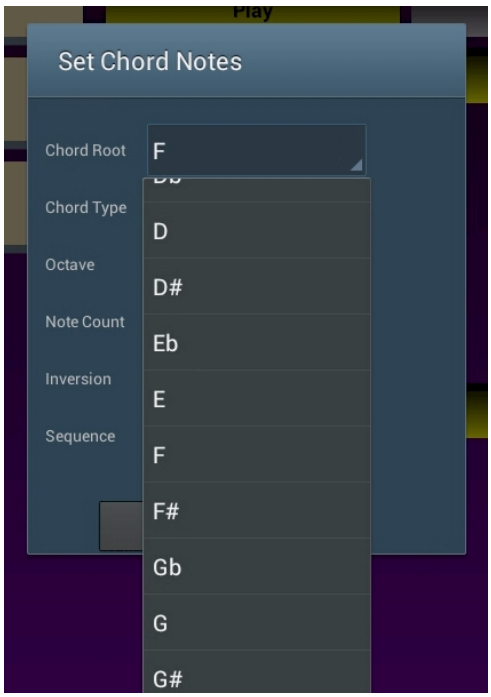
**Octave:** Determines the octave in which the chord is pitched.

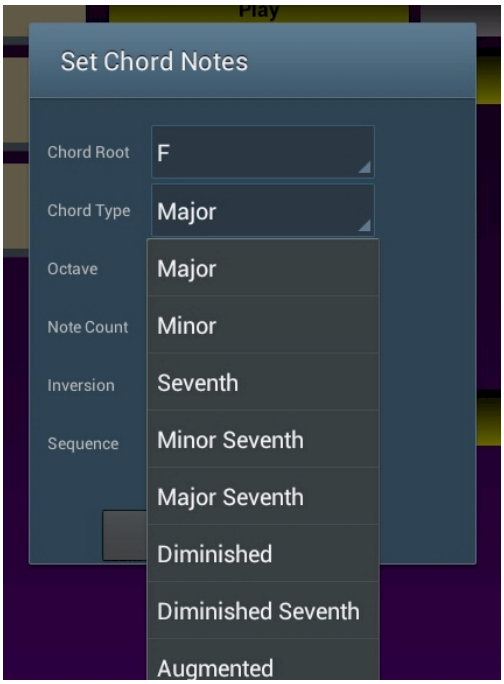
**Note Count:** Determines the number of chord notes to generate (1-6).

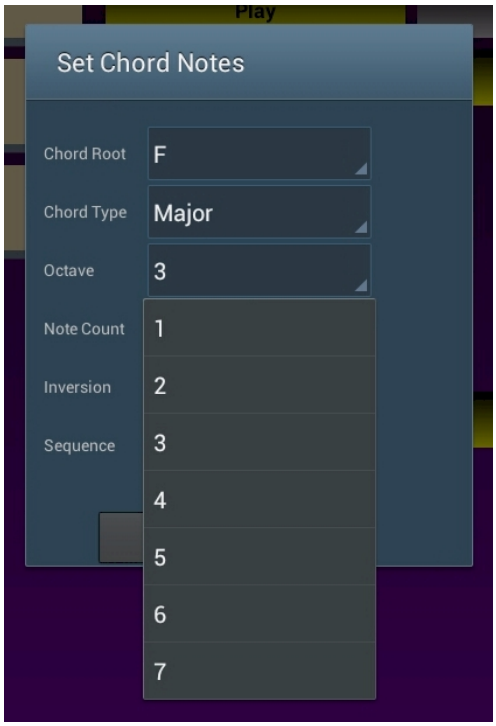
**Inversion:** The position of the generated chord notes (refer to the concepts section).

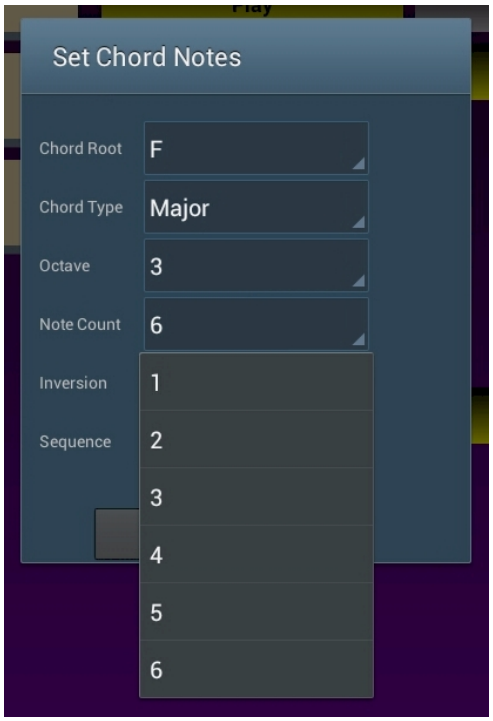
**Sequence:** Determines the sequence in which the generated chord notes are to be assigned to the note pitch controls.

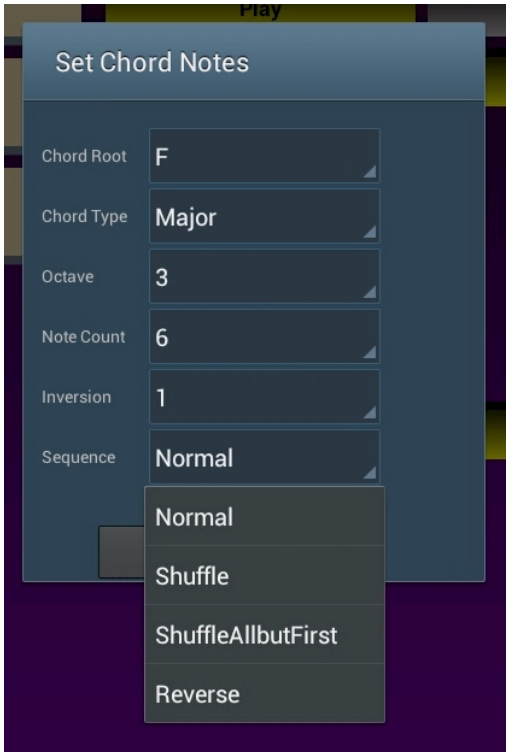
The following images show sample values from each of the chord wizard parameter drop down controls.

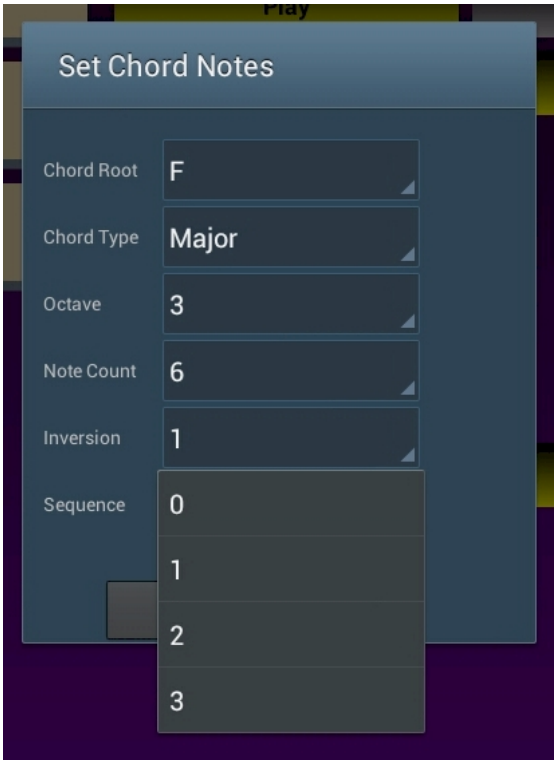

Set Chord Notes
Chord Root
F
Chord Type
Octave
Note Count
Inversion
Sequence
D
D#
Eb
E
F
F#
Gb
G
G#


Set Chord Notes
Chord Root
F
Chord Type
Major
Octave
Note Count
Inversion
Sequence
Major
Minor
Seventh
Minor Seventh
Major Seventh
Diminished
Diminished Seventh
Augmented


Set Chord Notes
Chord Root
F
Chord Type
Major
Octave
3
Note Count
Inversion
Sequence
1
2
3
4
5
6
7


Set Chord Notes
Chord Root
F
Chord Type
Major
Octave
3
Note Count
6
Inversion
Sequence
1
2
3
4
5
6




Having set the chord wizard parameters, select 'Ok' to invoke the wizard in order to generate the chord note pitches. The application returns to the Phrase Edit View with the number of note pitches requested set in the note pitch drop down controls. If less than 6 notes were requested the remaining controls are set to 'None'.

Select 'Cancel' to abort the chord wizard function and leave the current note pitch settings unchamged.

Note that the chord wizard is disabled for drum track phrases as it has no value inn that context.

## 4 Strum Element List

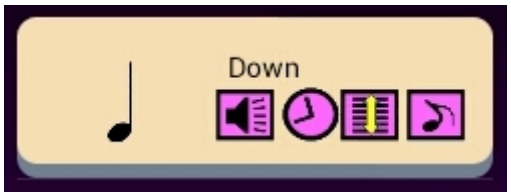
This area of the view displays the strum elements associated with the topic phrase. Strum elements lay out the musical timing of a phrase by specifying a series of note durations, each of which is a time slot allocated to the strumming of the note pitches associated with the phrase using a specified strumming technique (down, up, picked, rest etc). Think of each strum element as the passage of a plectrum across across the strings of a guitar (or its non passage across the strings using the 'rest' technique to introduce a brief gap or silence in a given rhythm).

The sequence of the strum elements in the list is important as the midi note events are generated in the same sequence so you are looking at increasing time as you follow the list from top to bottom.

Visual cues inside each strum element graphic provide key information about its configuration. This minimises the need to activate other functions to view the necessary information. The following strum element properties are displayed in this way.

- Note Duration
- Strum Technique
- Velocity Override Operative
- Delay Override Operative
- Span Override Operative
- Pitch Bend Set

The following image shows all of these displayed.




Strum element note duration is displayed using conventional musical notation and is the first graphic shown (e.g. a crotchet in the above example). The Strum technique is shown next in textual form above the indicator images. In this case it is showing 'Down' which means play the configured phrase note pitches from left to right and would represent a guitar player strumming the notes on a guitar in a downward direction (i.e. from the lowest pitched string to the highest. Below the text there are a number of icon images that show the application of certain effects to a strum element. There are four indicators as described above.  Each has its own slot so if you see any gaps it's because a particular effect is not set. The first three are phrase parameter override effects and the last one is pitch bend. For more information on parameter override and pitch bend effects please refer to the concepts section of this guide.

If you activate a strum element by executing a short touch/click gesture a dialogue is launched that allows a user to edit the strum element’s key properties. This same dialogue is displayed in a number of other different contexts, for example when the 'Add Pattern' button is activated in the same view, or when you short touch/click a strum element in the Track Lanes View. This particular dialogue is described later on in this section.

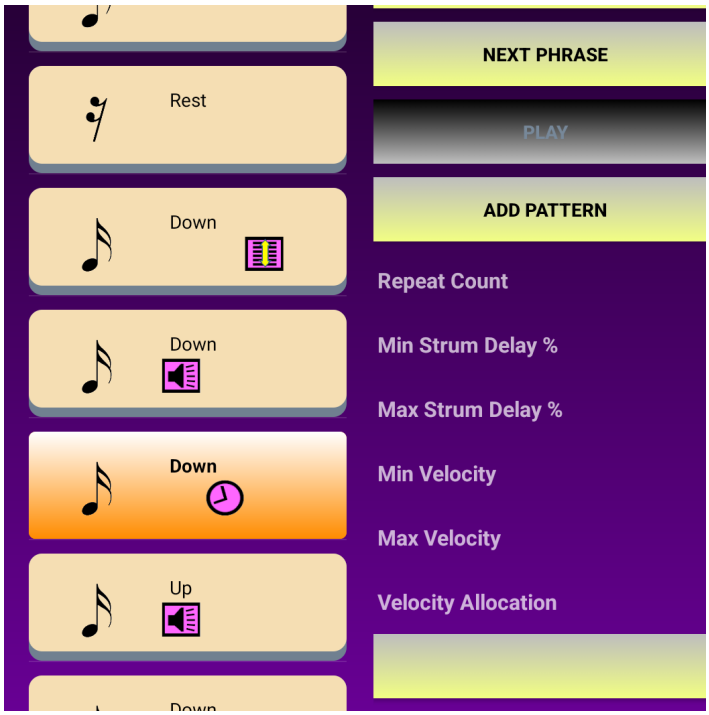
If you activate a strum element and hold it (i.e. long click) a context menu is launched that provides access to a further set of strum element functions, a number of which directly impact the

composition of the strum element list and hence the rhythmic timing of the phrase. These context menu options are also described in later on in this section.

## 5 Phrase Playback Controls

Having edited a phrase configuration you will want to hear the results of your efforts. These buttons control the playback of your phrase. Use them to play and/or prematurely stop the playback of the phrase as desired.

Strumpy provides strum element playback visualization by highlighting the elements (notes/rests etc) in play (i.e. in time with what you hear). The following image illustrates how elements are highlighted.




## 6 Transpose Controls

Use these controls to transpose phrase note pitches (or percussion instrument selections for drum track phrases) by collectively moving the current items selected in the note pitch controls up or down by one item in their respective control lists. For non drum track phrases this has the effect of increasing or decreasing the note pitch by one semitone as each item in a note pitch control represents a single musical semitone. For drum track phrases the effect is to select the next percussion instrument that lies one step higher or lower in the list of available percussion instruments.

For instrument tracks this allows you to shift a phrased chord up or down the musical scale (e.g. say

from C Major to D Major by clicking the button twice to move the notes through the required 2 semitones). Of course the chord wizard could be used to achieve the same but this might take more effort and may not be appropriate in all cases, such as where the notes have been set to some custom arrangement that the chord wizard doesn't support (i.e. a custom chord or a purposely dischordant set of note pitches that you want transposed).

## 7 Phrase Navigation Controls

When you are developing strum patterns it's often useful to navigate around phrases in the same track as you may need to edit them as a result of changes made in other phrases. You could of course return to the Track Explorer View each time and select the relevant phrase from the phrase list but this may not be the most efficient method.

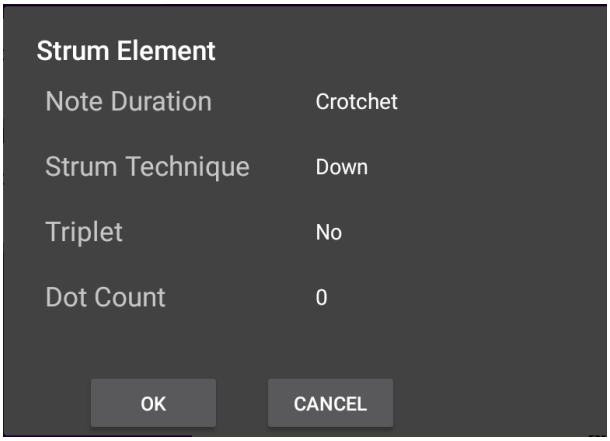
These button controls allow you to quickly navigate up and down the track phrase list without having to revert back to the Track Explorer view.

Use 'Next' to navigate to the next phrase (musically later in time) and 'Previous' to navigate to the previous phrase (musically earlier in time).

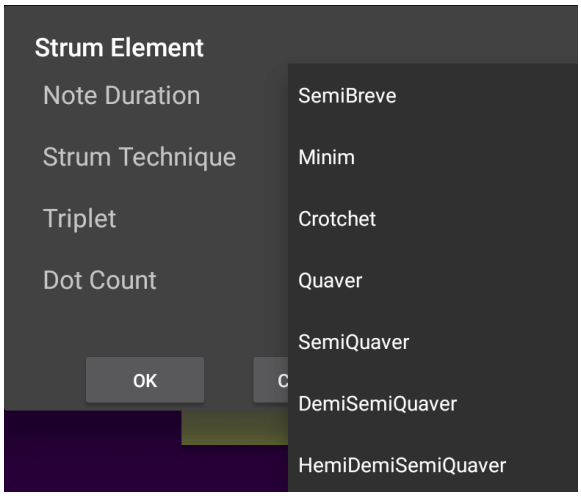
The 'Next' control button is disabled when you reach the last phrase in the phrase list. Similarly the 'Previous' button control is disabled when you reach the first phrase in the phrase list.

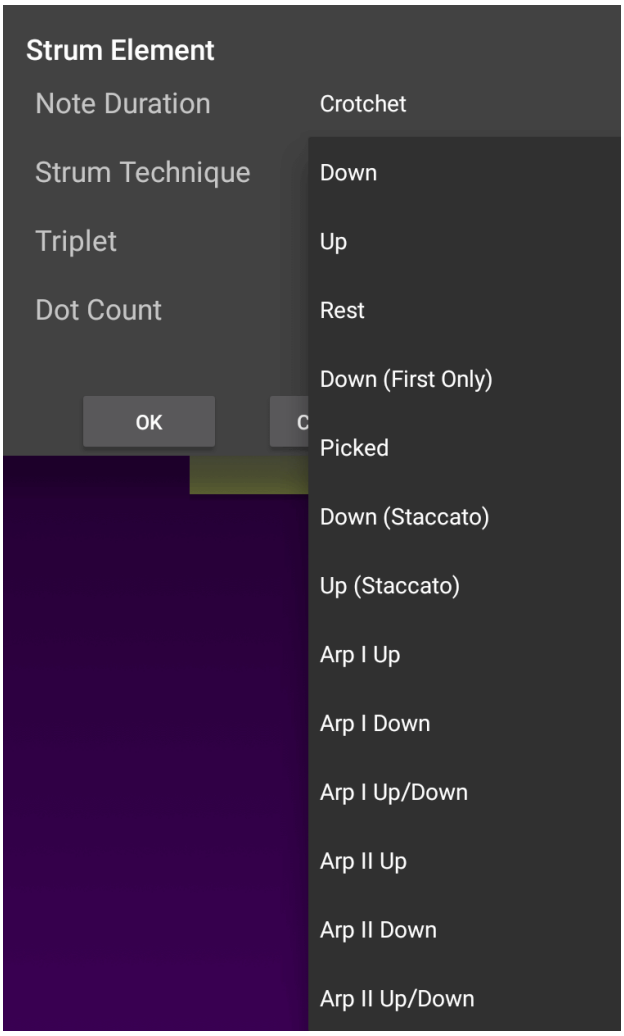
## 8 Add Pattern

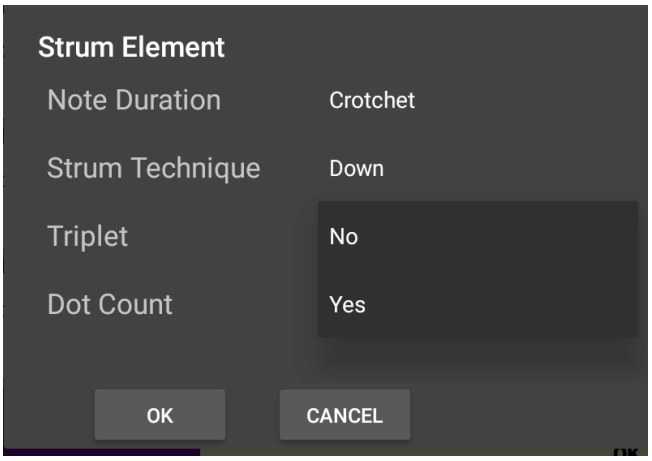
Use this control to add a new strum element to the end of the current strum element list. When you activate the control the following dialogue is also launched to enable you to edit the key properties of the newly created strum element.

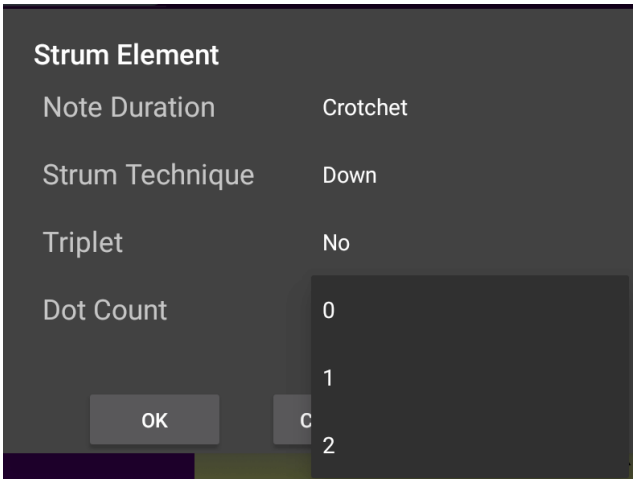



The following images show the range of values available in the various strum element property controls.


Strum Element
Note Duration
Strum Technique
Triplet
Dot Count
SemiBreve
Minim
Crotchet
Quaver
SemiQuaver
DemiSemiQuaver
HemiDemiSemiQuaver
OK


Strum Element
Note Duration
Crotchet
Strum Technique
Triplet
Dot Count
Down
Up
Rest
Down (First Only)
Picked
Down (Staccato)
Up (Staccato)
Arp I Up
Arp I Down
Arp I Up/Down
Arp II Up
Arp II Down
Arp II Up/Down
OK


Strum Element
Note Duration
Crotchet
Strum Technique
Down
Triplet
No
Dot Count
Yes
OK
CANCEL


Strum Element
Note Duration
Crotchet
Strum Technique
Down
Triplet
No
Dot Count
0
1
2
OK

After configuring the properties just click the 'Ok' button and the properties will be saved and you will be returned to the Phrase Edit View where the new strum element will be listed at the end. You can move it around using various context menu functions (see later).

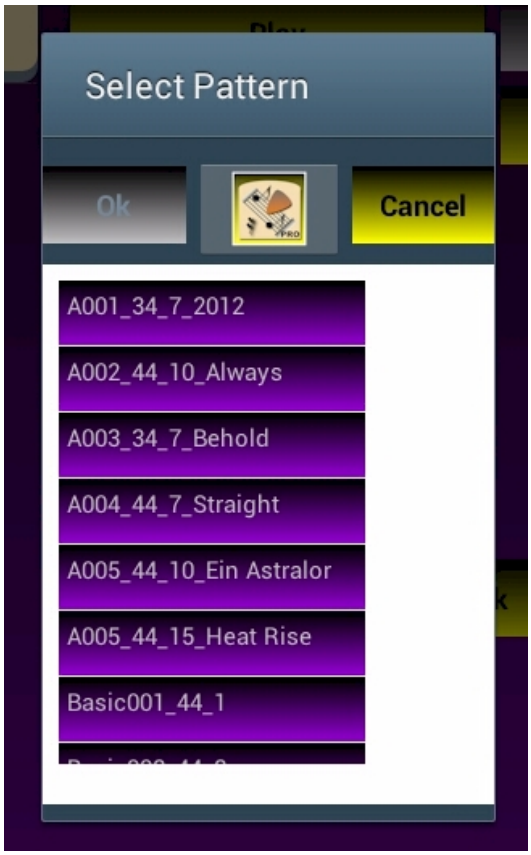
This dialogue is also launched when you activate and hold a strum element in the strum element list. In this context the displayed controls will be set using the topic strum element's current properties which you can then change. When you click on the 'Ok' button the properties of the topic strum element are updated to reflect the changes made.

Click 'Cancel' if you want to abandon your changes.

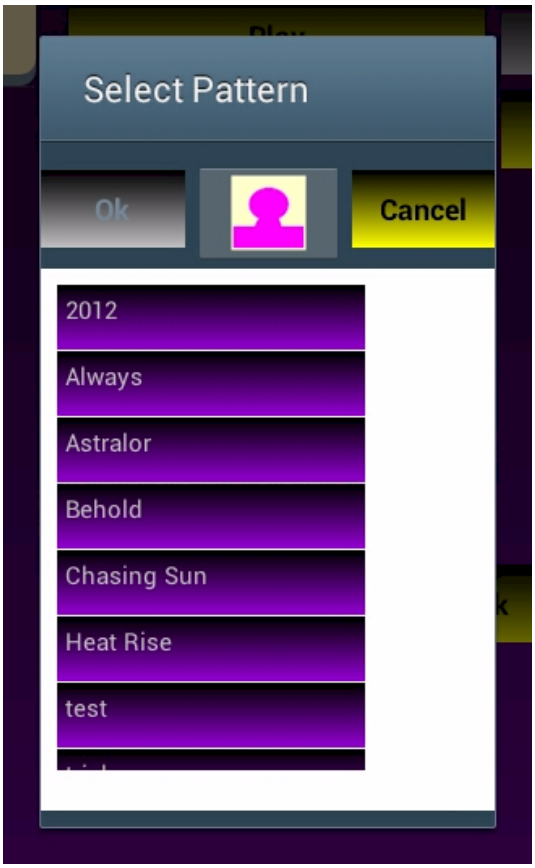
## 9 Add Template

Use this control to add a pre-configured set of strum elements to the phrase from a strum pattern templates (refer to the concepts section for more information on strum pattern templates).

When you activate this control the following dialogue is displayed to help the user locate the required template.




The central image acts as a toggle button that switches between Strumpy installed pattern templates and user created pattern templates. Initially the dialogue is displayed showing the Strumpy installed pattern templates. The following image is an example of the dialogue when it is displaying the user created pattern list.




As you can see from the above you can distinguish between the view states by looking at the icon image between the 'Ok' and 'Cancel' buttons. The Strumpy templates are visible when the Strumpy icon is shown and the user created templates are shown when the person facsimile icon image is displayed.

The dialogue shows the list of available templates in each category. If you activate (touch) a template in the list it will playback using one of two different methods depending on a preference setting (Refer to the options menu associated with the Project Selection View).

You can preview patterns raw or live. If you preview them raw you hear a simple 'middle C' note pitch playing out the rhythm of the selected pattern, but with no frills. This allows you to clearly hear the underlying phrasing of the pattern.

Alternatively you can choose for pattern templates to be heard 'live' which means that the strum elements in the pattern template are played back as though they had already been inserted into your phrase so that you can hear how the template's strum elements will sound should you decide to go ahead and add it.

In addition to playing the template, activating a template in the list also provides a visual clue regarding the key properties of each strum element it contains. A scrollable list of graphic images is shown to the right of the list that provides information on note duration and strum technique. Note duration is shown using the note duration graphics (crotchet, quaver etc) and alongside that is a graphic that illustrated the strum technique. For example, arrows are used to indicate strum direction (up or down) and their colour/size indicate whether the strum is normal or staccato

(green/long or red/short). These provide the user with information to assist in deciding whether or not a particular template is suitable.

The name of the currently selected template is shown at the top of the dialogue.

On activating the 'Ok' button control the strum elements associated with the template are copied in to the current phrase at the end of the current strum element list. Activate 'Cancel' to abandon the addition of a pattern template.

## 10 Repeat Count

Use this to control how many times the phrase is played in the composition. A value of 1 means it is played once (i.e. not twice, original plus one repeat). This is how you get a single phrase to repeat. The phrase group repetition facilities which are configured in the Track Explorer View cannot be efficiently used to achieve this as they are designed to control the repetition of more than one phrase (i.e. a block of phrases). Think of the effect of this as repeating the phrase note events a number of times thus extending the length of the composition.

## 11 Strum Delay Parameters

Use these controls to configure the default strum speed for all strum elements with no strum delay parameter override. This is where you set the base strum speed for all the strum elements in the phrase allowing you to override where necessary on a strum element by strum element basis for added effect and variation.

Higher values lead to a slower sounding strum  and smaller values a faster sounding strum.

In most cases you will set the minimum and maximum to the same values but you can introduce further variation by specifying different values for the minimum and maximum delay percentages. This varies the delay between the triggering of each note pitch in a chord rather than it being constant and in theory gives a more life-like feel to a strum (in real life the time period between hitting each string when strumming a guitar is unlikely to be consistent throughout the strum).

If you select a minimum delay percentage that's greater than the current maximum delay percentage the application automatically sets the maximum delay percentage to the same value. Likewise if you set the maximum delay percentage to a value that is less than the current minimum delay percentage it sets the minimum delay percentage to the same value.

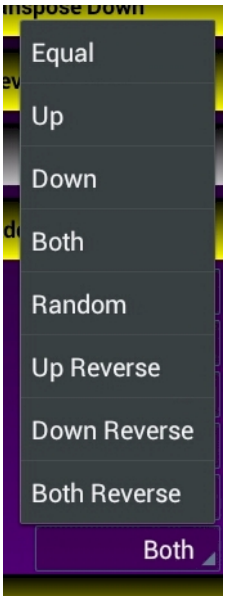
For more information on the delay parameters refer to the relevant section in the concepts section of this guide.

## 12 Strum Velocity Parameters

Use these controls to configure the default 'loudness' for all strum elements with no strum

velocity parameter override. This is where you set the base loudness for all the strum elements in the phrase allowing you to override where necessary on a strum element by strum element basis for added effect and variation (i.e. applying accents to certain strummed notes).

In addition to a range of velocity values you can also specify how that range of velocity values is applied when determining the volume of each triggered note pitch that makes up a strummed chord (velocity allocation parameter). This parameter determines how the specified velocity range is distributed amongst the chord notes during a strum to generate different effects. A range of options is provided (refer to concepts section) and a sample list of the range of values available in the control is shown below.




**(Note: in midi the term velocity is used to represent how hard a midi note is hit and this is usually interpreted into a sound volume dimension)**

Higher values lead to a louder sounding strum and smaller values softer sounding strum.

In most cases you will set the minimum and maximum to the same values but you can introduce further variation by specifying different values for the minimum and maximum values. This varies the velocity (hence 'volume or 'loudness') between the triggering of each note pitch in a chord rather than it being constant. Like with the delay parameters, in theory this gives a more life-like feel to a strum (in real life the hardness by which each string is struck whilst strumming a chord on a guitar is unlikely to be consistent across all strings).

If you select a minimum value that's greater than the current maximum value the application automatically sets the maximum value the same. Likewise if you set the maximum value to a value that is less than the current minimum value it sets the minimum value the same.

For more information on the velocity parameters refer to the relevant section in the concepts section of this guide.

## 13 Phrase Length

This control shows the total duration of the phrase in midi clock ticks It is the sum of the individual strum element durations. Click the control to trigger a temporary display of this length in quarter and eighth beat notes respectively. Use as a guide as to ensuring your phrases occupy the expected time duration.

Strumpy allows free format entry of note durations (strum elements), it provides no visualisation of song measures/bars. This simplifies the complexity of the application and does away with the need for time signatures. It is left to the end user to determine where musical measures/bars actually start and end.

A down side of the above approach means that all time has to be accounted for if tracks are to be in time with one another. Rests have to be explicitly added at the end of every perceived measure/bar and not assumed to be added automatically as Strumpy has no time signature reference it can use to determine its required length.

To help users ensure that phrases have the desired length (which may or may not be the same length of a measure/bar) Strumpy displays the length of a phrase in midi clock ticks in this control.

If you short click (touch) the control it will display a short message that provides a representation of this clock time in quarter and eighth note beats respectively.

Music time signatures are usually expressed in multiples of quarter or eighth note beats.

e.g. 3/4, 4/4, 5/4(quarter notes)

6/8, 7/8, 12/8 (eighth note beats)

The first example represents measures consisting of 3, 4 and 5 quarter notes respectively. The second example represents measures consisting of 6, 7 and 12 eighth notes respectively.

Knowing how many quarter and/or eighth beat notes there are in the phrase you are editing is therefore useful in understanding whether or not you have accounted for all the necessary time. This is particularly helpful if the phrase is busy consisting of many notes of different durations including triplet note durations as adding these up by hand and calculating lengths in beats can be an effort and error prone.

The format of the message displayed when you activate the control is as follows.

n/4=x(y) n/8=a(b)

Where x and a indicate the number of whole quarter notes and eighth notes respectively that make up the phrase. The elements in brackets (y and b) indicate the remaining clock ticks in the phrase after accounting for the displayed number of whole quarter and eighth note beats. This would be zero if a phrase was an exact multiple of quarter and/or eighth notes.

If you were expecting a phrase to be 5 quarter beats (i.e. A whole 5/4 time measure) then you would be looking for the display to show

n/4=5(0)

to ensure you have completely accounted for the time. If it isn't then you should review your strum

elements and add and/or delete them as required to ensure you account for the time required.

If you do find that tracks are wandering out of time with one another it is likely that you have repeated some phrases with an inconsistent (and unintended) time duration (their durations do not align with the perceived time signature and therefore overlap or under-run measure boundaries).

Strumpy operates with a 960 midi clock tick resolution per quarter note (i.e crotchet).

The complete mapping of clock ticks to their equivalent note durations (as used/specified in Strumpy) is given below for reference.

| Note Duration Midi Clock Ticks | |
|---|---|
| Note Duration | Clock Ticks |
| Crotchet | 960 |
| Quaver | 480 |
| Crotched Triplet | 320 |
| Semiquaver | 240 |
| Quaver Triplet | 160 |
| Demisemiquaver | 120 |
| Semiquaver Triplet | 80 |
| Hemidemisemiquaver | 60 |
| Demisemiquaver Triplet | 40 |
| Hemidemisemiquaver Triplet | 20 |

The residual balance of clock ticks shown after accounting for whole quarter and eighth notes (i.e. y and b above) will correspond to a combination one or more of the clock tick values shown in the above table.

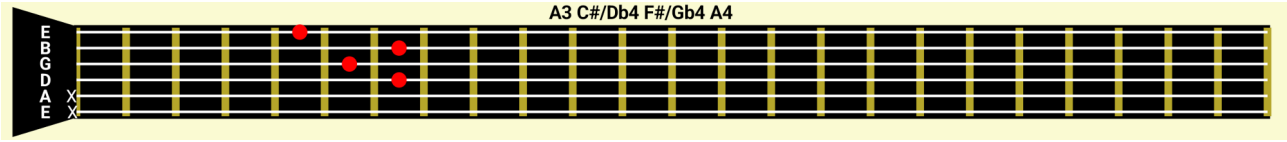
For example, if you have a balance of 320, you are probably missing or incorrectly including a crotchet triplet.

Whilst all the above sounds quite complex, when you are using the tool in practice it's fairly easy to hear when track timings are out then usually fairly easy to fix once you've identified the dodgy phrase. That said, this control is likely to prove very useful during the development of complex phrasings that consist of many strum elements and where keeping track of total phrase length would otherwise be quite painful.

Note that the introduction of the Track Lanes View essentially does away with having to juggle with midi clock tick calculations as track phrase and note alignments across time can be seen visually allowing you to easily see where you have miss-aligned track elements. The indicators described above have not been deleted from the application despite essentially being made redundant by the

introduction of the Track Lanes View.

## 14 Phrase Pitch Visualization




When you open the phrase editor pitch visualization is articulated on a keyboard control. If you touch the control it articulates the selected pitches on a guitar fretboard using one of the optimal fret positions that the tool calculates. If you touch the guitar control it displays an alternative fretboard position and this continues until the alternatives run out at which point it again displays the keyboard. You can clear the currently set note names/pitches by long clicking the keyboard widget. If you do this Strumpy converts all strum elements in the phrase to rests (to reflect that there are no notes to play). There is no 'undo' facility to reverse this however a user is given a chance to cancel the operation during its initiation.

As guitar players will know, the strings have overlapping note pitches and making it possible to play the same chords in many different fret positions along the guitar neck and not all pitch fret positions are physically playable. It's possible for a user to manually select pitches that are either not possible to pitch on a standard tuned guitar, or that are not physically possible to fret on a guitar without dropping some of them. Strumpy uses an algorithm in order to map the selected pitches onto a guitar.

You can cycle between the keyboard and guitar pitch visualizations simply by touching the widget. Where strumpy's algorithm has found a number of guitar fret positions within the scope of its algorithm it allows you to page through each of them simply by continuing to touch the Keyboard/Guitar widget.

The guitar fretting algorithm operates as follows.

Finds the lowest string fret position of the centre pitch (i.e. the pitch in the centre of the lowest and highest pitches selected. If this falls outside the range of pitches available on a guitar Strumpy simply frets the selected note pitches S1-S6 across the 6 strings of the guitar where S1 (E), S2 (A), S3 (D), S4 (G), S5 (B), S6 (E). No attempt is made to optimize the fret positions on the basis that if

the central pitch isn't mappable the chances are that other notes aren't either so it just does its best to map what it can. Unplayable pitches are simply articulated as an unplayable string (X at the top of the string).

Locating a fret position for the central pitch nearest to the guitar nut is designed to place the fret positions nearest to the top end of the guitar neck (i.e. near the nut), more favoured by guitarists.

Having chosen a base fret position the algorithm then determines a range of fret positions with that fret position at the centre. For example, if the range scope was 4 frets in both directions and the central pitch fret was fret 8, then the fret range would be frets 4-12.

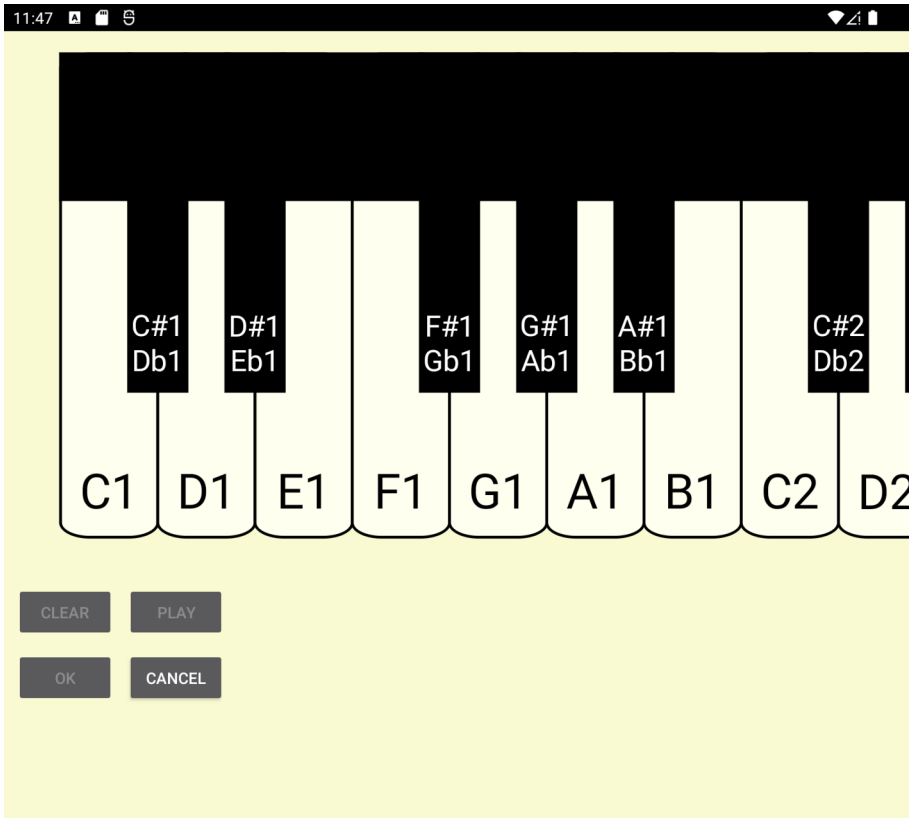
Having chosen the fret range Strumpy goes on to search for the selected pitches across each string (from the low E string to the high E string) but only within the calculated fret range (to increase the possibility of it being physically possible for a human hand to fret it. If it finds a suitable fret position it remembers it and removes the associated string's fret positions from the remaining fret positions to search. At the end of this, any strings with no fret positions allocated are simply marked as unplayable strings (X at the head of the string).

The algorithm makes up to six passes through the above algorithm (depending on the number of selected pitches), each time it starts the pitch search from a different pitch position. For example, S1 (first pass), S2 (second pass) and so on. This has the effect of picking pitches from different strings thereby delivering different fret positions for the selected pitches.

The fret positions output from each pass are remembered and visualized on the guitar widget by paging through them each time you touch the guitar widget.

## 15 Keyboard Widget Note Picker

Clicking the note picker button launches the note picker tool on a separate page. An image of the note picker tool is shown below.




A piano keyboard widget serves as an input device for setting the note pitches. You pick a given note by touching/clicking its corresponding position on the displayed keyboard widget.

The order you pick notes determines the order in which the phrase notes are set (e.g. note1, note2, note3, note4, note5 and note6). This corresponds to order in which the note name drop down controls appear in the phrase editor page.

You can pick a maximum of six notes (Strumpy limit).

Picked notes can be ‘unpicked’ simply by touching/clicking them once again (effectively a ‘toggle’).

Strumpy highlights notes as they are picked so it is very easy to see which notes have been ‘picked’ and those which have not. Note name pitch positions relieved through unpicking their associated keyboard widget notes are available to be picked once again and are set in the order that subsequent notes are picked.

As long as at least one note has been picked the ‘clear’ and ‘play’ buttons are enabled. Use the ‘clear’ button to unset all six phrase note pitches in a single action. This can be handy if you need to restart note picking.

Use the ‘play’ button to actually hear the notes picked. As long as the associated phrase has one or more non-rest phrase strum elements configured you will hear picked notes articulated with their strum element phrasing and associated phrase parameters (e.g. repeat, strum delay, volume etc).

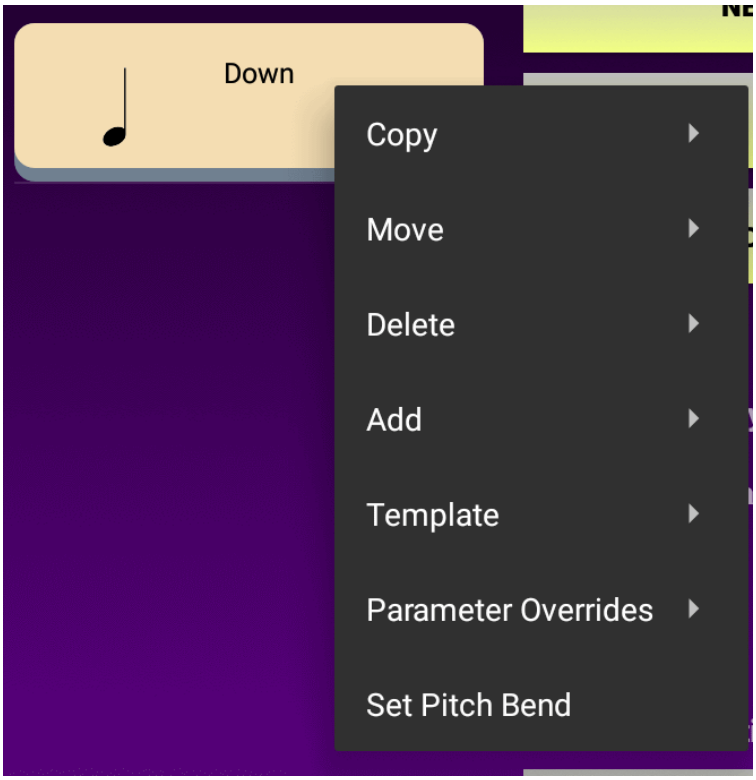
To commit picked notes to the phrase, click the ‘ok’ button. This button is enabled as long as at least one note has been picked. The user is returned to the Phrase Editor page with the newly picked notes replacing any phrase notes previously set.

To abandon note picking simply click the ‘cancel’ button. The user is returned to the Phrase Editor page without changing previously set note names/pitches.

The piano keyboard widget can be scrolled right and left using ‘scroll’ and ‘fling’ touch gestures and can also be scaled (i.e. made smaller or larger) using pinch-to-zoom multi-touch gestures.

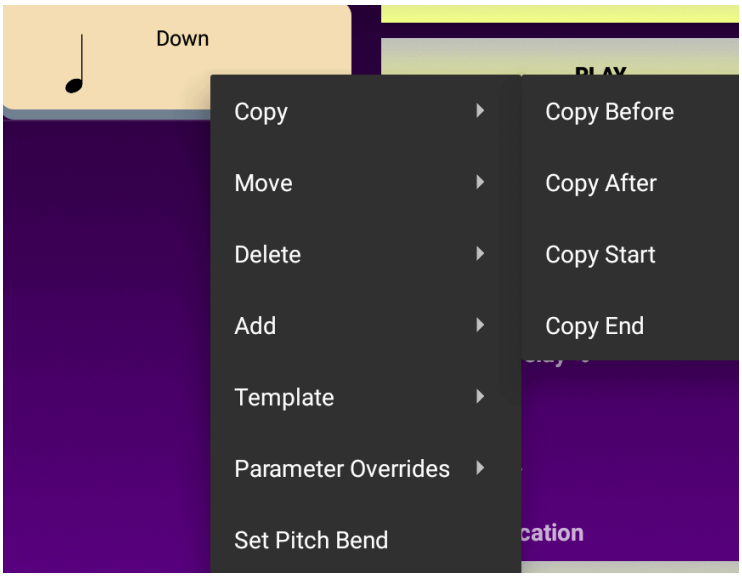
### *5.4.2 Strum Element List Context Menu – Group Menu*

When you activate and hold a strum element in the strum element list you are first presented with a top level (group) menu that lists the high level options you have available for manipulating strum elements within the topic phrase. You must make a choice to trigger the next level of menu that makes actual functions available within the chosen group category. The group menu is shown below.




### *5.4.3 Strum Element List Context Menu – Copy Sub Menu*

When you select the 'Copy' category from the strum element list group context menu you are presented with a list of copy options as shown below.



**Copy Before:** Creates a copy of the topic element and places it before that element in the list

**Copy After:** Creates a copy of the topic element and places it after that element in the list

**Copy Start:** Creates a copy of the topic element and places it at the top of the element list

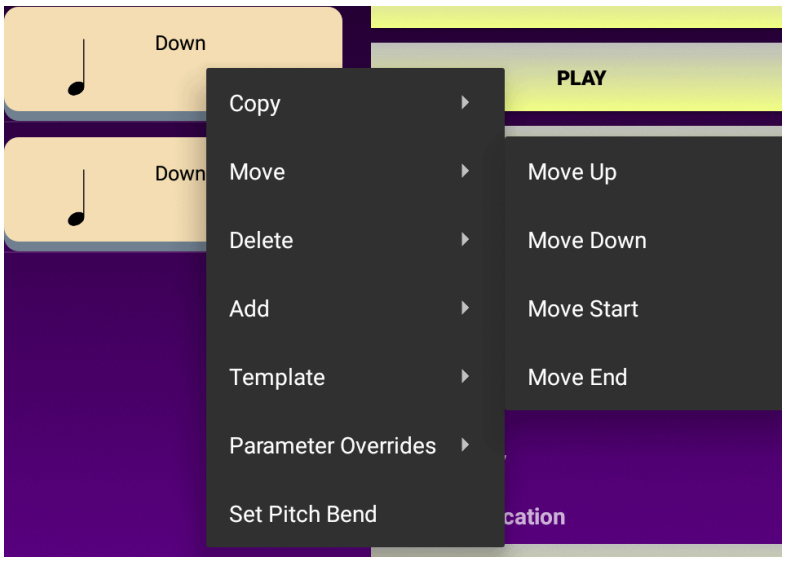
**Copy End:** Creates a copy of the topic element and places it at the bottom of the element list

Note that these are true 'copies' and not links to the original element such that if you change the original the effects are automatically propagated to the linked copy. The new copy is an independent strum element in its own right and is in no way linked to the original from which it was sourced.

After activating an option the application copies the contents of the activated (selected) strum element to the requested position in the phrase strum element list. The strum element list is refreshed so you can see the effect of the change.

### *5.4.4 Strum Element List Context Menu – Move Sub Menu*

When you select the 'Move' category from the strum element list group context menu you are presented with a list of move options as shown below.




Some of these options may not be available depending on the context of the phrase used to activate the context menu set. For example, the option to move an element up in the sequence doesn't make sense for the first item in the list so it will be disabled.

**Move Up:** Moves the element up the list by one position

**Move Down:** Moves the element down the list by one position.

**Move Start:** Moves the element to the top of the list.

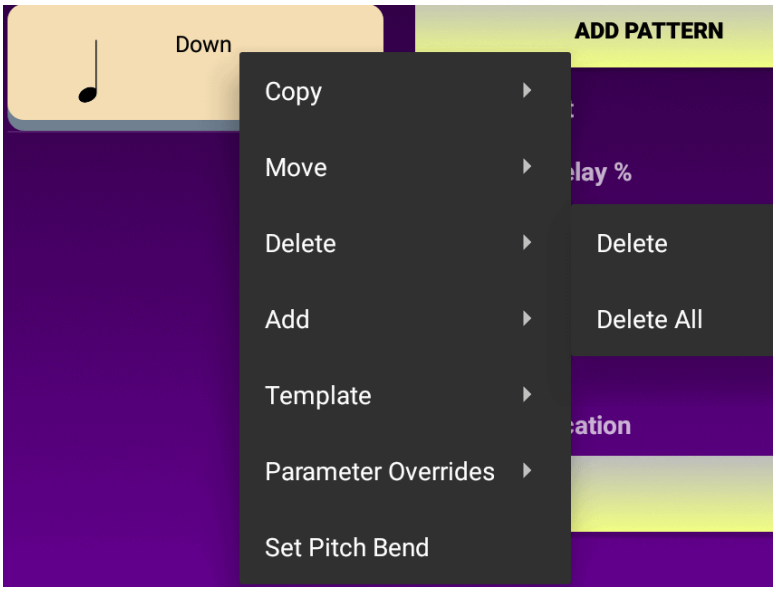
**Move End:** Moves the element to the bottom of the list.

The move up and move down options are unavailable for the first and last element in the list respectively.

After activating an option the application returns to the Phrase Edit View having refreshed the strum element list so you can see the effect of the chosen option.

### *5.4.5 Strum Element List Context Menu – Delete Sub Menu*

When you select the 'Delete' option from the strum element list group context menu you are presented with a list of delete options as shown below.




**Delete:** Removes the strum element from the topic phrase.

**Delete All:** Removes all strum elements from the topic phrase (empties the strum element list)

After activating an option the application returns to the Phrase Edit View having refreshed the strum element list so you can see the effect of the change.

### 5.4.6 Strum Element List Context Menu – Add Sub Menu

When you select the 'Add' category from the strum element list group context menu you are presented with a list of add options as shown below.

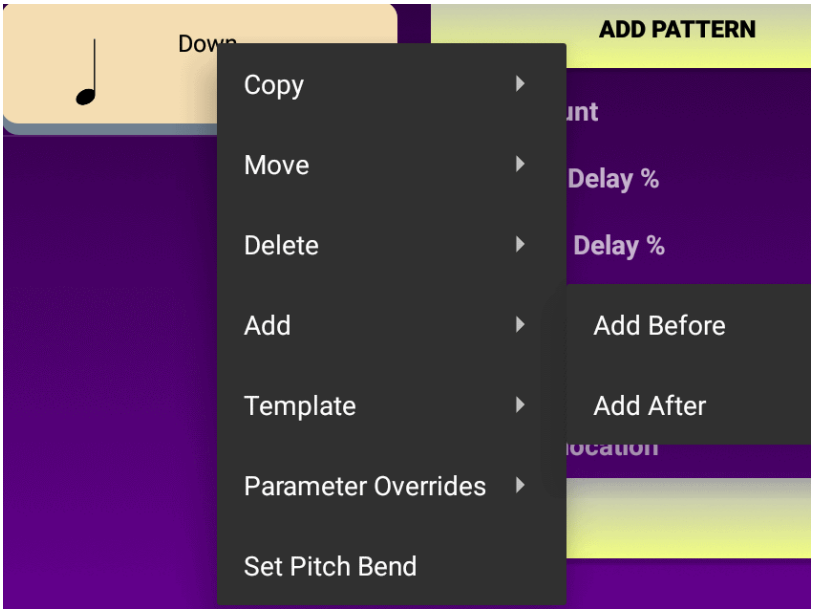
These options add a new strum element to the topic phrase strum element list and automatically launch a dialogue to capture details of the new strum element. Refer to the 'Add Pattern' button control earlier for a description of this dialogue.

**Add Before:** Adds a new element and places it before the topic element in the strum element list

**Add After:** Adds a new element and places it after the topic element in the strum element list

### 5.4.7 Strum Element List Context Menu – Template Sub Menu

When you select the 'Template' category from the strum element list group context menu you are




presented with a list of template insertion options as shown below.

**Add Template After:** Adds template content after the topic element in the strum element list

**Add Template Before:** Adds template content before the topic element in the strum element list

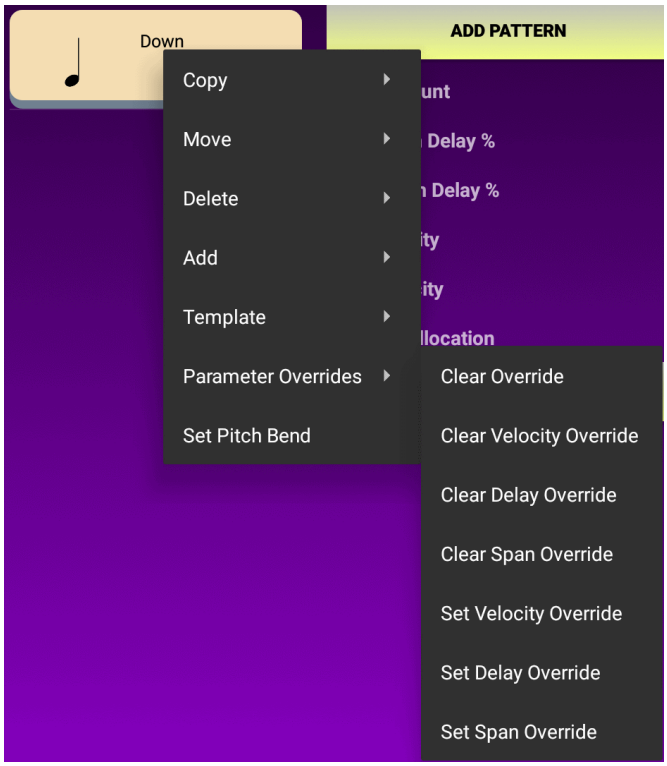
**Add Template At Start:** Adds template content at the top of the strum element list

**Add Template At End:** Adds template content at the bottom of the strum element list

If you activate one of the options you are presented with a dialogue to help you identify a suitable template. This dialogue has already been covered under the 'Add Template' button control and is not repeated any further here. Refer to the section that describes the 'Add Template' button control on the Phrase Edit View for further details on using that presented dialogue..

### *5.4.8 Strum Element List Context Menu – Parameter Overrides Sub Menu*

When you select the 'Parameter Overrides' category from the strum element list group context menu you are presented with a list of options as shown below.




**Clear Override:** Removes any configured velocity, delay and span overrides set for the topic strum element.

**Clear Velocity Override:** Removes any configured velocity override set for the topic strum element.

**Clear Delay Override:** Removes any configured delay override set for the topic strum element.

**Clear Span Override:** Removes any configured span override set for the topic strum element.

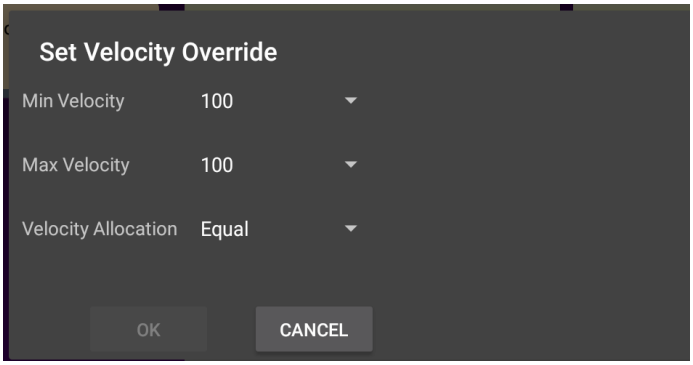
**Set Velocity Override:** Sets a velocity override for the topic strum element.

**Set Delay Override:** Sets a delay override for the topic strum element.

**Set Span Override:** Sets a span override for the topic strum element.

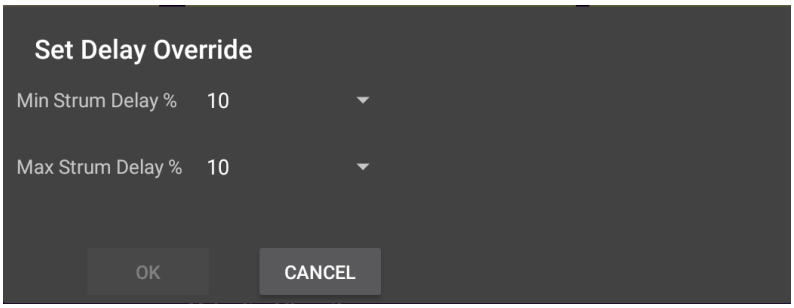
On activating any of the 'clear' options the application makes the corresponding change to the associated strum element property and then returns the user to the Phrase Edit View after updating the strum element list so the user can see the effect of the change.

On activating the 'Set Velocity Override' option the application prompts the user with the following dialogue to allow the relevant override parameters to be added/edited.

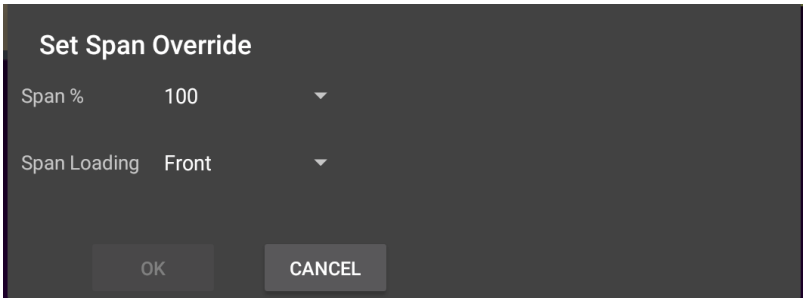



The controls are set to any existing property values unless none have yet been set in which case the application will choose sensible start values which the user can change. Simply select 'Ok' to accept the specified property values are 'Cancel' to abandon any changes. In both cases the application returns to the Phrase Edit View having refreshed the strum element list to reflect any changes that might have been made.

On activating the 'Set Delay Override' option the application prompts the user with the following dialogue to allow the relevant override parameters to be added/edited.



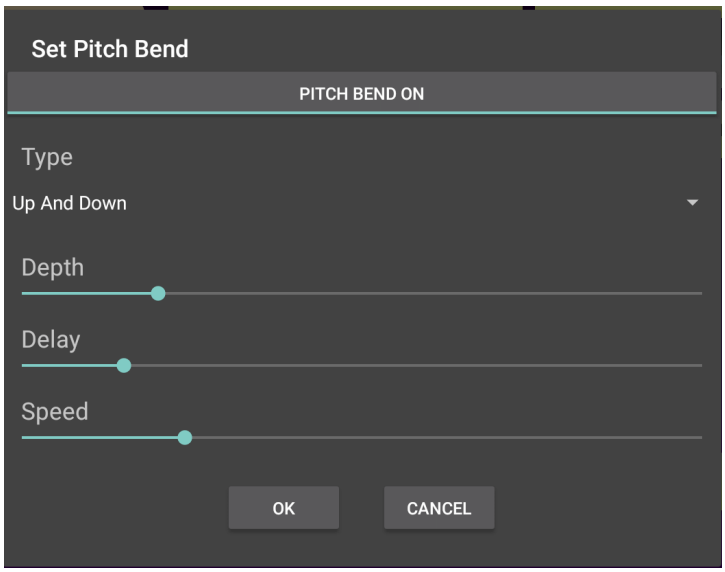

On activating the 'Set Span Override' option the application prompts the user with the following dialogue to allow the relevant override parameters to be added/edited. The controls are set to any existing property values unless none have yet been set in which case the application will choose sensible start values which the user can change. Simply select 'Ok' to accept the specified property values are 'Cancel' to abandon any changes. In both cases the application returns to the Phrase Edit View having refreshed the strum element list to reflect any changes that might have been made.




The controls in the dialogue are set to any existing span override property values unless none have yet been set in which case the application will choose sensible start values which the user can then change. Simply select 'Ok' to accept the specified property values are 'Cancel' to abandon any changes. In both cases the application returns to the Phrase Edit View having refreshed the strum element list to reflect any changes that might have been made.

### *5.4.9 Strum Element List Context Menu – Pitch Bend*

When you select this option from the context menu you are presented with the following dialogue to configure pitch bend for the topic strum element.




The first control is a toggle button that determines whether or not the effect is to be applied to the topic strum element. If it is checked then the pitch bend effect will be active, if it is unchecked then no pitch bend effect will be applied. When you check this button a number of sensible default values are set for the other related pitch bend controls in the dialogue. Of course you can vary the

other controls to suit the creative effect you are trying to achieve. The pitch bend controls are disabled if you turn the facility off by unchecking the toggle button control.

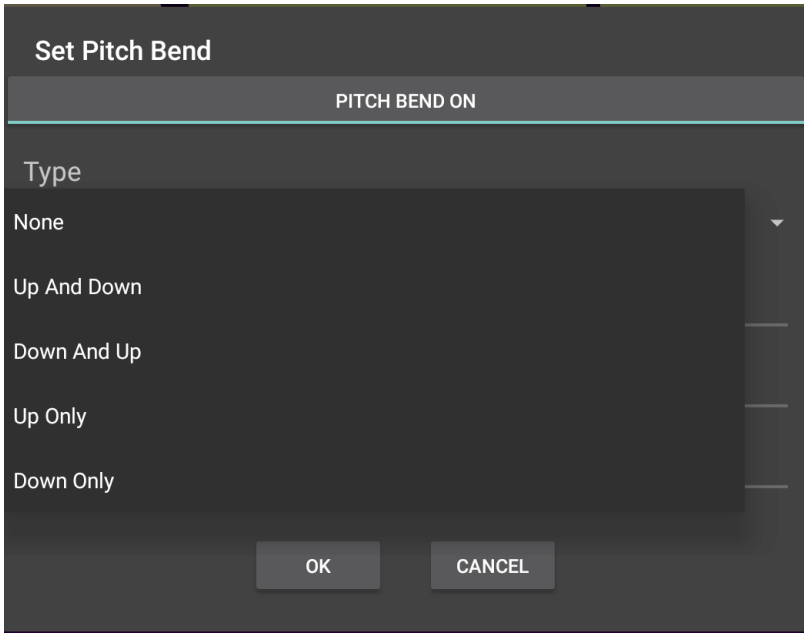
Configure the pitch bend type using the bend type drop down list control.

Configure the depth of the pitch bend effect using the 'Depth' seek bar control. This determines the extent of pitch shift in either an upward or downward direction (depending on the pitch bend type chosen).

Configure the time delay before the pitch bend kicks in using the 'Delay' seek bar control. This determines the period of time after all the note pitches have been struck (and therefore are 'ringing') and the time when the pitch bend effect starts. If you set this to its maximum position the delay takes up all the remaining time and no pitch bend effect will be heard so be careful where you place this control.

Configure the speed of the pitch bend using the 'Speed' seek bar control. The higher the setting the quicker the pitch bend effect will execute, the lower the setting the longer (and therefore more pronounced) the effect will be. If you set the speed to its maximum value do not be surprised if you do not hear any effect. This is because you are essentially asking it to complete in so small amount of time that it isn't possible to actually hear it. If yo want a quick pitch bend set it just below the maximum. If you set this control to its minimum setting all the available time after the delay time will be used to execute the pitch bend effect (its slowest position).

The following image shows the available pitch bend types. Refer to the concepts section of this guide for further details.

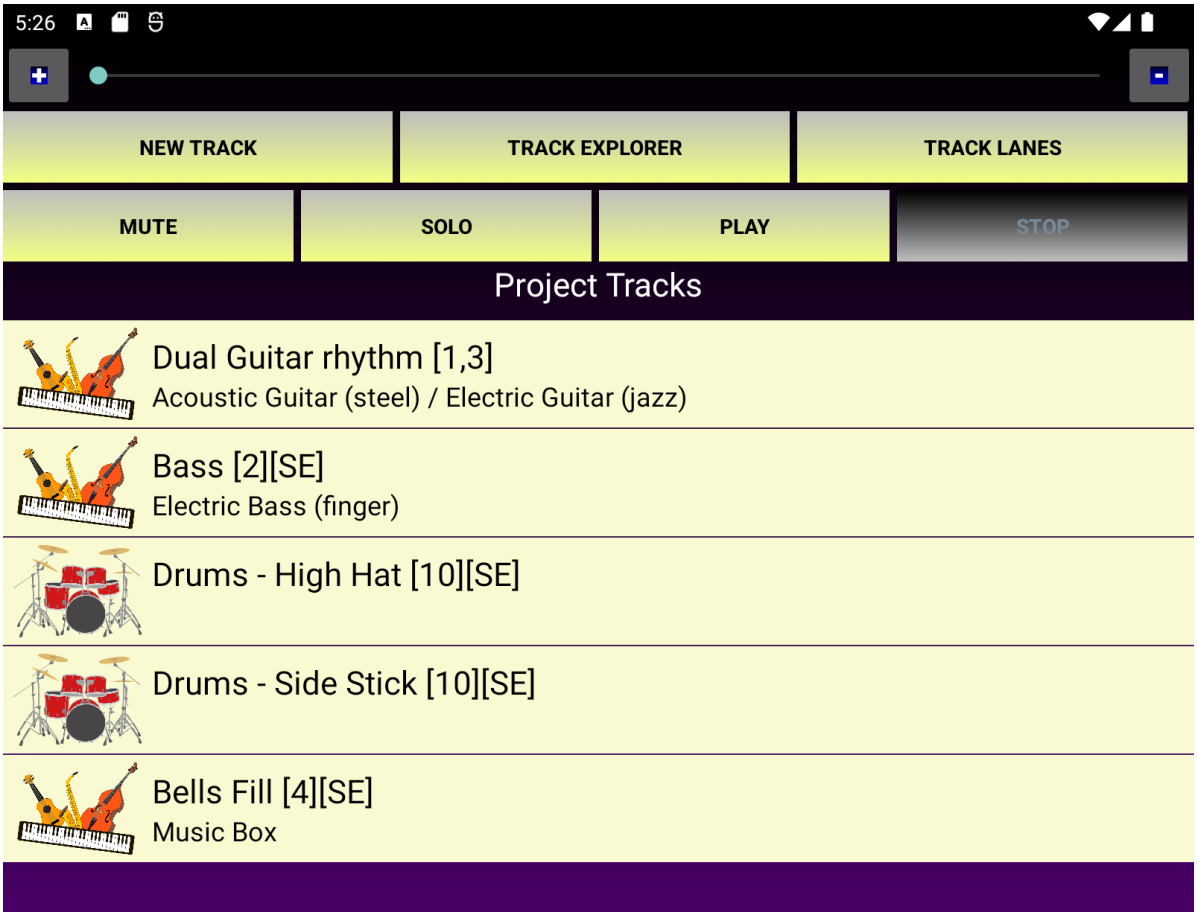


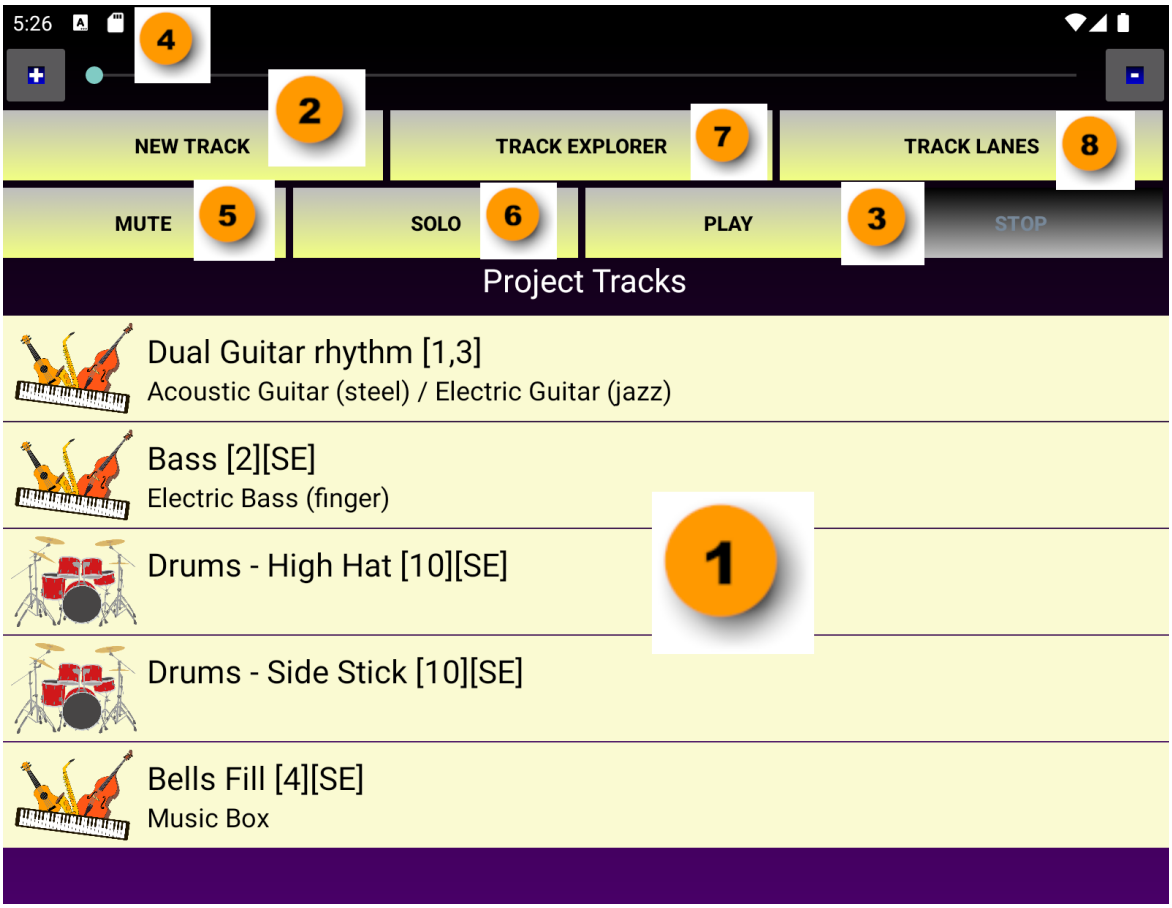
## 5.5 Mixing Desk View

### 5.5.1 View Context and Navigation

This view is launched from the Track Explorer View using the button control labelled 'Desk', or from the Track Lanes View using the button control labelled ‘Track List’.

This view is where you manipulate the tracks in your project From here you can create additional tracks, move them around in the track list or make copies of them. This is also where you determine which tracks sound when you playback your project as it provides functions to mute and solo individual tracks. It alos provides access to the Track Details View where you can change the relative volume and stereo field position of tracks within the overall mix. Thinks of this view as a sort of studio mixing desk where you can manipulate the overall mix of the tracks in your composition.






## 1 Track List

This area contains the list of tracks in your project. The order in which tracks appear in this display is the same order they appear in the tracks selection drop down control in the Track Explorer view. You are able to reorder using context menu functions. The order has no significant influence on the sounds generated during playback but the order of the tracks presented here mirrors the order in which the tracks appear in the Track Lanes View and will be the order in which tracks appear in an exported project midi file. External DAW's will usually import midi file tracks in the same order they appear in the midi file.

An image helps to identify a track as being either an instrument or a percussion track.

The track name is shown along with a representation of some key properties. Firstly, the midi channels currently assigned to a track are shown in the following format.

[Primary Instrument Midi Channel, Second Instrument Midi Channel] (optional)]

e.g. [1,3] or [1]

A primary instrument midi channel will always be shown for a track, a second midi channel will only be shown if a second instrument has been configured for a track (see Track Details View).

In addition to the midi channels the application also indicates if the track's 'Enhanced Mode' feature has been suppressed by appending the characters [SE]. If the feature is off this character string will

not be displayed.

Finally, the solo and/or mute status of a track is also shown by further appending the characters [S] and/or [M].

Colours are also used to indicate track mute and solo status. A track's list item background will be set green if solo status has been set, red if the track has been muted and a mixture of green and red if a track has both solo and muted status.

If you activate a track in the track list the Track Details View is launched with the selected track as its topic (See the separate section on this view for further information).

If you activate and hold a track in the track list (long click) a context menu is launched with a range of further track related options. These are described further later on in this section.

### 2 New Track

Use this control to add a new track to the end of the track list. A default name for the track will be generated automatically  but you can change it with a context menu function.

### 3 Playback Controls

Use these controls to control the playback of your whole project composition from this view.  In local play mode the play control is disabled during playback and the stop button is disabled when not in playback to provide visual feedback and prevent redundant triggering of events. In live play mode this is not possible so both buttons are enabled at all times. The play button is disabled in both modes if there are no tracks to play (i.e. should all tracks be muted with no solo tracks).

### 4 Song Position Controls

These control the position at which playback starts next time a playback action is executed and consists of a song position increment control (+), a current song position pointer indicator (seek bar) and a song position decrement control (-). The song position pointer seek bar control is calibrated as a percentage of the overall length of the project composition. For example, if it is situated in the middle of its range this indicates playback should start at a point that is 50% the duration of the overall composition (i.e. half way through).

The song position increment and decrement controls allow finer control over the song position

pointer by incrementing or decrementing its position by a single unit (i.e. percentage point).

You can drag the pointer to a particular position where you wish playback to start and then fine control that position using the increment and decrement controls as appropriate.

When constructing your project you might find it useful to use the song position controls to avoid having to listen to the whole composition (or track) each time you action a playback. This allows you to focus for efficiently on the area within the overall composition you are working on.

If you long click on the increment control it automatically resets to zero. This ensures playback will start from the beginning should that be desired and is a more robust way of ensuring the song position pointer is set at the beginning than simply dragging the seek bar.

When you open a project the song position pointer is always set to zero (i.e. the beginning of the composition. Also if you set the pointer in the Track Explorer view its current setting is carried forward to the Mixing Desk view and vice versa.

### 5 Toggle Mute Status (All Tracks)

Use this control to toggle the mute status of all your tracks. This is a quick way of removing the mute status from all tracks or for setting the mute status of several tracks (it may be quicker to mute them all and then undo mute status for the few you don't want rather than having to use the context menu repeatedly to mute individual tracks).

### 6 Toggle Solo Status (All Tracks)

Use this control to toggle the solo status of all your tracks. This is a quick way of removing the solo status from all tracks or for setting the solo status of several tracks (it may be quicker to solo them all and then undo solo status for the few you don't want rather than having to use the context menu repeatedly to solo individual tracks).

### 7 Launch Track Explorer

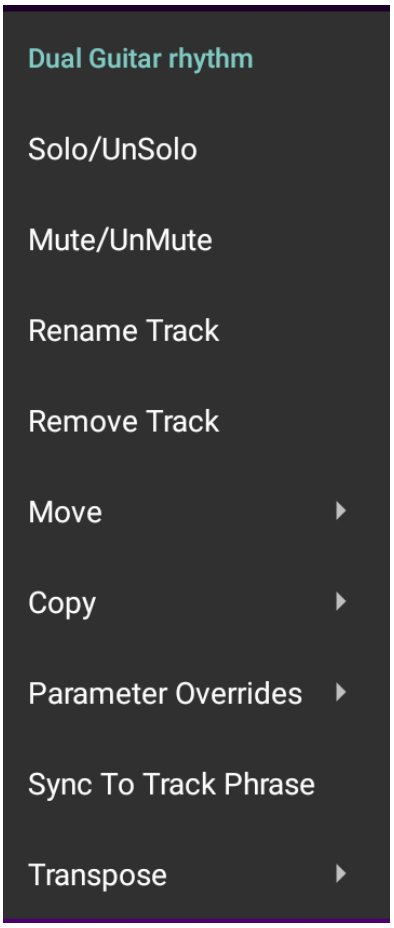
Use this control to go back to the Track Explorer View where you can edit the individual track phrases.

### 8 Launch Track Lanes

Use this control to switch to the Track Lanes View where you can see how the content of your tracks map out over time.

### *5.5.2 Track List Context Menu – Group Menu*

When you activate and hold a track in the track list the following context menu will be launched. This menu provides direct access to some functions as well as links to further sub-menus that serve to group further sets of track functions (e.g. Move, Copy and Parameter Overrides)




### *5.5.3 Track List Context Menu – Solo/UnSolo*

Activate this option to toggle the current solo state of the topic track. On activating the solo status

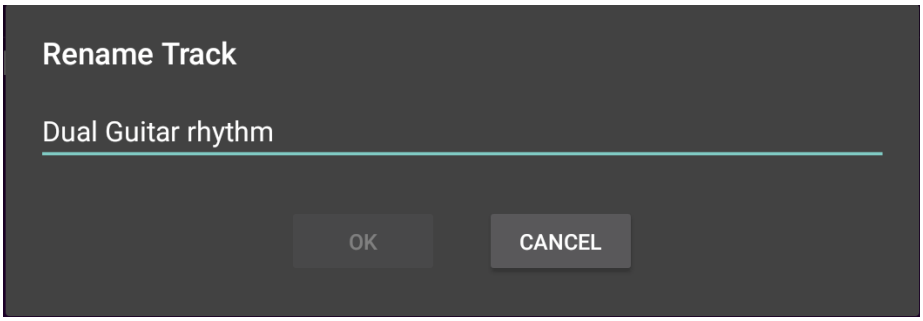
track property is changed and the user is returned to the Mixing Desk View where the result of the change can be seen in the track list.

### 5.5.4 Track List Context Menu – Mute/UnMute

Activate this option to toggle the current mute state of the topic track. On activating the mute status track property is changed and the user is returned to the Mixing Desk View where the result of the change can be seen in the track list.

### 5.5.5 Track List Context Menu – Rename Track

Activate this option to rename the topic track. On activation the following dialogue is displayed to allow the user to change the existing track name.



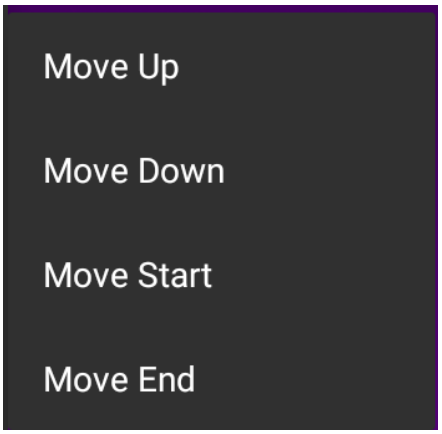

Select the 'Ok' button to save your changes or 'Cancel' to abort the track rename. On exit control is returned to the Mixing Desk View where the result of any change made can be seen in the track list.

### 5.5.6 Track List Context Menu – Remove Track

Use this option to remove the topic track from the project. Note that no confirmation is requested so be careful before committing this option as there is no way back (other than reloading a previous copy of your project).

### 5.5.7 Track List Context Menu – Move Sub Menu

When you select the 'Move' option from the track list group context menu you are presented with a further list of move options as shown below.




Some of these options may not be available depending on the context of the track used to activate the context menu set. For example, the option to move an element up in the sequence doesn't make sense for the first item in the list so it is disabled.

**Move Up:** Moves the track up the track list by one position

**Move Down:** Moves the track down the track list by one position.

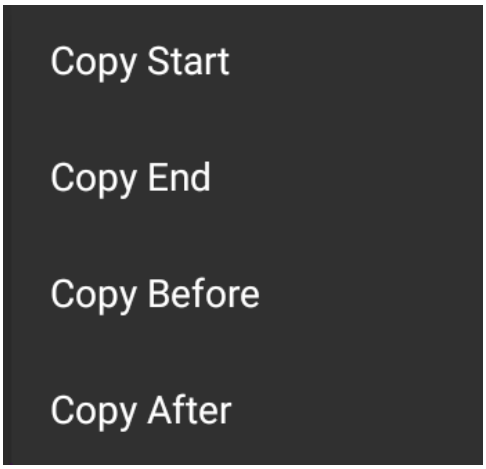
**Move Start:** Moves the track to the top of the track list.

**Move End:** Moves the track to the bottom of the track list.

After selecting an option the application returns to the Mixing Desk View having refreshed the track list so you can see the result of the change.

### *5.5.8 Track List Context Menu – Copy Sub Menu*

When you select the 'Copy' category from the track list group context menu you are presented with a list of copy options as shown below.




**Copy Start:** Creates a copy of the topic track and places it at the top of the track list

**Copy End:** Creates a copy of the topic track and places it at the bottom of the track list

**Copy Before:** Creates a copy of the topic track and places it before that track in the track list

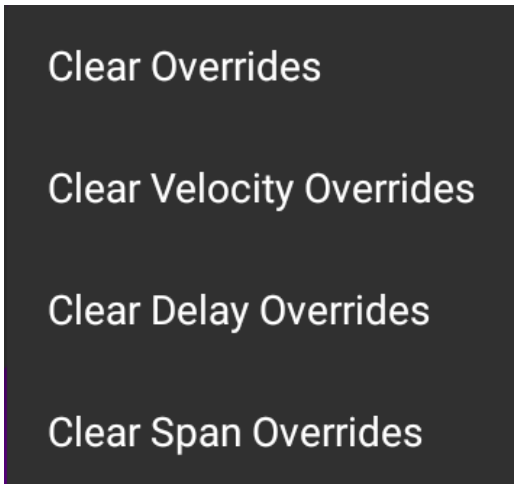
**Copy After:** Creates a copy of the topic track and places it after that track in the track list

Note that these are true 'copies' and not links to the original track such that if you change the original in any way the effects are automatically propagated to the linked copy. The new copy is an independent track in its own right and is in no way linked to the original from which it was sourced.

After selecting an option the application copies the contents of the topic track to the requested position in the track list and returns to the Mixing Desk View having refreshed the track list so you can see the result of the change.

### *5.5.9 Track List Context Menu – Parameter Overrides Sub Menu*

When you select the 'Parameter Overrides' option from the track list group context menu you are presented with a list of options as shown below.




**Clear Override:** Removes any configured velocity, delay and span overrides set for the topic track.

**Clear Velocity Override:** Removes any configured velocity override set for the topic track.

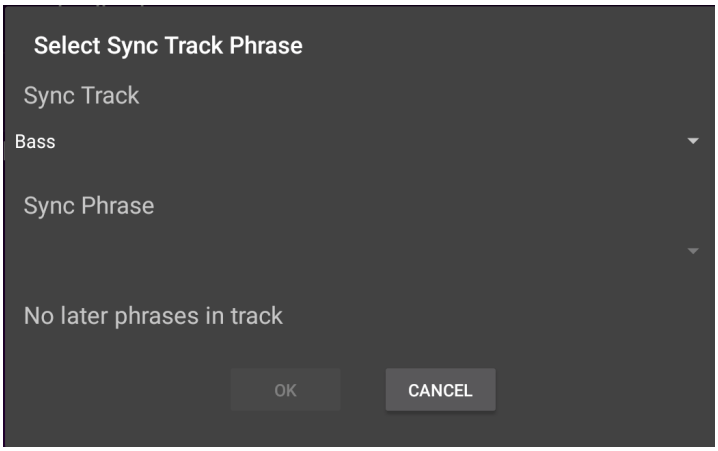
**Clear Delay Override:** Removes any configured delay override set for the topic track.

**Clear Span Override:** Removes any configured span override set for the topic track.

On selecting one of the above options the application makes the corresponding change to the track's strum elements and returns the user to the Mixing Desk View.

### *5.5.10 Track List Context Menu – Sync To Track Phrase Option*

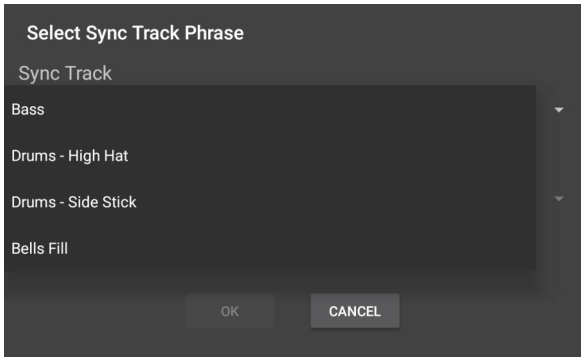
Select this option to synchronise the topic track with a phrase in another track. When you select this option you are presented with the following dialogue.

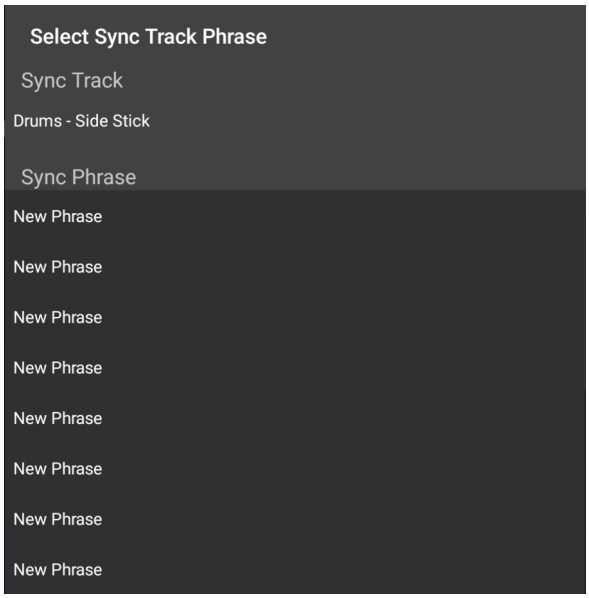


Select the track containing the phrase you wish to synchronise with in the drop down list control labelled 'Sync Track'. When you have selected a track the second drop down control labelled 'Sync Phrase' gets populated with phrase instances that occur later in time than the end of the last phrase in the topic track that you are synchronising. When you have chosen the relevant phrase select 'ok' to implement the synchronisation.

You should return to the Track Explorer view and select the track you were synchronising. You should see that Strumpy has appended additional phrases to that track containing 'rest' strum elements. You can then extend that track as required with additional phrases and associated strum elements knowing that sequence will start in synchronisation with the phrase you selected in the synchronisation track.

The following images show sample expanded track and phrase list controls respectively.



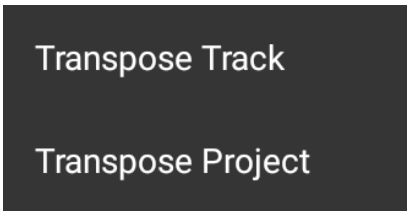




Note the importance of naming track phrases with recognisable names so they can be identified easily when choosing them as synchronisation targets. Also bare in mind that a phrase may appear more than once in the list if it is subject to any phrase or phrase group repetitions.

### *5.5.11 Track List Context Menu – Transpose Option*

Select this option to transpose the selected track or the whole project up or down by one or more

semitones.




**Transpose Track:** Transposes all phrase pitches in the current track up or down by a number of semitones.

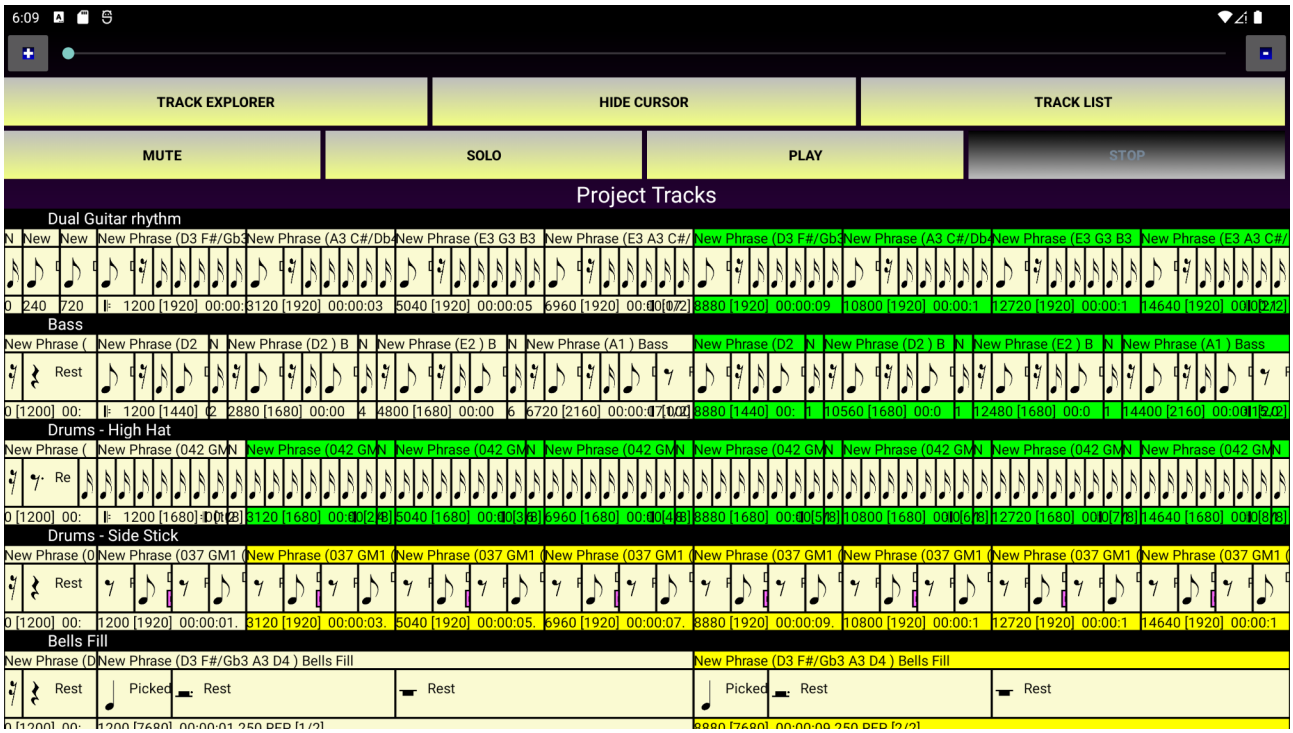
**Transpose Project:** Transposes all phrase pitches in the project up or down by a number of semitones.

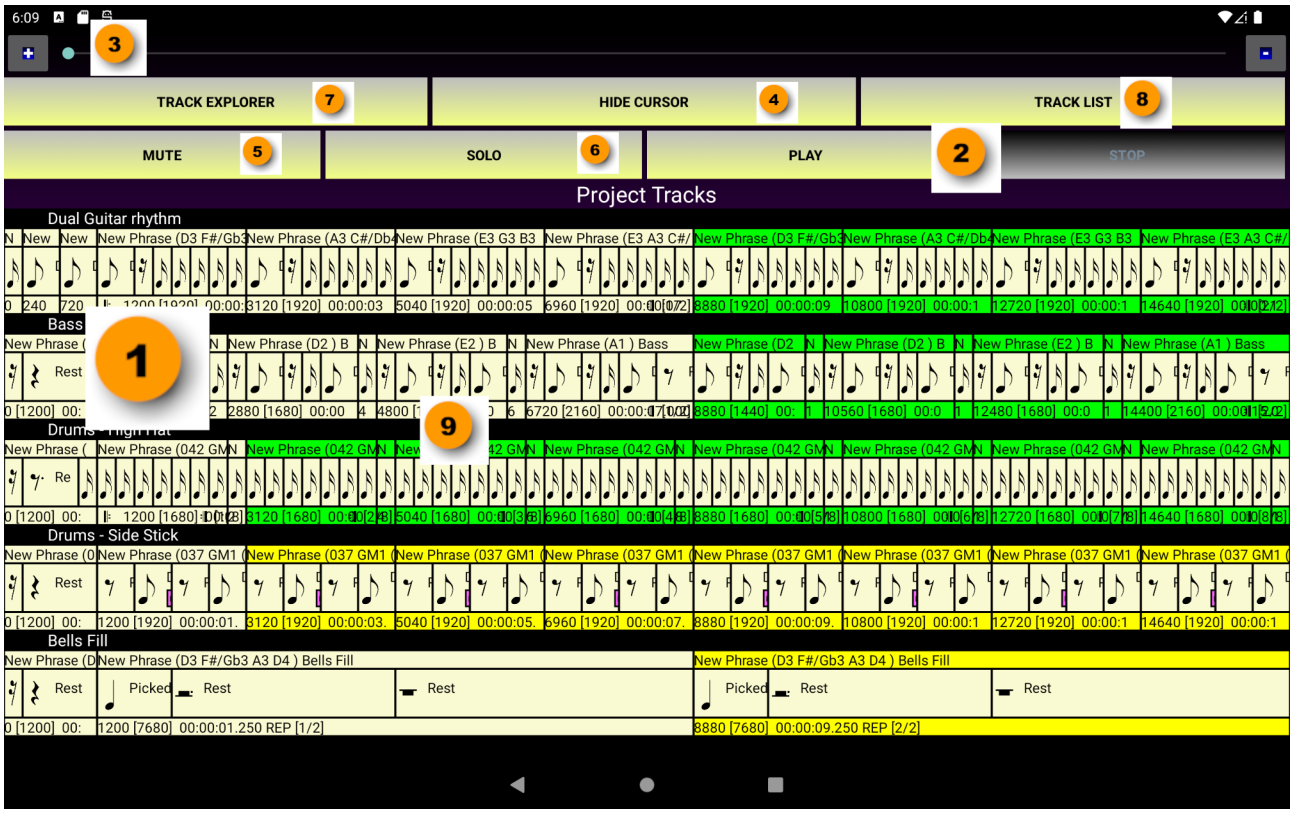
Selecting either option results in the presentation of a dialogue that prompts the user to specify the number of semitones to transpose, either up or down. That dialogue has already been described in an earlier section and is not repeated here.

## 5.6 Track Lanes View

### 5.6.1 View Context and Navigation

This view is launched from the Mixing Desk View using the button control labelled 'Track Lanes'. It not only provides a comprehensive visual representation of a project's track content laid out over time, it also supports a range of editing features allowing track content to be modified without switching views.






## 1 Track Lane Area

A custom control that provides a visual representation of track content laid out as follows. Tracks are laid out in a number of lanes in the vertical direction. Each track is identified by its name which is displayed to the far left of and above its corresponding lane content.

Lane content is laid out in a horizontal direction, the axis of which represents time. Lane content consists of a track's collection of phrases and strum elements (i.e. notes) where the width of each represents it's time duration at the current scale.

The track lane area is ***scrollable*** in both the horizontal and vertical direction but ***scaleable*** in the horizontal direction only.

When the track lane area is first displayed all track content is laid out across the devices' available screen width. This is the largest scale, one where the screen width represents the duration of the song composition. At this scale full detail of individual phrases and strum elements may be difficult to see, other than for projects consisting of a just a few phrases. To see more detail, just execute a 'pinch to zoom' gesture in order to reduce the scale, thereby revealing more and more detail as you zoom in. By scaling in this manner you are effectively stretching time. Content will overflow onto

one or more ‘pages’ (i.e. screen widths) as you gradually scale in and you will need to use the scrolling feature in the horizontal direction to bring other lane content into view.

You can scroll displayed content in the horizontal direction using both ‘move’ and ‘fling’ gestures. The ‘move’ gesture provides more control over the positioning of content displayed at the lower scale levels. You can pick the lane content area up and position it at a very specific location. It is best used for more precise positioning. The ‘fling’ gesture can be used to very quickly scan through track lane content, stopping at a position of interest by touching the display whilst the fling operation is in progress and from where a ‘move’ gesture might then be used to position displayed content a little more accurately. The ‘fling’ gesture is only supported in the horizontal direction.

As you scale and scroll around lane content you may wish to reposition it back at the start (i.e. top left). Two methods are available to quickly achieving that goal, ***Home*** and ***Home and Max Scale***.

***Home*** simply aligns the extreme left and top positions of lane content with the corresponding left and top positions of the area reserved for lane content on the screen. It does not alter the current scale. Simply execute a short duration touch gesture (single click) anywhere within the screen extent reserved for the track lane content custom control that isn’t currently occupied by any lane content. The most obvious areas for the far right and bottom of the lane content control (i.e. at the end of the song composition, or after the displayed content of the final track lane).

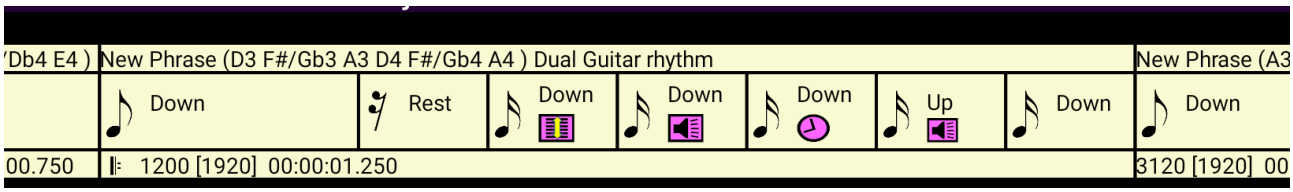
**9**

You can also execute the same gesture between tracks, including at the top of the display before the content of the first lane is displayed.

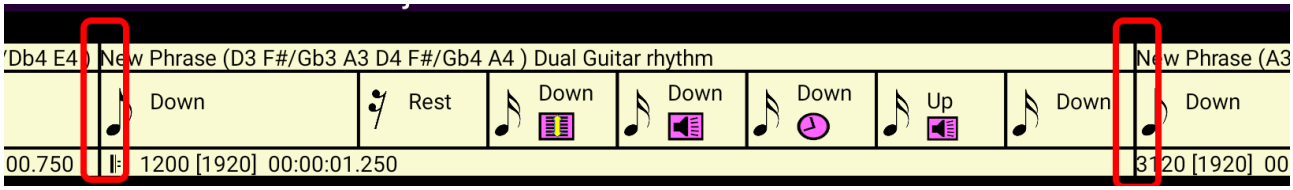
**Home and Max Scale** achieves the same lane content alignment as the ***Home*** option described above but in addition redraws lane content at its maximum scale such that the full song composition occupies the a single device screen width.

Let’s take a closer look at lane content.

The following image is of a single phrase fragment taken from a project track lane.

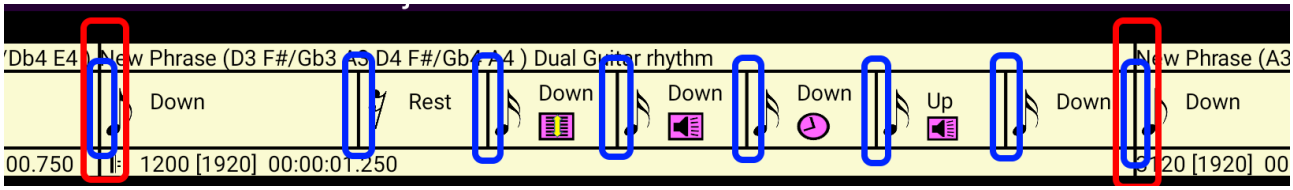


The following image highlights the position of a phrase boundary.




Note that the vertical bars representing the start and end of a phrase extend up to the very top of the track lane area.

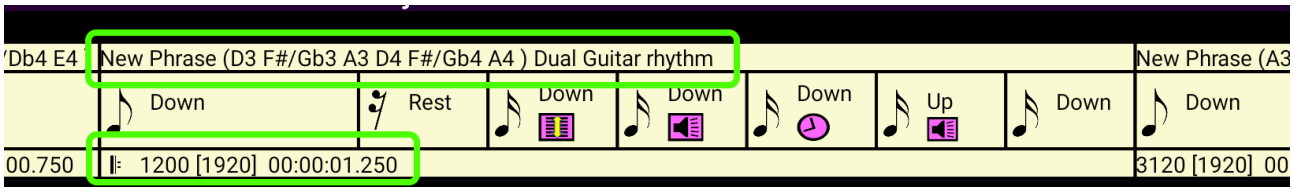
The following image additionally shows the position of the individual stum elements (aka notes) that make up the phrase.




The strum elements are represented by the inner rectangles drawn within a phrase.

The width of each strum element reflects the musical duration of its 'note' (in midi clock ticks) as represented at the current scale. For instance, you will see that the drawn width of a quaver is twice that of the width of a semiquaver duration strum element.

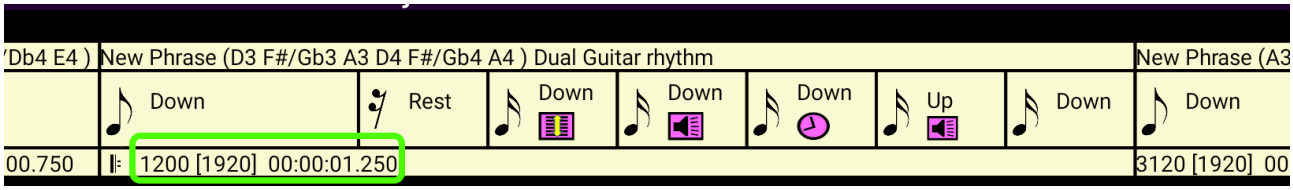
Each phrase carries additional information in its header and footer area as shown below.




The header contains the phrase name followed by the setting of the up to six note pitches associated with the phrase which in turn is followed by the track instrument. This provides much needed context for users during scrolling as it is repeats on a phrase by phrase basis.

The footer carries a variety of phrase repetition and time positioning information. In the above example you can see the phrase repeat group symbol that represents the start of a phrase repetition group. It is followed by information which positions the phrase in time. The phrase repetition group start symbol (and its partner that shows a phrase as being both a repetition group start point and a break-out point) may be missing for a phrase with no repetition group flags set in which case the time positioning information is shown directly next to the phrase boundary.

Let’s have a more detailed look at the time positioning information displayed in the phrase footer area.




The infornation is displayed in the following format.

<Phrase Start Time (MCT)>[<Phrase Time Duration>] <Phrase Start Time (Exact)>

Where:

<Phrase Start Time (MCT)> is the number of midi clock ticks elapsed within the song composition to the point at which the phrase begins. Midi clock ticks are expressed in the maximum midi resolution of 960 ticks per quarter note (i.e. crotchet). In the above example the phrase starts after 1200 clock ticks has elapsed, equivalent to the duration of a crotchet and a semiquaver (960 + 240 = 1200 respectively). That time will have been accounted for in previous phrase(s).

<Phrase Time Duration> is the number of midi clock ticks consumed by the phrase (i.e. the sum of individual strum element musical durations in clock ticks). It is the musical duration of the phrase expressed in midi clock tick units.

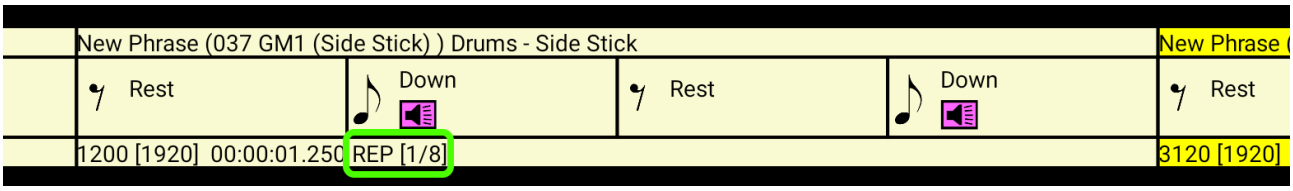
<Phrase Start Time (Exact) is the relative start time of the phrase expressed as a traditional time duration.

hh:mm:ss:ttt

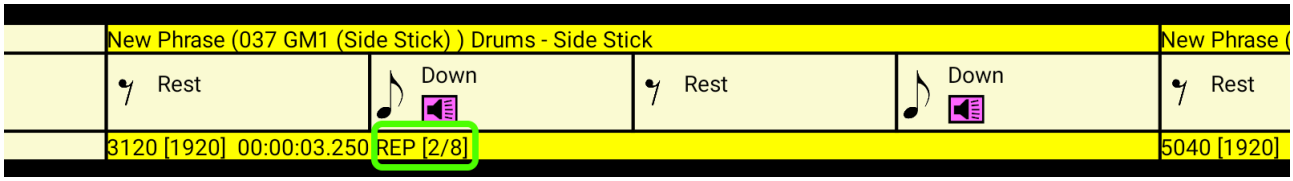
where hh=hours, mm=minutes, ss=seconds and ttt=milliseconds. Enables you to see the exact time offset following the song composition playback start at which the phrase will play. This is calculated using the phrase start time (in midi clock ticks) and the project’s tempo (beats, i.e. crotchets per minute).

Where a phrase has a repeat count configured it is represented in lane content as follows.

The repetition counts are shown in the phrase footer next to the time positioning information. In the following example we see REP [1/8] illustrating that this drawn phrase is the first of eight phrase iterations. Also note that the first iteration can easily be distinguished from its subsequent repetitions as it is drawn with a light yellow background. Subsequent repetitions of the phrase are drawn in orange.

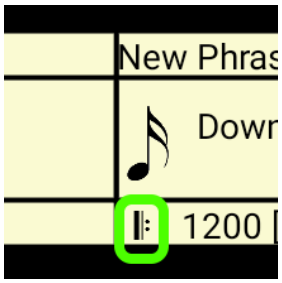


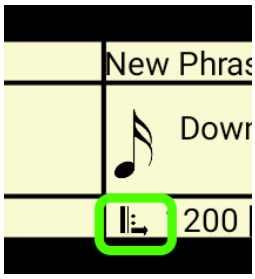

We see the second iteration of this particular phrase below (i.e. REP [2/8]). Notice how the repeated phrase (and all subsequent repetitions) are drawn with a yellow background.



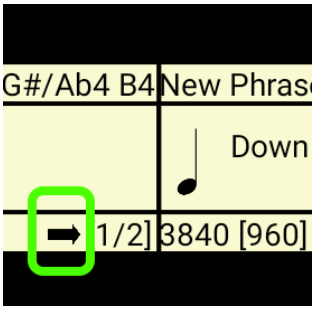

Another repetition tool available to Strumpy content creators is the phrase repetition group that allows a sequence of phrases to be repeated, optionally with a final iteration break-out point.

We've seen a repetition group start symbol drawn in a phrase footer earlier on in this section and this is repeated again below in the image on the left. The symbol appears at the beginning of the phrase footer. If the phrase is also a repeat group break-out point the symbol in the image on the right is shown (both images are the same as those used to annotate phrases in the Track Explorer). Note a phrase start point is optional in a phrase repeat group and if not specified the start point is deemed to be the first phrase in the track or the phrase after the last phrase repeat group end, whichever is the later.



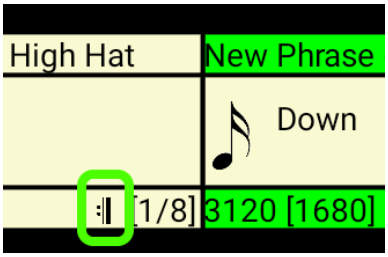




Where a phrase is simply marked as a break-out point within a phrase repeat group you will see the following symbol at the right hand end of the phrase footer.

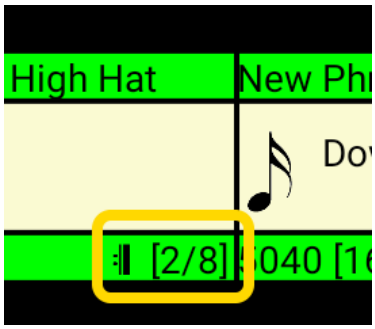



This indicates that the repetition ends here on the final repetition of this phrase within the phrase group and this will be reflected by the fact that phrases later in the repetition group will not appear in the final iteration. Note that the symbol is followed by the phrase repeat group repetition indicator which in this case is set to repetition 1 of 2. The drawn phrase is it's first repetition in a phrase repetition group that has a repetition count of 1 specified in its repeat end point (i.e. it transfers control back to the beginning of the repetition group once meaning every phrase in the group plays twice unless a break-out point has also been defined. Also note that phrases in the first iteration of a phrase repeat group are also drawn in light yellow.

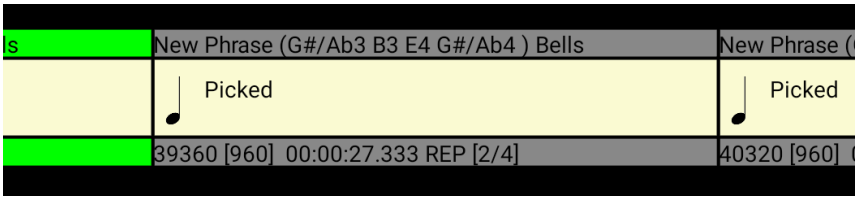
The following image shows the repeat group symbol drawn for a phrase that marks the end of a phrase repeat group. It too is followed by a phrase group repetition indicator which in this case indicates the shown phrase is the first iteration of the final phrase in a repetition group that executes 8 times in total (7 repeats plus the initial pass through). As this is the first pass through the phrase repeat group the phrase rectangle is drawn in light yellow which as before is why the header and footer also appear with a light yellow background.



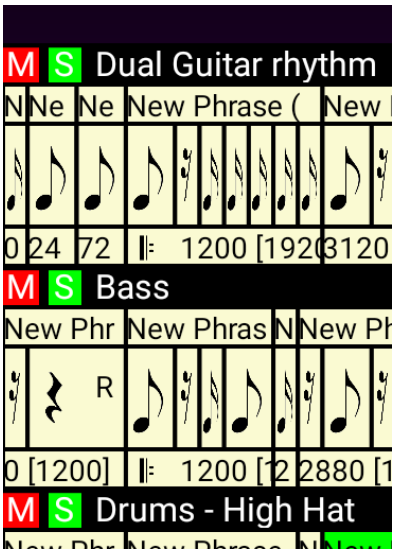

Subsequent iterations of phrases within a phrase repeat group are drawn with a green rectangle resulting in the phrase header and footer both appearing green. A further visual indicator is the phrase group repetition indicator in the phrase footer of the final phrase in the repeat group which will show an iteration count that is greater than 1. An example of this is shown in the image below.




Phrases that individually repeat may also form part of a phrase repeat group with the result that those individual repetitions are repeated every time that phrase is played within the repeat group. Colour is again used to differentiate phrase occurrences that individually repeat outside a phrase repeat group from those that also repeat within a phrase repeat group. The rectangles that individually repeat are drawn in orange as described earlier and those that both individually repeat and that repeat within the context of a phrase repeat group are drawn in grey. An example of latter is shown in the image below. In this particular case this phrase occurrence shown is the second occurrence of a phrase that has an individual repeat count of four and it is shown on grey as it also forms part of a phrase repeat group and the individual occurrences shown form part of a subsequent pass through the phrase repeat group of which it forms a part.



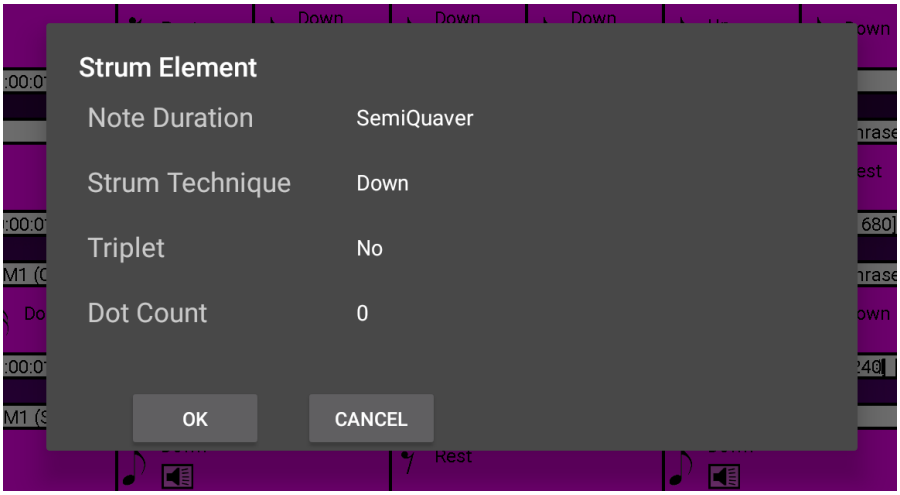

Track Mute and Solo status is shown to the left of the track name as shown below.




The indicator ‘M’ with a red background indicates has ‘Muted’ status and the indicator ‘S’ with a green background indicates a track has Solo status. Space is reserved to the left of the track name for both indicators although typically only one or other would normally be seen. These states can be toggled either by using the global toggle Mute and Solo buttons placed at the head of the view or on an individual track by track basis from the track lane area context menu (see later).

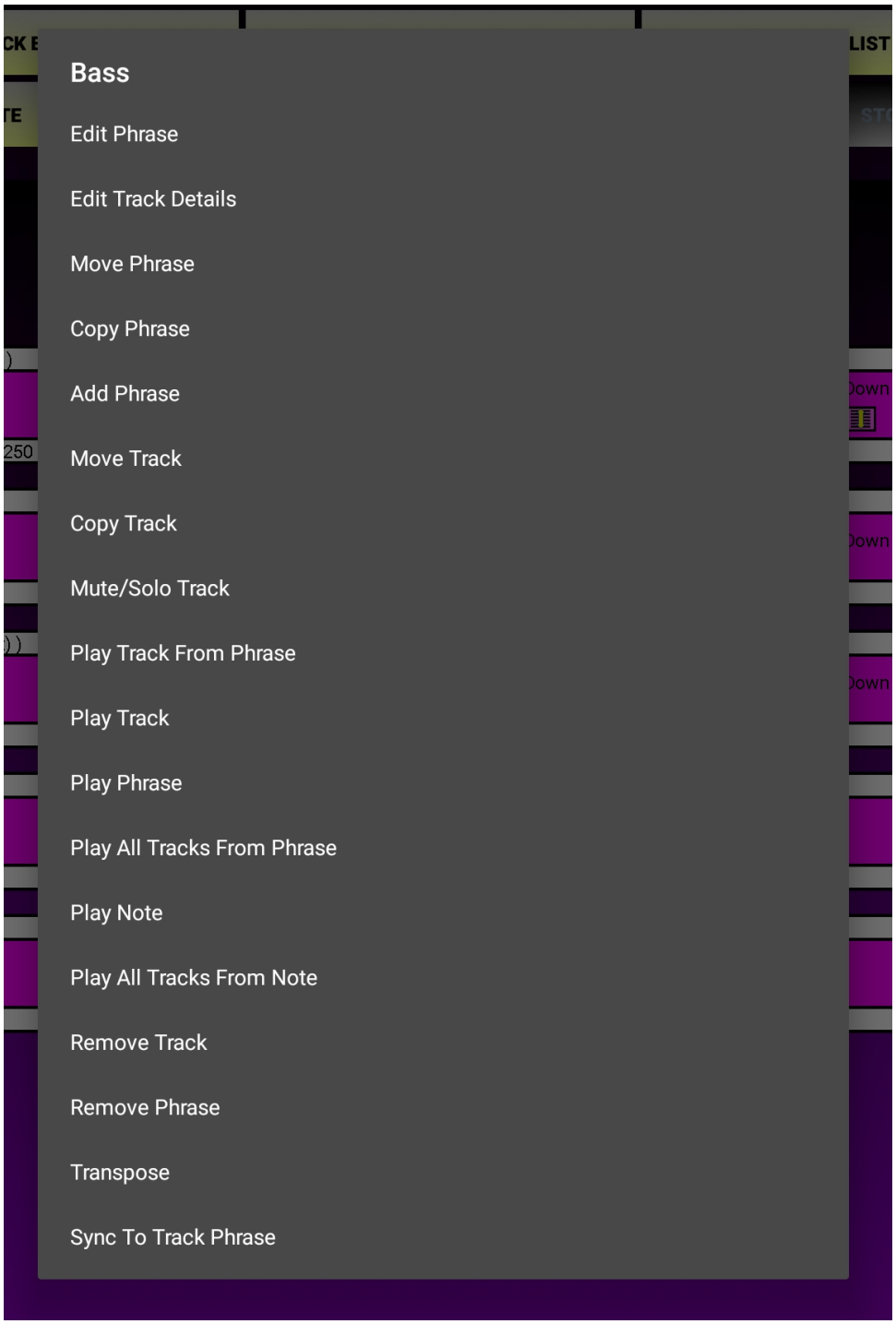
The track lane area custom control supports short and long touch touch gestures. The touch point coordinates are used to locate the strum element (i.e. note) that sits under that element.

If a single touch gesture is detected Strumpy presents the strum element edit dialogue allowing you to change it’s key properties such as the Strum Element Duration (crotchet, quaver, minim etc), its play technique (Down, Up, Rest etc), whether or not it forms part of a triplet set and finally any ‘dot’ count. This is the same dialogue as that presented in the phrase edit view when adding a pattern or single touching a listed strum element. Refer to that previous section should the reader require any further information o using the dialogue..



On selecting the ‘OK’ button any changes made result in the custom control being redrawn to reflect the structural change as all of these items have an impact on musical timings..

If a long touch gesture is detected Strumpy presents a context menu for the user to select the next action with the selected strum element or one of its parents (i.e. phrase, track or project). A number of the presented context menu items are group menu items that present a further list of choices on selection. Many of these options have an impact on the musical structure of the project’s song composition requiring the Track Lanes View to be rebuilt/refreshed following execution.



Further information about each of the options presented is given below.

***Edit Phrase***: Select this option to open the phrase edit view where you are able to conduct a wider range of edit functions on the selected strum element's associated phrase. Insert templated patterns and apply a wide range of phrase and individual strum element parameters by selecting this option (e.g. velocity, delay, span, pitch bend). For further details refer to the previous section that describes the *Phrase Edit View*.

***Edit Track Details***: Select this option to open the track details dialogue in order to edit a range of track properties for the selected strum element's associated track. For example, change it's midi channel, midi instrument, the midi instrument's pan position, relative track volume and more. For more information refer to the section that describes the *Track Details View*.

***Move Phrase***: Select this option to move the selected strum element's phrase (the topic phrase) relative to other phrases within the same track. Reveals another menu with options for the target location as follows: ***Before*** (i.e. before the topic phrase's preceding phrase), ***After*** (i.e. after the topic phrase's following phrase), ***Start of Track***, ***End of Track***.

***Copy Phrase***: Select this option to create a copy of the selected strum element's phrase (the topic phrase) and place it in another position relative to other phrases within the same track. Reveals another menu with options for the position of the copied phrase as follows: ***Before*** (i.e. before the topic phrase), ***After*** (i.e. after the topic phrase), ***Start of Track***, ***End of Track***. A phrase edit view is opened on the copied phrase in order to allow the user to make any final adjustments to the copied phrase.

***Add Phrase***: Select this option to add a new phrase relative to the position of the selected strum element's phrase (the topic phrase), within the same track. Reveals another menu with options for the position of the copied phrase. As follows: ***Before*** (i.e. before the topic phrase), ***After*** (i.e. after the topic phrase). A phrase edit view is opened on the added phrase in order to allow the user to make any final adjustments.

***Move Track***: Select this option to move the selected strum element's associated track (the topic track) relative to other tracks within the project. Reveals another menu with options for the target location as follows: ***Up*** (before the topic track's preceding track), ***Down***: after the topic track's following track), ***Start*** (head of the project's track list), ***End*** (bottom of the project's track list).

***Copy Track***: Select this option to create a copy of the selected strum element's associated track and place it in a position relative to other tracks within the project. Reveals another menu with options for the position of the copied track as follows: ***Up*** (before the topic track), ***Down***: after the topic track), ***Start*** (head of the project's track list), ***End*** (bottom of the project's track list). Strumpy attempts to assign a different midi channel to the copied track from available midi channels.

***Mute/Solo Track***: Select this option to toggle the Mute or Sol status of the selected strum element's

associated track (the topic track). Reveals another menu to capture whether the user intends to change the topic track's Mute or Solo status as follows: ***Toggle Mute State***, ***Toggle Solo State***. Whichever option is chosen Strumpy reverses the current state. For example, if the topic track is currently muted selecting the ***Toggle Mute State*** option will unset a track's Mute state. If that same track is currently not muted then selecting that same option would mute that track. The ***Toggle Solo State*** works in exactly the same way. Both these functions determine whether or not a track will be heard when the project's song composition is played back.

***Play Track From Phrase***: Select this option to initiate playback of the track associated with the selected strum element (the topic track) from the start of the phrase within which the selected strum element resides. Only content from the topic track is heard.

***Play Track***: Select this option to initiate playback of the track associated with the selected strum element's track (the topic track). Playback starts from the beginning of the topic track and only topic track content is heard.

***Play Phrase***: Select this option to initiate playback of the phrase within which the strum element resides (the topic phrase). Only content from the topic phrase is heard.

***Play All Tracks From Phrase***: Select this option to initiate playback of your project's song composition from the start of the phrase within which the selected strum element resides. Content from all non-muted tracks will be heard.

***Play Note***: Select this option to initiate playback of the selected strum element (the topic strum element). Only content from the topic strum element is heard.

***Play All Tracks From Note***: Select this option to initiate playback of your project's song composition from the start of the selected strum element. Content from all non-muted tracks will be heard.

***Remove Track***: Select this option to completely remove/delete the track in which the selected strum element resides from your project. Be careful when using this as there is no confirmation prompt, once selected there is no way back, you will be faced with recreating track content if you select this option accidentally in error.

***Remove Phrase***: Select this option to completely remove/delete the phrase within which the selected strum element resides (the topic phrase). Be careful when using this as there is no confirmation prompt, once selected there is no way back, you will be faced with recreating phrase content if you select this option accidentally in error.

***Transpose***: Select this option to transpose the track within which the selected strum element resides

or alternatively transpose all the tracks in the project. Reveals another menu to determine which transposition option is desired as follows: ***Transpose Track***, ***Transpose Project.*** Transposition facilities were described in more detail earlier, refer to the following sub-sections if you need further.

Transposing the pitch of your project
Options Menu – Transpose Project
Track List Context Menu – Transpose Option

***Sync To Track Phrase***: Select this option to synchronise the track within which the selected strum element resides (the topic track) to a phrase within another track (the target track). Use this to avoid having to manually create a series of rests in order to synchronise the end of the topic track with the start point of a phrase within another track so that you can continue to add phrases and strum elements to the topic track that musically align with elements in the target track. The synchronisation process was covered earlier in this document. For more information refer to the references given below.

Synchronising Tracks
Track List Context Menu – Sync To Track Phrase Option

## 2 Playback Controls

Use these controls to control playback of your composition. In local play mode the play control is disabled during playback and the stop button is disabled when not in playback to provide visual feedback and prevent redundant triggering of events. In live play mode this is not possible so both buttons are enabled at all times. The play button is disabled in both modes if there are no tracks to play (i.e. should all tracks be muted with no solo tracks). Note that you can also play various elements of your composition using the track lanes context menu.

## 3 Song Position Controls

These control the position at which playback starts next time a playback action is executed and consists of a song position increment control (+), a current song position pointer indicator (seek bar) and a song position decrement control (-). The song position pointer seek bar control is calibrated as a percentage of the overall length of the project composition. For example, if it is situated in the middle of its range this indicates playback should start at a point that is 50% the duration of the overall composition (i.e. half way through).

The song position increment and decrement controls allow finer control over the song position pointer by incrementing or decrementing its position by a single unit (i.e. percentage point).

You can drag the pointer to a particular position where you wish playback to start and then fine

control that position using the increment and decrement controls as appropriate.

When constructing your project you might find it useful to use the song position controls to avoid having to listen to the whole composition (or track) each time you action a playback yet still hear all tracks playing. This allows you to focus more effectively on a specific area of the overall composition.

If you long click on the increment control it automatically resets to zero. This ensures playback will start from the beginning should that be desired and is a more robust way of ensuring the song position pointer is set at the beginning than simply dragging the seek bar.

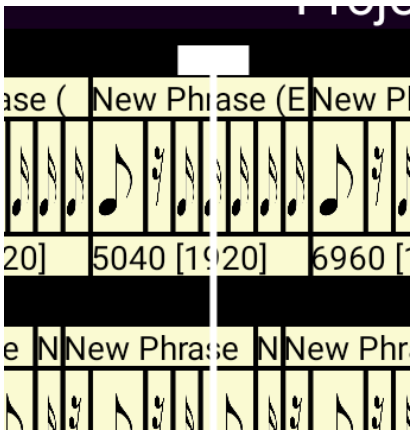
When you open a project the song position pointer is always set to zero (i.e. the beginning of the composition. Also if you set the pointer in the Track Explorer view its current setting is carried forward to the Mixing Desk view and vice versa.

Strumpy is midi based so if you position beyond the point where the last note events in a composition occur nothing will be heard as the generated midi file will not contain any content to play.

The song position controls are only respected when you use the main play control button at the head of top of the view, they are ***not*** respected when you choose any of the playback options from the track lanes context menu.

## 4 Hide/Show Cursor

This button acts as a 'toggle' for showing or hiding a playback cursor which overlays the track lane area to track the current playback position when playback is initiated from within this view. This allows you to not only hear your content being played but also to see the phrases and strum elements that are generating the sound as it happens allowing you to more easily spot timing issues, particularly across different tracks.




If the button control text is currently set to 'Show Cursor' it means that cursor display is currently inoperative. Click the button to change cursor display status to operative. The button text changes to 'Hide Cursor'. The cursor will not appear until you next initiate a playback event. Similarly if the

button text is set to ‘Hide Cursor’ it means that cursor display status is currently operative. To hide the cursor simply click the button. The button text will change to ‘Show Cursor’ and the cursor will no longer appear on subsequent playback events.

This is a relatively advanced feature. It taps into your device’s audio engine by sampling its playback time offset in a separate background thread on a fairly frequent basis.

From that sampled time Strumpy is able to calculate the position where it should draw the cursor over the track lane area in order to highlight the current playback position. As a result it is highly likely to use more battery resource when it is operative than when it is not, which is why an option is provided to hide the cursor, thereby minimising any resources used. This shouldn’t dissuade users from using the feature as it can be very useful, particularly when trying to fathom out why complex phrases don’t quite sound as intended.

You may wish to temporarily drop the tempo of your composition when using it for diagnostic purposes as it is much easier to spot problems when playback is running at a slower speed.

When the playback cursor is operative it also scrolls the track lane area to ensure the cursor is always visible during playback.

### 5 Toggle Mute Status (All Tracks)

Use this control to toggle the mute status of all your tracks. This is a quick way of removing the mute status from all tracks or for setting the mute status of several tracks (it may be quicker to mute them all and then undo mute status for the few you don't want rather than having to use the context menu repeatedly to mute individual tracks).

### 6 Toggle Solo Status (All Tracks)

Use this control to toggle the solo status of all your tracks. This is a quick way of removing the solo status from all tracks or for setting the solo status of several tracks (it may be quicker to solo them all and then undo solo status for the few you don't want rather than having to use the context menu repeatedly to solo individual tracks).

### 7 Track Explorer

Use this button control to launch the Track Explorer view.

### 8 List/Track Lanes Toggle Button

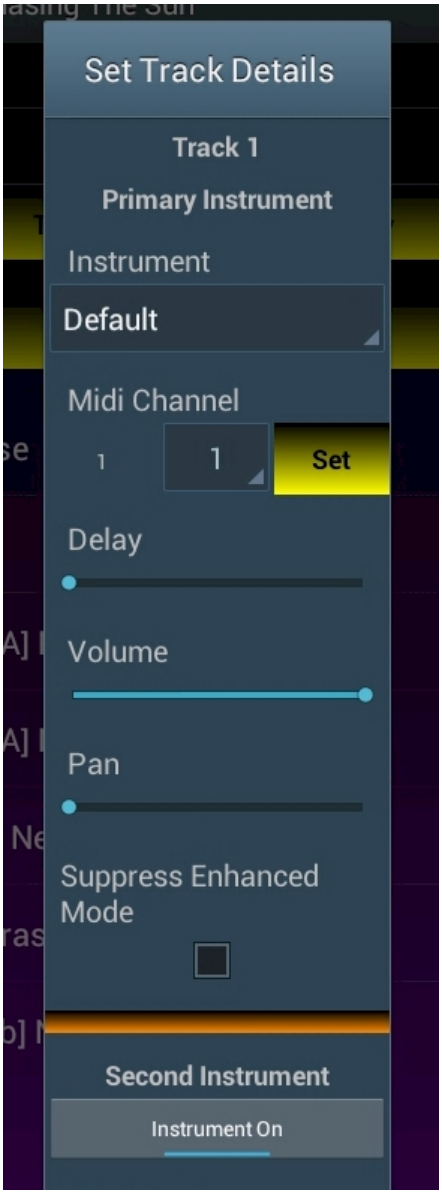
Use this button control to toggle between the Mixing Desk View and the Track Lanes View.

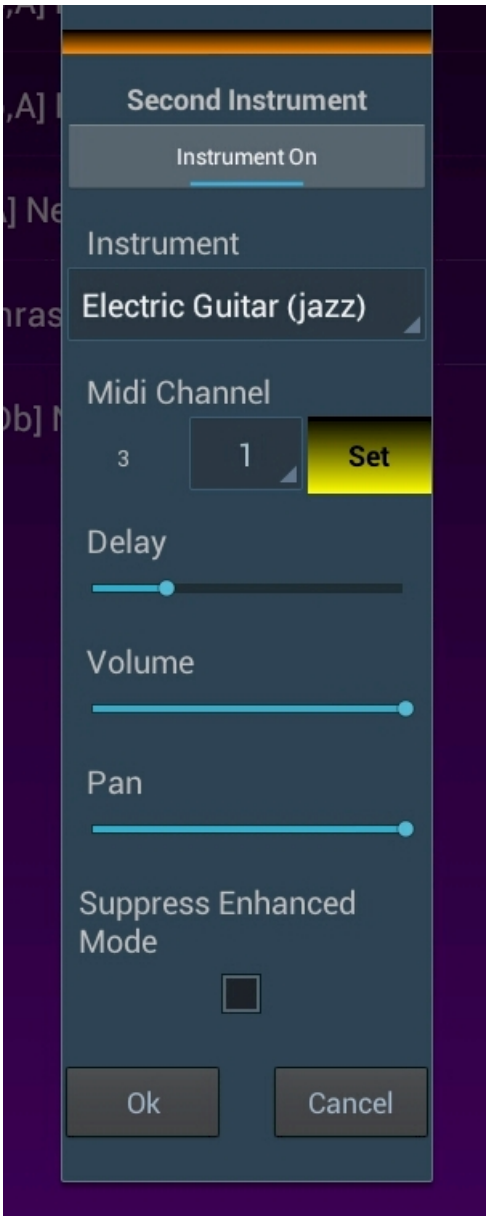
## 5.7 Track Details View

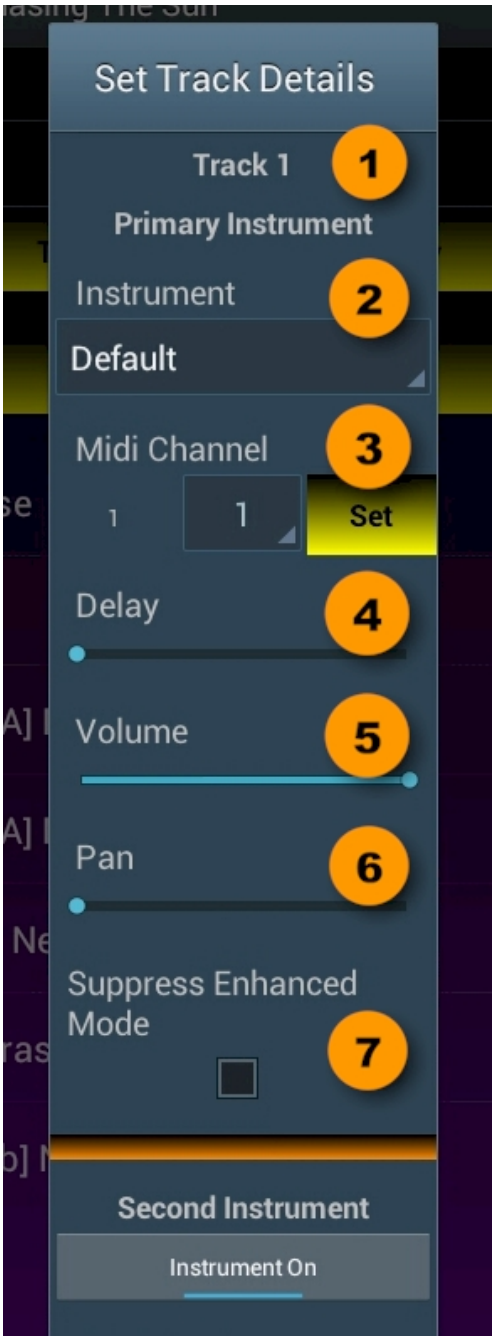
### 5.7.1 View Context and Navigation

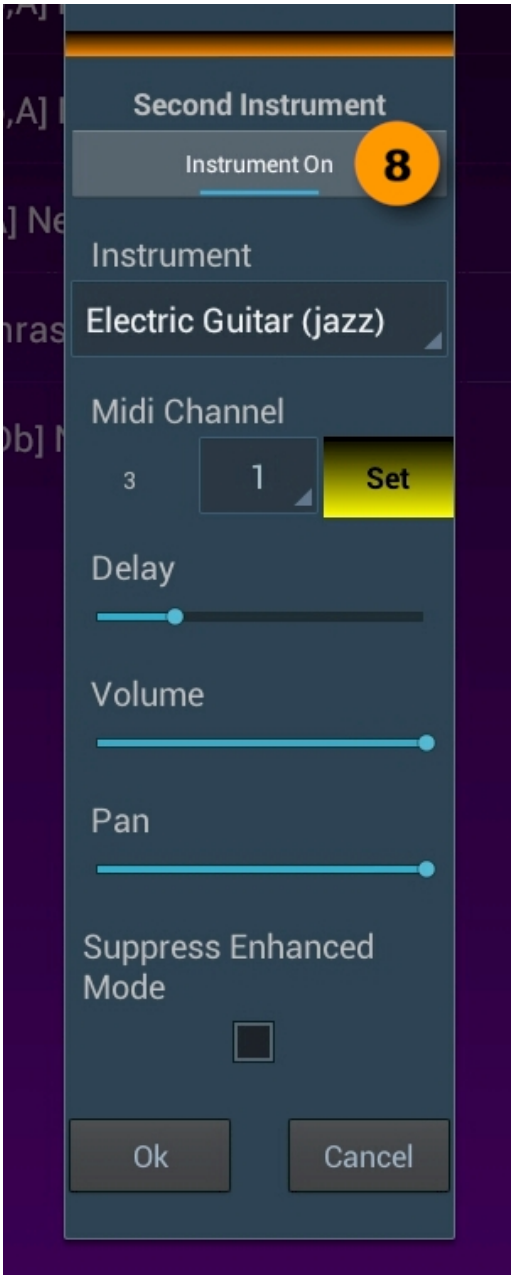
This view can be launched from both the Track Explorer View (for the current track that's set in that view) and the Mixing Desk View (from activating a track in the track list) and it provides access to a number of track properties that influence the sound heard when you playback your project, or any of its parts.

The actual view is scrollable and is quite long so for the purposes of describing it in this document it has been split into two separate sections as shown below.






As can be seen from the above it has two key sections with similar controls, one for the primary instrument midi output track and one for the optional second instrument midi output track. The second instrument is only enabled and therefore optionally available, for normal instrument tracks, it is disabled for drum tracks (those where the primary midi output channel has been mapped to midi channel 10). Remember that the second instrument midi output track is sourced from the same events as the primary midi output track, it is not an independent source of editable phrases. If you want to separate drum output tracks create a new track mapped to midi channel 10 and construct

your phrases around a different percussion instrument on that track.

### 1 Track Name

The name of the topic track is shown here for reference.

### 2 Primary Midi Output Track Instrument

This control allows you to select the instrument that will be used for the primary midi output track associated with your Strumpy track. Note that this control is disabled for drum tracks (those mapped to midi channel 10) as the percussion instrument on drum tracks is determined by note pitch.

Use the drop down list to select from the available 127 midi instruments. The midi instrument names are taken from the General Midi 1 (GM1) and General Midi 2 (GM2) standards.

When you create a new track this control will be set to 'default', the first item in the list. The default instrument is mapped to the general midi program number for a steel guitar. If you've selected another instrument and find you want to return to the default guitar instrument simply scroll to the top of the list and select the 'default' instrument.

How the built-in midi instruments actually sound on your device will depend on its manufacturer. If you want to hear your composition with more realistic sounds you should consider transferring your final project midi files into a Digital Audio Workstation (DAW) where you are likely to have far more instrument samples available to play with. (You may also wish to read the section that covers Live Play Mode in this guide). That said, the standard midi instruments on the creators Samsung 10 tablet are pretty good and more than adequate for composing music on the move.

Note that when you initiate a playback the application includes a midi program change message in the track's midi file output stream to ensure your device plays the chosen instrument. This is set for the track as a whole and can't be changed at a later point in time on the same track.

### 3 Primary Midi Output Track Midi Channel

These controls are used to change the midi channel assigned to the primary midi output track. Strumpy automatically assigns midi channel's to new tracks as described earlier, but you can change the assigned channel here if desired.

The text field associated with this control set shows the currently assigned midi channel. Use the drop down control to locate the desired midi channel. Simply selecting a new midi channel in the drop down control does not change the currently selected channel you also need to activate the 'Set' button control to register it as a change. The actual change is only committed when you dismiss the Track Details View dialogue using the 'Ok' button.

Changing the midi channel may impact your existing track phrases, particularly if you are re-purposing an existing track, such as turning a drum track (i.e assigned to channel 10) into a traditional instrument track, or vice versa.

The reason for the above is that note pitches configured in track phrases will have been established within the context of the track being either a traditional instrument track ***or*** a drum track.

If an normal instrument track was suddenly re-purposed as a drum track, instrument note pitches would suddenly become percussion instrument selectors. Not only is it likely that your phrases would have several note pitches set (not normal for a drum track), each of those note pitches would now represent a series of percussion instruments to be strummed together in time with the rhythm orchestrated by your track's strum elements.

To make the outcome of these particular changes more predictable the application resets all note pitches in these scenarios to the value 'None'. You should therefore review each of your phrases in the changed track and reset their note pitches appropriately should you re-purpose tracks in this way.

In all other cases changing the midi channel is as straightforward as just assigning a new channel number as described above.

## 4 Primary Midi Output Track Delay

A midi file's content has a notion of time in order to make sure the music events it contains are played back at the right time.

All tracks normally start at time zero but the application allows you to delay that time by a small amount in order to implement creative effects.

A slight delay can introduce interest and make it appear like there are real people playing the instruments as it can be used to move certain tracks slightly off beat in relation to others in the mix.

Use this control to set the amount of delay that will be added to the front of the track thereby delaying all other events in the track by the same amount.

Moving the seekbar control to the right increases the delay, moving it to the left reduces the delay. For most tracks leave the control in the far left position (delay = 0)

## 5 Primary Midi Output Track Volume

This control allows you to set the relative volume of the track in relation to the other tracks.

Move the control to the right to increase the relative volume of the track and to the left to decrease the relative volume of the track.

The overall volume of a track is firstly determined by the velocity parameters assigned to strum elements in the track (either as set at phrase level or overridden on a strum element by strum element basis). You cannot increase this without revisiting the velocity parameters of the phrases in your track. What you can do is reduce the perceived loudness of your track in relation to others using this control.

Set to its maximum value this control will be playing your track at a level set by its configured strum element velocity parameters. If you move it to the left it will reduce that level proportionally thereby reducing its contribution to the overall mix.

The value specified here is used to proportionally adjust the velocity parameter associated with all midi note on events generated for the topic track.

## 6 Primary Midi Output Track Pan

Use this control to determine the position of your track in the stereo field. Move the control to the right to pan the track to the right of the stereo field and to the left to pan the track to the left of the stereo field.

A midi channel 'pan' message is placed at the start of the midi output track's output stream based on the changes you make here.

Note that the 'pan' message is a midi channel oriented midi message so if you have several tracks mapped to the same midi channel only the last one your device processes is likely to be effective. Bare this in mind when assigning midi channels to tracks. It's likely that the setting associated with the last track in the track list that is mapped to the same midi channel will be the one that will actually work and it will affect all midi output tracks mapped to the same midi channel number.

## 7 Primary Midi Output Track Suppress Enhanced Mode

The global 'Enhanced Mode' feature that generates additional notes one octave higher to simulate a twelve string guitar like effect (when used with a guitar sound) can be suppressed here. This feature can be used to creative effect but it may not be appropriate for some instrument sounds, and it is particularly destructive for drum tracks as it results in triggering another percussion instrument and his may not be desirable. This feature is set automatically for drum tracks, but you can of course switch it back on again for creative effect if desired. Use this sparingly as it doubles the number of notes your midi device has to process around at the same time. If it runs out of available sound generators some notes will be dropped and this will affect the sound you hear with dramatic effects.

## 8 Second Instrument On/Off Toggle Switch

This switch is used to turn on a Strumpy track's second midi output track. This feature sends a copy of the events on the primary midi output channel to this second channel allowing you to double up the content using the same phrasing but with a different instrument. You could of course have two guitars playing the same content but set their delay, and pan settings independently to create some interesting effects.

This facility is disabled for drum tracks (i.e. those mapped to midi channel 10).

This control is a toggle, simply click once to enable the second instrument output track and click again to disable it.

When you enable the control you have access to an identical set of controls for the second midi output tracks as you do for the primary output midi channel. Refer to the description of the corresponding primary track controls if seeking advice on setting the configuration of the second instrument midi output track as their usage is identical other than affecting the second midi track.

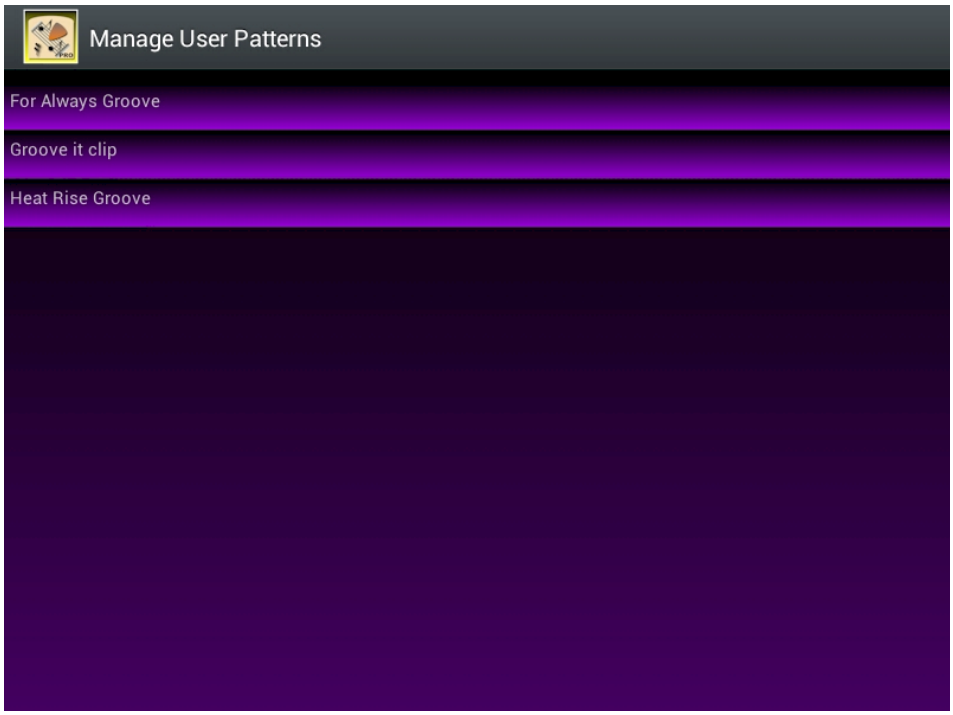
## 5.8 Manage User Patterns View

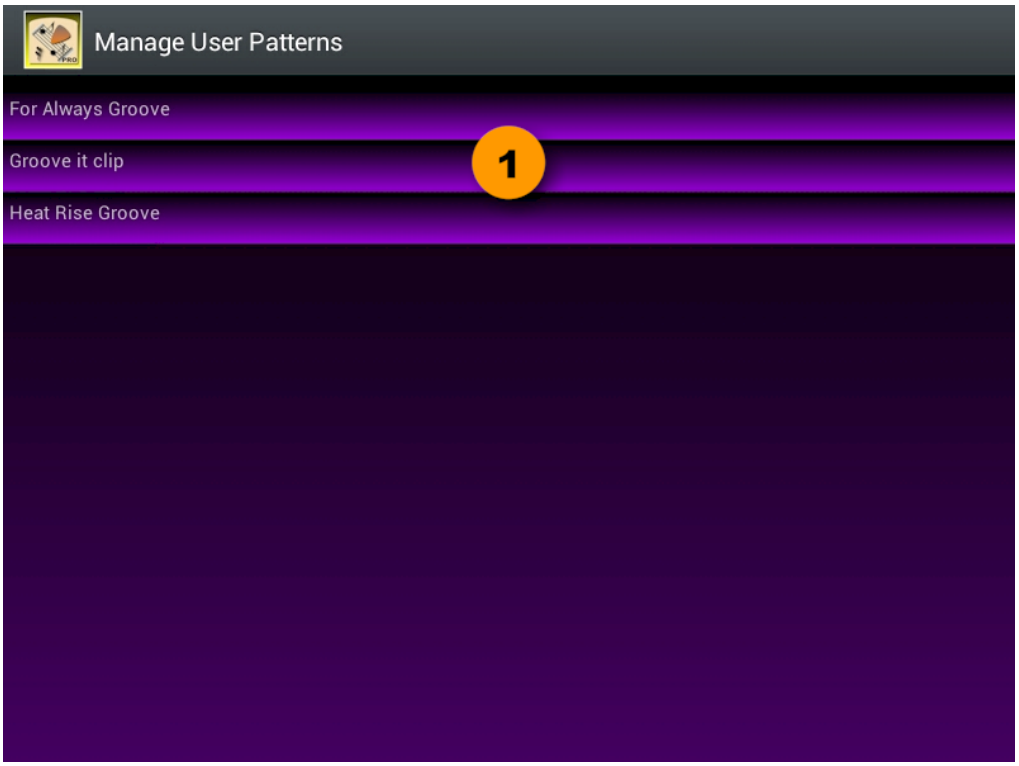
### 5.8.1 View Context and Navigation

This view is launched from the Project Select View options menu and allows you to manage any user pattern templates you saved.

User pattern templates are saved collections of strum elements that orchestrate a rhythm that you think you might use again at some point. They can be inserted in the phrases of new and existing projects. More information is available on pattern templates elsewhere in this guide (refer to the earlier concepts section).

When you have finished using the view simply return to the previous view by using the back button on your device.





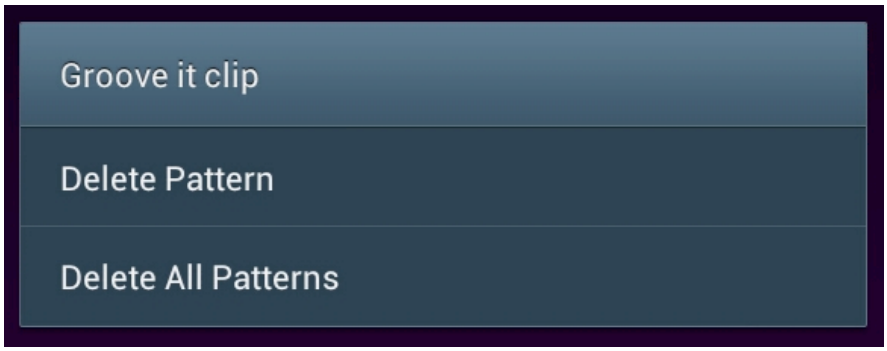

### 1 User Strum Pattern Template List

This area lists all currently saved user strum pattern templates. If you activate a template in the list its phrasing will be previewed using a single middle 'C' note. This should be sufficient to help you identify the nature of the clip in case the name itself doesn't give you sufficient clues.

If you activate and hold a template entry in the list a context menu is displayed revealing further functions.

## *5.8.2 User Pattern Template List Context Menu*

When you activate and hold a template entry in the template list the following context menu is displayed.




Delete: Removes the topic user pattern template from your Strumpy Pro installation.

Delete All Patterns: Removes all user pattern templates from your Strumpy Pro installation.

Be careful when using these options because there is no confirmation step. Once you have committed your choice there is no going back.

After selecting an available option the function is carried out and te user is returned to the Manage User Patterns View.

**Happy Strumpying!**