

Vocal Tune Studio User Manual

Revision: 1.0

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Introduction



Welcome to Vocal Tune Studio from eXtream Software Development. Vocal Tune Studio provides an environment where users can have full control over the tuning and timing of their vocal recordings.

While real time pitch correction has been available for some time on mobile devices - including eXtream Software's own Vocal Tune Pro within Audio Evolution Mobile Studio - Vocal Tune Studio represents the first vocal pitch editor for mobile devices with such in-depth controls and functionality as were previously only available within desktop software.

Vocal Tune Studio is seamlessly integrated into Audio Evolution Mobile Studio on both the Android and iOS (universal support for both iPad and iPhone) platforms and is available as an in-app purchase.

Vocal Tune Studio has two editing modes: 'Pitch and time' and 'Time only'. 'Pitch and time' mode allows you to fully control the pitch of detected notes within your audio file on a piano roll editor with various per-note editable parameters and scale detection. It also allows you to create and manipulate time stretching points to alter the timing of aspects of the recorded performance whilst maintaining the pitch (original or tuned). 'Time only' mode allows you to define stretching points and change the timings within an audio clip whilst always maintaining the original pitch.

Vocal Tune Studio 'Pitch and time' mode has been designed and built to be used for solo vocal recordings and its features are tailored to produce the best results possible specifically for such recordings. That said, it can be used with other recordings but please ensure that recordings are of a monophonic (one note at a time) sound source: Vocal Tune Studio 'Pitch and time' mode has not been built to analyze/recognize polyphonic (many notes at once) sound recordings.

Vocal Tune Studio 'Time only' mode, on the other hand, can be used successfully on any audio clip.


This manual will guide you through the full functionality of Vocal Tune Studio.

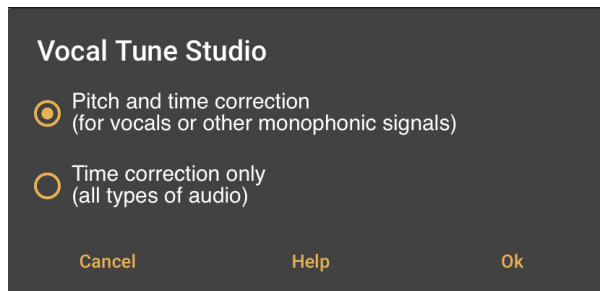
Starting Vocal Tune Studio within Audio Evolution Mobile

Though it can be seen as an app within an app, Vocal Tune Studio is seamlessly integrated into Audio Evolution Mobile and is just a double tap away from your audio clip on the Arranger Screen.

Double tap your audio clip on the Arranger Screen timeline and the following dialog will appear prompting you to choose which mode you want Vocal Tune Studio to open in - 'Pitch and Time' or 'Time only'. Alternatively, tap on a clip to select it, open the **Clip Options** by tapping the Three Dot Button on the selected clip, and select **Vocal Tune Studio** at the top of the **Clip Options** which will also open the following dialog.

NOTE. Opening Vocal Tune Studio via double tapping a clip can be disabled via Audio Evolution

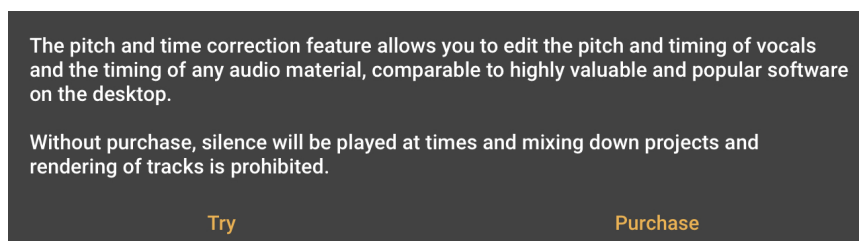
Mobile's Settings  if you find it interferes with your normal workflow. With double tapping disabled, open Vocal Tune Studio via the Clip Options as mentioned above.



Select the mode you require and press **Ok**.

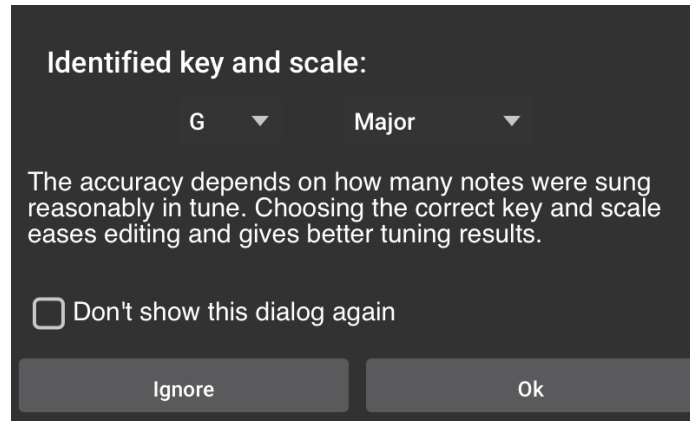
If this is your first use of Vocal Tune Studio, you will then be shown an onscreen introduction to the user interface. Use the arrow icons to move through the six introduction screens. Whilst you can choose to **Close** this introduction immediately, it is advised that you look at all of the screens before doing so to give you a good idea of the interface before it launches for the first time. Once you have read all of the information shown, press **Close** to move onto the next step (this step will not be shown after you have launched Vocal Tune Studio for the first time).

Vocal Tune Studio requires an in-app purchase to unlock it. When in trial mode, two seconds of silence will be played now and then during playback and all forms of export involving Vocal Tune Studio will be blocked. If you have yet to purchase Vocal Tune Studio, you will be shown the following dialog which allows you to purchase Vocal Tune Studio or start in trial mode to evaluate it.




Select **Try** or **Purchase** to proceed (this step will not be shown after purchase).

If you chose Pitch and Time mode and have **Estimate key/scale** selected in Vocal Tune Studio's Settings (as is selected by default) AND Vocal Tune Studio has been able to estimate the key and scale, you will be shown the following dialog.



As can be seen, the accuracy of the key and scale estimation is dependent on the number of notes sung reasonably in tune available for such a judgment to be made. If the wrong key and scale has been estimated, you can use the drop-down selections to enter the correct key and scale. The key and scale can also be changed from within the Vocal Tune Studio interface. You can also choose to **Ignore** the identified key and scale, which will open your clip in chromatic (all notes) mode. If you would also rather Vocal Tune Studio to open in chromatic mode in the future, rather than estimating a key and scale, you can check the box for **Don't show this dialog again**. This option can also be selected/deselected as **Estimate key/scale** in Vocal Tune

Studio's Settings available via its Three Dot Button . If Vocal Tune Studio has not found enough notes in reasonable pitch to be able to estimate the key and pitch, the above dialog will not be shown and it will open in chromatic mode automatically.

Once you have selected your desired options in the above dialog your clip will be opened in Vocal Tune Studio Pitch and Time correction mode.

If you initially selected Time correction only mode, your audio clip will have been opened without the last step being necessary.

NOTE. Audio clips on the Audio Evolution Mobile Arranger Screen which have Vocal Tune Studio active upon them will be indicated by a Pitch Fork symbol in their lower left corner when Pitch and Time correction mode is active as seen here.



When Vocal Tune Studio Time correction only mode is active on a clip it will be indicated by a metronome symbol in its lower left corner as seen here.



Pitch and Time mode

[Introduction and best practice advice](#)

[User Interface \(Tablet\)](#)

[User Interface \(Phone\)](#)

[The Representation of Pitch in Vocal Tune Studio](#)

[Start without pitch correction mode](#)

[Time Stretching in Pitch and Time mode](#)

Introduction and best practice advice

Vocal Tune Studio's Pitch and Time mode allows you to both tune and retune your vocal recording as well as alter the timing of any element within that recording, together allowing you to craft the perfect outcome for your requirements.

Pitch and Time mode actually contains two different modes. The first mode (the default mode) analyzes your audio clip, estimates the key and scale of the notes identified, places them, quantized to their closest equivalent notes within that scale (if one has been identified or chosen by the user) and applies the default retuning parameters to those notes. The user can then freely (depending on settings chosen) change the pitch position of notes on the grid and adjust the retuning parameters per note or per selected groups of notes. Unless stated, this is the mode being referred to.

The second mode also begins by analyzing your audio, but starts without any retuning applied and adds an additional Pitch quantization control. This allows you to adjust the target pitch for the retuning of selected notes or groups of notes freely from the original pitch as sung (0% pitch quantization) to the exact pitch of the note within the chosen scale where it would be perfectly in tune (100% pitch quantization). Once the target pitch is chosen the user can then alter the retuning parameters per note or per selected group of notes as above. A section dedicated to this mode can be found [here](#).


This chapter will guide you through all of the features present if you select Pitch and Time when Vocal Tune Studio is launched.

There are several things you can do to try to ensure the very best possible results from Vocal Tune Studio Pitch and Time mode, but first, a couple of definitions so that it's clear what's being referred to.

Monophonic sounds are those where only one note is heard at a time as opposed to polyphonic sounds where many notes are heard together at the same time.

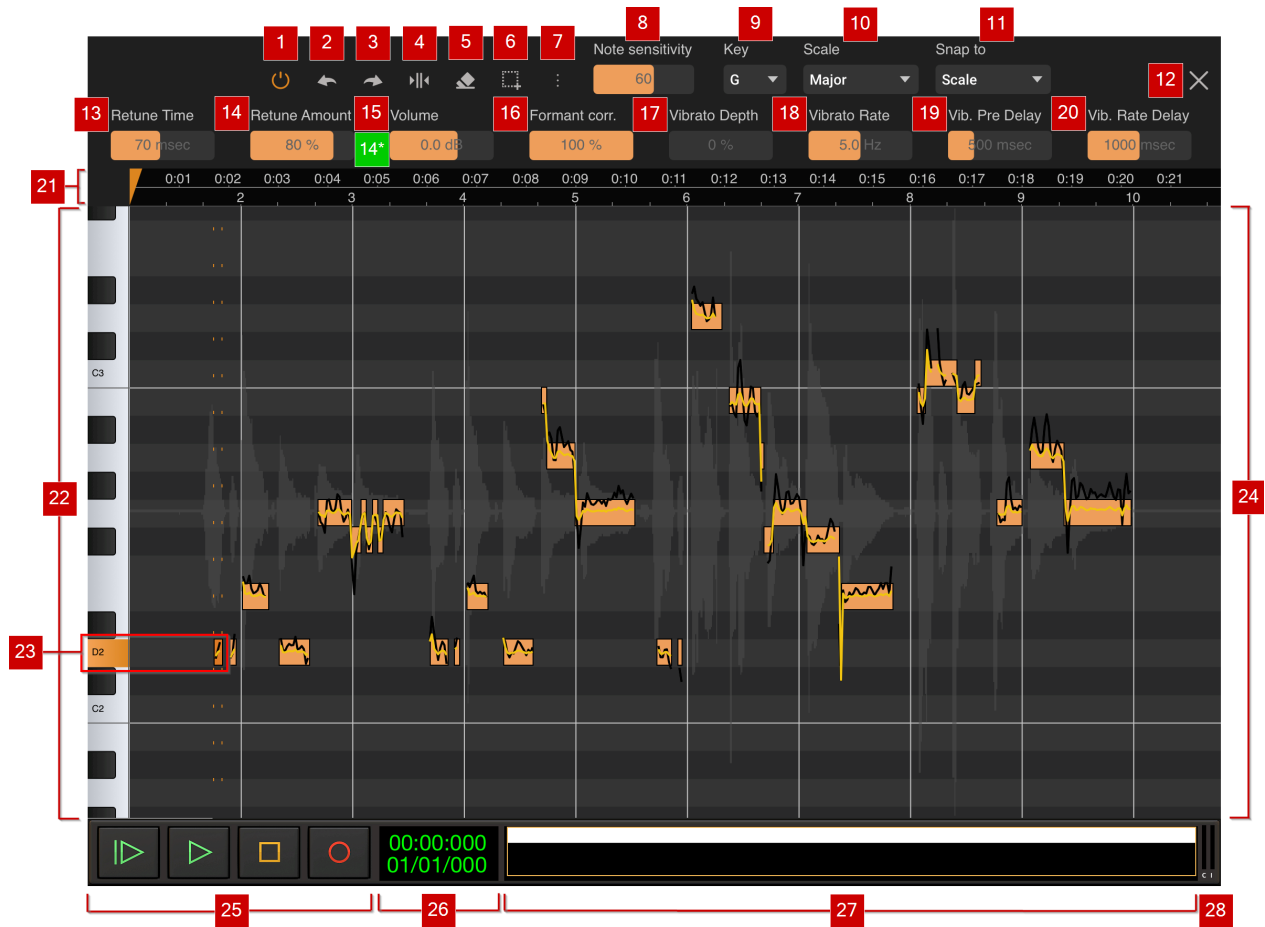
Unrelated to the above, **monophonic recordings/audio files** are those where only one audio channel is present as opposed to, for example, a stereo recording where two audio channels exist.

- Vocal Tune Studio 'Pitch and Time' mode is designed to be used with monophonic sounds (solo vocal performances) on a single, monophonic, audio channel. This will give the best results.
- You can, though, use Vocal Tune Studio 'Pitch and Time' mode on a stereo audio clip. In this situation, Vocal Tune Studio will use only the left audio channel for its analysis but will apply any changes to both channels. The stereo audio file must still be of a monophonic sound source though, Vocal Tune Studio 'Pitch and Time' mode will not work with polyphonic sound sources.
- Vocal Tune Studio has been specifically tailored for use with vocals but you can, of course, try it with other monophonic sound sources and we certainly wouldn't want to discourage experimentation. Just please be aware that results may vary when Vocal Tune Studio is used for a purpose it wasn't actually designed for.


- Vocal Tune Studio analyzes the audio within any clip opened in it. As such, it is important that you give it as good a vocal recording to work with as possible. Key to this, more than anything else, is trying to find as quiet a place to record your vocal in as possible so that only your vocal ends up on the recording - if other sounds are heard, whether they be musical in nature or not, the sound by definition becomes polyphonic and therefore problematic. If you have access to an external audio interface and a higher quality microphone than your mobile device's built in mic, then these will also help give a better quality recording to work with.
- If your vocal has been recorded at a low level, it could be worthwhile normalizing the level in Audio Evolution Mobile before opening it in Vocal Tune Studio. Instructions on how to this can be found within the Audio Evolution Mobile user manual which can be accessed via the  button and **Help**.
- Vocal Tune Studio gives the best results when you know what key and scale you are singing in so it is advised that you know this information whenever possible. Vocal Tune Studio will analyze the audio and estimate the key and scale (if you want it to; if not, see here) but should this estimation be incorrect, being able to enter the key and scale yourself will be hugely advantageous. Likewise, if Vocal Tune Studio cannot identify a key and scale - maybe there are too few notes present to make an estimation, for example - it will open in chromatic (all notes) mode and you'll need to select the key and scale yourself.
- If your sung melody contains accidental notes (notes which are not within the key/scale being used) they will likely be retuned to the nearest note within the scale by Vocal Tune Studio when it is running in scale mode (please see here for instructions on how to have it open in chromatic mode if preferred). To correct these notes, just select Chromatic for the snap-to setting and this will allow you to move those notes to their correct accidental note position. You can also use the Free snap to mode to manually fine tune the pitch if required.

Vocal Tune Studio User Interface Pitch and Time Mode (Tablet)

The Vocal Tune Studio Pitch and Time mode user interface, with a demonstration vocal clip loaded, is shown below. This screenshot shows the user interface on a tablet screen. To jump to a guide to the interface on a phone screen, please see [here](#). Please also see the previous section [here](#), which goes into detail about how Vocal Tune Studio represents pitch within its user interface. Time stretching within Pitch and Time mode is covered in its own section [here](#).





1 On/Off or Active/Bypass button .


2 Undo button . Pressing this button undoes the last edit made within Vocal Tune Studio should you make a mistake. The undo stack is unlimited, so you can undo all the way back to when you started editing. The undo stack in Vocal Tune Studio is separate from the undo stack within Audio Evolution Mobile meaning you can close the Vocal Tune Studio interface using the

Close Interface  button, reopen it and still be able to undo your previous edits within Vocal Tune Studio. **Reset note data** and **Remove pitch correction**, selectable from within Vocal


Tune Studio's options available via the **Three Dot Button** , cannot be undone and will clear the Undo stack.


3 Redo button . Pressing this button re-applies the last edit undone using the Undo button as long as no further edits have taken place since using the Undo function.

4 Split Note button . Pressing this button activates the **Split Note** mode. Once activated, a note event on the piano roll can be split into two events by tapping on the note event at the desired split point. The two notes created can then be treated separately within Vocal Tune Studio. As the note is split at the point at which you touch it, it is advisable to zoom in for greater accuracy. To avoid unwanted note splits being created, the **Split Note** mode is automatically deactivated after a split has been placed and requires reactivating before every note split you wish to make. If you make a mistake, use the **Undo** button to remove the split. Alternatively, if you'd like to return to the Vocal Tune Studio's initial state after analyzing the audio, removing all note splits you have made, you can select **Reset note data** via the **Three Dot Button** options. Please be aware though that using the Reset note data option will also reset any other changes you may have made to all of the notes and their associated parameters so use this option with caution..

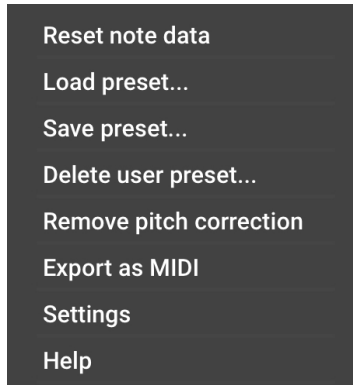
5 Erase Note mode . Pressing this button activates the **Erase Note** mode. Once active, any note event you tap on the piano roll will be erased and with it, any retuning of the audio signal meaning the original pitch will be played at that point. **Erase note** mode remains active until you press the Erase Note button again, allowing you to erase as many notes as you want in one go. If you make a mistake, you can always use the Undo button. Alternatively, if you'd like to return to the Vocal Tune Studio's initial state after analyzing the audio, restoring all erased notes, you can select **Reset note data** via the **Three Dot Button** options. Please be aware though that using the Reset note data option will also reset any other changes you may have made to all of the notes and their associated parameters so use this option with caution.

NOTE. To remove/erase existing anchor/stretch points, simply double tap on them.

6 Select All button . Individual notes on the piano roll can be selected by tapping on them, which then allows you to move the note on the piano roll and refine the parameters (numbers **13** to **20**) for that individual note event. Multiple contiguous notes can be selected by long pressing on the piano roll and sliding left or right until the highlighted area covers all of the notes you require at which point you can release and the parameters can be changed for those selected notes and those notes can be shifted in pitch on the piano roll while keeping their original tonal relationship to each other. If, however, you want to transpose or set those parameters for all of the notes you can quickly do so by pressing the **Select All** button. As such, it can be useful to initially select all and set up your preferred general setting for the tuning parameters for all of the notes. Once that is done to your satisfaction, you can then select a smaller subset of notes, or individual notes, to fine tune those parameters as required to get the perfect performance results.

7 Three Dot Button/Options . Pressing the **Three Dot Button** opens a drop-down list

of options as follows.



- **Reset note data** Selecting this option will remove all edits and changes you have made within Vocal Tune Studio (including any timing changes) and return everything back to the state it was in after Vocal Tune Studio had carried out its initial analysis of the audio signal. This action cannot be undone so please use with caution. You will be shown a confirmation dialog before this is carried out.
- **Load preset...** Select this to load a preset into Vocal Tune Studio. There are four factory presets which you can load if desired:

Default Vocal Tune Studio's default parameter settings.

No correction This preset gives you just the original audio without any retuning applied. Notes are still identified on the piano roll but, as you will see, the yellow retuned waveform has not actually been returned to pull the audio within those identified notes, but instead follows the exact same line as the original audio pitch represented by the black waveform (which, in this case is obscured by the yellow waveform on top of it).

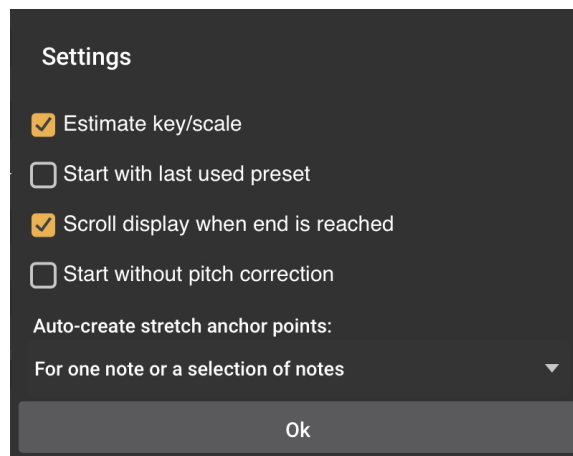
Smooth This preset gives a longer Retune Time and a lower Retune Amount than the default settings.

Robotic This preset has a zero millisecond Retune Time and a 100% Retune Amount resulting in unnatural immediate retuning which is exact and retains none of the pitch fluctuations present in the original (the yellow retuned pitch waveform, as you'll see, is a perfect straight line in the middle of each note).

Any user presets you create and save will also appear in this list, ready for you to load.

- **Save preset...** Select this to save your own Vocal Tune Studio preset. Vocal Tune Studio presets store the parameter settings for how it applies retuning to the detected notes within audio - parameters 13 to 20. As such, you need to have at least one note selected on the piano roll before saving its settings for those parameters as a preset. Please be sure to select a note which uses the parameters you want to save as a preset if you have many different variations of settings for individual notes within your current audio. You will be given the option to select '**New user preset...**' or one of your existing presets which will prompt an '**Overwrite existing preset?**' confirmation dialog.
- **Delete user preset...** Select this to choose any user presets you'd like to delete. You will be shown a confirmation dialog before anything is actually deleted.

- **Remove pitch correction** Selecting this will completely remove every and any effect Vocal Tune Studio has had on your audio clip, close its interface and return you to the Audio Evolution Mobile Arranger Screen. This action cannot be undone so please use with caution. You will be shown a confirmation dialog before this is carried out.
- **Export as MIDI** The pitches in your audio are represented by 'MIDI notes' on the grid but they are not actually MIDI notes, it is just sensible for them to be shown in this way. It is, though, possible to export those notes as actual MIDI data using this option. Selecting **Export as MIDI** will automatically copy the 'MIDI notes' in Vocal Tune Studio and paste them to a clip on a MIDI instrument track which will also be automatically created. This can be really useful for a speedy workflow if, for example, you want to have a virtual instrument play the same melodic line as the vocals being sung. Alternatively, it could even be used to transcribe from audio to MIDI if you've recorded yourself singing a musical idea you've had.
- **Settings** Opening the Settings gives you five options.



Estimate key/scale Vocal Tune Studio works best when you know the key and scale your vocal has been sung in and it is advisable to try to know this whenever possible. Vocal Tune Studio will, by default, analyze the audio, identify pitches present and, from that, estimate the key and scale which has been used. Vocal Tune Studio needs a good number of notes to be sung for it to be able to analyze the pitches present and estimate the key and scale so if this estimation is inaccurate, you can always select the correct key/scale yourself. If Vocal Tune Studio cannot identify a key and scale at all it will open in Chromatic (all notes present within the chromatic set of pitches) mode, placing all identified notes at the closest pitch within the chromatic set to which it conforms rather than shifting any of them so they are within a particular scale.

It is possible, though, that you prefer this workflow of having Vocal Tune Studio open your audio in chromatic mode as it means, for example, that any accidental notes (notes which are deliberately used but are not within the given key and scale) will be placed in their correct position rather than initially being snapped to the closest note *within* the estimated scale, requiring you to change the **Snap to** setting and reposition the accidental notes yourself. Or maybe you'd rather just work in chromatic mode rather than bothering yourself with keys and scales?

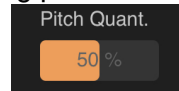
If you would prefer Vocal Tune Studio to open and place notes on the grid in chromatic mode rather than estimating the key and scale, deselect this option in the settings.

Start with last used preset Selecting this option will automatically launch

Vocal Tune Studio using your last used preset when you next use it after selecting this option.

Scroll display when end is reached This option is enable by default. If you would rather the display did not automatically scroll during playback, deselect this option.

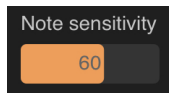
Start without pitch correction Selecting this option opens Vocal Tune Studio's Pitch and Time mode in its alternative mode. In this mode no pitch correction is initially applied and an extra retuning parameter becomes



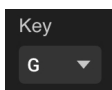
available on the interface - **Pitch Quantization** - between **Retune Amount** and **Volume**. This parameter allows you to set the *target pitch* for the retuning of a selected note or notes for occasions where you don't want the target to be fully quantized to the exact frequency of the nearest note within the key and scale. More details about this mode can be found in the definition for [14*](#) and in the section [here](#).

Auto-create stretch anchor points This option allows you to select the way Vocal Tune Studio will auto-create anchor/stretch points for time stretching within its Pitch and Time mode. The drop-down list gives you three options: **None**, **For one note or a selection of notes** (default) and **For a group or selection of notes**. Full details on these modes and time stretching in Pitch and Time mode can be found in the section [here](#).

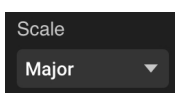
- **Help** Selecting Help will show a brief quick start guide onscreen to introduce Vocal Tune Studio Pitch and Time mode and its functions.




Note Sensitivity. The **Note sensitivity** parameter allows you to adjust how sensitive Vocal Tune Studio is to identifying and placing notes on the piano roll. Lower sensitivity will result in fewer notes being identified on the piano roll while higher sensitivity will place more and more note events corresponding to every tonal variation detected. As such, this parameter can be adjusted to find the sweet spot where all of the 'pitch events' in your vocal recording are represented on the piano roll in Vocal Tune Studio and are therefore available for you to edit as required. The default setting for **Note sensitivity** is 60 which generally gives very good results on a clear, clean vocal recording. Double tap on the slider to either Reset to the default value or enter a value using the onscreen keyboard.



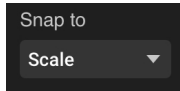
Key. There are twelve notes within the chromatic set of pitches. The **Key** setting allows you to set the root note for the scale you are working in from these twelve notes.

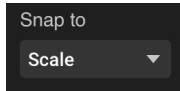


Scale. A scale is the set of notes which have been used to create a piece of

music. If you have chosen the option in the **Settings** (via the **Three Dot Button**  where it is, by default, selected) Vocal Tune Studio will try to estimate the scale (and key) of the audio it analyzes. The more notes present which are identifiable, the greater the chance of this estimate being accurate. If, however, Vocal Tune Studio is unable to identify a key and scale (in which case, it will open in chromatic mode) or if it's estimation of the key and scale is incorrect, the

Key and **Scale** settings allow you to manually select the correct options. As stated elsewhere, Vocal Tune Studio will give the best results when the correct key and scale are used. Once the correct **Key** and **Scale** has been estimated or selected, Vocal Tune Studio will place the notes it has detected and retuned onto the closest notes *within that Key and Scale* on the piano roll grid. This is why you will see the notes change position if you change the Key and Scale; they are being quantized to that scale instead. If your piece of audio contains any accidental notes (which are notes deliberately not within the given scale) please be aware of the **Snap to** settings (see below) which will allow you to correct the position of these notes.




11 Snap to . The **Snap to** setting defines whether notes on the piano roll will be snapped to certain grid/note positions or not. By default, the notes snap to the given **Key** and **Scale**, they can only be moved to a pitch which is within that key and scale. If all of the notes in your sung melody are within the given key and scale, this is the setting you'll want to use.

Vocal Tune Studio offers two other **Snap to** settings to accommodate all situations though. **Chromatic** will snap any note detected and corrected to the closest note within the twelve chromatic notes and, as such, you can move the note anywhere vertically, but it will always snap exactly to the chosen note. If your sung melody contains accidental notes, notes the composer has used deliberately which are note within the given key and scale, these will be incorrectly snapped to be within the scale using Vocal Tune Studio's default settings. In this situation, you'll want to switch the **Snap to** setting to **Chromatic** mode which will allow yo to manually shift these accidental notes to the pitch they should be. Please note that having the Scale set to chromatic and Snap to set to scale will also allow you to move notes to any note on the piano roll.


The final **Snap to** setting is **Free**. This allows you freely reposition notes vertically on the piano roll without them snapping to any particular grid position. Thus, if you want to make tonal adjustments which are not within the chromatic set of notes, this can be done using the **Free** mode.

NOTE. If you would prefer Vocal Tune Studio not to estimate the key and scale of your audio so that it will always open in chromatic mode, this can be done via the [Settings](#).



12 Close Interface button . Pressing this closes the Vocal Tune Studio interface and returns you to the Audio Evolution Mobile Arranger Screen. Double tap the audio clip, or use the **Clip Options** again to re-enter Vocal Tune Studio whenever required. This does not remove the retuning or time-stretching applied within Vocal Tune Studio and it will be in the same state you left it in when you return (as long as you haven't closed Audio Evolution Mobile without saving your project in the meantime). If you do want to remove the effects of Vocal Tune Studio completely, select **Remove pitch correction** from the options found via the **Three Dot Button**



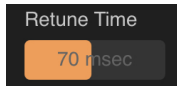
NOTE. Functions **13** to **20** control *how* the retuning within Vocal Tune Studio is applied. These controls can be used to tailor the final result, allowing you to create completely transparent retuning all the way to very deliberate and audible retuning taking place if that's what you require. These parameters can be set on a global basis by first selecting all of the note events on the

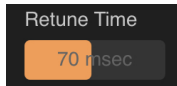
piano roll using the **Select All**  button. Alternatively, multiple contiguous notes can be selected by long pressing on the piano roll and sliding left or right until the highlighted area covers all of the notes you require at which point you can release and the parameters can be changed

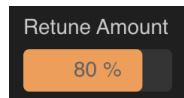
for those selected notes. Finally, they can be fine tuned on a per note basis by selecting individual notes. Functions 13 to 20 will be grayed out unless one or more notes are selected. If you want to reset all of these parameters for all notes, simply choose **Default** from the **Load**

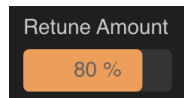
preset... options via the **Three Dot Button** . Also, don't forget the **Split note**  function which allows you to split any note into multiple events which can then be individually selected and have these parameters adjusted.

Please also see the previous section [here](#), which explains how most of these parameters are represented visually in the notes on the grid in the timeline area.

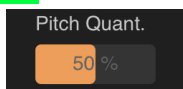


13 Retune Time . This setting allows you to decide how quickly Vocal Tune Studio will apply retuning to the selected note or notes between 0 and 500 milliseconds. A longer **Retune Time** will mean the pitch starts the same as the originally detected pitch (the black waveform line displayed) and is gradually pulled from that pitch to the more accurate corrected pitch. A very short **Retune Time** will more immediately snap the pitch to the corrected value and may sound unnatural and obvious, though, of course, this may be the effect you are after. By default, the Retune Time is set to 70 milliseconds. Double tap on the slider to either Reset to the default value or enter a value using the onscreen keyboard.




14 Retune Amount . The **Retune Amount** defines how much retuning is applied to the selected note or notes. The lower the value, the closer the retuned pitch will be to the original pitch and the more of its fluctuations will be retained even as it is retuned. At 100%, none of those original fluctuations will be present and the pitch will be completely retuned to the correct pitch. This can sound unnatural but, again, this might be the effect you are after and we encourage experimentation. We feel the default value of 80% gives a good balance between correcting the pitch and retaining the authenticity of the original performance. Double tap on the slider to either Reset to the default value or enter a value using the onscreen keyboard.

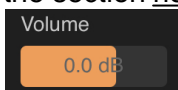
14* The number 14* on the screenshot above refers to an extra parameter - **Pitch Quantization**

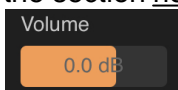


 - which will be displayed between **Retune Amount** and **Volume** when **Start**

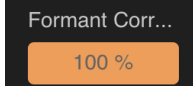
without pitch correction is selected in the options available via the **Three Dot Button** .

This mode starts with no pitch correction so the yellow retuning line sits on top of the black line represented the original detected pitch and likewise, the notes on the grid are not snapped to exact pitches but remain 'off-pitch' as sung. In this mode, **Retune Amount** and **Pitch Quantization** are both by default set to zero. The **Pitch Quantization** parameter allows you to gradually quantize the *target pitch* for retuning towards the exact, fully quantized frequency of the nearest note within the key and scale for any selected note or notes. Once the target pitch has been set, you can use **Retune Amount** to decide how much of the pitch fluctuation from the original signal will be smoothed away *at that target pitch*. For more details about this mode, please see the section [here](#).

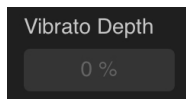


15 Volume . This allows you to control the volume of any selected note or notes between -40 and +12 dB from its original volume. As such, you are able to alter the dynamics of your performance if necessary. Default value is 0.0dB meaning no change has been applied. Double tap on the slider to either Reset to the default value or enter a value using the onscreen

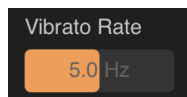
keyboard.



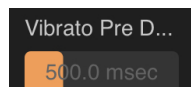
16 Formant Correction. When referring to the human voice, formants are concentrations of acoustic energy at certain frequencies resulting from acoustic resonance of the vocal tract. There are several formants each at different frequencies and these give us the characteristic sounds we associate with the human voice. The length of the vocal tract will determine the exact formants of any individual's voice. This can cause a problem when pitch-shifting vocals and is the reason why **Formant Correction** is necessary. Without **Formant Correction**, the formants would be shifted with the pitch. This would mean that, for example, if you shifted the pitch upwards, the formants, the characteristics, would also be shifted upwards resulting in it sounding like the sound was made by a much smaller vocal tract, hence why pitch shifted vocals can sound 'chipmunk' like. **Formant Correction** avoids this which is why, by default, it is set at 100%. As always though, experimentation is always encouraged and maybe the 'chipmunk' effect is what you require? Double tap on the slider to either Reset to the default value or enter a value using the onscreen keyboard.



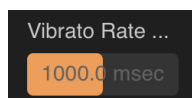
17 Vibrato Depth. Vibrato is a rapid, regular slight variation in the pitch of a note. The listener automatically hears the average of the pitches sung which is thought to give warmth to vocals (though it can be distracting if used too much or in too excessive a way such that it becomes a vocal 'wobble'). Vocal Tune Studio allows you to add artificial vibrato to your retuned notes. Vocal Tune Studio gives you four parameters to allow you how vibrato is applied to any selected note or notes. **Vibrato Depth** allows you to set how much vibrato is applied to the selected note or notes; it defines how large the difference in pitch is on either side of the starting pitch during the vibrato. By default, this is turned off at 0%. Double tap on the slider to either Reset to the default value or enter a value using the onscreen keyboard.



18 Vibrato Rate. **Vibrato Rate** allows you to decide the speed of the vibrato, how quickly it pulsates between the two pitches on either side of the note. This can be set between 2.0 and 8.0 Hz. The default value is 5.0 Hz. Double tap on the slider to either Reset to the default value or enter a value using the onscreen keyboard.

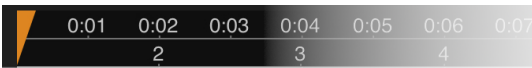




19 Vibrato Pre Delay. **Vibrato Pre Delay** defines the amount of time before *any* vibrato is applied to the retuned pitch of any selected note or notes meaning you can start the note without any vibrato and have it gradually appear further through the retuned note. This parameter can be set between 0 milliseconds (no delay, vibrato is immediately applied) all the way up to 2000 milliseconds (2 seconds) though obviously you need a note which is longer than 2 seconds for the effect of this to be heard. The default value is 500 milliseconds. Double tap on the slider to either Reset to the default value or enter a value using the onscreen keyboard.





20 Vibrato Rate Delay. **Vibrato Rate Delay** allows you to have the vibrato gradually reach the full **Vibrato Rate** rather than appear immediately at the chosen speed after the **Vibrato Pre Delay**. The **Vibrato Rate Delay** defines the amount of time it takes from *any* vibrato to be applied to the vibrato reaching its full rate/speed. As you can see then, you can use **Vibrato Pre Delay** and **Vibrato Rate Delay** together to apply a much more natural sounding vibrato to your retuned note or notes than would otherwise be possible. **Vibrato Rate Delay** can

be set between 0 milliseconds (no delay, vibrato is heard at its full chosen rate immediately after the **Vibrato Pre Delay**) and 2000 milliseconds (2 seconds) though, again, you'll need a note of enough length for its effect to be heard. Double tap on the slider to either Reset to the default value or enter a value using the onscreen keyboard.

21 Timeline  showing the **Time Marker**  at the beginning of the clip. Tap on the timeline to reposition the **Time Marker** or use the **Project Overview/Scrollpad** to move it to the place you'd like playback to start from. Please note that markers such as Loop markers, present on the Audio Evolution Mobile Timeline, will not be visible on the Vocal Tune Studio Timeline but their effect will still be acknowledged during playback.



22 Keyboard Pitch Indicator . This indicates the pitch of the waveforms and notes on the Vocal Tune Studio Display.

23 Selected Note . At the beginning of the example shown in the screenshot above, a note has been selected on the piano roll by tapping on it once. Selecting a note turns it from yellow to orange, brings up two dotted lines indicating its beginning and end on the Timeline and highlights its corresponding note on the **Keyboard Pitch Indicator** which also displays the note's name. Selecting a note (or contiguous notes by long pressing and swiping left or right, or all notes using the **Select All**  button) allows you reposition it on the piano roll grid (change its pitch) and makes parameters **13** to **20** available for that note or notes. Double tapping on a note will create a stretch point to allow you to manipulate the length of that note. For full details on Time Stretching within Vocal Tune Studio, please see [here](#). For full details on the representation of pitch on notes, please see [here](#).

24 Timeline Area/Piano Roll Grid/Waveform display area. Scroll horizontally and vertically with one finger. Pinch/pull with two fingers to visually re-scale items within this area as required. Use the **Project overview/Scrollpad** (**27**) to quickly scroll horizontally or immediately jump by tapping on it at the required point.

25 Playback Transport Controls . These are the controls for starting and stopping playback and recording.

 Start Playback from the beginning of the project or looped section.


 Playback from the position of the **Time Marker** (The orange marker  in the Timeline). The play button will turn into a pause button when playing. Pressing pause will stop playback and (unlike Stop) un-pausing will continue playback at the position when pause was pressed.

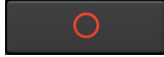


Stop Playback or Recording.



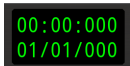
Record. Perhaps you want sing along with the pitch corrected Vocal Tune Studio version of your vocal and record another take without leaving the Vocal Tune Studio interface? Pressing Record while within Vocal Tune Studio will record audio to an automatically created new track on the Arranger Screen of Audio Evolution Mobile when

Automatic track creation is enabled in Audio Evolution Mobile's **Settings** . If Automatic track creation is not enabled, you will first need to create an audio track and Arm



it - or Arm an existing audio track - within Audio Evolution Mobile otherwise recording will fail. Just be sure to use headphones so that only your new vocal take is picked up by the microphone.

26 Playback Timer Display

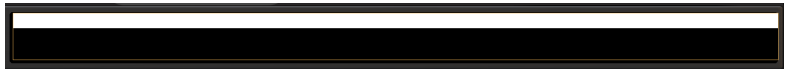


This display shows the current time during playback and in red during recording. When playback and recording are stopped it displays the current position



of the **Time Marker** (the orange marker shown in the Timeline). Tapping the **Playback Time Display** once will open the Tempo options for the current project. The top counter shows the time in minutes, seconds and milliseconds. The bottom counter shows the time in bars (or measures), beats and ticks (the resolution is 192 ticks per beat) according to the project Tempo settings.


27 Project Overview / Scrollpad



The **Project Overview/Scrollpad** is a very useful feature which displays a miniature view of the entire project and allows you to quickly move within the timeline. Since there is only one track in the screenshot above, the **Project Overview/Scrollpad** in it perhaps doesn't illustrate this as well as possible. As such, here is an alternative **Project Overview/Scrollpad**



Here you can more easily see how all of the tracks, clips and the full duration of the project is being displayed. By touching and sliding within the **Project Overview/Scrollpad**, you can quickly select and move your viewpoint

within Vocal Tune Studio and simultaneously position the orange Time Marker  in the Timeline without your finger obscuring it as you do so. A yellow rectangle, shown within the Project Overview/Scrollpad, indicates what part of the project is currently being displayed on the screen.

28 CPU usage meter



You can choose whether or not to display the **CPU usage meter**

from within Audio Evolution Mobile's **Settings**



Vocal Tune Studio User Interface Pitch and Time Mode (Phone)

Due to the phone's smaller screen, Vocal Tune Studio's interface on a phone contains all of the same elements as the tablet interface but not all parameters can be displayed onscreen at the same time. As such, the full options are contained across three alternate views. Most controls remain onscreen in all three views but there are some controls unique to each view. It is also especially important to remember when using a phone screen that you can zoom in and out of the notes on the piano roll using pinch/pull with two fingers. This will allow you to be as precise with your edits as required despite the smaller screen. This section will guide you through the full interface as displayed on a phone.

The important thing to be aware of straight away is how to access each of the three views*. The first view is the default view Vocal Tune Studio will open with. The second and third views contain the parameters for *how* the retuning is applied within Vocal Tune Studio and are made available by selecting a note or notes. This can be done by tapping once on an individual note, long pressing, holding and moving right or left to select multiple notes or by pressing the **Select all**



button. Selected notes will turn from yellow to orange on the piano roll grid. Selecting a note, or notes, will open the second view. To move back and forth between the second view and



the third view*, simply use the **Interface toggle** button which is available in both views. To move back to the first view, deselect all notes by tapping once in any empty area of the piano roll.

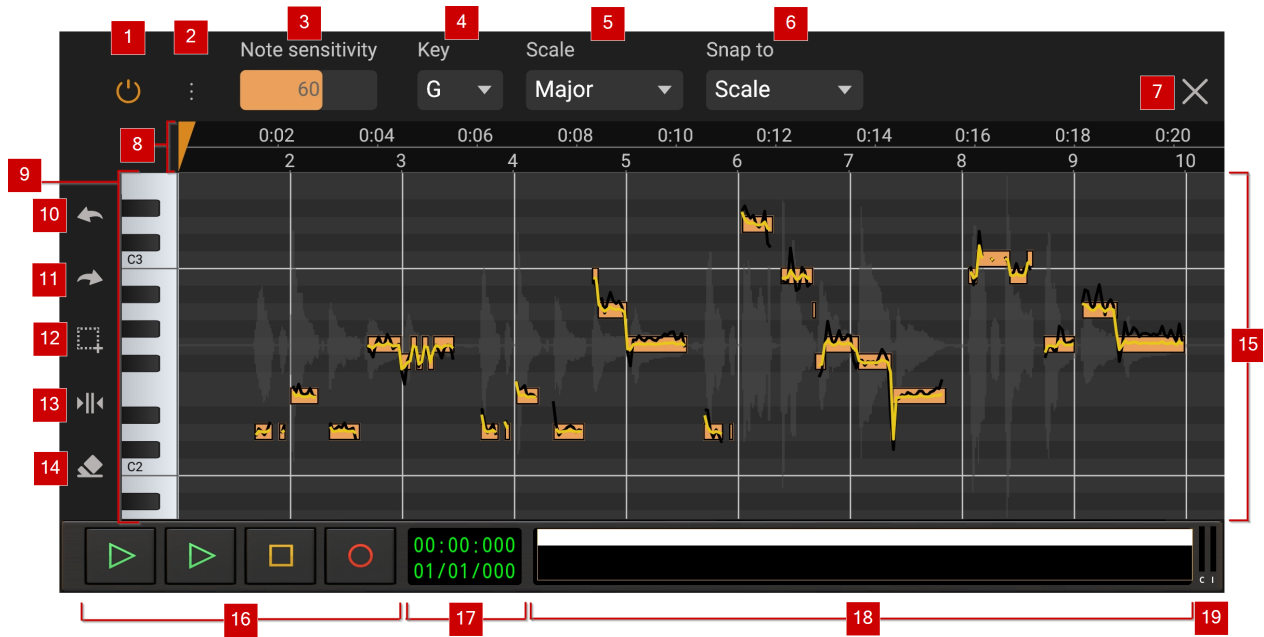
To jump to the Second and Third view definitions please use the links provided.

* There are actually four views in **Start without pitch correction** mode as the additional Pitch Quantization parameter becomes available on view two, meaning the Volume parameter is on its own on a third view and the artificial vibrato parameters are on a fourth view.

First View


[Second view](#)

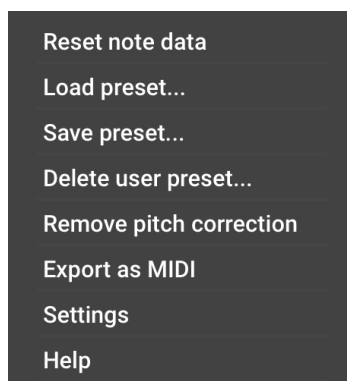
[Third view](#)



This is the default view, the one which Vocal Tune Studio will open to after analyzing your audio. Most of the controls you see in this view remain onscreen in all views, with only the parameters along the top being different in views two and three, becoming available once one or more notes have been selected.

1 On/Off or Active/Bypass button .

2 Three Dot Button/Options . Pressing the **Three Dot Button** opens a drop-down list of options as follows.



- **Reset note data** Selecting this option will remove all edits and changes you have made within Vocal Tune Studio (including any timing changes) and return everything back to the state it was in after Vocal Tune Studio had carried out its initial analysis of the audio signal. This action cannot be undone so please use with caution. You will be shown a confirmation dialog before this is carried out.
- **Load preset...** Select this to load a preset into Vocal Tune Studio. There are four factory presets which you can load if desired:

Default Vocal Tune Studio's default parameter settings.

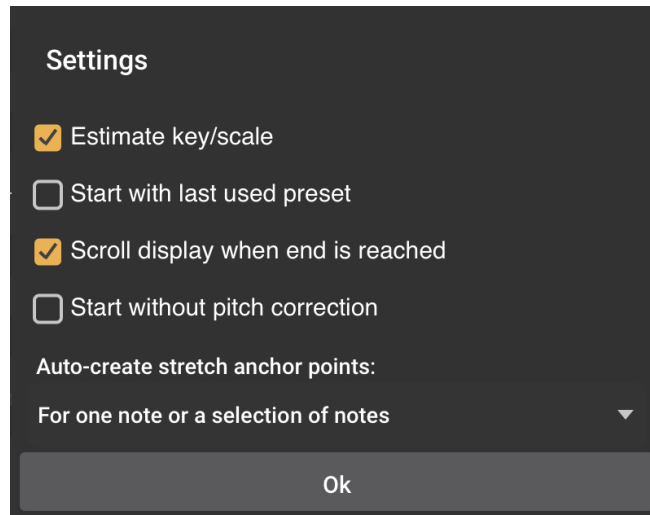
No correction This preset gives you just the original audio without any retuning applied. Notes are still identified on the piano roll but, as you will see, the yellow retuned waveform has not actually been returned to pull the audio within those identified notes, but instead follows the exact same line as the original audio pitch represented by the black waveform (which, in this case is obscured by the yellow waveform on top of it).

Smooth This preset gives a longer Retune Time and a lower Retune Amount than the default settings.

Robotic This preset has a zero millisecond Retune Time and a 100% Retune Amount resulting in unnatural immediate retuning which is exact and retains none of the pitch fluctuations present in the original (the yellow retuned pitch waveform, as you'll see, is a perfect straight line in the middle of each note).

Any user presets you create and save will also appear in this list, ready for you to load.

- **Save preset...** Select this to save your own Vocal Tune Studio preset. Vocal Tune Studio presets store the parameter settings for how it applies retuning to the detected notes within audio - parameters 21 to 29. As such, you need to have at least one note selected on the piano roll before saving its settings for those parameters as a preset. Please be sure to select a note which uses the parameters you want to save as a preset if you have many different variations of settings for individual notes within your current audio. You will be given the option to select '**New user preset...**' or one of your existing presets which will prompt an '**Overwrite existing preset?**' confirmation dialog.
- **Delete user preset...** Select this to choose any user presets you'd like to delete. You will be shown a confirmation dialog before anything is actually deleted.
- **Remove pitch correction** Selecting this will completely remove every and any effect Vocal Tune Studio has had on your audio clip, close its interface and return you to the Audio Evolution Mobile Arranger Screen. This action cannot be undone so please use with caution. You will be shown a confirmation dialog before this is carried out.
- **Export as MIDI** The pitches in your audio are represented by 'MIDI notes' on the grid but they are not actually MIDI notes, it is just sensible for them to be shown in this way. It is, though, possible to export those notes as actual MIDI data using this option. Selecting **Export as MIDI** will automatically copy the 'MIDI notes' in Vocal Tune Studio and paste them to a clip on a MIDI instrument track which will also be automatically created. This can be really useful for a speedy workflow if, for example, you want to have a virtual instrument play the same melodic line as the vocals being sung. Alternatively, it could even be used to transcribe from audio to MIDI if you've recorded yourself singing a musical idea you've had.
- **Settings** Opening the Settings gives you five options.



Estimate key/scale Vocal Tune Studio works best when you know the key and scale your vocal has been sung in and it is advisable to try to know this whenever possible. Vocal Tune Studio will, by default, analyze the audio, identify pitches present and, from that, estimate the key and scale which has been used. Vocal Tune Studio needs a good number of notes to be sung for it to be able to analyze the pitches present and estimate the key and scale so if this estimation is inaccurate, you can always select the correct key/scale yourself. If Vocal Tune Studio cannot identify a key and scale at all it will open in Chromatic (all notes present within the chromatic set of pitches) mode, placing all identified notes at the closest pitch within the chromatic set to which it conforms rather than shifting any of them so they are within a particular scale.

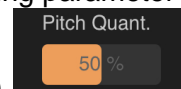
It is possible, though, that you prefer this workflow of having Vocal Tune Studio open your audio in chromatic mode as it means, for example, that any accidental notes (notes which are deliberately used but are not within the given key and scale) will be placed in their correct position rather than initially being snapped to the closest note *within* the estimated scale, requiring you to change the **Snap to** setting and reposition the accidental notes yourself. Or maybe you'd rather just work in chromatic mode rather than bothering yourself with keys and scales?

If you would prefer Vocal Tune Studio to open and place notes on the grid in chromatic mode rather than estimating the key and scale, deselect this option in the settings.

Start with last used preset Selecting this option will automatically launch Vocal Tune Studio using your last used preset when you next use it after selecting this option.

Scroll display when end is reached This option is enable by default. If you would rather the display did not automatically scroll during playback, deselect this option.

Start without pitch correction Selecting this option opens Vocal Tune Studio's Pitch and Time mode in its alternative mode. In this mode no pitch correction is initially applied and an extra retuning parameter becomes

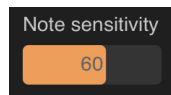


available on the interface - **Pitch Quantization** - between **Retune Amount** and **Volume**. This parameter allows you to set the *target pitch* for the retuning of a selected note or notes for occasions where you

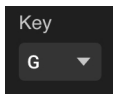
don't want the target to be fully quantized to the exact frequency of the nearest note within the key and scale. More details about this mode can be found in the definition for [22*](#) and in the section [here](#).

Auto-create stretch anchor points This option allows you to select the way Vocal Tune Studio will auto-create anchor/stretch points for time stretching within its Pitch and Time mode. The drop-down list gives you three options: **None**, **For one note or a selection of notes** (default) and **For a group or selection of notes**. Full details on these modes and time stretching in Pitch and Time mode can be found in the section [here](#).

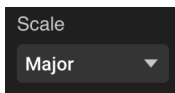
- **Help** Selecting Help will show a brief quick start guide onscreen to introduce Vocal Tune Studio Pitch and Time mode and its functions.




3 Note Sensitivity. The **Note sensitivity** parameter allows you to adjust how sensitive Vocal Tune Studio is to identifying and placing notes on the piano roll. Lower sensitivity will result in fewer notes being identified on the piano roll while higher sensitivity will place more and more note events corresponding to every tonal variation detected. As such, this parameter can be adjusted to find the sweet spot where all of the 'pitch events' in your vocal recording are represented on the piano roll in Vocal Tune Studio and are therefore available for you to edit as required. The default setting for **Note sensitivity** is 60 which generally gives very good results on a clear, clean vocal recording. Double tap on the slider to either Reset to the default value or enter a value using the onscreen keyboard.

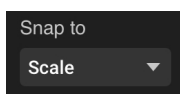


4 Key. There are twelve notes within the chromatic set of pitches. The **Key** setting allows you to set the root note for the scale you are working in from these twelve notes.



5 Scale. A scale is the set of notes which have been used to create a piece of

music. If you have chosen the option in the **Settings** (via the **Three Dot Button**  where it is, by default, selected) Vocal Tune Studio will try to estimate the scale (and key) of the audio it analyzes. The more notes present which are identifiable, the greater the chance of this estimate being accurate. If, however, Vocal Tune Studio is unable to identify a key and scale (in which case, it will open in chromatic mode) or if its estimation of the key and scale is incorrect, the **Key** and **Scale** settings allow you to manually select the correct options. As stated elsewhere, Vocal Tune Studio will give the best results when the correct key and scale are used. Once the correct **Key** and **Scale** has been estimated or selected, Vocal Tune Studio will place the notes it has detected and retuned onto the closest notes *within that Key and Scale* on the piano roll grid. This is why you will see the notes change position if you change the Key and Scale; they are being quantized to that scale instead. If your piece of audio contains any accidental notes (which are notes deliberately not within the given scale) please be aware of the **Snap to** settings (see below) which will allow you to correct the position of these notes.





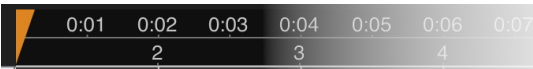

6 Snap to. The **Snap to** setting defines whether notes on the piano roll will be snapped to certain grid/note positions or not. By default, the notes snap to the given **Key** and **Scale**, they can only be moved to a pitch which is within that key and scale. If all of the notes in your sung melody are within the given key and scale, this is the setting you'll want to use.

Vocal Tune Studio offers two other **Snap to** settings to accommodate all situations though. **Chromatic** will snap any note detected and corrected to the closest note within the twelve chromatic notes and, as such, you can move the note anywhere vertically, but it will always snap exactly to the chosen note. If your sung melody contains accidental notes, notes the composer has used deliberately which are not within the given key and scale, these will be incorrectly snapped to be within the scale using Vocal Tune Studio's default settings. In this situation, you'll want to switch the **Snap to** setting to **Chromatic** mode which will allow you to manually shift these accidental notes to the pitch they should be. Please note that having the Scale set to chromatic and Snap to set to scale will also allow you to move notes to any note on the piano roll.


The final **Snap to** setting is **Free**. This allows you to freely reposition notes vertically on the piano roll without them snapping to any particular grid position. Thus, if you want to make tonal adjustments which are not within the chromatic set of notes, this can be done using the **Free** mode.

NOTE. If you would prefer Vocal Tune Studio not to estimate the key and scale of your audio so that it will always open in chromatic mode, this can be done via the [Settings](#).


7 Close Interface button . Pressing this closes the Vocal Tune Studio interface and returns you to the Audio Evolution Mobile Arranger Screen. Double tap the audio clip, or use the **Clip Options** again to re-enter Vocal Tune Studio whenever required. This does not remove the retuning or time-stretching applied within Vocal Tune Studio and it will be in the same state you left it in when you return (as long as you haven't closed Audio Evolution Mobile without saving your project in the meantime). If you do want to remove the effects of Vocal Tune Studio completely, select **Remove pitch correction** from the options found via the **Three Dot Button** .

8 Timeline  showing the **Time Marker**  at the beginning of the clip. Tap on the timeline to reposition the **Time Marker** or use the **Project Overview/Scrollpad** to move it to the place you'd like playback to start from. Please note that markers such as Loop markers, present on the Audio Evolution Mobile Timeline, will not be visible on the Vocal Tune Studio Timeline but their effect will still be acknowledged during playback.


9 Keyboard Pitch Indicator . This indicates the pitch of the waveforms and notes on the Vocal Tune Studio Display.


10 Undo button . Pressing this button undoes the last edit made within Vocal Tune Studio should you make a mistake. The undo stack is unlimited, so you can undo all the way back to when you started editing. The undo stack in Vocal Tune Studio is separate from the undo stack


within Audio Evolution Mobile meaning you can close the Vocal Tune Studio interface using the


Close Interface  button, reopen it and still be able to undo your previous edits within Vocal Tune Studio. **Reset note data** and **Remove pitch correction**, selectable from within Vocal

Tune Studio's options available via the **Three Dot Button** , cannot be undone and will clear the Undo stack.

11 Redo button . Pressing this button re-applies the last edit undone using the Undo button as long as no further edits have taken place since using the Undo function.

12 Select All button . Individual notes on the piano roll can be selected by tapping on them, which then allows you to move the note on the piano roll and refine the parameters (numbers **13** to **20**) for that individual note event. Multiple contiguous notes can be selected by long pressing on the piano roll and sliding left or right until the highlighted area covers all of the notes you require at which point you can release and the parameters can be changed for those selected notes and those notes can be shifted in pitch on the piano roll while keeping their original tonal relationship to each other. If, however, you want to transpose or set those parameters for all of the notes you can quickly do so by pressing the **Select All** button. As such, it can be useful to initially select all and set up your preferred general setting for the tuning parameters for all of the notes. Once that is done to your satisfaction, you can then select a smaller subset of notes, or individual notes, to fine tune those parameters as required to get the perfect performance results.

13 Split Note button . Pressing this button activates the **Split Note** mode. Once activated, a note event on the piano roll can be split into two events by tapping on the note event at the desired split point. The two notes created can then be treated separately within Vocal Tune Studio. As the note is split at the point at which you touch it, it is advisable to zoom in for greater accuracy. To avoid unwanted note splits being created, the **Split Note** mode is automatically deactivated after a split has been placed and requires reactivating before every note split you wish to make. If you make a mistake, use the **Undo** button to remove the split. Alternatively, if you'd like to return to the Vocal Tune Studio's initial state after analyzing the audio, removing all note splits you have made, you can select **Reset note data** via the **Three Dot Button** options. Please be aware though that using the **Reset note data** option will also reset any other changes you may have made to all of the notes and their associated parameters so use this option with caution..

14 Erase Note mode . Pressing this button activates the **Erase Note** mode. Once active, any note event you tap on the piano roll will be erased and with it, any retuning of the audio signal meaning the original pitch will be played at that point. **Erase note** mode remains active until you press the Erase Note button again, allowing you to erase as many notes as you want in one go. If you make a mistake, you can always use the Undo button. Alternatively, if you'd like to return to the Vocal Tune Studio's initial state after analyzing the audio, restoring all erased notes, you can select **Reset note data** via the **Three Dot Button** options. Please be aware though that using the **Reset note data** option will also reset any other changes you may have made to all of the notes and their associated parameters so use this option with caution.

NOTE. To remove/erase existing anchor/stretch points, simply double tap on them.

15 Timeline Area/Piano Roll Grid/Waveform display area. Scroll horizontally and vertically with one finger. Pinch/pull with two fingers to visually re-scale items within this area as required. Use the **Project overview/Scrollpad** (18) to quickly scroll horizontally or immediately jump by tapping on it at the required point.




16 Playback Transport Controls . These are the controls for starting and stopping playback and recording.



Start Playback from the beginning of the project or looped section.




Playback from the position of the **Time Marker** (The orange marker  in the Timeline). The play button will turn into a pause button when playing. Pressing pause will stop playback and (unlike Stop) un-pausing will continue playback at the position when pause was pressed.

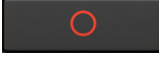


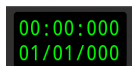
Stop Playback or Recording.




Record. Perhaps you want sing along with the pitch corrected Vocal Tune Studio version of your vocal and record another take without leaving the Vocal Tune Studio interface? Pressing Record while within Vocal Tune Studio will record audio to an automatically created new track on the Arranger Screen of Audio Evolution Mobile when

Automatic track creation is enabled in Audio Evolution Mobile's **Settings**  . If Automatic track creation is not enabled, you will first need to create an audio track and Arm

 it - or Arm an existing audio track - within Audio Evolution Mobile otherwise recording will fail. Just be sure to use headphones so that only your new vocal take is picked up by the microphone.



17 Playback Timer Display . This display shows the current time during playback and in red during recording. When playback and recording are stopped it displays the current position

of the **Time Marker** (the orange marker  shown in the Timeline). Tapping the **Playback Time Display** once will open the Tempo options for the current project. The top counter shows the time in minutes, seconds and milliseconds. The bottom counter shows the time in bars (or measures), beats and ticks (the resolution is 192 ticks per beat) according to the project Tempo settings.


18 Project Overview / Scrollpad





The **Project Overview/Scrollpad** is a very useful feature which displays a miniature view of the entire project and allows you to quickly move within the timeline. Since there is only one track in the screenshot above, the **Project Overview/Scrollpad** in it perhaps doesn't illustrate this as well as possible. As such, here is an alternative **Project Overview/Scrollpad**



. Here you can more easily see how all of the tracks, clips and the full duration of the project is being displayed. By touching and sliding within the **Project Overview/Scrollpad**, you can quickly select and move your viewpoint

within Vocal Tune Studio and simultaneously position the orange Time Marker  in the

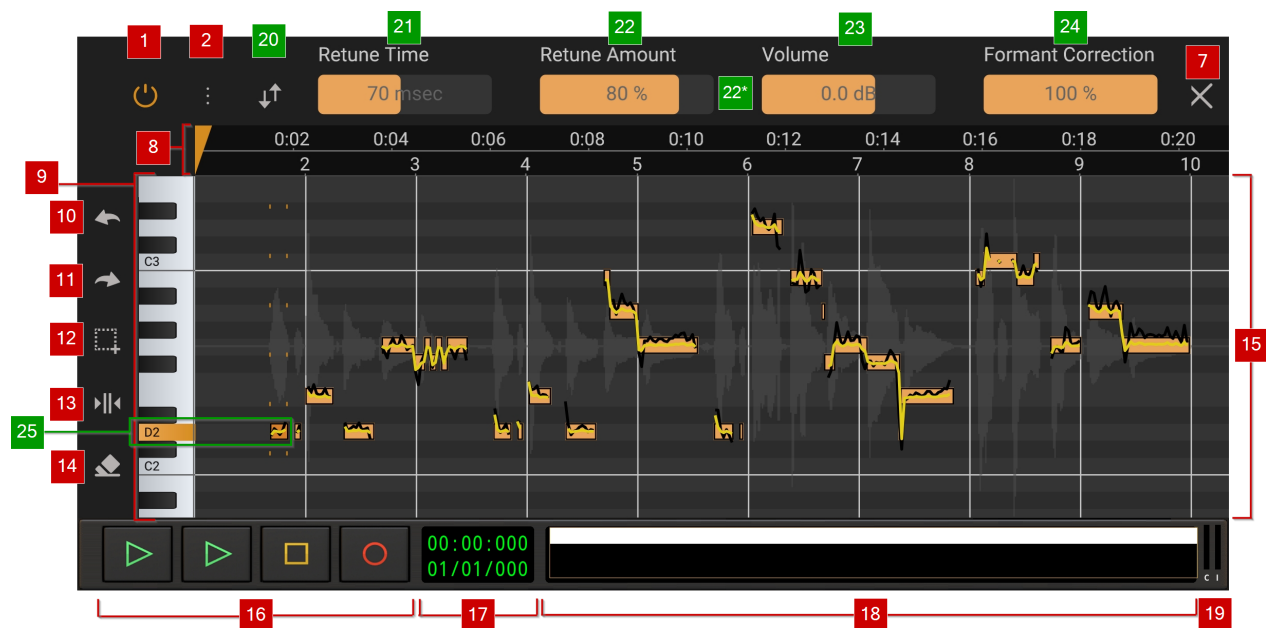
Timeline without your finger obscuring it as you do so. A yellow rectangle, shown within the Project Overview/Scrollpad, indicates what part of the project is currently being displayed on the screen.

19 CPU usage meter . You can choose whether or not to display the **CPU usage meter** from within Audio Evolution Mobile's **Settings** .


Second View (available by selecting a note or notes)

First view

Third view




Selecting a note or notes on the first view will change the edit options along the top of the interface. These parameters, and those available on the third view via the **Interface Toggle**


 button, allow you to control how Vocal Tune Studio applies tuning to the selected note or notes. To return to the first view, deselect all notes by tapping once in any empty area of the piano roll grid.


User interface elements from view one still present in view two are indicated by numbers in **red boxes**. New elements available in view two are indicated by numbers in **green boxes**.

NOTE. Functions **21** to **29** control *how* the retuning within Vocal Tune Studio is applied. These controls can be used to tailor the final result, allowing you to create completely transparent retuning all the way to very deliberate and audible retuning taking place if that's what you require. These parameters can be set on a global basis by first selecting all of the note events on the


piano roll using the **Select All**  button. Alternatively, multiple contiguous notes can be selected by long pressing on the piano roll and sliding left or right until the highlighted area covers all of the notes you require at which point you can release and the parameters can be changed

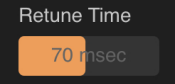
for those selected notes. Finally, they can be fine tuned on a per note basis by selecting individual notes. If you want to reset all of these parameters for all notes, simply choose **Default**

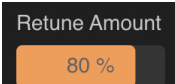
from the **Load preset...** options via the **Three Dot Button** . Also, don't forget the **Split**

note  function which allows you to split any note into multiple events which can then be individually selected and have these parameters adjusted.

Please also see the previous section [here](#), which explains how most of these parameters are represented visually in the notes on the grid in the timeline area.


20 Interface Toggle  button. The **Interface Toggle** button allows you to move back and forth between views two and three. To move back to view one, deselect all notes by tapping once on any empty area of the piano roll grid in either view two or three.

21 Retune Time . This setting allows you to decide how quickly Vocal Tune Studio will apply retuning to the selected note or notes between 0 and 500 milliseconds. A longer **Retune Time** will mean the pitch starts the same as the originally detected pitch (the black waveform line displayed) and is gradually pulled from that pitch to the more accurate corrected pitch. A very short **Retune Time** will more immediately snap the pitch to the corrected value and may sound unnatural and obvious, though, of course, this may be the effect you are after. By default, the Retune Time is set to 70 milliseconds. Double tap on the slider to either Reset to the default value or enter a value using the onscreen keyboard.

22 Retune Amount . The **Retune Amount** defines how much retuning is applied to the selected note or notes. The lower the value, the closer the retuned pitch will be to the original pitch and the more of its fluctuations will be retained even as it is retuned. At 100%, none of those original fluctuations will be present and the pitch will be completely retuned to the correct pitch. This can sound unnatural but, again, this might be the effect you are after and we encourage experimentation. We feel the default value of 80% gives a good balance between correcting the pitch and retaining the authenticity of the original performance. Double tap on the slider to either Reset to the default value or enter a value using the onscreen keyboard.

22* The number 22* on the screenshot above refers to an extra parameter - **Pitch Quantization**

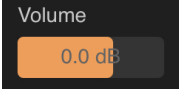
 - which will be displayed between **Retune Amount** and **Volume** when **Start**

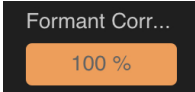
without pitch correction is selected in the options available via the **Three Dot Button** . This mode starts with no pitch correction so the yellow retuning line sits on top of the black line represented the original detected pitch and likewise, the notes on the grid are not snapped to exact pitches but remain 'off-pitch' as sung. In this mode, **Retune Amount** and **Pitch Quantization** are both by default set to zero. The **Pitch Quantization** parameter allows you to gradually quantize the *target pitch* for retuning towards the exact, fully quantized frequency of the nearest note within the key and scale for any selected note or notes. Once the target pitch has


been set, you can use **Retune Amount** to decide how much of the pitch fluctuation from the original signal will be smoothed away *at that target pitch*. For more details about this mode, please see the section [here](#). Please note that in this mode, the Volume parameter will be moved to a third view and the artificial vibrato parameters will be available on a fourth view, all available


via the **Interface Toggle** button



23 Volume . This allows you to control the volume of any selected note or notes between -40 and +12 dB from its original volume. As such, you are able to alter the dynamics of your performance if necessary. Default value is 0.0dB meaning no change has been applied. Double tap on the slider to either Reset to the default value or enter a value using the onscreen keyboard.

24 Formant Correction . When referring to the human voice, formants are concentrations of acoustic energy at certain frequencies resulting from acoustic resonance of the vocal tract. There are several formants each at different frequencies and these give us the characteristic sounds we associate with the human voice. The length of the vocal tract will determine the exact formants of any individual's voice. This can cause a problem when pitch-shifting vocals and is the reason why **Formant Correction** is necessary. Without **Formant Correction**, the formants would be shifted with the pitch. This would mean that, for example, if you shifted the pitch upwards, the formants, the characteristics, would also be shifted upwards resulting in it sounding like the sound was made by a much smaller vocal tract, hence why pitch shifted vocals can sound 'chipmunk' like. **Formant Correction** avoids this which is why, by default, it is set at 100%. As always though, experimentation is always encouraged and maybe the 'chipmunk' effect is what you require? Double tap on the slider to either Reset to the default value or enter a value using the onscreen keyboard.

25 Selected Note . At the beginning of the example shown in the screenshot above, a note has been selected on the piano roll by tapping on it once. Selecting a note turns it from yellow to orange, brings up two dotted lines indicating its beginning and end on the Timeline and highlights its corresponding note on the **Keyboard Pitch Indicator** which also displays the note's name. Selecting a note (or contiguous notes by long pressing and swiping left or right, or

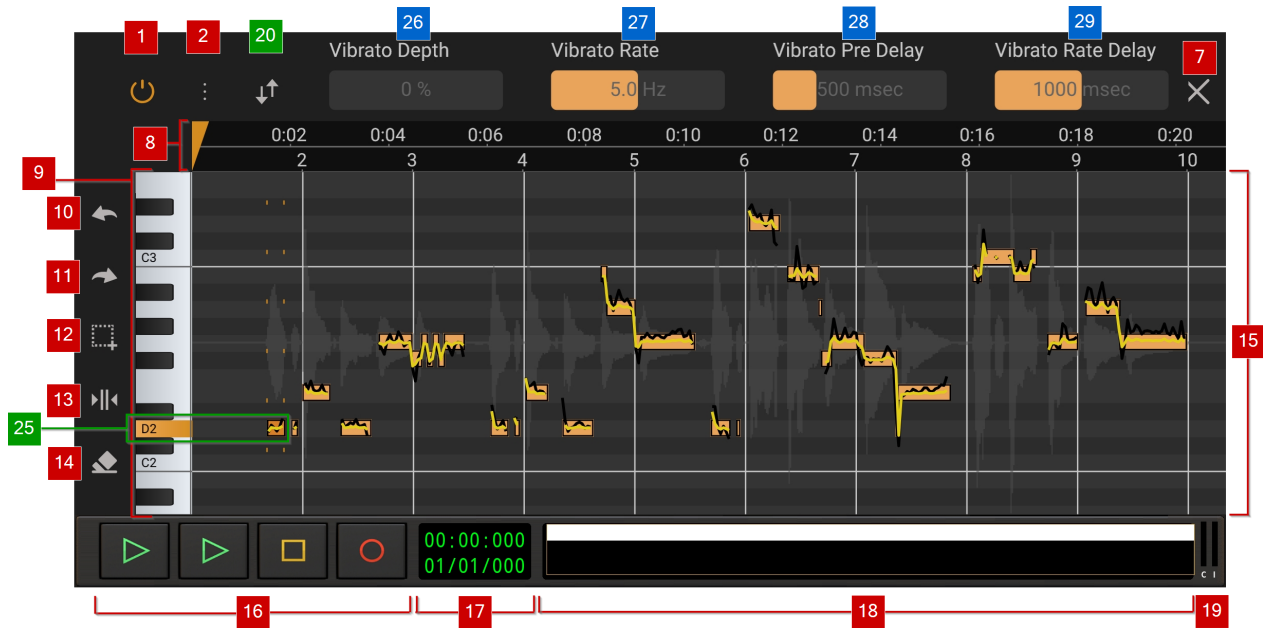
all notes using the **Select All**  button) allows you reposition it on the piano roll grid (change its pitch) and makes parameters [21](#) to [29](#) available for that note or notes. Double tapping on a note will create a stretch point to allow you to manipulate the length of that note. For full details on Time Stretching within Vocal Tune Studio, please see [here](#). For full details on the representation of pitch on notes, please see [here](#).

Third view (toggle between views two and three using the

Interface Toggle button )

[First view](#)

[Second view](#)

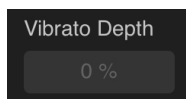


You can move back and forth between the second and third views using the **Interface Toggle**

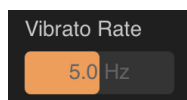


button whenever one or more notes are selected. The third view changes the parameters available along the top of the interface from those on views one and two. The controls revealed on the third view are those relating to adding artificial vibrato to your selected note or notes. To move back to view one from either view two or three, simply deselect all notes by tapping once in any empty area of the piano roll grid area.

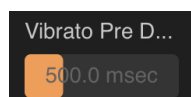
In this screenshot, controls common to every view are indicated by numbers in **red boxes**. Controls common to views two and three are indicated by numbers in **green boxes**. Controls unique to view three are indicated by numbers in **blue boxes**.



26 Vibrato Depth. Vibrato is a rapid, regular slight variation in the pitch of a note. The listener automatically hears the average of the pitches sung which is thought to give warmth to vocals (though it can be distracting if used too much or in too excessive a way such that it becomes a vocal 'wobble'). Vocal Tune Studio allows you to add artificial vibrato to your retuned notes. Vocal Tune Studio gives you four parameters to allow you how vibrato is applied to any selected note or notes. **Vibrato Depth** allows you to set how much vibrato is applied to the selected note or notes; it defines how large the difference in pitch is on either side of the starting pitch during the vibrato. By default, this is turned off at 0%. Double tap on the slider to either Reset to the default value or enter a value using the onscreen keyboard.

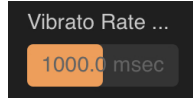


27 Vibrato Rate. **Vibrato Rate** allows you to decide the speed of the vibrato, how quickly it pulsates between the two pitches on either side of the note. This can be set between 2.0 and 8.0 Hz. The default value is 5.0 Hz. Double tap on the slider to either Reset to the default value or enter a value using the onscreen keyboard.



28 Vibrato Pre Delay. **Vibrato Pre Delay** defines the amount of time before *any*

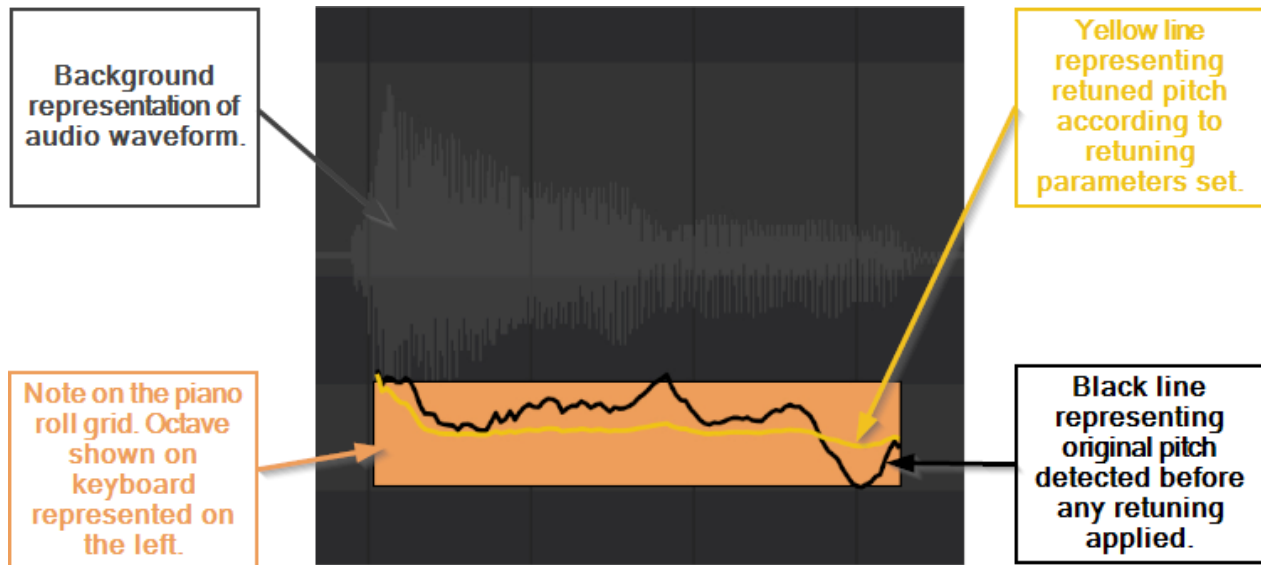
vibrato is applied to the retuned pitch of any selected note or notes meaning you can start the note without any vibrato and have it gradually appear further through the retuned note. This parameter can be set between 0 milliseconds (no delay, vibrato is immediately applied) all the way up to 2000 milliseconds (2 seconds) though obviously you need a note which is longer than 2 seconds for the effect of this to be heard. The default value is 500 milliseconds. Double tap on the slider to either Reset to the default value or enter a value using the onscreen keyboard.



29 Vibrato Rate Delay. **Vibrato Rate Delay** allows you to have the vibrato gradually reach the full Vibrato Rate rather than appear immediately at the chosen speed after the **Vibrato Pre Delay**. The **Vibrato Rate Delay** defines the amount of time it takes from *any* vibrato to be applied to the vibrato reaching its full rate/speed. As you can see then, you can use **Vibrato Pre Delay** and **Vibrato Rate Delay** together to apply a much more natural sounding vibrato to your retuned note or notes than would otherwise be possible. **Vibrato Rate Delay** can be set between 0 milliseconds (no delay, vibrato is heard at its full chosen rate immediately after the **Vibrato Pre Delay**) and 2000 milliseconds (2 seconds) though, again, you'll need a note of enough length for its effect to be heard. Double tap on the slider to either Reset to the default value or enter a value using the onscreen keyboard.

The Representation of Pitch in Vocal Tune Studio

This section explains how pitch is represented within the Vocal Tune Studio interface.



Above is a note on the piano roll grid of Vocal Tune Studio. It is the fourth note from our example later on.

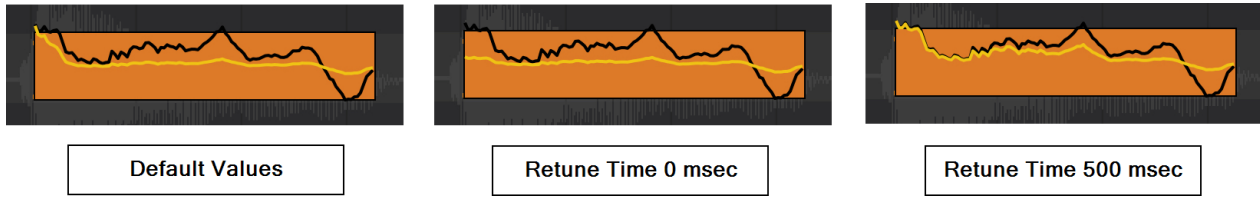
In the background of the Vocal Tune Studio display is a representation of the audio waveform which has been loaded into Vocal Tune Studio. This representation will stay centered vertically within the timeline area while the piano roll is moved up or down on top of it and it can only be resized using pinch or pull horizontally.

Vocal Tune Studio analyzes the audio you open in it to establish the pitch of that audio at any given point. Moments with enough consistent pitch have a note allocated to them (according to the **Note Sensitivity** setting). These notes are shown as 'MIDI events'* on the piano roll in Vocal Tune Studio. Where precisely they will be placed depends on the **Key** and **Scale** detected (or selected if automatic key and scale estimation isn't successful). When a key and scale is present the notes will be placed on the nearest note to their pitch which is within that key and scale. If the scale is set to Chromatic (all notes), however, the notes will be placed on the nearest note to their detected pitch regardless of any scale. For these reasons, notes will automatically be shifted on the piano roll when you alter the **Key** and **Scale**. Once the correct key and scale have been detected (or selected) and the notes automatically placed on the piano roll grid, you can then, if necessary, deselect **Scale** in the **Snap to** settings to manually move any accidental notes (notes in the composition which are deliberately not within the chosen key and scale) to their correct pitch. For more information on this, please see [here](#).

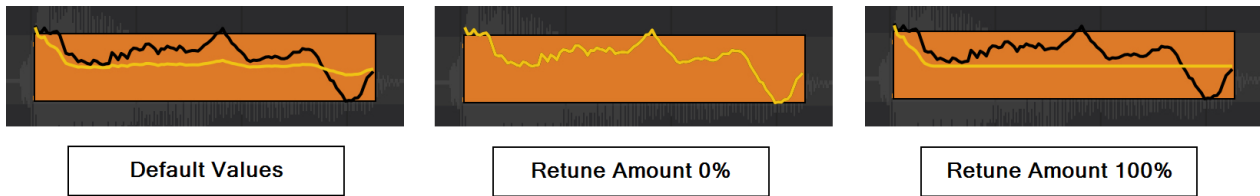
The black line you see within the time constraints of each note represents the actual pitch that was detected by Vocal Tune Studio before any retuning was applied. This represents the pitch as you sang it. As such, this is consistently displayed regardless of **Note Sensitivity**, **Key**, **Scale** or **Snap to** settings.

The yellow line represents the retuned pitch applied by Vocal Tune Studio. The form this line takes gives you a visual display of the retuning settings you have chosen for that note (or for your notes if you choose to have the same settings for all). These parameters are explained in the next section, [here](#), but here are some examples to show how the representation of changes made to those parameters is shown visually.

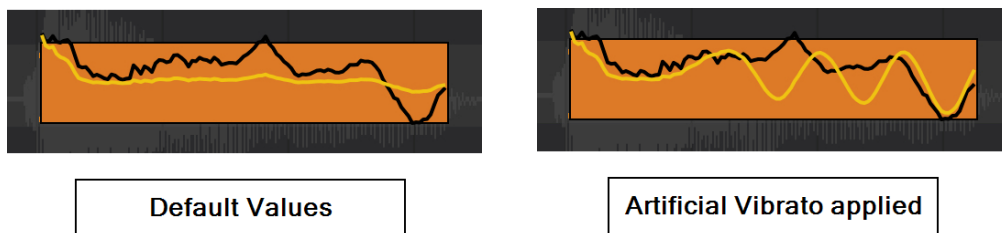
The initial image, above, shows the yellow retuned pitch using Vocal Studio Pro's default settings. Here are some comparison images. The note event has gone from yellow to orange as it has been selected by tapping once on it, making its retuning parameters available for editing.



Above, you can see how the yellow retuned pitch line reacts to changes in the **Retune Time** (all other parameter values are left at their default settings). When the **Retune Time** is set to 0 msec the yellow pitch line immediately retunes the pitch at the beginning of the note. When the **Retune Time** is set at its maximum 500 msec, you can see how it starts off the same as the black detected pitch, no retuning applied, and is gradually retuned away from this as the **Retune Amount** selected is applied.



The above images illustrate how the yellow retuned pitch line indicates the **Retune Amount** setting (all other parameter values are left at their default settings). When the **Retune Amount** is set to 0%, no retuning is being applied so the yellow line sits exactly on top of the black detected pitch line underneath it. When the **Retune Amount** is set to 100%, you can see how the retuning applied is pulled exactly to the correct pitch and retains none of the fluctuations present in the original performance. Compare this to the default values where the yellow retuned pitch retains some of the characteristic variations present in the original pitch. An extreme **Retune Amount** will give a less natural sounding flavor to the retuning as no-one can, in reality, sing in absolutely perfect pitch in this way - tiny fluctuations in pitch are present with even the very best singers vocals. And, of course, singers sometimes deliberately add a vibrato to some notes as they sing and Vocal Tune Studio allows you to do this as well.



Vibrato is a rapid, regular slight variation in the pitch. The listener automatically hears the average of the pitches sung which is thought to give warmth to vocals (though it can be distracting if used too much or in too excessive a way such that it becomes a vocal 'wobble'). Vocal Tune Studio allows you to add artificial vibrato to your retuned notes. The above image, on the right, shows artificial vibrato applied to the retuning of a note within Vocal Tune Studio (all other parameter values are left at their default settings). There are four vibrato parameters available to edit for the artificial vibrato. **Vibrato Depth**, the amount of vibrato applied to the retuned pitch. This is, by default set at 0% meaning no artificial vibrato is applied. **Vibrato Rate** allows you to set the speed of the variation in pitch for the vibrato applied between 2.0 and 8.0 Hz. **Vibrato Pre Delay** allows you to define how long should be waited before *any* vibrato is added to the retuned pitch from 0 msec all the way up to 2000 msec. **Vibrato Rate Delay** allows

you to decide how long it will be from *any* vibrato being applied to the vibrato reaching its full Vibrato Rate, meaning it starts varying the pitch more slowly and gradually reaches its full intensity. This can be set between 0 msec and 2000 msec and is obviously going to be more noticeable on longer notes as will **Vibrato Pre Delay**.


So, in the example shown on the right above, you can see how artificial vibrato is being gradually applied to the retuned yellow pitch after a short delay. Values for this example were chosen just to allow artificial vibrato to be illustrated on such a short note but they were

Vibrato Depth - 60%
Vibrato Rate - 8.0 Hz
Vibrato Pre Delay - 130 msec
Vibrato Rate Delay - 180 msec

Volume and **Formant Correction** are also editable parameters for selected notes but changes to these are not represented visually.


Hopefully this has given you a full understanding of how pitch, retuning and the parameters available to tailor the retuning to your specific requirements are represented visually within Vocal Tune Studio.

*NOTE. The pitches are represented by 'MIDI notes' on the grid but they are not actually MIDI notes, it is just sensible for them to be represented in this way. It is, though, possible to export

the notes as actual MIDI data via Vocal Tune Studio's **Three Dot Button**  options.

Start without pitch correction mode

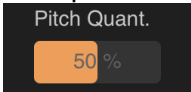
This alternate mode needs to be selected from within Vocal Tune Studio's **Settings** which can


be found via the **Three Dot Button**  options. It can be activated and deactivated freely but please be aware that activating it from the default Pitch and Time 'auto retune' mode will remove any changes you have made to the pitch placement of notes and changes to their retuning parameters and, likewise, deactivating it will return all notes to their reset, start position within the default mode. With this option selected, Vocal Tune Studio will always open in this mode until it is deselected.

Start without pitch correction mode gives you even more control over the subtle retuning of your vocal performances. It is also the approach used by several desktop vocal tuning applications, so it may suit your chosen workflow better if you are already familiar with such software. As the name suggests, it starts from a position where no retuning at all has been applied. As can be seen in the screenshot below, the yellow lines representing the retuned pitch initially sit exactly on top of the black lines representing the original pitch detected. The note events are placed around areas where the pitch is consistent enough to be considered a single note, but they do not sit exactly within the grid of the piano roll area, on specific quantized notes, because no correction has taken place.



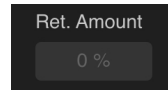
Key to this mode is the additional parameter which becomes available for a selected note or

notes - **Pitch Quantization** . This parameter can be found between **Retune Amount** and **Volume** and will initially be set at 0% for all notes when the Vocal Tune Studio launches in this mode, as can be seen in the screenshot above where all notes have been

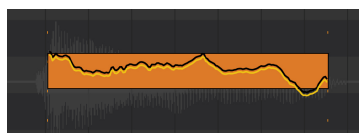
selected using **Select all** , because no pitch quantization is initially taking place.

Quantization is the process of mapping continuous infinite values (in this case, audio frequency/pitch) into discrete sets of finite values (in this case, the exact frequencies we define as particular musical notes). The default Pitch and Time mode within Vocal Tune Studio uses quantized notes when retuning (although notes can be moved out of a quantized position using the 'Free' **Snap to** mode).

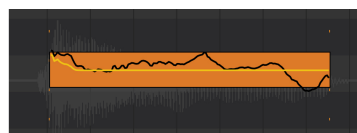
The **Pitch Quantization** parameter, though, allows you to move the *target pitch* for the retuning from its original position (as sung, 0% quantization) to a fully 100% quantized position where the target retuning pitch is exactly the frequency of the nearest note within the selected key and scale. If, as in the screenshot above, you select all of the notes and move the **Pitch Quantization** slider up and down, you will see this in action as the notes are moved ever closer to being exactly in the note positions as defined by the grid as the quantization is increased (doing this can also easily identify notes which are so close to being the quantized pitch - they will barely move as you moved the Pitch Quantization slider up and down - that you may decide its better to leave them without any retuning at all to preserve the most natural sound overall) .



You will also notice that initially in this mode the **Retune Amount** parameter is set to 0% for all notes. The **Pitch Quantization** allows you to set the *target pitch* for the retuning. Just as in the default Pitch And Time mode, the **Retune Amount** allows you to decide how many of the fluctuations in pitch from your original performance remain within that retuned note. For example, a note retuned to its target pitch with a **Retune Amount** of 0% will have all of the fluctuations of the original performance around that target pitch. A note retuned to its target pitch with a **Retune Amount** of 100% will have all of those fluctuations smoothed out so that it is exactly and consistently that target pitch. You can see this illustrated in the images below. The **Pitch Quantization** for both has been set at 50%, so the target pitch is halfway between the pitch as sung and the fully quantized nearest note within the key and scale on the grid. On the left, the **Retune Amount** has been left at 0% so you can see how the target pitch has been moved down slightly towards being fully quantized but retains all of the fluctuations of the original performance: the yellow retuned line sits below the original pitch line in black but retains exactly the same shape. By contrast, on the right, the **Retune Amount** has been set to the extreme of 100% so here the same target pitch has been selected, but all of the fluctuations of the original performance have been ironed out in the retuned pitch: the yellow line sits below the original pitch but is completely flat at exactly the target pitch throughout the note (except at the beginning of the note as a result of the default **Retune Time** being active).



Pitch Quatization 50%
Retune Amount 0%



Pitch Quatization 50%
Retune Amount 100%

Though similar results can be achieved using the 'Free' **Snap to** mode and **Retune Amount** in the default Pitch and Time mode, in this mode, the interaction between **Pitch Quantization** and **Retune Amount** gives you more control overall for subtle retuning whilst maintaining the original performance fluctuations and corrected to the key and scale. Within the default mode, a **Retune**


Amount of 0% will give you the original pitch as originally sung with all of its fluctuations. Increasing the value of the **Retune Amount** slider will incrementally remove the fluctuations until, at 100%, it will retune the vocal to exactly the quantized pitch, smoothing out all of the original fluctuations. In this 'Start without retuning' mode, however, because you can carefully set the target pitch for retuning using the **Pitch Quantization** slider first, you can retune to that target pitch AND have all of the fluctuations of the original performance still present (if desired) whereas the default mode can, generally speaking, only have that 'all fluctuations' state for the original pitch as sung.

Please note that, in this mode, once a note or notes have been moved to a completely different pitch on the grid by the user sliding it/them, the Pitch Quantization slider will become unavailable for that note or notes.

Time stretching in Pitch and Time mode

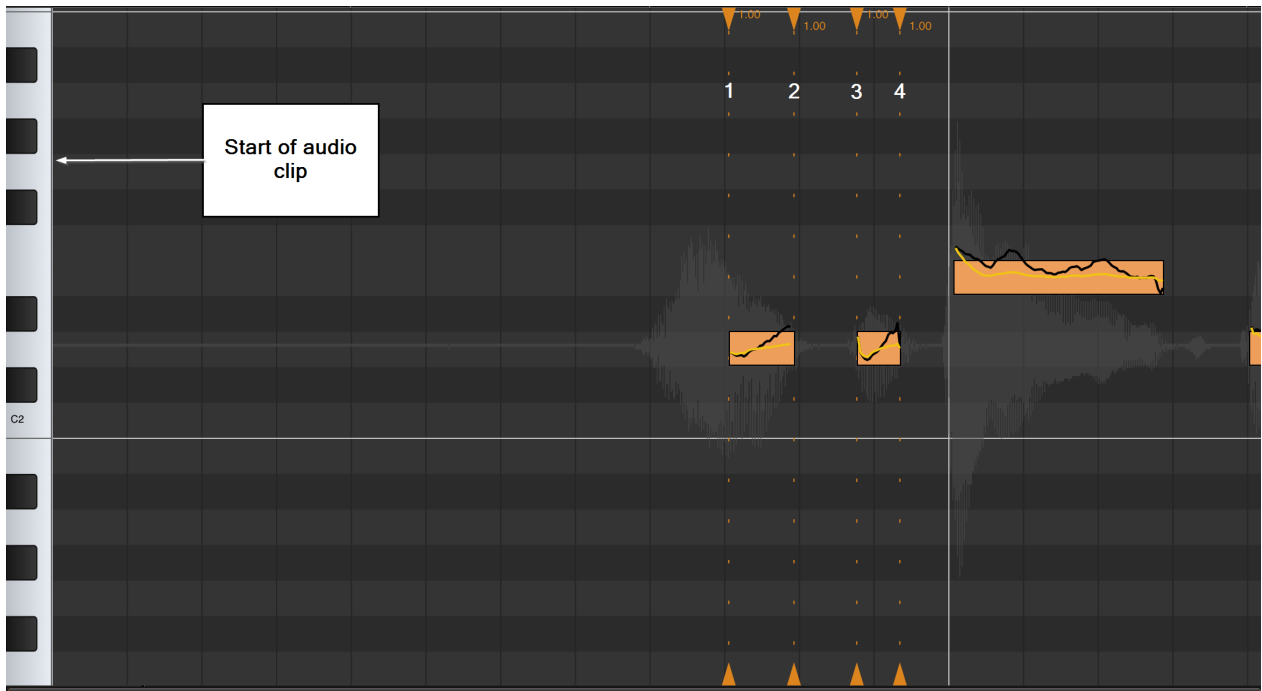
Vocal tune Studio in Pitch and Time mode allows you to alter the timing of any part of the audio you've loaded into it. The key to doing this is the placement of anchors/stretch points by double tapping on the piano roll grid area. Anchor/stretch points define what part of the audio is stretched/shrunk and where within that part of audio the stretching is initiated. Placing anchors allows you to be specific about what precise timing is altered without pulling everything else out of time in the process. Audio outside the anchor points is not time shifted and remains unaltered. If you were to place only a single anchor/stretch point (whilst using None mode), long press on it until its vertical line becomes highlighted orange and, whilst continuing to hold it, slide to the left or right to stretch/shrink the audio from the position of the stretch point, the beginning and the end of the audio clip would act as anchors for that time stretching, with everything either side of the stretch point getting its duration squashed or stretched accordingly. As such, it's easy to see how important and useful the placement of anchor/stretch points is.

Anchor/stretch points are represented on the user interface by orange triangular markers at the top and bottom of the piano roll grid, with a dotted line running between them to show their position. When long pressed and held, the dotted line becomes a solid orange line indicating that the anchor/stretch point can be moved left or right to time stretch. Next to the triangular marker at the top can be seen the time stretch factor which has been applied (please see the note below about time stretching factors available). To set a precise time stretch factor, it can be helpful to first zoom in before you long press and slide a stretch point as you will have more control of the

rate of change that way. Always remember that the **Undo**  function is there should you place anchor/stretch points in the wrong place or make inaccurate time stretching changes. You can also double tap on existing anchor/stretch points to delete them. **Reset note data** can be used to remove all pitch and timing changes you have made and so will remove all anchor/stretch points as well as ALL edits you have made to notes and return everything to the state it was when Vocal Tune Studio first opened. Please use this function with caution as it cannot be undone. **Remove pitch correction** will undo all changes made to your audio clip, unload it from Vocal Tune Studio and return you to Audio Evolution Mobile's Arranger Screen. Again, this action cannot be undone so should be used with caution. **Reset note data** and

Remove pitch correction are available via the **Three Dot Button** .

Anchors and stretch points are essentially the same thing, the difference being that the stretch point is *between* two anchor points and can therefore be used to initiate a stretch from that point whilst the overall stretching is constrained between the two anchor points. Add another anchor beyond one of the two existing anchors and the original anchor point closest to it can then be used as a stretch point itself, using the original stretch point as its anchor on the other side. As such, these markers can be simultaneously anchors and stretch points depending on whether they exist between two other anchors/stretch points or not and how they are then interacted with. Here is a screenshot of the first notes from our example tutorial with some anchor/stretch points added to illustrate further.



The anchor/stretch points have been labeled 1 to 4.

Number **1** can be used as a stretch point using number **2** and the **start of the audio clip** as anchors.

Number **1** also acts as an anchor point for number **2**.

Number **2** can be used as a stretch point using numbers **1** and **3** as its anchors.

Number **2** also acts as an anchor for number **1** and number **3**.

Number **3** can be used as a stretch point using numbers **2** and **4** as its anchors.

Number **3** also acts as an anchor for number **2** and for number **4**.

Number **4** can be used as a stretch point but precisely what it would use (along with number **3**) as an anchor depends on the anchor auto creation mode you have selected which will be covered next.

Number **4** acts as an anchor to number **3**.

Vocal Tune Studio has three anchor placement modes to help you place anchors/stretch points in the way that suits your particular workflow best - **'For one note or a selection of notes'** (default mode), **'For a group of adjacent notes or a selection of notes'** and **'None'**. These **Auto-create stretch anchor points** options can be found in Vocal Tune Studio's

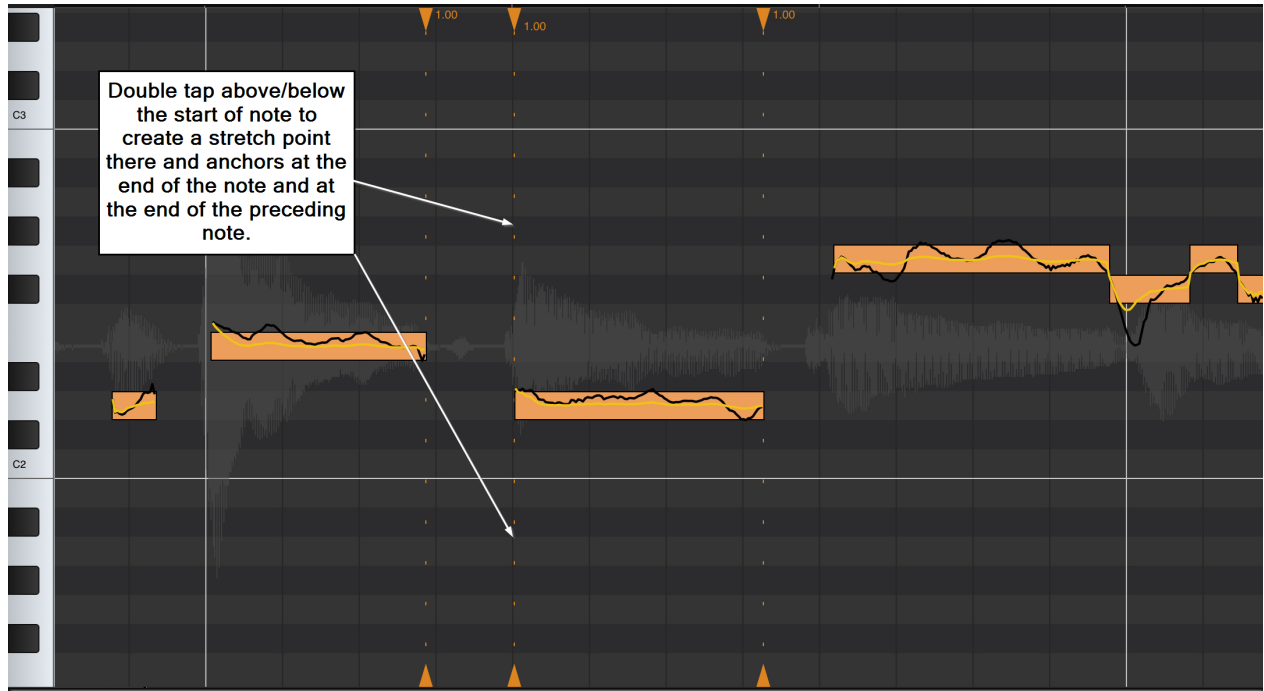
Settings, available via the **Three Dot Button**  and will be covered next, starting with the default mode.

NOTE. Real time time stretching like this is a very CPU intensive task and, for that reason and because of the enormous number of varied devices Vocal Tune Studio needs to be able to run on, the time stretching factor in Vocal Tune Studio has been limited to between 0.33x and 3.0x of the original duration. This should be adequate for most needs but, if not, a possible workaround could be to apply the maximum/minimum stretching limit, render the clip to audio file and then reload that rendered audio to open in Vocal Tune Studio again where the required part could be stretched within the limits again. The current stretch factor used for each section to the right of an anchor/stretch point is displayed next to the anchor/stretch points at the top of the display.

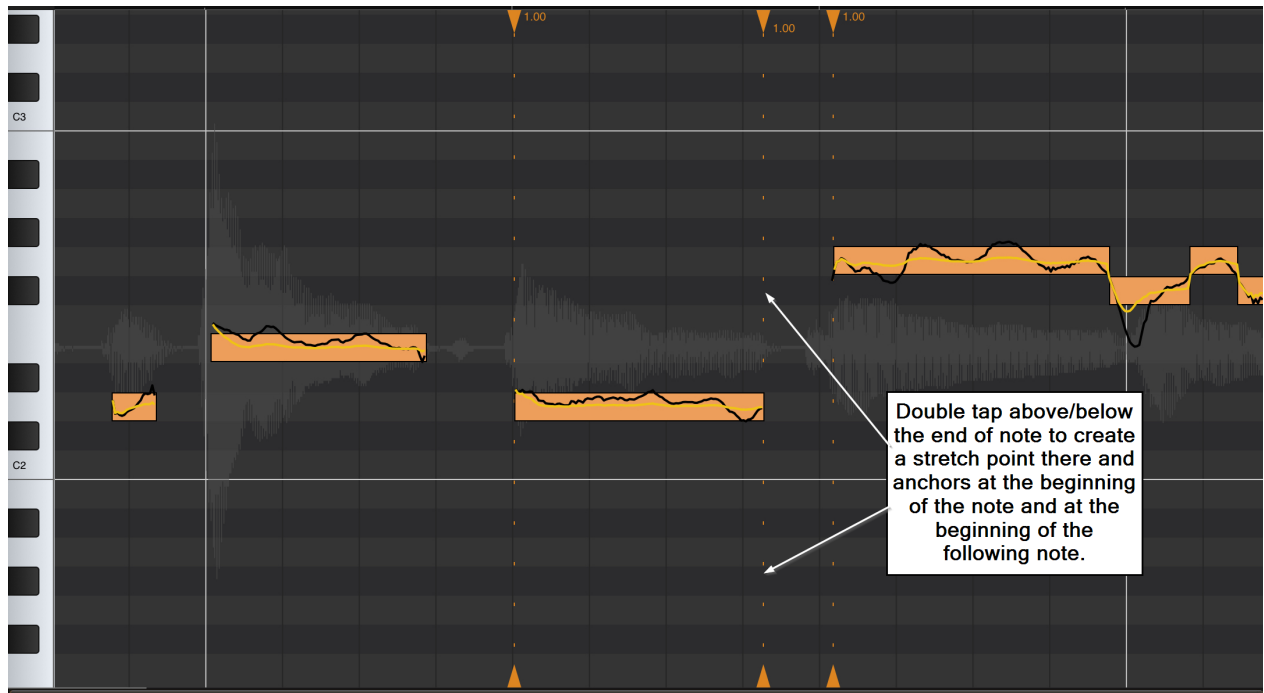
'For one note or a selection of notes' mode (default mode)

The default mode for anchor creation is the 'For one note' auto mode. Here is the way it works.

Double tap directly above or below the **beginning** of a note in the gray piano roll grid area to automatically create an anchor/stretch point at the start of that note, an anchor at the end of it and another anchor at the end of the note preceding it. This quickly allows you to stretch the note using the start of the note as the stretch point as can be seen below. Double tapping on existing anchor/stretch points will remove them.

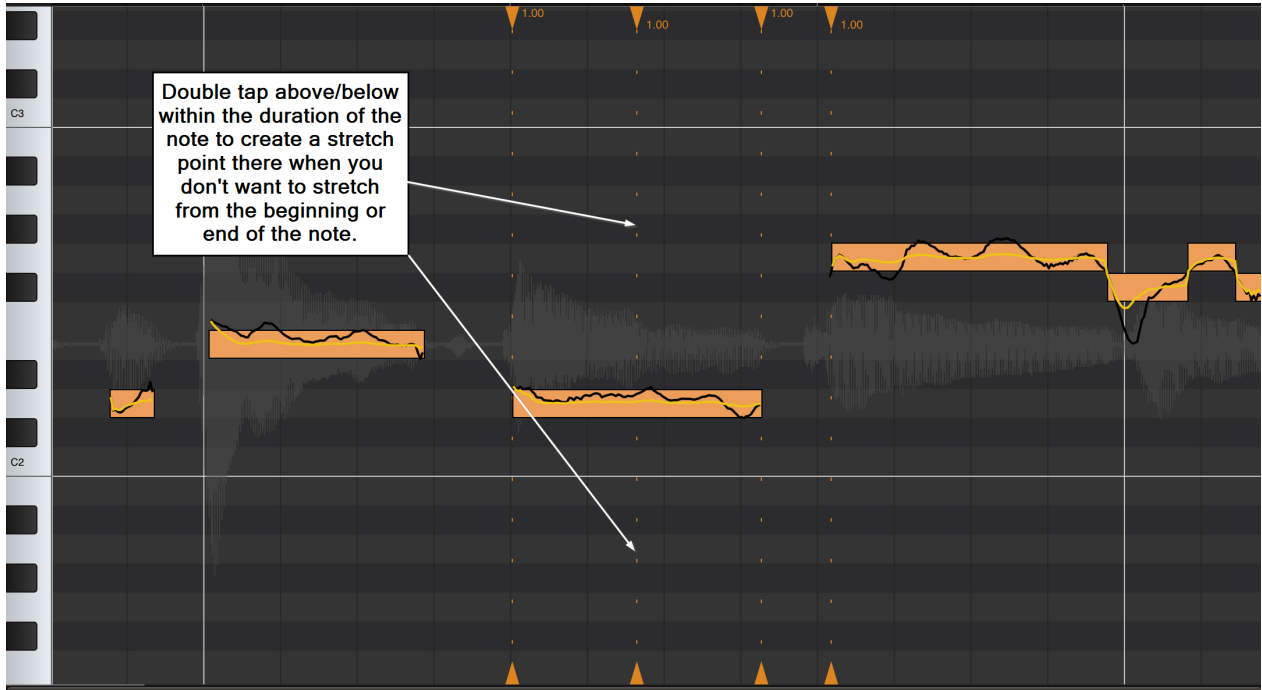


Double tap directly above or below the **end** of a note in the gray piano roll grid area to automatically create an anchor/stretch point at the end of that note, an anchor at the beginning of it and another anchor at the beginning of the note following it. This quickly allows you to stretch the note using the end of the note as the stretch point as can be seen below.

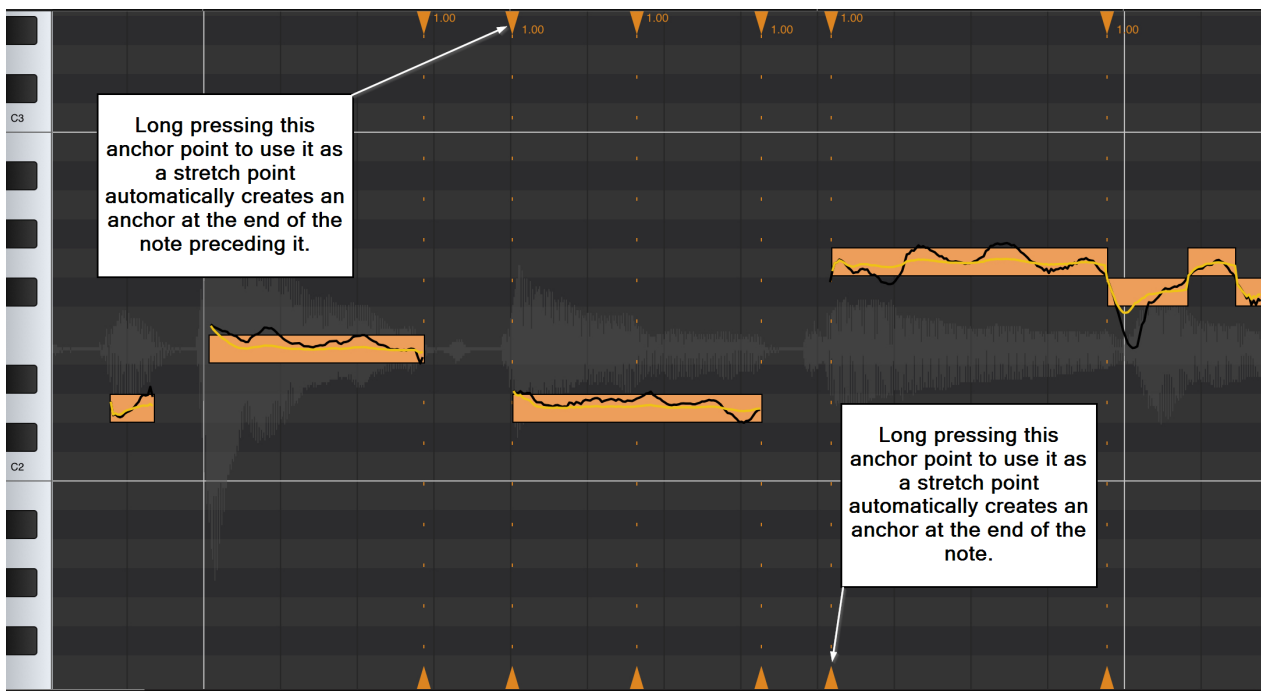


NOTE. As exceptions to the behaviors described above, if you double tap under/above the **beginning** of a note which sits *within* a contiguous group of notes on the piano roll grid - when there is no gap between the individual notes - the beginning of the preceding note in that group will be the location of the third anchor/stretch point rather than the end of the preceding note. If you double tap under/above the **end** of a note which sits *within* a contiguous group of notes on the piano roll grid, the end of the following note within that group will be the location of the third anchor/stretch point rather than the start of the following note.

If you want to time stretch **within** the note *after first carrying out either of the options above* rather than stretching from the beginning or end, simply double tap in the gray piano roll area within the horizontal duration of the note, at your desired stretch point. It can be helpful to zoom in for greater accuracy when placing such a point. This new anchor/stretch point can then be used utilizing the anchor/stretch points from the examples above to constrain all stretching to within the note itself. See the example below which uses the last setup as its starting point.

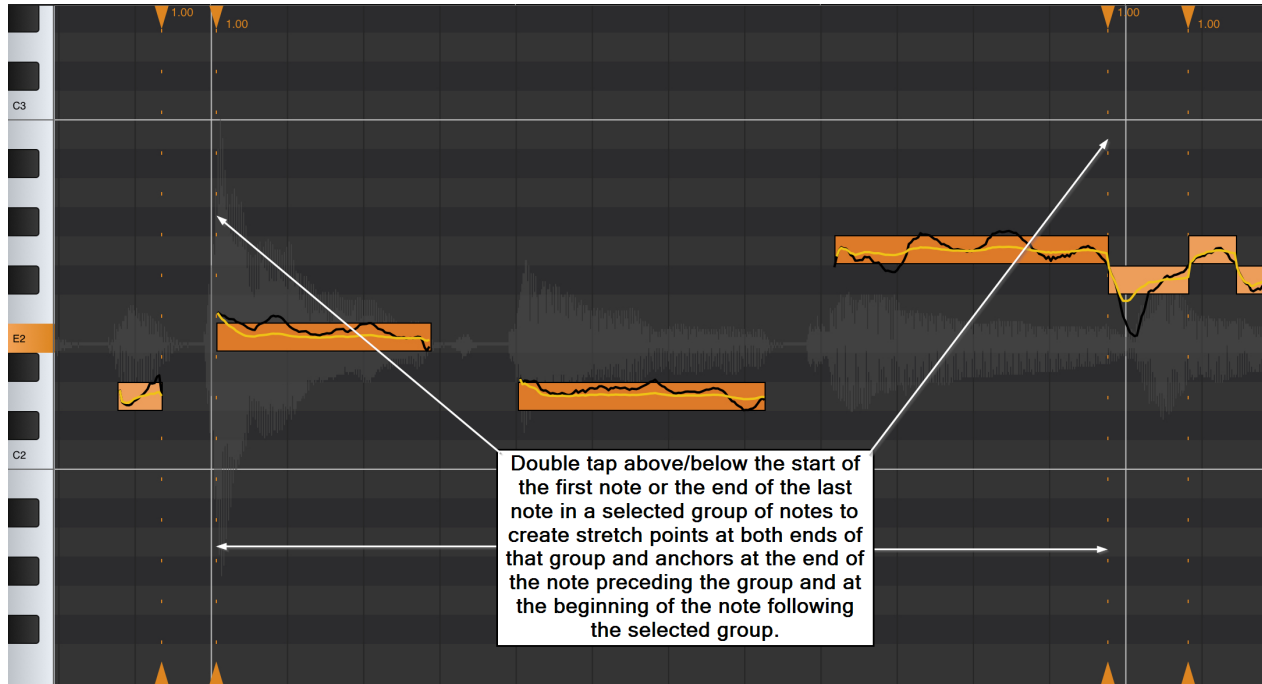


Long pressing an existing anchor to slide it as a stretch point will automatically create a new anchor point depending on where the first anchor sits in relation to other anchor/stretch points. It will be created at the next 'logical increment'. If the current anchor sits at the beginning of a note, the new anchor is created at the end of that note or the note preceding it. If the current anchor is at the end of a note, the new anchor is created at the beginning of that note or at the beginning of the next note on the grid. This behavior stops you accidentally using the beginning or end of the clip as the de facto anchor when other notes lie between the current anchor and the beginning or end of the clip. See the example below which uses the last setup as its starting point.



To time stretch a **group of notes**, you first need to select that group by long pressing in an empty part of the gray piano roll area and sliding the highlighted area which appears left or right until all of the notes you require are within the highlighted area; then release to select them all. The selected notes will turn from yellow to orange to indicate they have been selected as can be

seen below. Then, double tap under/above the **beginning** of the first selected note **or** under/above the **end** of the last selected note to auto place anchors/stretch points as shown below. Anchors are created at the end of the last note preceding the selected group of notes and at the beginning of the first note which follows the selected group of notes. Stretch points/anchors are also created at the beginning of the first note in the selected note and at the end of the last note within those selected. If you then want to stretch from a different point within the selected group other than the points automatically created, simply double tap in the empty gray area at the point at which you'd like to initiate the stretch from and the additional anchor/stretch point will be created.



If you double tap under/above the **beginning** of the first note to be shown within Vocal Tune Studio, only two anchor/stretch points will appear to be created at the beginning and end of that note. This is because Vocal Tune Studio automatically uses the beginning of the audio clip as the third anchor in this situation.

If you double tap under/above the **end** of the last note to be shown within Vocal Tune Studio, only two anchor/stretch points will appear to be created at the beginning and end of that note. This is because Vocal Tune Studio automatically uses the end of the audio clip as the third anchor in this situation.

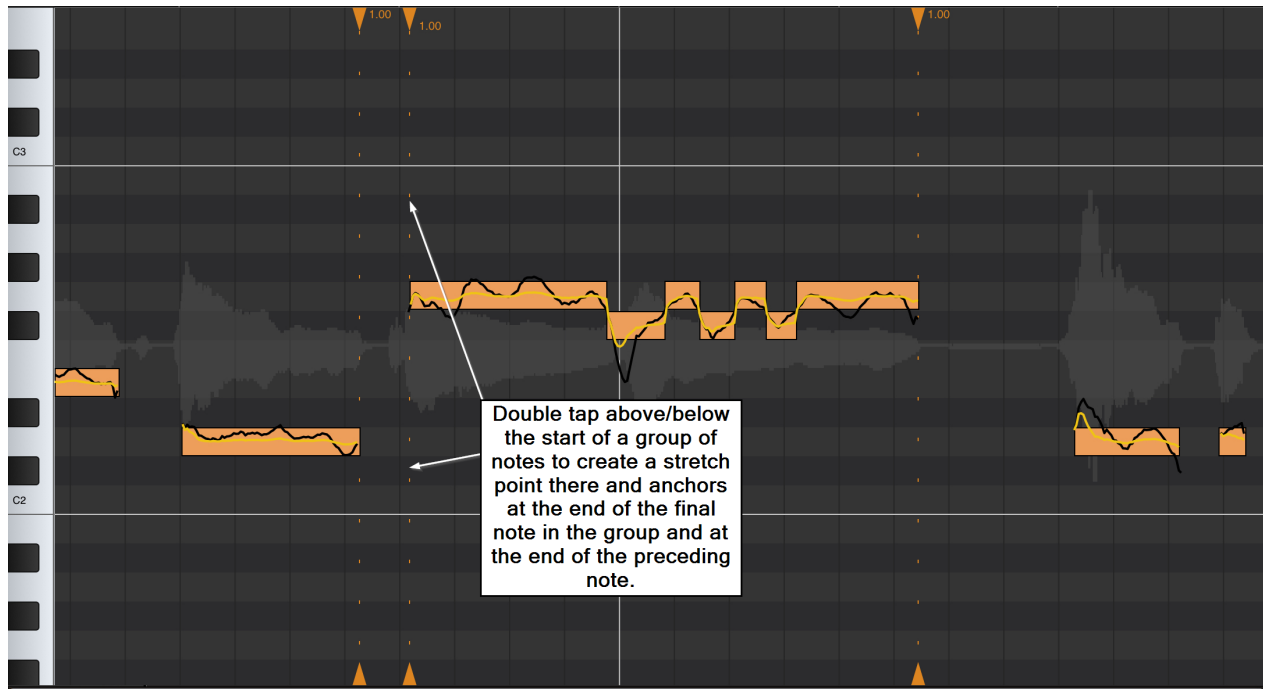
'For a group of adjacent notes or a selection of notes' mode

To select this mode, please find the **Auto-create stretch anchor points** options in Vocal Tune

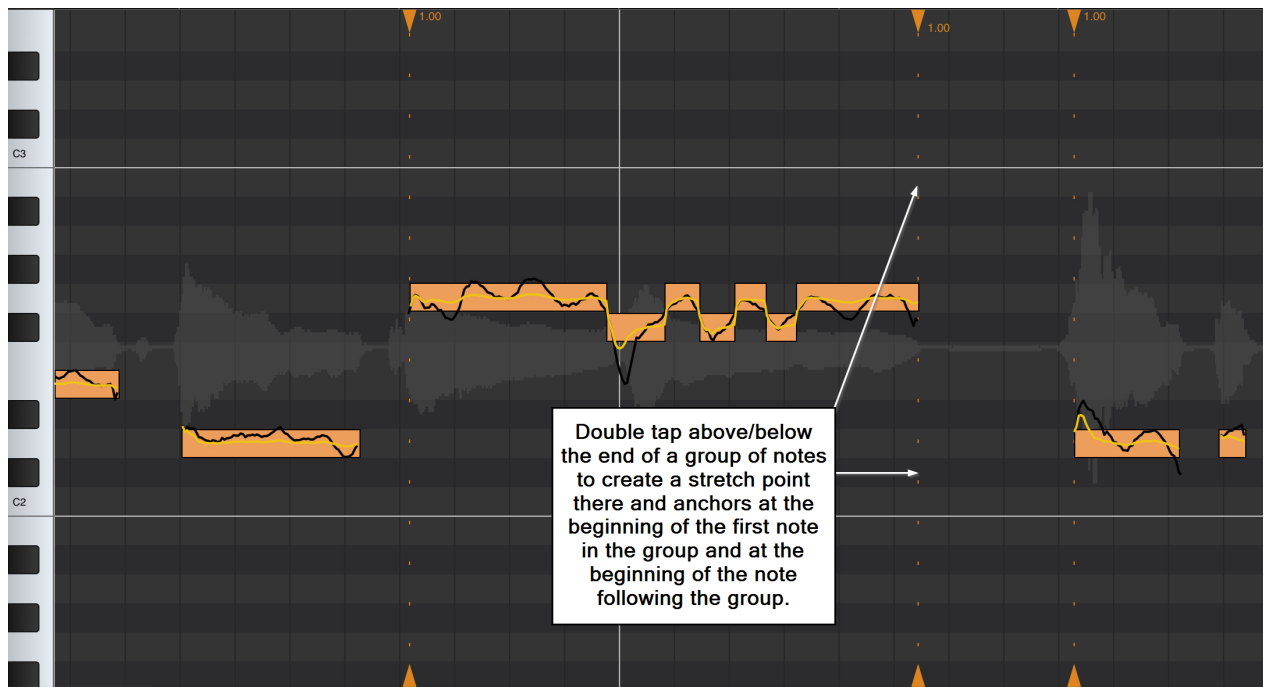
Studio's **Settings** which can be accessed via the **Three Dot Button** .

Within this mode for the auto-creation of anchor points, Vocal Tune Studio automatically treats notes which are contiguous or very closely adjacent to each other (within 100 msec) as groups of notes and applies anchor points for them as it would for a single note in the previous mode. Though it cannot guarantee to do so, this can often be useful for selecting small musical phrases for time stretching.

Below, you can see how double tapping above/below the start of the first note in a group of notes which is contiguous places a stretch point at that point and automatically places anchors at the end of the group and at the end of the note preceding the group. Double tapping on existing anchor/stretch points will remove them.

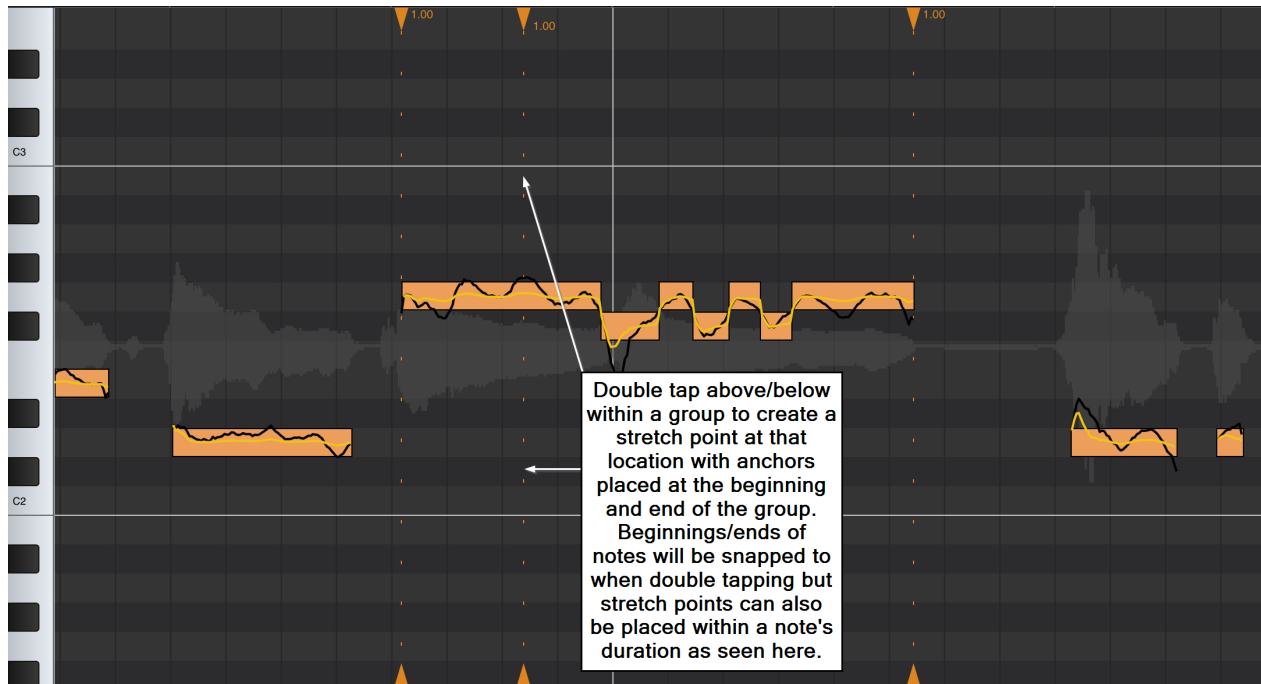


Conversely, as shown below, double tapping above/below the end of the last note in a group of notes which is contiguous places a stretch point at that point and automatically places anchors at the beginning of the group and at the beginning of the note following the group.

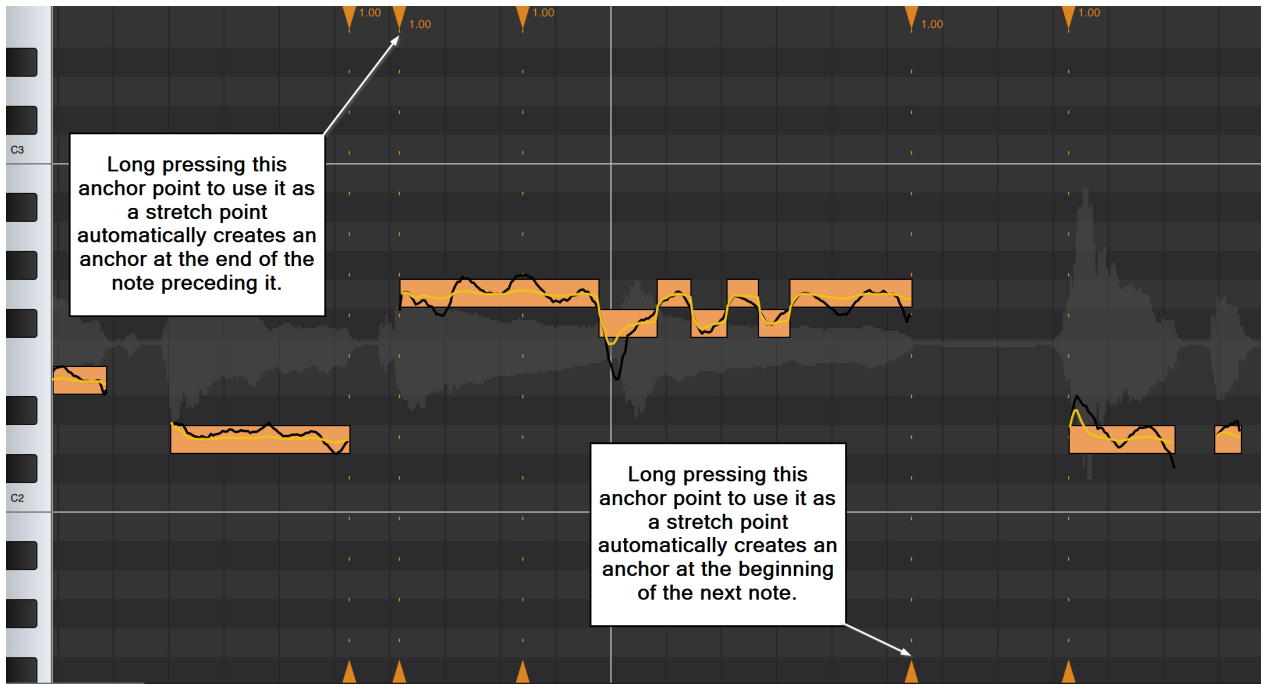


If you don't want the beginning or the end of the group to be used as the stretch point, you can simply double tap elsewhere above/below the group and a stretch point will be created at that

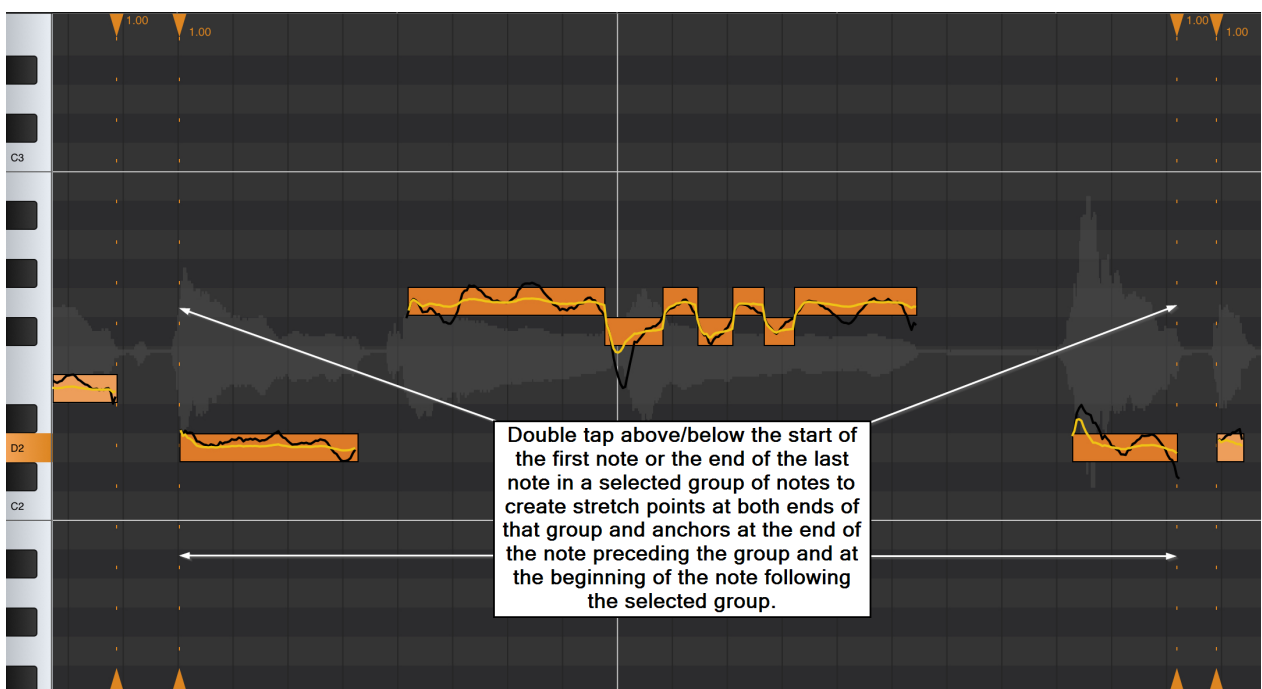
point and anchors will be placed at the beginning and the end of the group. As in all anchor/stretch point creation modes, the beginnings and ends of notes will be snapped to when you double tap above or below them but, as seen in the screenshot below, stretch points can also be placed elsewhere. Remember that you can zoom in using pinch/pull with two fingers for greater control over the placement of anchor/stretch points.



As with the previous mode, long pressing an existing anchor to slide it as a stretch point will automatically create a new anchor point depending on where the first anchor sits in relation to other anchor/stretch points. It will be created at the next 'logical increment'. If the current anchor sits at the beginning of a note, the new anchor is created at the end of that note or the note preceding it. If the current anchor is at the end of a note, the new anchor is created at the beginning of that note or at the beginning of the next note on the grid. This behavior stops you accidentally using the beginning or end of the clip as the de facto anchor when other notes lie between the current anchor and the beginning or end of the clip. See the example below which uses the last setup as its starting point.




Just like 'For one note or a selection of notes' mode, to time stretch a **group of notes**, you first need to select that group by long pressing in an empty part of the gray piano roll area and sliding the highlighted area which appears left or right until all of the notes you require are within the highlighted area; then release to select them all. The selected notes will turn from yellow to orange to indicate they have been selected as can be seen below. Then, double tap under/above the **beginning** of the first selected note **or** under/above the **end** of the last selected note to auto place anchors/stretch points as shown below. Anchors are created at the end of the last note preceding the selected group of notes and at the beginning of the first note which follows the selected group of notes. Stretch points/anchors are also created at the beginning of the first note in the selected note and at the end of the last note within those selected. If you then want to stretch from a different point within the selected group other than the points automatically created, simply double tap in the empty gray area at the point at which you'd like to initiate the stretch from and the additional anchor/stretch point will be created.



If you double tap under/above the **beginning** of the first note to be shown within Vocal Tune Studio, and that note is identified as part of a group of notes, only two anchor/stretch points will appear to be created at the beginning of that note and at the end of the last note in the group. This is because Vocal Tune Studio automatically uses the beginning of the audio clip as the third anchor in this situation.


If you double tap under the **end** of the last note to be shown within Vocal Tune Studio, and that note is identified as part of a group of notes, only two anchor/stretch points will appear to be created at the end of that note and at the beginning of the first note in the group. This is because Vocal Tune Studio automatically uses the end of the audio clip as the third anchor in this situation.

'None' mode

To select this mode, please find the **Auto-create stretch anchor points** options in Vocal Tune Studio's **Settings** which can be accessed via the **Three Dot Button** .

As the name suggests, in 'None' mode, no anchor/stretch points are auto-created and every individual anchor/stretch point must be manually placed by the user. As such, this mode is very easy to use but you must remember to place anchors for your stretch points to avoid time stretching parts of your audio you wanted left unaffected. The start and the end of the audio clip will act as de facto anchors if no others are placed between them and a stretch point.

As in the other two modes, double tapping close enough to being exactly under/over the beginning or end of notes will snap the anchor/stretch point to the beginning or end of the note, but anchor/stretch points can be freely placed anywhere. Zoom in using pinch/pull with two fingers to have greater accuracy when placing anchor/stretch points. If placed in the wrong

place, you can immediately use the **Undo**  function and existing Anchor/stretch points can also be removed at any time by double tapping on them again.

Time only mode

[Introduction and instructions](#)
[User Interface \(Tablet and phone\)](#)

Introduction and instructions

Vocal Tune Studio Time only mode allows you to set anchor/stretch points and then time stretch those specific parts of your audio without changing their pitch.

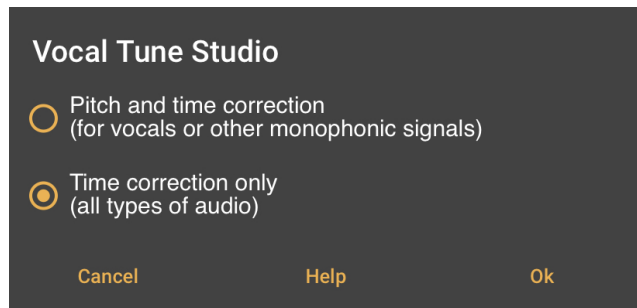
Unlike Pitch and Time mode which can only be used for monophonic (one note at a time) sound sources and preferably a monophonic audio recording (one audio channel only), Time only mode can be used with any audio file (please note, though, that the screenshots below show a monophonic audio clip loaded - if a stereo clip were loaded, the waveforms of both the left and right channels would be represented in the display).

NOTE. Real time time stretching like this is a very CPU intensive task and, for that reason and because of the enormous number of varied devices Vocal Tune Studio needs to be able to run on, the time stretching factor in Vocal Tune Studio has been limited to between 0.33x and 3.0x of the original duration. This should be adequate for most needs but, if not, a possible workaround could be to apply the maximum/minimum stretching limit, render the clip to audio file and then reload that rendered audio to open in Vocal Tune Studio again where the required part could be stretched within the limits again. The current stretch factor used for each section to the right of an anchor/stretch point is displayed next to the anchor/stretch points at the top of the display.

Open your audio clip in Vocal Tune Studio Time only mode by either double tapping on it on the Audio Evolution Mobile timeline (unless you've deselected this option in the Audio Evolution



Mobile's **Settings** (Settings) or by tapping once on it to select it, tapping the selected clip's Three Dot Button to open the **Clip Options** and selecting **Vocal Tune Studio** at the top of those options. Both of those actions will open the following dialog.



This allows you to select which mode Vocal Tune Studio will open your audio in. Select **Time correction only** and tap **Ok**.


Your audio will now be opened in Vocal Tune Studio's Time only mode. If you have yet to purchase Vocal Tune Studio as an in-app purchase you will first be shown a Try/Purchase dialog. When in trial mode, two seconds of silence will be played now and then during playback and all forms of export involving Vocal Tune Studio will be blocked.


The screenshot below shows the clip used in the tutorial opened in Time only mode. As you can see, the audio waveform is shown in light gray across the center of the timeline display. A full guide to the user interface can be found [here](#).



The key to using Vocal Tune Studio's Time only mode is the placement of anchor/stretch points. Anchors and stretch points are essentially the same thing, the difference being that the stretch point is *between* two anchor points and can therefore be used to initiate a stretch from that point whilst the overall stretching is constrained between the anchor points. Add another anchor beyond one of the two existing anchors and the original anchor point closest to it can then be used as a stretch point itself, using the original stretch point as its anchor on the other side. As such, these markers can be simultaneously anchors and stretch points depending on whether they exist between two other anchors/stretch points or not and how they are then interacted with.

Anchor placement in Time only mode is the same as the Pitch and Time mode's 'None' option for auto placement (except there are no notes to be snapped to). As such, all anchor/stretch points must be manually created by the user by double tapping at the desired position within the waveform display area. This being the case, it is especially important to remember to place anchors on either side of your desired stretch point to ensure that you only time stretch the part of your audio you want rather than stretching everything using the start and end of the clip as


de facto anchor points (unless that's what you want to do). Remember that the **Undo**  option is always there if you place an anchor/stretch point in the wrong place, that you can double tap on existing anchor/stretch points to remove them and there is also the **Remove all**

stretch points option available via the **Three Dot Button**  should you want to reset and start again. The **Remove time correction** option, also available via the Three Dot Button, will remove all effects of Vocal Tune Studio Time only mode from your audio, unload it and return you to Audio Evolution Mobile's Arranger Screen.

The screenshot above shows the audio clip opened in Time only mode but has yet to have any anchor/stretch points placed to be used for time stretching. Let's resize the display by pinch/pulling with two fingers to zoom into part of the audio present and place some anchor/stretch points.



Anchor/stretch points are placed by double tapping at the points at which you want them to be created. Zooming into your audio gives you much more control of this process. If you place one

in the wrong place, simply use the **Undo**  button immediately or double tap on it again at any time to remove it.

Anchor/stretch points are represented by triangular orange markers at the top and bottom of the waveform display area with a dotted yellow line running between them to indicate their position throughout the display.

In the screenshot above, three anchor/stretch points have been placed. Number **1** at the beginning of a section of audio represented in light gray; number **2** at the end of that section of audio and number **3** at the beginning of the next peak in the audio waveform.

As mentioned above, anchors and stretch points are essentially the same thing, the difference being that the stretch point is *between* two anchor points and can therefore be used to initiate a stretch from that point whilst the overall stretching is constrained between the two anchor points. As such, in the screenshot above, you can see how -

Number **1** is an anchor for number **2**.

Number **1** is a stretch point using the **beginning of the audio clip** and number **2** as anchors.

Number **2** is an anchor for numbers **1** and **3**.

Number **2** is a stretch point using numbers **1** and **3** as anchors.

Number **3** is an anchor for number **2**.

Number **3** is a stretch point using number **2** and the **end of the audio clip** as anchors.

After you have placed some anchor/stretch points you can begin to time stretch your audio as seen in the next screenshot.



To use a stretch point, simply long press on it until its dotted vertical line becomes a solid orange line and continue to hold as you slide left or right to shrink/stretch the audio between the anchor points from the position of the stretch point.

In the screenshot above, anchor/stretch point number **2** has been slid to the shortening the duration of the audio between **1** and **2** and increasing the duration of the very quiet section of audio between **2** and **3**.

At this point it is worth reiterating the note above. Real time time stretching is a very CPU intensive process so the stretch factor in Vocal Tune Studio is limited to between 0.33x and 3.0x the original duration. The current stretch factor used for each section to the right of an anchor/stretch point is displayed next to the anchor/stretch points at the top of the display.


The result of sliding anchor/stretch point number **2** to the right can be seen below.




In the screenshot above, anchor/stretch point number **2** has been long pressed until its vertical line has become a solid orange line and, whilst continuing to hold, slid to the right. This has increased the duration of the audio between anchor/stretch points 1 and 2 and shortened the duration of the very quiet audio between **2** and **3**.

You can add as many anchor/stretch points and apply as many stretches as as you require to achieve your goals within your audio clip. Remember you can remove individual anchor/stretch

points by immediately using the **Undo**  function or by double tapping on them again. To

move back to the Audio Evolution Mobile Arranger Screen, tap the **Close**  button. This will not remove your edits within Vocal Tune Studio Time only mode and you can return to its interface by once again double tapping the audio clip on the Audio Evolution Mobile timeline or by using its **Clip Options** as described above. As also stated above, you can reset your audio and remove all anchors without leaving Vocal Tune Studio using the **Remove all stretch points**

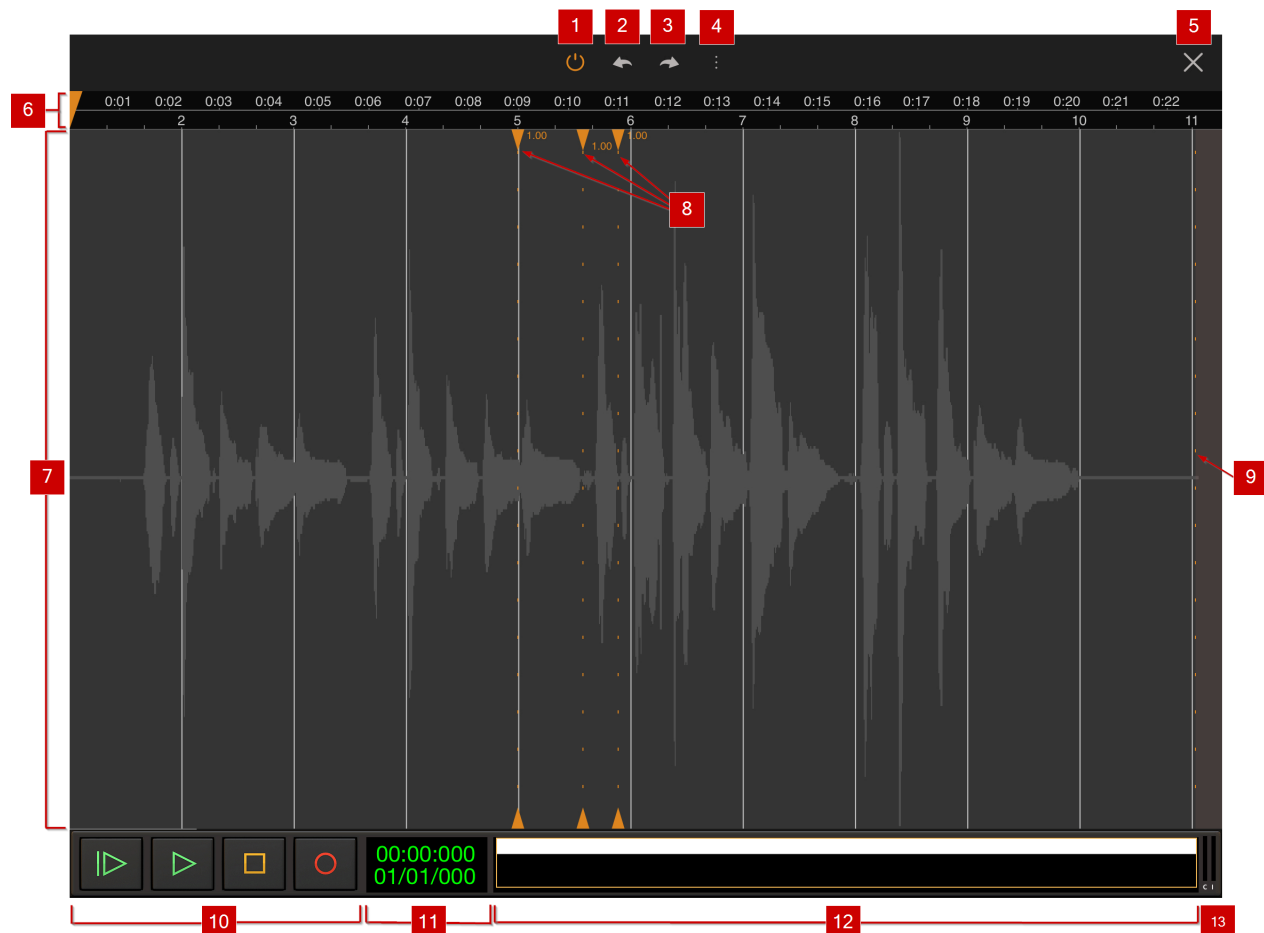
option available via the **Three Dot Button**  and you can completely remove the effects of Vocal Tune Studio and exit its interface using the **Remove time correction** option found in the same place. Both of those options cannot be undone so please use with caution.

Vocal Tune Studio User Interface Time only Mode


The Vocal Tune Studio Time only mode user interface, with a demonstration audio clip loaded, is shown below. This screenshot shows the user interface on a tablet screen but the same layout is also used for smaller phone screens. On any size screen, always remember that you can zoom in using pinch/pull with two fingers to gain greater accuracy with your edits. Any audio can be opened in Time only mode. The interface as shown below shows the Happy Birthday To You vocal clip, used for the tutorial in this manual, loaded. This is a monophonic (single channel) audio file. If a stereo audio file were loaded, the waveforms of both channels, left and right, would be represented in the user interface.


Instructions on how to use Vocal Tune Studio Time only mode can be found in the previous section [here](#).


NOTE. Real time time stretching like this is a very CPU intensive task and, for that reason and because of the enormous number of varied devices Vocal Tune Studio needs to be able to run on, the time stretching factor in Vocal Tune Studio has been limited to between 0.33x and 3.0x of the original duration. This should be adequate for most needs but, if not, a possible workaround could be to apply the maximum/minimum stretching limit, render the clip to audio file and then reload that rendered audio to open in Vocal Tune Studio again where the required part could be stretched within the limits again. The current stretch factor used for each section to the right of an anchor/stretch point is displayed next to the anchor/stretch points at the top of the display.





1 On/Off or Active/Bypass button  .

2 Undo button  . Pressing this button undoes the last edit made within Vocal Tune Studio should you make a mistake. The undo stack is unlimited, so you can undo all the way back to when you started editing. The undo stack in Vocal Tune Studio is separate from the undo stack within Audio Evolution Mobile meaning you can close the Vocal Tune Studio interface using the


Close Interface  button, reopen it and still be able to undo your previous edits within Vocal Tune Studio. **Remove all stretch points** and **Remove time correction**, selectable from within

Vocal Tune Studio's options available via the **Three Dot Button**  , cannot be undone and will clear the Undo stack.

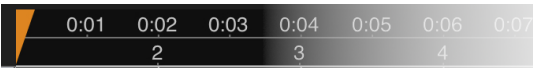

3 Redo button  . Pressing this button re-applies the last edit undone using the Undo button as long as no further edits have taken place since using the Undo function.

4 Three Dot Button/Options  . Pressing the **Three Dot Button** opens a drop-down list of options as follows.

- **Remove all stretch points** Selecting this option will remove all anchor/stretch points from your current audio clip and reset all of the timing back to its original state. This will not exit the Vocal Tune Studio Time only mode interface. This can be used when you want to start again completely fresh. This action cannot be undone so please use with caution. You will be shown a confirmation dialog before this is carried out.
- **Remove time correction** This option will completely remove any effect Vocal Tune Studio Time only mode has had on your audio and unload it, taking you back to Audio Evolution Mobile's Arranger Screen. Again, this action cannot be undone so please use with caution. You will be shown a confirmation dialog before this is carried out.
- **Help** Selecting this will show you a brief help guide to the functionality of Vocal Tune Studio Time only mode.

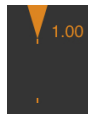
5 Close Interface button  . Pressing this closes the Vocal Tune Studio interface and returns you to the Audio Evolution Mobile Arranger Screen. Double tap the audio clip, or use the **Clip Options** again to re-enter Vocal Tune Studio whenever required. This does not remove the time-stretching applied within Vocal Tune Studio Time only mode and it will be in the same state you left it in when you return (as long as you haven't closed Audio Evolution Mobile without saving your project in the meantime). If you do want to completely remove the effects of Vocal Tune Studio Time only mode completely, select **Remove pitch correction** from the options found via


the **Three Dot Button**  .

6 Timeline  showing the **Time Marker**  at the beginning of the clip. Tap on the timeline to reposition the **Time Marker** or use the **Project**


Overview/Scrollpad to move it to the place you'd like playback to start from. Please note that markers such as Loop markers, present on the Audio Evolution Mobile Timeline, will not be visible on the Vocal Tune Studio Timeline but their effect will still be acknowledged during playback.

7 Waveform Display Area. This is the main work area for Vocal Tune Studio Time only mode. This is where you place anchor/stretch points and time stretch your audio. As can be seen, the audio waveform is represented in light gray across the display. You can freely zoom in and out of the waveform using pinch/pull with two fingers and scroll left or right to reposition your view by sliding with one finger (or use the **Scrollpad** below this area) to increase your accuracy when placing anchor/stretch points and time stretching your audio. Please note that, in the screenshot above, the Happy Birthday To You vocal clip, used for the tutorial in this manual, is loaded. This is a monophonic (single channel) audio file. If a stereo audio file were loaded, the waveforms of both channels, left and right, would be represented in this area.




8 Anchor/stretch points . Anchor/stretch points are placed by the user and define which part of the audio is to be time stretched and from what position that stretching is initiated. They are represented as triangular orange markers at the top and bottom of the Waveform Display Area and have a dotted orange line running between these markers indicating their position throughout that area. When an anchor/stretch point is long pressed upon, the dotted line turns solid orange, indicating that the user can continue to hold and slide that point left or right to time stretch the affected audio. The number to the right of each anchor/stretch point at the top indicates the time stretch factor used for that area of audio within the number sits (between 0.33x and 3.0x the original duration). Anchors/stretch points can be placed by double tapping in the Waveform Display Area at the desired place. If incorrectly placed, the Undo button can be used or existing anchor/stretch points can be removed by double tapping on them again. For full details about placing and using anchor/stretch points in Vocal Tune Studio Time only mode, please see the previous section [here](#).



9 End of audio clip . This dotted orange line and the orange-gray area beyond it indicates the end of the loaded audio clip. Please note that the beginning and end of the audio clip will automatically be used as anchor points if no others are placed after or before them by the user to restrict the time stretching initiated with an anchor/stretch point.




10 Playback Transport Controls . These are the controls for starting and stopping playback and recording.



Start Playback from the beginning of the project or looped section.



Playback from the position of the **Time Marker** (The orange marker  in the Timeline). The play button will turn into a pause button when playing. Pressing pause will stop playback and (unlike Stop) un-pausing will continue playback at the position when pause was pressed.




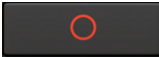
Stop Playback or Recording.

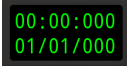



Record. Perhaps you want sing along with the pitch corrected Vocal Tune Studio version of your vocal and record another take without leaving the Vocal Tune Studio

interface? Pressing Record while within Vocal Tune Studio will record audio to an automatically created new track on the Arranger Screen of Audio Evolution Mobile when

Automatic track creation is enabled in Audio Evolution Mobile's **Settings** . If Automatic track creation is not enabled, you will first need to create an audio track and Arm

 it - or Arm an existing audio track - within Audio Evolution Mobile otherwise recording will fail. Just be sure to use headphones so that only your new vocal take is picked up by the microphone.

11 Playback Timer Display . This display shows the current time during playback and in red during recording. When playback and recording are stopped it displays the current position


of the **Time Marker** (the orange marker  shown in the Timeline). Tapping the **Playback Time Display** once will open the Tempo options for the current project. The top counter shows the time in minutes, seconds and milliseconds. The bottom counter shows the time in bars (or measures), beats and ticks (the resolution is 192 ticks per beat) according to the project Tempo settings.


12 Project Overview / Scrollpad

The **Project Overview/Scrollpad** is a very useful feature which displays a miniature view of the entire project and allows you to quickly move within the timeline. Since there is only one track in the screenshot above, the **Project Overview/Scrollpad** in it perhaps doesn't illustrate this as well as possible. As such, here is an alternative **Project Overview/Scrollpad**



. Here you can more easily see how all of the tracks, clips and the full duration of the project is being displayed. By touching and sliding within the **Project Overview/Scrollpad**, you can quickly select and move your viewpoint


within Vocal Tune Studio and simultaneously position the orange Time Marker  in the Timeline without your finger obscuring it as you do so. A yellow rectangle, shown within the Project Overview/Scrollpad, indicates what part of the project is currently being displayed on the screen.

13 CPU usage meter . You can choose whether or not to display the **CPU usage meter**

from within Audio Evolution Mobile's **Settings** .

Example Tutorial

For this example, the song Happy Birthday To You has been chosen. This song is now in the public domain but is generally accepted to have been originally derived from Good Morning To All, written by Patty and Mildred J. Hill in 1893. Most importantly, it was chosen because it is hopefully a tune which is familiar to almost everyone who reads this.

Here is the musical notation for the vocal melody of Happy Birthday To You. This is what was sung in the recorded audio clip which was opened within Vocal Tune Studio. Those of you familiar with musical notation will see that it is in the key of G major and in 3/4 time with a quarter note/crochet value of 80 beats per minute. It begins with an anacrusis/pick up/lead in before the first downbeat of the first measure (please note that MIDI and Vocal Tune Studio do not deal with an anacrusis as written notation does: for them the piece starts on the third beat of the first bar. This is why the notation considers the first measure to be the one after the anacrusis but MIDI and Vocal Tune Studio consider that bar to be the second measure). The  symbol above the 6th measure is called a fermata and indicates that the note should be held longer than it's notated value according to the performer's discretion. If you sing through Happy Birthday, you'll realize that this note is indeed extended in performance.

Vocal



♩ = 80

1 2

Ha - ppy birth - day to you. Ha - ppy

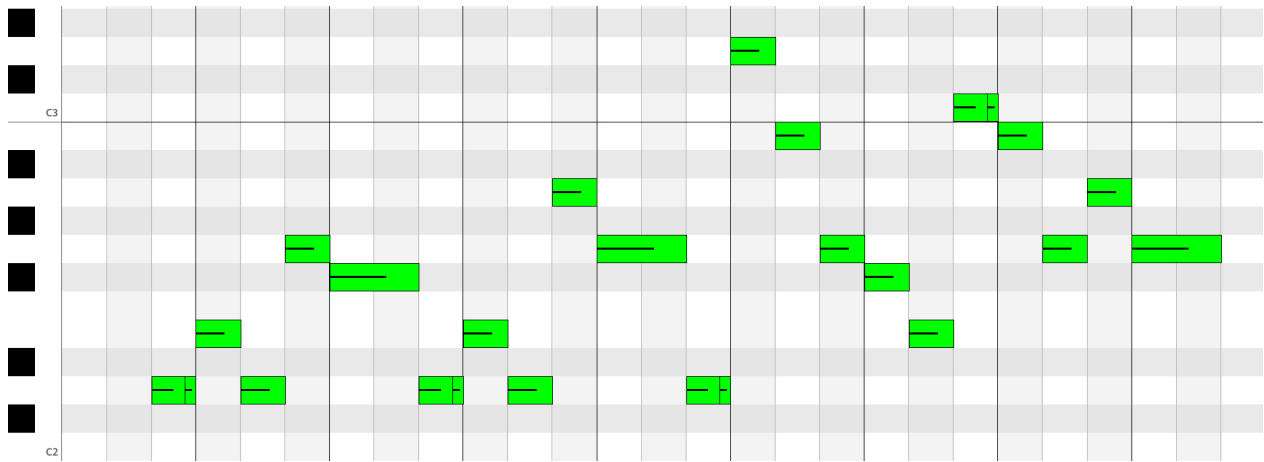
3 4 5

birth - day to you. Ha - ppy birth - day dear

6 7 8

(your name), ha - ppy birth - day to you.

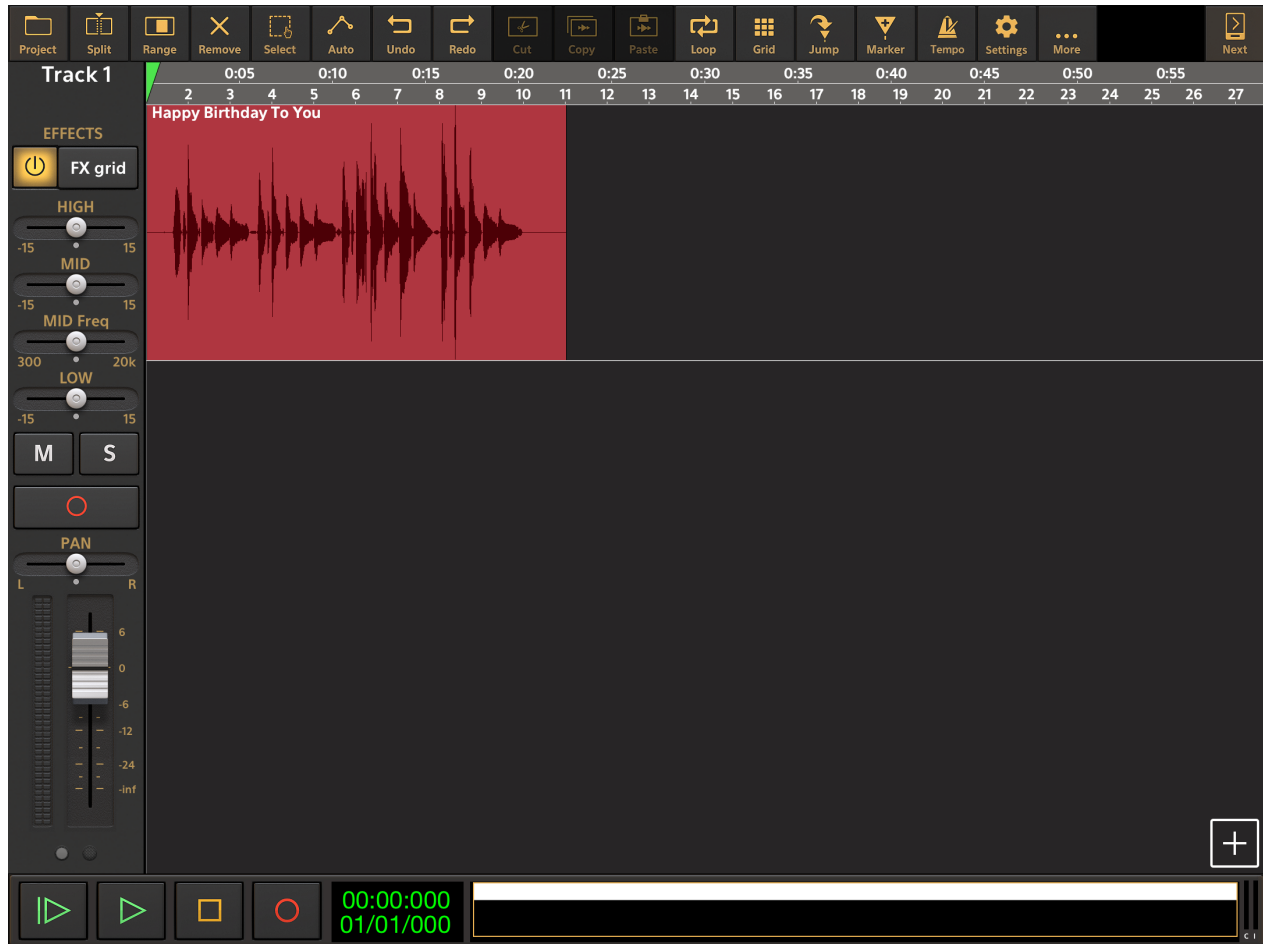
For those of you who do not read musical notation, here is the same musical information represented as MIDI events on Audio Evolution Mobile's piano roll editor. This shows the musical notes as written in the notation and therefore does not translate the fermata which is a user defined performance note not a specific value which can be automatically translated into MIDI. The Audio Evolution Mobile project has been set to a 3/4 time signature at 80 beats per minute.




This, then, is what is being aimed for in the recorded vocal performance.

At this point, it is worth remembering the advice given earlier in the manual, [here](#), regarding ensuring that your vocal recording is as good as possible to allow Vocal Tune Studio to give you the very best results. Ideally, you want a good, clear, monophonic recording of your solo vocal performance without any additional sounds present.


Here is our example vocal recording on the Arranger Screen within Audio Evolution Mobile. The project tempo has been set to 3/4 time with a BPM (beats per minute) of 80.



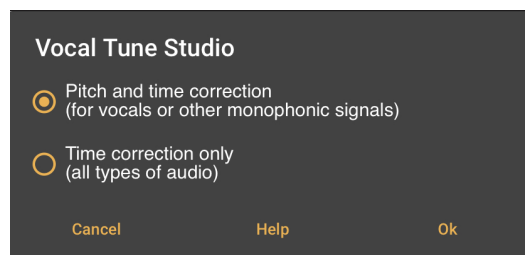
As you can see, this is a monophonic recording, meaning only one audio channel is present. The clip has also been normalized within Audio Evolution Mobile to ensure that its peak volume is maximized without clipping and distorting. Details on how to normalize audio can be found within

the Audio Evolution Mobile user manual which can be accessed via the More  button and **Help**.

To open the audio clip in Vocal Tune Studio, we can either double tap on it (unless this option is

deselected in the **Settings** ) or tap it once to select the clip, then tap the **Three Dot Button** displayed on the selected clip to open the **Clip Options**, where **Vocal Tune Studio** can be selected as the first option on the list. Full details on opening Vocal Tune Studio can be found [here](#).

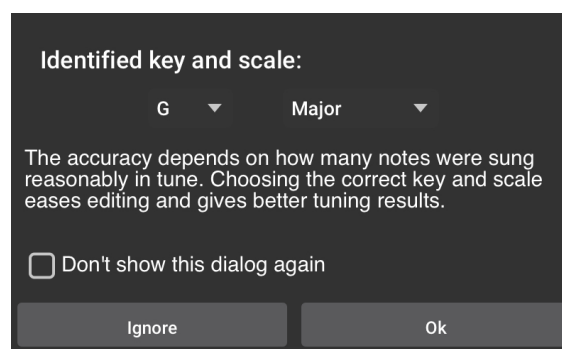
After double tapping or selecting **Vocal Tune Studio** you will be shown the following dialog, allowing you to choose whether Vocal Tune Studio opens the clip in its Pitch and Time or Time only mode. In this example Pitch and Time will be selected.




After selecting the Pitch and Time mode, Vocal Tune Studio will analyze the audio in the clip.

If you have yet to purchase Vocal Studio as an in-app purchase, you will be shown a Try/Purchase dialog before proceeding. Trial mode allows you to evaluate Vocal Tune Studio with all functions available, though two seconds of silence will be played now and then during playback and all forms of export involving Vocal Tune Studio will be blocked. Select Purchase or Try to proceed.

If you have already purchased Vocal Tune Studio, you will then be shown the **Identified key and scale** estimation as seen below (as long as you have chosen for it to be displayed).



Sometimes, this dialog will not be shown. This is either because Vocal Tune Studio hasn't been able to estimate a key and scale - maybe, for example, there weren't enough notes present to make a reasonable judgment - or because you have chosen for it not to be displayed as you can see is an option. If Vocal Tune Studio has not been able to identify a key and scale, or you have chosen for it to not estimate the key and scale (either by selecting the **Don't show this dialog again** checkbox or by deselecting **Estimate key/scale** in Vocal Tune Studio's Settings via its

Three Dot Button () it will open in Chromatic (all notes) mode.

The Identified key and scale dialog also allows you to immediately change the key and scale, using the drop-down options, if the wrong estimation has been made (this can also be done later within Vocal Tune Studio) and allows you to **Ignore** the identified setting, which will, again, open Vocal Tune Studio in Chromatic mode.

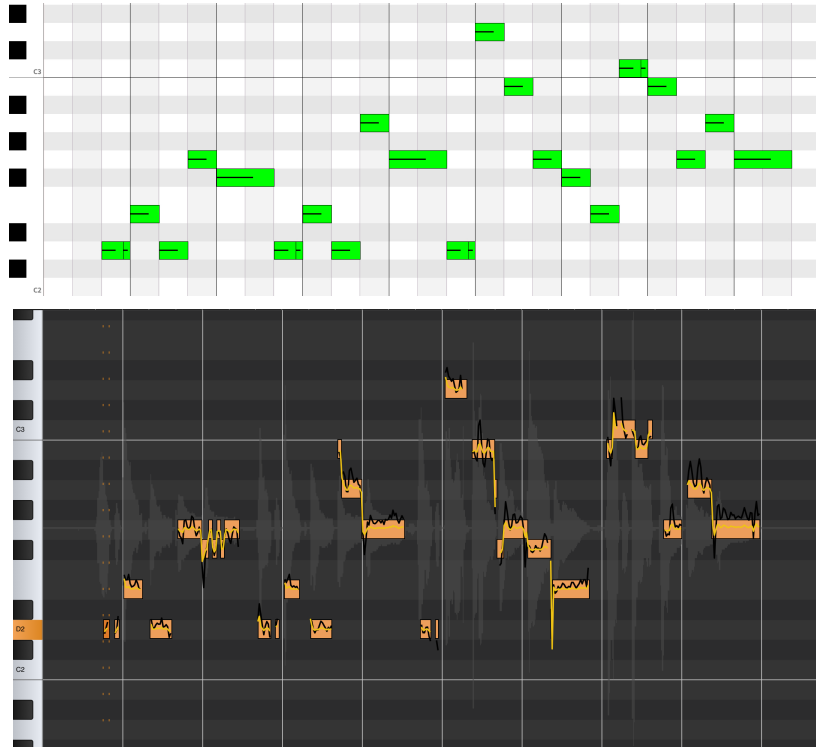
As you can see, here Vocal Tune Studio has correctly identified that the Happy Birthday clip was sung in G Major, so we click **Ok**.



Here, then, is the Happy Birthday vocal recording opened in Vocal Tune Studio. Vocal Tune Studio has identified pitches and grouped them together as notes (according to the Note sensitivity setting). It has then applied its default retuning settings (as long as **Start with last used preset** hasn't been selected in the Settings) to all of the notes and snapped them to their

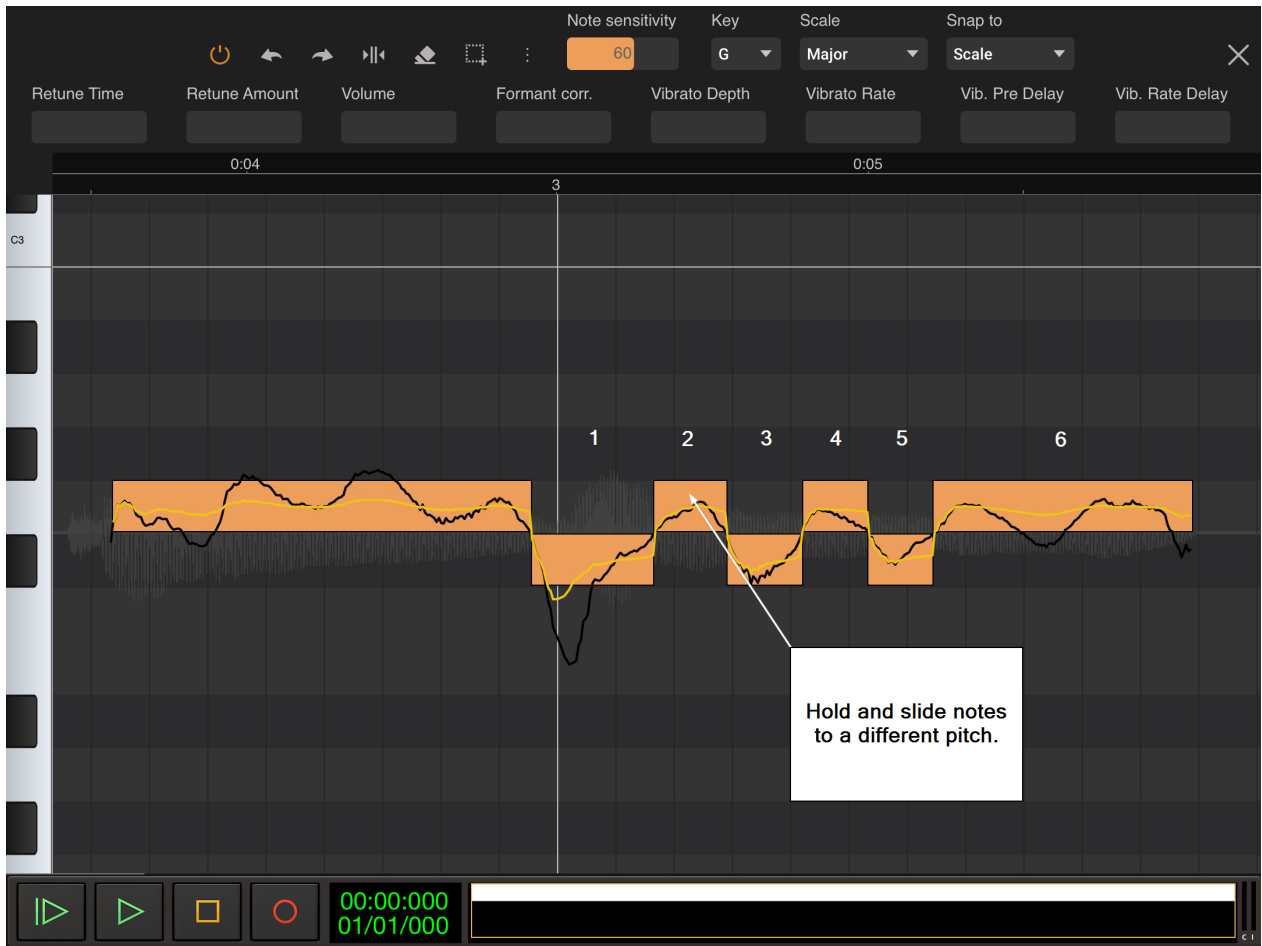
closest correct pitches within the key of G Major. In the background, in gray, can be seen a representation of the original audio waveform.

From this point, we can make any adjustments required to fine tune the pitch and timing, as well as how any retuning is applied.



If we compare the MIDI clip from earlier with the representation of the Happy Birthday vocal clip in Vocal Tune Studio, we can see it has already done a pretty good job using its default settings. There are clearly places though where the original vocal pitch has wavered enough that extra notes have been identified, assigned their own place on the piano roll grid and have been snapped to an undesired note within the G Major scale. For example, look at the note at the beginning of the third measure and how it is comprised of many smaller notes in the Vocal Tune Studio display compared to the single MIDI note on the left.

Let's zoom right in and have a closer look at this area.



So, instead of one note representing the sung word, starting at the third measure, we have six notes alternating between F#2 and G2 indicated here by the white numbers above them. Now, it is possible that this pitch fluctuation was deliberate on the part of the performer in which case obviously you would not want to remove it but that wasn't the case here so we need to make some corrections ourselves.

The first thing to do, then, is to hold and slide the notes currently at the wrong pitch to the correct pitch of F#2 as has been done in the next screenshot. Note that the final note is orange rather than yellow as it selected after being touched and moved into the correct position. Having a note selected means that its retuning parameters become available at the top of the screen where previously they were grayed out as no notes were selected. These parameters can be set per note by tapping on it once, per group of notes by long pressing in an empty area of the piano roll and sliding right or left to select a group of notes, or set for all notes by first selecting them using

the **Select all**  button.

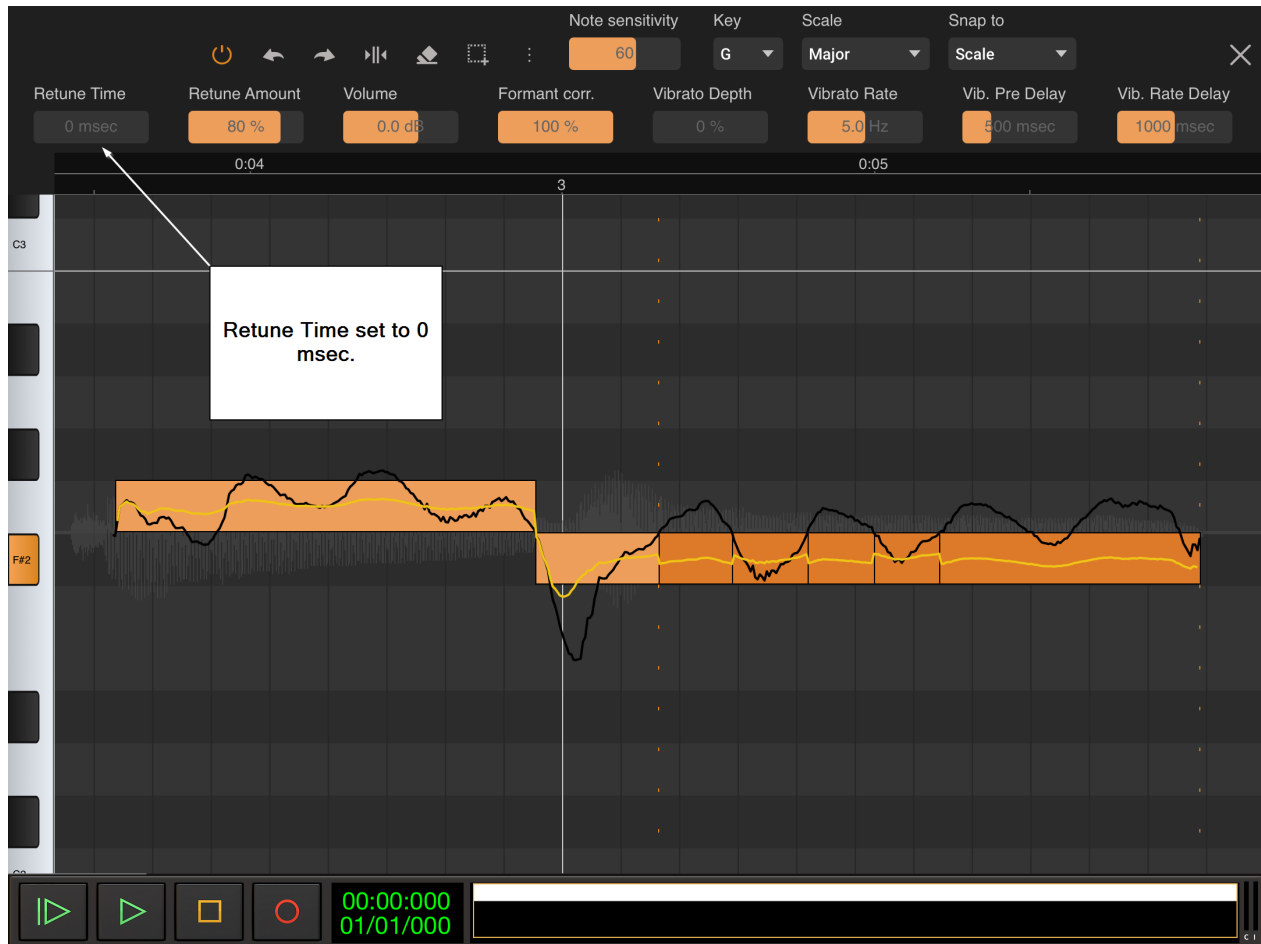


All six notes now sit on the correct pitch of F#2 but during playback, things still don't sound quite right and, looking at the screenshot above its easy to see why. As explained fully [here](#), Vocal Tune Studio represents pitch in three ways. First, the black line represents the actual detected pitch from the original audio. This is the pitch as sung and will remain the same whatever pitch correction settings are used.

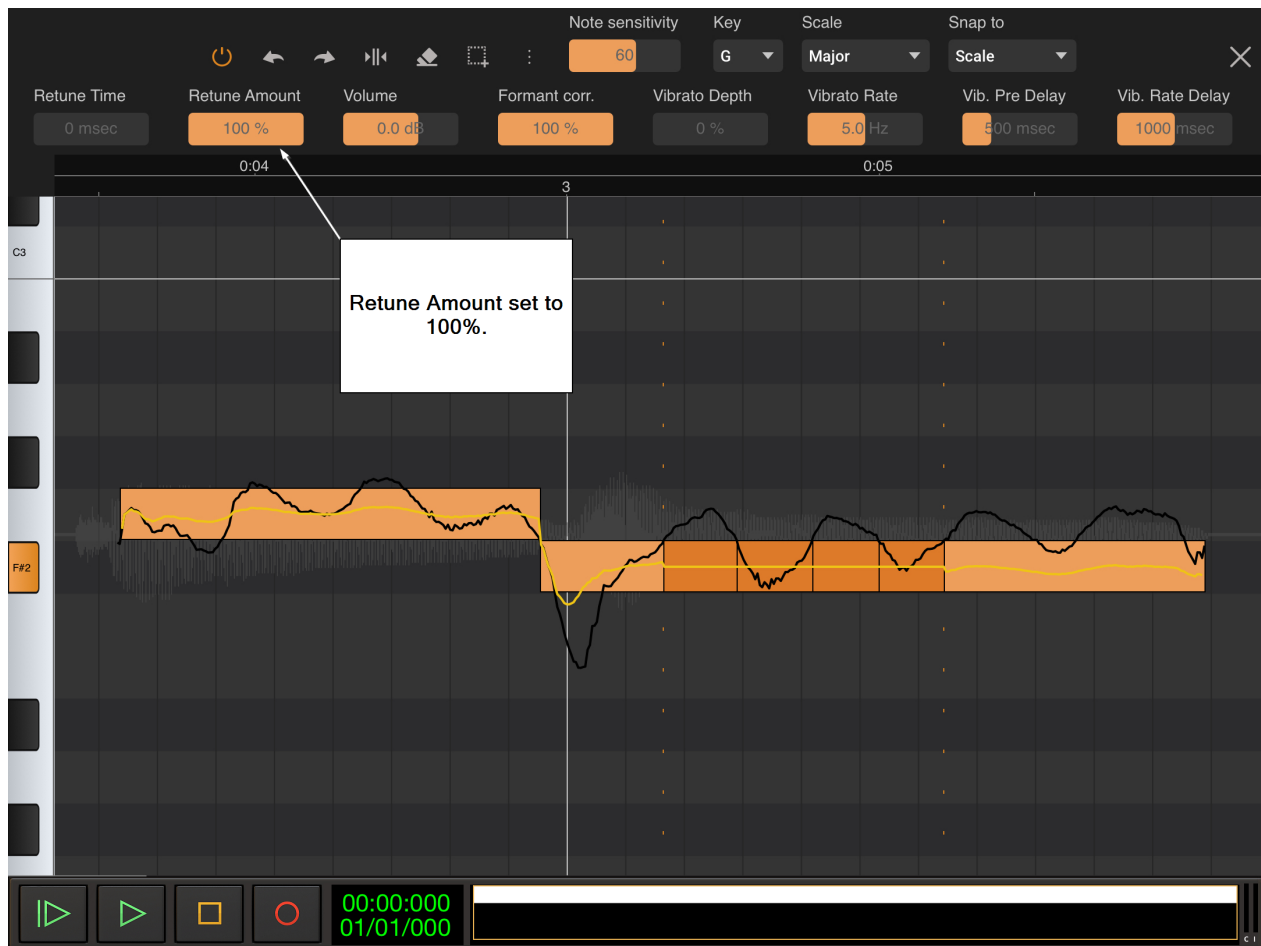
Secondly, there's the note on the piano roll which indicates places where enough similar frequencies have occurred next to each other to be grouped together and considered a note event. The sensitivity for this procedure will be governed by the **Note sensitivity** setting at the top of the user interface. A lower Note sensitivity setting will allow a greater variance in adjacent pitches to be considered part of the same note event resulting in fewer and longer notes on the piano roll. In our example here, if the Note sensitivity is turned down to 40 from the default 60, two longer notes are created, one on F#2 and the other on G2, instead of the six fluctuating notes seen here. Increasing the Note sensitivity will result in more and shorter notes on the piano roll as Vocal Tune Studio becomes more sensitive to how similar adjacent frequencies need to be considered a note event. Once again, in our example here, if the Note sensitivity is turned all the way up to 100, our six notes here become eleven smaller notes, fluctuating between F#2 and G2 with the second note in that group of eleven being placed on E2, which makes sense when you look at the black line representing the original pitch.

Thirdly, Vocal Tune Studio gives us the yellow line which represents the retuned pitch. As you can see, it is a much more precise indication of whats happening than the notes on the piano roll and it changes accordingly when changes are made to most of the retuning parameters which

become available when a note or notes are selected. It is from this yellow line that we can see why simply moving all of the notes to the correct pitch hasn't given us the result we're after. As you can see, there are troughs or peaks in the yellow line at the beginning of every note after the first one so we need to fine tune the retuning parameters for these notes.



Here, the second to the sixth of our six notes have been selected by long pressing on an empty area and sliding left or right until they're all highlighted. This makes the retuning parameters for all of these five notes active. To get rid of the troughs and peaks, the **Retune Time** has been reduced to 0 msec from the default 70 msec. This greatly smooths out the yellow retuned pitch line as the time taken before the original pitch is retuned to the selected pitch is reduced to zero. The same has not been applied to the first note of the six to keep the retuning sounding more natural for it as that note represents the start of a word in the sung audio. These changes may, on their own, give you the result you are after, but for the sake of this tutorial we shall go further. As you can see, there are still tiny fluctuations in the yellow line at the beginning of each of the notes after the first of the six.



In the screenshot above, notes two to five of our six have been selected and their **Retune Amount** has been set to 100% from the default 80%. Notes one and six have been left as they were to keep the beginning and end of the sung word sounding natural. As you can see, though, the notes in the center of the word (notes two to five) are completely retuned to exactly the target pitch of F#2, the yellow retuned pitch line is a straight line running through them all. This is an extreme setting for the purposes of illustration in this tutorial; in reality, a setting of 100% for Retune Amount, removing all of the pitch fluctuations present in the original performance would not necessarily be chosen for this type of performance. Remember though, the important thing is for you to achieve *your* desired results and that may involve the use of exaggerated settings for the available parameters to create something out of the ordinary.

So far, we've not made any changes to the first note of our six but the default settings for its retuning parameters haven't pulled all of the yellow line/retuned pitch within the target pitch of F#2.



To correct this, the first note has been selected on its own by tapping on it once. This makes its individual retuning parameters available above. In this instance, to pull the retuned pitch closer to the exact pitch of F#2, the **Retune Time** has been reduced to 40 msec. This means the retuning is applied more quickly, pulling the yellow line within the overall F#2 note on the grid. The **Retuning Amount** has been left at its default level to retain some of the natural pitch fluctuation present in the original performance, the same as the final note of the six, to preserve the naturalness of the sung word.

There is one thing still wrong with this first note though: it should, strictly speaking, start at the beginning of the third measure, but as we can see, it starts just before.

It is important to carefully listen to your audio and the performance as a whole as you use Vocal Tune Studio to ensure that you are making the right judgment calls on what needs to be corrected, in what way and by how much. It may be, for example, that altering the timing disrupts the natural flow of the performance and it is certainly not always the case that having everything perfectly in time will give the desired result.


In this case though, we are going to correct the timing so that the first note starts exactly at the beginning of the third measure. This involves first creating two anchors and a stretch point so that the right parts are changed. Vocal Tune Studio's default anchor creation setting helps us in this by partly automating the process.



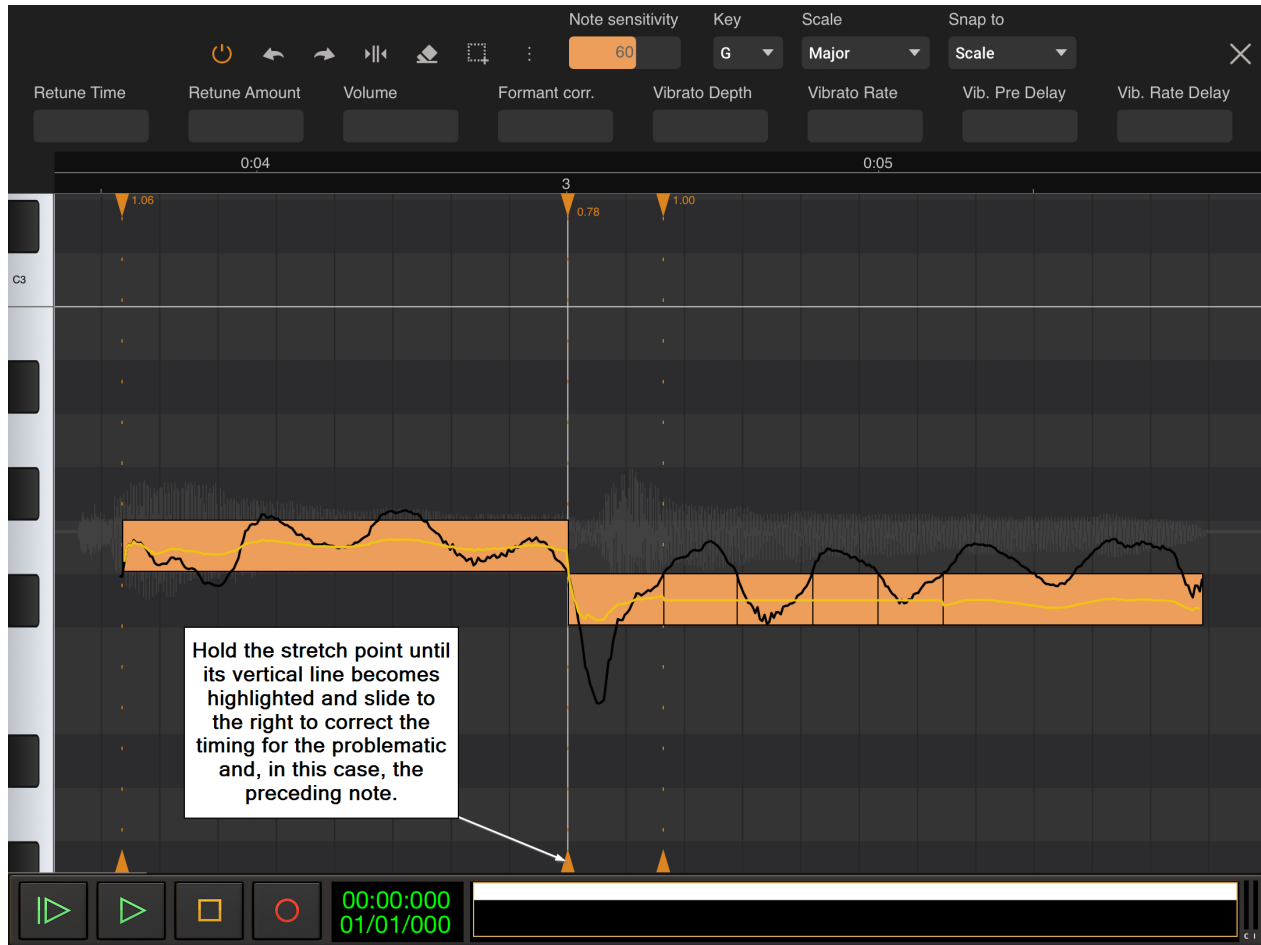
Time stretching within Vocal Tune Studio's Pitch and Time mode is fully explained in the section [here](#). That section also explains the different settings available for the creation of time stretching anchor points and stretch points. In this example we are using the default mode. In this mode, automatic anchor points and a stretch point can be created by double tapping anywhere in the gray grid space directly underneath or above the start or the end of a note. Ordinarily, double tapping under/over the beginning of a note will create an anchor point at the end of the chosen note, place another anchor at the end of the note preceding it on the grid and place a stretch point between them at the beginning of the chosen note. Double tapping under/over the end of a note will place an anchor point at the beginning of the chosen note, another at the beginning of the note which follows it on the grid and place a stretch point at the end of the chosen note.

This example varies slightly from that ordinary behavior as the note preceding the chosen note is contiguous to it, there is no gap between them. In a case such as this, then, we double tap under/above the beginning of the first note of our six and an anchor point is created at the end of that chosen note but the second anchor point is placed at the beginning of the note preceding it so that the stretch point can be placed at the beginning of the chosen note as can be seen in the screenshot above.

NOTE. If you double tap in the gray grid area within the horizontal duration of a note, rather than directly under or above the start or end of a note, a single anchor/stretch point will be created. This, in combination with auto placed anchor/stretch points, will allow you to time stretch within

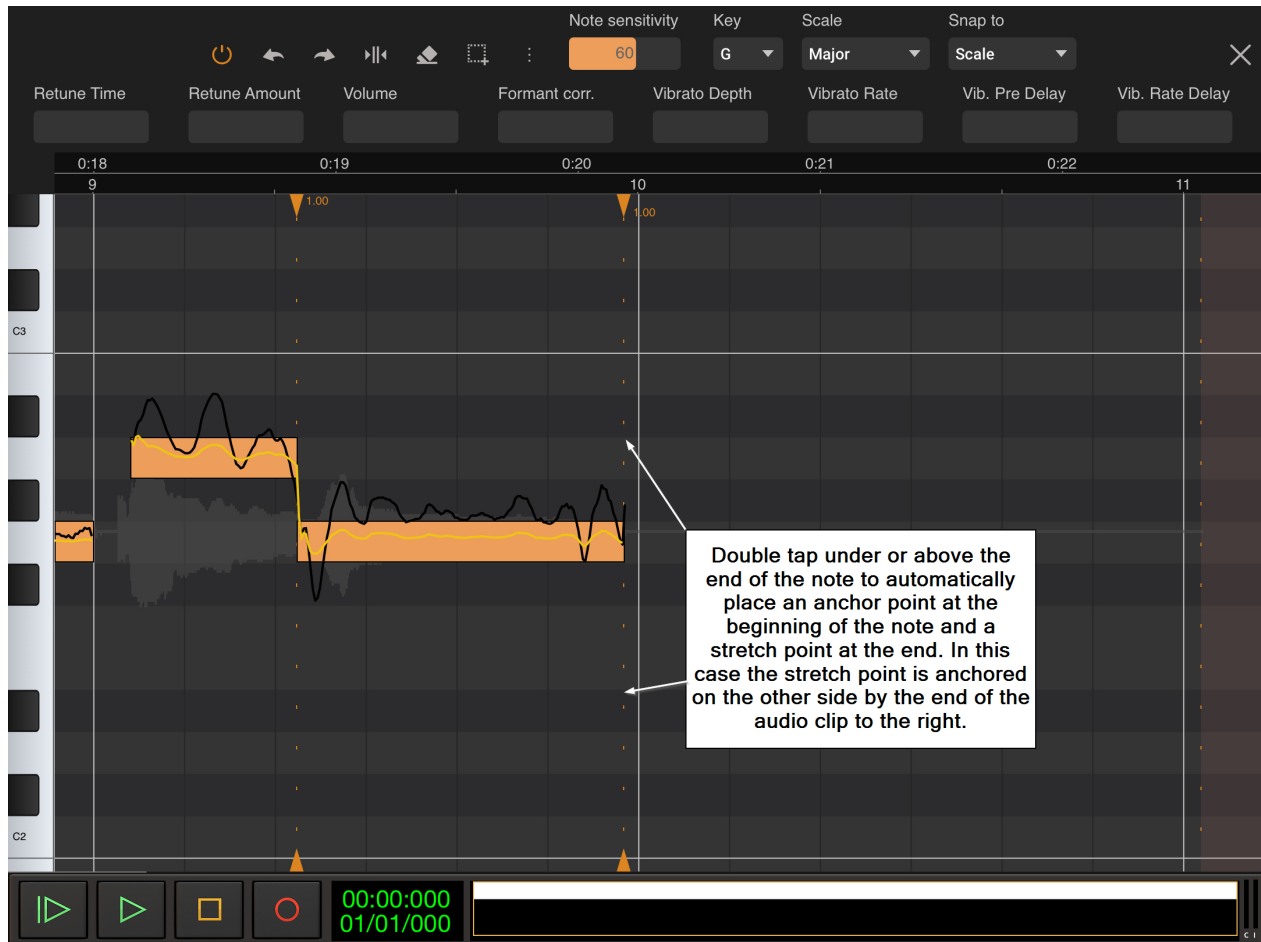
notes if required. Please remember the **Undo**  function to remove misplaced

anchor/stretch points and be aware of the other anchor placement modes available as detailed [here](#).

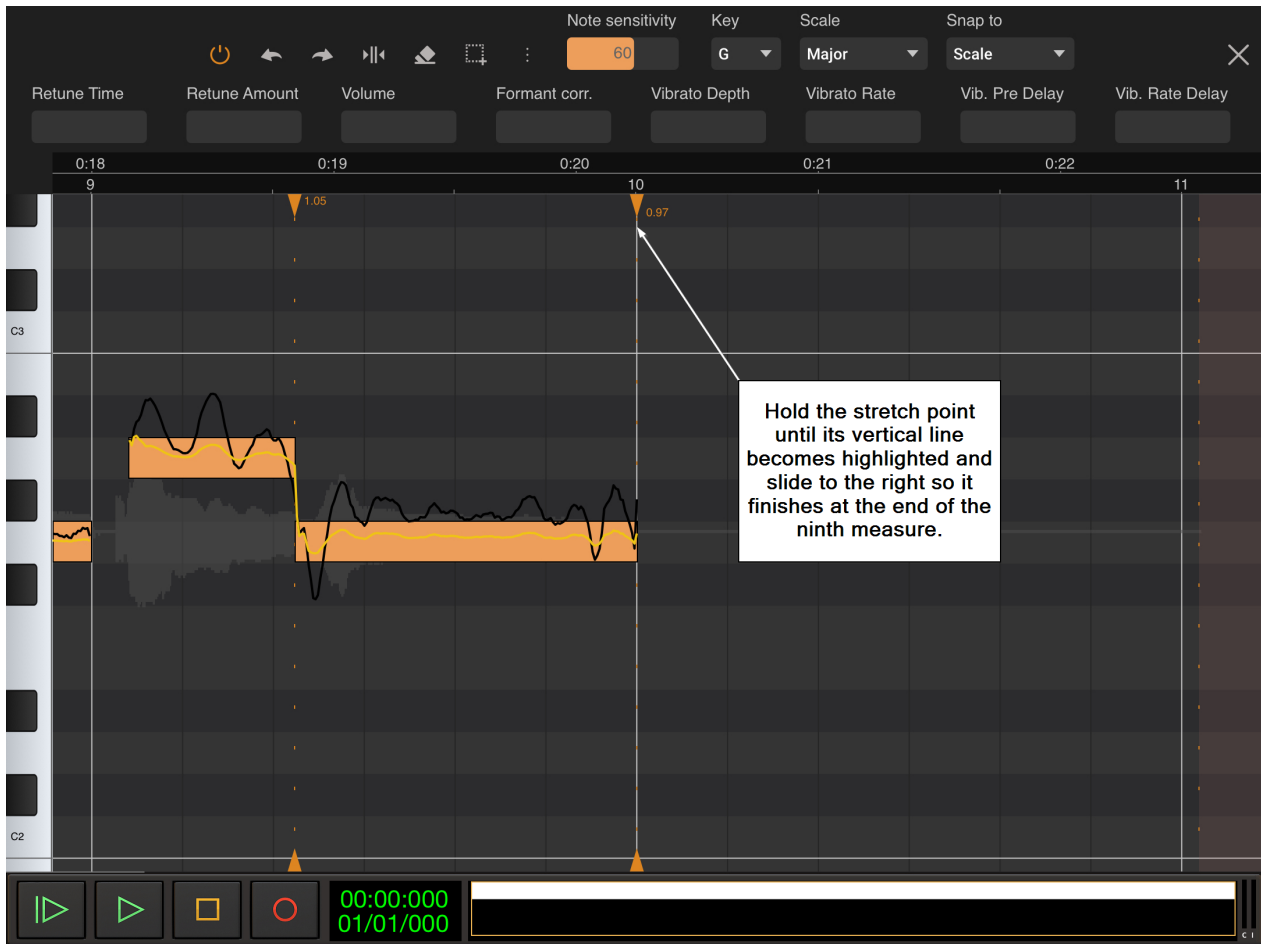


Once you have your anchor points and stretch point in place, all you have to do is press and hold on the stretch point until its vertical dotted line becomes a solid orange line and then, while continuing to hold, slide left or right to correct the timing as necessary. As can be seen above, in this case we slide the stretch point to the right so that our note number one is slightly squashed to start at the beginning of the third measure and the preceding note is slightly stretched in accordance so no gap is left and the vocal retains its original character. Notice though that notes two to six are left completely unaffected as they are outside the anchor points.

Similar adjustments to those above could be applied to the rest of the Happy Birthday performance where errors have not been corrected satisfactorily using the default settings but the last thing to illustrate here for the sake of this tutorial will be the adding of some gentle artificial vibrato to the final note. Here it is, zoomed in on the piano roll grid.

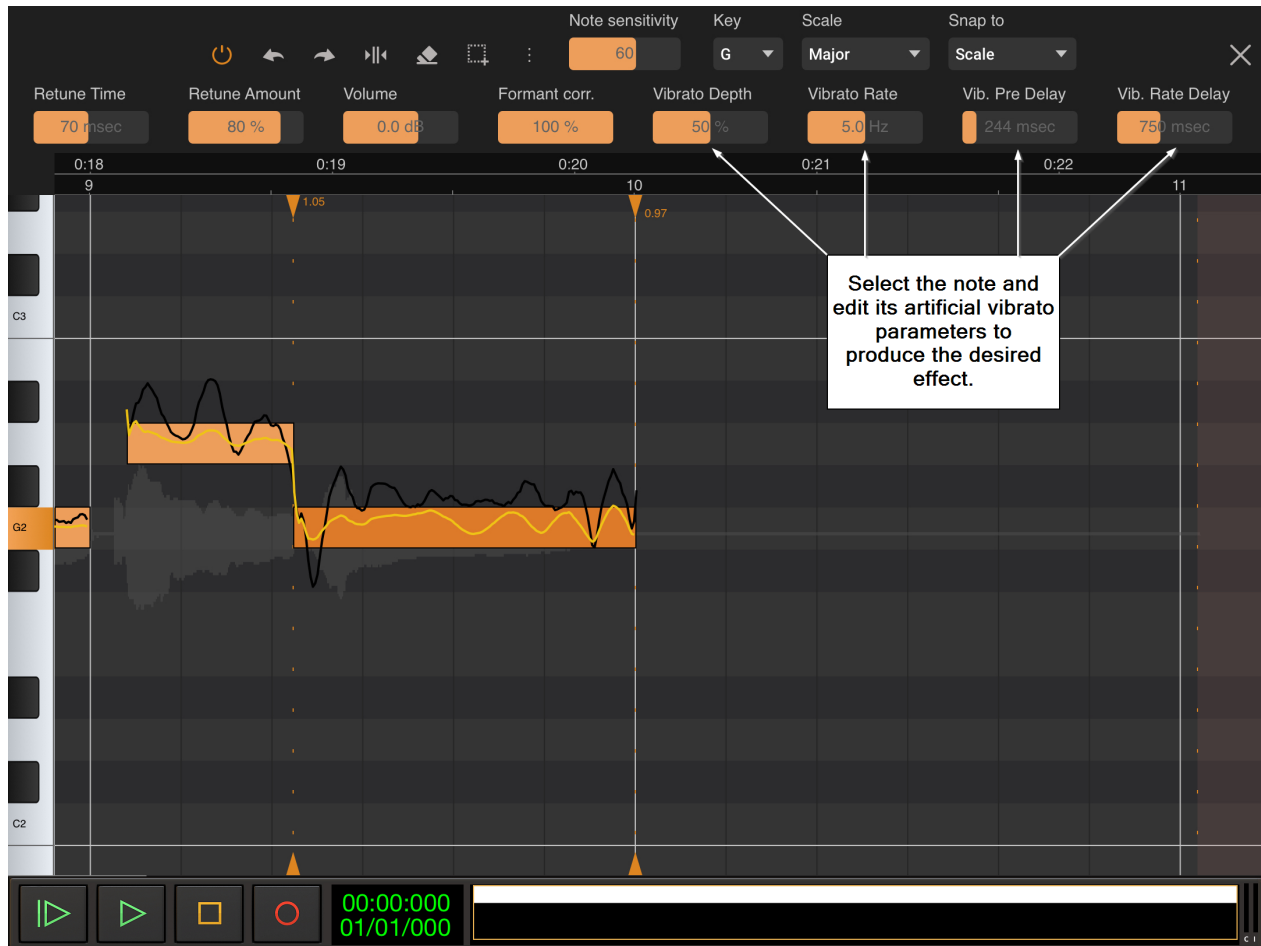


Before we apply the artificial vibrato, we want to check that everything else looks okay with the note. In this case, the default retuning settings have done a great job placing the quantized note at its correct G2 position and have subtly applied the retuning so that no further adjustment is required to the **Retune Time** or **Amount**. We can see, though, that the note stops just before the end of the ninth measure, so let's time stretch it a little so it ends perfectly on time. This time we want to double tap under or above the end of the final note so that the stretch point is placed at its end. As can be seen above, this automatically (using the default anchor placement setting) places an anchor point at the beginning of the final note, places a stretch point at the end of it and, in this case, because there is no note after this one, the end of the clip automatically serves as the anchor point on the right hand side. (If there were another note after this one, an anchor point would be automatically placed at its start point).



With the anchors in place, press and hold the stretch point until it becomes highlighted orange and continue to hold as you slide, to stretch the note to the right until it finishes at exactly the end of the ninth measure as can be seen above.

Finally, let's apply some gentle artificial vibrato to the note.



To do this, the first thing we need to do is select the note by tapping once on it. This will turn it from yellow to orange as can be seen above and will open up the retuning options for this particular note on its own. The four parameters to the top right hand side control the application of artificial vibrato to the selected note (or notes if multiple notes are selected). By default, the Vibrato Depth is set to 0%, it is turned off, for all notes. Full details about the artificial vibrato parameters can be found [here](#), but, briefly, **Vibrato Depth** sets the amount of artificial vibrato applied to the selected note, how large the difference in pitch is on either side of the starting pitch during the vibrato; **Vibrato Rate** sets the speed at which the vibrato fluctuates between the two pitches defined by the Vibrato Depth; **Vibrato Pre Delay** defines how much of the note is heard without artificial vibrato before it starts to be applied and **Vibrato Rate Delay** defines how long it takes for the artificial vibrato to reach its full speed and depth after it has started to be applied.

Simply alter the artificial vibrato settings to achieve the effect you are after. Don't forget that you can easily double tap on any of the retuning parameter sliders along the top to get the option to either enter a precise value using the onscreen keyboard or return the parameter to its default value. In the example above, you can see that Vibrato Depth has been set to 50%, Vibrato Rate is at 5.0 Hz, Vibrato Pre Delay is set to 244 msec and Vibrato Rate Delay is set at 750 msec. As you can see, the artificial vibrato can be seen taking effect on the yellow retuned pitch line within the selected final note; nothing at first because of the pre delay and then, because of the rate delay, it slowly comes in before reaching its full speed and depth.

Hopefully this brief tutorial has successfully introduced you to some of the functions of Vocal Tune Studio and how to use them. There is plenty more you can do with Vocal Tune Studio not

mentioned in this tutorial: for example, you can alter the dynamics by changing the volume of any note or notes in relation to the others; you can create deliberately artificial sounding pitch shifting by lowering the Formant Correction; you can create harmonies for your original vocal using the same audio file/performance by having the same clip on multiple tracks in Audio Evolution Mobile, opening each of them in their own instance of Vocal Tune Studio, then selecting all of the notes and transposing them up or down or, alternatively, move individual notes to create more intricate harmonies; and you can export the notes seen on the piano roll in Vocal Tune Studio as actual MIDI notes, conveniently placed on a MIDI instrument track for you in Audio Evolution Mobile, ready to use with your MIDI instrument of choice. There's also the separate Time only mode which can be used to time stretch any audio at all without changing its pitch and is not limited to monophonic sound sources as the Pitch and Time mode is.

Some of the adjustments here have been extreme for the sake of demonstration but the more you do, the more you will learn how to carefully tweak the various settings to harness the full power of Vocal Tune Studio and achieve your goals.

Getting Help

We really want you to be able to fully utilize all of the features of Audio Evolution Mobile and enjoy the experience of using our app, so if you are having any problems and cannot find the solution in this manual or in the tutorial videos, please contact us using the following methods and we will do our very best to help you out.

Contact us via email at support@audio-evolution.com

Post a question on our Forum here <https://www.extreamsd.com/forum/>

Contact us via Twitter at <https://twitter.com/extreamsd>

Contact us via Facebook at <https://www.facebook.com/AudioEvolutionMobile>

Thanks to

This manual was written by Robin Bagnall. We would like to thank him for his amazing work that saved us endless hours which we could spend on coding instead!