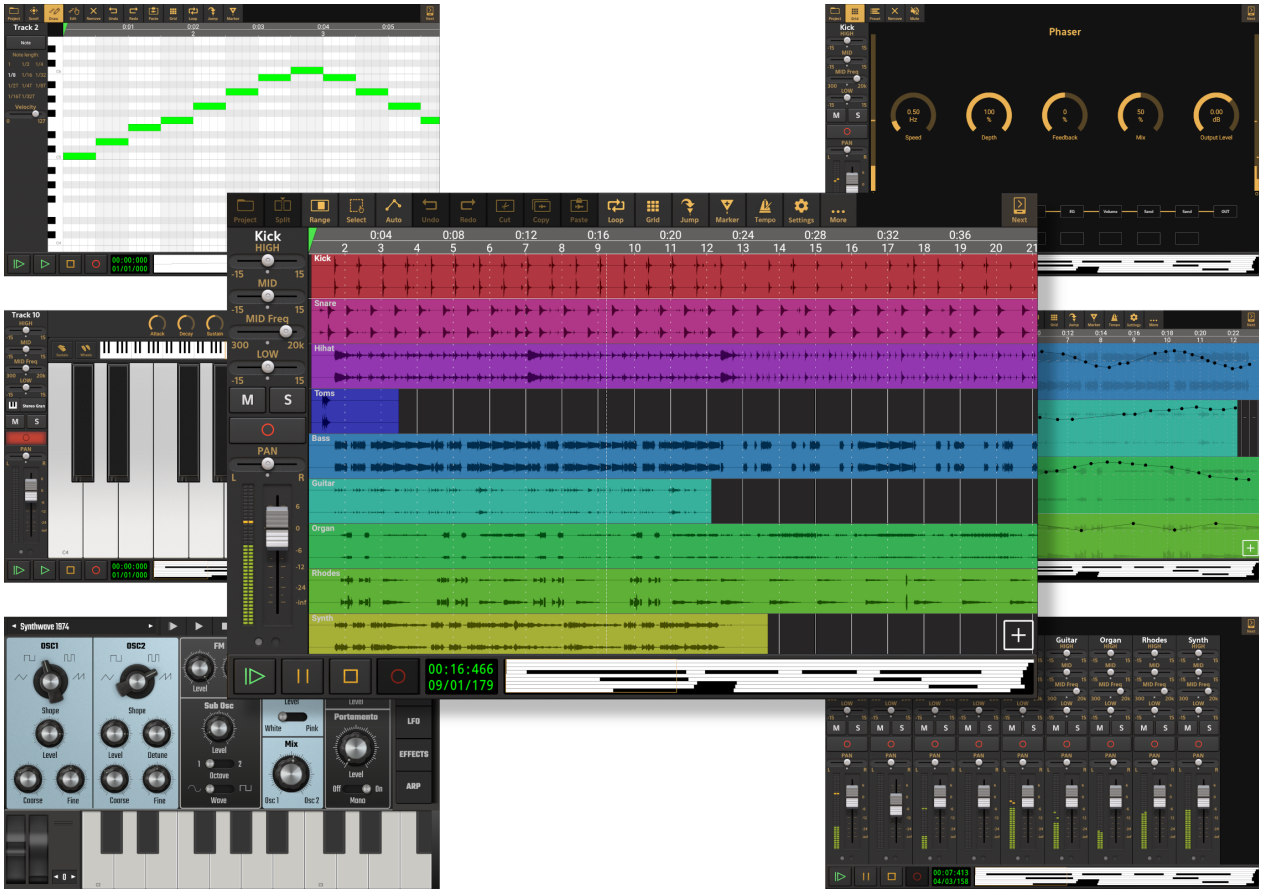
Audio Evolution Mobile User Manual

for Android

Revision: 1.04

Table of contents

Introduction



Welcome to Audio Evolution Mobile, eXtream Software Development's fully featured Digital Audio Workstation (DAW) for your mobile device. It is the complete solution for all of your audio recording and music creation needs when you are on the go, boasting sophisticated features that allow you to do everything necessary to compose, record, automate and mix-down your completed tracks to a professional standard.

Audio Evolution Mobile has full multi-track audio recording and advanced non-destructive editing capabilities, but it offers so much more than just that. It has full MIDI functionality, allowing you to create and edit MIDI instrument and drum tracks and also connect your external MIDI keyboard and hardware (*). With those MIDI tracks, you can use soundfont based virtual instruments and Evolution One, Audio Evolution Mobile's stunning virtual analog synthesizer based on Synth One by AudioKit. High quality soundfont instruments from Digital Sound Factory can be purchased via the in-app store and you can also create your own soundfont instruments from within the app. You can also easily apply real-time effects to your tracks using the FX Grid which also allows for parallel processing - a first for mobile DAWs! Talking of effects, Audio Evolution Mobile has a full range of its own high quality audio effects (including Vocal Tune PRO as an in-app purchase) but it also allows you to purchase a range of professional quality effects from ToneBoosters at reduced prices, including their wonderful Version 4 effects. Want a tempo change, either gradual or immediate, during your track? Well, Audio Evolution Mobile can do that. You can add automation, both manually or by touch-recording, to just about every parameter you can imagine across the entire app including the virtual instruments and, finally, you can take full control over your final mix-down and export.

Audio Evolution Mobile also features eXtreme Software Development's pitch and time correction editor **Vocal Tune Studio** as an in-app purchase. 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.

Whether combined with a USB Audio Interface (*) for higher quality recording, low latency and full input capabilities, or used with your device's microphone for quickly grabbing ideas and making demos, Audio Evolution Mobile has all of your musical needs covered. And if you want to record and edit your podcast in high quality, or even just record your lectures, then you can very easily do all of that too.

This user manual will guide you through the complete features of Audio Evolution Mobile and enable you to fully utilize the many powerful tools it places at your fingertips.

* Connecting external MIDI devices and USB Audio Interfaces requires them to be Class Compliant USB Devices and for your mobile device to have USB host/OTG (on-the-go) functionality. You will also require an OTG adapter cable. Some external devices may require their own power supply should their needs exceed what your mobile device can supply via USB.

Screen sizes

All images in this user manual were taken using a tablet. When using a phone or a smaller tablet, the available space is smaller and as such, it may look different on your device. However, all functionality is still there. In situations were buttons cannot be displayed by lack of space, a **More** 

button will be displayed where you can find the missing options.

What is a DAW?

A DAW is a Digital Audio Workstation. It is a single place, either a device or software environment, from where you can record, edit and mix your multitrack digital audio. That said, today, a powerful DAW like Audio Evolution Mobile allows you to do much more than just record, edit and mix your audio. You can use MIDI and virtual instruments, apply effects, automate parameters, apply gradual or immediate tempo changes mid-project and do everything you'd expect from a desktop DAW, and all on your mobile device.

It is worth considering just how astonishing this level of audio recording and processing on a mobile device really is. We can do things today - on our phones and tablets - which would have been prohibitively expensive, and truly only available to the very few, not that long ago.

The first sound recordings were monophonic, made with a single microphone recording all parts of the music at the same time. They captured a live performance in real time. Next came stereophonic recordings, introduced in real terms in the 1930s, made with two properly positioned microphones and played back through two speakers. Stereo recordings had a sense of space and of instruments being in a specific location within the sound field. These recordings were made on disc or film and could still only capture live performances in real time. It was the invention of stereo magnetic tape recording in 1943, which split the tape recording head into two tracks, that created the real possibility of audio multitrack recording as we know it today. By the mid 1950s, Ampex had devised the first 8-track recorder. Multitrack recorders allowed musicians to record different instruments separately on different tracks and they didn't all need to be recorded at the same time. This opened up a whole new world of creative possibilities as the recording machine itself became more of a tool for experimentation. By 1965, bands like the Beatles were creating music using multitracking that simply wouldn't have been possible without it. Multitrack recorders finally became affordable for the general public in 1979 with the release of the Tascam Portastudio. Early consumer multitrack recorders recorded onto compact cassette tape.

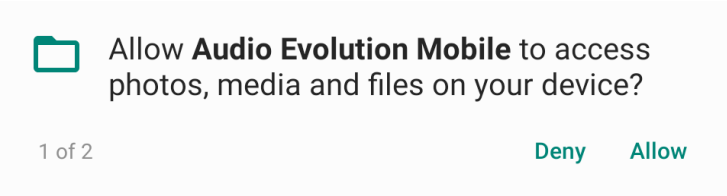
Running parallel to these developments in analog audio recording, there had also been research and the development of digital audio recording. Through the 1980s, more and more recording studios were moving towards recording digitally and, by the 1990s, digital multitrack systems had effectively become the industry standard. The first consumer digital multitrack systems eventually became affordable and the Digital Audio Workstation as we know it today had truly arrived.

And now, today, you can carry a fully featured DAW around with you wherever you go with Audio Evolution Mobile.

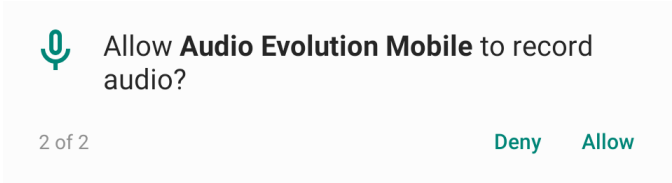
Starting the app

First start

The very first time that you start the app, you will be presented with several dialogs. The first two are permission dialogs from Android:

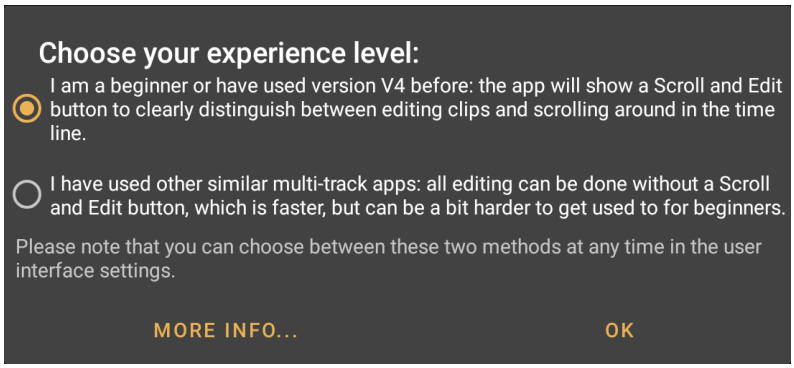


This is a generic message allowing the app to allow access to storage on your device, outside the app's private directories. Although the message states access to photos, the app itself only uses this for two reasons: writing your projects and recordings to a subfolder in the Documents folder on your device and allowing you to browse the internal storage and SD card on your device to import audio or MIDI files. Without allowing this permission, the app will not run.



The second permission dialog requests permission to record audio, which is also required for the app to run.

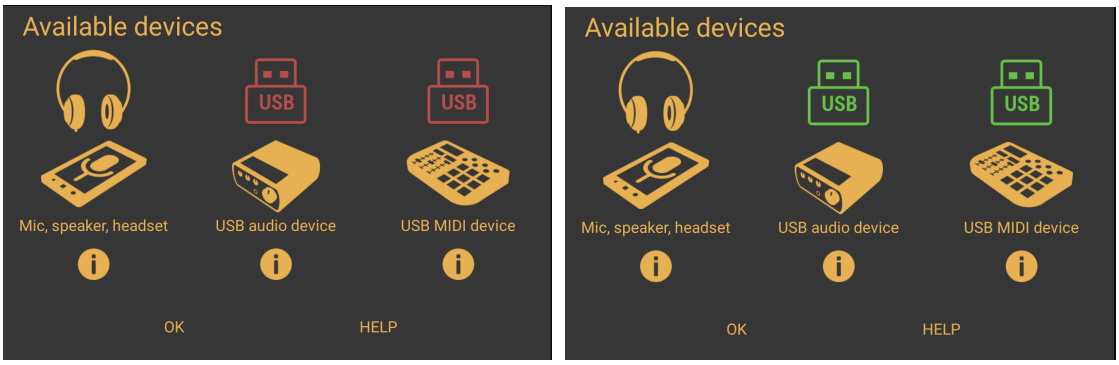
After these two dialogs, and with every new release, a Version Notes dialog is displayed, where you can see the new features and bug fixes that have been done in the last and recent versions. In the next dialog, your experience level can be selected:



You may be surprised that the app offers two different user interface behaviors, but there are so many different type of users with different expertise levels and experiences with other similar apps, that it is impossible to make everybody happy with just one rigid user interface. Please see the texts in the dialog and press the **'More info...**' button to find out what the differences are. Please note that you can switch between the two at any time later on using the app's settings.

Available devices

The previous dialogs are only displayed once during the very first start of the app. At each start of the app however, the Available Devices screen is displayed:



This shows you whether you have successfully connected any external devices and what devices you have available to use within Audio Evolution Mobile.

The **Mic, speaker, headset** option is always available as that is the app using your device's hardware to record and playback.

The **USB audio device** indicates whether you have a USB audio interface connected. If successfully connected, the USB symbol will turn green as can be seen on the right. For more information about connecting external audio interfaces, see here.

The **USB MIDI device** indicates whether you have a USB MIDI device, such as a MIDI keyboard, connected. If successfully connected, the USB symbol will turn green as can be seen on the right. For more information about connecting MIDI devices, see here.

Once you press **OK**, you will see the Arranger Screen from where you can set up your project or just jump in using the default settings.

NOTE. If you'd rather not see the Available Devices splash screen when you launch Audio Evolution Mobile, it can be deactivated from within the User Interface section of the Settings 

.

Quick Tutorial

This is a quick start guide to give you an overview of Audio Evolution Mobile and get you making your music straight away. This is, of course, only a suggested workflow to get some immediate results and is not meant in any way to give the impression that this is the way you *should* approach making your music: do it in whatever way feels right for you! It also, for the sake of simplicity, leaves out a huge amount of Audio Evolution Mobile's functionality and creative possibilities in all areas, so please do explore further and don't think that this is all that the app has to offer...

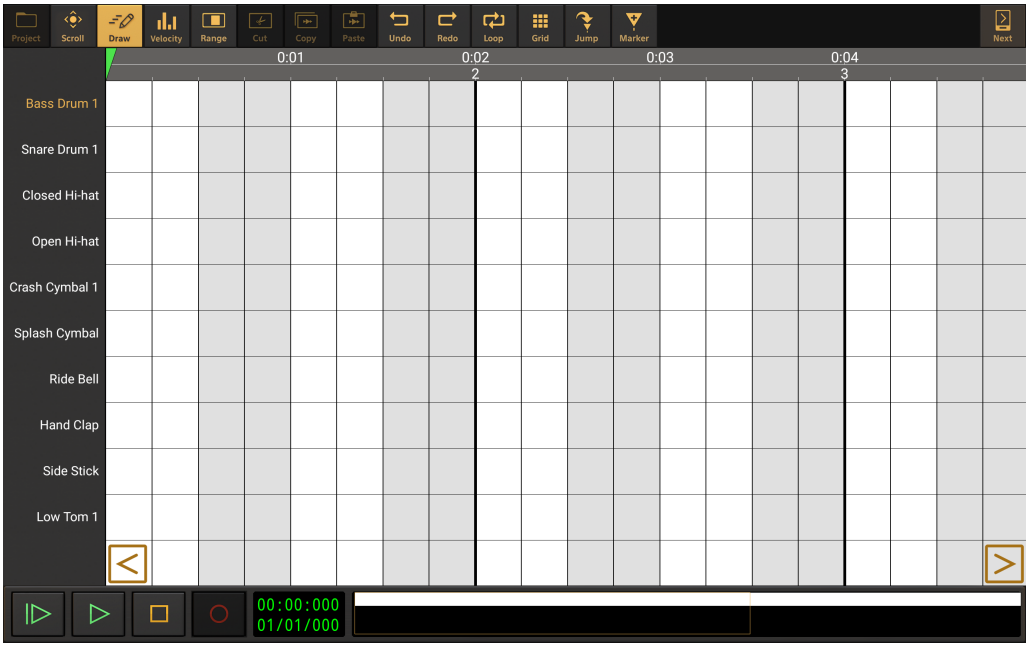
NOTE. Before you start going through the following steps, please ensure that you have let the app determine the latency of your device. If you have already played around with the app, you will have been prompted to do this the first time you pressed Record  to record a *second* audio track into your project (latency correction is used to keep all additional tracks in sync with each other, hence why the prompt comes when you are about to record the second track). If this has not yet happened, or if you want to carry it out again, you can do so by selecting **Determine latency** via the More 

button options on the Arranger Screen. You will be guided through the process by the onscreen instructions - it's all automatic. Also, please ensure that you have downloaded the Default Sound Set. To do this, press the Add Track  button on the lower right hand side of the Arranger Screen and select **Add MIDI instrument track**. This will open the Instrument Selector dialog which will then prompt you to download the Default Sound Set (internet connection required). With those two things done, you will be able to go through the following steps without having to stop.

- Launch the app and create a new project by pressing the Project 

button, top left, and selecting **New project**. Give your project a name and click **OK**. Any time you want to save your project, return to the Project Options and select **Save project** (Audio Evolution Mobile also has an auto-save function running in the background).

- Now, press the Add Track  button at the lower right hand side of the screen. From the options shown, select **Add drum pattern track**. This will create the drum track and open the Instrument Selection dialog at the drum options of the Default Sound Set. Press **OK** to load the Standard drum kit and open the Drum Pattern Sequencer seen here.



- Tap on the white/gray grid to add/remove your drum beats for each type of drum shown down the left hand side (you can scroll down to see and add more types). Each red dot will trigger the instrument displayed at the left panel. Click on the Play from beginning of project  button to start playback and hear your beats. Press the Loop 

button to activate looped playback mode if you want. Position the yellow loop markers 

to define the section to be looped.

- If you want to change the tempo/speed of your project, tap on the Playback Timer Display 

to open the Tempo Settings.

- Once you're happy with your beats, press the Next 

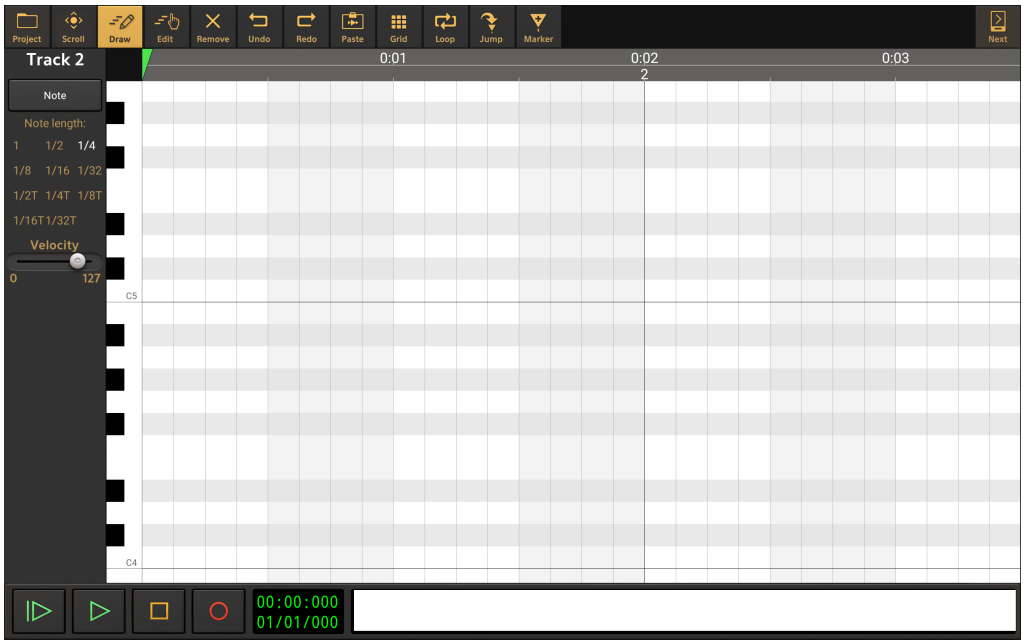
button, top right, to return to the main Arranger Screen area.

- Press the Add Track  button again and, this time, add a **MIDI instrument track**. This will open the Instrument Selector again. The Stereo Grand piano preset from the Default Sound Set will be selected by default. Select a different instrument on the right if you want and press **OK** to return you to the Arranger Screen.

- Your MIDI instrument track has been created and named Track 2 but it has no clip on it yet. You now have the choice of whether you want to use the virtual keyboard (or connected external MIDI keyboard if you have one) to input notes and 'live record' onto a clip on the track OR enter note events on the Piano Roll Editor to compose your music. If you want to record using the onscreen keyboard, press the Arm  button on the track's Channel Strip, to the left, to arm the track, ready for recording to, and open the onscreen keyboard interface. On this occasion, though, we shall use the Piano Roll Editor. To do this, double tap in Track 2's timeline between the beginning of the project and the start of the second bar (as

indicated above, on the Timeline/Marker Display 

). This will ensure that the MIDI clip created will be place at the beginning of the project and simultaneously open the Piano Roll Editor, seen here.



- When in Draw Mode 

, as you will be by default upon opening the Piano Roll Editor, tap on the white/gray grid to place your notes. The vertical axis represents the pitch of the note and the horizontal axis represents time, and therefore, the length of the note. Select your note length on the upper left of the display. Place notes within the same time period to form chords. Switch to Remove mode 

to remove notes (there are many ways to interact with and edit notes on the grid but, for the sake of simplicity, they're not being mentioned in this quick tutorial: for full details, please see here).

- Once you are done, press the Next 

button, top right, to return to the main Arranger Screen area again. At this moment you will see two tracks, each with a (MIDI) clip on them.

  To record some audio, pressing the Record  button would directly create a new audio track and start recording audio (if you don't have any track armed). You could sing along the first tracks or play an acoustic instrument. If you don't have any headphones or headset connected, you will notice when playing back the recording, that audio from the first two tracks is being recorded faintly on the third (audio) track. This is because the device's microphone will pick up any sound, including the audio that you would be playing through the speaker. Therefore, it is highly recommended to use headphones, a headset or USB audio interface/mic when recording audio, to keep the signals separated.

The next steps could be recording more tracks, continuing recording on existing tracks, editing clips, applying effects, making a mix, etc. The next chapters will go into detail on all these topics.

Setting up your Project

What is a project?

Contrary to basic audio recording applications where just one audio file is being processed, Audio Evolution Mobile Studio needs to keep track of a lot more: multiple audio and MIDI clips on several tracks, mixer settings, automation settings, effects and their parameters, tempo, etc. All this information is kept in a project. You can save and later on load projects such that all the mixer settings, recordings and edits you have made are not lost.

When you start the app, you will be presented with an empty 'Untitled' project. In a lot of software, you need to create and name a project first and do some basic set-up before you can start recording. We feel that this can block creativity, for example when you just had a spontaneous idea in your mind that you would like to record directly. In Audio Evolution Mobile Studio, you can just start the app and press record. This recording would become part of this Untitled project, which is numbered like 'Untitled003'. When you save an Untitled project, it will be renamed. If you are not pressed for time however, you can also start by selecting 'New project' from the Project menu and give it a name of your choice. To keep things organized, you should create a project for every song.

When a project is created, a folder with the project's name is added to the 'Projects' sub folder of the app. In this folder, a sub folder 'Samples' is added as well where all your subsequent audio recordings will be stored (likely as .WAV files). A project folder then contains one or more project files (ending in .prj). A project file contains things like MIDI events, project settings, automation, and references to the audio data in the Samples sub folder. It does NOT contain any audio data itself!

Since you could have different variations of a song, for example different mixes, you can save them as separate project files. Since they would all belong to the same song, they are stored next to each other in the same project's folder.

The app also periodically and automatically saves up to 5 project files as back-ups in your project's folder. They are called 'Autosave0.prj' to 'Autosave4.prj'. In the unfortunate event that the app would crash or you forget to save, please look at the time stamps of these projects to retrieve your last edited work. Since the app auto-saves every 3 minutes by default (when an edit has occurred), you are unlikely to ever lose a lot of work. Recordings are also written/stored directly to a file during recording, so there is no need (or even a way) to save recordings since that is always done automatically.

Project Sample Rate

All digital audio is defined by samples, or snapshots, of information (data) which are used to capture, describe and reproduce the equivalent analog sound. The speed at which these samples are captured and played back is called the sample rate. Each sample contains bits (binary digits - 1 or 0) which are used to describe the individual samples.The number of bits used per sample is known as the bit depth. The greater the number of bits used to describe each sample and the greater the number of samples per second, the greater the precision and fidelity to the analog sound achievable. So, all digital audio has a sample rate and a bit depth. For example, digital audio on a CD uses a sample rate of 44.1kHz with a bit depth of 16-bit, meaning 44,100 samples per second and each sample is made up of 16 bits (i.e. each sample is a string of 16 ones and zeros).

As digital technology has progressed, greater sample rates and higher bit depths have become possible. The sample rates available on mobile devices are usually 44100 or 48000Hz, but when using certain USB audio interfaces, higher sample rates can be achieved.

Contrary to desktop systems, mobile devices have one 'native' sample rate, chosen by the manufacturer. Only by using this 'native' sample rate, the lowest latency can be achieved. By default, Audio Evolution Mobile uses your device's native sample rate for new projects, which will almost certainly be 48kHz these days. You can choose a different sample rate, but the device will apply resampling on the input and output, causing higher latency and a bit of quality loss.

The native sample rate allows for the lowest latency, but this also results in the highest CPU load since Android will use lower buffer sizes in this case. For this reason, Audio Evolution Mobile's default project setting is to use the Oboe/AAudio system with the device's native sample rate and a buffer size that is 2 times larger than the lowest buffer size, reducing the CPU load a bit.

It is also worth considering whether you are planning to export your Audio Evolution Mobile tracks as stems to import into other software. Though resampling is usually possible, if you are planning to take your exported stems elsewhere, and you know what sample rate you will be using there, it certainly can't do any harm to plan ahead and use this same sample rate for your Audio Evolution Mobile project.

To set your project sample rate, press the Project 

button on the Arranger Screen. This opens the Project **Options** panel shown below. At the bottom of the options, **Sample Rate** can be selected from where you can choose from the available options.

NOTE. The project sample rate becomes fixed as soon as any audio clip is present in the project. If you set your project sample rate and the first thing you do afterwards is import an audio clip with a different sample rate into a project without any audio clips, you will be given the chance to either resample the audio clip to the project sample rate as it is imported, or import the audio clip with its original sample rate: this second option will change the project sample rate

to match the imported clip and, with the audio clip now present, the project sample rate now becomes fixed.

Global Audio Settings

You can start using Audio Evolution Mobile straight away using the default settings but you may want to use the options in the Settings to tailor the app to you own preferences. The global app settings are accessed via the Settings 

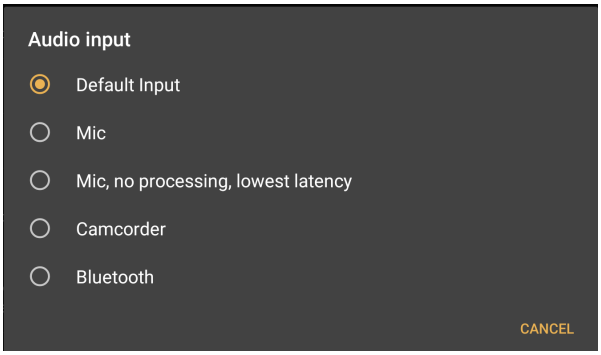
button on the top row of the Arranger Screen *if* your device screen is big enough to include it. If your device has a smaller screen and doesn't display the button, you can access the Settings via the More 

button.

There are many, many options available within the Settings and each option has a description to let you know what is being changed. As such, little can really be added by covering them all one-by-one in this manual, but since we are talking about setting up your project in this section, it is perhaps important to point out a few of the Audio settings available. These options are all found in the Audio section of the Settings.

Audio Input

First to note is **Audio Input**. This allows you to select the input for the app to use for recording audio (if you're not using an external USB audio interface). Selecting Audio Input in the Settings opens the following dialog.



The first time you install and launch Audio Evolution Mobile this will be set to **Default Input** as shown above. This will be the microphone your device uses to record audio using its standard settings. This will quite likely mean that the device applies processing such as automatic gain control as the recording is made, meaning it will adjust the sensitivity of the mic between quiet and loud passages to create a recording which is as loud as possible at all times. Such processing might result in the recording sounding more 'pleasant', but once it's hard-baked into the recording it can't be changed and that might be a problem. If you make a recording where the loud and quiet passages need to be kept at their true relative volume levels, it might be better to select '**Mic, no processing, lowest latency'**. This option bypasses any processing, such as auto gain, your device might automatically apply to audio recordings and allows you to have the mic's raw signal recorded. On some Android devices, it also is required to get the lowest latency, although it usually does not matter much. Although the '**Mic, no processing, lowest latency'** option might sound ideal, on many Android devices, this leads to a very low input gain resulting in

a very soft signal. Unfortunately, Android has no way to set the analogue input gain, so you will need to experiment on which option is best in your case.

Alternatively, when using a USB audio interface with the eXtream USB audio driver, input gain can usually be controlled on the USB audio interface itself with a physical knob or an internal gain control that can be accessed by the app. No automatic gain control is applied in that case.

NOTE. Because no automatic gain control is being applied to the recording when using '**Mic, no processing, lowest latency'**, recordings made using this setting can be *very* quiet as they initially appear on the track clip. You can increase the level of the recording by **Normalizing** the audio clip. Normalizing boosts the level of the entire clip so that the loudest part of the recording is at the maximum volume level set for the normalization process by the user. All other parts of the recording are also boosted by the same amount, meaning they still all retain their correct relative volume levels compared to each other. Unfortunately, any noise present will be boosted as well, although that could be solved by using a noise gate effect. Once you have normalized your recording you'll realize that you now have a much more honest sounding recording than is available with the other options. Normalization is very quick and easy to do; for more information on how to do it, please see here.

Audio System

The next option to draw attention to is the **Audio System**. This allows you to select the Android audio system used by Audio Evolution Mobile (when not using a USB audio interface with the eXtream driver). You can choose between AudioTrack and Oboe/AAudio. Oboe/AAudio offers the lowest latency and cleanest sound, but it is worth pointing out the presence of AudioTrack for the benefit of older devices which might prefer it. By default Audio Evolution Mobile is set to use Oboe/AAudio, your device's native sample rate and a buffer size factor of 2.

NOTE. You might experiment with these options and find yourself thinking that AudioTrack (and, potentially, non-native buffer size settings for Oboe/AAudio) makes the sound richer and more lush sounding? Although seductive, this is actually a reason to try to avoid using AudioTrack (or those settings) when making music if possible. Just as your device might, by default, apply some post-processing to its mic recordings, so, it seems, AudioTrack applies some processing to sounds before they are outputted through the speakers. Oboe/AAudio does not apply any processing *when using the native sample rate*, so if you want to hear your music as it actually sounds - and, when making music, you do - those are by far the better options to choose (if your device can handle them) and will allow you to make your own processing decisions more accurately.

Oboe/AAudio: Buffer size

Using the native sample rate will also offer the lowest latency possible but it also has the highest CPU load. This is why Audio Evolution Mobile is set by default to use Oboe/AAudio with a buffer size factor of 2, meaning that it uses the lowest latency ('fast') audio path, but with a slightly higher latency than possible. For the lowest latency, you can set the buffer size to 'Native buffer size' (which equals to a buffer size factor of 1, but an even higher CPU load). If latency is not of a

concern, but you are facing audio glitches due to high CPU load, you can increase the buffer size to 4x or 8x.

Force OpenSLES

When you are experiencing audio glitches or other artifacts when recording audio (without a USB audio interface), it is always a good idea to try with this option turned on. Instead of the latest Android audio system, AAudio, the older OpenSLES audio system will be used. Some Android device manufacturers have a bad implementation of AAudio, so forcing OpenSLES might be a solution in this case. Note however that with this option enabled, the track-to-track latency (variation) cannot be determined as accurately as with AAudio.

Recording File Type

The **Recording file type** option allows you to select the format your audio recordings are made using. The choices are WAV, AIFF or FLAC. All three formats are lossless, meaning they keep all of the audio quality of the audio source. WAV and AIFF are both uncompressed formats meaning they are exact copies of the source, and so take up more storage space on your device. They are essentially the same quality, but store the data differently with WAV being the de facto standard and AIFF being Apple's own format. FLAC is lossless, but it is a compressed format, meaning it still contains all of the audio data but in a much smaller file size. It is generally considered to be wise to use WAV if you are going to be editing your audio a lot. If you are making a recording which you do not anticipate having to edit and want to save storage space, then FLAC is probably the perfect choice.

Automatic Track Creation

The last Audio setting option to draw attention to here is **Automatic Track Creation**. This is a very useful feature which, when active, automatically creates, and records to, a new audio track in the timeline when Record is pressed and no other track has been armed. This means you can open Audio Evolution Mobile and with one button press, you're already recording audio. Automatic Track Creation is ON by default.

Connecting a USB Audio Device

Audio Evolution Mobile's full feature set can be experienced using your device's microphone and speakers (plus, ideally, a pair of headphones if you're planning to record multiple audio tracks) but adding a USB audio interface to this setup opens up the possibility of higher quality recordings and high quality inputs for instruments and superior microphones. Combined with eXtream Software Development's USB audio driver (requires in-app purchase), even higher quality can be achieved as well as lower latency, providing you with everything you need to take your tracks to the next level.

For more information on eXtream Software Development's USB audio driver, see here.

Requirements

There are three basic rules that determine if your Android/USB audio device combination will work:

1. Your Android device supports USB host mode
2. Your USB audio interface is 'USB audio class compliant'.
3. Your Android device supplies enough power to the USB audio interface or the interface uses an external power source (like a wall-adapter or a powered USB hub)

Your Android device does NOT need to be rooted. Most of the recent Android devices with a USB-C port are compatible. For older devices with a micro-USB port, you need to find out if it supports USB host mode. You can either look in our compatibility list or Google for it. Enter your phone model there in the search field and select your device. Then look at Connectivity and see if it says 'USB host'.

Whether a USB audio interface is 'class compliant' or not is harder to determine. If the device does not require specific drivers under Windows or OSX, then there are good chances it will work. Look in our compatibility list to see if your device is there. If it's not, then you could simply try it out with the free trial version of Audio Evolution Mobile, or in the full version, both with a 45-second limit and a couple of recordings if the USB audio in-app purchase has not been done yet.

NOTE. Please ensure everything is working okay, using either the trial version of Audio Evolution Mobile or the full version if you already own it, before purchasing the eXtream Software Development USB audio driver via in-app purchase.

USB Host OTG Cable

If you have a USB-C connector on your Android device, you will need a converter cable that provides both data and power. If your Android device does not come with one, make sure to buy one that looks like this:

If your Android device features an older micro-USB port, you will need an USB OTG (On-The-Go) cable to trigger the 'USB host' functionality of your Android device. This is the cable you need (when you order a cable, make sure it says 'OTG') :

If your USB audio device is not wall-adapter powered, you may need to supply it with extra power. You can either use a powered USB hub or an OTG-Y cable.This OTG-Y cable is similar to a standard USB OTG cable with a full sized female USB connector on the end that connects to the audio interface, but it branches off into 2 connectors on the other end. One is a standard male micro USB connector for connecting to the android device and the other is a female micro USB connector. The female micro USB connector allows the ability to plug in a standard male micro USB wall charger to inject power into the circuit.

Note: some USB devices require 500mA while some Android wall-adapters only supply 300mA, so using an OTG-Y cable will not help with those and a more powerful adapter or a powered USB hub may be necessary.

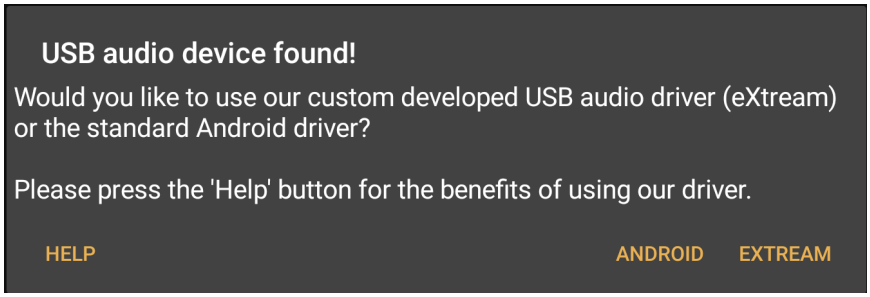
Making Connections and Starting the App

So, your Android device has USB Host functionality, you have an OTG cable and a class-compliant USB audio interface? Great.

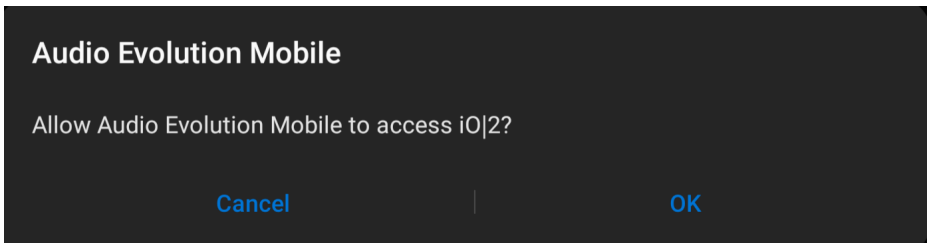
First, you want to make some connections BEFORE starting Audio Evolution Mobile. Making connections once the app is running can often mean that external devices will not get detected so it's best to go into the habit of connecting everything beforehand. It can also be sensible, for the most reliable recording, to put your device into 'Airplane' mode, shut down as many tasks as possible and disable any battery saving mode. Currently, Audio Evolution Mobile has to run in the foreground, so do not switch to other apps during recording or playback since background apps only get limited CPU time and some Android device halt USB signals.

1. Plug your OTG cable into your devices USB socket.
2. Now, use a USB cable to connect your USB audio device to the OTG cables input.
3. Launch Audio Evolution Mobile.

If, at this point, you get a 'Failed to initialize or open the USB device' message, or similar, it is likely that your device isn't class-compliant and won't work with Android. Please contact us at support@audio-evolution.com if your device doesn't work and we will try to help but unfortunately some devices simply aren't compatible.

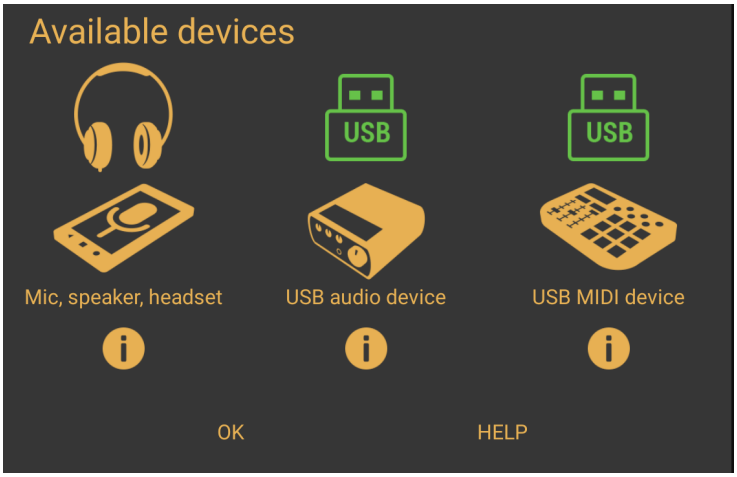


If all went well however, the first thing you'll see is this pop-up above. This allows you to select whether you want to use the **eXtream** Software Development custom USB audio driver (requires in-app purchase to unlock fully) or the inferior **Android** driver (requires Android 5 or higher). As can be seen, pressing **Help** will open another pop-up detailing the many benefits offered by eXtream's driver over the Android driver. For more information on the eXtream Software Development USB audio driver, see here.



Next you will get a system message like the one above, allowing you to grant Audio Evolution

Mobile access to the USB audio device.



Finally, once access has been granted, you will see the **Available devices** splash screen (unless you have disabled it in the User Interface section of the Settings). As can be seen above, this device has been successfully connected indicated by the green USB symbol. Since this particular USB device has MIDI connectivity, and the eXtream driver is being used, the USB MIDI device symbol is also green. Click **OK** and you've successfully launched Audio Evolution Mobile, ready to use the benefits of your USB audio interface.

Settings related to USB audio interfaces

There are various preferences related to USB audio interfaces (when using the eXtream driver) which can be accessed by pressing the Settings 

button on the Arranger Screen. Then select **USB Audio** to display the USB audio related options.

Buffer size: we recommend to set it above or equal to 1024 frames. The higher the buffer size, the higher the latency and the lower the CPU usage. Please note that the buffer size displayed here can be roughly compared to that of half the figure on other (desktop) systems. So a buffer size of 1024 frames would roughly equal 512 frames elsewhere (actually even a little less than that). Why you should not go lower than a 1024 frames setting is that it can produce audio artifacts due to buffer under-runs because the driver cannot run in a real-time thread.

Optimize CPU usage: when enabled, will divide USB transfers in such a way that the CPU usage remains low and constant. In case of some multi-channel interfaces, this might prevent the interface from working correctly and you should experiment with this option enabled.

CPU booster: tries to keep the CPU active such that no frequency scaling occurs that would lower the CPU speed.

Always record and playback: some devices like the Digitech RP255 can only function properly

when doing simultaneous recording and playback, even if the device only needs to play. Do not enable unless you cannot record or playback.

Bus speed: the app can usually determine the USB speed of the connected interface. In some cases however, this can fail which may for example result in very fast playback speeds. You can try the Full or High speed setting in that case, but in order for the change to have effect, exit the app, disconnect and reconnect the interface and start the app again.

Troubleshooting

If your USB audio interface is not recognized or not working well, we suggest looking at our website for the latest information on compatibility and several troubleshooting tips:

https://www.extreamsd.com/index.php/technology/usb-audio-driver

If that does not help, you are kindly requested to contact support by email at support@audio-evolution.com.

Connecting a MIDI Device

Just like for USB audio, eXtream Software Development has written a driver to use class-compliant USB MIDI interfaces. This also includes MIDI ports on a USB audio interface and some MIDI keyboards that feature a USB connector. Using a MIDI input, one could record MIDI events on a MIDI track and/or play virtual instruments. Using a MIDI output, one can drive synthesizers, drum computers, effect processors and more.

Requirements

There are three basic rules that determine if your Android/USB MIDI device combination will work:

1. Your Android device supports USB host mode
2. Your USB interface is 'USB MIDI class compliant'.
3. Your Android device supplies enough power to the USB MIDI interface or the interface uses an external power source (like a wall-adapter or a powered USB hub)

See here for more information.

Performance limitations

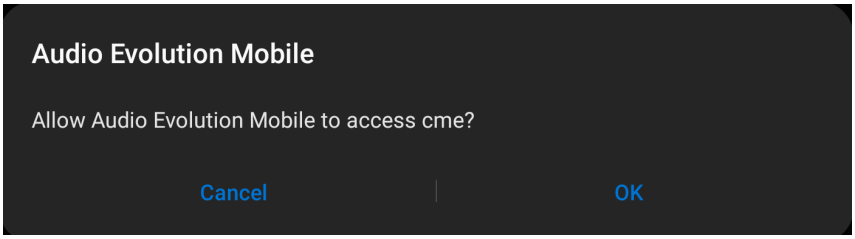
When using a MIDI keyboard to play virtual instruments live, it is required to use either a USB audio interface in combination with our USB audio driver, or an Android device that features reasonably low latency: it takes time between a note press on a MIDI keyboard and the generated audio being heard. If this time period is too long (high latency), it will make it hard to play the keyboard in real-time. Our USB audio driver will provide sufficiently low latency for most people to play virtual instruments. To get the lowest latency without a USB audio interface, make sure to select the Oboe/AAudio audio system, the device's native sample rate and a Oboe/AAudio buffer size factor of 2x or the native buffer size.

Making Connections and Starting the App

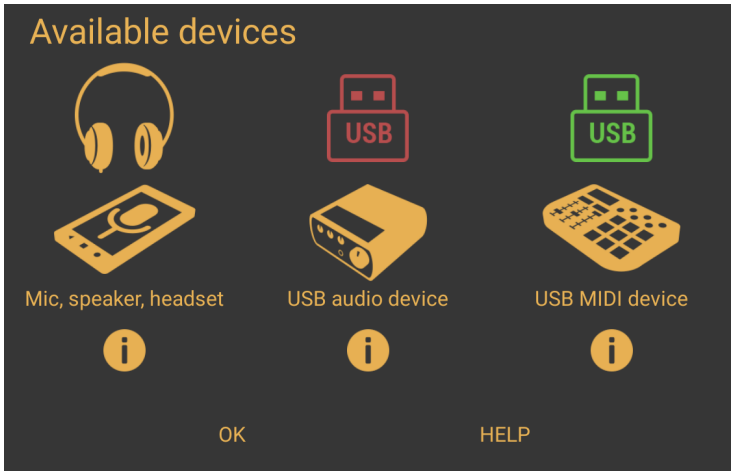
If you are using a USB audio interface with 5-pin MIDI inputs and outputs, you can connect your MIDI equipment using 5-pin standard MIDI cables to the USB audio interface at any time.

Whether you are connecting a USB MIDI interface directly to the Android device or connect your MIDI equipment using a 5-pin MIDI port on a USB audio interface featuring MIDI ports, it is best to make the USB connection BEFORE starting Audio Evolution Mobile. Making connections once the app is running can often mean that external devices will not get detected so it's best to go into the habit of connecting everything beforehand. It can also be sensible, for the most reliable recording, to put your device into 'Airplane' mode, shut down as many tasks as possible and disable any battery saving mode. Currently, Audio Evolution Mobile has to run in the foreground, so do not switch to other apps during recording or playback since background apps only get limited CPU time and some Android device halt USB signals.

1. Plug your OTG cable into your devices USB socket.
2. Now, use a USB cable to connect your USB MIDI device's output to the OTG cables input.
3. Launch Audio Evolution Mobile.



If you have connected your MIDI device directly and not via your USB audio interface, you are not given the option to use the eXtream driver at this stage as you are when connecting a USB audio device. Therefore, the first pop-up you'll see will be the system message allowing you to grant Audio Evolution Mobile access to the connected device.



Once access has been granted, you will see the Available devices splash screen (unless you have disabled it in the User Interface section of the Settings). As can be seen above, this device has been successfully connected indicated by the green USB symbol above the USB MIDI device option. Click **OK** and you have successfully launched Audio Evolution Mobile with your MIDI device attached and ready to use.\

Latency Compensation

Though it happens very, very quickly, it takes a certain amount of time after the sound is 'picked up' by the microphone for it to pass through the device's analog-to-digital converter and be stored in its memory. Likewise, it takes time between the app sending a chunk of audio data to the audio system and it eventually being heard. This time delay is referred to as latency and can result in tracks being out of sync.

Imagine, for example, that you have recorded a guitar on track 1. Now, you want to record a vocal onto track 2. You put headphones on to allow you to hear the guitar track as you record your vocal without the guitar track being picked up by the microphone, and sing along in time to the guitar track while recording the vocal to track 2. However, although you sang along in time to the guitar track, the time it takes for the sound to be processed - the latency - means that the vocal track appears very slightly *after* the guitar track on the timeline and the performances on the two tracks are no longer in sync. This is where latency compensation comes in.

Latency compensation works by measuring the amount of latency for your particular device and shifting all audio recordings made after the first one backwards on the timeline by that latency amount. This means that the recordings will all be in sync during playback.

Audio Evolution Mobile provides an automatic procedure for measuring latency and applying it as latency compensation, whilst also allowing you to apply manual latency compensation should you need to. When using a USB audio interface with the eXtream USB audio driver however, the app can determine the latency pretty accurately in most cases and there is no need to run this automatic procedure or do manual latency compensation.

Automatically determining latency

The process of measuring the latency for latency compensation can be automated in Audio Evolution Mobile and does not apply to the situation where you use a USB audio interface with the eXtream USB audio driver. If you have already played around with the app, you will have been prompted to do this the first time you pressed Record  to record a *second* audio track into your project (as described above, latency correction is used to keep all additional tracks in sync with each other, hence why the prompt comes when you are about to record the second track). If this has not yet happened, or if you want to carry it out again, you can do so by selecting **Determine latency** via the More 

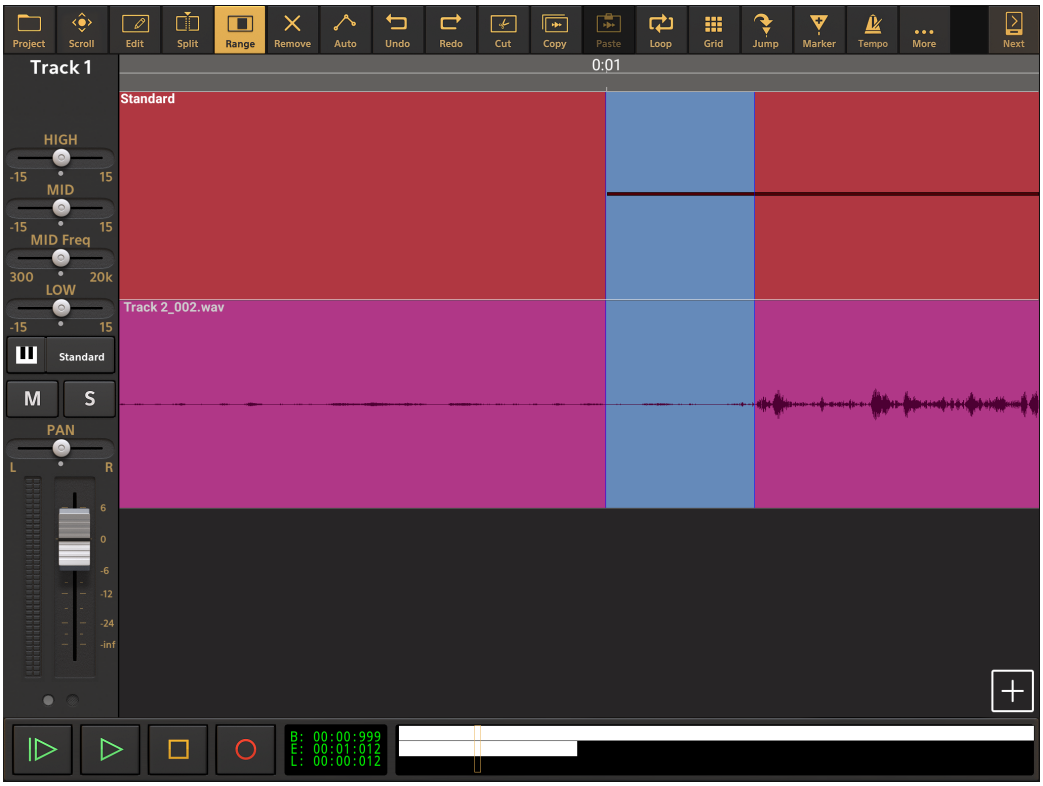
button options on the Arranger Screen. You will then be guided through the process by the onscreen instructions - it's all automatic.

The **Determine latency** function should be run again if you have changed the sample rate you're using since last running it and if you change the audio system (Oboe or AudioTrack) you're using.

Manual latency compensation

If you still experience that tracks do not line up, even after performing the automatic latency detection, you can try to apply an additional manual latency compensation. However, it should be noted that on some (mostly older) Android devices, latency just varies too much with every take to compensate reliably for.

First we have to measure the track to track latency. The easiest way to set this up is to have a 'tick' kind of short sound on the first track, record it on the second track and measure the time between the recorded tick and the tick on the first track. You could create a drum pattern track as the first track and add a hi-hat or snare hit as the 'tick' sound. Don't put it at the start, but at an offset like 1 second. Then, without any headphones attached, increase the volume of the Android device and press record. Because the volume is high, the audio being played on the first track (the hi-hat/snare sound) will be recorded on the second (audio) track. After it has been recorded, stop and zoom in on the area where you see the tick on the first as well on the second track. The time between these ticks is the latency we want to correct for. To measure this time period, please select the Range button, tap at the time location where the drum hit starts on the first track and drag the blue range to the start of the recorded tick on the second track. Then, with sufficient zoom level, tap once on the middle of the blue range and select 'Use as latency correction'. The latency in audio frames will be saved in the app's settings.



Setting the Tempo

Tempo determines the speed of the project playback in musical terms. It is usually measured in BPM (Beats Per Minute). The project tempo determines the speed at which any MIDI in your project is played back. It also allows you to have an optional metronome click played when you're recording audio (you will want to use headphones when using the metronome so that the sound of the metronome isn't itself recorded). Thus, you can ensure that everything is in time when played back together. If the first thing you record is an audio track, it is a really good idea to get used to wearing headphones and having the metronome running to keep you in time: it will save you *a lot* of frustration later. Alternatively, you can start your piece using MIDI - say, a drum pattern - so that you'll have that to keep you in time through your headphones when recording audio.

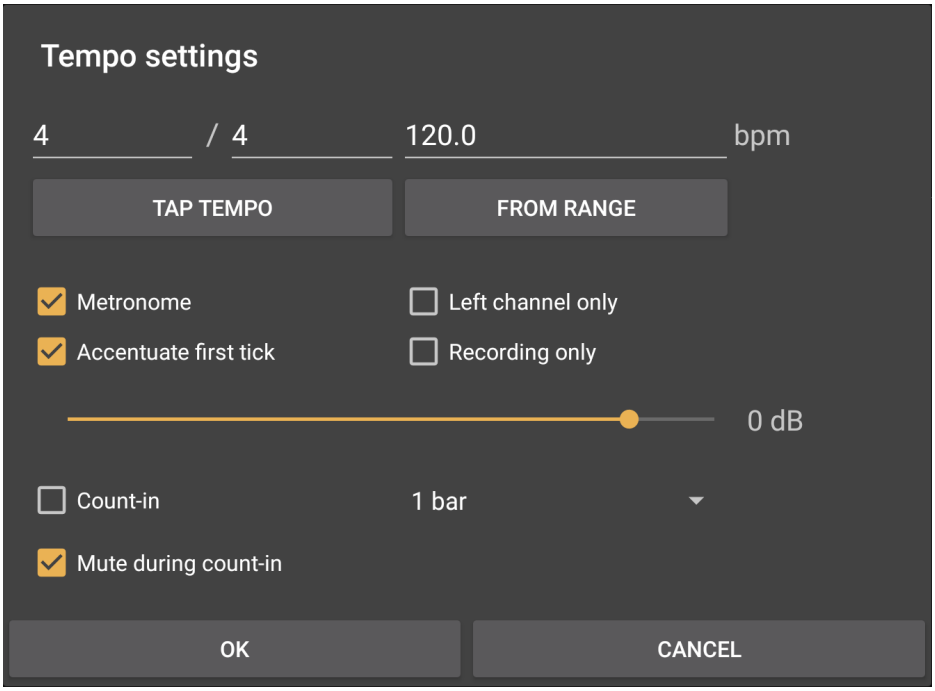
NOTES. It might be stating the obvious to some of you, but it is worth pointing out that changing the tempo settings once audio and MIDI tracks exist in a project will change the speed (and therefore the relative length) of the MIDI clips but will leave the audio clips unaffected. You will need to Time Stretch the audio clips yourself or, probably more realistically, record the audio clips again at the new tempo.

You can also have tempo changes, both gradual or instant, during the course of your project in Audio Evolution Mobile. For information on how to do this, please see here.

In order to specify the tempo settings for your project, you can open the Tempo Settings, seen below, by pressing the Tempo 

button on the top row of the Arranger Screen or by tapping on the Playback Timer Display 

at the bottom of the user interface.



The first thing in the Tempo settings is the **Time Signature**. In the screenshot above, showing the default tempo settings, it is set to the most common time signature of 4/4. A time signature lets you know how the music is to be counted. The first number in the 'fraction' tells you *how*

many beats there are per bar/measure. The second number indicates *what length of note* each beat represents. Common lengths of note are half notes (2), quarter notes (4), eighth notes (8) and sixteenth notes (16). So, in the example above, the time signature is 4/4, meaning you count four beats per bar and each beat represents a quarter note. Tap on the numbers shown to change them and enter your own choice of time signature.

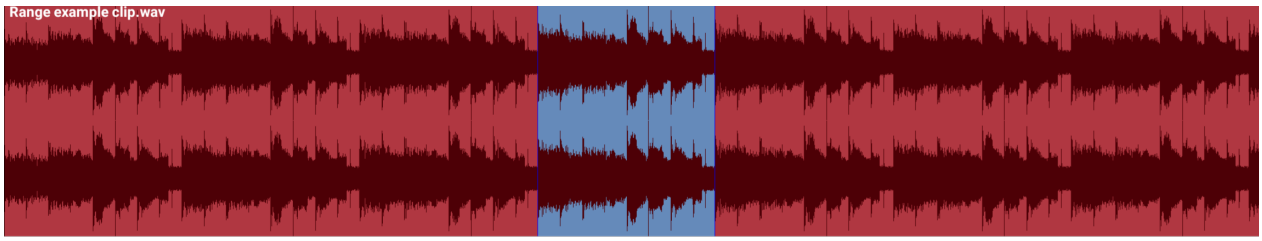
Next is the **BPM** (Beats Per Minute) value. This specifies the overall speed of the project for MIDI playback and the metronome. Here it is set to 120 bpm. Combined with the time signature you can see how this setting results in each bar being two seconds long - 120 beats per minute = 2 beats per second. 4 beats per bar ÷ 2 beats per second = 2 seconds per bar. Tap on the number to enter your own BPM value.

If you're not sure what BPM value you want but have an idea of the sort of tempo you want for your project, you can simply tap your finger on the **Tap Tempo** button and this will translate your tapped tempo into a BPM value which is automatically entered for you.

If you already have a track present in your project and you want to match your tempo to that track but are unsure of its BPM, you can use the **From Range** function. Before entering the Tempo dialog, please use the Range 

mode to create a range spanning one bar of audio. Then when selecting the **From Range** button, the app will calculate the BPM from the time span of the range and the entered time signature. The important thing is to try to be as accurate as possible when selecting your range. If your track is a single bar loop, then it's easy: select the entire clip (use the Clip Magnet function within the Grid 

options to easily have the range snap to the clip boundaries). If your track contains many bar lengths of music you will need to be more careful. First, make sure you have 'No Grid' selected in the Grid options. This will ensure that you can set your range with complete freedom without any visual distractions or snapping-to. Now you want to set your range to one bar's length of music within the target track. You can reposition the boundaries of the the range by touching, holding and dragging at the edges and don't forget, you can zoom into the track using pinch/pull within the Timeline Area for greater accuracy. If you are not sure how to identify a single bar's length in your track, it can be useful to look at the waveform on the clip and identify recurring overall patterns.



In the example above, you can see how there is an obvious repeating visual pattern throughout the clip. The range, in blue, has therefore been set to one complete cycle of this repeating pattern. This method won't always identify a bar's length but it's a good place to start. Once you've got your range selected, press **From Range** in the Tempo Settings display and the app will approximate the BPM as accurately as possible and automatically enter that value in the dialog.

The rest of the options in the Tempo Settings are concerned with the **Metronome**. The metronome provides an audible 'click track' for you to follow and allow you to play in time with the project tempo when recording live audio or MIDI. If you are using a microphone to record your

performance you'll need to be wearing headphones to ensure that the sound of the metronome isn't picked up by the mic and included in the recording. The metronome will be started by pressing the Record  button, in accordance with these options in theTempo Settings.

Use the **Metronome** checkbox to turn the metronome on or off.

Left channel only, if active, means that the metronome will only be heard through the left audio channel. This can be useful if you want to hear the metronome through the left headphone speaker to keep you in time, but have your right ear uncovered so you can properly hear your own performance as you record.

Accentuate first tick does just that. It allows the first beat of every bar to be easily identified.

Recording only, when selected, ensures that the metronome will only be heard when recording and will not get in the way during playback.

The **dB Slider** allows you to set the volume of the metronome.

The **Count-in** checkbox turns the count-in feature for the metronome on and off. When on, the metronome will be heard before recording actually starts so as to count you in with the project tempo. The drop-down allows you to select between either a one bar count-in or a two bar count-in. The count-in will start to be heard according to (prior to) the current position of the Time Marker  , at which point recording will start.

Finally, **Mute during count-in** allows you to have all other tracks temporarily muted while the count-in is heard if you are starting your recording after the beginning of the project (by positioning the Time Marker and arming the desired track). Note that if you want to hear a count-in (with other tracks temporarily muted or not) before a Punch In/Out recording, you need to make sure the Time Marker is positioned at the Punch In marker.This can be easily done by pressing the Jump 

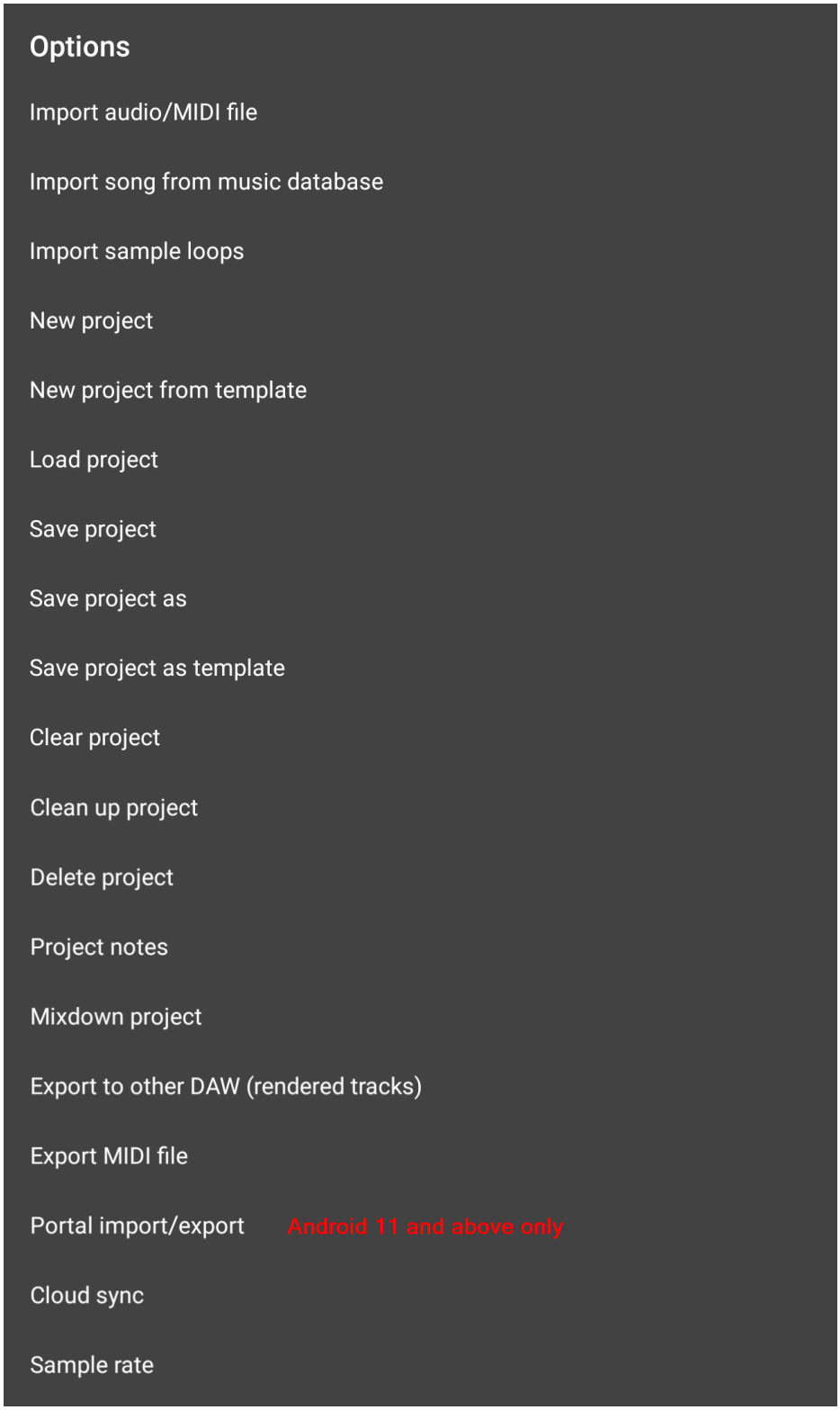
button, which will open the 'Jump to' options. Simply select 'Punch In' from those options and the Time Marker will be moved to that point. You can also access the 'Jump to' options by double tapping on the Timeline/Marker Display to open the Marker options. From there you can select 'Jump to marker' which opens the 'Jump to' options.

Creating, Saving and Loading your Project

Once you have everything set up to your liking, you are ready to go. It is good to get used to creating and saving your project at this point before you start laying down any tracks. That way, you will only ever have to press Project 

> **Save Project** whenever you want to save again, and any auto-saves will be present in the correct project folder. It will be beneficial for your workflow to keep things organized from the very beginning.

Creating your project couldn't be easier. First, press the Project button (seen above) shown at the top left in the arranger screen. This will open the Project **Options** panel seen here.



Now, press **New Project**. This will open a dialog which will allow you to give your project a name. Click **OK** once you've entered a name and that's it, your project has been saved.

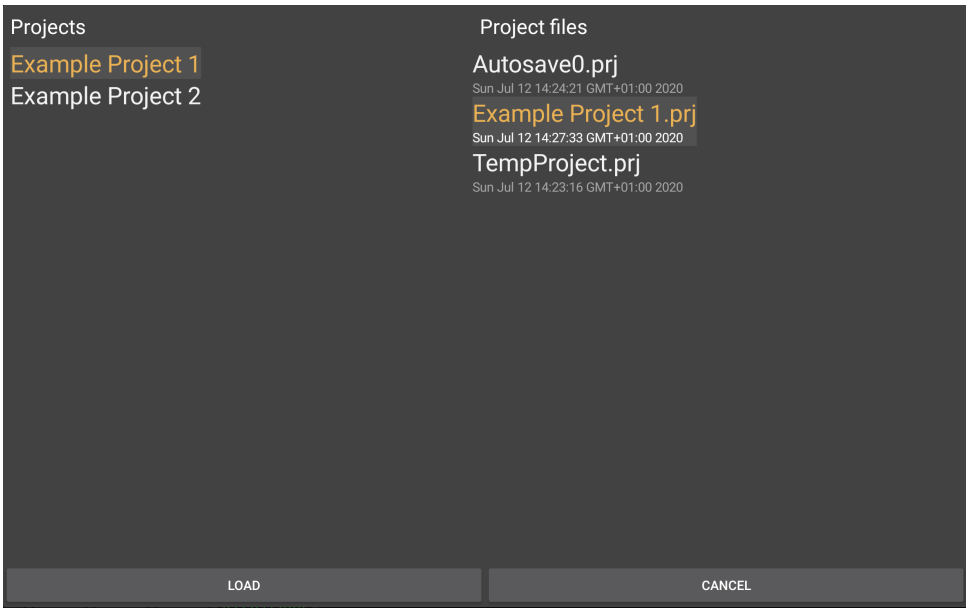
As you work on your project, you can save it at any time by pressing the Project button and pressing **Save Project** from the Project Options panel seen above.

Audio Evolution Mobile also has an auto-save feature to help keep things safe and backed up when you forget to save manually. You can choose the frequency of the auto-saves in Settings

> Other > Auto-save period. The default is once every three minutes. Auto-saves can be found in the project folder should you need to load them.

NOTE. **PRE ANDROID 11** - You can set the location for your Audio Evolution Mobile base directory - the place/folder where your projects are saved to - from within the Other section of the Settings. This allows you to use an external SD card but **PLEASE BE WARNED** that any folder on an SD card created by an app, in this case Audio Evolution Mobile, **WILL BE DELETED** if the app is uninstalled. Such folders, created by an app on an SD card **WILL ALSO BE DELETED** if you use the **Clear data** function in the Android Settings for the app. As such, you **MUST** remember to back-up your projects to a different location **before** uninstalling the app, and/or using the Clear Data function, or they will be lost forever. Alternatively, you could unmount and eject the SD card **before** uninstalling the app and/or using the Clear Data function. This behavior is hard-wired into the Android operating system and cannot be avoided unfortunately. As such, **it is strongly advised** to keep the Audio Evolution Mobile base directory on the device's internal storage (as it is by default) for the safety of your projects and to ensure that the folder won't be deleted if the app is uninstalled.
VERY IMPORTANT EXTRA INFORMATION FOR ANDROID 11 AND ABOVE The mandatory introduction of Scoped Storage for Android 11 and above means that the above information, regarding using the SD card as the base directory, remains true but it also means that **the same is true when the device's internal storage is used** because of the new storage setup. Though you will be given the option to leave your app data intact upon uninstalling the app, using the **Clear data** function in the Android Settings for the app, **WILL DELETE** all of your user data (including your Projects) without warning. PLEASE make sure you read this section so that you're fully aware of what these changes mean.

When you want to load your project again, simply press the Project button to open the Project Options panel, shown above, and press **Load Project**. This opens the Load Project dialog seen here.



As can be seen, you select your project from those listed on the left. On the right, you can choose from the available saved versions of the project. Once your selections are made, press **LOAD**.

NOTE. You may see a project in the list on the left called Untitled_0001. This will be a project which has been automatically created when you have used the app without creating or saving a

project. Any recordings you have made in such circumstances, without saving, can be found in this project's Samples folder (AudioEvolution > Projects > Untitled_0001 > Samples) on your device. For help finding the Audio Evolution Mobile folder on your device, please see here.

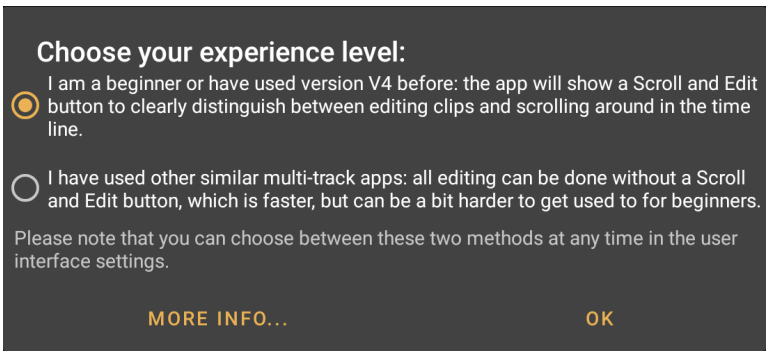
Finally, it is worth noting that, if you set up a project in a way you particularly like - with a particular range of virtual instruments assigned to different tracks, for example - you can save that project as a Template in the Project **Options**, seen above, to use again at a later date. Simply select **Save project as template**. This will then give you chance to name the template before saving the project setup. When you would next like to use that project template, just select **New project from template** from the Project Options. This will then let you choose from any templates you've previously saved.

The Arranger Screen

Introduction

The Arranger Screen is the first thing you'll see when you launch Audio Evolution Mobile. This is your central hub from where you can access all other areas of the application. From here you can set up your project, add tracks, record and import audio or MIDI, edit tracks, access effects and virtual instruments and get everything ready for the final mixdown phase.

You will recall that the very first time you launched Audio Evolution Mobile you were asked to choose your experience level, in the dialog shown below, to define which interface mode the app would run in. The differences are visible on the Arranger Screen, indicated by the presence or absence of the Scroll and Edit buttons and the way in which they affect functionality.



As such, this section of the manual contains separate instructions and definitions for both versions of the Arranger Screen.

Therefore, if you chose the first option (as is highlighted in the image above) you want to refer to the following version of the Arranger Screen in this manual. This mode can be activated (or deactivated) at any time by going to the app's Settings>User Interface>Scroll/Edit buttons, so if you have selected this option manually you will also want to use this version.

The Arranger Screen Beginner Mode

If, however, you are more comfortable with this type of app, you will likely have chosen the second option which we feel has genuine workflow benefits over the first option. In that case, you will want to refer to the version of the Arranger Screen linked to below. Remember, if you initially chose the other mode but change your mind, you can access this mode at any time by manually deactivating the Scroll/Edit buttons via Settings>User Interface>Scroll/Edit buttons. If you do this, you will, of course, then want to refer to this version.

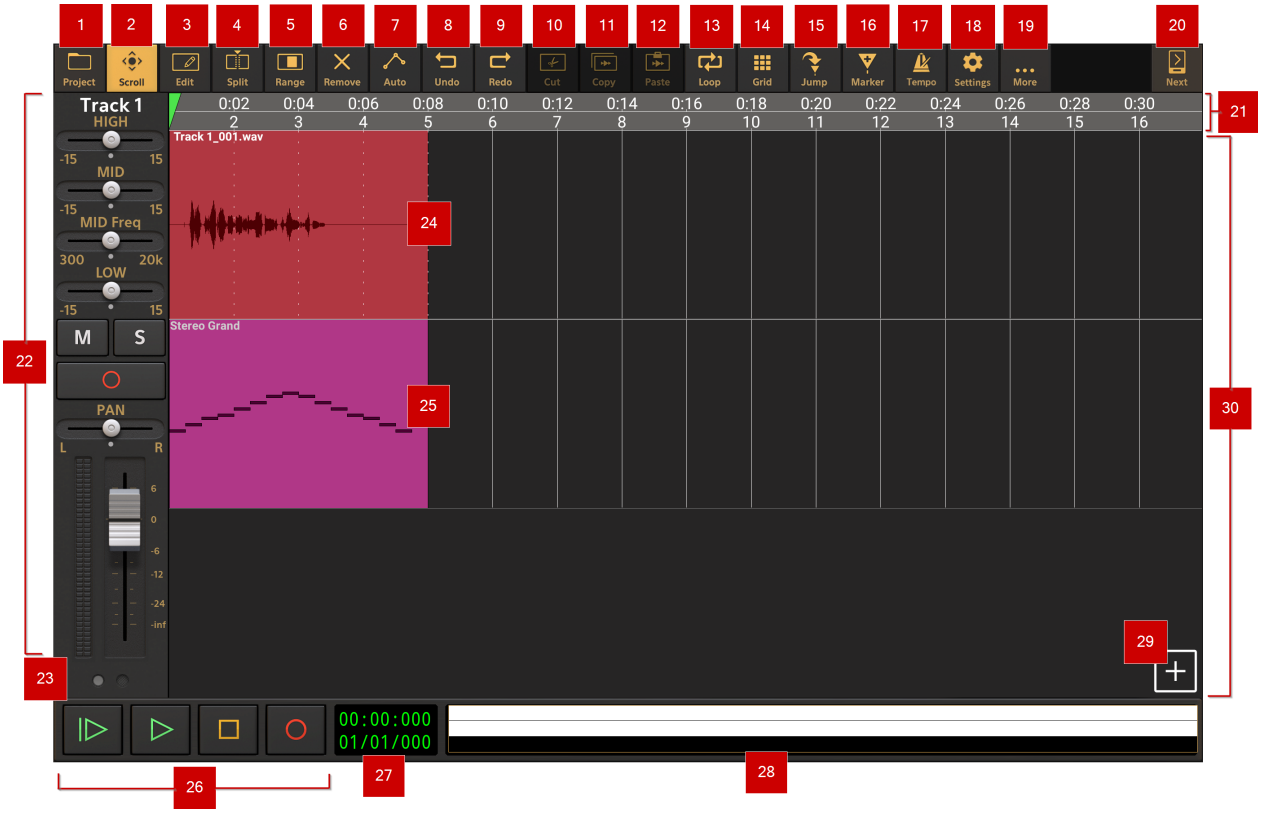
The Arranger Screen Expert Mode

Finally in this chapter, there is a dedicated section on the various Markers offered within Audio Evolution Mobile and the Marker Options available. This can be found via the link below.

Markers and Marker Options

The Arranger Screen Beginner Mode

The Arranger Screen is the first thing you'll see when you launch Audio Evolution Mobile. This is your central hub from where you can access all other areas of the application. From here you can set up your project, add tracks, record and import audio or MIDI, edit tracks, access effects and virtual instruments and get everything ready for the final mixdown phase.



NOTE. The number of buttons which appear on along the top of the Arranger Screen will vary according to your device's screen size. If you do not see some of the buttons displayed here, their functions can be accessed via the More 

button.

1 **Project** options button 

. Pressing this button opens the Project Options panel. This is where you can set up, load and save your projects, import audio and MIDI, export your tracks and final mixdown and access the cloud sync backup feature. For more information see here.

2 **Scroll** button 

(shown selected, lit yellow, in the main screenshot above). The Scroll button, when selected, allows you to move around the timeline without having to worry that you might accidentally trim or move a clip. That said, you want to be in Scroll mode in order to long press on an individual clip to open the Clip/Track Options dialog which offers various editing options for that clip. For full details on the Clip/Track Options for audio clips, please see here. For

full details on the Clip/Track Options for MIDI clips, please see here.

3 **Edit** button 

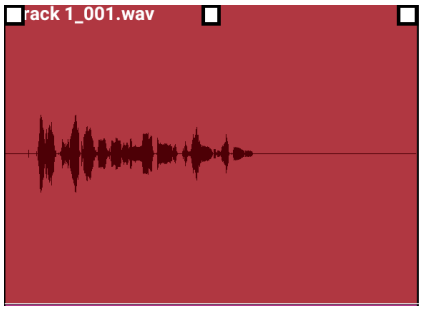
. The Edit mode, when selected, allows you to directly edit the position, length and volume of individual clips on the timeline.

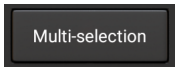
To move the clip on the timeline, press, hold and slide using the central area of the clip.

NOTE. When trimming and moving clips, don't forget the Grid and Snap-to-Grid options, which can be very helpful for precise edits.

To trim the clip, touch, hold and slide on either end of the clip. Such edits are non-destructive, meaning the original sample/content is not affected by this process. Touch, hold and slide on a previously trimmed clip and you'll see the trimmed content is still there, just hidden from view. Note that you cannot make an audio clip longer than the audio file it refers to. Trimming is therefore restricted to the audio file's actual start and end points.

To adjust the clip's volume *in relation to the other clips*, use the Volume Handles (the white squares) found at the top of the clip when in this mode as seen below. If the selected clip is too small on the display for these controls to be shown, please zoom in to make the clip larger on the display using pinch/pull in the timeline area. The Volume Handles also allow you to apply a simple volume envelope to each clip - a fade in from and a fade out to silence - if desired. For a full description of the behavior of the Volume Handles, please see here.



Lastly in Edit mode, you will see there is a **Multi-selection** 

button in the Channel Strip area on the left. This allows you to select multiple clips. To do so, press the Multi-selection button. Then, tap, hold and slide the blue rectangular marquee over the clips you want to select. Once you have multiple clips selected, you can move (using the method described above: pressing, holding and sliding in one of the selected clips), Cut or Copy all of those clips at once. Use the Paste button to paste content which has been cut or copied at the position of the green time marker or long-tap on the position you would like to paste to and select Paste from the pop-up menu.

NOTE. Because the long-press action is used for dragging the blue rectangular marquee over the clips you want to select, please be aware that long pressing in an empty space on a track, when in Edit mode with the Multi-selection button enabled, will not open the Track Options for that track as it would in other situations.

4 **Split** button 

. This allows you to split clips into multiple smaller clips when needed. To split a clip, press the Split button to enter split mode. Whilst in split mode, tap on any clip and that clip will be split into two separate clips at the point at which you tapped. As a single tap like that can lack accuracy, it is generally better, though, to tap, hold and slide to position the vertical dotted white line, which will appear once you tap and hold, to exactly the point at which you want the split to occur. Once you release your finger, the clip will be split at the position of the vertical

dotted line. For greater accuracy, zoom into the clip by resizing it using two fingers to pinch/pull.

As always, remember the Grid 

and snap-to functionality if you want to easily position the vertical dotted line at an exact increment of the tempo. Turn the Grid snap-to functionality off to position the vertical dotted line freely.

For more information about editing audio clips, see here. For more information about editing MIDI clips, see here.

5 **Range** mode button 

. This button turns on the track Range mode on and off. When Range mode is on, you can use your finger to select a time range within one track or across multiple tracks. With Range mode on, touch where you would like the range to start *and hold/slide* to the right on the track you want to select part of (or start on the end and hold/slide left to the desired starting point). If you want to select a range across multiple tracks, also slide up or down to include those tracks in the range selection as you do so. Once the selection is made, should you need to adjust it, press *and hold* near the edge of the blue range selection and slide to reposition that edge. As always, zoom in for greater accuracy. Tap once outside of the range selection to deselect it completely. Tap once within the blue range selection to open the Range Options or use the Cut or Copy buttons to cut or copy the selected range. For more information on the range options, see here.

6 Press the **Remove** 

button to activate the Remove mode. When active, this mode allows you to easily and quickly remove any clip you tap in your project. Use the Undo button if you accidentally remove a clip you meant to keep. Press the Scroll button to deactivate the mode.

7 **Automation** mode button 

. Clicking on this button turns on the Automation Mode view. This allows you to create and edit parameter automation for your tracks as well as their connected virtual instruments and effects. You can also apply automation to the Master track and Groups/Buses which are always displayed at the bottom of the tracks shown in the Timeline Area when in automation mode view. Automation can also be created using the Touch Mode. For more information on Automation in Audio Evolution Mobile see here.

8 **Undo** button 

. Pressing this button undoes the last edit made on the clips and tracks within the Timeline Area 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 list is emptied when the app is closed or a new project is loaded or created and will be empty when the app is next launched. Please note that mixer setting changes are not affected by undo/redo.

9 **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.

10 **Cut** button 

. The Cut button allows you to cut (remove) the selected clip or the Range selected. When cutting a Range you will be given the option to either Cut, which clears the selected area leaving an empty space, or Cut (ripple), which cuts the selected area after which everything to the right of the selected area is shifted left by the amount/length of the clip or range cut.

11 **Copy** button 

. The Copy button allows you to copy the selected clip or Range to the clipboard. The clipboard only holds one selection at a time so copying another will overwrite the first. Please note that this is an internal clipboard, not a system wide clipboard, so you cannot paste the contents of the clipboard outside of the app.

12 **Paste** button 

. The Paste button will paste the currently copied clip(s) or Range to the specified location as a separate clip or separate clips (if there were multiple present on the clipboard). To select the point at which to paste, first select the desired track by tapping on it. Then position the Time Marker (the green marker 

) by tapping once at the desired point on the Timeline/Marker Display or by grabbing hold of the Time Marker and sliding it. Zoom into the clip using pull/pinch for greater accuracy. Then press the Paste button and the copied content from the clipboard will be pasted at the point defined. If the location specified already contains content, you will be asked if you'd like to **Paste** or **Paste (insert)**. Selecting Paste will 'remove' any content present underneath the content pasted. If the copied content happens to be pasted on top of and completely within the duration of a single clip on the timeline, that clip will be split into two clips, both trimmed to accommodate the pasted content (the clip's original content is still there though if you to trim the original clip(s) using the Edit mode.). Selecting Paste (insert) will insert your copied content at the point specified and shift everything originally after that point to the right by the duration of the pasted content so it is now heard after the inserted content and nothing is removed.

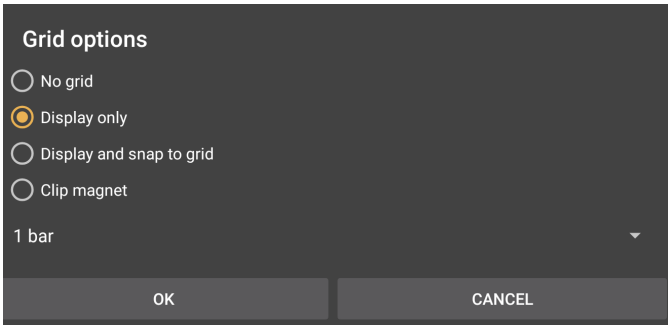
13 **Loop** mode button 

. The Loop button switches the loop mode on and off. When active, playback will be continually looped between the two yellow loop marker points 

, which are shown in the Timeline/Marker Display when loop mode is on. Loop marker points are set by touching and sliding them to the desired point in the Timeline. To more easily set your loop points accurately, it can be helpful to use the Grid and Snap-to-Grid options. There is also a convenient option in the Clip/Track Options (accessed by long-tapping a clip in Scroll mode) to automatically set the loop points to the boundaries of that particular clip.

14 **Grid** button 

. The Grid button allows you to show or hide the visual tempo grid within the Timeline Area and customize its properties. In the screenshot above, the grid is shown displaying one bar length increments. Pressing the Grid button opens the Grid Options seen here.



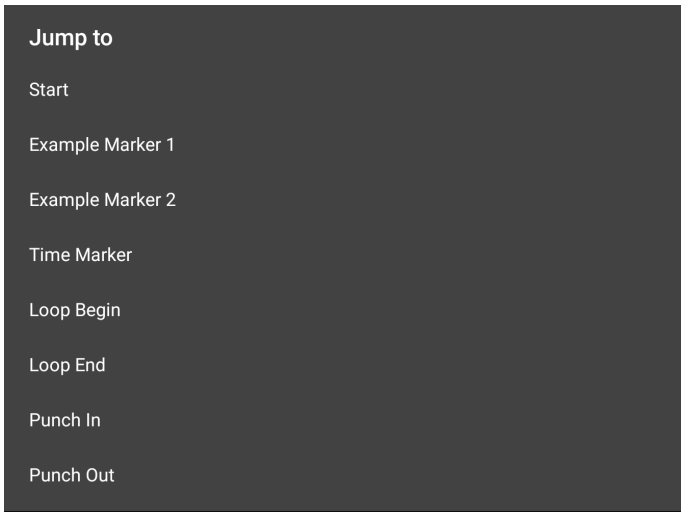
As can be seen, you can choose to have no grid displayed, have *only* the grid displayed, or display the grid with snap-to-grid functionality. Snap-to-grid can be very useful when moving clips, positioning the Time Marker, loop marker points or other markers and when selecting a Range. There is also the option to turn the Clip magnet function on. This can be extremely useful when you want to select the exact beginning, or end of a clip on the Timeline/Marker Display and

when you want to place clips seamlessly next to each other. The clip magnet function works across multiple tracks, not just on the track selected, meaning you can easily make exact selections, or positionings, based on the clips on other tracks.

The increments used for the grid are either divisions of the current tempo, ranging from 1 bar to 1/32nd triplet beat, or, 24 or 25 frames per second which are particularly useful if you are working on music for, or working on the soundtrack of, a film or video. The actual grid increments you see displayed will depend on the available screen space so you may need to zoom in further using pinch/pull to see the smallest divisions. That said, snap-to-grid *always* snaps to the defined increments even if the grid lines are not currently being displayed.

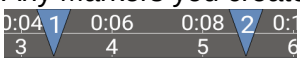
15 **Jump** button 

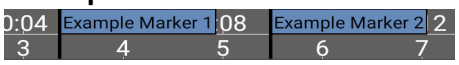
. The Jump button opens the 'Jump to' options seen below.



The 'Jump to' function allows you to very easily and quickly jump to particular points you have defined in your project. Selecting one of the options jumps your viewpoint to that point in the timeline and also moves the Time Marker to that point.

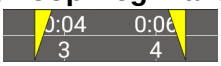
Selecting **Start** jumps you and the Time Marker to the start of the project.

Any Markers you create yourself, shown on the Timeline/Marker Display in blue as seen here 

, are included in the 'Jump to' options. You can name your markers anything you want: here the two markers have been renamed '**Example Marker 1**' and '**Example Marker 2**'. You can choose whether the Marker numbers or Marker names 

are displayed in the User Interface section of the Settings. Selecting a Marker in the 'Jump to' options jumps your viewpoint and the Time Marker to that point.

Selecting **Time Marker** jumps you to the current position of the green Time Marker 
should you have scrolled through your project so that it is not currently visible.

Selecting **Loop Begin** and **Loop End** jump you and the Time Marker to the loop points displayed in yellow 

. The Loop mode doesn't need to be active, and the loop points to be visible, for this to happen.

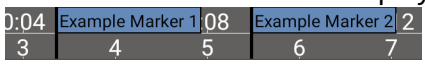
Also listed as options are the **Punch In** and **Punch Out** point if they have been set. Punch In/Out

points are shown in red on the Timeline/Marker display as seen here 

. Selecting them in the 'Jump to' options jumps you and the Time Marker to that point. For more information on Punch In/Out see here.

16 **Marker** button 

. The Marker button allows you to easily place a blue marker at the current position of the Time Marker  . Position the Time Marker by tapping once in the Timeline/Marker Display, by touching it and sliding to the desired point, or by using the Project Overview/Scrollpad which will let you move the Time Marker without it being obscured by your finger as you do so. For greater accuracy, zoom in using pull/pinch. Once you have the Time Marker correctly positioned, press the Marker button and your marker will be placed at that point and the Name Marker dialog will open to allow you to give your marker a descriptive name if necessary. You can choose whether Audio Evolution Mobile displays marker numbers 

or names 

in the Timeline/Marker Display in the User Interface section of the Settings. Markers can be moved by touching and sliding them unless they have been locked in place using the Marker Options (double click on the Timeline/Marker Display to open the Marker Options).

NOTE. Markers can also be placed by double clicking on the Timeline/Marker Display. This will move the Time Marker to the place clicked on and open up the Marker Options from where you can access various options including adding a marker at that point. For more information on this, see here.

17 **Tempo** button 

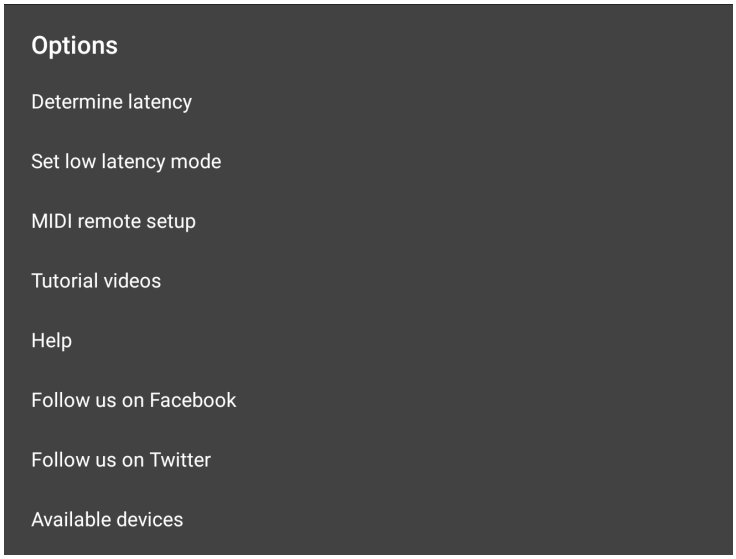
. Pressing the Tempo button opens up the project tempo settings. For more information on this, see here.

18 **Settings** button 

. Pressing the Settings button opens up the Audio Evolution Mobile settings options. Audio Evolution Mobile gives you many choices to help tailor your experience across the categories of Audio, User Interface, Mixer Channel Display, USB Audio, USB MIDI and Other.

19 **More** button 

. The More button will display various options depending on the size of your device's screen. If your screen is too small to display all of the buttons across the top of the Arranger Screen as shown in the screenshot above, the functions of those which can't be seen can be accessed via the More button. In addition to those functions, you will notice there is also Options. Selecting Options opens this pop-up screen, allowing you to access the various functions listed.

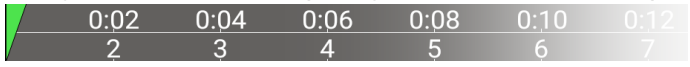


If your device screen is big enough to display all of the buttons along the top of the Arranger Screen, pressing the More button will immediately open the Options pop-up shown above.

20 **Next** button 

. The Next button is used to move from the Arranger Screen to the next screen - the Track Mixer screen. Pressing the Next button on the Track Mixer screen will take you to the Master and Groups Mixer screen. Pressing the Next button on that screen takes you back to the Arranger Screen (unless you have a USB audio interface connected which exposes its internal controls such as input gain and volume. If so, you will be taken to the Hardware Mixer screen before being taken back to the Arranger Screen.).

21 **Timeline/Marker Display** showing the Time Marker (the green marker 

) at the beginning of the project timeline. 

. The numbers on the top show the the duration in minutes and seconds. The numbers on the bottom show the duration in musical bars according to the Tempo Settings. Any Markers and Tempo changes you add to your project will be displayed here as well as the Loop markers when Loop Mode is active and Punch In and Punch Out markers when they are present. For more information on Punch In/Out see here. For more information on Tempo Changes, see here. Single tap on the Timeline/Marker Display to move the Time Marker to that point. Double tap on the Timeline/Marker Display to open the Marker Options.

22 Current track **Channel Strip** 

. The Channel Strip gives you a range of controls over the currently selected track and allows you to access the FX (effects) Grid for audio and

instrument tracks. These controls are shown across more than one Channel Strip page. For more details about the Channel Strip for audio tracks, see here. For more details about the Channel Strip for instrument tracks, see here.

23 Channel strip **Page Selector**  . As mentioned above, the Channel Strip controls are shown across more than one page. Use the Page Selector buttons to navigate from one page to another. The smaller your device screen, the greater the number of pages will be needed to cover all of the Channel Strip controls and therefore the greater the number of pages shown in the selector.

24 An example of an **Audio Clip** on track one of the Time Line area. Resize the display of clips, or zoom in/out, by using two fingers to pinch or pull.

When in Scroll 

mode, long press on a clip to open the Clip/Track Options.

When in Edit 

mode, you can trim clips by pressing, holding and sliding on either end of the clip. You can move the clip within the timeline by pressing, holding and sliding using the middle area of the clip. You can also adjust the clip's volume using the volume envelope handles (the white squares) found at the top of the clip when in this mode.

Long press on any area of a track not containing a clip to open the Track Options. (The time needed for the app to register a long press can be adjusted to your preference using the Pop-up Menu Time option in the User Interface section of the Settings). For more information on audio clips, see here.

When enabled in the Settings 

, double tapping an audio clip will allow you to open it in **Vocal Tune Studio**. When this option is deselected, an audio clip can be opened in Vocal Tune Studio via its Clip Options.

25 An example of a **MIDI Clip** on track two of the Time Line area. Resize the display of clips, or zoom in/out, by using two fingers to pinch or pull.

When in Scroll 

mode, long press on a clip to open the Clip/Track Options. Double tapping a MIDI clip on a MIDI instrument track opens the clip in the Piano Roll Editor. Double tapping a MIDI clip on a MIDI drum pattern track opens the clip in the Drum Pattern Editor. Long press on a clip to open the Clip/Track Options. To add a new MIDI clip, you must be in Edit mode.

When in Edit 

mode, tapping an empty area of the MIDI track adds a new clip. You can trim clips by pressing, holding and sliding on either end of the clip. You can move the clip within the timeline by pressing, holding and sliding using the middle area of the clip. You can also adjust the clip's volume using the volume envelope handles (the white squares) found at the top of the clip when in this mode. Double tapping a MIDI clip on a MIDI instrument track opens the clip in the Piano Roll Editor. Double tapping a MIDI clip on a MIDI drum pattern track opens the clip in the Drum Pattern Editor.

Long press on any area of a track not containing a clip to open the Track Options. (The time needed for the app to register a long press can be adjusted to your preference using the Pop-up Menu Time option in the User Interface section of the Settings). For more information on MIDI clips, see here.

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

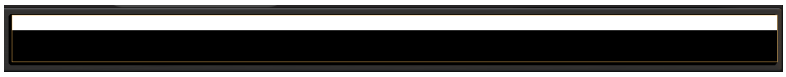
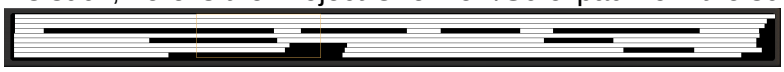
 Start Playback from the beginning of the project.

 Playback from the position of the Time Marker (The green marker  in the Timeline/Marker Display). 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.

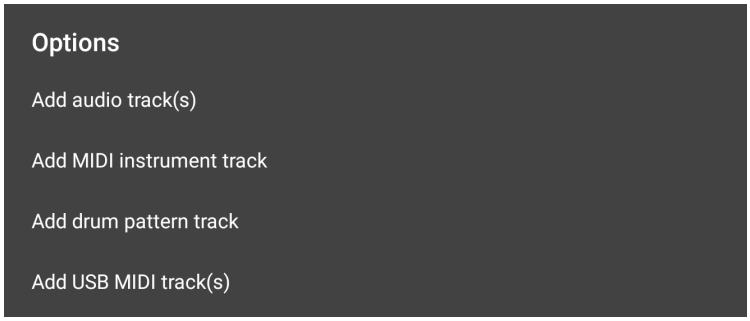
 Stop Playback or Recording.

 Record.

27 **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 green marker  shown in the Timeline/Marker Display). 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. This is also the place where most parameter levels are displayed as they are being changed.

28 **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 are only two tracks in the screenshot above, the Project Overview/Scrollpad perhaps doesn't illustrate this as well as possible. As such, here is the Project Overview/Scrollpad from the screenshot used in the Introduction  . 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 main project viewpoint and simultaneously position the green Time Marker  in the Timeline/Marker Display 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.

29 **Add Track** button  . The Add Track button opens the following Options to allow you to add audio and MIDI tracks to your project. For more information, see here.

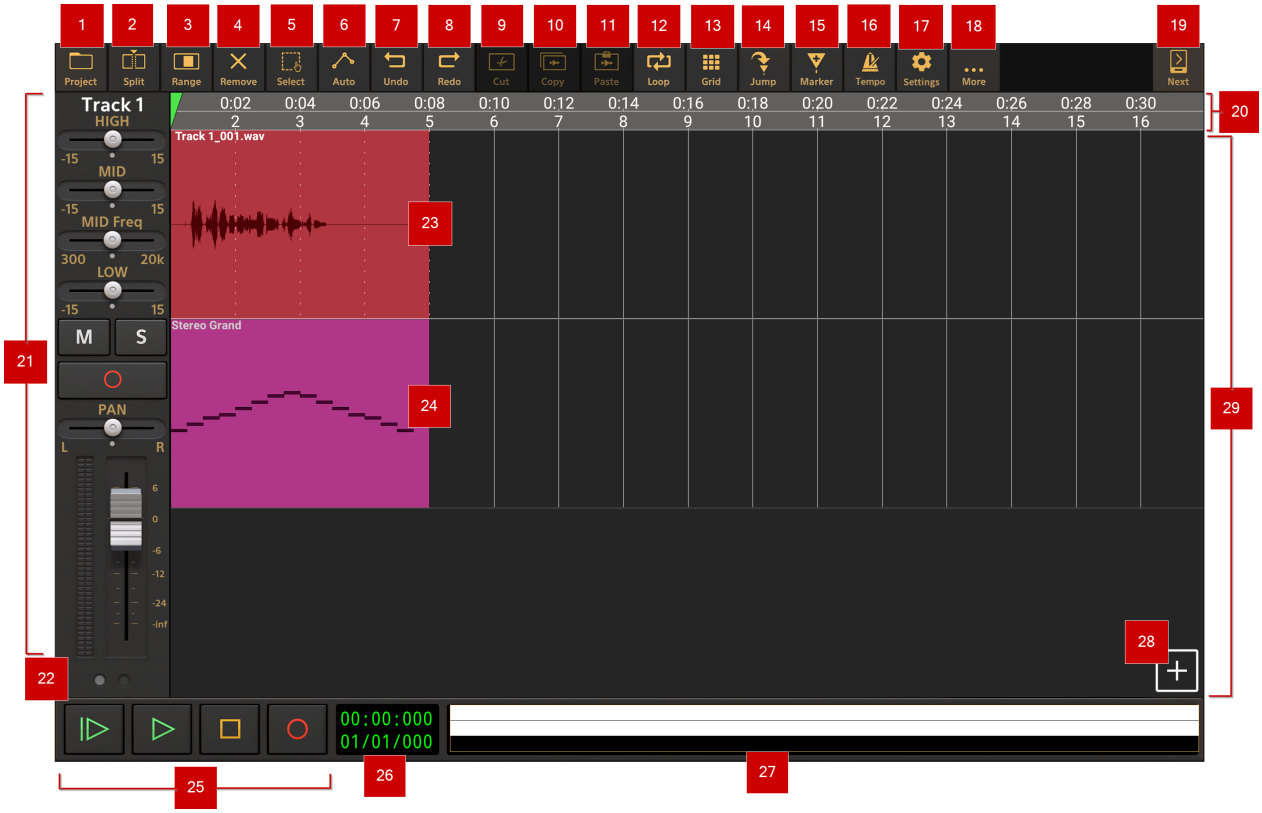


NOTE. You can also use Automatic Track Creation for audio tracks . When enabled (in the Audio section of the Settings) this automatically creates a new audio track when record is pressed and no track is armed. Automatic Track Creation is enabled by default.

30 **Timeline Area**. This is where your audio and MIDI clips are displayed on their tracks. Two example clips are shown in the screenshot above. The first, in track one, is an audio clip. The second, in track two, is a MIDI clip. Use two fingers to pinch or pull to resize, and therefore zoom into and out of, clips.

The Arranger Screen Expert Mode

The Arranger Screen is the first thing you'll see when you launch Audio Evolution Mobile. This is your central hub from where you can access all other areas of the application. From here you can set up your project, add tracks, record and import audio or MIDI, edit tracks, access effects and virtual instruments and get everything ready for the final mixdown phase.



NOTE. The number of buttons which appear on along the top of the Arranger Screen will vary according to your device's screen size. If you do not see some of the buttons displayed here, their functions can be accessed via the More 

button.

1 **Project** options button 

. Pressing this button opens the Project Options panel. This is where you can set up, load and save your projects, import audio and MIDI, export your tracks and final mixdown and access the cloud sync backup feature. For more information see here.

2 **Split** button 

. This allows you to split clips into multiple smaller clips when needed. How this happens depends on the Split button behavior setting which is selectable between **Mode** or **Action** via Settings > User Interface > Split button behavior.

To split a clip using the **Mode Split button behavior** (this is the default setting), press the Split button to enter split mode. Whilst in split mode, tap on any clip and that clip will be split into two separate clips at the point at which you tapped. As a single tap like that can lack accuracy, it is generally better, though, to tap, hold and slide to position the vertical dotted white line, which will appear once you tap and hold, to exactly the point at which you want the split to occur. Once you release your finger, the clip will be split at the position of the vertical dotted line. For greater accuracy, zoom into the clip by resizing it using two fingers to pinch/pull. As always, remember the Grid 

and snap-to functionality if you want to easily position the vertical dotted line at an exact increment of the tempo. Turn the Grid snap-to functionality off to position the vertical dotted line freely.

When using **Action Split button behavior**, you split the currently selected clips into separate clips at the point defined by the position of the Time Marker - the green marker  shown in the Timeline/Marker Display which can be freely positioned by tapping the Timeline/Marker Display, by grabbing the Time Marker and sliding it, or by sliding your finger within the Project Overview/ Scrollpad, which will let you move the Time Marker without it being obscured by your finger as you do so. For greater accuracy, zoom into the clip by resizing it using two fingers to pinch/pull. Once the Time Marker is positioned, press the Split button and the selected clip(s) will be split at that point. When Action Split button behavior is selected, the split button will be grayed out on the Arranger Screen until a clip is selected.

For more information about editing audio clips, see here. For more information about editing MIDI clips, see here.

3 Press the **Remove** 

button to activate the Remove mode. When active, this mode allows you to easily and quickly remove any clip you tap in your project. Use the Undo button if you accidentally remove a clip you meant to keep. Press the Remove button again to deactivate the mode.

4 **Range** mode button 

. This button turns on the track Range mode on and off. When Range mode is on, you can use your finger to select a time range within one track or across multiple tracks. With Range mode on, touch where you would like the range to start *and hold/slide* to the right on the track you want to select part of (or start on the end and hold/slide left to the desired starting point). If you want to select a range across multiple tracks, also slide up or down to include those tracks in the range selection as you do so. Once the selection is made, should you need to adjust it, press *and hold* near the edge of the blue range selection and slide to reposition that edge. As always, zoom in for greater accuracy. Tap once outside of the range selection to deselect it completely. Tap once within the blue range selection to open the Range Options or use the Cut or Copy buttons to cut or copy the selected range. For more information on the range options, see here.

5 **Select** mode button 

. Switching on the Select mode allows you to select more than one clip at a time, either within one track or across many tracks. Press the Select mode button to engage the mode. Then touch the clips you wish to select one by one or, alternatively, long press and use the rectangular marquee that appears to select a whole area of clips. Once you have your clips selected, press the Select button again to turn off the select mode. Now you have all of

your chosen clips selected at the same time, allowing you to trim (using the handles at either end of one of the selected clips), move (by dragging one of the selected clips) and alter the clip volume (using the white volume envelope sliders at the top of the selected clips) of all of them simultaneously. Tap once outside the selected clips to deselect them all.

6 **Automation** mode button 

. Clicking on this button turns on the Automation Mode view. This allows you to create and edit parameter automation for your tracks as well as their connected virtual instruments and effects. You can also apply automation to the Master track and Groups/Buses which is always displayed at the bottom of the tracks shown in the Timeline Area when in automation mode view. Automation can also be created using the Touch Mode. For more information on Automation in Audio Evolution Mobile see here.

7 **Undo** button 

. Pressing this button undoes the last edit made on the clips and tracks within the Timeline Area 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 list is emptied when the app is closed closed or a new project is loaded and will therefore be empty when the app is next launched. Please note that mixer setting changes are not affected by undo/redo.

8 **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.

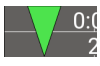
9 **Cut** button 

. The Cut button allows you to cut (remove) the selected clip or the Range selected. When cutting a Range you will be given the option to either Cut, which clears the selected area leaving an empty space, or Cut (ripple), which cuts the selected area after which everything to the right of the selected area is shifted left by the amount/length of the clip or range cut.

10 **Copy** button 

. The Copy button allows you to copy the selected clip or Range to the clipboard. The clipboard only holds one selection at a time so copying another will overwrite the first. Please note that this is an internal clipboard, not a system wide clipboard, so you cannot paste the contents of the clipboard outside of the app.

11 **Paste** button 

. The Paste button will paste the currently copied clip(s) or Range to the specified location as a separate clip or separate clips (if there were multiple present on the clipboard). To select the point at which to paste, first select the desired track by tapping on it. Then position the Time Marker (the green marker 

) by tapping once at the desired point on the Timeline/Marker Display or by grabbing hold of the Time Marker and sliding it. Zoom into the clip using pull/pinch for greater accuracy. Then press the Paste button and the copied content from the clipboard will be pasted at the point defined. If the location specified already contains content, you will be asked if you'd like to **Paste** or **Paste (insert)**. Selecting Paste will 'remove' any content present underneath the content pasted. If the copied content happens to be pasted on top of and completely within the duration of a single clip on the timeline, that clip will be split into two clips, both trimmed to accommodate the pasted content (the clip's original content is still there though if you use the Clip Trimming Handles to trim the original clip/s). Selecting Paste (insert) will insert your copied content at the point specified and shift everything originally after that point to the right by the duration of the pasted content so it is now heard after the inserted content and nothing is removed.

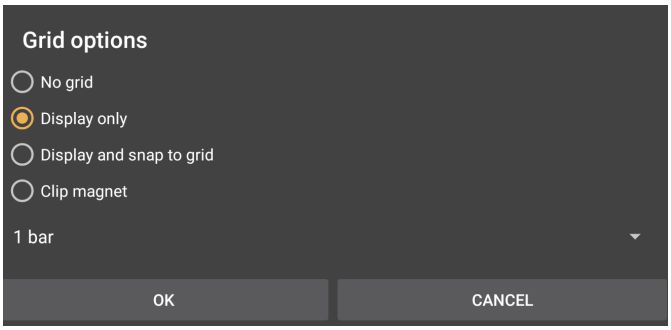
12 **Loop** mode button 

. The Loop button switches the loop mode on and off. When active, playback will be continually looped between the two yellow loop marker points 

, which are shown in the Timeline/Marker Display when loop mode is on. Loop marker points are set by touching and sliding them to the desired point in the Timeline. To more easily set your loop points accurately, it can be helpful to use the Grid and Snap-to-Grid options. There is also a convenient option in the Clip/Track Options (accessed by selecting a clip and tapping on the three-dot button shown within the clip - zoom in further using pull/pinch if the clip isn't big enough to display the three-dot button initially) to automatically set the loop points to the boundaries of that particular clip.

13 **Grid** button 

. The Grid button allows you to show or hide the visual tempo grid within the Timeline Area and customize its properties. In the screenshot above, the grid is shown displaying one bar length increments. Pressing the Grid button opens the Grid Options seen here.

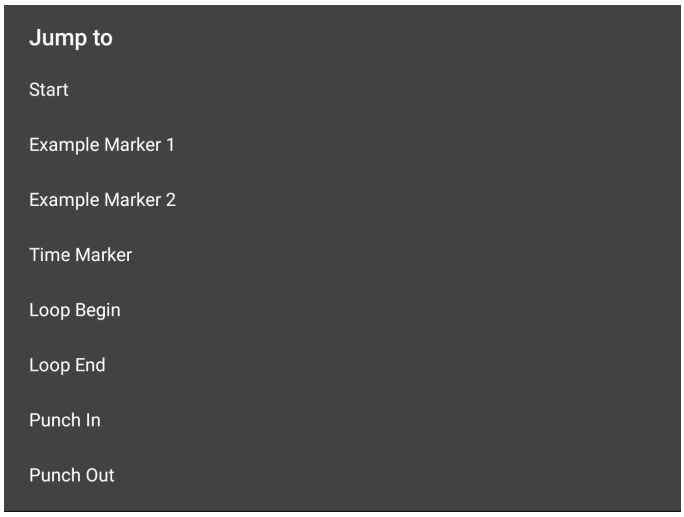


As can be seen, you can choose to have no grid displayed, have *only* the grid displayed, or display the grid with snap-to-grid functionality. Snap-to-grid can be very useful when moving clips, positioning the Time Marker, loop marker points or other markers and when selecting a Range. There is also the option to turn the Clip magnet function on. This can be extremely useful when you want to select the exact beginning, or end of a clip on the Timeline/Marker Display and when you want to place clips seamlessly next to each other. The clip magnet function works across multiple tracks, not just on the track selected, meaning you can easily make exact selections, or positionings, based on the clips on other tracks.

The increments used for the grid are either divisions of the current tempo, ranging from 1 bar to 1/32nd triplet beat, or, 24 or 25 frames per second which are particularly useful if you are working on music for, or working on the soundtrack of, a film or video. The actual grid increments you see displayed will depend on the available screen space so you may need to zoom in further using pinch/pull to see the smallest divisions. That said, snap-to-grid *always* snaps to the defined increments even if the grid lines are not currently being displayed.

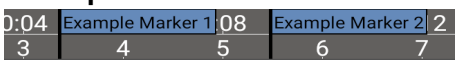
14 **Jump** button 

. The Jump button opens the 'Jump to' options seen below.



The 'Jump to' function allows you to very easily and quickly jump to particular points you have defined in your project. Selecting one of the options jumps your viewpoint to that point in the timeline and also moves the Time Marker to that point.

Selecting **Start** jumps you and the Time Marker to the start of the project.

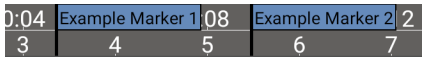
Any Markers you create yourself, shown on the Timeline/Marker Display in blue as seen here  , are included in the 'Jump to' options. You can name your markers anything you want: here the two markers have been renamed '**Example Marker 1**' and '**Example Marker 2**'. You can choose whether the Marker numbers or Marker names  are displayed in the User Interface section of the Settings. Selecting a Marker in the 'Jump to' options jumps your viewpoint and the Time Marker to that point.

Selecting **Time Marker** jumps you to the current position of the green Time Marker  should you have scrolled through your project so that it is not currently visible.

Selecting **Loop Begin** and **Loop End** jump you and the Time Marker to the loop points displayed in yellow  . The Loop mode doesn't need to be active, and the loop points to be visible, for this to happen.

Also listed as options are the **Punch In** and **Punch Out** point if they have been set. Punch In/Out points are shown in red on the Timeline/Marker display as seen here  . Selecting them in the 'Jump to' options jumps you and the Time Marker to that point. For more information on Punch In/Out see here.

15 **Marker** button  . The Marker button allows you to easily place a blue marker at the current position of the Time Marker  . Position the Time Marker by tapping once in the Timeline/Marker Display, by touching it and sliding to the desired point, or by using the Project Overview/Scrollpad which will let you move the Time Marker without it being obscured by your finger as you do so. For greater accuracy, zoom in using pull/pinch. Once you have the Time Marker correctly positioned, press the Marker button and your marker will be placed at that point and the Name Marker dialog will open to allow you to give your marker a descriptive name if necessary. You can choose whether Audio Evolution Mobile displays marker numbers

or names 

in the Timeline/Marker Display in the User Interface section of the Settings. Markers can be moved by touching and sliding them unless they have been locked in place using the Marker Options (double click on the Timeline/Marker Display to open the Marker Options).

NOTE. Markers can also be placed by double clicking on the Timeline/Marker Display. This will move the Time Marker to the place clicked on and open up the Marker Options from where you can access various options including adding a marker at that point. For more information on this, see here.

16 **Tempo** button 

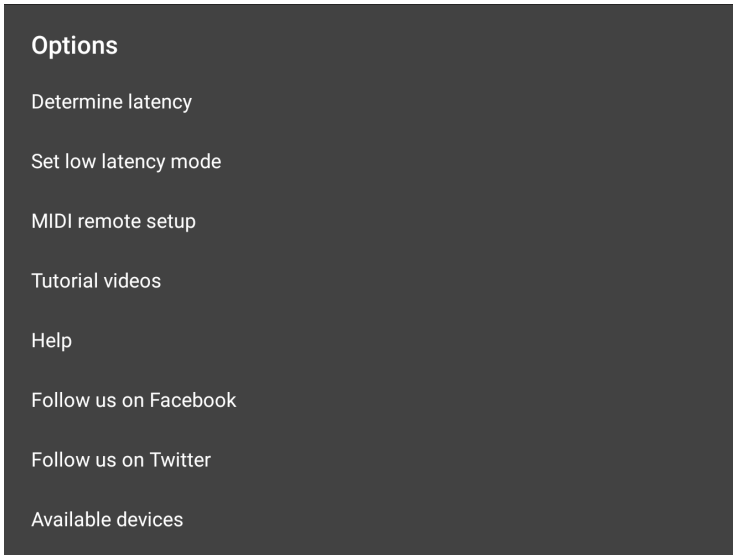
. Pressing the Tempo button opens up the project tempo settings. For more information on this, see here.

17 **Settings** button 

. Pressing the Settings button opens up the Audio Evolution Mobile settings options. Audio Evolution Mobile gives you many choices to help tailor your experience across the categories of Audio, User Interface, Mixer Channel Display, USB Audio, USB MIDI and Other.

18 **More** button 

. The More button will display various options depending on the size of your device's screen. If your screen is too small to display all of the buttons across the top of the Arranger Screen as shown in the screenshot above, the functions of those which can't be seen can be accessed via the More button. In addition to those functions, you will notice there is also Options. Selecting Options opens this pop-up screen, allowing you to access the various functions listed.



If your device screen is big enough to display all of the buttons along the top of the Arranger Screen, pressing the More button will immediately open the Options pop-up shown above.

19 **Next** button 

. The Next button is used to move from the Arranger Screen to the next screen - the Track Mixer screen. Pressing the Next button on the Track Mixer screen will take you to the Master and Groups Mixer screen. Pressing the Next button on that screen takes you back to the Arranger Screen (unless you have a USB audio interface connected which exposes

its internal controls such as input gain and volume. If so, you will be taken to the Hardware Mixer screen before being taken back to the Arranger Screen.).

20 **Timeline/Marker Display** showing the Time Marker (the green marker 

) at the beginning of the project timeline. 

. The numbers on the top show the the duration in minutes and seconds. The numbers on the bottom show the duration in musical bars according to the Tempo Settings. Any Markers and Tempo changes you add to your project will be displayed here as well as the Loop markers when Loop Mode is active and Punch In and Punch Out markers when they are present. For more information on Punch In/Out see here. For more information on Tempo Changes, see here. Single tap on the Timeline/Marker Display to move the Time Marker to that point. Double tap on the Timeline/Marker Display to open the Marker Options.

21 Current track **Channel Strip** 

. The Channel Strip gives you a range of controls over the currently selected track and allows you to access the FX (effects) Grid for audio and instrument tracks. These controls are shown across more than one Channel Strip page. For more details about the Channel Strip for audio tracks, see here. For more details about the Channel Strip for instrument tracks, see here.

22 Channel strip **Page Selector** 
. As mentioned above, the Channel Strip controls are shown across more than one page. Use the Page Selector buttons to navigate from one page to another. The smaller your device screen, the greater the number of pages will be needed to cover all of the Channel Strip controls and therefore the greater the number of pages shown in the selector.

23 An example of an **Audio Clip** on track one of the Time Line area. Resize the display of clips, or zoom in/out, by using two fingers to pinch or pull. Select an audio clip by tapping it. Once selected, you can trim a clip using the white handles which appear at either end. You can adjust the clip's volume using the volume envelope handles (the white squares) found at the top of the clip. You can move the clip by pressing, holding and sliding using the middle area of the clip and you can open the Clip/Track Options by clicking on the three-dot button. Long press on any area of a track not containing a clip to open the Track Options. (The time needed for the app to register a long press can be adjusted to your preference using the Pop-up Menu Time option in the User Interface section of the Settings).

When enabled in the Settings 

, double tapping an audio clip will allow you to open it in **Vocal Tune Studio**. When this option is deselected, an audio clip can be opened in Vocal Tune Studio via its Clip Options.

For more information on audio clips, see here.

24 An example of a **MIDI Clip** on track two of the Time Line area. Resize the display of clips, or zoom in/out, by using two fingers to pinch or pull. Select a MIDI clip by tapping it. Once selected, you can trim a clip using the white handles which appear at either end. You can adjust the clip's volume using the volume envelope handles (the white squares) found at the top of the clip. You can move the clip by pressing, holding and sliding using the middle area of the clip and you can open the Clip/Track Options by clicking on the three-dot button. Double tapping a MIDI clip on a MIDI instrument track opens the clip in the Piano Roll Editor. Double tapping a MIDI clip on a MIDI drum pattern track opens the clip in the Drum Pattern Editor. Long press on any area of a track not containing a clip to open the Track Options. (The time needed for the app to register a long press can be adjusted to your preference using the Pop-up Menu Time option in the User Interface section of the Settings). For more information on MIDI clips, see here.

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

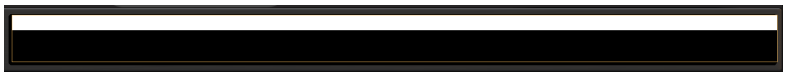
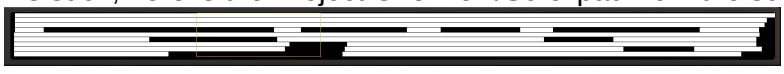
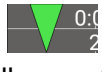
 Start Playback from the beginning of the project.

 Playback from the position of the Time Marker (The green marker  in the Timeline/Marker Display). 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.

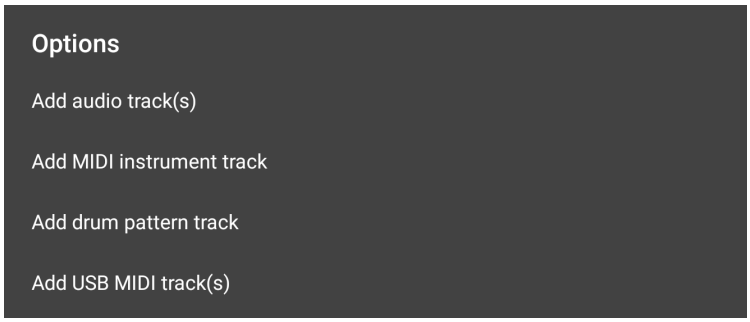
 Stop Playback or Recording.

 Record.

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 green marker  shown in the Timeline/Marker Display). 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. This is also the place where most parameter levels are displayed as they are being changed.

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 are only two tracks in the screenshot above, the Project Overview/Scrollpad perhaps doesn't illustrate this as well as possible. As such, here is the Project Overview/Scrollpad from the screenshot used in the Introduction  . 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 main project viewpoint and simultaneously position the green Time Marker  in the Timeline/Marker Display 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 **Add Track** button  . The Add Track button opens the following Options to allow you to add audio and MIDI tracks to your project. For more information, see here.

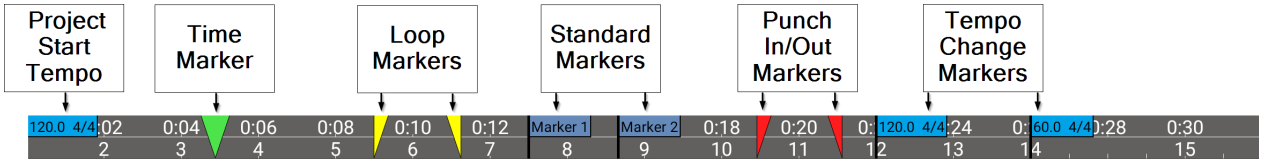


NOTE. You can also use Automatic Track Creation for audio tracks . When enabled (in the Audio section of the Settings) this automatically creates a new audio track when record is pressed and no track is armed. Automatic Track Creation is enabled by default.

29 **Timeline Area**. This is where your audio and MIDI clips are displayed on their tracks. Two example clips are shown in the screenshot above. The first, in track one, is an audio clip. The second, in track two, is a MIDI clip. Use two fingers to pinch or pull to resize, and therefore zoom into and out of, clips.

Markers and Marker Options

There's a lot of functionality possible by using the various types of marker available within the Timeline/Marker Display of Audio Evolution Mobile. For that reason, this extra section on markers has been included to place all of the marker definitions in one place and avoid the definitions related to markers in the Arranger Screen topic becoming overly long.



As you can see above, there are five types of marker which appear in the Timeline/Marker Display at the top of the Arranger Screen.

- The green **Time Marker**  indicates the current time position for playback and recording in the project. The Time Marker is also what you position to Paste  at a specific place and to import using Insert at Time Marker.

- The yellow **Loop Markers**  indicate the loop start and loop end point for the Loop  playback mode. Touch, hold and slide to move and position the loop markers. Remember the Grid  options and snap-to grid functionality if you want to easily snap to increments of the tempo. Loop markers can be automatically set to the clip boundaries of a selected clip via the Clip Options and can also be set to the boundaries of a Range  via the Range options.

- The blue **Standard Markers**  are added to the timeline, one at a time, by the user. They can be added just as reminders of events occurring at that point, such as a chorus, or as points to jump to easily using the the Jump to  function, or for any other function that you want really. Markers can be added using the Marker  button or via **Add marker** in the Marker Options, accessed by double tapping on the Timeline/Marker display You can name your markers anything you want. Rename them via the Marker Options if necessary. You can also choose whether the Marker numbers or Marker names are displayed in the User Interface section of the Settings. Once added, touch, hold and slide to move and position the markers if necessary. Remember the Grid  options and snap-to grid functionality if you want to easily snap to increments of the tempo.

- The red **Punch In/Out Markers** 

indicate the Punch In and Punch Out points for Punch In/Out recording. Activate the Punch In/Out recording mode via the Marker Options by double tapping the Timeline/Marker Display. Touch, hold and slide to move and position the Punch In/Out markers. Remember the Grid 

options and snap-to grid functionality if you want to easily snap to increments of the tempo. Punch In/Out markers can be automatically set to the clip boundaries of a selected clip via the Clip Options and can also be set to the boundaries of a Range 

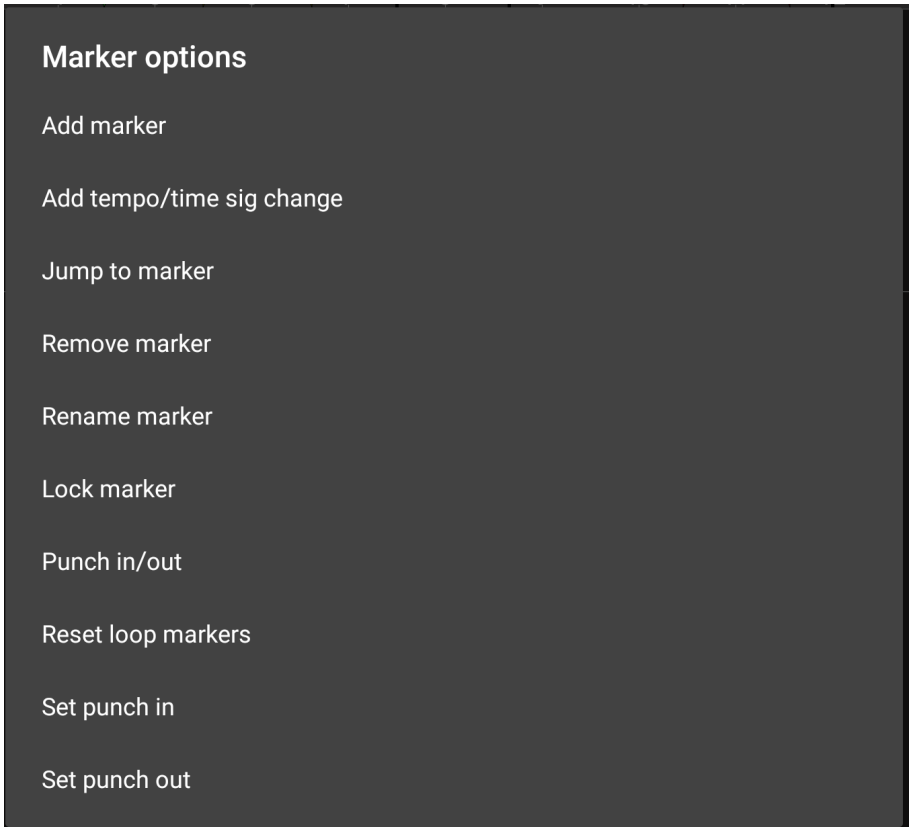
via the Range options.

- The turquoise **Tempo Change Markers** 

set the points at which the project tempo and/or time signature change. Add a tempo change via the Marker Options by double tapping the Timeline/Marker Display. Once added, touch, hold and slide to move and position the Tempo change markers. Remember the Grid 

options and snap-to grid functionality if you want to easily snap to increments of the tempo. Once a tempo change has been added, the **Project Start Tempo** marker will be displayed at the start of the Timeline/Marker display as seen above. Tempo changes are an important feature and are covered in their own section here.

As has been mentioned above, double tapping the Timeline/Marker Display opens the Marker Options seen here.



Audio and MIDI Clips

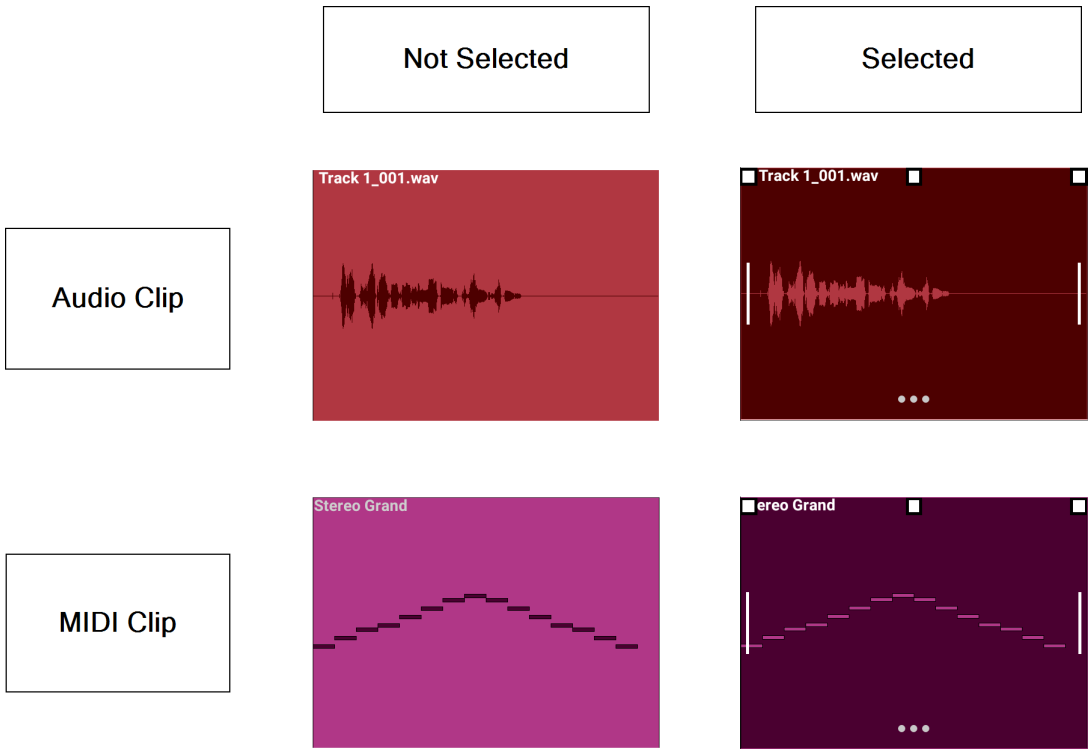
Audio and MIDI Clips

NOTE. These descriptions of clips have been written from the Expert Arranger Screen mode point of view as we feel this mode provides the best overall workflow and experience. If you are using the Beginner Arranger Screen mode you will find that the clips do not have the Three Dot Button or the Clip Trimming Handles shown here. When in this mode, you will need to have the Scroll 

mode button activated to allow you to long press a clip and open the Clip/Track Options. You will need the Edit 

mode button activated to allow you to trim, move clips and change their relative volume using the Volume Handles. For more information on the two modes, please see here.

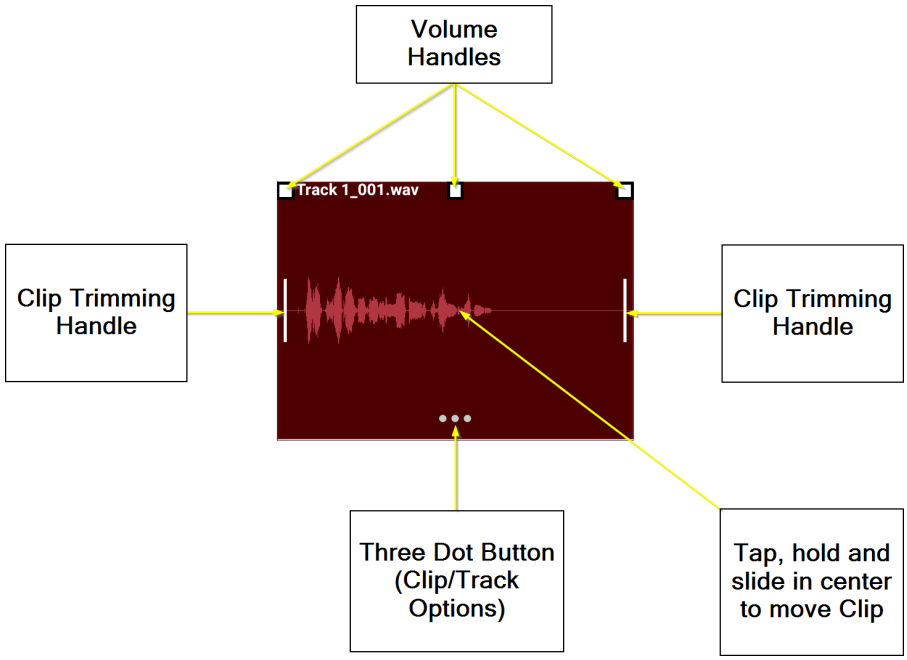
Once recorded, created or imported, audio and MIDI is shown as a clip on the track's timeline. Here, we are going to quickly look at the display of individual clips and the functionality they give you access to.



As you can see above, audio clips display the audio wave present in the clip on the timeline. MIDI clips display the MIDI note events contained in the clip on the piano roll/timeline. To select an individual clip, tap on it once. As you can see, selecting the clip reverses the color scheme and displays various controls. These controls are the same for both audio and MIDI clips, though some of the menu options are different. We shall look at an audio clip as our example and any differences found in MIDI clips will be covered afterwards.

NOTE. When enabled in the Settings 

, double tapping an audio clip will allow you to open it in **Vocal Tune Studio**. When this option is deselected, an audio clip can be opened in Vocal Tune Studio via its Clip Options.



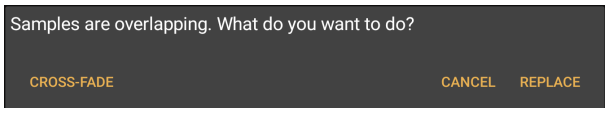
NOTE. If the selected clip is too small on the display for these controls to be shown, please zoom in to make the clip larger on the display using pinch/pull in the timeline area.

At either end of the selected clip, there are **Clip Trimming Handles**. In Beginner mode, with the Edit 

mode active, these handles are not explicitly displayed, but tapping on the edge of the clip will initiate trimming just as well. As the name suggests, these can be used to quickly and easily edit the length of the clip. Touch, hold and slide the white handles (or just the edge in Beginner mode) to trim your clip. Don't forget the Grid 

functionality if you want to easily snap to an increment of the current tempo when trimming - or, indeed, turn snapping off completely if you want to trim your clip freely. Remember you can resize the scale of the clips on the display by using two fingers to pin/pull if you need to see greater detail. This process of resizing the clips does not 'cut' or 'destroy' their original content but simply changes what is heard, and seen, of the original content in your project: drag on the Clip Trimming Handles again and you'll find all of the clip's original content is still intact; it's just out of view.

If you want to **move your clip** on the timeline of its track - or move it onto another track of the same type (audio or MIDI) - tap and hold the central area of the clip and slide it to the desired location. In Beginner mode, the Edit button needs to be activated first. If you drag an audio clip over an existing audio clip you will see the following pop-up.



This allows you to define how you would like the overlapping samples/clips to interact. **Cancel** cancels the whole operation and returns the clip moved back to where it was. **Replace** places the clip moved at the point defined and trims the clip underneath where it is overlapping with the clip moved so that only the clip moved is heard in playback. **Cross-fade** applies as cross-fade between the two clips where they overlap. A cross-fade fades *out* the signal of the first source as it simultaneously fades *in* the signal from a second source (as long as there is enough time length of audio present in both clips for the action to be carried out). Once created, the cross-fade (or cross-fades if one clip is moved completely within another longer clip - a cross-fade will be created at either end of the short clip moved) is shown as its own separate clip on the track timeline. Remember, as mentioned above, with these processes of 'replacing' and 'cross-fading', the original clips are not being 'cut' or 'destroyed', but rather trimmed to fit the requirements: drag on the Clip Trimming Handles and you'll find all of their original content still intact.

If you drag a MIDI clip over another MIDI clip, their MIDI data will be 'combined' and performed together (though they will remain as separate clips (unless you manually combine them using Merge Clips in the MIDI Clips/Track Options).

At the top of a selected clip, the **Volume Handles** can be found (if the clip displayed is large enough, otherwise you will need to zoom in horizontally and/or vertically until the white boxes appear). These three handle/boxes allow you to set the volume for each clip in relation to other clips. The Volume Handles also allow you to apply a simple volume envelope to each clip - a fade in from and a fade out to silence - if desired. This clip volume control is separate from the overall track volume, controlled by the volume fader on the channel strip and the volume block on the FX Grid, and works by allowing you to attenuate (lower, or reduce) the volume available from the individual clip. Tap, hold and slide the central handle/box up and down to set the overall clip volume. When it is at the top it has a level of 0.0dB meaning no attenuation will be applied and the clip is as loud as it can be (unless you apply normalization to increase the overall waveform level). When the handle is completely at the bottom the clip level has been fully attenuated to -infinity dB, to silence. The fade-in handle/box is on the left. Move it to the right to define the length of the fade-in from silence. The fade-out handle/box is on the right. Move it to the left to define the length of the fade-out to silence. Both fade-in and fade-out handles can also be moved up and down to set the overall clip volume as the center button does. The volume level is displayed in the playback timer display 

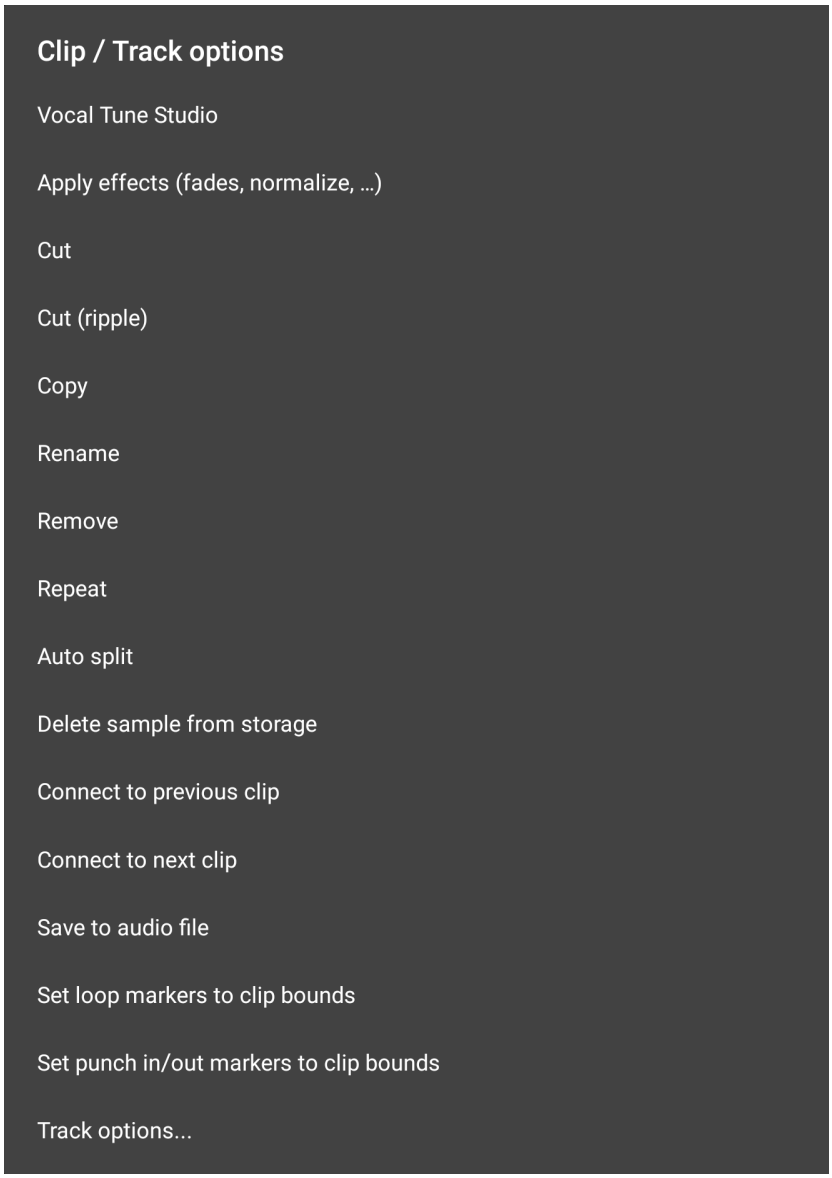
as the handles are moved.

Finally, in Expert mode, there is the **Three Dot Button**. Tapping this once opens the Clip/Track options which give you full control over the clip and its contents. This is where the options for audio and MIDI tracks differ slightly and so we shall cover them separately next.

Audio Clip/Track Options

To open the Clip/Track Options menu in Beginner mode, please activate Scroll 

mode first, then long press on a clip to open the menu. In Expert mode, please tap on the three dot button of a selected audio clip.



NOTE. **Paste** will also be displayed if something has been copied to the clipboard. Please note that only audio can be pasted onto an audio track and only MIDI data can be pasted onto a MIDI track. For full details on pasting content, please see here.

Vocal Tune Studio opens a dialog which allows you to open an audio clip in **Vocal Tune Studio**, eXtreme Software Development's pitch and timing editor for solo vocal recordings (and time stretching editor for all forms of audio). Vocal Tune Studio is available as an in-app purchase within Audio Evolution Mobile though it is possible to run it in trial mode (with

occasional silence played during playback and all forms of export involving Vocal Tune Studio blocked), allowing you to fully evaluate before buying. As long as the option is selected in the Settings (as it is by default), audio clips can also be opened in Vocal Tune Studio by double tapping on the clip on the Arranger Screen. More details and links to Vocal Tune Studio's own dedicated user manual can be found here.

Apply effects (fades, normalize...) is where you can apply various types of processing to the audio clip. These effects differ from those on the FX Grid in that the processing is applied to the audio waveform and then rendered/saved directly to a copy of the original audio file. You can always undo this process which will swap out the processed clip by the original clip. Pressing the Apply effects option opens the **Effects** selection dialog seen here.

The Effects selection dialog allows you to select the type of effect you want to apply to your audio. The different effects, and how to use them are fully covered in the Editing Audio section: please use the links to jump to these definitions.

- **Fade in/out** allows you to apply a fade in and, or, fade out to the selected clip. Unlike when using the volume handles to create a fade in/out, this fade in/out, like all of these effects in this section, is rendered to the waveform itself, physically changing it. For more details, see here.

- **Normalize** allows you to boost the amplitude (loudness) of the waveform in the clip so that the loudest part matches a user-defined level. It raises all parts of the clip by the same amount meaning the relative volume of loud and quiet parts remains the same. This is very useful, especially when you have your audio input set to 'Mic, no processing, lowest latency' in the Settings. For more details, see here.

- **Reverse** reverses the audio waveform so that it is played in the opposite direction. For more details, see here.

- **Pitch shift** allows you to alter the pitch of the audio clip without changing its length. Again, remember this is rendered into the clip itself as opposed to when you use the Pitch Shifter or Vocal Tune effects on the FX Grid. For more details, see here.

- **Time Stretch** allows you to alter the length of the audio clip without changing its pitch. For more details, see here.

Cut removes the clip from the timeline and copies it to the clipboard, allowing you to paste it elsewhere. **Paste** will also be shown as an option in these Clip/Track Options once something is present on the clipboard but you can also use the Paste 

button on the Arranger Screen if you'd rather. Select the track to paste onto by tapping it once and use the Time Marker  to define the point at which the copied clip is pasted. If the location specified already contains content, you will be asked if you'd like to **Paste** or **Paste (insert)**. Selecting Paste will 'remove' (the original content is still there if you use the Clip Trimming Handles to trim the original clips) the content underneath the content pasted. Selecting Paste (insert) will insert your copied content at the point specified and shift everything originally after that point to the right so it is now heard after the inserted content.

You can also cut the selected clip and paste it to the clipboard without opening these Clip/Track options using the Cut 

button on the Arranger Screen, which will then give you the option to cut or cut (ripple), therefore including all of the functionality found through these options.

Cut (ripple) removes the clip from the timeline, copies it to the clipboard AND shifts everything to the right of the clip cut to the left by an amount equal to the length of the clip cut. If, therefore, you have several clips next to each other *without* any gaps between them and you cut one of the clips using Cut (ripple), all of the clips to the right of it will be moved to the left by the length of the clip cut, meaning it will have been removed and everything else on the track has been shifted to perfectly fill the gap that would have otherwise been left.

Copy copies the selected clip to the clipboard, ready to be pasted elsewhere. You can also copy the selected clip to the clipboard without opening these Clip/Track options using the Copy 

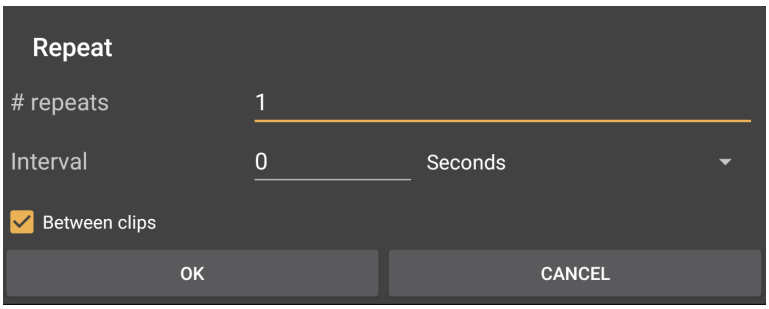
button on the Arranger Screen.

Rename opens a dialog which allows you to give the selected clip a specific name. Audio Evolution Mobile automatically names clips for your convenience but if you want to keep things organized to your own preferences and make it easy for you to identify individual clips, this allows you to do so. The clip name is displayed in white at the top left of the clip.

Remove removes the selected clip but DOES NOT copy it to the clipboard as Cut does. You can also remove clips from your project without opening these Clip/Track options by activating the Remove mode using the Remove 

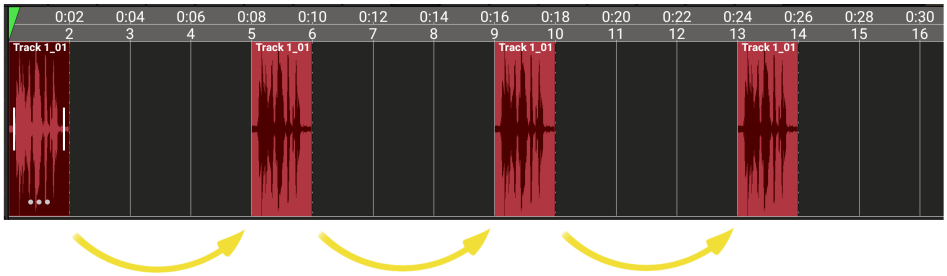
button on the Arranger Screen. When active, any clip you tap will be removed.

Repeat allows you to create multiple repeats of the selected clip on the track. As can be seen below, pressing Repeat opens a dialog which allows you to specify the **number** (#) **of repeats** and if you want to specify **intervals** at which the repeats will appear you can also do that too. The drop-down intervals selection allows you to choose between Seconds, Milliseconds, Bars, Beats, 1/8 Notes and 1/16 Notes.

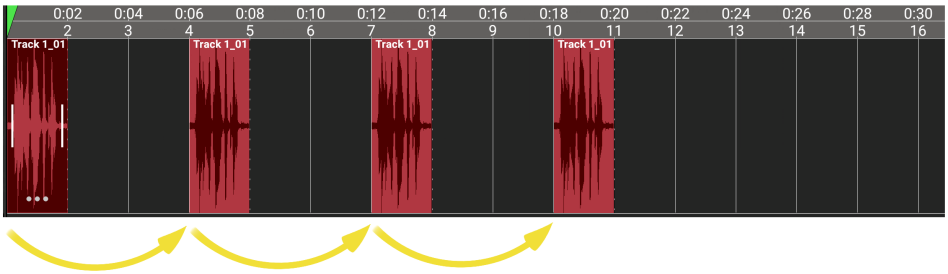


As you can see there is also a '**Between clips**' checkbox. If checked, the selected amount of interval will be applied between each repeated clip. If it is NOT checked, the selected amount of interval will be applied based on *the start position of the clip* being copied and so on for every subsequent repeat.

Repeat Interval Between Clips



Repeat Interval Not Between Clips



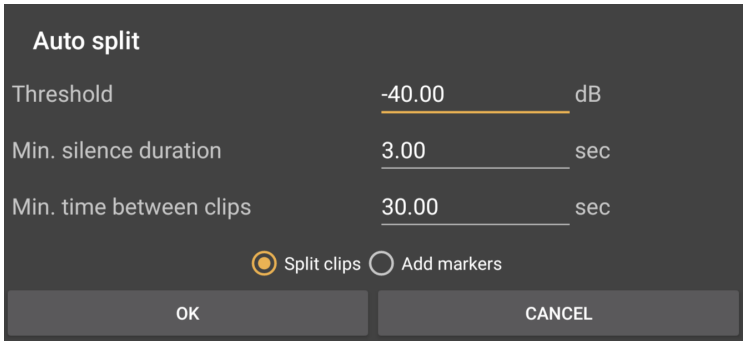
So, in the above examples, you can see how the selected clip is one bar long. The repeat dialog has been set to make three repeats with an interval of three bars. As you can see, when the repeat interval is set to 'Between clips', the three bar interval is applied between every clip meaning the three repeats start on bar five, nine and thirteen. When 'Between clips' is not selected, the three bar interval is applied based on the starting position of the original, and every subsequent clip. As such, the three repeats start on bar four, seven and ten.

Creating repeats like this can be incredibly useful, especially if you're working with audio loops. The repeat function can only be used on individual clips, not on multiple clip selections.

NOTE. This operation will be automatically canceled if the repeated clips would overlap with other clips already on the track.

Auto split (Android only) enables you to automatically split your clip into separate clips, or have markers placed accordingly, based on the values you enter in the Auto split dialog shown below. When the sound in the clip matches the criteria defined in the dialog, a new clip will be created at

that point or a marker will be created on the timeline/marker display at that point if you'd prefer that. This can be very useful if, for example, you've made a long live recording and you want to easily split it into separate songs/tracks. Likewise, if you've made a long recording of a meeting or a lecture and you want to easily identify any moments of silence to then remove them, this can be help with that. And if you want to grab individual sounds from a sample containing multiple sounds, you can use auto split to easily separate them into their own clips.



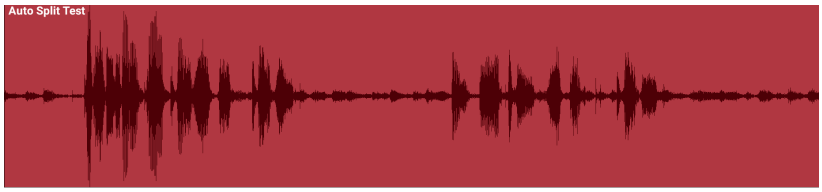
- **Threshold** sets the sound volume level for the auto split process. If the sound level drops *below* the threshold specified (and fulfills the other criteria here) the clip will be split at that point, or a marker will be placed.

- **Min. silence duration** allows you to set the minimum amount of time the sound on the clip must remain below the threshold (considered 'silence' for the sake of this process) before the split, or marker, will be applied.

- **Min. time between clips** allows you to specify the minimum amount of time necessary between clips for a split, or marker, to be applied.

- The **Split Clips** and **Add Markers** check-boxes allow you to decide whether you'd like the clip to be split into two clips at the point at which the criteria is met, or markers added to the timeline/marker display at that point instead.

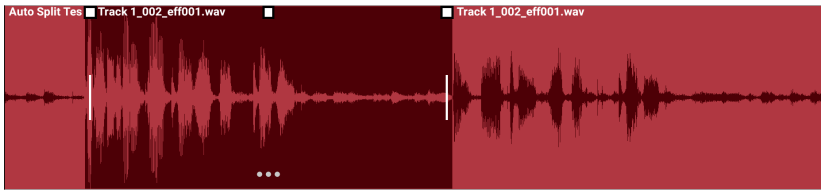
So, here is an example. The following clip has two main areas of sound in the recording and we want to auto split those two areas of sound onto separate clips.



In order to apply Auto split successfully, you need to look and think about the reality of the sample/clip you're working with. If your recording was made in a rather noisy environment, there's no point setting the threshold level very, very low because the audio level will probably never drop that low and therefore no splits will be applied. Likewise, if your clip is very short in length, as this example is, there's no point setting your minimum silence duration, or your minimum time between clips to a relatively high value, because there simply just might not be clip available for those criteria to even possibly be met. In short, you need to tailor your auto split settings to your clip and the audio it contains. Just remember there is always the Undo 

function if you get your settings wrong and need to try again with different settings. As such, for the clip above the threshold was set at -20.00 dB because there is a certain level of sound over

the whole recording and it never reaches 'silence'. Since it is a short clip, the minimum silence duration needed to be very low for the split criteria to be met within the clip, but not so low that a split would be applied every time the level dropped below -20.00 dB. As such, it was set to 0.25 seconds. And again, with the clip being so short, the minimum time between clips also needed to be low. As it happens, it was also set to 0.25 seconds. Here is the result.



As you can see the original clip has been split into three clips giving the two main areas of sound their own clips (the middle clip has been selected so the three can be identified more easily). Before the first main area of sound there is at least 0.25 seconds below -20.00 dB, so a split is applied just before the sound rises above -20.00 dB and the main sound starts. After the first main area of sound, there is, again, enough 'silence' (below the threshold) to fulfill both the minimum time between clips and minimum silence duration. Therefore, another split is applied just before the second main area of sound rises above the threshold and we have our main areas of sound on their own clips as desired.

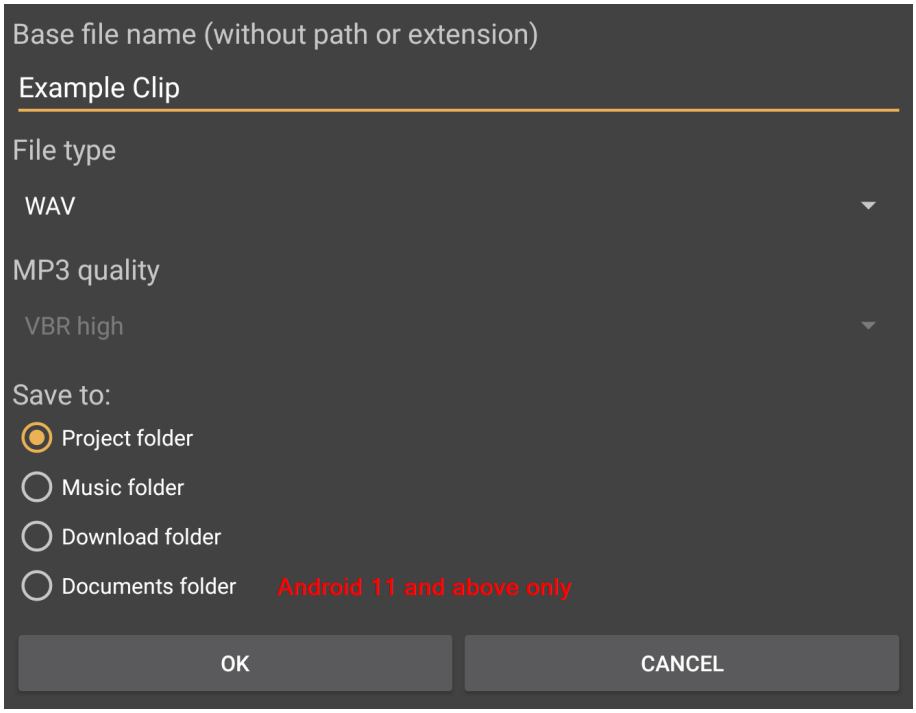
Delete sample from storage allows you to completely delete the selected sample/clip from the project folder on your device. As such, please use this with caution if you're not absolutely sure you want to lose the sample forever. **This action cannot be undone**. As such, you will see a confirmation dialog before the sample is actually deleted, just in case you select this option by mistake.

Connect to previous clip positions the selected clip so that its start is flush with the previous clip's end point on the timeline. You can do the same thing manually by turning on 'Clip magnet' in the Grid 

settings and sliding the clip (by touching, holding and sliding using the middle of the selected clip) until it snaps-to the previous clip, but this automatically carries out the process, saving you time. Please note that the clips do not remain 'connected' or 'chained' after this action: is just repositions the selected clip.

Connect to next clip positions the selected clip so that its end is flush with the next clip's start point on the timeline. As mentioned in the previous definition, this can be done manually, but this function can save you time and speed up your workflow.

Save to audio file allows you to export the selected clip to an audio file. This function exports the clip audio only and will not include any processing or effects applied to the track in real time. If you have applied any of the effects mentioned at the top of this section, which are rendered to the clip itself, these become a physical part of the audio, so will, obviously, still have been applied to the audio exported. Selecting this option opens a dialog, seen below, allowing you to set the name and format for your audio export. You can choose to save the audio file to either the Project folder (where it can be found in the 'Samples' folder), the device Music folder, the device Download folder or (Android 11 and above only) the device Documents folder.

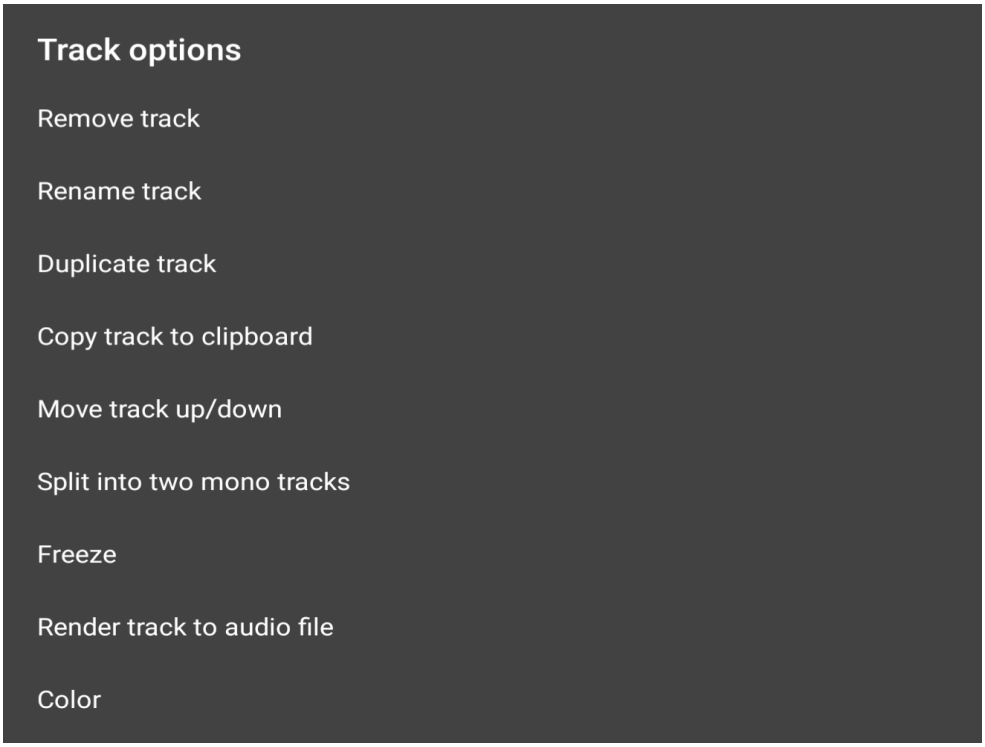


Set loop markers to clip bounds does exactly that: it places the loop start marker at exactly the start of the clip and the loop end marker at the end of the clip. This can be very useful if, for example, you want to hear the clip constantly repeating as you make adjustments to perfect the sound for your project.

Set punch in/out markers to clip bounds does the same with the red punch in/out markers: it places the punch in marker at exactly the start of the clip and the punch out marker at the end of the clip. This can be very useful if you want to punch in/out to re-record the clip but leave everything around it intact and unchanged. It could also be used if, for example, you want to record several versions of the section of audio contained in the clip by selecting a different track for each recording take and then selecting your favorite take to use by utilizing Undo and Redo.

Track options... is the final option here. It opens its own menu of options, covered next, which are related to the track on which the selected clip sits (as opposed to the options listed here so far which relate to the the specific clip selected).

Audio Track Options



NOTES. The track options seen here can also be accessed by long pressing on any empty area of the track not containing a clip.

Paste will also be displayed if something has been copied to the clipboard. For full details on pasting content, please see here.

Unfreeze will be displayed instead of **Freeze** on tracks which have been frozen.

Split into two mono tracks will, obviously, not be an option for mono audio tracks.

Remove track removes the entire track, including all of the clips on it, from the project. This action can be undone using the Undo 

button if selected by mistake, and it *does not* delete your audio clips/samples from the project Samples folder on your device.

Rename Track allows you to give the track a name to suit your needs instead of the automatic 'Track 1, Track 2...etc.'. The track name can also be changed by long-pressing on the display of the track name on its channel strip.

Duplicate track creates an exact copy of the entire track in its current state and places that copy on the track below it. The default names of tracks (Track 1, Track 2...etc.) below the one created by the duplication will have their track names changed accordingly to account for the

extra track added.

Copy track to clipboard copies the entire track to the clipboard. Once something has been copied to the clipboard, **Paste** will also be shown in the Track Options shown above. To Paste 

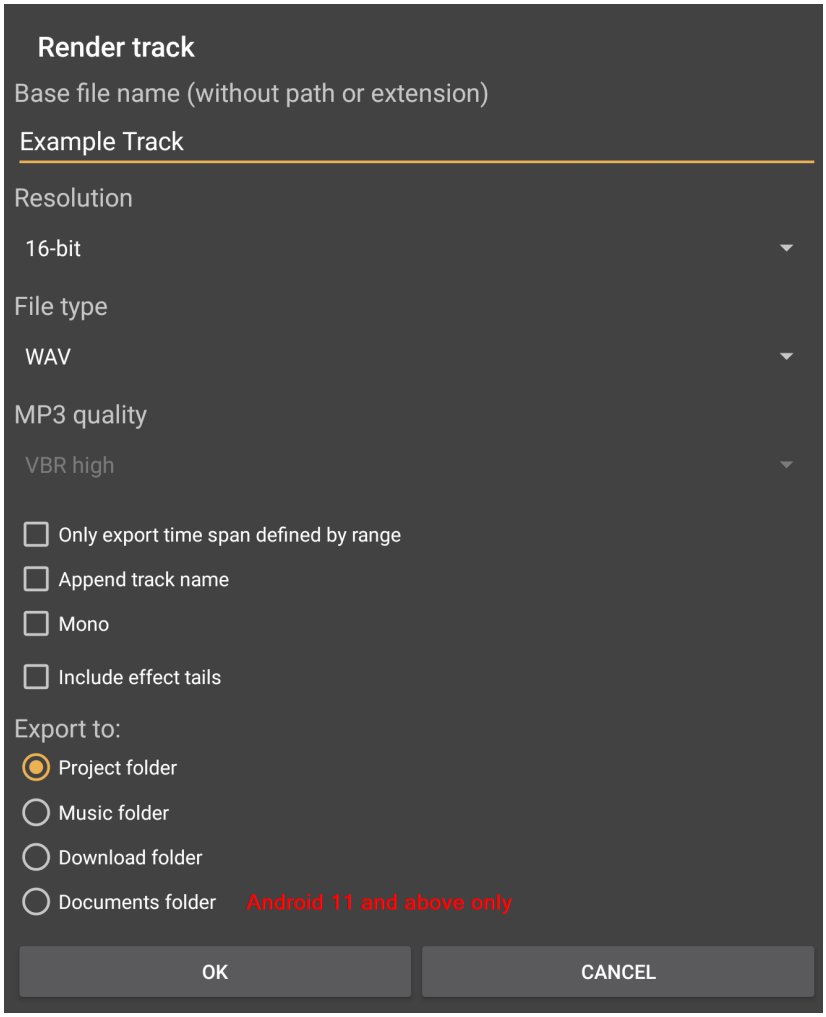
the copied track to a different part of either the same track, or a different track, you need to position the Time Marker  to the desired position before pressing paste. To paste onto a different track, remember to select that track by tapping it once before pressing paste. To paste onto a new track, you will first need to add an empty track using the Add Track  button.

Move track up/down opens a dialog which allows you to move the selected track to your desired position in the display of tracks in the timeline area.

Split into two mono tracks is an option only available on audio tracks containing stereo audio clips. It does exactly as it says: it splits the left and right channels of the stereo track into two individual mono tracks on the timeline. This can be useful if you accidentally recorded in stereo from a stereo USB audio interface and only connected something to either (mono) input. This would result in a stereo audio clip where only the left or right channel would contain audio. Splitting the track into two mono tracks and removing the silent track would resolve this situation.

Freeze allows you to temporarily render all clips, with all processing and effects into a single audio waveform on the track, rather than that processing and effects being applied in real time to the original audio clips. This process removes any effects and resets any processing for the frozen track, which means lower CPU usage. This is why this function can be so useful and should always be remembered as an option if your device is struggling to cope with the CPU load of real time effects and multiple instances of virtual instruments. The Freeze process is reversible but PLEASE REMEMBER, any changes you make to a frozen track will be lost when it is unfrozen, as it will return to the state it was at when Freeze was applied. The Track Options shown above will display **Unfreeze** on tracks which have been frozen. For more details on freezing tracks, please see here.

Render track to audio file enables you to export a fully rendered audio file of the selected track. This means that (unlike the Save to audio file option for individual audio clips) the results of all processing and effects applied *will* be included in the exported audio file. The rendered audio file can be found in the project Samples folder after export. Pressing 'Render track to audio file' opens the following dialog, allowing you to tailor the export to your requirements. Please ensure that the track's peak volume level is below 0dB to avoid any clipping and distortion on the rendered track.



- **Base file name (without path or extension)** allows you to name your exported audio file. As it says, don't include any path or extension, just enter your desired name. The Base file name 'Example Track' has been entered in the screenshot above. It's also best to stay clear of characters like /, \, #, *, % etc. when naming the file since it could clash with file system commands.

- **Resolution** allows you to select the bit depth resolution for the exported audio file. If you're not sure what bit depth is, please see here. Which bit depth resolution you select depends on what you plan to use your exported audio file for. The higher the resolution, the bigger the resulting audio file. When exporting your track with plans to import into another DAW for further work you're probably going to want to select 32-bit or 32-bit (float). The Resolution options will be grayed out if OGG or MP3 are selected as the format file type.

- **File type** is where you can select the file format for your export. The options are WAV, AIFF, FLAC, OGG and MP3. WAV, AIFF and FLAC are lossless audio types, whereas OGG and MP3 are compressed. If you want to send someone an audio file by email or perhaps social media, it may be best to select MP3 to keep the file size small. Trying to email a lossless audio file will usually fail due to the file becoming too large.

- **MP3 quality** will have its options grayed out unless MP3 is selected as the export format in File Type. The MP3 quality settings offer the full range of VBR (Variable Bit Rate) and CBR (Constant Bit Rate) options to cover all requirements.
- **Only export time span defined by range**, when selected, does exactly that: it only renders

and exports the area of the track defined by the Range 

function.

- **Append track name**, if selected, will add an underscore (_) and the track name to your Base file name. So, in the example above, if the track being exported was the first track in my project and still had its default name (Track 1), having 'Append track name' active would result in the exported file being named 'Example Track_Track 1.wav' (assuming WAV was selected as the file type format).

- **Mono**, when selected, exports your track as a mono audio file rather than a stereo one. This results in a smaller file size but, obviously, any sense of the stereo sound field (from the audio on the track itself if it is stereo, or from 'spacial' effects applied to either mono or stereo audio on the track) will be lost.

- **Include effect tails** is selected by default and you will almost certainly want to keep it selected. 'Include effect tails' adds enough time to the end of the exported file to ensure that the 'tails' (fades to silence) of any effects will be included. So, for example, if you have a reverb effect with a long decay time applied to your track, you'll want the reverb decay/tail/fade to silence to be included in your exported audio file rather than have it cut off abruptly when the audio on the original track ends. Likewise, if you have a virtual instrument with a long release time, you'll want to have 'Include effect tails' selected to ensure that the full release/fade to silence of notes right at the end of the track are included in the exported audio file.
- **Export to** allows you to select the destination folder for the exported file. You can choose to save the audio file to either the Project folder (where it can be found in the 'Samples' folder), the device Music folder, the device Download folder or (Android 11 and above only) the device Documents folder.

NOTE. The maximum possible amount of time added onto any track in order to include effect tails and instrument releases is ten seconds.

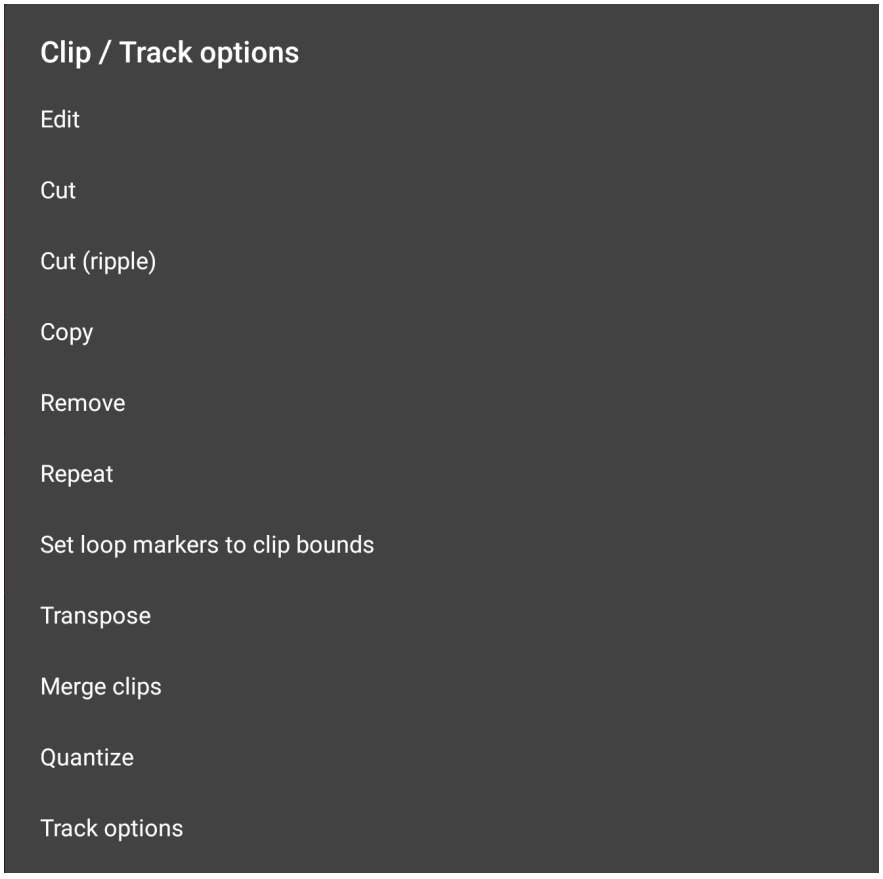
Color allows you to change the color of the clips on your track. You can either use a color picker to completely freely choose a color or you can choose to apply the same color as any of the existing tracks to the selected track. This can be very useful if you want tracks with a similar content type (say, vocal tracks) to have the same color for easy identification. Likewise, if you have several tracks routed to a single Group in the mixer, you may want them to have the same color. Don't forget that this can be combined with the 'Move track up/down' function, allowing you to place such tracks next to each other on the timeline too.

MIDI Clip/Track Options

To open the Clip/Track Options menu in Beginner mode, please activate Scroll 

mode first, then long press on a clip to open the menu. In Expert mode, please tap on the three dot button of a selected audio clip.

NOTE. These MIDI Clip/Track options are the same for clips on MIDI instrument tracks, Drum Pattern tracks and (pure) MIDI tracks. The Track Options for instrument and drum tracks differ slightly and are covered separately afterwards.



NOTE. **Paste** will also be displayed if anything has been copied to the clipboard. Obviously, only MIDI data can be pasted onto a MIDI track and only audio can be pasted onto an audio track.

Edit opens the Piano Roll editor, or the Drum Pattern sequencer, to allow you to edit the MIDI contained in the selected clip. The Piano Roll and the Drum Pattern sequencer can also be opened by double-tapping on the clip.

Cut removes the clip from the timeline AND copies it to the clipboard, allowing you to paste it elsewhere. **Paste** will also be shown as an option in these Clip/Track Options once something is present on the clipboard but you can also use the Paste 

button on the Arranger Screen if

you'd rather. Select the track to paste onto by tapping it once and use the Time Marker  to define the point at which the copied clip is pasted. If the location specified already contains content, you will be asked if you'd like to **Paste** or **Paste (insert)**. Selecting Paste will 'remove' (the original content is still there if you use the Clip Trimming Handles to trim the original clips) the content underneath the content pasted. Selecting Paste (insert) will insert your copied content at the point specified and shift everything originally after that point to the right so it is now heard after the inserted content.

You can also cut the selected clip and paste it to the clipboard without opening these Clip/Track options using the Cut 

button on the Arranger Screen, which will then give you the option to cut or cut (ripple), therefore including all of the functionality found through these options.

Cut (ripple) removes the clip from the timeline, copies it to the clipboard AND shifts everything to the right of the cut clip to the left by an amount equal to the length of the cut clip. If, therefore, you have several clips next to each other *without* any gaps between them and you cut one of the clips using Cut (ripple), all of the clips to the right of it will be moved to the left by the length of the clip cut, meaning it will have been removed and everything else on the track has been shifted to perfectly fill the gap that would have otherwise been left.

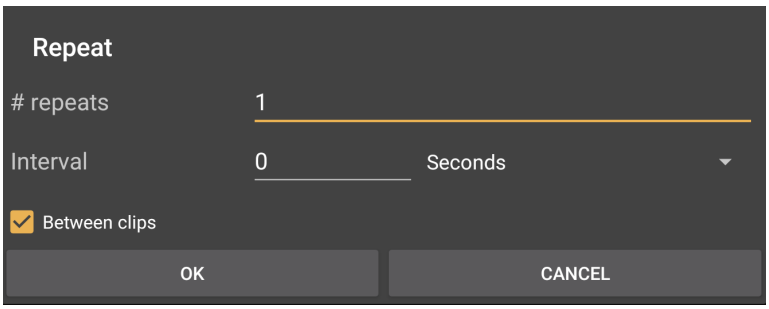
Copy copies the selected clip to the clipboard, ready to be pasted elsewhere. You can also copy the selected clip to the clipboard without opening these Clip/Track options using the Copy 

button on the Arranger Screen.

Remove removes the selected clip but DOES NOT copy it to the clipboard as Cut does. You can also remove clips from your project without opening these Clip/Track options by activating the Remove mode using the Remove 

button on the Arranger Screen. When active, any clip you tap will be removed.

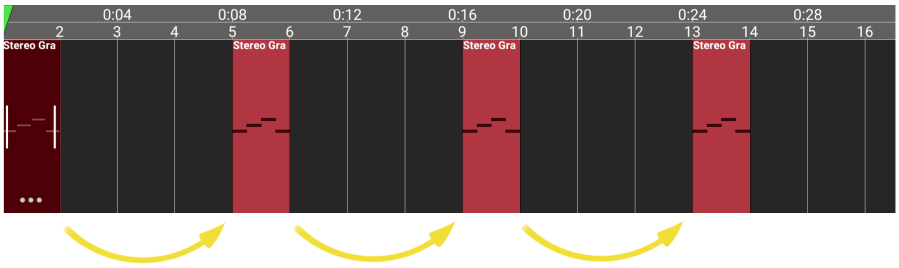
Repeat allows you to create multiple repeats of the selected clip on the track. As can be seen below, pressing Repeat opens a dialog which allows you to specify the **number** (#) **of repeats** and if you want to specify **intervals** at which the repeats will appear you can also do that too. The drop-down intervals selection allows you to choose between Seconds, Milliseconds, Bars, Beats, 1/8 Notes and 1/16 Notes.



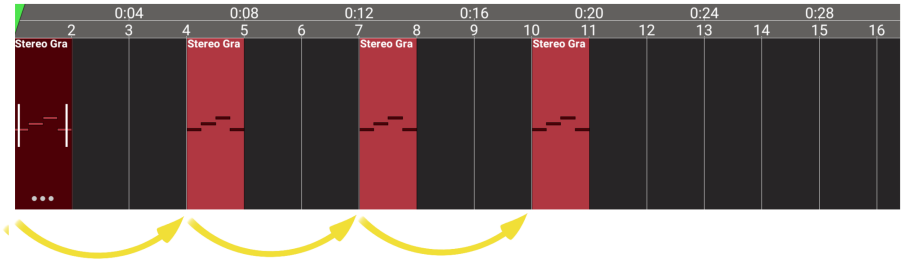
As you can see there is also a '**Between clips**' checkbox. If checked, the selected amount of

interval will be applied between each repeated clip. If it is NOT checked, the selected amount of interval will be applied based on *the start position of the clip* being copied and so on for every subsequent repeat.

Repeat Interval Between Clips



Repeat Interval Not Between Clips



So, in the above examples, you can see how the selected clip is one bar long. The repeat dialog has been set to make three repeats with an interval of three bars. As you can see, when the repeat interval is set to 'Between clips', the three bar interval is applied between every clip meaning the three repeats start on bar five, nine and thirteen. When 'Between clips' is not selected, the three bar interval is applied based on the starting position of the original, and every subsequent clip. As such, the three repeats start on bar four, seven and ten.

Obviously, easily creating repeats like this can be incredibly useful, especially if you're working with audio loops. The repeat function can only be used on individual clips, not on multiple clip selections.

Set loop markers to clip bounds does exactly that: it places the loop start marker at exactly the start of the clip and the loop end marker at the end of the clip. This can be very useful if, for example, you want to hear the clip constantly repeating as you make adjustments to perfect the sound for your project.

Transpose allows you to change the musical key of the notes in the clip. Any major key can be transposed into any other major key and any minor key can be transposed into any other minor key. This is done by shifting all of the MIDI notes in the clip vertically; up, or down from their current position on the Piano Roll. The Transpose interface allows you to shift all of the notes from -12 to +12 semitones of their current position using the **Semitones** slider. If you want to shift them by more than that range, you can, of course, transpose the clip more than once. As all of the notes are moved by the same amount, the notes in the clip retain their original tonal relationships to each other.

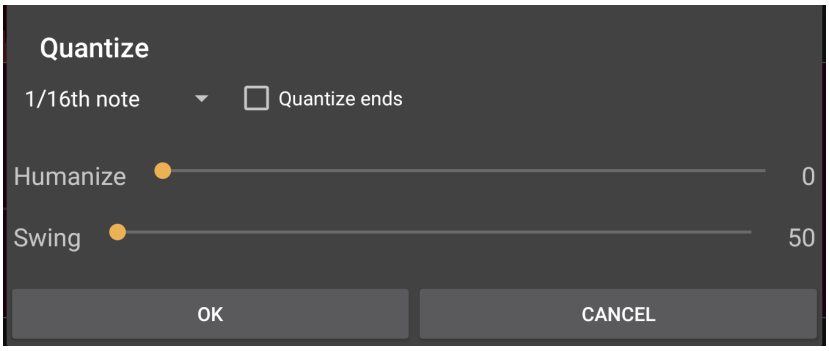
As the notes are physically shifted on the piano roll, and not pitch shifted/resampled, Transpose does not alter the pitch of drum pattern clips but shifts the whole pattern onto the different samples/drum types held on different MIDI notes. As such, though the option is there, it has little practical use with Drum Pattern clips.

If you want to transpose all of the clips on the entire track, you can use the Transpose track option in the MIDI Instrument Track Options.

Merge Clips combines MIDI clips into a single clip. In order for this to happen, two or more clips need to be overlapping. Unlike audio clips, multiple MIDI clips can be positioned on top of each other. This can more naturally occur when recording several times onto the same track for instance. After merging the clips, only one MIDI clip remains, containing all MIDI events of the merged clips.

You can only merge two clips at a time, so if you want to combine more than two clips, you'll need to do it in stages *unless* you want to combine ALL of the clips on the track into one clip which can be done in one action via 'Merge all clips' in the MIDI Track Options.

Quantize allows you to automatically shift the horizontal (time) position of your MIDI notes on the Piano Roll for the selected clip. Quantization can be a very useful and powerful feature when working with MIDI. It can be used to nudge the notes' position so that they are perfectly in time with the tempo, but the Quantize function in Audio Evolution Mobile also has more subtle and sophisticated functionality available. Pressing Quantize opens the following dialog.



- The first option is the basic **Quantize** setting. When applied to the clip, this allows you to have the notes on the Piano Roll snap to the tempo exactly. You might want to use this, for example, if you have recorded your MIDI using either the on-screen keyboard or an external keyboard. If you have notes that you've played out of time with the tempo, this can be used to automatically fix the problem notes. From the drop-down selection, you can choose the tempo increment you want to be used for this snapping-to process. You can select from 1/32 triplet beat all the way up to 1 bar. The smaller the increment used, the more subtle the effect of the quantization will be. The *start* of the notes in the clip will be moved/snap-to the nearest occurrence of the selected tempo increment on the piano roll.

- If you check the **Quantize ends** box, the *end* of the notes in the clip will be moved-snap-to the nearest occurrence of the selected tempo increment on the piano roll. Obviously, since the quantize process doesn't alter the length of notes, but just moves them on the piano roll, using 'Quantize ends' might mean that the start of the notes do not hit the tempo.

- Whereas Quantize will most likely be used to adjust your live MIDI recordings, MIDI composed directly on the piano roll editor will usually be perfectly hitting every increment of the tempo due to the nature of how notes are placed on the piano roll (though, please note, they don't have to: just turn off the Grid on the piano roll screen and they can be placed and resized completely freely). This can, though, result in music and beats that are perhaps *too*

exact rhythmically that they lack the right character for your music. If you find this is the case, you can use the **Humanize** function. 'Humanize' applies very subtle random movements to the horizontal (time) position of the individual MIDI notes in the selected clip, to emulate the subtle inaccuracies of a human performance. Use the 'Humanize' slider to select how subtle or intense you'd like this effect to be.

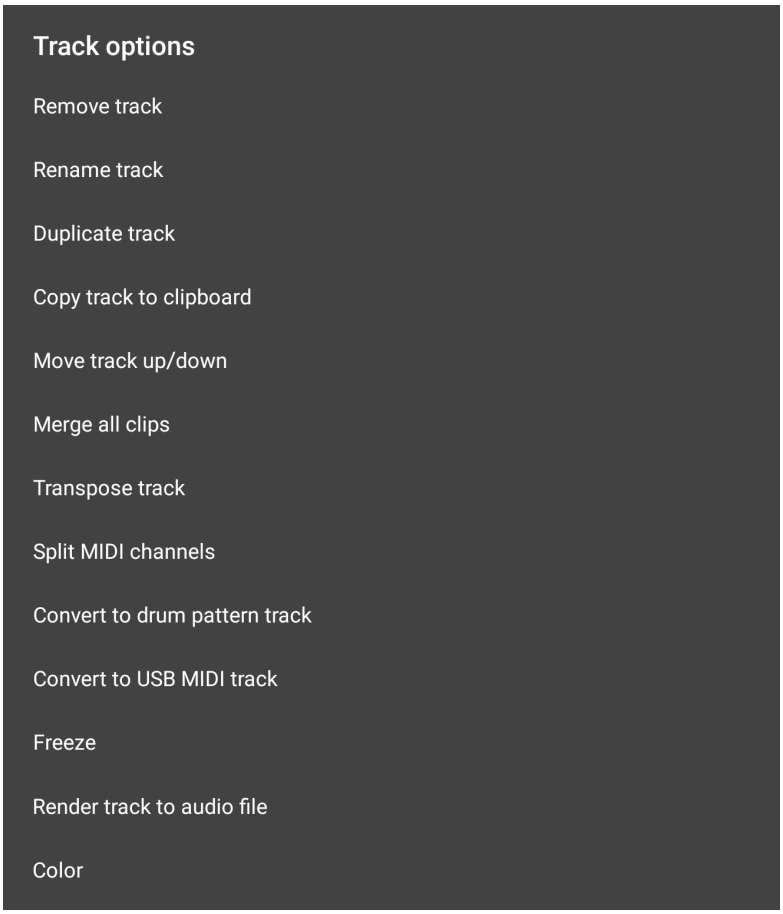
- The last option is **Swing**. Swing can be difficult to define and can be thought of in many ways - swing, shuffle, groove - but you'll definitely recognize it once you hear it. Again, it is about making things sound more 'human', but in a more 'groovy' way, so it's not just random in the way 'Humanize' is. To apply Swing, first set the tempo increment in the Quantize dialog to 1/8th note. Then simply use the Swing slider to define the amount of swing applied before pressing OK. You can set the swing value to anywhere between 50% and 100% (50% swing refers to straight timing, where no swing is applied, because of the way swing is computed). Swing is generally applied subtly (50-70%) but you can freely experiment to find the setting that gives you the feeling you're after by simply using the Undo 

button if the setting you try isn't right.

Track options... is the final option here. It opens its own menu of options, covered next, which are related to the track on which the selected clip sits (as opposed to the options listed here so far which relate to the the specific clip selected). The track options for MIDI Instrument tracks and Drum Pattern tracks differ slightly so will be covered separately to allow you to quickly find the specific information you need.

MIDI Track Options - Instrument/Drum pattern/MIDI Tracks

The track options differ slightly between the three track types MIDI instrument track, drum pattern track and USB MIDI track even though they all contain MIDI clips. The screenshot displayed here is for the track pop-up menu for instrument tracks.



NOTES. The track options seen here can also be accessed by long pressing on any empty area of the track not containing a clip.

Paste will also be displayed if something has been copied to the clipboard.

Unfreeze will be displayed instead of **Freeze** on tracks which have been frozen.

Remove track removes the entire track, including all of the clips on it, from the project. This action can be undone using the Undo 

button if selected by mistake. Unlike audio tracks where samples remain stored on the device after removing audio clips or audio tracks, MIDI clips only remain in memory or in the project file. This means that deleting MIDI clips cannot be undone after leaving the app or the project.

Rename Track allows you to give the track a name to suit your needs instead of the automatic 'Track 1, Track 2...etc.'. The track name can also be changed by long-pressing on the display of the track name on its channel strip.

Duplicate track creates an exact copy of the entire track in its current state and places that copy on the track below it. The default names of tracks (Track 1, Track 2...etc.) below the one created by the duplication will have their track names changed accordingly to account for the extra track added.

Copy track to clipboard copies the entire track to the clipboard. Once something has been copied to the clipboard, **Paste** will also be shown in the Track Options shown above. To Paste 

the copied track to a different part of either the same track, or a different track, you need to position the Time Marker  to the desired position before pressing paste. To paste onto a different track, remember to select that track by tapping it once before pressing paste. To paste onto a new track, you will first need to add an empty track using the Add Track  button.

Move track up/down opens a dialog which allows you to move the selected track to your desired position in the display of tracks in the timeline area.

Merge all clips combines *all* of the MIDI clips on the track into one continuous MIDI clip. If you just want to combine two individual clips, and leave any others unaffected, you can use the Merge clips function in the MIDI Clip/Track Options.

Transpose track allows you to change/shift the musical key of *all* of the clips on the track in one action. Any major key can be transposed into any other major key and any minor key can be transposed into any other minor key. This is done by shifting all of the MIDI notes in the clip vertically; up, or down from their current position on the Piano Roll. The Transpose interface allows you to shift all of the notes from -12 to +12 semitones of their current position using the **Semitones** slider. If you want to shift them by more than that range, you can, of course, transpose the clip more than once. Obviously, as all of the notes are moved by the same amount, the notes on the track retain their original tonal relationships to each other.

If you just want to transpose an individual MIDI clip, you can use the Transpose function in the MIDI Clip/Track Options.

Split MIDI channels allows you to split MIDI tracks containing multiple MIDI channels into individual tracks for each channel.

There are two types of standard MIDI file and they store the information for multiple MIDI channels in different ways. **MIDI Type 1** files contain separate information for each channel. **MIDI Type 0** files merge all of the channels into one track, though the MIDI channel information is still retained. Thus, if you import a MIDI Type 1 file into Audio Evolution Mobile, each channel within the file will automatically be imported onto its own track on the timeline. If, however, you import a MIDI Type 0 file, all of the channels are combined and will be imported as a single clip on a single track on the timeline. Since the MIDI channel information *is* retained in the MIDI Type 0 file though, you can use this **Split MIDI channels** function to have each MIDI channel contained in the original clip onto its own track on the timeline if that's what you want.

You may also possibly want to use this function if you've got a hardware MIDI sequencer and

record a whole sequence (in real time) from it to Audio Evolution Mobile and want to split it afterwards.

Split into separate tracks (drum pattern track only) allows you to split the drum pattern track into separate tracks for each drum type or element. This can be a very useful feature if, for example, you want to have more control and apply different processing or effects to the different elements of the original drum pattern track. Remember, you can always, afterwards, create a Group and route the output of all of those individual tracks to it so that you can then control your entire drum kit/rhythm section with one fader and easily apply processing across the entire combined rhythm section if necessary.

When 'Split into separate tracks' is used, the drum type/element, *with* MIDI events (drum elements without any MIDI events will be ignored in this process), which is at the top of those with events on the drum pattern sequencer will remain on the original drum pattern track. Every individual drum element, with MIDI events, below this first one will be placed on its own MIDI instrument track below it. Use the Convert to drum pattern track function if you'd rather them be on drum pattern tracks after they've been split into individual tracks. The MIDI events of all of the separated tracks retain their correct position and relationship relative to each other as when they were all on the original drum pattern track.

Convert to drum pattern track (Instrument track only) will convert your MIDI instrument track into a Drum pattern track. Remember that Audio Evolution Mobile uses the General MIDI mapping for drum types to assign them to the drum pattern sequencer so you will need to be using the equivalent notes on the piano roll for them to be assigned to the correct samples and be displayed on the drum pattern sequencer once the track is converted. As such, this function will probably, in practice, mostly be used if you have previously converted a drum pattern track into an instrument track for detailed editing and now want to convert it back to add extra beats using the drum pattern sequencer or imported a standard MIDI file containing a (quantized) drum pattern.

Convert to instrument track (MIDI and Drum Pattern tracks only) will convert your Drum pattern or MIDI track into a MIDI instrument track. When converting from a drum pattern track, this allows you to see your beats on the piano roll editor rather than the drum pattern sequencer and therefore allows you to have much greater control over detailed editing of those MIDI events than is possible when using the drum pattern sequencer. For example, if you turn off the Grid for the piano roll, you will be able to completely freely adjust and move your MIDI events, as well as freely place new ones. This can be really useful if you want to manually 'humanize' the quantized beats of the drum pattern sequencer.

Remember that Audio Evolution Mobile uses the General MIDI mapping for drum types to assign them to the drum pattern sequencer so you will see that each drum element's MIDI events are placed, accordingly, on a single note on the piano roll when it's converted to a MIDI instrument track.

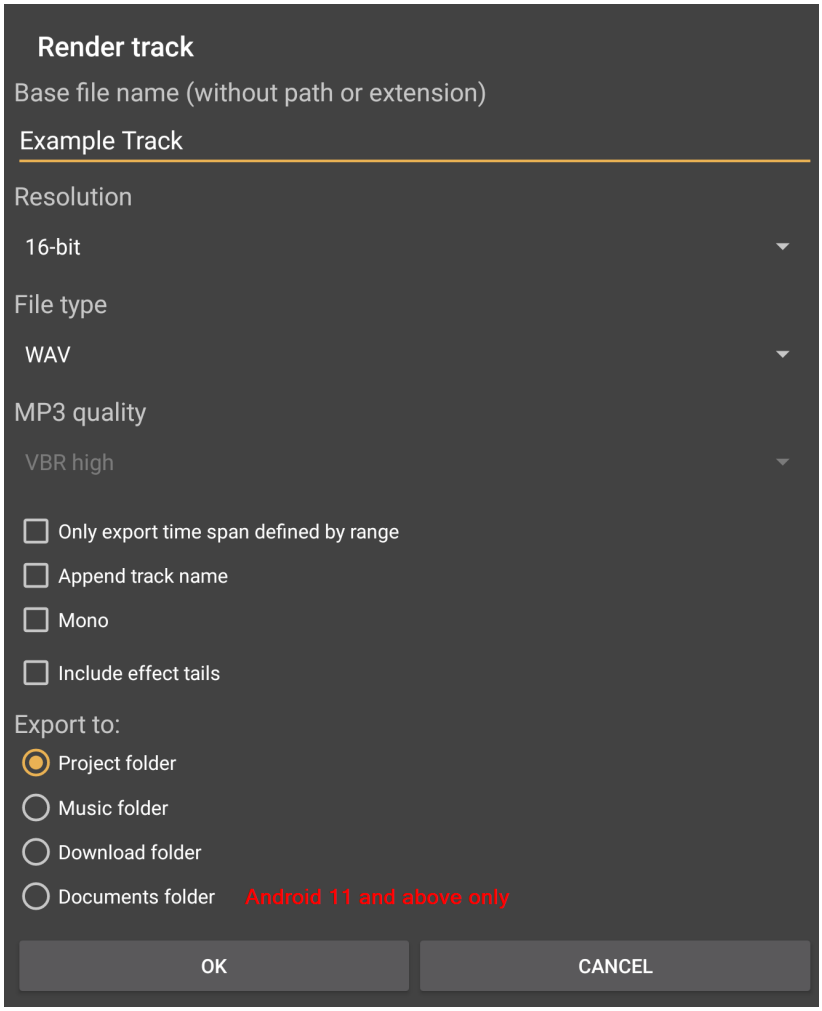
You can always convert your MIDI instrument track back to a drum pattern track if you want once you've carried out your editing using Convert to drum pattern track. Remember though, that any adjustments of the MIDI events you've applied which have moved them off the drum pattern sequencer's currently displayed grid will be displayed transparently on the sequencer.

When converting from (USB) MIDI tracks, this can be useful if you previously used an outboard synthesizer but now want to use the app's internal sounds or if you would like to edit a drum pattern in a piano roll editor for complete freedom of timing.

Convert to USB MIDI track (Instrument and Drum Pattern tracks only) will convert your MIDI Instrument or Drum Pattern Track into a USB MIDI track, allowing you to use it to control your external MIDI equipment.

Freeze allows you to temporarily render all clips on the track, with all processing and effects into a single audio waveform and temporarily convert your MIDI track into an audio track. This means the processing involved in using the virtual instrument, and any effects being applied, in real time is avoided, meaning much lower CPU usage. This is why this function can be so useful and should always be remembered as an option if your device is struggling to cope with the CPU load of real time effects and multiple instances of virtual instruments. The Freeze process removes any effects and resets any processing for the frozen track. The Freeze process is reversible but PLEASE REMEMBER, any changes you make to a frozen track will be lost when it is unfrozen, as it will return to the state it was at when Freeze was applied. The Track Options shown above will display **Unfreeze** on tracks which have been frozen. For more details on freezing tracks, please see here.

Render track to audio file enables you to export a fully rendered audio file of the selected MIDI track. This means that the results of all processing and effects applied will be included in the exported audio file. The rendered audio file can be found in the project Samples folder after export. Pressing 'Render track to audio file' opens the following dialog, allowing you to tailor the export to your requirements. Please ensure that the track's peak volume level is below 0dB to avoid any clipping and distortion on the rendered track.



- **Base file name (without path or extension)** allows you to name your exported audio file. As it says, don't include any path or extension, just enter your desired name. The Base file name 'Example Track' has been entered in the screenshot above.

- **Resolution** allows you to select the bit depth resolution for the exported audio file. If you're not sure what bit depth is, please see here. Which bit depth resolution you select depends on what you plan to use your exported audio file for. The higher the resolution, the bigger the resulting audio file. When exporting your track with plans to import into another DAW for further work you're probably going to want to select 32-bit or 32-bit (float). The Resolution options will be grayed out if OGG or MP3 are selected as the format file type.

- **File type** is where you can select the file format for your export. The options are WAV, AIFF, FLAC, OGG and MP3. WAV, AIFF and FLAC are lossless audio types, whereas OGG and MP3 are compressed. If you want to send someone an audio file by email or perhaps social media, it may be best to select MP3 to keep the file size small. Trying to email a lossless audio file will usually fail due to the file becoming too large.

- **MP3 quality** will have its options grayed out unless MP3 is selected as the export format in File Type. The MP3 quality settings offer the full range of VBR (Variable Bit Rate) and CBR (Constant Bit Rate) options to cover all requirements.
- **Only export time span defined by range**, when selected, does exactly that: it only renders and exports the area of the track defined by the Range 

function.

- **Append track name**, if selected, will add an underscore (_) and the track name to your Base file name. So, in the example above, if the track being exported was the first track in my project and still had its default name (Track 1), having 'Append track name' active would result in the exported file being named 'Example Track_Track 1.wav' (assuming WAV was selected as the file type format).

- **Mono**, when selected, exports your track as a mono audio file rather than a stereo one. This results in a smaller file size but, obviously, any sense of the stereo sound field (from the audio on the track itself if it is stereo, or from 'spacial' effects applied to either mono or stereo audio on the track) will be lost.

- **Include effect tails** is selected by default and you will almost certainly want to keep it selected. 'Include effect tails' adds enough time to the end of the exported file to ensure that the 'tails' (fades to silence) of any effects will be included. So, for example, if you have a reverb effect with a long decay time applied to your track, you'll want the reverb decay/tail/fade to silence to be included in your exported audio file rather than have it cut off abruptly when the audio on the original track ends. Likewise, if you have a virtual instrument with a long release time, you'll want to have 'Include effect tails' selected to ensure that the full release/fade to silence of notes right at the end of the track are included in the exported audio file.
- **Export to** allows you to select the destination folder for the exported file. You can choose to save the audio file to either the Project folder (where it can be found in the 'Samples' folder), the device Music folder, the device Download folder or (Android 11 and above only) the device Documents folder.

NOTE. The maximum possible amount of time added onto any track in order to include effect tails and instrument releases is ten seconds.

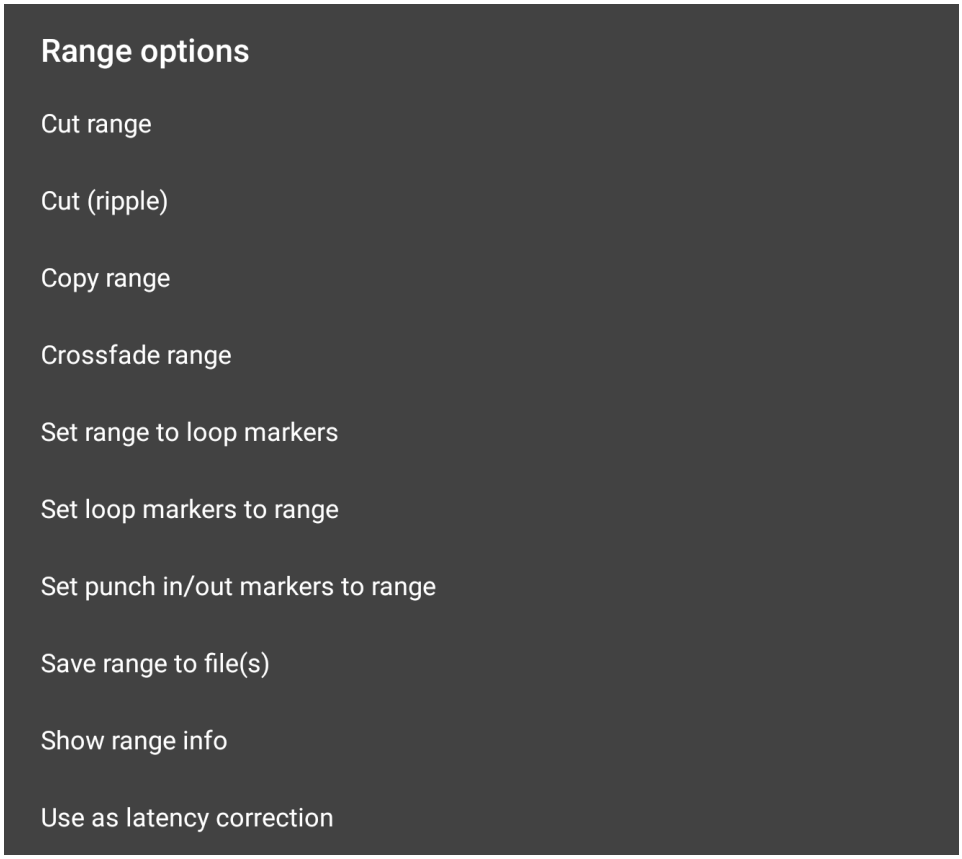
Color allows you to change the color of the clips on your track. You can either use a color picker to completely freely choose a color or you can choose to apply the same color as any of the existing tracks to the selected track. This can be very useful if you want tracks with a similar content type (say, vocal tracks) to have the same color for easy identification. Likewise, if you have several tracks routed to a single Group in the mixer, you may want them to have the same color. Don't forget that this can be combined with the 'Move track up/down' function, allowing you to place such tracks next to each other on the timeline too.

The Range Mode

The Range mode button 

on the Arranger screen allows you to turn the track edit Range mode on and off. When Range mode is on, you can use your finger to select a time range within one track or across multiple tracks. With Range mode on, touch *and hold/slide* to the right (or left) on the selected track to select the range, shown in blue. If you want to select a range across multiple tracks, also slide down (or up) to include those tracks in the range selection as you do so. Don't forget about the Grid 

and its snap-to functionality if you want to set the Range to exact increments of the tempo. Once the selection is made, should you need to adjust it, press *and hold* near the edge of the blue range selection and slide to reposition that edge. As always, zoom in for greater accuracy. Tap once outside of the range selection to deselect it completely. Tap once within the selected blue Range to open the **Range Options** seen here (zoom in so that the Range is larger on your screen before you tap on it if this doesn't happen).



Cut range removes the selected range from the timeline AND copies it to the clipboard, allowing you to paste it elsewhere. There are basically two ways to paste the copied range: one is to long-tap on the track and location you wish to paste. A pop-up menu will be displayed with two paste options. The other way is to use the Paste 

button: to select the track to paste onto, if different from the currently selected track, select the track by tapping on it once. Then use the Time Marker 
to define the point at which the copied range should be pasted and press the

Paste button. If the location specified already contains content, you will be asked if you'd like to **Paste** or **Paste (insert)**. Selecting Paste will 'remove' (the original content is still there if you use the Clip Trimming Handles to trim the original clips) the content underneath the content pasted. Selecting Paste (insert) will insert your copied content at the point specified and shift everything originally after that point to the right so it is now heard after the inserted content.
You can also cut the selected range and paste it to the clipboard without opening these Range options using the Cut 

button on the Arranger Screen, which will then give you the option to cut or cut (ripple), therefore including all of the functionality found through these options.

NOTES. As the Range mode can select a range across many tracks, if multiple tracks are included in the range, and copied and pasted, the 'multiple track range' will be pasted *starting* at the selected point on the track selected and the rest of the tracks in the range pasted accordingly to the tracks below it. If not enough tracks exist to accommodate all of the tracks in the range, new tracks will automatically be created as required.

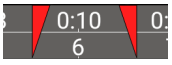
Audio cannot be pasted onto MIDI tracks and vice versa, therefore the process just described will be automatically canceled if such incompatibilities would occur.

Cut (ripple) removes the range from the timeline, copies it to the clipboard AND shifts everything to the right of the cut range to the left by an amount equal to the length of the cut range. Thus, the range will have been removed will and everything else on the track/s will have been shifted to perfectly fill the gap that would have otherwise been left.

Copy range copies the selected range to the clipboard, ready to be pasted elsewhere. You can also copy the selected range to the clipboard without opening these Range options using the Copy 

button on the Arranger Screen.

Crossfade range applies a crossfade to the selected range. A crossfade fades *out* the signal of the first source as it simultaneously fades *in* the signal from a second source as long as there's enough audio data present in both sources to do so. As has been mentioned throughout this manual, when clips are trimmed in Audio Evolution Mobile, the original content remains 'hidden' from view, ready to be revealed again by using the Clip Trimming Handles to trim the clip once more. Applying a crossfade to a selected range uses this hidden audio data - indeed, it requires it and cannot be performed without it. So, as an example of this and of when the function might be used, imagine you've made a Punch In/Out recording to replace a section of a recording you were unhappy with. Since Punch In/Out recordings are actually made from the point of the Time Marker 

when the Record 
button is pressed, and then automatically trimmed to exactly match the Punch In and Out points 

, this means that there is hidden audio data outwith the confines of the visible clip. This means it will be possible to perform the crossfade range function. Since it is best practice to start playing along with the track before reaching the Punch In point, selecting a small range across the beginning of the Punch In/Out

clip and the end of the original clip next to it, and then selecting Crossfade range from these Range Options can give you a smoother transition from the original recording into the Punch In/Out section if necessary. Likewise, if the Punch In/Out clip sits completely within the original recording, this could be performed again at the end of the Punch In/Out clip and the start of the original recording.

Set range to loop markers allows you to easily set the start and end points of the range to the current position of the loop markers 

. The Loop 

mode doesn't need to be active for this function to be possible.

Set loop markers to range allows you to easily set the loop markers to the beginning and end of the selected range and activate Loop mode if it's not already active.

Set punch in/out markers to range allows you to set the Punch In/Out markers 

to the beginning and end of the selected range and activate Punch In/Out recording mode if it's not already active. Don't forget to then turn the Range mode off if you want to select a different track from the currently selected one to Punch In/Out record onto.

Save range to file(s) allows you to save the audio in the selected range to its own separate audio file in the Project's Samples folder on your device. If your range covers more than one track, the audio covered by the range in each track will be individually saved to its own audio file. You will be given the chance to individually name the audio file(s) as they are saved to the Samples folder. The audio saved is not rendered but is the raw audio in the range meaning it does not contain any processing or effects other than those previously applied (and rendered) to the audio itself using the audio Clip/Track options. Because no rendering is taking place in this process, this function will not work with MIDI tracks.

Show range info shows you the precise start point, end point and duration of the selected range in both seconds and frames. This information is also displayed (in seconds) in the Playback Timer Display whenever a range is selected.

Use as latency correction will use the duration of the defined range as latency correction. You should normally not need this, but if you would like to determine the track-to-track latency manually, then you could for instance put a short drum sound on one track at a time position of for example 2 seconds (do not put it at 0:00!), then without headphones, press Record such that a second track is automatically created and recorded onto. The drum sound that is played on the first track will be recorded onto the second track, but perhaps with a small delay. After recording, you can span a range between the onset of the drum sound on both tracks. This range is the track-to-track latency and can be entered in the app's Settings. It is better however, to choose 'Determine latency' from the More menu for improved accuracy.

NOTE. You can also **Paste** when in Range mode by either positioning the Time Marker  and pressing the Paste 

button or by using the method described here.

Channel Strips

Introduction

You will no doubt have seen images of professional mixing consoles with countless faders, dials, buttons, volume meters and other controls. These intimidating consoles are made up of row after row of Channel Strip placed next to each other - one channel strip for each track. Channel strips allow you to easily access the controls which define how an individual track is played back - volume, pan and effects - within the overall project mix. They also allow you to arm a specific track to be recorded to.

Channel strips in Audio Evolution Mobile are shown on the left when the track is selected (single tap on your desired track in the Timeline to select) on the Arranger Screen. The selected track's channel strip will remain displayed in the FX Grid view and when the Virtual Keyboard is being displayed for Soundfont and SFZ instruments. It is not displayed when the Evolution One and Flowtones synthesizers interfaces are open.

If you click the Next 

button on the Arranger Screen, you will move to the Mixer view which displays the channels strips for all of the tracks next to each other, in the fashion of the aforementioned professional mixing console. Depending on the number of tracks you may need to scroll to see the tracks which can't fit on-screen initially, by sliding your finger over the track names at the top of the mixer channels.

Finally, pressing the Next button again will take you to the Master and Group channel strips.

The channel strip options in Audio Evolution Mobile are displayed over several 'pages' due to the limited screen space on mobile devices. These pages can be moved between using the gray circular buttons  at the bottom of the channel strip. The number of pages needed will vary according to the size of the device screen - fewer on large tablet screens and more on smaller phone screens - and on the track type (a USB MIDI track will have fewer options than tracks producing audio). As such, all of the options shown in these screenshots will be available on every device, but you may need to move through several pages to access them.

For information about the channel strips within multi-instrument drum pattern instruments, please see here.

Use these quick links to jump to a section.

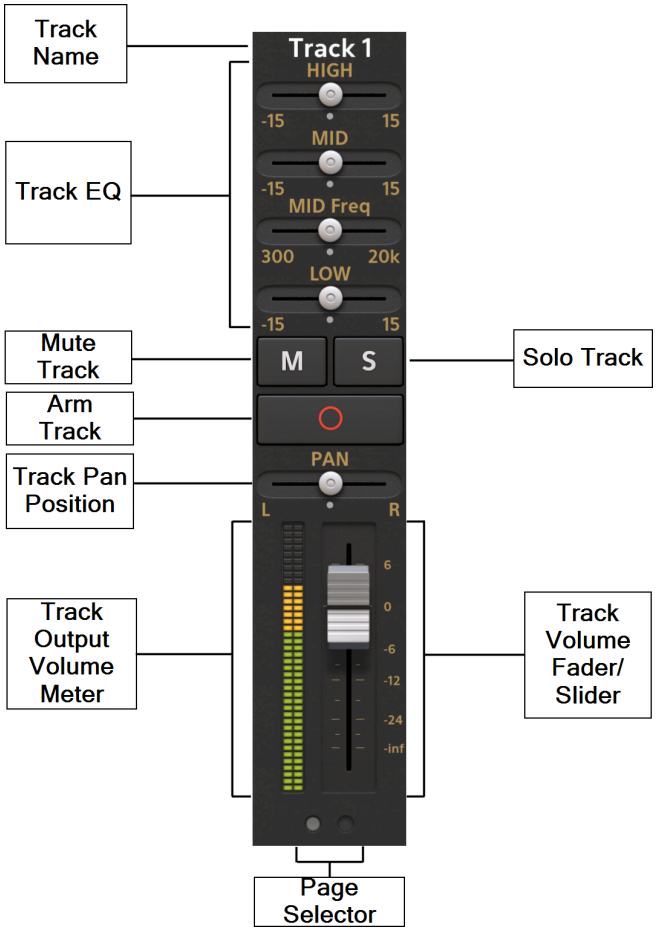
Audio Track Channel Strips

The audio produced from an audio clip that is currently playing on a track flows through several processing stages before being sent to a Bus/Group or the Master mixer channel. These processing stages are implemented as a series of connected 'blocks', called the FX grid. For example, the audio would by default go through an EQ, then a Volume/Panning block and optional FX sends. If you would add effects like Delay or Reverb, these processing blocks would be placed on the FX grid as well. This grid can be visualized by pressing the FX grid button on the channel strip and would for example look like this:

The controls on the channel strip can be seen as quick access controls to the parameters of the IN (mute), EQ, Volume and FX Send blocks. For example, moving the volume slider would change the Volume parameter in the Volume block, as can be seen later on in this section.

NOTE. The audio channel strip functions are shown over several 'pages'. The number of pages needed to cover the functions will vary depending on the size of the device screen. As such, you may not see all of the functions spread over two pages as shown here, but they will all be present nonetheless. Simply use the Page Selector at the bottom to access the different pages or, when on the Mixer Screen or Master and Groups Screen, move through the pages of all channel strips displayed simultaneously using the Next button at the top left of those screens.

Page One Jump to Page Two



At the top of each channel strip is the **Track Name** Track 1 . You can long-press on this display of the track name on the channel strip to open a dialog which will allow you to change the name. You can also rename your tracks using the Track Options menu which is accessed by long pressing in an empty area, containing no clips, of the desired track in the Arranger screen. Then select Rename Track and enter your chosen track name which will then be displayed at the top of tracks channel strip. Tracks which have been frozen will display a snowflake symbol next to their name Track 1 ❄ .

The **Track EQ** gives you quick access to the most basic equalizer controls in Audio Evolution Mobile for shaping the frequencies heard on the track. These can be useful for making quick adjustments as you work. You may, though, eventually decide that you want to set them back to their default (inactive) values and use the more advanced EQ controls available to fine tune your mix before exporting. If so, double tap the slider handles, and select 'Reset EQ to Center' from the Options pop-up which appears. This pop-up also allows you to enter a value for the slider's position should you need greater precision. If you'd rather not have the EQ displayed on the channel strip, to save space, you can turn its display off in the Mixer Channel Display section of the Settings. The slider values (for all sliders/fader controls within the channel strip) are displayed in the Playback Timer Display 

as they are changed.

The EQ sliders on the channel strip control the parameters of the EQ block, always shown in the track's FX Grid (Effects Grid) and highlighted below. The EQ interface accessed via the FX Grid screen also offers a Low Mid band which doesn't fit on the channel strip display. Be aware, then, that changing the sliders on the channel strip will simultaneously change the dials on the EQ display and vice versa.

The **Mute** 

button allows you to mute (silence) the selected track so that it is not heard in the mix. Muting a track manually by pressing this button will light the button yellow as seen here 

. Tracks will also be automatically muted when another track, or tracks, have been soloed (see below). Tracks which have been automatically muted due to the soloing of other tracks, are indicated by a yellow rectangle around their Mute button like this 

. Long pressing a Mute

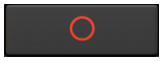
button will open an Options dialog allowing you to **Deactivate all mute buttons** at once.

The **Solo** 

button allows you to isolate the selected track (and temporarily mute all other tracks) so that it is the only one heard. You can, though, simultaneously solo as many tracks, or Groups, as you want, allowing you to hear the selection you require whilst muting the other tracks. Pressing the Solo button solos the track and lights the button green as seen here 

. Long pressing a Solo button will open an Options dialog allowing you to **Deactivate all solo buttons** at once.

NOTE. A description of Groups can be found here and of Group Channel Strips here.

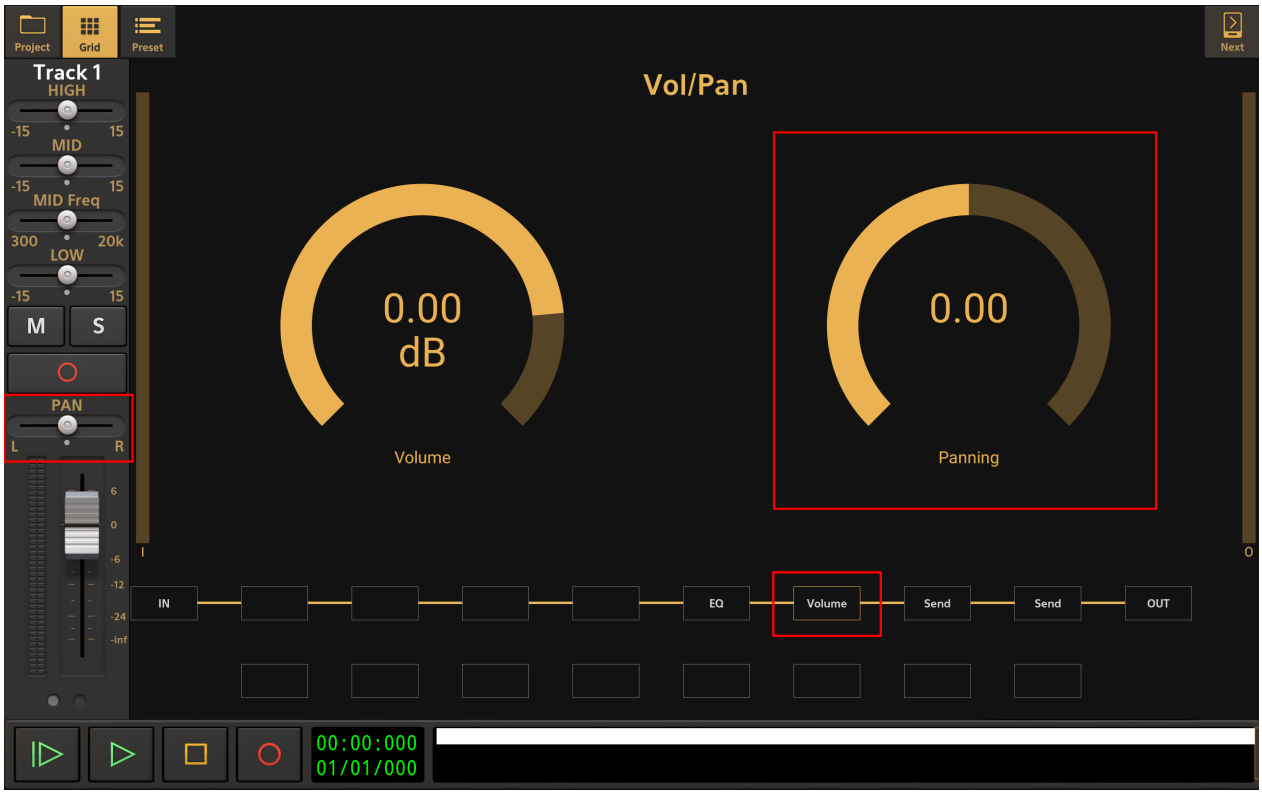
The **Arm** 
button, when active, arms the selected track to be recorded to when the Record 
button is pressed. For more information on this, see here.

The **Track Pan Position** 

slider allows you to position the track's audio within the stereo sound field, or panorama. Double tap the Track Pan Position control to open the Options to reset to center or to enter a value for greater precision. The slider values (for all sliders/fader controls within the channel strip) are displayed in the Playback Timer Display 

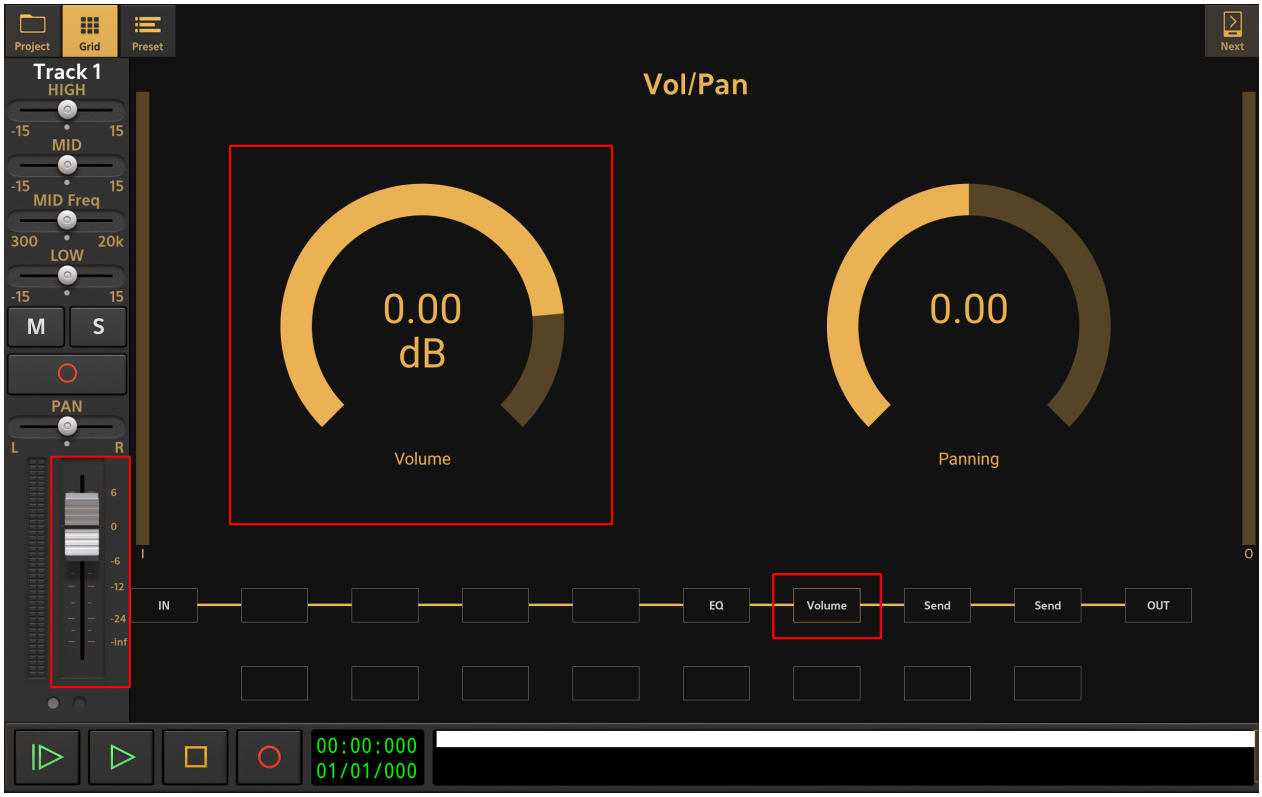
as they are changed.

The Pan position slider controls the Pan dial in the Vol/Pan block displayed on the track's FX Grid, highlighted in the image shown below (the block itself is labeled 'Volume'). Be aware then that changing the Pan position on the channel strip will simultaneously change the Pan dial in the Vol/Pan block controls accessed via the FX Grid screen and vice versa.



The **Track Volume Output Meter**  allows you to monitor the audio output level of your track in real time. You can choose between having vertical volume display/controls (shown above) or horizontal display/controls (see below in the Track Volume Fader/Slider section), to save space, in the User Interface section of the Settings. Devices with smaller screens will default to using the horizontal display/controls. When the track is armed, the volume meter displays the level of the incoming audio signal.

The **Track Volume Fader/Slider**  allows you to adjust the volume level of the track within the overall mix. As mentioned above in the Pan section, the volume fader controls the volume level dial in the Vol/Pan block (labeled Volume), always shown in the FX Grid and highlighted below. Please note that the volume fader does NOT control the input gain/level when recording.

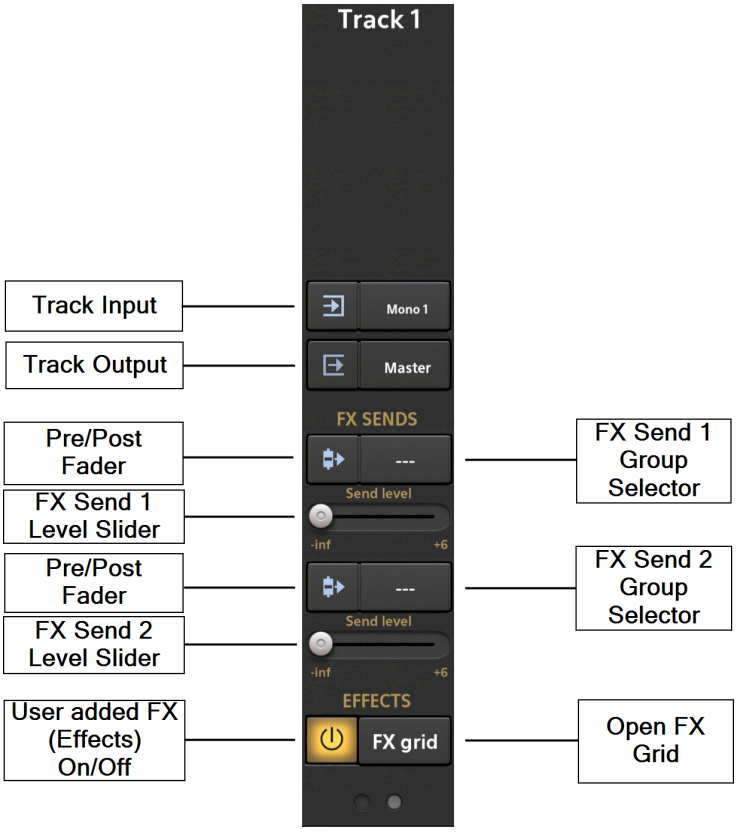


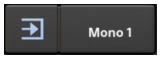
As already stated for Pan controls, be aware that changing the volume level using the fader on the channel strip also changes the volume dial in the Vol/Pan block controls, accessed via the FX Grid screen, and vice versa. Double tap the white fader handle to open the Options to reset to 0dB or to enter a value for greater precision. The slider values are displayed in the Playback Timer Display as they are changed. You can choose between having a vertical volume fader/slider (shown above) or a horizontal slider (below), to save space, in the User Interface section of the Settings. This requires a restart of the app to take effect. Devices with smaller screens will default to using the horizontal slider seen here.

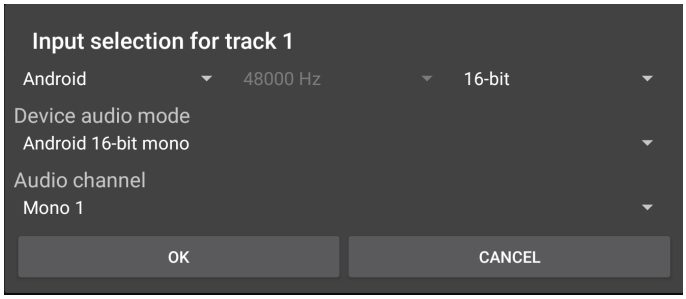
The **Page Selector**  allows you to move between the different pages of the channel strip. Depending on your device's screen size, more, or fewer, pages will be required to show all of the channel strip functions. Tap on the circles representing the pages to move through them. Alternatively, when on the Mixer Screen or Master and Groups Screen, you can move through the pages of all channel strips displayed simultaneously using the Next 

button at the top left of those screens.

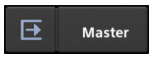
Page Two Jump to Page One



Pressing the audio **Track Input**  button opens the track input dialog seen here.



The options shown allow you to select the input for the selected track. The options and modes available will differ depending on the device being used, whether that be the Android device itself or a USB audio interface. If your USB audio device has several input channel options, this is where you can select the one you require for a particular track. Note that as soon as the project contains an audio clip, the sample rate becomes fixed and unchangeable. As such, the sample rate option will be grayed out as shown in this example.

The **Track Output** 

button opens the track output options seen here.

This allows you to select the output routing for the track's audio *after* it has been through its entire effects chain on the FX Grid (Effects Grid). By default, if no Groups have been created by the user, the only option shown will be the Master output. If the user has created groups on the Master and Groups Screen, they will also be displayed as options. Groups can be used for different purposes. Above, one group has been created and is therefore shown. In terms of the Track Output, routing specific tracks into different Groups, or bus channels, allows you to have submixes, each of which can have their overall volume controlled using a single Group fader on the Master and Groups Screen before finally being routed from there to the Master output. Imagine you have each element of a drum kit - the kick drum, the snare drum, the Hi-Hat etc. - on a separate track in your project. Routing all of those elements/tracks to the same Group would allow you to mix them all in relation to each other but then have a single fader to control the overall level of the entire drum kit in your mix.

As just mentioned, Groups can be used for mixing purposes, but they can also be used by the track's **FX Sends** as **FX Returns**. FX Sends route a copy of the track's audio to an auxiliary Group with effects placed on it. This Group can then be used to 'return' the processed signals which have passed through its effects back to the Master output, hence why it is referred to as an FX Return. This is a powerful feature which can really help to streamline your project and minimize the CPU load on your device. Put simply, if you want several tracks to use the same effect, with the same parameter setup, or the same chain of effects, you may as well send all of their audio signals through the same FX Return (Group) rather than applying that effect, or effects, separately to each individual track. This means only one instance of the effect, or effects chain, is used instead of several instances and therefore minimizes the CPU usage. By default, Audio Evolution Mobile provides two FX Sends for each track, though more can be added on the FX Grid if you need them. The two default FX Sends are shown on the FX Grid and the two FX Sends shown on the Channel Strip will control the *first two* FX Sends to appear in the FX Grid chain. Initially, this will, of course, be the two default FX Sends but should you add other FX Sends to the chain *before* those two then the controls on the Channel Strip will always control the first two from left to right.

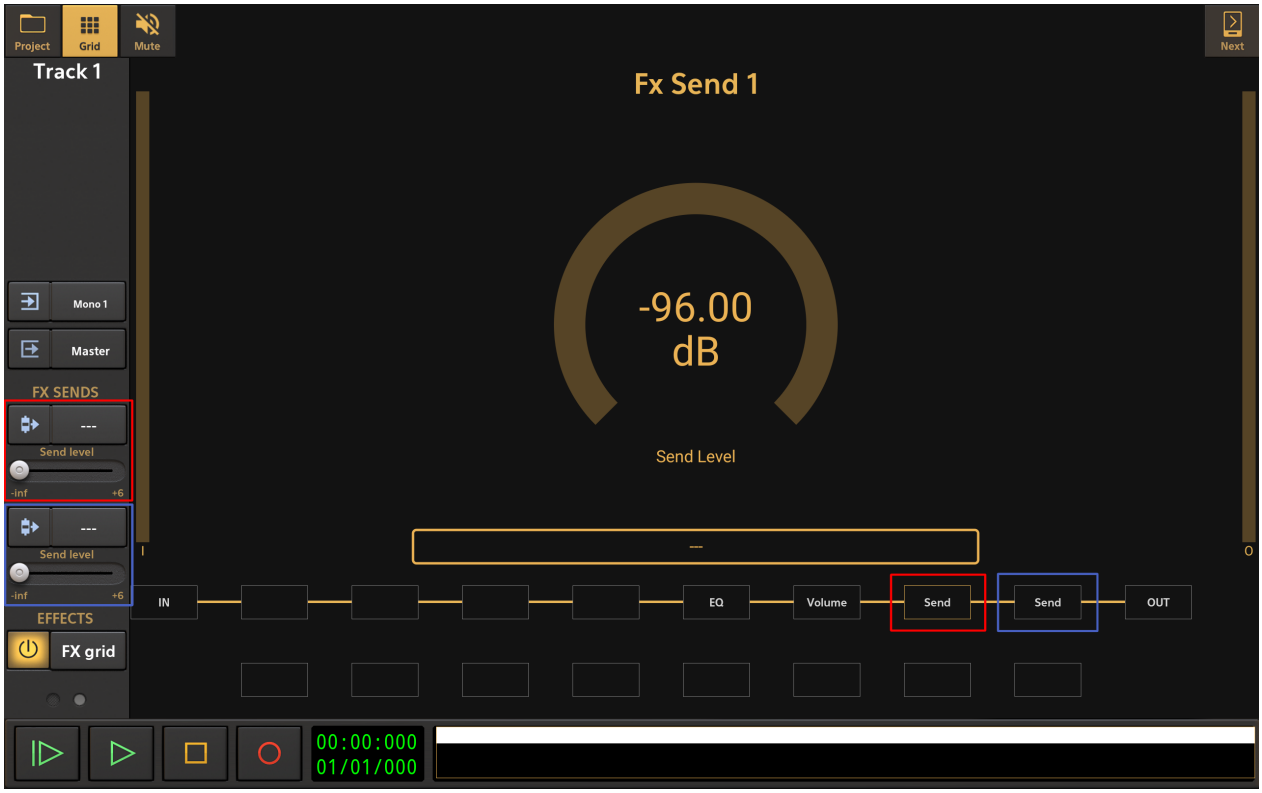
The **FX Send Group Selectors** 

button, on the right, opens this Select Group dialog.

By default, 'No output' is selected since FX Sends aren't used until they are set up by the user. Once you have created a Group, it will appear in this dialog, as can be seen, but you can also press 'New Group' to create your own Group directly from this interface. Select your desired

Group to use as your FX Return from the options.

The FX Sends are, like the EQ and Volume/Pan, also shown on the FX Grid. FX Send 1 is highlighted in red and FX Send 2 is highlighted in blue in the image below. As with those other controls, remember that any changes made on the Channel Strip will simultaneously be made in the controls on the FX Grid Page and vice versa (remembering that, as mentioned above, the FX Sends on the Channel Strips always control the *first two* Send blocks displayed on the effects chain from left to right on the FX Grid).

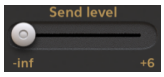


The **Pre/Post Fader**  button, on the left, allows you to select whether you want the track's audio to be sent to the individual FX Return *before* (Pre) or *after* (Post) it passes through the Volume/Pan faders/sliders shown on the Channel strip and in the Volume block on the FX Grid. By default they are in the Post position. Pressing the button you will see the graphic change to indicate whether the FX Send, represented by the blue arrow/triangle, is before or after the fader handle represented. The best way to understand what is happening is probably to open the track's FX Grid. The track's channel strip will still be visible on the left so if you press the Pre/Post Fader buttons for the FX Send, you will be able to see how the Send moves position from being after (Post) the Volume block to being before (Pre) the volume block.

Post-fader is commonly used for (true) effect sends. In this case, the channel fader also influences how much signal is sent to the FX Return Group connected to the FX send. Otherwise, with pre-fader, having the channel fader down would still send audio to the effect, which is usually not desirable.

Pre-fader can be used for monitoring purposes if you have a USB audio interface with more than 2 outputs. You could create a submix using the FX sends and set the output of the bus to for example Output 3-4 on your USB audio interface.

When using an FX Send, the app sends a copy of the track's audio signal to pass through the

effect on the FX Return. The **Send Level** 

slider determines the level of this audio signal sent to the auxiliary FX Return. In practice, this controls the amount of the effect you will hear applied to the track in the eventual output. Because of this, the FX Return, which has the desired effect placed on its FX Grid, will generally - depending on the type of effect, want to have the Mix level of the effect at 100% wet because the amount of effect applied to each track's signal using their FX Sends and the FX Return is controlled by their Send Level sliders, allowing them all to have different amounts of the effect applied as required.The Send Level is displayed in the Playback Timer Display as it is changed. Double tap the white slider handle to reset or to enter a value for greater precision.

NOTE. Since Groups can be used for different purposes, as we've just seen, it is wise to get into the habit of renaming your Groups with descriptive names. For example, if you have all of your individual drum tracks routed into a Group, rename that Group 'Drums'. If you have several tracks routed through the same reverb effect on an FX Return, rename that FX Return Group 'Reverb'. To do this, simply long press on the Group's name on its channel strip in the Master and Groups Screen view. Enter your desired name into the dialog which appears. This will really help you keep track of things as you work on your project.

The **FX Grid** 

button, on the right, displays the FX (Effects) Grid for the selected track. The FX Grid allows you to insert effects, either in serial or in parallel, and add additional FX Sends should you require them for the selected track. As already described, some of the blocks shown on the grid represent controls which are simultaneously available on the track's channel strip. For more information on the FX Grid, see here.

The **User Added FX On/Off** 

button, on the left, allows you to enable or disable all of the 'true' effects (as opposed to FX Sends) *you*, the user, have added to the FX Grid for the selected track with one simple button press. This can be very useful if you want to quickly hear how the track sounds without any of the effects you've added. As stated, any FX Sends added by the user *will not* be controlled by this on/off button, and neither will the default, non-user created, blocks which exist on every FX Grid - the EQ block, the Volume/Pan block and the two default Send blocks.

MIDI Instrument and Drum Pattern Track Channel Strips

The MIDI Instrument and Drum Pattern Channel Strips share many of their functions with the audio channel strip, but there are also differences, specific to the nature of MIDI tracks.

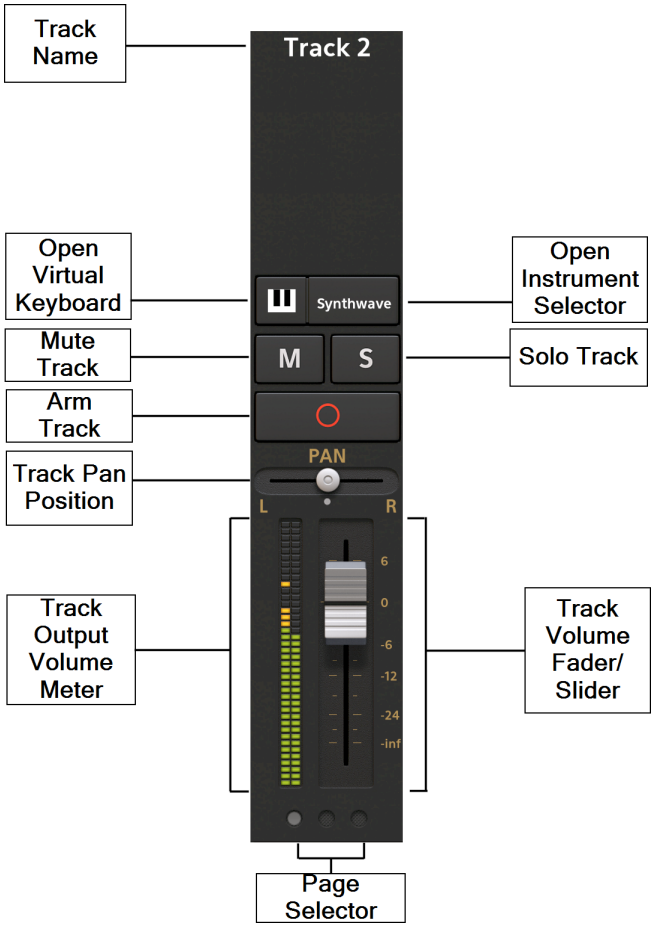
The MIDI events from MIDI clips on an instrument or drum pattern track are rendered as audio in real-time, depending on the instrument selected in the Instrument selection dialog. The audio that is produced flows through several processing stages before being sent to a Bus/Group or the Master mixer channel. These processing stages are implemented as a series of connected 'blocks', called the FX grid. For example, the audio would by default go through an EQ, then a Volume/Panning block and optional FX sends. If you would add effects like Delay or Reverb, these processing blocks would be placed on the FX grid as well. This grid can be visualized by pressing the FX grid button on the channel strip and would for example look like:

The controls on the channel strip can be seen as quick access controls to the parameters of the IN (mute), EQ, Volume and FX Send blocks. For example, moving the volume slider would change the Volume parameter in the Volume block, as can be seen later on in this section

NOTE. The MIDI channel strip functions are, like the audio channel strip's, shown over several 'pages'. The number of pages needed to cover the functions will vary depending on the size of the device screen. As such, you may not see all of the functions spread over two pages as shown here, but they will all be present nonetheless. Simply use the Page Selector at the bottom to access the different pages or, when on the Mixer Screen or Master and Groups Screen, move through the pages of all channel strips displayed simultaneously using the Next 

button at the top left of those screens.

Page One Jump to Page Two Jump to Page Three



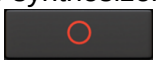
At the top of each channel strip is the **Track Name** 

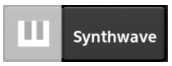
. You can long-press on this display of the track name on the channel strip to open a dialog which will allow you to change the name. You can also rename your tracks using the Track Options which are accessed by long pressing in an empty area, containing no clips, of the desired track in the Timeline. Then select Rename Track and enter your chosen track name which will then be displayed at the top of tracks channel strip. Tracks which have been frozen will display a snowflake symbol next to their name 

.

The **Open Virtual Keyboard** 

button (MIDI instrument track only), on the left, does exactly that: it displays the virtual keyboard, or drum pads, and other controls for the virtual instrument currently being used, as well as arming the track, ready to be recorded to. In the case of the Evolution One and Flowtones synthesizers, it opens the separate synthesizer interface.

The same change in display can also be achieved by pressing the Arm  button.

The **Open Instrument Selector** 

button, on the right, opens the virtual instrument selection dialog. This allows you to freely assign a different virtual instrument to be controlled by the MIDI information on the track when you change your mind or want to experiment with different sounds. The button displays the name of the current preset for the selected virtual instrument.

The **Mute** 

button allows you to mute (silence) the selected track so that it is not heard in the mix. Muting a track manually by pressing this button will light the button yellow as seen here 

. Tracks will be automatically muted when another track, or tracks, have been soloed (see below). Tracks which have been automatically muted due to the soloing of other tracks, are indicated by a yellow rectangle around their Mute button like this 

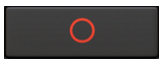
. Long pressing a Mute button will open an Options dialog allowing you to **Deactivate all mute buttons** at once.

The **Solo** 

button allows you to isolate the selected track (and temporarily mute all other tracks) so that it is the only one heard. You can, though, simultaneously solo as many tracks, or Groups, as you want, allowing you to hear the selection you require whilst muting the other tracks. Pressing the Solo button solos the track and lights the button green as seen here 

. Long pressing a Solo button will open an Options dialog allowing you to **Deactivate all solo buttons** at once.

NOTE. A description of Groups can be found here and of Group Channel Strips here.

The **Arm**  button (MIDI instrument track only), when active, arms the selected track to be recorded to when the Record  button is pressed. For more information on this, see here. On MIDI tracks it also displays the virtual keyboard, or drum pads, and other controls for the selected virtual instrument. In the case of the Evolution One and Flowtones synthesizers, it opens the synth's separate interface.

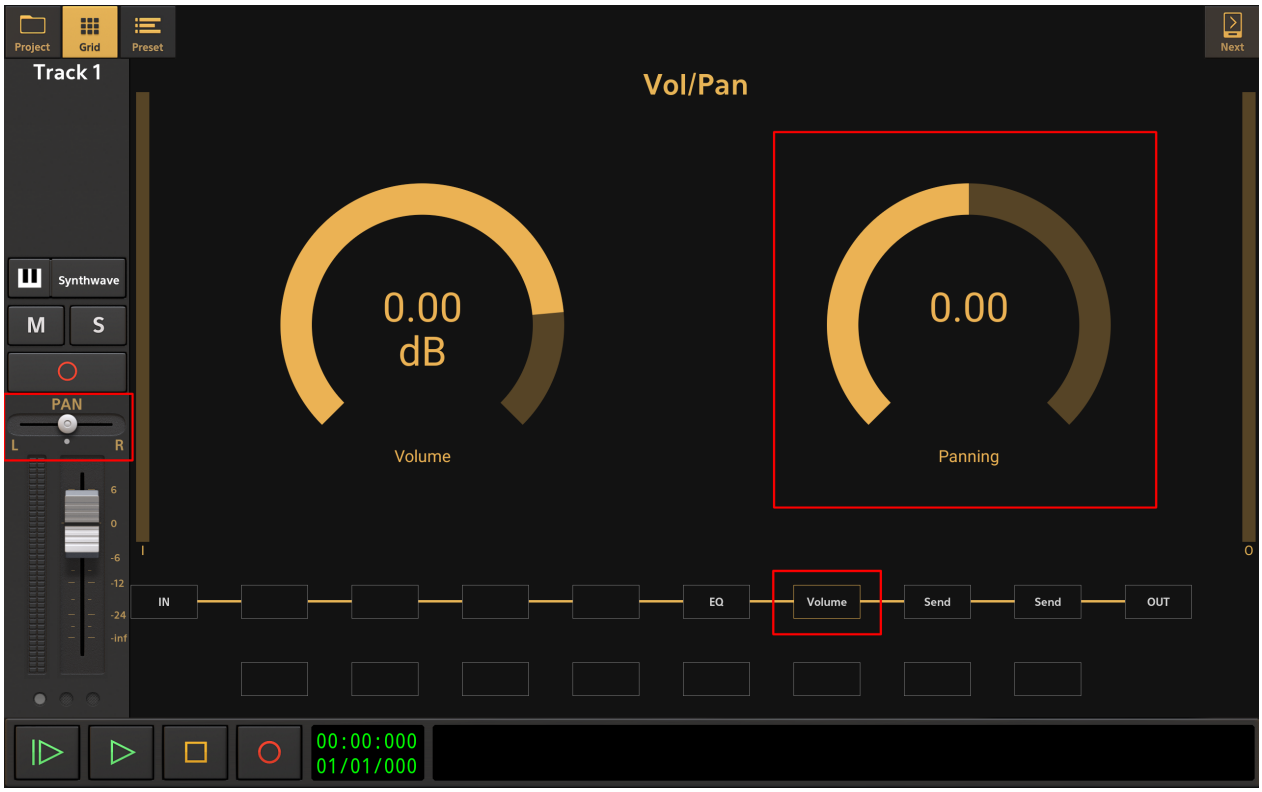
The **Track Pan Position** 

slider allows you to position the track's audio within the stereo sound field, or panorama. Double tap the Track Pan Position control to open the Options to reset to center or to enter a value for greater precision. The slider values (for all sliders/fader controls within the channel strip) are displayed in the Playback Timer Display 

as they

are changed.

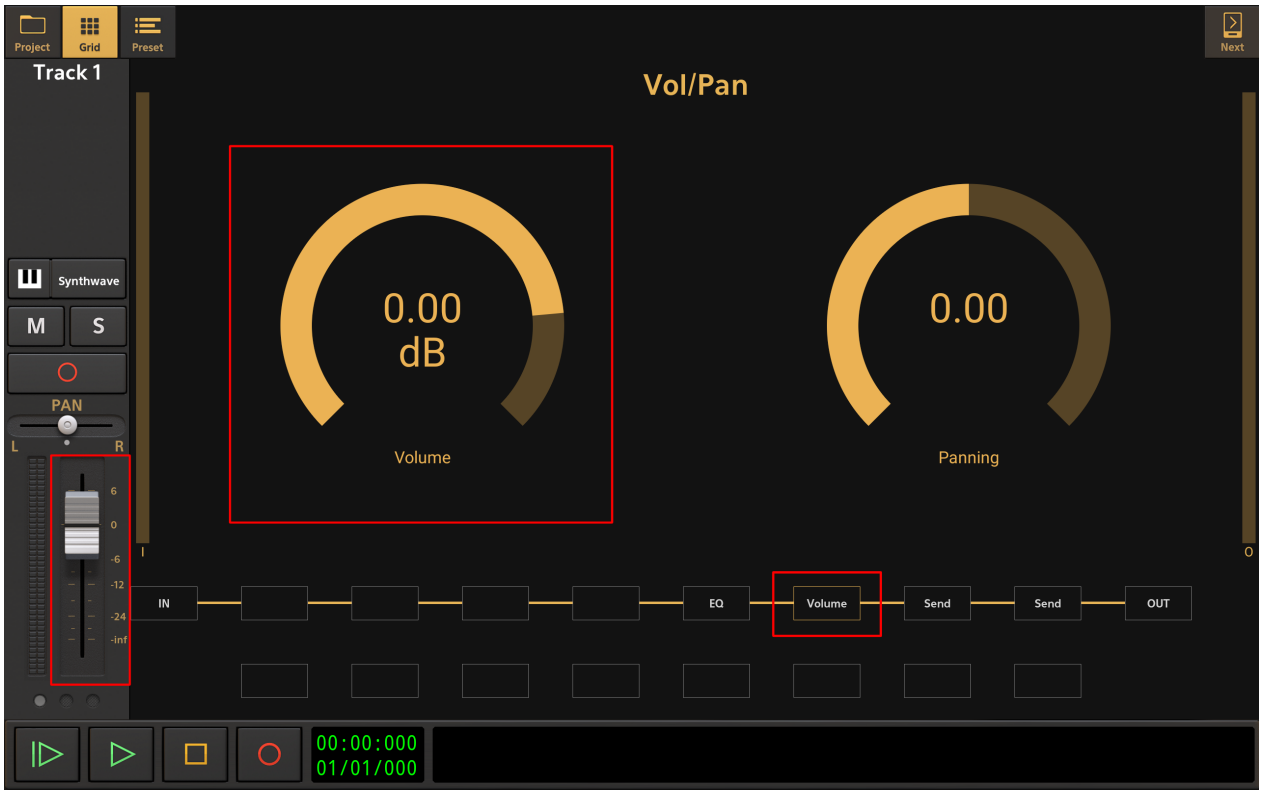
The Pan position slider controls the Pan dial in the Vol/Pan block displayed on the track's FX Grid (Effects Grid). highlighted in the image shown below (the block itself is labeled 'Volume'). Be aware then that changing the Pan position on the channel strip will simultaneously change the Pan dial in the Vol/Pan block controls accessed via the FX Grid screen and vice versa.



NOTE. You may have read that last section, talking about 'the track's audio' and thought, 'Audio? I thought we were talking about MIDI tracks here?'. It is important to remember that MIDI is just a set of instructions which determine how internal virtual instruments or external hardware instruments are to be played. By itself, MIDI contains no audio. But virtual instruments like those in Audio Evolution Mobile *do* generate audio when instructed to do so by the MIDI data on MIDI tracks and it is this audio which is outputted from the MIDI track and can therefore be controlled with the channel strip or processed with effects. This is the audio being referred to in this section.

The **Track Volume Output Meter**  allows you to monitor the audio output level of your track in real time. You can choose between having vertical volume display/controls (shown above) or horizontal display/controls (see below in the Track Volume Fader/Slider section), to save space, in the User Interface section of the Settings. Devices with smaller screens will default to using the horizontal display/controls.

The **Track Volume Fader/Slider** allows you to adjust the volume level of the track within the overall mix. As mentioned above in the Pan section, the volume fader controls the volume level dial in the Vol/Pan block (labeled Volume), always shown in the FX Grid and highlighted below.



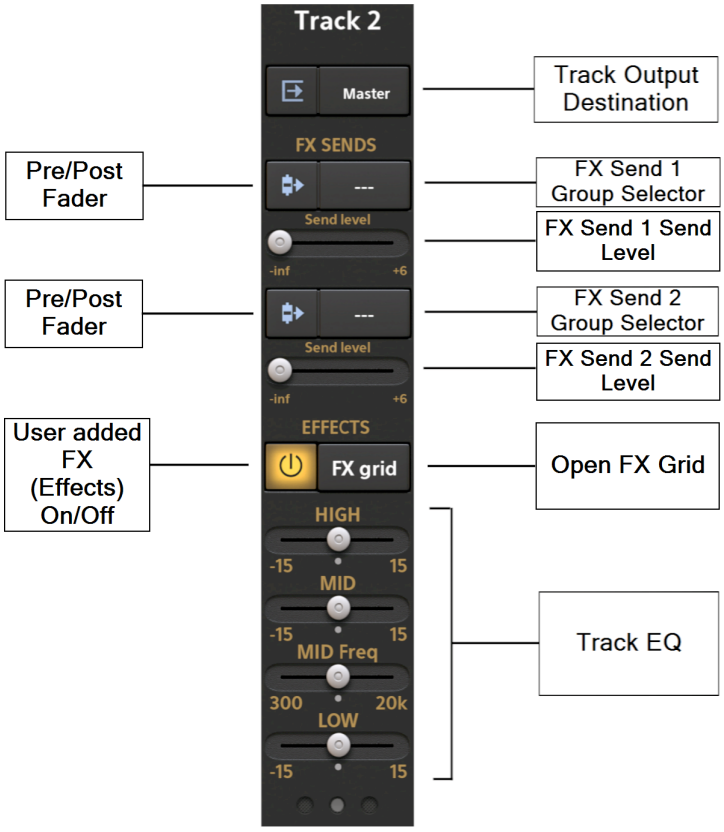
As already stated for Pan controls, be aware that changing the volume level using the fader on the channel strip also changes the volume dial in the Vol/Pan block controls, accessed via the FX Grid screen, and vice versa. Double tap the white fader handle to open the Options to reset to 0dB or to enter a value for greater precision. The slider values are displayed in the Playback Timer Display as they are changed. You can choose between having a vertical volume fader/slider (shown above) or a horizontal slider (below), to save space, in the User Interface section of the Settings. This requires a restart of the app to take effect. Devices with smaller screens will default to using the horizontal slider seen here.

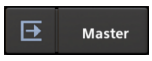
The **Page Selector**  allows you to move between the different pages of the channel strip. Depending on your device's screen size, more, or fewer, pages will be required to show all of the channel strip functions. Tap on the circles representing the pages to move through them. Alternatively, when on the Mixer Screen or Master and Groups Screen, you can move through

the pages of all channel strips displayed simultaneously using the Next 

button at the top left of those screens.

Page Two Jump to Page One Jump to Page Three



The **Track Output**  button opens the track output options seen here.

This allows you to select the output routing for the track's audio *after* it has been through its entire effects chain on the FX Grid. By default, if no Groups have been created by the user, the only option shown in the Track Output will be the Master output. If the user has created groups on the Master and Groups Screen, they will also be displayed as options. Groups can be used for different purposes. Above, one group has been created and is therefore shown. In terms of the Track Output, routing specific tracks into different Groups, or bus channels, allows you to have submixes, each of which can have their overall volume controlled using a single Group fader on the Master and Groups Screen before finally being routed from there to the Master output. Imagine you have each element of a drum kit - the kick drum, the snare drum, the Hi-Hat etc. - on a separate track in your project. Routing all of those elements/tracks to the same Group would allow you to mix them all in relation to each other but then have a single fader to control the overall level of the entire drum kit in your mix.

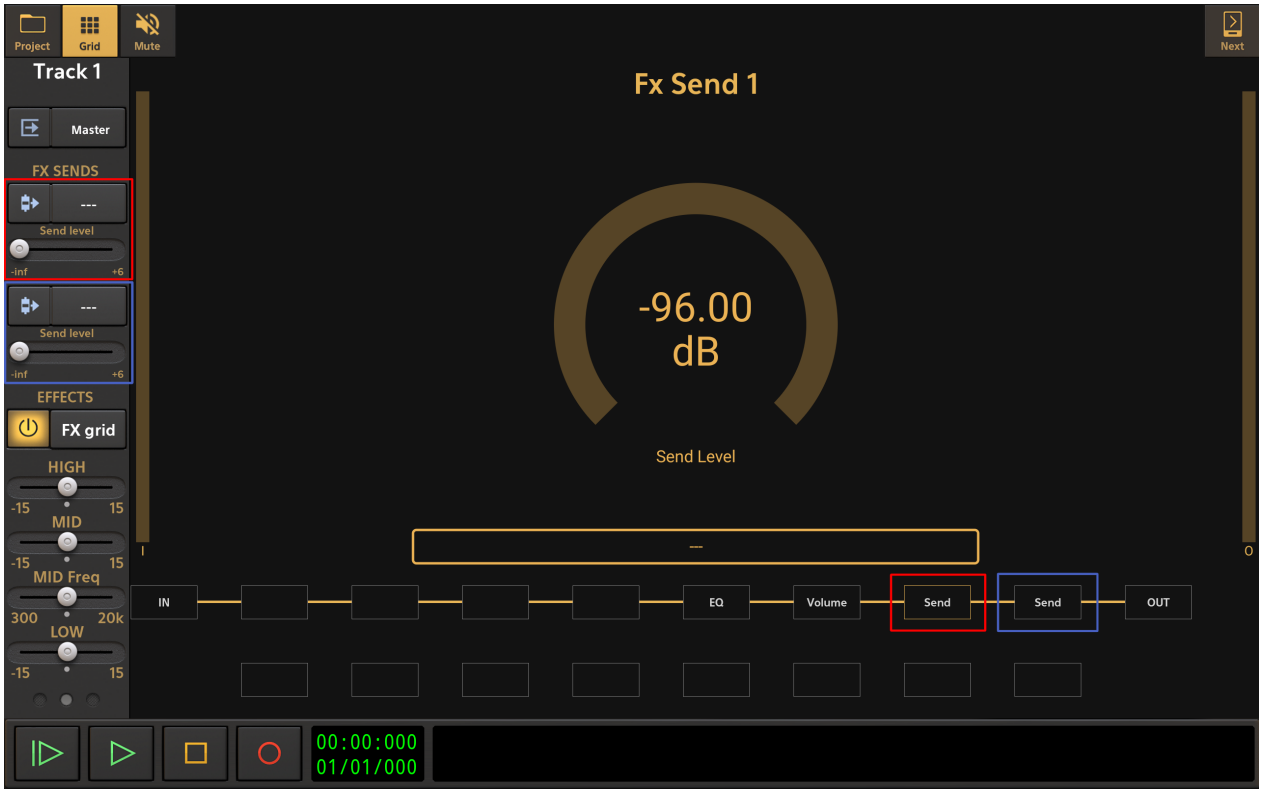
As just mentioned, Groups can be used for mixing purposes, but they can also be used by the track's **FX Sends** as **FX Returns**. FX Sends route a copy of the track's audio to an auxiliary Group with effects placed on it. This Group can then be used to 'return' the processed signals which have passed through its effects back to the Master output, hence why it is referred to as an FX Return. This is a powerful feature which can really help to streamline your project and minimize the CPU load on your device. Put simply, if you want several tracks to use the same effect, with the same parameter setup, or the same chain of effects, you may as well send all of their audio signals through the same FX Return (Group) rather than applying that effect, or effects, separately to each individual track. This means only one instance of the effect, or effects chain, is used instead of several instances and therefore minimizes the CPU usage. By default, Audio Evolution Mobile provides two FX Sends for each track, though more can be added on the FX Grid if you need them. The two default FX Sends are shown on the FX Grid and the two FX Sends shown on the Channel Strip will control the *first two* FX Sends to appear in the FX Grid chain. Initially, this will, of course, be the two default FX Sends but should you add other FX Sends to the chain *before* those two then the controls on the Channel Strip will always control the first two from left to right.

The **FX Send Group Selectors** 

button, on the right, opens this Select Group dialog.

By default, 'No output' is selected since FX Sends aren't used until they are set up by the user. Once you have created a Group, it will appear in this dialog, as can be seen, but you can also press 'New Group' to create your own Group directly from this interface. Select your desired Group to use as your FX Return from the options.

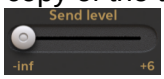
The FX Sends are, like the EQ and Volume/Pan, also shown on the FX Grid. FX Send 1 is highlighted in red and FX Send 2 is highlighted in blue in the image below. As with those other controls, remember that any changes made on the Channel Strip will simultaneously be made in the controls on the FX Grid Page and vice versa (remembering that, as mentioned above, the FX Sends on the Channel Strips always control the *first two* Send blocks displayed on the effects chain from left to right on the FX Grid).



The **Pre/Post Fader**  button, on the left, allows you to select whether you want the track's audio to be sent to the individual FX Return *before* (Pre) or *after* (Post) it passes through the Volume/Pan faders/sliders shown on the Channel strip and in the Volume block on the FX Grid. By default they are in the Post position. Pressing the button you will see the graphic change to indicate whether the FX Send, represented by the blue arrow/triangle, is before or after the fader handle represented. The best way to understand what is happening is probably to open the track's FX Grid. The track's channel strip will still be visible on the left so if you press the Pre/Post Fader buttons for the FX Send, you will be able to see how the Send moves position from being after (Post) the Volume block to being before (Pre) the volume block.

Post-fader is commonly used for (true) effect sends. In this case, the channel fader also influences how much signal is sent to the FX Return Group connected to the FX send. Otherwise, with pre-fader, having the channel fader down would still send audio to the effect, which is usually not desirable.

Pre-fader can be used for monitoring purposes if you have a USB audio interface with more than 2 outputs. You could create a submix using the FX sends and set the output of the bus to for example Output 3-4 on your USB audio interface.

When using an FX Send, the app sends a copy of the track's audio signal to pass through the effect on the FX Return. The **Send Level**  slider determines the level of this audio signal sent to the auxiliary FX Return. In practice, this controls the amount of the effect you will hear applied to the track in the eventual output. Because of this, the FX Return, which has the desired effect placed on its FX Grid, will generally - depending on the type of effect, want to have the Mix level of the effect at 100% wet because the amount of effect applied to each track's signal using their FX Sends and the FX Return is controlled by their Send Level sliders, allowing them all to have different amounts of the effect applied as required. The Send Level is displayed

in the Playback Timer Display as it is changed. Double tap the white slider handle to reset or to enter a value for greater precision.

NOTE. Since Groups can be used for different purposes, as we've just seen, it is wise to get into the habit of renaming your Groups with descriptive names. For example, if you have all of your individual drum tracks routed into a Group, rename that Group 'Drums'. If you have several tracks routed through the same reverb effect on an FX Return, rename that FX Return Group 'Reverb'. To do this, simply long press on the Group's name on its channel strip in the Master and Groups Screen view. Enter your desired name into the dialog which appears. This will really help you keep track of things as you work on your project.

The **FX Grid** 

button, on the right, displays the FX (Effects) Grid for the selected track. The FX Grid allows you to insert effects, either in serial or in parallel, and add additional FX Sends should you require them for the selected track. As already described, some of the blocks shown on the grid represent controls which are simultaneously available on the track's channel strip. For more information on the FX Grid, see here.

The **User Added FX On/Off** 

button, on the left, allows you to enable or disable all of the 'true' effects (as opposed to FX Sends) *you*, the use, have added to the FX Grid for the selected track with one simple button press. This can be very useful if you want to quickly hear how the track sounds without any of the effects you've added. As stated, any FX Sends added by the user *will not* be controlled by this on/off button, and neither will the default, non-user created, blocks which exist on every FX Grid - the EQ block, the Volume/Pan block and the two default Send blocks.

The **Track EQ** 

gives you quick access to the most basic equalizer controls in Audio Evolution Mobile for shaping the frequencies heard on the track. These can be useful for making quick adjustments as you work. You may, though, eventually decide that you want to set them back to their default (inactive) values and use the more advanced EQ controls available to fine tune your mix before exporting. If so, double tap the slider handles, and select 'Reset EQ to Center' from the Options pop-up which appears. This pop-up also allows you to enter a value for the slider's position should you need greater position. If you'd rather not have the EQ displayed on the channel strip, to save space, you can turn its display off in the Mixer Channel Display section of the Settings. The slider values (for all sliders/fader controls within the channel strip) are displayed in the Playback Timer Display 

as they are changed.

The EQ sliders on the channel strip also control the parameters of the EQ, always shown in the track's FX Grid (Effects Grid) and highlighted below. The EQ interface accessed via the FX Grid screen also offers a Low Mid band which doesn't fit on the channel strip display. Be aware, then, that changing the sliders on the channel strip will simultaneously change the dials on the EQ display and vice versa.

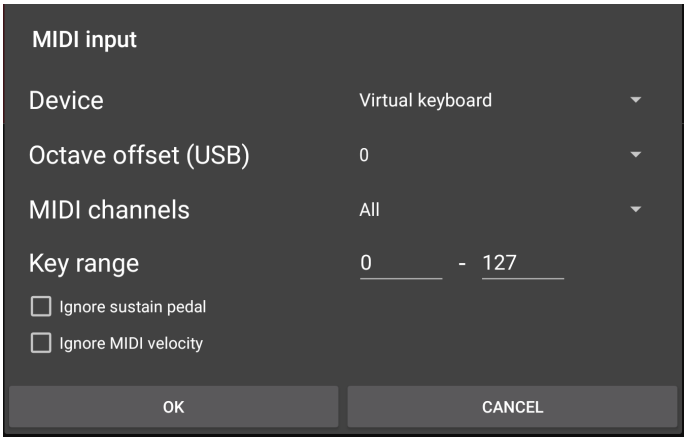

Project
Grid
Preset
Mute
Next
Track 1
Master
FX SENDS

Send level
-inf
+6

Send level
-inf
+6
EFFECTS
FX grid
HIGH
-15
15
MID
-15
15
MID Freq
300
20k
LOW
-15
15
4-Band EQ
0.00 dB
High Gain
0.00 dB
High Mid Gain
2762 Hz
High Mid Freq
0.00 dB
Low Mid Gain
419 Hz
Low Mid Freq
I
O
IN
EQ
Volume
Send
Send
OUT
00:00:000
01/01/000

Page Three Jump to Page One Jump to Page Two

The **MIDI Input**  button opens the following dialog to allow you to specify the MIDI input options for the selected track. This is where you can select whether the **Virtual keyboard** or the **Drum pads** are displayed onscreen for playing the selected virtual instrument (this will only have effect when using a MIDI instrument track, not a Drum Pattern track since the latter requires to enter (quantized) MIDI events through the pattern editor). You can also select any connected MIDI device as the MIDI input for the track.



The **Octave offset** gives you the option to transpose incoming MIDI events by 1 or 2 octaves up or down. This can be useful when you have a small MIDI keyboard without octave buttons.

The **Channel filter** can be used to record only from a specific MIDI channel. If you for instance have a split area on your MIDI keyboard or have multiple MIDI keyboards attached, you could for example create two tracks, with one having a channel filter for MIDI channel 1 and the other for MIDI channel 2. With both tracks armed, you could record onto separate tracks where MIDI events with channel 1 would be recorded onto one track and MIDI events with channel 2 being recorded on the other track.

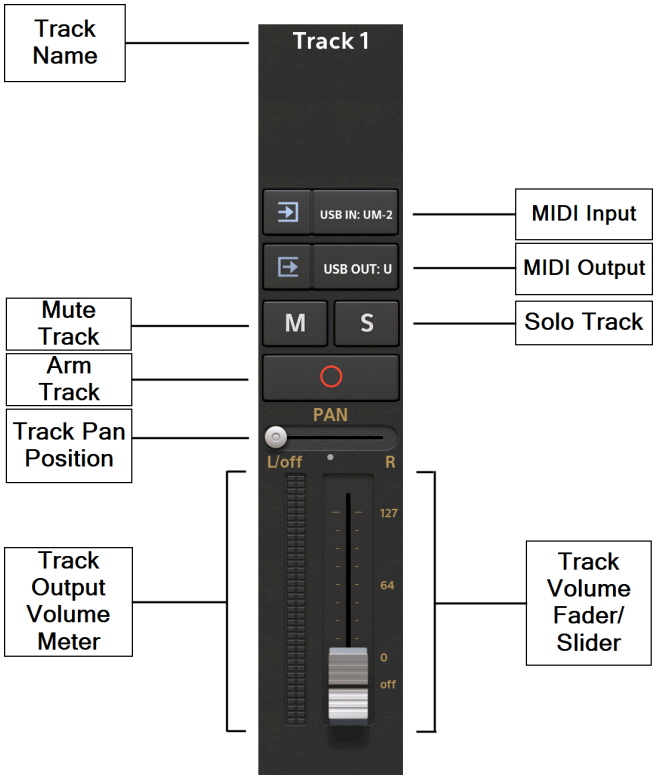
NOTE. In order to use the on-screen drum pads to play drums, you must remember to select a drum instrument/preset for use on a *MIDI Instrument track* rather than creating a Drum Pattern track, which will expect you to be using the drum pattern sequencer grid rather than inputting and recording a live finger-drumming performance. Drum presets are usually in bank 128 when using Soundfonts.

MIDI Channel Strips

The MIDI Channel Strip is different from the other types in that it does not produce audio. The MIDI events from the MIDI clips are meant to be sent to outboard MIDI equipment. They do not produce any audio inside the app.

NOTE. The MIDI channel strip functions are, like the audio channel strip's, shown over several 'pages'. The number of pages needed to cover the functions will vary depending on the size of the device screen. As such, you may not see all of the functions spread over two pages as shown here, but they will all be present nonetheless. Simply use the Page Selector at the bottom to access the different pages or, when on the Mixer Screen, move through the pages of all channel strips displayed simultaneously using the Next 

button at the top left of those screens.



At the top of each channel strip is the **Track Name** 

. You can long-press on this display of the track name on the channel strip to open a dialog which will allow you to change the name. You can also rename your tracks using the Track Options which are accessed by long pressing in an empty area, containing no clips, of the desired track in the Timeline. Then select Rename Track and enter your chosen track name which will then be displayed at the top of tracks channel strip.

The **Mute** 

button allows you to mute (silence) the selected track so that it is not sent to the selected MIDI output. Muting a track manually by pressing this button will light the button

yellow as seen here 

. Tracks will be automatically muted when another track, or tracks, have been soloed (see below). Tracks which have been automatically muted due to the soloing of other tracks, are indicated by a yellow rectangle around their Mute button like this 

. Long pressing a Mute button will open an Options dialog allowing you to **Deactivate all mute buttons** at once.

The **Solo** 

button allows you to isolate the selected track (and temporarily mute all other tracks) so that it is the only one heard. You can, though, simultaneously solo as many tracks, or Groups, as you want, allowing you to hear the selection you require whilst muting the other tracks. Pressing the Solo button solos the track and lights the button green as seen here 

. Long pressing a Solo button will open an Options dialog allowing you to **Deactivate all solo buttons** at once.

The **Arm** 
button, when active, arms the selected track to be recorded to when the Record 
button is pressed. For more information on this, see here. When 'Virtual keyboard' is selected as MIDI input, the virtual keyboard will be displayed, allowing to play and send MIDI note events to external MIDI equipment.

The **Track Pan Position** 

slider will send a MIDI panning event to the selected MIDI output. Double tap the Track Pan Position control to open the Options to reset to center or to enter a value for greater precision. The slider values (for all sliders/fader controls within the channel strip) are displayed in the Playback Timer Display 

as they are changed. When the slider is positioned all the way to the left, it is in the 'Off' position (which it is set to by default). That means that no MIDI panning event is sent when starting playback or when moving the slider.

The **Track Volume Output Meter** 
displays the velocity of MIDI events in real time. You can choose between having vertical volume display/controls (shown above) or horizontal display/controls (see below in the Track Volume Fader/Slider section), to save space, in the User Interface section of the Settings. Devices with smaller screens will default to using the horizontal display/controls.

The **Track Volume Fader/Slider** 

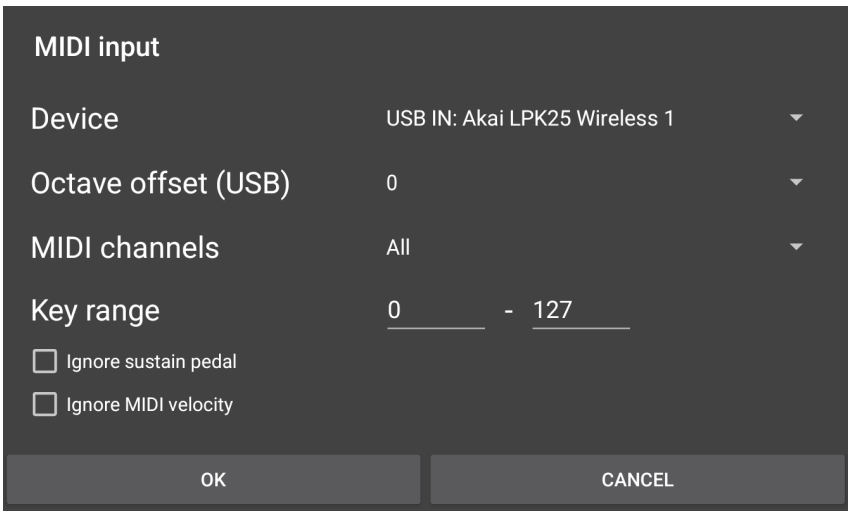
allows you to adjust the volume level of the track within the overall mix. When the fader is positioned all the way down, it is in the 'Off' position (which it is set to by default). That means that no MIDI volume event is sent when starting playback or when moving the slider. In any other position, the app will send a MIDI volume event between 0 and 127 to the MIDI output on the MIDI channel of the track.

The **Page Selector**  allows you to move between the different pages of the channel strip. Depending on your device's screen size, more, or fewer, pages will be required to show all of the channel strip functions. Tap on the circles representing the pages to move through them. Alternatively, when on the Mixer Screen or Master and Groups Screen, you can move through the pages of all channel strips displayed simultaneously using the Next 

button at the top left of those screens.

The **MIDI Input** 

button opens the following dialog to allow you to specify the MIDI input options for the selected track. This is where you can select a MIDI input from a connected device (like a USB MIDI keyboard) or the **Virtual keyboard.**

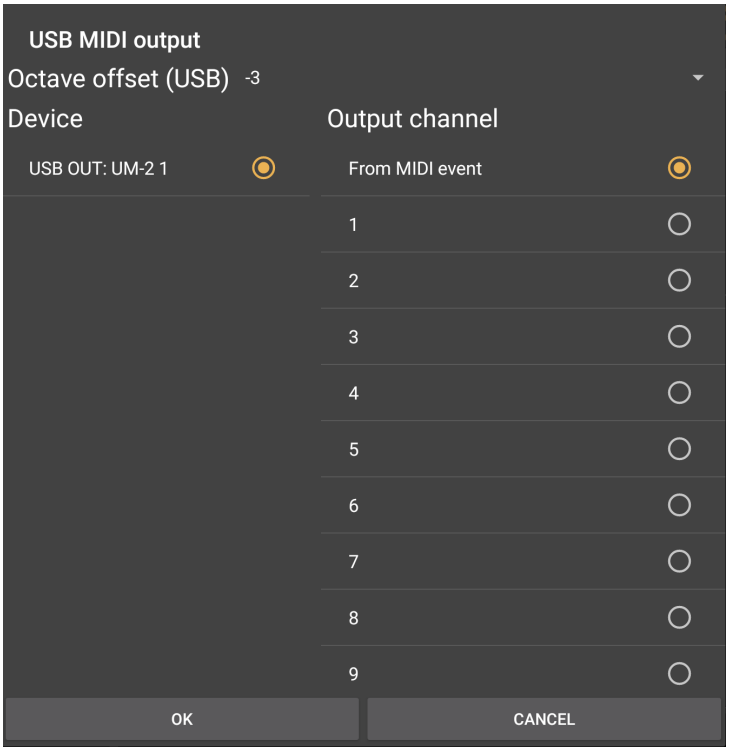


The **Octave offset** gives you the option to transpose incoming MIDI events by 1 or 2 octaves up or down. This can be useful when you have a small MIDI keyboard without octave buttons.

The **Channel filter** can be used to record only from a specific MIDI channel. If you for instance have a split area on your MIDI keyboard or have multiple MIDI keyboards attached, you could for example create two tracks, with one having a channel filter for MIDI channel 1 and the other for MIDI channel 2. With both tracks armed, you could record onto separate tracks where MIDI events with channel 1 would be recorded onto one track and MIDI events with channel 2 being recorded on the other track.

The **MIDI Output** 

button opens the MIDI output options seen here.



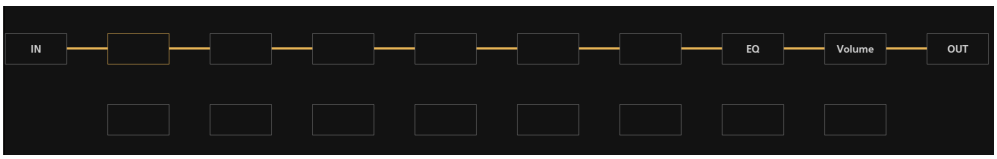
This allows you to select the MIDI output where the MIDI events of this track are sent to. In this example, events are sent to the MIDI output of a USB MIDI interface.

The **Output channel** can be either be set to 'From MIDI event' where the MIDI events are just sent as they are including their MIDI channel information, or you can choose a MIDI channel to change the MIDI channel of the outgoing events.

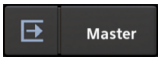
Master and Group Channel Strips

The Master channel strip and the channel strips for Groups contain controls which will be familiar from the Audio Track Channel Strips with a few omissions which are not pertinent for the Master or Groups as they are *only* channels - or 'buses' - and not 'tracks' as such.

As can be seen, there is no Arm button or Input Selector as you cannot record to a Group or the Master - again, they are not tracks. They do not have FX Sends either as these cannot be used on the Master channel or Groups (though, of course, Groups might be used *by* the FX Sends of audio and MIDI tracks as FX Returns). As such, unlike the audio and MIDI tracks, no Sends are displayed on their FX Grid setup, see below.

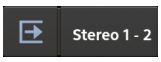


It is also worth mentioning the **Output** options for the Master channel and Group channels:

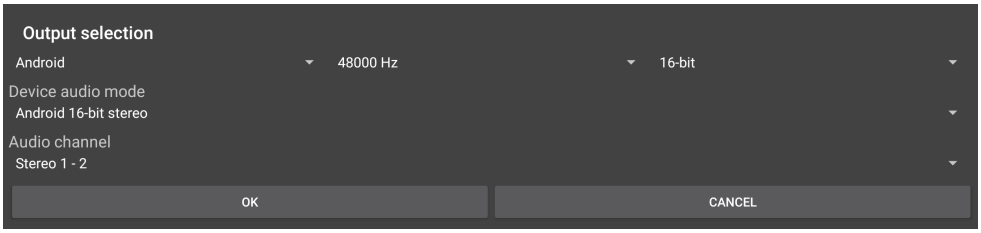
Pressing the **Output** 

button on a Group channel strip will give the option of No Output, Master or any other Group/Bus which is present in the project. If you use a USB audio

interface with more than 2 outputs in combination with the eXtream Software Development USB Audio Driver, you can also assign the output of the bus to a specific stereo output pair of the USB audio interface. For example, if you have 6 mono outputs, options 'Stereo 1-2', 'Stereo 3-4' and 'Stereo 5-6' can be selected. Please note that you cannot route audio from two busses to one stereo hardware output pair: the selection needs to be unique. You can use this feature for example to provide separate submixes or route to outboard effects.

Pressing the **Output** 

button on the Master Channel Strip opens the following Output Selection dialog.



The options available for the Master output depend on whether you have a USB audio interface attached or not. If not, the only option available will be 'Android', as shown above, meaning your device itself, its own speakers or headphone output. But, if you do have a USB audio interface attached, *and* you are using the eXtream Software Development USB Audio Driver, the default Master output will switch to use that USB audio interface instead.

Lastly, it's important to realize that Groups can be renamed by long pressing on their current name on their channel strip. Alternatively, long pressing in the area on their channel strip just beneath their name will open the **Group Options** seen here.

As can be seen, these options allow you to add further Groups to your project (also possible with the Add bus 

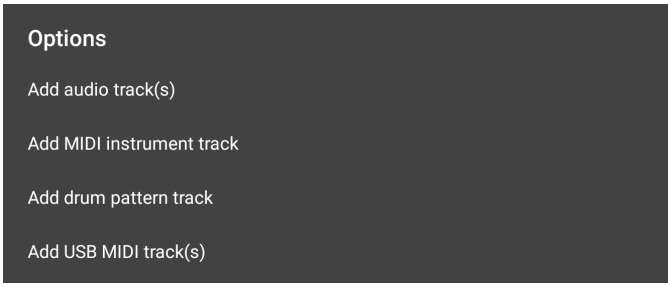
button at the top of the Master Screen), remove the Group long pressed upon to open these options, and also another way to rename that Group.

Adding Tracks

Adding audio tracks to your project couldn't be easier: if you have Automatic Track Creation selected in the Audio section of the Settings 

, you can create a new audio track every time you press the Record  button (as long as no other audio track has been armed beforehand). This allows you to very quickly launch the app and immediately start recording audio. Automatic Track Creation is on by default. Audio tracks can also be added manually as detailed below.

MIDI tracks must be added manually, but the process is very straightforward. Simply press the Add Track  button towards the bottom right of the Arranger Screen to open the following dialog.



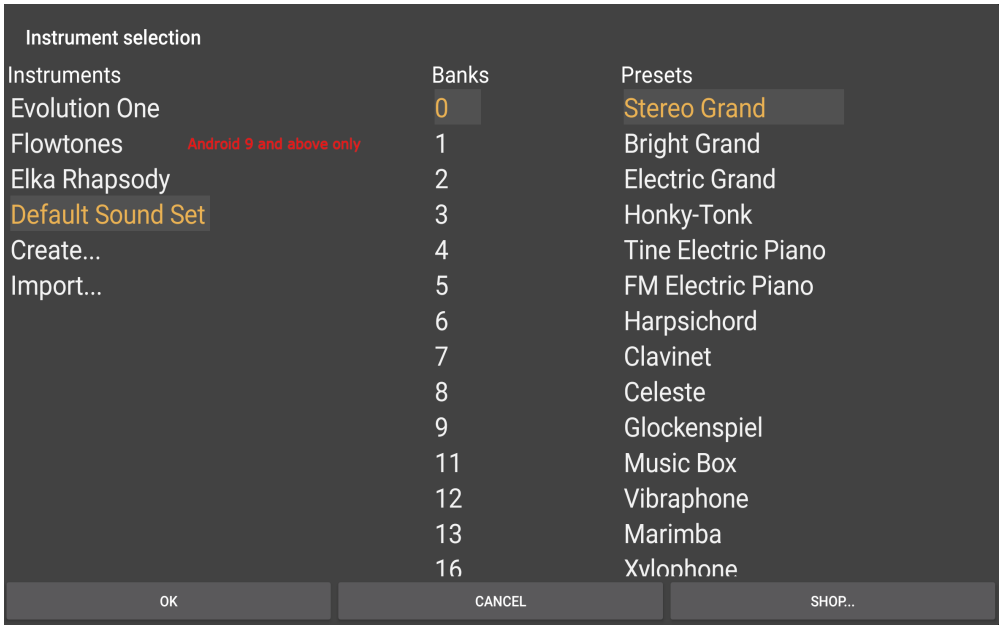
As can be seen, this allows you to add all forms of MIDI track and also manually add audio tracks to your project. Selecting **Add audio track(s)** or **Add USB MIDI track(s)** will then ask you how many of those type of tracks you want to add.

NOTE. Remember, if you create audio tracks in this way, you will need to arm the track first in order to record to it. Information on how to do that can be found here.

If you add an audio track with a USB audio interface connected, the app will display the **Track Input** dialog where you can determine which input you would like to record from and if you would like to record in mono or stereo. For example, if you have only one guitar connected to a stereo USB audio interface, you need to select Mono 1 (if the guitar is connected to input 1) or Mono 2 (if the guitar is connected to input 2). If you would keep 'Stereo 1-2' as input, the audio would be recorded as stereo, where one side would be silent since nothing was connected and no panning would be possible. If you accidentally run into this situation after recording, you can use the **Split into two mono tracks** option from the Track pop-up menu. If you asked to add multiple tracks, the **Track Input** dialog will be displayed several times after another, such that you can quickly set up the inputs of subsequent tracks.

Selecting **Add MIDI instrument track** or **Add drum pattern track** will open a virtual Instruments selection dialog from where you can select the instrument you wish to control with that MIDI track (you can always change the instrument used later if you change your mind).

If you select **Add MIDI instrument track**, the following Instrument Selection dialog will open.



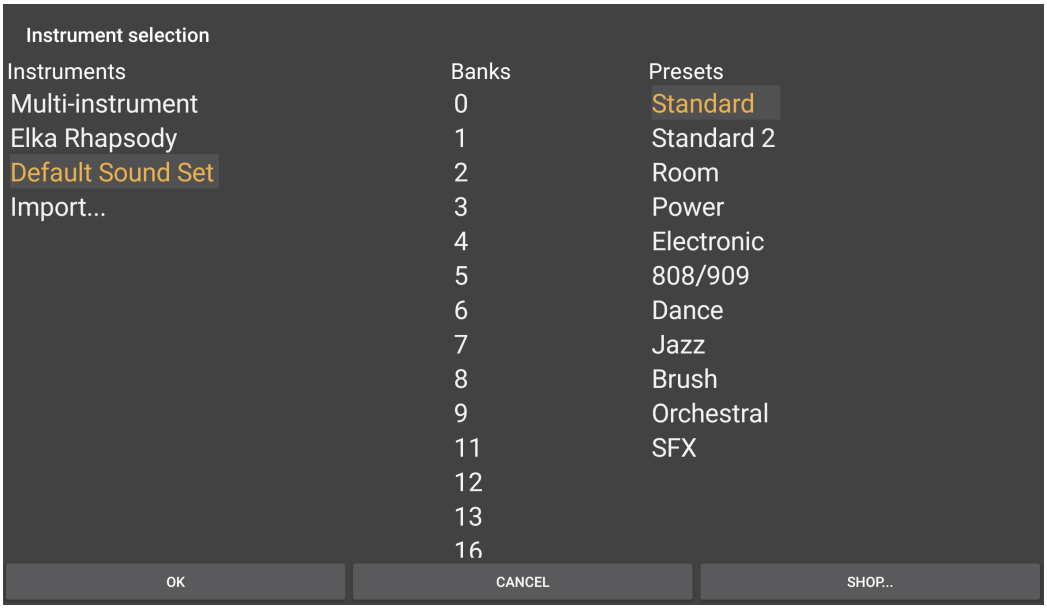
On the left side, the **Instruments** you have available are listed. The first time you select Add MIDI instrument track to open this dialog, you will be prompted to download the free Default Sound Set (*) soundfont. The Evolution One synthesizer and, if you're using Android 9 and above, Toneboosters Flowtones synthesizer, will also be listed, as will the option to Create your own SFZ instrument. This is also the place where any Digital Sound Factory soundfonts you purchase from the Shop will appear. The soundfont shop can be accessed by pressing the **Shop** button at the bottom right of the dialog. Shown in the screenshot above is the Digital Sound Factory **Elka Rhapsody** instrument which is available for free from the shop. Any instruments you create will also be shown in this instrument list as will any soundfonts or SFZ instruments you manually copy into your SoundFonts directory. You can also directly import Soundfonts from elsewhere on your device using the Import... option, though please be aware that this only works with sf2 instruments as they are self-contained files unlike sfz instruments.

As can be seen, soundfonts can sometimes contain different **Banks** of presets and these can be selected between in the middle.

Finally, on the right, are the individual **Presets**. These may be completely different instruments, as seen above, or different variations of the same instrument. Evolution One and Flowtones presets are selected from within the synthesizers interfaces and are not shown in this dialog.

Once you have selected your instrument, bank and preset, press **OK** to confirm, load your selection and take you back to the Arranger Screen from where you can record to, compose on and edit your MIDI track.

If you select **Add drum pattern track** from the Add Track options, you will see the same dialog but it will, by default, take you to Bank 128 of the Default Sound Set, where the drum presets can be found, as seen below.



The Drum Pattern Sequencer in Audio Evolution Mobile is set up to conform to General MIDI drum mapping (https://www.midi.org/specifications-old/item/gm-level-1-sound-set) - meaning which MIDI note, or keyboard key, each drum type (Kick, Snare, Hat etc.) is assigned to - and requires this mapping for the correct drum types to be assigned to the correct row of the Drum Pattern sequencer. The Default Sound Set is a General MIDI (GM) soundfont, meaning all of its mappings conform to the standard, including its drum presets. All of the Digital Sound Factory drum soundfonts available in the shop also conform to the correct GM MIDI mapping to be used seamlessly within the Drum Pattern sequencer. Any purchased soundfonts will be shown in the Instruments list on the left of the dialog, ready to be selected.

Once you've selected your drum kit preset, press **OK** to confirm and launch the Drum Pattern sequencer. Alternatively, you can select **Multi-instrument** which allows you to create your own custom drum kit from different elements. Full information on creating and using multi-instrument drum pattern instruments can be found here.

NOTES. You can, and may wish to, use a drum preset on a MIDI Instrument track rather than a Drum Pattern track. This will allow you to access greater editing tools than are available within the Drum Pattern sequencer but it will also allow you to use the on-screen drum pads (by pressing the Open Virtual Keyboard button or the Arm button on the channel strip) to play the drums and record a live finger-drumming performance. Just remember that each drum type is mapped to a single note on the Piano Roll Editor if you want to edit them.

Drum Pattern tracks can also be converted to MIDI Instrument tracks, and vice versa, after they have been created from within the Track Options. Long press in an empty area of the track, not containing a clip, to open the track options or access them from within the Clip/Track Options by pressing the three dot button on a selected clip on the track.

* The Default Sound Set soundfont used by Audio Evolution Mobile is the GeneralUser GS soundfont and is the work of S. Christian Collins. S. Christian Collins' website can be found here http://schristiancollins.com/index.php , where there is information about virtual instruments, the soundfont and SFZ formats, and additional free soundfont instruments to download, as well as examples of his own music.

Importing Audio and MIDI

NOTE. For Android 11 and above, please also refer to the section 'Scoped Storage for Android 11 and above'.

There are several ways to import audio and MIDI into Audio Evolution Mobile. The first uses Audio Evolution Mobile's built in browser to import files from within the app itself. The second allows you to import files directly into Audio Evolution Mobile using other apps (like file managers or Google Drive) on your device. The third way is to import a song from the music database.

NOTE. You can also directly import audio Sample Loops, with time stretching and pitch shifting to match the current project if they have been correctly named. This is covered in its own section next.

Importing from within Audio Evolution Mobile

In order to import audio and MIDI files into Audio Evolution Mobile from within the app, you need to press the Project 

button on the Arranger Screen. From the Options screen which opens, select the '**Import audio/MIDI file**' option at the top. This will open Audio Evolution Mobile's file browser which will allow you to navigate to the place where your audio and MIDI files are being stored on your device. From there it is simply a case of either tapping on the file name in the browser to import it, or of selecting multiple files using the check-boxes to the left of the file names, then tapping on the name of one of the files selected to import all of them, each to their own track within Audio Evolution Mobile.

NOTE. If you long-press any audio or MIDI file from within the file browser, you will be given the options to either **'Play using media player'**, **'Delete'** or **'Share'** the file.

You will notice that the browser has four buttons and one option at the top under the text which identifies the currently displayed location within the device's storage.

The first  button is a **'Move directory/folder up'** button, common to all file managers, to allow you to navigate through your device's file system.

The next  button is a shortcut button which will take you immediately to the **Samples folder** of your current project.

The third  button is another shortcut, this time to the device's **Music folder**. If you'd like to play along existing music tracks for example, you can import your music tracks using this button or by using the **Importing a song from the Music Database** option from the **Project** menu.

The final  button is the **SD card button**. This allows you to jump directly to the top folder of the internal storage or an SD card - you can select which from the pop-up which appears.

You will also see that the browser has an option to **Insert at Time Marker**. This option only applies when importing a single audio file and will be ignored when importing a MIDI file or

multiple audio files. Selecting this will import your audio file onto the currently selected track at the position of the green Time Marker  . When doing this, it is important to note that when importing audio onto a track which already contains audio clips, it must have the same number of audio channels as the rest of the clips on the track: stereo audio tracks can only contain stereo (2 audio channels) clips and mono audio tracks can only contain mono (1 audio channel) clips. It is also worth noting that, if importing your audio at the Time Marker onto an existing track would cause the imported clip to overlap a clip already present on the track, the clip already present will be trimmed to avoid the two audio clips overlapping. All of the audio of the clip already present *is* still there though: just use the 'Clip Trimming Handles' to pull out and reveal the audio which was hidden by the resizing process if necessary.

By default, if the 'Insert at Time Marker' option is not selected, single audio clips - like MIDI clips and multiple audio clips - are imported onto new tracks at the beginning of the timeline.

NOTE. If you want your imported clip to be on an existing track rather than its own track, but don't want to use the 'Import at Time Marker' function, once it's imported onto its own new track, simply tap-hold-and-drag the clip to the desired track. For this, you need to have the **Edit** button selected if you are in the Beginner user interface mode.

Importing directly from other apps

You can also import your audio and MIDI from outside of Audio Evolution Mobile using other apps, such as your favorite file browser. In most file browsers, long press on the audio or MIDI file name to select it. Then select **'Open with'**, **'Send to'** or **'Share with'** from the options. This will display a selection of the apps on your device capable of opening that file type, one of which should be Audio Evolution Mobile. Select Audio Evolution Mobile. If you already have Audio Evolution Mobile running in the background, the selected file will be imported into the current project. If you do not have Audio Evolution Mobile running, it will automatically open and the selected track will be imported into a new project.

You can also use Google Drive for this purpose to import files stored on your Drive account. From within the Drive app, simply select the **'Send a copy'** option for the file you want to import and select Audio Evolution Mobile from the options shown.

Other apps may also feature a Share option.

Importing a song from the Music Database

If you're more used to using media players on your mobile device than finding your way around its storage using a file browser, you might find the 'Import song from Music Database' option suits you best. Your Android device has a system level app which automatically scans your device and places all references to media (video, audio, etc.) files in a global media database. It is this database that most media players use to let their users browse through the music (or video) stored on both the internal storage and SD card of their device.

As such, Audio Evolution Mobile includes a media-player-like interface with its 'Import Song from Music Database' option. This displays all of the albums (folders) containing songs (audio or MIDI files) you have stored on your device and allows you to navigate through, and preview them

without worrying about the file system. It also contains a Search function to help you more easily find the song/track you're looking for.

To use this function, press the Project 

button on the Arranger screen and select **Import song from music database**. The top level shows all of the albums on your device. Clicking on an album will display all of the songs contained within that album. Use the Play  buttons to audition any of the songs/tracks. Tap on the song name to import it into your project at the beginning of a new track on the timeline. Tap on the magnifying glass  symbol to the right of the top bar to search for your song by name.

Importing multi-channel WAV/FLAC files

Next to mono and stereo audio files, Audio Evolution Mobile can also import multi-channel WAV and FLAC files. These files could for example come from multitrack recording devices (digital mixers etc.) and can contain a multitude of tracks. After selecting such a file for import, the app will gather all individual tracks, write them to separate WAV files and import them to separate audio tracks such that they can be individually edited.

Notes on importing Audio

If you import an audio track into a project which doesn't already contain any audio clips, and the audio clip you want to import has a different sample rate than the project sample rate, you will be asked whether you want to resample the clip being imported to the project sample rate or import the clip at its original sample rate and change the project's sample rate to match it. Once an audio clip exists in the project, the project's sample rate is fixed and cannot be changed. As such, all audio imported after that point will be resampled to match that sample rate.

NOTE. It is important to remember that the lowest latency possible can only be achieved when using the device's native sample rate. As such, if you choose to use the sample rate of the audio file you're importing, you might find your whole project will then be fixed to a sample rate other than the native sample rate meaning you are unable to achieve low latency (without using a USB audio interface) for the entire lifetime of the project. This is particularly worth considering if you anticipate that you are going to be adding virtual instruments to your project at some point.

Regarding audio formats, WAV files, AIFF files and FLAC files will be imported without being converted and can co-exist in a project. All other supported audio formats, such as MP3 files, will be converted to WAV format upon import to ensure maximum performance.

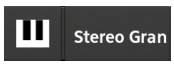
As already mentioned above, if importing audio onto a track which already contains audio clips, it *must* have the same number of audio channels as the rest of the clips on the track: stereo audio tracks can only contain stereo (2 audio channels) clips and mono audio tracks can only contain mono (1 audio channel) clips.

Notes on importing MIDI

MIDI files can contain more than one MIDI channel/track. What's more, there are two different

ways this multi-channel information is stored depending on whether the MIDI file is a **MIDI Type 1** file or a **MIDI Type 0** file. MIDI Type 1 files contain separate information for each channel. MIDI Type 0 files merge all of the channels into one track, though the MIDI channel information is still retained. Thus, if you import a MIDI Type 1 file into Audio Evolution Mobile, each channel within the file will be automatically imported onto its own track on the timeline. The content of each track will be correctly placed in relation to each other to maintain the correct timing and arrangement of the original MIDI file. If, however, you import a MIDI Type 0 file, all of the channels are combined and will be imported as a single clip on a single track on the timeline. Since the MIDI channel information *is* retained in the MIDI Type 0 file though, you can now use the Split MIDI channels function to have each MIDI channel contained in the original clip onto its own track on the timeline if that's what you want.

MIDI files can also contain information identifying which instrument is to be used for playback based on the General MIDI Sound Set (https://www.midi.org/specifications-old/item/gm-level-1-sound-set). This information is stored as a Program Change number and may, or may not, be included in the MIDI file you import depending on the application which originally exported the file. This is the reason why you might find that all of your imported MIDI tracks initially have the Stereo Grand instrument, from the Default Sound Set, applied.

In order to allocate the instrument of your choice to imported MIDI tracks, simply press the instrument name 

in the Channel Strip to open the Instrument Selection screen. From here you can easily select the virtual instrument you want to use for that track.

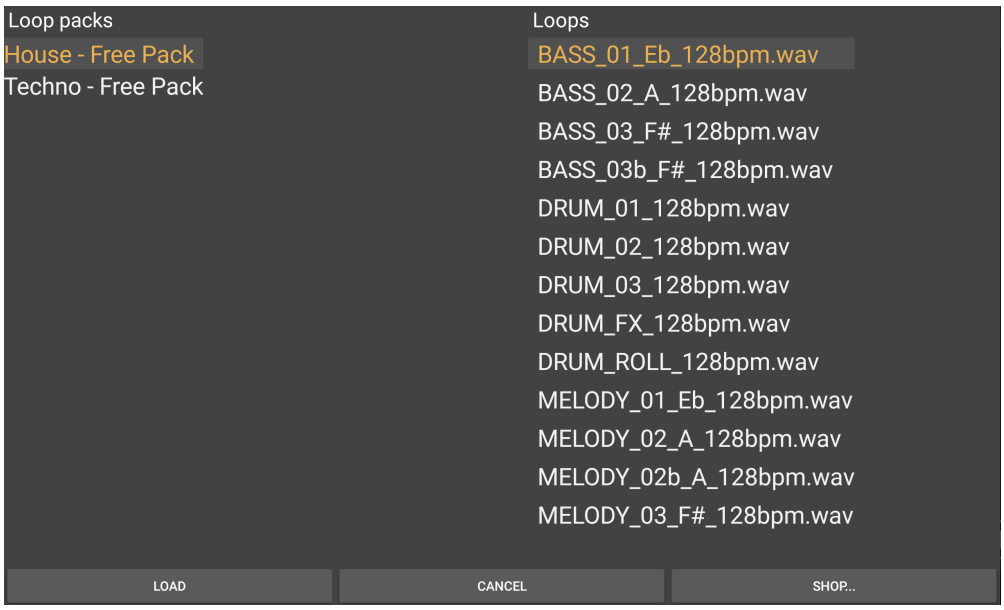
NOTE. You can also manually place Program Change numbers within the Piano Roll editor, which will automatically change the instrument used for playback at that point, as long as the soundfont you are using has its instruments mapped according to the General MIDI Sound Set. If it doesn't use that mapping, you will need to experiment to find what Program Change numbers are applied to which instrument patches.

Importing Audio Loops from Function Loops

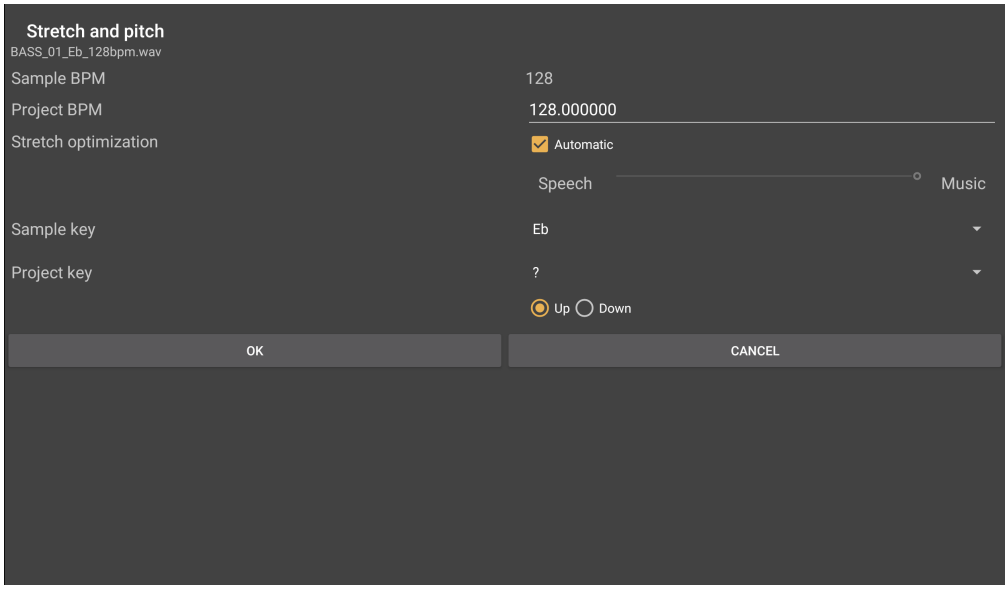
In collaboration with Function Loops, Audio Evolution Mobile provides a number of free and commercial loop packs.

To import an audio loop, select **Import sample loops** from the Project 

menu. The following dialog will appear, displaying the loop packs and their contents that are present on your device. Press the **Shop** button to display the loop packs that you can download and purchase. Function Loops have very kindly allowed two of their packs to be made available for free to all Audio Evolution Mobile users, as can be seen in the screenshot. Download them from the Shop. All other loop packs require an in-app purchase.



As can be seen in the loop browser, selecting a loop pack from the left column will display the loops it contains in the right column. You can tap on a loop to preview it. Select the loop you require and press **Load** to open the following Stretch and Pitch dialog.



This dialog allows you to tailor the loop to your project as it is imported by adjusting the BPM (Beats Per Minute tempo) and key (pitch). This is achieved by stretching the clip to match the BPM and pitch-shifting it to match the key. As can be seen, all Function Loops loops are named following a naming convention which Audio Evolution Mobile understands and uses for this import process.

As you can see the dialog displays the **Sample BPM** at the top.

Next is the **Project BPM**. Depending on the project status, this setting may or may not display the current project temp BPM by default. If the audio loop being imported is to be the first track in an empty project, the project BPM will be set to the same BPM as the loop sample, as can be seen above. If you load the loop using this setting the project tempo BPM will automatically be changed to the value shown as the loop is imported.

If, however, the project already contains a track at the point at which you import an audio loop, the Project BPM in this dialog *will*, by default, display the current project BPM. In either case, you can of course enter your own BPM value manually, but please note that the project BPM will be changed according to match the value set for the last loop imported so if you don't want that to be the overall project tempo BPM, you will have to remember to change it again afterwards.

Stretch optimization allows you to specify if the stretch algorithm should be optimized for a musical or speech based clip. In most situations, having the **Automatic** box checked will give you the best results.

Next, we move onto the pitch adjustment section. First is the **Sample Key**. This selects the key the sample loop is in according to the naming convention - in this case, the key of Eb. If, for some reason, the wrong key has been entered it can be changed using the drop-down selection.

Project Key allows you to select the key the project is in if it already contains musical tracks. Select from the drop-down list.

If the sample key differs from the project key, it will need to be pitch-shifted, or transposed, to match the project key otherwise they won't match musically. This can be done by pitch-shifting upwards or downwards until the same key is reached on different octaves. Thus, the **Up** and **Down** selections allow you to decide which direction you'd like the pitch-shifting take.

Once you have everything set up, press **OK** and the loop will be imported into your project, stretched to have the correct BPM value and pitch-shifted to have the same key as the other elements in your project.

For information on how to create repeats of your imported loop on the track timeline and for more information about audio editing generally, please see here.

Preparing your own Loops for Import

You may have read the last segment and thought that it would be useful to be able to import your own loops using the Stretch and Pitch dialog rather than just importing them using the regular audio import method described here. This is easily done but it does require your sample loops to follow the naming convention which Audio Evolution Mobile uses for this process. As such, there might be a bit of preparation you need to do first.

When **Import sample loops** is selected from the Project options, Audio Evolution Mobile looks in the AudioEvolution > SamplePacks folder on your device for *folders* containing samples. By default, there is no folder for user samples so the first thing you want to do is create a folder for your samples to be placed in.

Next, you want to rename your sample loops if they don't already follow the app's naming convention. The naming convention is as follows.

NameA_NameB_Key_000bpm

The parts in green are user defined variables. The parts in red must appear as they are shown.

NameA allows you to name your sample so you can identify it.

NameB allows you to have a second part to the name if required, it can be missed out if not (though only have one underscore (_) between NameA and Key if you do that). If you need to add a third part to the name, you can, just make sure it is separated using an underscore (_) from the other elements.

Key is where you would put the key for the sample loop. Use any of "C", "C#", "D", "Eb", "E", "F", "F#", "G", "Ab", "A", "Bb", "B".

Finally 000 is where you put the numerical BPM value followed by lowercase bpm as shown in red. If the bpm is lower than 100, prepend it by a 0, like 090 when the bpm is 90.

So, for example, if your original sample loop is named 'My Bass Loop Number 1.wav', clearly that doesn't conform to the naming convention so you would need to rename it to something like 'Bass_01_D_120bpm.wav'.

Once you've renamed your loops accordingly, simply copy and paste them in to the folder you created in the AudioEvolution > SamplePacks folder on your device.

Now, when you select **Import sample loops** from the Project options your folder should be included in the Loop Packs on the left of the selection dialog shown at the top of this section, and your loops will be shown on the right when your folder is selected.

Recording and Editing Audio

Recording Audio

There are several ways to record audio in Audio Evolution Mobile:

- Using the device's microphone: easy, but low quality. If used in combination with the device's speaker, anything you play will also be picked up by the mic and hence recorded. This will cause an undesired 'doubling' effect. If you want to use the device's mic, it's best to combine it with headphones plugged in to the device.
- A headset: devices featuring a headphones socket that accepts a 3.5mm jack can be used with a headset, meaning a combination of headphones and mic. The mic is usually placed on the part where you can for instance change headphones volume. This will give a better quality already than the device's mic since the input (mic) and output (headphones) are separated, such that usually no 'doubling' effect takes place. 'Usually', because if you do get this effect and the output is recorded back into a new track, it means that the input pole is touching one of the output poles. So, the analogue section is short-circuited in this case. Please take note that in no situation, Audio Evolution Mobile will ever record its own output onto a new track by itself, so any event of this happening will always be caused by connected equipment.
- A USB audio interface (or USB mic): the best solution. This offers the highest quality and the best connectivity options. You can usually record in higher sample rates and in higher resolutions.For Android, you are always offered the choice between using the Android driver and eXtream Software Development's custom USB audio driver (the latter requiring an in-app purchase). Please see this section for more information.
- Bluetooth: often unsuitable because of high latency. Unless you are only playing back audio and not recording audio and not playing virtual instruments in real-time.

The first thing you'll want to do is make sure that you have latency compensation correctly set up for your device if you are not using a USB audio interface with our custom developed audio driver. This can be achieved using Audio Evolution Mobile's built in automated latency test. Please see here for details on how to do this.

If you are using a USB audio interface, with the benefit of dedicated inputs for mics and instruments, make sure you connect, set up your interface and connect your mics and instruments before trying to record your audio.

NOTE. If you are using a microphone to record your audio - either your device's microphone or a higher quality microphone connected via your USB audio interface - you'll want to use a pair of headphones to avoid the playback of other tracks (from the device speakers) being included on the new recording. Any type of headphones will do, but ideally you want 'closed back' headphones as these offer the greatest protection against sound leaking from the headphones themselves.

Recording with Automatic Track Creation

By default, Audio Evolution Mobile has its option for Automatic Track Creation enabled in the Audio section of the Settings 

. This allows you to easily start recording audio with one button press as soon as the app is launched.

To do this, all you need to do is press the Record  button. As long as no other track has been armed (see below) a new audio track will be created and recording starts immediately. Your audio clip will be shown, its waveform appearing in real time, on its track in the arranger screen as the recording takes place.

Press Stop  to stop recording. If you want to start recording at a specific point in the Timeline, simply position the Time Marker  in the Timeline/Marker Display at the desired point before pressing Record.

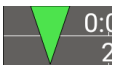
Automatic Track Creation can be turned off in the settings or it can be bypassed by arming an audio track before pressing record.

Recording by Arming a Track

If you want to record onto a specific track, you must first arm that track so the app knows where to record to. There are many situations where you might want to do this such as when you are working with a Project Template that has empty audio tracks, ready to be used, or when you want to do a Punch In/Out recording (see below) to replace part of a recording you've already made. If you have Automatic Track Creation turned off in the settings, you *must* arm a track before recording can take place.

Arming a track simply identifies the track to be recorded to and places it in a record/pause state. If you are using a USB audio interface, this record/pause state allows you to adjust the input gain to make sure that your recording won't clip (exceed the maximum level possible).

Android, unfortunately, simply doesn't allow the user to set the input gain and any app which tries to convince that you are controlling the input gain is simply using a software gain, where only a boost in volume is really possible - you are not really setting the input gain. As such, there are only two choices: having automatic gain or no input gain at all. For the latter, please select 'Mic, no processing, lowest latency' in the Audio Input section, within Audio, in the Settings. This ensures that your recording will be made with a fixed gain setting so that quiet parts remain quiet and loud parts remain loud in relation to each other. Once the recording has been made and the levels are too low, you can apply the Normalize function which is accessed via the Clip/Track Options and Apply Effects. Normalizing allows you to specify how loud you want the very loudest part of the recording to be and everything else will adjusted accordingly. So, if you normalize your recording to 0.0dB, which is the loudest possible before clipping will occur, your recording *as a whole* will then be as loud as possible. This will increase noise as well though. The better solution would be to use a USB audio interface where input gain can be set on the interface itself.

Your armed track will start recording at the current position of the Time Marker  , so make sure you have it correctly positioned beforehand.

In order to arm your audio track, first tap once on the track to select it in the timeline area of the Arranger Screen. This will ensure that the correct track's Channel Strip is displayed to the left.

The Arm Button is the large button with a red circle on it  . If you don't see it, use the channel strip page selector (the gray circle buttons at the bottom, seen in the channel strip

below) to scroll through the pages until it is displayed. Arm the track by pressing the Arm Button once. It will be lit up red, as shown below, indicating that it is successfully armed.

Once the Time Marker is positioned and your track is armed, press Record  to start recording to that track. Press Stop  to stop recording.

Punch In/Out Recording

Punch In/Out recording allows you to *only* record between the two Punch In/Out marker points. This is an incredibly useful feature. Imagine you've recorded a vocal and it's perfect except for a few phrases in the middle of the song where the vocalist is slightly out of key? Well (aside from using Vocal Tune PRO to correct pitch), you could set the Punch In marker to the beginning of the section where things are wrong, set the Punch Out marker to the end of that section, and easily re-record *only* that section again leaving the rest of the original recording intact. Or maybe you've recorded a guitar solo and want to try a few different versions of a particular section of that solo.

To use Punch In/Out, you first need to place the Punch in/out markers. There are several different ways of doing this.

The first way is to double tap on the Timeline/Marker Display

and select **Punch In/Out** from the Marker Options. This will display the red Punch In/Out markers 

. You can then tap, hold and slide on the markers to position them as required. Don't forget about the Grid 

and snap-to functionality if you want to easily set the markers on exact increments of the tempo. Turn the Grid snap-to functionality off to move the markers freely.

Alternatively, you can use the Marker Options to quickly place the punch in or punch out points at the point at which you double tap on the Timeline/Marker display. The first tap of the double tap moves the green Time Marker  to that point and the second tap opens the Marker Options. As such, you can use the **Set punch in** and **Set punch out** options from the Marker Options to set one of them at that point.

Lastly, you can use the **Set punch in/out markers to clip bounds** option from the Clip Options of a selected clip, or **Set punch in/out markers to range** option from the Range Options when you have a range selected. Both of these options precisely place the punch in and punch out markers at the beginning and end of the selected clip or range.

Once you have your Punch In/Out markers set, it is simply a case of arming the track you want to record to (if you don't arm a track and you have Automatic Track Creation active in the Settings, the Punch In/Out recording will be placed on its own new track), position the Time Marker at some point *before* the Punch in point (or at the very beginning if you want to hear and play along with everything in your track before reaching the Punch In/Out section) and press the Record  button. Your project will then start running from the point of the Time Marker. Once it reaches the Punch In marker it will start recording to the armed track. Once it reaches the Punch Out marker it stops recording automatically, after which point you can press Stop  .

NOTE. Though it appears as though the Punch In/Out process only records between the Punch In/Out marker points, it actually records from the Time Marker point at which you press Record  until the point at which you press the Stop  button. The app then automatically trims the clip so that only the part between the Punch In/Out markers is present on the timeline. This does offer several advantages though as the audio data on either side of the Punch In/Out markers *is* still there if needed - you just need to use the Clip Trimming Handles to drag the clip out and that audio data will be revealed and heard. As long as you have started playing along with the track before the Punch In point and continued after the Punch Out point, this extra data can allow you to manually alter the start and end points after the fact of the recording if necessary. For this reason, it can be sensible to give some thought to where you position the Time Marker to begin the Punch In/Out recording process. The extra audio data also allows you to perform a quick crossfade on the Punch In and/or Out points (as long as there is enough time length of audio present in both clips for the action to be carried out) for greater smoothness of transition if required using the Crossfading a Range Selection function.

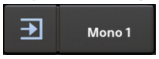
If you arm a track already containing audio the audio playback of that track will not be heard during the Punch In/Out recording section. Thus, in our vocal example above, if you arm the track containing the original recording, the original recording's playback will be silent during the Punch In/Out recording phase. This means you can re-record the problematic section without being distracted by the first version. It is generally a good idea to, for example, start singing/playing along with the track before the Punch In recording is activated. This will help

ensure that the Punch In/Out recording fits seamlessly with the original recording. Once your Punch In/Out recording has been made you will see it as its own clip on the armed track. If you've chosen the original track containing the part of the recording you want to replace, the original recording/clip will have been split into two clips, both of them trimmed to perfectly accommodate the new Punch In/Out clip between them. Note, though, that the original, 'faulty' section of the original recording has not been deleted. If you use the Clip Trimming Handles to drag out either of the, now two, original clips, you will see that it is still there and, of course, every recording made remains complete and unchanged in the Project Samples folder.

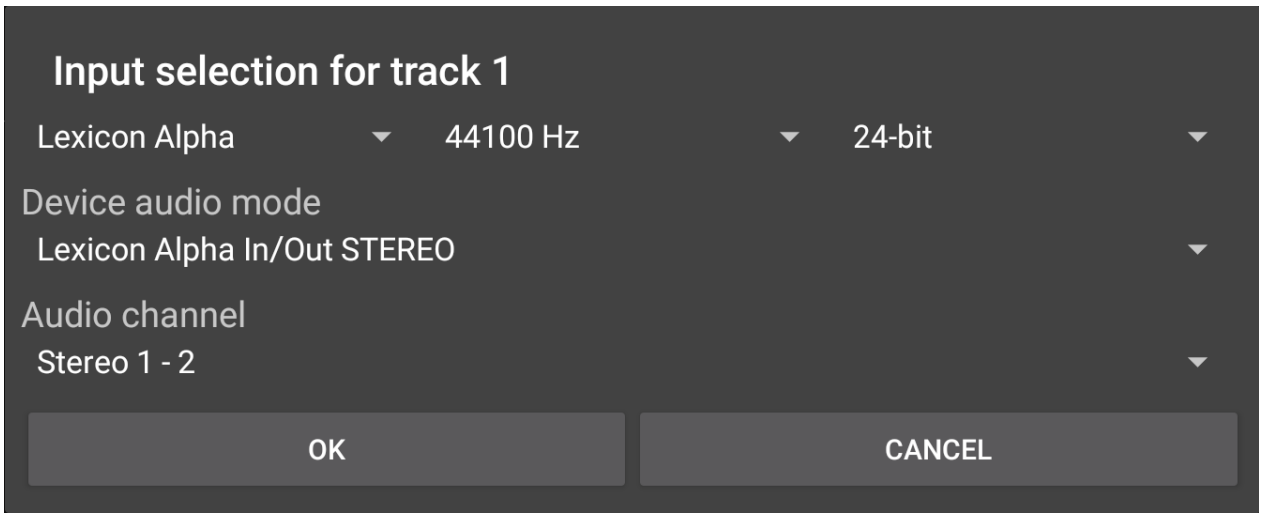
If you don't use the same track as your original problematic recording for your Punch In/Out recording, by arming a different track or by using Automatic Track Creation, you can record different takes of the same section of your project to their own tracks and pick the best to use. If you want to hear and sing or play along with an initial first recording though, be aware that the Punch In/Out section of that initial recording will not be silent as it would be if its own track were selected to be recorded to. To avoid this, you can make a first Punch In/Out recording to a different track, then make sure that the Clip Magnet is turned on in the Grid settings and set a Range on the initial recording track to the duration of that first Punch In/Out clip (the clip magnet is sensitive to clips on other tracks, not just the track you're selecting on). Then simply Cut that Range from the initial recording clip. As stated in the previous paragraph, this doesn't delete the original recording, just splits it and trims the two clips created accordingly. As you record your different takes to different tracks, you will also need to remember to Mute each take you record before making the next to prevent them from being heard during the recording process. If you decide that one of the takes is the best, you can drag it to the original track: with the Clip Magnet grid setting active, the clip would be positioned perfectly at the location you removed earlier with the Range tool.

Turn the Punch In/Off Recording mode off by double-tapping on the Timeline/Marker display and selecting **Punch In/Out** again.

Changing the audio input or input parameters

To change the input or the input parameters of the currently selected track, press the **Track Input** 

button. It will display the following dialog:



At the top left, you will see either **Android** or the name of a connected USB audio interface (when using the eXtream USB audio driver). RIght next to that is the sample rate selection and the resolution selection. When using a USB audio interface with the eXtream driver, the sample

rates and resolutions that you can select depend on the capabilities of your USB audio interface. And once selected, it will also actually use these. Although that may sound obvious, if you would select the Android driver, all audio would be resampled to 48kHz / 16-bit, no matter what you select, because of the way Android works. Please note that once an audio track is present in the project, the sample rate cannot be changed. As such, the sample rate presented here matches the Project sample rate.

The options for **Device audio mode** also depend on the specific device. When using USB audio with the eXtream driver, this can usually be left untouched. On some devices though, selecting a different audio mode would have effect on the available sample rates and resolutions. For the Android driver (when using either the device's mics or a USB audio interface), this will give the option to switch between mono and stereo recording.

The **Audio channel** allows you to select a specific input of your device. If the **Device audio mode** only shows stereo modes for example, you could choose between Stereo 1-2, Mono 1 or Mono 2 here to choose whether you would like to record in stereo or mono and if mono, which of the two channels you wish to use. Please note that if you only have one input connected (a mic or guitar for example) to a stereo USB audio device, recording in stereo would result in one channel being silent. In this case, you would better use the Mono 1 or Mono 2 options.

When using the eXtream driver with a multi-channel USB audio interface (featuring more than 2 inputs), you can select the specific input in the **Audio channel** as well: for example, for a 6-channel USB audio interface, it will present Stereo 1-2, Stereo 3-4, Stereo 5-6 and Mono 1 to Mono 6.

Once a stereo input has been selected and used on the track, you will not be able to use a mono input anymore on the same track. When you for instance record using a stereo USB audio interface and then disconnect it, you won't be able to use the internal (mono) mic anymore to record on this track and arming the track would therefore fail.

Editing Audio

NOTE. The following instructions have been written from the Expert Arranger Screen mode point of view as we feel this mode provides the best overall workflow and experience. If you are using the Beginner Arranger Screen mode you will need to have the Scroll 

mode button active in order to long press a clip, open the Clip/Track Options and carry out some of these editing operations. Similarly, you will need to have the Edit 

mode button active in order to trim and move clips. For more information on the two modes, please see here.

Audio Evolution Mobile uses non-destructive audio editing (with one exception, here) which means that your original recordings and imported audio are not destroyed as you edit them. They are held safe and unchanged in the project Samples folder. The audio clips you see on the arranger screen can be thought of as 'references' to the original file, keeping information like start- and end points and the audio clip's referenced file name. Even when effects are rendered into the audio itself using the effects in the Clip Options (normalize, pitch shift etc.) these are applied to a copy of the original file, keeping the original safe. This frees you from the worry that you might ruin your project forever by making mistakes when editing your audio.

There are a few key things to become accustomed to: audio editing is done using either the interface shown on a selected clip, via the Clip/Track options opened using that interface, or by selecting a Range 

and using the Range Options. In other words, editing is applied to a single or multiple clips (using the controls on the selected clip and the Clip Options), the whole track (using the Track Options), or to a user defined selection (using the Range Options). Since some editing operations are only available for clips, and not for selected ranges, it is important to always remember that the Split 

function is also available, allowing you to define and create new clips from the existing material.

In this section we are going to go through specific editing tasks. Remember the Undo 

function is always available should you make a mistake.

To help you quickly find what you're looking for, please use these links to individual editing tasks.

Normalizing an Audio Clip

So, you've recorded or imported your audio clip into your project but you want to boost its level so that it's as loud as possible. This is very easily done using Normalization. Normalization boosts the overall level of the audio on the clip by a percentage so that the loudest part of the audio peaks at the normalization level chosen.

As with all of the effects possible to apply to your audio via the Apply effects option in the audio Clip Options pop-up menu, this process is rendered into (a copy of) the audio itself, meaning once it is applied it is part of the audio and won't require any further real-time processing, or the associated CPU usage. The process can still be undone using the Undo 

function though and will not destroy your original recording in the Project Samples folder since a copy is made where the effect is applied to.

1. Select your clip by tapping on it once.
2. Press the Three Dot Button to open the Clip/Track Options.
3. Select **Apply effects** at the top of the options shown.
4. Select **Normalize** from the list of effects available.
5. Use the interface, shown below, to select your **Normalize to** level. By default it is set to 0.0dB which will make the audio as loud as possible without clipping but you can select a lower level to normalize to if you want to maintain some headroom. Press **OK** once you've set your chosen level.

NOTE. Normalization is especially useful when you have your input set to **Mic, no processing, lowest latency** (as recommended, though not chosen by default). Since this input bypasses any of your device manufacturer's built in processing, such as mic auto-gain, and just records the raw mic signal, the recordings made can initially appear to be very quiet. There is no problem with these recordings though, they simply need to be normalized.

Reversing an Audio Clip

Reversing a clip reverses the waveform of the audio in the clip, meaning it will be heard backwards when played back.

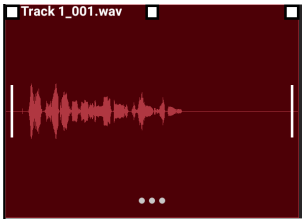
1. Select your clip by tapping on it once.
2. Press the Three Dot Button to open the Clip/Track Options.
3. Select **Apply effects** at the top of the options shown.
4. Select **Reverse** from the list of effects available.

Setting the Volume of an Audio Clip

Each track's overall volume can be controlled by the Volume Fader/Slider on its Channel Strip. You can also, though, alter the volume of individual clips in relation to the other clips using the following method. For more details, please see here.

1. Select your clip by tapping on it once.
2. Use the central square, white Volume handle at the top of the selected clip (seen below) to lower the volume as required: it will be set at its maximum by default. The volume level is displayed in the playback timer display 

as the handle is moved. If you do not see the handles, please make sure to zoom in both horizontally and vertically.

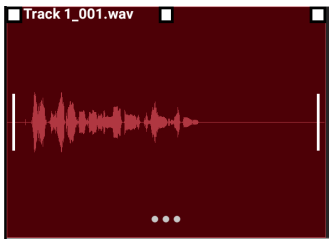


Applying a Fade In/Out to an Audio Clip

There are two ways of applying a fade in from silence or a fade out to silence to your individual audio clips. The first uses the Volume Handles on the selected clip. The second uses the Clip Options. The difference is that the second method renders the fade in/out effect into the audio waveform itself, as is the case with all of the effects it is possible to apply to your audio via the Apply effects in the audio Clip Options. This means that once it has been applied it won't require any further real-time processing, or the associated CPU usage. The process can still be undone using the Undo 

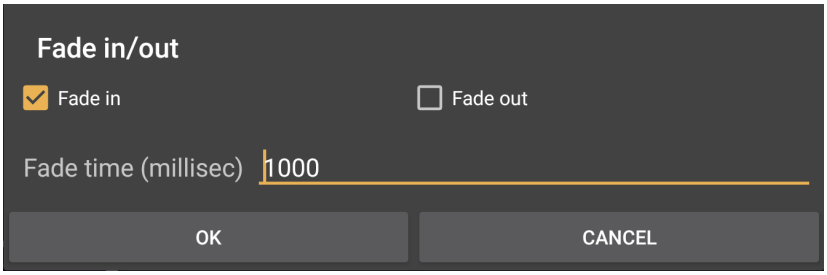
function though and will not destroy your original recording in the Project Samples folder.

1. Select your clip by tapping on it once.
2. Use the square white Volume handles, seen below at the top of the selected clip, to set the overall clip volume (central handle) and/or use the handles on the left or right to apply the fade in and/or fade out as required. For greater detail on this please see here. If you do not see the handles, please make sure to zoom in both horizontally and vertically



or,

1. Select your clip by tapping on it once.
2. Press the Three Dot Button to open the Clip/Track Options.
3. Select **Apply effects** at the top of the options shown.
4. Select **Fade in/out** from the list of effects available.
5. Use the interface seen here to define your fade in or fade out. Once you press **OK** your fade in/out will be rendered to the start or end of your audio clip.

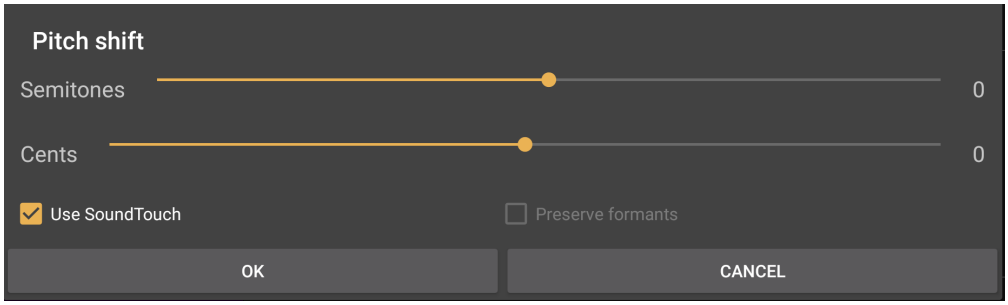


Changing the Pitch of an Audio Clip

Though you can manipulate the pitch of your clip using the Pitch Shifter and Vocal Tune/Pro effects on the FX Grid, these involve real-time processing during playback within your project. If, however, you want to change the pitch of your clip by a fixed amount and have that changed rendered to the audio itself, thus avoiding the CPU load which accompanies real-time processing, you can use the Pitch Shift option in the Clip Options. Though this renders the effect to the audio, the process can still be undone using the Undo 

function though and will not destroy your original recording in the Project Samples folder.

1. Select your clip by tapping on it once.
2. Press the Three Dot Button to open the Clip/Track Options.
3. Select **Apply effects** at the top of the options shown.
4. Select **Pitch shift** from the list of effects available.
5. Use the interface seen here to define the amount of pitch shift to be applied. Press **OK** to apply the effect.



- The **Semitones** slider allows you set from between -12 to +12 semitones from the original pitch. You can always apply the effect more than once if you require a greater range.

- The **Cents** slider allows you to make a very subtle change to the pitch. Twelve tone equal temperament (the most commonly used musical system today) divides the octave into twelve semitones of 100 cents each. The cents slider allows you to set from between -50 and +50 cents from the original pitch or semitone-shifted pitch if used in combination with the semitones slider.

- **Use SoundTouch** is selected by default as in most cases we have found it to be the superior algorithm for pitch shifting. You are free to experiment though. If you turn it off, the Rubberband algorithm will be used instead which may produce more satisfying results for your particular audio clip.

- When Use SoundTouch is not selected, the **Preserve formants** option will become available. This can help to reduce the squeaky 'chipmunk' effect when pitch shifting vocals, making it sound more natural than it might otherwise.

Time Stretching an Audio Clip

Time stretching allows you to change the duration of the audio on your clip without altering its pitch (unless you want it to be). Naturally, this process will change the length of the clip on the timeline.

As with all of the effects it is possible to apply to your audio via the Apply effects in the audio Clip Options, this process is rendered into the audio itself, meaning once it is applied it is part of the audio and won't require any further real-time processing, or the associated CPU usage. The process can still be undone using the Undo 

function though and will not destroy your original recording in the Project Samples folder.

1. Select your clip by tapping on it once.
2. Press the Three Dot Button to open the Clip/Track Options.
3. Select **Apply effects** at the top of the options shown.
4. Select **Time stretch** from the list of effects available.
5. Use the interface seen here to define the amount of time stretching to be applied. Press **OK** to apply the effect.

- The **Factor** allows you to input the amount by which you want the clip to be stretched. A factor of 1 represents the original duration, so any value above 1 will stretch the duration of the audio and any value below 1 will shorten the duration.

- **Set Visually**, as the pop-up which opens when you press it explains, temporarily closes the Time Stretch interface to allow you to tap, hold and slide within the clip's track on the timeline to visually set where you'd like the sample's new end point to be. Once you release your finger, that point will have been automatically calculated and entered as the Factor amount on the Time Stretch interface which will reappear. Don't forget about the Grid 

and snap-to functionality if you want to easily set the clip's new end point to an exact increment of the tempo. Turn the Grid snap-to functionality off to select the new end point freely.

- The **Speech/Music** slider allows you to define the type of audio on the clip that you're stretching, to help to ensure the best end result.

- The **Keep pitch** checkbox is selected by default to ensure that your stretched audio has the same pitch even after its duration has been changed. If you want the pitch to change accordingly with the duration though, you can deselect this option. When 'Keep pitch' is deselected, clips stretched by a factor of less than 1 will have a progressively higher pitch. Clips stretched by a factor of more than 1 will have a progressively lower pitch. Clips stretched by a factor of more than 1 will have a progressively lower pitch.

Moving and Repositioning a Clip on the Timeline

1. Select the clip by tapping on it once.
2. Press, hold and slide the selected clip to move it to the desired position. Make sure not to tap too close to an edge, since that can trigger other actions. You may need to pinch/pull to zoom in first if the clip is too small on the display. Don't forget about the Grid 

and snap-to functionality if you want to easily move the clip to an exact increment of the tempo. Turn the Grid snap-to functionality off to move the clip freely. Audio clips can be moved between tracks in this way but, obviously, only to other audio tracks, not to MIDI tracks.

NOTES. This function can be performed on multiple clips simultaneously once they have been selected using the Select 

mode.

Instead of selecting a clip first, you can also tap, hold and slide directly. Just wait a

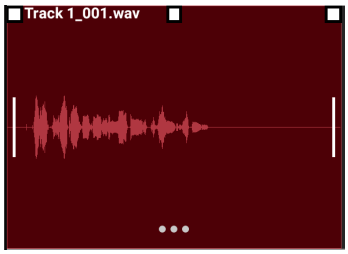
fraction of a second until the clip highlights, then you can move it around.

If you move your audio clip such that it overlaps another clip, you will be given the option to **Cross-fade**, **Cancel** or **Replace**. 'Cross-fade' applies a cross-fade to the overlapping audio. A cross-fade fades out the signal of the first source as it simultaneously fades in the signal from a second source (as long as there is enough time length of audio present in both clips for the action to be carried out). 'Cancel' stops the process and returns the clip moved to its original position. 'Replace' trims the clip 'underneath' the clip being moved so that it is replaced by it and not heard during the duration of the clip moved. For more information on this, see here.

Trimming and Editing the Length of a Clip

1. Select the clip by tapping on it once.
2. Press, hold and slide using one of the white line Clip Trimming Handles at the beginning and end of the selected clip (seen below) to trim it as required. As mentioned earlier, clips are just references to the original audio. If the original audio for example has a duration of 10 seconds, the audio clip will first be displayed using its full length after recording or importing. By trimming, you can set the start- and end points within the audio clip, for example, cutting out some noises at the start or ending of a recording. You can not trim the end beyond the original audio file's length or trim it beyond the original audio file's start.
   You may need to pinch/pull to zoom in first if the clip is too small on the display. Don't forget about the Grid 

and snap-to functionality if you want to easily trim the clip to an exact increment of the tempo. Turn the Grid snap-to functionality off to trim the clip freely. Trimming clips in this way doesn't delete the original audio they contained: use the Clip Trimming Handles to drag a trimmed clip back out and you'll see that the original audio is still there.



NOTES. This function can be performed on multiple clips simultaneously once they have been selected using the Select 

mode. This could be useful if, for example, you want to trim exactly the same amount of silence off the beginning of all of your audio tracks.

Instead of selecting a clip first, you can also tap on the clip's edge (trimming handle), hold and slide directly. Just wait a fraction of a second until the clip highlights, then you can perform the trim.

Splitting a Clip to Create Multiple Clips

Being able to manually split a clip into smaller clips is an important function to remember, not least because it allows you to easily access the editing functions which are only available for clips, and not for range selections, when you only want to apply that editing to part of the original clip. For example, you may only want to apply an effect, such as normalization or a time stretch, to part of your original clip. These effects are not available to apply to range selections and can only be accessed via the Clip Options, so you'll first want to create a new clip of the part you want to apply the effect to. The Split 

button behavior can be set to your preference in the app settings by following the path Settings > User Interface > Split button behavior. There are two behaviors to choose between, Mode or Action, and therefore two ways of splitting clips depending on the selection made.

To split a clip using the **Mode Split button behavior** (this is the default setting), follow these steps.

1. Press the Split 

button on the Arranger Screen to enter split mode.
2. Whilst in split mode, tap on any clip and that clip will be split into two separate clips at the point at which you tapped. As a single tap like that can lack accuracy, it is generally better, though, to tap, hold and slide to position the vertical dotted white line, which will appear once you tap and hold, to exactly the point at which you want the split to occur. Once you release your finger, the clip will be split at the position of the vertical dotted line. For greater accuracy, zoom into the clip by resizing it using two fingers to pinch/pull. As always, remember the the Grid 

and snap-to functionality if you want to easily position the vertical dotted line at an exact increment of the tempo. Turn the Grid snap-to functionality off to position the vertical dotted line freely.

To split a clip using the **Action Split button behavior**, follow these steps.

1. Select the clip or clips you want to split by tapping on it once (the Split button will be grayed out until at least one clip is selected).
2. Place the Time Marker 

at the position in the timeline where you want the split to take place. Do this by tapping the Timeline/Marker display at the desired point or by grabbing the Time Marker and sliding it. For greater accuracy, zoom into the clip by resizing it using two fingers to pinch/pull. As always, remember the the Grid 

and snap-to functionality if you want to easily position the Time Marker at an exact increment of the tempo. Turn the Grid snap-to functionality off to position the Time Marker freely.

3. Once you have the Time Marker positioned, press the Split 

button and the selected clip(s) will be split into two clips at that point. Repeat the process as required to create further clips.

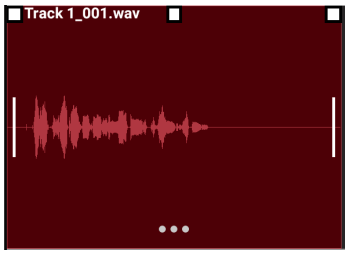
NOTE. This function, when in **Action** mode, can be performed on multiple clips simultaneously once they have been selected using the Select 

mode.

Auto Splitting a Clip

The Auto Split feature can be used to automatically split a clip into multiple clips based on the level and length of periods of 'silence' defined by the settings you use and then detected by the app. This can be very useful if, for example, you've made a long live recording and you want to easily split it into separate songs/tracks. Likewise, if you've made a long recording of a meeting or a lecture and you want to easily identify any moments of silence to then remove them, this can be help with that. And if you want to grab individual sounds from a sample containing multiple sounds, you can use auto split to easily separate them into their own clips. For a full description of this process, please see here.

1. Select the clip by tapping on it once.
2. Tap the Three Dot Button at the bottom of the selected clip (seen below) to open the Clip Options.
3. Select **Auto split** from the options shown.
4. Set the Threshold, Minimum Silence duration and Minimum Time between Clips to be used in the dialog shown.
5. Press **OK** for the Auto Split to be applied to the clip.



Cutting a Clip

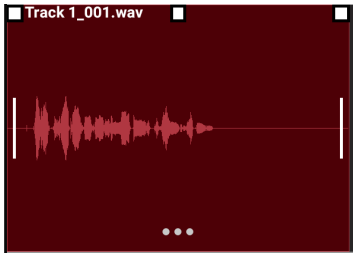
Cutting a clip removes the clip from the timeline AND copies it to the clipboard, allowing you to paste it elsewhere. This can be done in two ways.

1. Select the clip by tapping on it once.
2. Tap the Cut 

button on the Arranger Screen display. This will then give you choice of whether to **Cut** or **Cut (ripple)**.

   or,

1. Select the clip by tapping on it once.
2. Tap the Three Dot Button at the bottom of the selected clip (seen below) to open the Clip Options.
3. Select **Cut** from the options shown.



NOTE. This function can be performed on multiple clips simultaneously once they have been selected using the Select 

mode.

Cutting a Clip (Ripple)

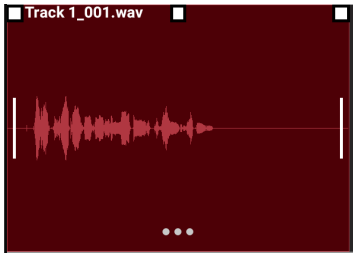
Cut (ripple) removes the clip from the timeline, copies it to the clipboard, allowing you to paste it elsewhere, AND shifts everything to the right of the clip cut to the left by an amount equal to the length of the clip cut. If, therefore, you have several clips next to each other *without* any gaps between them and you cut one of the clips using Cut (ripple), all of the clips to the right of it will be moved to the left by the length of the clip cut, meaning it will have been removed and everything else on the track has been shifted to perfectly fill the gap that would have otherwise been left.

NOTE. Cut (ripple) can also be performed by selecting it from the options after pressing the Cut 

button as described here.

1. Select the clip by tapping on it once.
2. Tap the Three Dot Button at the bottom of the selected clip (seen below) to open the Clip Options.

3. Select **Cut (ripple)** from the options shown.



Removing a Clip

Removing a clip removes the clip from the timeline but, unlike Cutting a Clip, does not copy it to the clipboard. This can be useful if, for example, you already have something copied to the clipboard which you don't want to overwrite by using the Cut function. Removing a clip can be achieved in two ways, the first of which uses the Remove Mode for greatest ease of use and speed. The Undo 

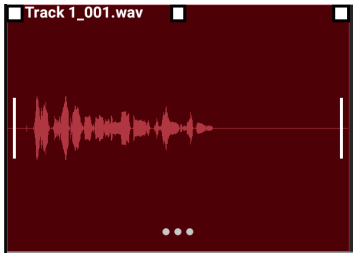
button can always be used if you make a mistake.

1. Press the Remove 

button on the Arranger Screen to turn the Remove Mode on.
2. Tap any clip on the timeline you want to remove.
3. Press the Remove button again to disengage the Remove Mode (or press the Scroll button when the arranger screen is in Beginner mode).

   or,

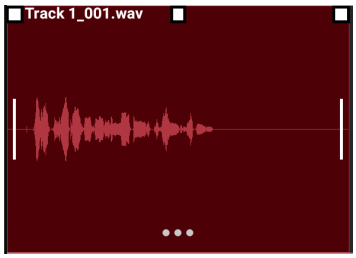
1. Select the clip by tapping on it once.
2. Tap the Three Dot Button at the bottom of the selected clip (seen below) to open the Clip Options.
3. Select **Remove** from the options shown.



Deleting a Clip Completely

Deleting a clip completely - Delete sample from storage - removes it from the timeline AND deletes it from the Project folder on your device. This is the only audio editing action that isn't non-destructive and **cannot be undone** using the Undo function. As such, please use this function with extreme caution as samples can be lost forever using this function.

1. Select the clip by tapping on it once.
2. Tap the Three Dot Button at the bottom of the selected clip (seen below) to open the Clip Options.
3. Select **Delete sample from storage** from the options shown.
4. As this action **cannot be undone**, you will be shown a confirmation dialog.
5. If you do not want to completely delete the clip/sample, click **Cancel** to cancel the operation.
6. If you are absolutely sure you want to completely delete the clip/sample, click **OK** and the action will be carried out.



Copying a Clip

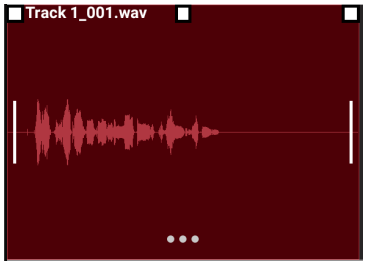
Copying a clip copies it to the app clipboard from where it can be pasted elsewhere in your project. There are two ways of doing this.

1. Select the clip by tapping on it once.
2. Press the Copy 

button on the Arranger Screen.

   or,

1. Select the clip by tapping on it once.
2. Tap the Three Dot Button at the bottom of the selected clip (seen below) to open the Clip Options.
3. Select **Copy** from the options shown.



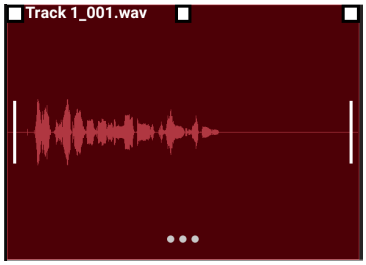
NOTE. This function can be performed on multiple clips simultaneously once they have been selected using the Select 

mode.

Repeating a Clip

Creating multiple repeats of a clip on the timeline is very easily accomplished. There are customizable options involved with this process, so for a full explanation of all details, please see here.

1. Select the clip by tapping on it once.
2. Tap the Three Dot Button at the bottom of the selected clip (seen below) to open the Clip Options.
3. Select **Repeat** from the options shown.
4. Enter the number (#) of repeats you want, the interval between clips (if required) and whether you want that interval to be applied from the beginning or the end of the previous repeat into the Repeat dialog shown.
5. Click **OK**.

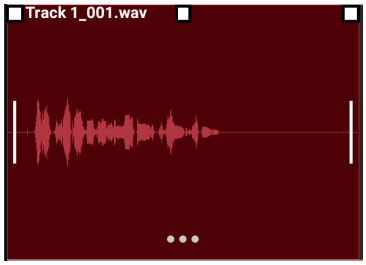


NOTE. This operation will be automatically canceled if the repeated clips would overlap with other clips already on the track.

Connecting a Clip to the Previous Clip on the Timeline

This function allows you to automatically reposition the selected clip on the timeline so that its beginning is flush with the end of the previous clip. Please note that the clip won't actually 'stay' connected, it is just repositioned.

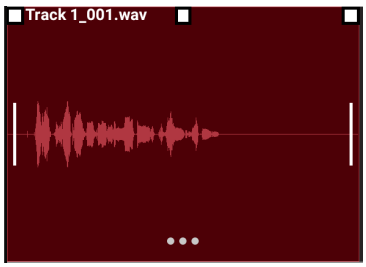
1. Select the clip by tapping on it once.
2. Tap the Three Dot Button at the bottom of the selected clip (seen below) to open the Clip Options.
3. Select **Connect to previous clip** from the options shown.



Connecting a Clip to the Next Clip on the Timeline

This function allows you to automatically reposition the selected clip on the timeline so that its end is flush with the beginning of the next clip. Please note that the clip won't actually 'stay' connected, it is just repositioned.

1. Select the clip by tapping on it once.
2. Tap the Three Dot Button at the bottom of the selected clip (seen below) to open the Clip Options.
3. Select **Connect to next clip** from the options shown.



Cutting a Range Selection

Cutting a range selection removes the selected range from the timeline AND copies it to the clipboard, allowing you to paste it elsewhere. This can be done in two ways.

1. Tap the Range 

button to enter range selection mode.
2. Use your finger to select a time range within one track or across multiple tracks. Touch *and hold/slide* to the right on the track you want to select part of. If you want to select a range across multiple tracks, also slide down to include those tracks in the range selection as you do so. Once the selection is made, should you need to adjust it, press *and hold* near the edge of the blue range selection and slide to reposition that edge. As always, zoom in for greater accuracy and remember the Grid 

snap-to functionality if you want your selection to snap to increments of the tempo. Turn the Grid snap-to functionality off to make the selection freely. Tap once outside of the range selection if you want to deselect it completely and start again.
3. Tap the Cut 

button on the Arranger Screen display. This will then give you choice of whether to **Cut** or **Cut (ripple)** the selected content.

or,

1. Tap the Range 

button to enter range selection mode.
2. Select the desired range as described above.
3. Open the Range Options by tapping once inside the selected range shown in blue.
4. Select **Cut** from the options shown to cut the selected range.

Cutting a Range Selection (Ripple)

Cut (ripple) removes the selected range from the timeline, copies it to the clipboard, allowing you to paste it elsewhere, AND shifts everything to the right of the range cut to the left by an amount equal to the length of the range cut, meaning it will have been removed and everything else on the track has been shifted to perfectly fill the gap that would have otherwise been left.

NOTE. Cut (ripple) can also be performed by selecting it from the options after pressing the Cut 

button as described here.

1. Tap the Range 

button to enter range selection mode.
2. Use your finger to select a time range within one track or across multiple tracks. Touch *and hold/slide* to the right on the track you want to select part of. If you want to select a range across multiple tracks, also slide down to include those tracks in the range selection as you do so. Once the selection is made, should you need to adjust it, press *and hold* near the

edge of the blue range selection and slide to reposition that edge. As always, zoom in for greater accuracy and remember the Grid 

snap-to functionality if you want your selection to snap to increments of the tempo. Turn the Grid snap-to functionality off to make the selection freely. Tap once outside of the range selection if you want to deselect it completely and start again.

3. Open the Range Options by tapping once inside the selected range shown in blue.
4. Select **Cut (ripple)** from the options shown to cut (ripple) the selected range.

Copying a Range Selection

Copying a Range selection copies it to the app clipboard from where it can be pasted elsewhere in your project. There are two ways of doing this.

1. Tap the Range 

button to enter range selection mode.
2. Use your finger to select a time range within one track or across multiple tracks. Touch *and hold/slide* to the right on the track you want to select part of. If you want to select a range across multiple tracks, also slide down to include those tracks in the range selection as you do so. Once the selection is made, should you need to adjust it, press *and hold* near the edge of the blue range selection and slide to reposition that edge. As always, zoom in for greater accuracy and remember the Grid 

snap-to functionality if you want your selection to snap to increments of the tempo. Turn the Grid snap-to functionality off to make the selection freely. Tap once outside of the range selection if you want to deselect it completely and start again.
3. Tap the Copy 

button on the Arranger Screen display.

or,

1. Tap the Range 

button to enter range selection mode.
2. Select the desired range as described above.
3. Open the Range Options by tapping once inside the selected range shown in blue.
4. Select **Copy** from the options shown to copy the selected range.

Crossfading a Range Selection

A crossfade fades *out* the signal of the first source as it simultaneously fades *in* the signal from a

second source as long as there's enough audio data present in both sources to do so. As has been mentioned throughout this manual, when clips are trimmed in Audio Evolution Mobile, the original content remains 'hidden' from view, ready to be revealed again by using the Clip Trimming Handles to trim the clip once more. Applying a crossfade to a selected range uses this hidden audio data - indeed, it requires it and cannot be performed without it. For full details and an example of when this might be used, see here.

1. Tap the Range 

button to enter range selection mode.
2. Select a range across the junction of two audio clips by touching *and holding/sliding* to the right on the track. *Both* clips will require 'hidden' audio data (not visible because of the clip having been trimmed) which will be used for the crossfade procedure and without which it cannot take place.
3. Open the Range Options by tapping once inside the selected range shown in blue.
4. Select **Crossfade range** from the options shown to apply the crossfade to the range. The crossfade will be shown as its own clip on the track.

NOTE. This function can be performed on a range selection made across multiple tracks, but clips in the range selected must *all* fulfill the requirements for the crossfade to be made on all of them at the same time in this way.

Copying a Track

This allows you to copy an entire track, with all of its clips, to the clipboard, ready to be pasted elsewhere.

1. Long press in any empty area (not containing a clip) of the track you want to copy to open the Track Options. (The Track Options can also be accessed at the bottom of the list of Clip/Track Options available via the Three Dot Button of a selected clip).
2. Select **Copy track to clipboard** from the available Track Options.

Duplicating a Track

Duplicating a track creates an exact copy of the track and places it on a new track underneath the original track on the timeline, no pasting required. The default names of tracks (Track 1, Track 2...etc.) below the one created by the duplication will have their track names changed accordingly to account for the extra track added.

1. Long press in any empty area (not containing a clip) of the track you want to copy to open the Track Options. (The Track Options can also be accessed at the bottom of the list of Clip/Track Options available via the Three Dot Button of a selected clip).
2. Select **Duplicate track** from the available Track Options.

Removing a Track

This removes the entire track, including all of the clips on it, from the project. This action can be undone using the Undo 

button if selected by mistake, and it *does not* delete your audio clips/samples from the project Samples folder on your device.

1. Long press in any empty area (not containing a clip) of the track you want to copy to open the Track Options. (The Track Options can also be accessed at the bottom of the list of Clip/Track Options available via the Three Dot Button of a selected clip).
2. Select **Remove track** from the available Track Options.

Splitting a Track into two Mono tracks

This function is, obviously, only available on audio tracks containing stereo audio clips. It does exactly as it says: it splits the left and right channels of the stereo track into two individual mono tracks on the timeline.

1. Long press in any empty area (not containing a clip) of the track you want to copy to open the Track Options. (The Track Options can also be accessed at the bottom of the list of Clip/Track Options available via the Three Dot Button of a selected clip).
2. Select **Split into two mono tracks** from the available Track Options.

Freezing a Track

Freezing an audio track allows you to temporarily render the track, including all effects present on the FX Grid and all automation, to a single audio file shown on the track without any effects or real-time processing being applied. This can really help to free up some CPU usage if your device is beginning to struggle. The process is reversible - by unfreezing - but any changes made to the track while it's frozen will then be lost as the unfreezing process returns the track to the exact state it was in *at the point at which it was frozen*. For this reason, it is best to get used to not altering tracks while they are frozen/without unfreezing them first. For full details on freezing tracks, please see here.

1. Long press in any empty area (not containing a clip) of the track you want to copy to open the Track Options. (The Track Options can also be accessed at the bottom of the list of Clip/Track Options available via the Three Dot Button of a selected clip).
2. Select **Freeze** from the available Track Options.

Unfreezing a Track

Unfreezing returns the track to the exact state it was in *at the point at which it was frozen*. This means any changes made to the track while it's frozen will then be lost. For this reason, it is best to get used to not altering tracks while they are frozen/without unfreezing them first. For full details on freezing tracks, please see here.

1. Long press in any empty area (not containing a clip) of the track you want to copy to open the Track Options. (The Track Options can also be accessed at the bottom of the list of Clip/Track Options available via the Three Dot Button of a selected clip).
2. Select **Unfreeze** from the available Track Options.

Pasting Copied Audio Content

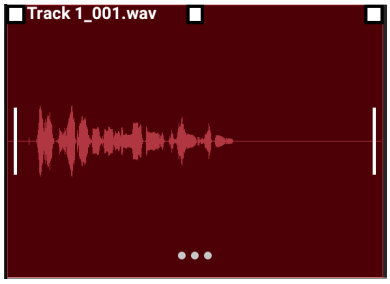
Once you have content copied to the clipboard, you can then Paste it elsewhere within your project. Copied audio content can only be pasted onto audio tracks and copied MIDI content can only be pasted onto MIDI tracks. There are several ways of doing this. Most of these methods will result in you being given the option to **Paste** or **Paste (Insert)**. Selecting **Paste** will 'remove' any content present underneath the content pasted. If the copied content happens to be pasted on top of and completely within the duration of a single clip on the timeline, that clip will be split into two clips, both trimmed to accommodate the pasted content (the clip's original content is still there though if you use the Clip Trimming Handles to trim the original clip/s). Selecting **Paste (insert)** will insert your copied content at the point specified and shift everything originally after that point to the right by the duration of the pasted content so it is now heard after the inserted content and nothing is removed.

1. Select the track you want to paste your copied content onto by tapping it once.
2. Position the Time Marker  at the point at which you want the content to be pasted. Do this by tapping the Timeline/Marker display at the desired point or by grabbing the Time Marker and sliding it. For greater accuracy, zoom into the clip by resizing it using two fingers to pinch/pull. As always, remember the the Grid  and snap-to functionality if you want to easily position the Time Marker at an exact increment of the tempo. Turn the Grid snap-to functionality off to position the Time Marker freely.
3. Tap the Paste  button on the Arranger Screen. You will be given the option to **Paste** or **Paste (Insert)**. Make your selection and the copied content will be pasted at the position of the Time Marker.

or, you can use the Clip Options;

1. (Optional step depending on your selection from the pasting options). Position the Time Marker  at the point at which you want the content to be pasted. Do this by tapping the Timeline/Marker display at the desired point or by grabbing the Time Marker and sliding it. For greater accuracy, zoom into the clip by resizing it using two fingers to pinch/pull. As always, remember the the Grid  and snap-to functionality if you want to easily position the Time Marker at an exact increment of the tempo. Turn the Grid snap-to functionality off to position the Time Marker freely.
2. Select the clip where you (potentially, depending, again, on your selection from the pasting options) want to paste the copied content by tapping on it once.

3. Tap the Three Dot Button at the bottom of the selected clip (seen below) to open the Clip Options.



4. Select **Paste** from the options shown.
5. You will then be given various pasting options:

    - **Paste**. Selecting this will paste the copied content on top of the selected clip, with the beginning of the pasted content starting at the midpoint of the selected clip. This option 'removes' the content underneath the pasted content.

    - **Paste (Insert)**. Selecting this will paste (insert) the copied content on top of the selected clip, with the beginning of the pasted content starting at the midpoint of the selected clip, but with everything originally after that midpoint being shifted to the right by the duration of the pasted content so it is now heard after the inserted content and nothing is removed.

    - **Paste at time marker**. Selecting this pastes the copied content at the position of the Time Marker  on the track of the selected clip. If any content is present at that point, it will be 'removed' by the content pasted.

    - **Paste (Insert) at time marker**. Selecting this will paste (insert) the copied content at the position of the Time Marker on the track of the selected clip and move everything originally after that point to the right by the duration of the pasted content so it is now heard after the inserted content and nothing is removed.

or, you can use the Track Options;

1. (Optional step depending on your selection from the pasting options). Position the Time Marker  at the point at which you want the content to be pasted. Do this by tapping the Timeline/Marker display at the desired point or by grabbing the Time Marker and sliding it. For greater accuracy, zoom into the clip by resizing it using two fingers to pinch/pull. As always, remember the the Grid 

and snap-to functionality if you want to easily position the Time Marker at an exact increment of the tempo. Turn the Grid snap-to functionality off to position the Time Marker freely.
2. Long press in any empty area (not containing a clip) of the track to be pasted onto to open the Track Options.
3. Select **Paste**.

4. You will be given two pasting options:

    - Paste. This will paste the copied content onto the track *at the point at which you long-pressed* to open the Track options. If any content is present at that point, it will be 'removed' by the content pasted.

    - Paste at time marker. This will pastes the copied content on the track at the position of the Time Marker  . If any content is present at that point, it will be 'removed' by the content pasted.

or, you can use the Range Options;

1. You need to be in Range mode 

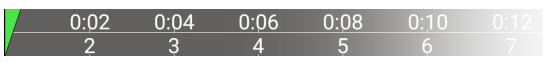
to use this method.
2. *Without* having a range selected, long press at the point on the track where you want the content to be pasted. This opens the Range pasting options.
3. You are given the option to **Paste** or **Paste (Insert)**. Make your selection and the copied content will be pasted or inserted *at the point at which you long-pressed* to open the range pasting options.

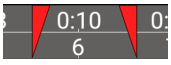
NOTE. If you have copied multiple clips by first selecting them using the Select 

mode, or if your copied Range selection spanned across multiple tracks, the copied content will be pasted across multiple tracks, with the copied content maintaining their original positions in relation to each other. In order for the content to be successfully pasted, you need the same number of *adjacent* audio tracks (adjacent from the selected track downwards) as were covered by the initially copied selection. If there are not enough tracks available from the track selected already *and* there are no MIDI tracks in the way, the extra tracks needed will be automatically created. If, however, there are not enough adjacent tracks to the selected track because there is a MIDI track 'in the way', and because audio content can't be pasted onto a MIDI track, the whole pasting operation will be canceled. This can be avoided by re-ordering your tracks using the **Move track up/down** function in the Track Options.

Re-recording a Specific Section of Audio

If you want to re-record a specific section of your audio track and leave the rest untouched, you can easily do so using **Punch In/Out** recording. For a full description of this function, please see here.

1. Double tap on the Timeline/Marker Display 

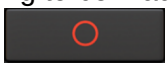
and select **Punch In/Out** from the Marker Options. This will display the red Punch In/Out markers 

. Or, double tap on the Timeline/Marker Display at the point where you want to place the Punch In marker to indicate where the recording should start. Select **Set punch in** from the Marker Options and the Punch In marker will be placed at the point at which you double tapped. Or, double tap on the Timeline/Marker Display at the point where

you want to place the Punch Out marker to indicate where the recording should stop. Select **Set punch out** from the Marker Options and the Punch Out marker will be placed at the point at which you double tapped. Or, select a single clip by tapping on it once. Open the Clip Options by pressing the Three Dot Button at the bottom of the selected clip. Select **Set punch in/out markers to clip bounds** and the Punch In/Out markers will be placed automatically at the beginning and end of the selected clip. Or, press the Range Mode 

button and select a range within your project. Once selected, tap once inside the selected Range (shown in blue) to open the Range Options. Select **Set punch in/out markers to range** and the Punch In/Out markers will be placed automatically at the beginning and end of the selected Range.

2. Depending on the method you used for step 1, if you now need to adjust the placement of the red Punch In/Out markers you can tap, hold and slide on the markers to position them as required. Don't forget about the Grid 

and snap-to functionality if you want to easily set the markers on exact increments of the tempo. Turn the Grid snap-to functionality off to move the markers freely.
3. Once you have your Punch In/Out markers placed correctly, if you want the Punch In/Out recording to 'replace' an earlier version of the same section, arm the track you want the recording to be made to by selecting the track (tap on it once) and pressing the track's arm button  on its Channel Strip. The arm button will be lit up red when the track is successfully armed. Or, if you want the Punch In/Out recording to be made to its own track you can make sure Automatic Track Creation is turned on in the Settings 

and make the recording without arming a track; the Punch In/Out recording will then be automatically made on its own new track. Alternatively, you can create a new audio track using the Add Track  button and simply arm that track to be recorded to.
4. Position the Time Marker  at some point *before* the Punch In marker by tapping at that point in the TImeline/Marker display (see highlighted Note below).
5. Press the Record  button. This will start playback of your track from the position of the Time Marker. This means you can play along with the track before recording starts, which will ensure your Punch In/Out recording sits perfectly with everything else. If using a microphone and have multiple tracks playing, you'll need to use headphones to ensure that this playback isn't captured in the new recording. If, though you have just one track audible and that is the track which you have armed for the Punch In/Out recording, its playback will be muted during the Punch In/Out recording. Once the Punch In marker is reached the app will automatically start recording from the selected input source for the track. Once the Punch Out marker is reached, recording will automatically end (see highlighted Note below).
6. Press the Stop  button to stop the recording process completely.
7. Turn Punch In/Out recording mode off by double tapping on the Timeline/Marker Display and selecting **Punch In/Out** from the Marker Options again.

NOTE. Though it appears as though the Punch In/Out process only records between the Punch In/Out marker points, it actually records from the Time Marker point at which you press Record  until the point at which you press the Stop  button. The app then automatically trims the clip so that only the part between the Punch In/Out markers is present on the timeline. This does offer several advantages though as the audio data on either side of the Punch In/Out

markers *is* still there if needed - you just need to use the Clip Trimming Handles to drag the clip out and that audio data will be revealed and heard. As long as you have started playing along with the track before the Punch In point and continued after the Punch Out point, this extra data can allow you to manually alter the start and end points after the fact of the recording if necessary. For this reason, it can be sensible to give some thought to where you position the Time Marker to begin the Punch In/Out recording process. The extra audio data also allows you to perform a quick crossfade on the Punch In and/or Out points (as long as there is enough time length of audio present in both clips for the action to be carried out) for greater smoothness of transition if required using the Crossfading a Range Selection function.

The eXtream Software Development USB Audio Driver

NOTE. The eXtream Software Development USB Audio Driver requires an in-app purchase (or the purchase of eXtream Audio Development's USB Audio Recorder PRO app) to be used in Audio Evolution Mobile. Both the full and trial versions of Audio Evolution Mobile allow you to try the driver without purchasing it, to ensure that everything works okay with your particular devices before you commit to buying it.

Since Android did not support USB audio until Android 5, eXtream Software Development created its own USB audio driver which completely bypasses the Android audio system and communicates with the USB audio interface directly. Even Android 5 and upwards has limited support for USB audio devices (see the table below) and as such our driver remains incredibly useful for every Android version. Next to that, our driver provides lower latency than the Android driver, making it possible for example to play virtual instruments in real-time on many devices that cannot do this using the Android driver (either by USB audio or speaker/headphones). The driver supports mono, stereo and multi-channel streams, and any resolution (16-, 24- and 32-bit) and any sample rate that the USB audio device provides. If your USB audio device features internal volume and/or gain controls, they can be controlled as well (unlike with the Android USB audio driver).

Please note that you can always use the Android driver (given it works) for free (with the limitations mentioned below). There is never an obligation from the app's perspective to purchase our USB audio driver. If you don't, the recording possibilities will be equal to any other Android app not featuring its own USB audio driver.

Overview:

	Android USB audio driver	**eXtream USB audio driver**
Resolution	16-bit	Any resolution that the USB audio interface offers
Sample rate	48kHz	Any sample rate that the USB audio interface offers
Channels	2	Any number of input and output channels that the USB audio interface offers
Latency	High, not in the 'Fast' audio path	Low (virtual instruments playable)
Track synchronization	Inaccurate	Very accurate
Internal gain control (when no physical knobs are present)	None	All

In order to use a USB audio or MIDI interface, you need the right kind of cable(s) to connect it to your Android device and your Android device must support USB host mode. Please see here for more information.

The driver also features USB MIDI which you can use with devices like MIDI keyboards, remote control surfaces, etc. Please note that no in-app purchase is required to use a USB MIDI interface/keyboard if it does not feature audio.

You can use multiple USB MIDI devices at the same time, but only one USB audio interface (or one USB audio interface and multiple USB MIDI devices).

Please contact us at support@audio-evolution.com if you have trouble connecting your USB device.

Supported USB Audio interfaces

The list of compatible USB audio interfaces is expanded frequently. You can check out the latest list on our website:
https://www.extreamsd.com/index.php/technology/usb-audio-driver

This web page also includes extensive information on the driver and troubleshooting tips.

Vocal Tune Studio

The Vocal Tune Studio online user manual can be found here - https://www.audio-evolution.com/manual/vts/html/VocalTuneStudio.html

The Vocal Tune Studio PDF user manual can be downloaded via this link - https://www.audio-evolution.com/manual/vts/VocalTuneStudioUserManual.pdf

Vocal Tune Studio is eXtream Software Development's pitch and time correction 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.

Though it can be seen as an app within an app, 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 (with Trial mode available, allowing you to fully evaluate before purchasing. In Trial mode, silence will be played occasionally during playback and any form of export which involves Vocal Tune Studio will be blocked).

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.

Vocal Tune Studio can achieve many other things as well as the detailed retuning and retiming of the your vocal performances. You can also 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 new MIDI instrument track for you in Audio Evolution Mobile, ready to use with your MIDI instrument of choice.

Opening an audio clip in Vocal Tune Studio from within Audio Evolution Mobile is as simple as double tapping on the desired audio clip on the Arranger Screen or, alternatively, single tapping on the clip to select it, tapping on the selected clip's **Three Dot Button** to open its **Clip Options** and then selecting **Vocal Tune Studio** at the top of the options shown.

Please be sure to read the 'first time use' help which you will be shown and also the brief Help guides which can be accessed from within the two modes of Vocal Tune Studio. Most importantly, please be aware that Vocal Tune Studio has its own, fully comprehensive user manual available online or as a downloadable PDF file. Links to both versions of the user manual can be found at the top of this page.

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.

Recording and Editing MIDI

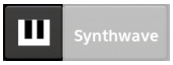
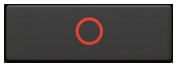
Recording MIDI

MIDI compositions can be created manually using the Piano Roll Editor or the Drum Pattern Sequencer, but it is also possible to live record your MIDI information using the onscreen keyboard, the onscreen drum pads, a connected external MIDI keyboard or other external MIDI equipment. You can either use the virtual instruments that you can select in the app (Soundfonts, Evolution One and Flowtones (Android 9 and above only)) to produce audio on your device or drive external MIDI equipment like synthesizers connected by USB MIDI.

Recording MIDI with the Onscreen Piano Keyboard

Recording MIDI with the onscreen keyboard allows you to live-record MIDI wherever you are and without connecting any external equipment or drive external MIDI equipment when you don't have a physical MIDI keyboard available.

For the first and most common case, create your MIDI Instrument Track using the Add Track  button on the Arranger Screen and select your virtual instrument as described here. For driving external MIDI equipment, you need to create a plain (USB) MIDI track instead.

Now, you can open the virtual onscreen piano keyboard, seen below, by pressing either the Open Virtual Keyboard  button or the Arm  button, both found on the track's Channel Strip. Both options also arm the track, lighting up the Arm button in red as can be seen in the screenshot, making it ready to recorded to.

From this screen, it is simply a case of pressing the Record  button and playing the onscreen keyboard as you would a real one. All of the notes (MIDI events) you play will be recorded to a MIDI clip on the track. If you want to hear a metronome as you play (with or without a count-in) you can activate and deactivate it in the Tempo Settings. Press Stop  to stop recording.

NOTE. The Evolution One Synthesizer screen includes its own onscreen virtual keyboard, so if you select that as an instrument, you will see that interface instead. It has its own playback transport controls though so you can still record using its keyboard, just as when using the keyboard shown in the screenshot above. Please note though, that while the Modulation Wheel and Pitch Bend Wheel actions *will* be recorded as part of the MIDI clip information, changes to other synth parameters made while recording *will not* create automation clips as is about to be described for the instrument parameters of soundfont/SFZ instruments. The Flowtones synthesizer screen has its own virtual keyboard and transport controls but no Modulation or Pitch Bend Wheels.

There are, as can be seen, other things available here so we shall now quickly run through some features of the interface shown.

- The keyboard itself labels the start of each new octave - C4 and C5 can be seen on the screenshot above. The small keyboard above the larger one is a **Navigator**  , allowing you to move the area of the keyboard displayed and also resize it. The yellow rectangle indicates the area currently displayed. Tapping elsewhere on the navigator keyboard will jump the display to that area. Pressing, holding and sliding within the yellow rectangle also allows you to move it and reposition the viewpoint. Pinch with two fingers on the keyboard navigator to make the keys on the main display smaller, and therefore fit more of them onscreen at any one time. Pull out with two fingers on the navigator to make the keys larger.

- To the left of the main keyboard are the **Modulation (Mod) Wheel** (on the right) and the **Pitch Bend Wheel** (on the left)  . These will be familiar to anyone who's used a physical MIDI keyboard. The Mod Wheel allows to add and vary the amount of modulation applied to notes as you play. The type of modulation will have been assigned by the creator of the soundfont/SFZ you're using (though, when using the Evolution One Synthesizer, you have the option to assign one of five options to be controlled by the mod wheel in the Synth Settings). The Pitch Bend Wheel does exactly what it says: it bends the pitch of the notes being played in real time. Move it upwards to bend the pitch upwards, move it down to bend the pitch down. The pitch bend wheel is 'spring loaded', meaning that letting go of it will mean it springs back to the center where no pitch bend is being applied. Any interactions with the mod wheel and pitch bend wheel made while recording will be recorded as MIDI events and can be seen, and edited, within the Piano Roll Editor. Mod wheel events can be found within the **Control Change** (CC) section of the Event Type Selector - select it from the CC options shown (Control Change 1 (Modulation Wheel)). Pitch bend events have their own section in the Event Type Selector - simply select **Pitch Bend**. The display of the mod wheel and pitch

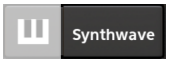
bend wheel can be switched on and off using the **Wheels** 

button.

NOTE. Though the Flowtones synth virtual keyboard doesn't have Mod or Pitch Bend Wheels, if you connect your device to an external MIDI keyboard, you can assign numerous parameters within Flowtones to be modulated by the Mod Wheel. You can also do this from within the app using automation and pitch bend can also be achieved by selecting it as the Event Type in the Piano Roll Editor as described here.

- Next to the Wheels button is the **Sustain** 

button. This imitates the behavior of a sustain pedal on a piano. When switched on, all notes played will ring out for as long as possible until they fade to silence. There are two ways to activate **Sustain**: when just tapping quickly on the button, the sustain remains pressed in and active. When you long-tap on the button, the sustain will only be active for as long as you hold it.

- If you want to select a different virtual instrument to use, please press the Open Instrument Selector 

button.

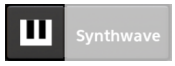
- Finally, above the keyboard display are the instrument parameter controls 

. These are discussed in greater detail here but with regard to this section, it is worth noting that any changes made to them while recording will also be recorded *as long as the app is in Touch mode*. Unlike the mod and pitch bend wheels though, these actions are not recorded as MIDI information, they are recorded as Automation. After recording has finished, they can be accessed, and edited, via the Automation 

mode. Simply select the relevant parameter from the list of options for the recorded automation to be displayed. For more information on automation, please see here.

NOTE. You can turn **Vertical keyboard velocity** on and off in the app Settings 

. When turned on, the higher up on the keyboard key you touch it, the lower the note's velocity which will be heard (and recorded). For more information about velocity, please see here.

To exit the virtual keyboard display, disarm the track and return to the Arranger Screen, simply press either the Open Virtual Keyboard 

button or the Arm 
button again.

Recording MIDI with the Onscreen Drum Pads

Recording MIDI with the onscreen drum pads also allows you to live-record MIDI wherever you are and without connecting any external equipment.

The important thing to note here is that, to use the onscreen Drum Pads, you need to create a **MIDI Instrument track** and NOT a Drum Pattern Track. Drum pattern tracks are set up to use the Drum Pattern Sequencer interface which doesn't cater for live recording and therefore you can't access the drum pads from such tracks. You can, though, always convert a drum pattern track to a MIDI instrument track if you want to record some drumming using the drum pads to

beats already made using the drum pattern sequencer. Likewise you can also convert an instrument track to a drum track if you want to use the drum pattern sequencer *after* recording using the drum pads, though MIDI events which haven't been quantized and don't fit on the sequencer grid will be displayed transparently as 'ghost' events even though they are still present.

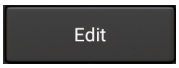
So, first, create your MIDI Instrument Track using the Add Track button on the Arranger Screen and select your virtual instrument as described here. You'll want to select a soundfont that contains a drum kit. The drum kits in the Default Sound Set can all be found in Bank 128, so you will need to scroll down and select Bank 128 to find them. For any drum kit soundfont purchased from the shop, you can directly select a preset since there is only one bank. For the right drum to be mapped to the right drum pad, the drums need to be mapped according to the General MIDI (GM) mapping standard for drums (as can be seen about halfway down here). All of the drum presets in the Default Sound Set and all of the drum soundfonts available to buy in the shop from Digital Sound Factory conform to the GM mapping and can be reliably used.

Now, you can open the virtual onscreen drum pads, seen below, by pressing either the Open Virtual Keyboard button or the Arm button, both found on the track's Channel Strip. Both options also arm the track, lighting up the Arm button in red as can be seen in the screenshot, making it ready to recorded to.

NOTE. If you carry out the last step and find you're taken to the virtual piano keyboard screen rather than the drum pads, don't worry, you just need to change the MIDI Input setting for the track. Do this by pressing the MIDI Input button on the track's Channel Strip and selecting **Drum pads** on the left of the dialog shown. The drum kits in the Default Sound Set have been set up to use the drum pads by default, but the Digital Sound Factory drum soundfonts will require you to change this MIDI input setting to display the drum pads.

NOTE. The number of drum pads displayed will depend on the size of your device's screen.

From this screen, it is simply a case of pressing the Record  button and playing the onscreen drum pads. All of the notes (MIDI events) you play will be recorded to a MIDI clip on the track. If you want to hear a metronome as you play (with or without a count-in) you can activate and deactivate it in the Tempo Settings. Press Stop  to stop recording.

Note the **Edit** 

button. When pressed and active, this allows you to press any of the drum pads and load a different drum sound if required. You are also given the option to edit the velocity for the drum pad, though this will only have an effect if you have **Drum pad velocity** turned off in the Settings (see the following note). Press the edit button again to deactivate the mode and allow the pads to be played again.

NOTE. You can turn **Drum pad velocity** on and off in the app Settings 

. When turned on, the higher up on the drum pad you touch it, the higher the note's velocity which will be heard (and recorded). For more information about velocity, please see here.

To exit the drum pad display, disarm the track and return to the Arranger Screen, simply press your device's Back button.

Recording MIDI with an External MIDI Keyboard

If you have a compatible USB MIDI class-compliant keyboard or interface and a device with OTG functionality (see requirements here) you will be able to use that keyboard to play and record MIDI within Audio Evolution Mobile.

Connect your MIDI keyboard to your device as described here and launch the app.

When using virtual instruments on the device itself, create a MIDI Instrument Track using the Add Track  button on the Arranger Screen and select your virtual instrument as described here. Once the track is created, the instrument will be controlled by the connected MIDI keyboard. For use with external synthesizers, please create a (plain) MIDI track, such that when playing back MIDI events, the MIDI events are sent to the chosen USB MIDI output. Now all you need to do is Arm  the track, press Record  and perform. To stop recording press Stop  . Your performance will be recorded as events on a MIDI clip on the track. If you want to hear a metronome as you play (with or without a count-in) you can activate and deactivate it in the Tempo Settings. If you then want to manually edit the notes/events you've recorded, just press the Arm button again to disarm the track and return to the Arranger Screen, double-tap on the MIDI clip to open the Piano Roll Editor where you can edit as normal.

If your keyboard has velocity sensitive keys, the velocity levels will also be recorded to the MIDI clip. There is, though, an **Ignore MIDI velocity** option in the **USB MIDI** section of the Settings 

if you'd rather have every note recognized at the highest velocity level (127) and edit the velocities yourself using the piano roll editor.

Likewise, any interactions with the keyboard's Modulation (Mod) Wheel and Pitch Bend Wheel, will be recognized and recorded as events in the MIDI clip. If you then want to edit those events in the piano roll editor, Mod wheel events can be found within the **Control Change** (CC) section of the Event Type Selector - select it from the CC options shown (Control Change 1 (Modulation Wheel)). Pitch bend events have their own section in the Event Type Selector - simply select **Pitch Bend**.

Lastly, there is further possible functionality available when using an external MIDI keyboard/controller if you assign different controls and instrument parameters within the app to the physical dials and buttons available on the keyboard/controller. To do this, you need to complete the MIDI Remote Setup process which is covered next, here.

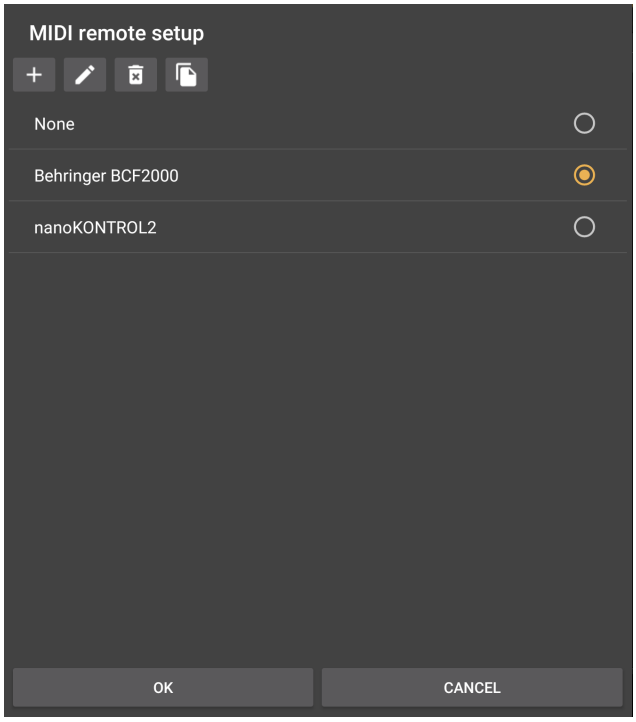
MIDI Remote Setup

With the MIDI remote control feature, you can control mixer (volume, panning, mute, etc.), instrument and transport (play, stop, record, etc.) buttons and sliders from an external MIDI device. This can be a dedicated MIDI remote controller (like a Korg nanoKontrol, Behringer BCF2000, etc.) or buttons and controls on a MIDI keyboard.

Since every MIDI device is different in terms of number and kind of controls and you may have a personal preference on which knob does what, you will need to configure one or more MIDI remote control setups.

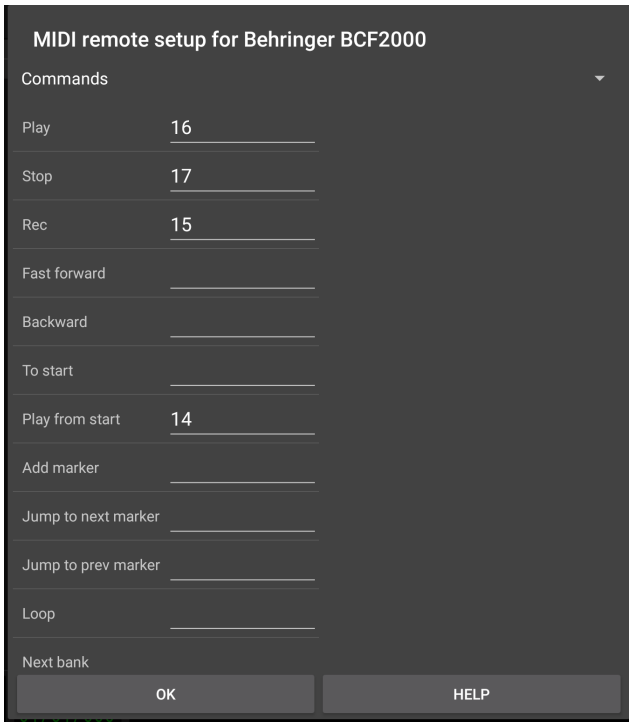
To do this, first make sure your MIDI device is connected correctly as described here and then launch Audio Evolution Mobile. Then, from the More 

menu on the Arranger Screen, select **MIDI remote control**. This opens the following dialog.



Here you can see remote setups that you have done and all pre-included setups. The buttons on top allow you to add  , edit  , remove  and duplicate  a setup. To create a new setup, press the  button and give your new setup a name.

Once a setup is created, or an existing one opened, the setup editor dialog, seen below, that opens allows you to assign MIDI control change (CC) numbers to various actions.



If you know the MIDI CC numbers associated with the various controls (buttons, pads, dials etc.) on your MIDI device, you can enter them manually using the on-screen keyboard. It is almost certainly going to be much easier though to allow Audio Evolution Mobile to use 'MIDI Learn' to assign controllers to the various parameters. To do this, simply select the desired parameter field by tapping on it. Now, simply turn the dial, or press the button, on your MIDI device which you'd like to use to control that parameter. The app will recognize this MIDI input and assign it to control the selected parameter. So, in the example shown above, the 'Play' parameter's field was tapped, a button was pressed on the MIDI controller and the app automatically recognized the input as coming from MIDI CC number 16 and applied it, and that button on the controller, to control the Play function within the app. In use, once the app receives a MIDI CC number over MIDI, it will look up if it is assigned to a certain action and, if so, will perform the action using that controller, just like when you touch a control on the screen directly.

The setup editor dialog is divided into several categories, selectable by the spinner control at the top:

- **Commands**

This section contains transport controls and other actions like enabling/disabling Loop or add and jump to markers. For each action in the scrollable list, you can assign a CC number either by entering a number manually or easier, by MIDI learn. When you select a text field of an action, instead of entering a number, you can also touch/move a control on your MIDI device and the CC number will automatically appear in the text field. This will save you from looking up the CC number in the user manual of your MIDI device. Make sure that you do not use a CC number for multiple actions.

- **Track**

Contains mixer channel controls for the tracks in the project, like volume, panning, mute, solo, arm and EQ controls. Since you will probably have multiple tracks and it would be tedious to assign CC numbers for the same controls on different tracks, there are two different methods to auto-assign controls on subsequent tracks: by increasing CC or by increasing MIDI channel number. If you for instance assign MIDI CC 30 to Volume and select 'Increasing CC', then track 1 would change volume when MIDI CC 30 is received and track 2 would change volume when MIDI CC 31 is received, and so on. Similarly, when choosing 'Increasing channel', track 2 would change volume when MIDI CC 30 is received on MIDI channel 2 and so on. Which method is better depends on your specific MIDI device.

What if your project has more tracks than there are controls on your MIDI control device? Or what if your MIDI device has 8 faders, but you want to use the last one to control master volume? That's where the 'Bank size' setting comes in. If you have 8 faders/sections for instance, you can set the bank size to 8. Then you can assign MIDI CC's to the 'Next bank' and 'Prev bank' actions in the Commands section to switch between multiple banks of controls. So, if you press the button on your MIDI controller assigned to 'Next bank', then the first control section would map to track 9 and so forth. If you set a bank size of 7 and have 8 volume, pan controls etc. on your MIDI device, then you could have the tracks in banks of 7 and use the last section or master channel controls.

- **Bus**

Similar to Tracks, but controls the busses/groups in the project. You can choose between two options: use the same MIDI CC's as you set up in the Tracks section and switch between controlling tracks or busses with one MIDI CC, or, define the controls for groups separately.

- **Instrument**

Here you can assign MIDI controls for the currently active instrument, like Attack, Decay and Release.

- **Global**

'Play triggers on 127 only': when enabled, the Play button only triggers when MIDI value 127 is received. Some MIDI controllers send a value of 0 when you release the button, which would cause the play or pause to trigger as well. In that case, enable this option.

Parameter feedback can be used to send the state of controls back to the MIDI controller. For instance, if you have automation in the project and have a MIDI controller with motorized faders, then the faders will automatically move according to the current state in the project. Some MIDI controllers also have buttons that are lit to indicate on/off state.

You can choose the MIDI device/port to which the feedback information is sent and from which MIDI remote control is received, in case you have multiple MIDI devices attached.

NOTE. The remote setups are stored as XML files inside the AudioEvolution/MIDIRemoteSetups folder. You can send/share remote setups by emailing an remote setup XML file to someone else. If you have a certain setup that you want us to include by default in the app, please send us the XML file with a short description of which device it controls and how it is set up.

Editing MIDI Clips

The editing of MIDI events themselves is done in the Piano Roll Editor and the Drum Pattern Sequencer and those areas are fully covered in this section of the manual. What is not covered separately in this section on MIDI though, is the editing of MIDI clips on the timeline in the Arranger Screen view. This is because such editing on the timeline is generally done the same way for MIDI clips as it is for audio clips. As such, if you are wanting to know, for example, how to trim or move a MIDI clip please refer to the instructions in the Editing Audio section. Differences between audio and MIDI clips, and the editing options available for each, are detailed in the Audio and MIDI Clips section.

The Piano Roll Editor

If you want to manually edit the MIDI information you've recorded using the on-screen keyboard or external MIDI keyboard, or, if you don't play the keyboard and want to compose your music completely manually right from the beginning, the Piano Roll Editor is the place to do it. Piano roll editors can seem quite daunting when you first encounter them, but they're really very easy to use once you understand the concept behind them and get used to composing on them. What's more, if you don't play an instrument, learning to use a piano roll editor will allow you to use, to 'play', every virtual instrument you have available: lack of skill as a performer need not stand in the way of your musical imagination.

It is worth noting that the concept used dates back to at least 1896. Physical piano rolls are long continuous rolls of paper with holes punched in them. The holes represent note and control data. Once loaded into a Player Piano, or Reproducing Piano, the roll moves over the 'tracker bar' which reads/interprets the holes and triggers the notes accordingly. A piano roll editor for MIDI compositions uses the same basic concept.

The Piano Roll Editor represents a piano keyboard vertically, with the lowest notes at the bottom and the highest notes at the top. The horizontal axis represents time. Therefore, you choose your note vertically and define the duration of that note horizontally. During playback, the playback head moves through the score from left to right, triggering the notes accordingly as it does so. There is a great deal more functionality present in Audio Evolution Mobile's piano roll editor, ways of refining the performance of each note, but that is the basic principle.

To open the Piano Roll Editor, first create a MIDI instrument track or plain MIDI track using the Add Track  button on the Arranger Screen. For a MIDI instrument track, choose the virtual instrument you'd like to use from the selection screen shown (by default the Stereo Grand from the Default Sound Set will be chosen on that selection screen).Then, double tap within the created track, which will automatically create a MIDI clip on the track and open the piano roll editor screen seen here.

NOTE. When you double tap on the empty MIDI (Instrument) track to create a clip/open the piano roll editor in Expert mode, the clip will be placed on the empty track at the *beginning* of the bar you double tapped on. So, if you look at the Timeline/Marker Display

and double click on the MIDI track within the bar 1 area (i.e. before bar 2 starts), the clip will be placed at the beginning of bar 1 (the start of the project) and the piano roll view will also open at the beginning of bar 1. If, though, you double tapped in the area defining bar 4 on the track (between 4 and 5 on the Timeline/Marker Display), the clip would be placed at the beginning of bar 4 and the piano roll would open at the beginning of that clip. The same system is used when any additional new clip is created by double tapping in an empty area of the track.

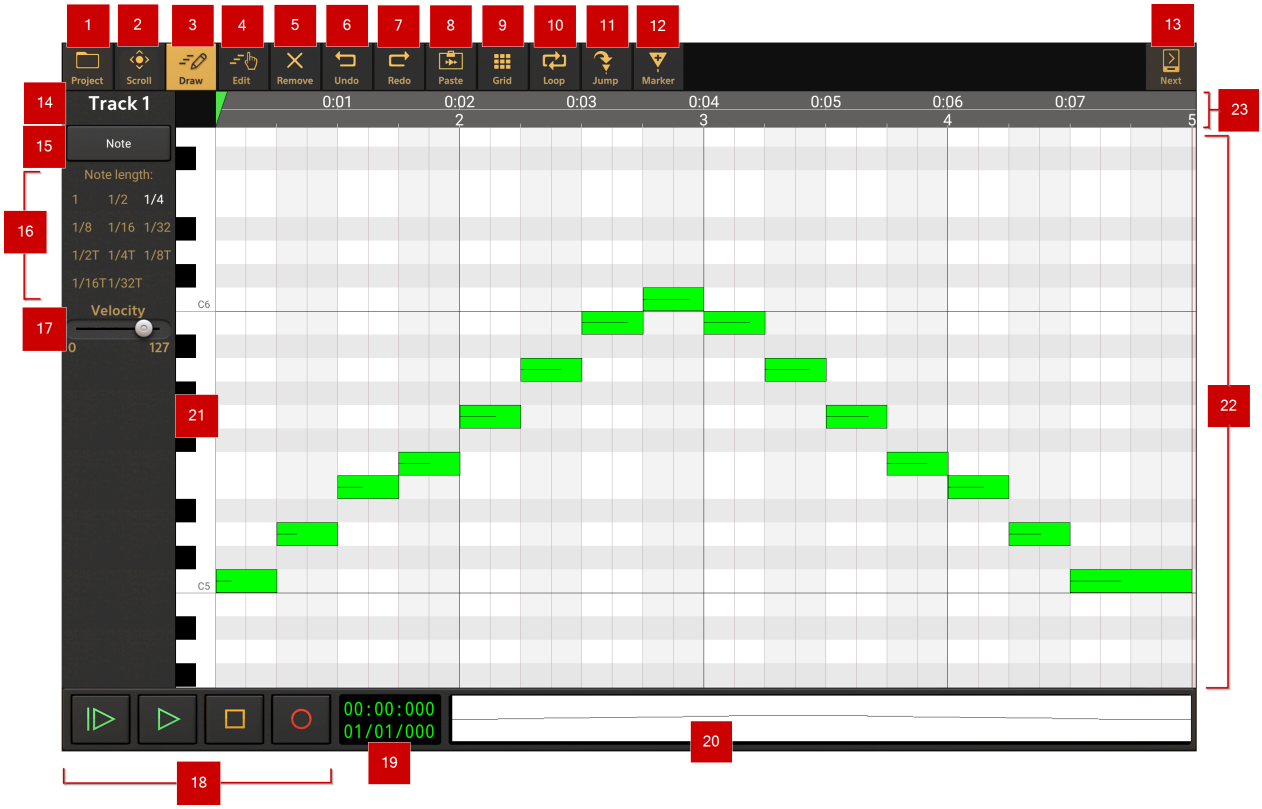
Once clips exist on your MIDI track, to open them in the piano roll editor for editing, you double tap on them again. This time though, the initial piano roll viewpoint will be exactly the point on the timeline at which you double tapped the clip - it won't jump to the beginning of that bar. As such, you will need to scroll through the piano roll display to see the MIDI events occurring before and after the point at which you double tapped.

NOTE. The above instructions refer to the Expert Mode Arranger Screen set up. To create a MIDI clip when using the Beginner Mode Arranger Screen, you need to be in Edit 

mode. When in this mode, tap once in any empty area of the MIDI track's timeline. The clip will be placed at the beginning of the bar you tapped closest to. Once created, double tap a clip, in either Edit or

Scroll 

modes to open the clip in the Piano Roll Editor.



NOTE. If your device screen is too small to display all of the buttons shown here at the same time, the **More** 

button will allow you to access the functions you're missing.

1 The **Project** 

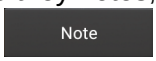
button allows you to **Save project** and **Save project as**, as well as access the project sample rate setting (if it has not already been 'locked in place' by the presence of audio in the project), directly from the piano roll editor screen.

2 The **Scroll** mode 

button disables both the draw and edit modes and so allows you to swipe through your MIDI composition on the piano roll without having to worry that you'll accidentally add unwanted notes or change and delete things you *do* want. Activating the Scroll mode also gives you access to some of the controls, seen below, from the track's Channel Strip.

As can be seen, this allows you to alter the track volume and pan, arm and disarm the track, mute and solo the track, change the virtual instrument used by the track and open the onscreen piano keyboard screen (once on the onscreen keyboard screen, press the Arm button (shown active and lit up red above) to disarm the track to return to the piano editor).

3 The **Draw** mode 

button (shown here in its 'lit up' active state) allows you to add new MIDI events to the piano roll grid. The type of events you add (be they notes, pitch bends, velocity levels etc.) will be determined by using the Event Type Selector 

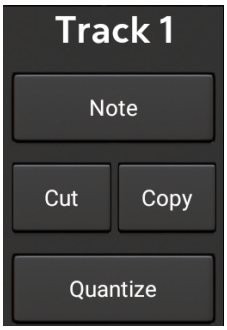
button. In this mode, you can also tap, hold and slide on events to move them (this works for most MIDI event types including Notes). When in the Note event type, tap, hold and slide on the end of note events to adjust the note's length. Such movements will be affected by the piano roll Grid snap-to setting; turn it off by selecting **OFF** to move and resize freely without any snapping-to. The **Piano roll editor event selection time** can be user defined in the **User interface** section of the Settings 

if the notes/events aren't responding to your touch as quickly as you'd like. For more information on using the piano roll editor, please see the Event Type Selector definitions here.

4 The **Edit** mode 

button allows you to edit MIDI events already present without adding any new events. Again, use the Event Type Selector button to access the different types of MIDI events to be edited. Tap, hold and slide on events to move them (this can also be done in Draw mode depending on the event type is selected in the Event Type Selector). Tap, hold and slide on the end of note events to adjust the note's length (this can also be done in Draw mode when Note is selected in the Event Type Selector). Note event lengths can also be adjusted using the handles shown in the Timeline/Marker Display area when a note is first placed or is selected by long pressing on it (it is also possible to use this method to alter the length of multiple notes once they've been selected with the rectangular marquee tool). Tap, hold and slide on one of the handles to alter the length of the note from the end or, unlike the previous method, the beginning. Such movements will be affected by the piano roll Grid snap-to setting; turn it off by selecting **OFF** to move freely without any snapping-to.

Long press on an event to select it. Alternatively, long press in an empty area of the piano roll grid to activate the rectangular marquee tool, allowing you to select one or more events. Once an event or events are selected, you will be able to **Cut** (remove and copy to clipboard)**, Copy** (copy to clipboard) or **Quantize** (snap to exact musical increments of the tempo) the events selected using the buttons on the left of the interface when Edit mode is active (seen below). When Quantize is selected a further dialog will open allowing you to tailor the quantization to your requirements as described here.



5 The **Remove** mode 

button allows you to completely remove the currently displayed type of MIDI event (except for velocity levels) from the piano roll grid by tapping on or swiping over the events with your finger as if it were an eraser.

6 The **Undo** 

button undoes the last edit made on the clips and tracks within the piano roll 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 list is emptied when the app is closed and will therefore be empty when the app is next launched. The piano roll editor will close when the event you are undoing is the event that created the MIDI clip.

7 The **Redo** 

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.

8 The **Paste** 

button allows you to paste any MIDI notes (including their velocity levels) you have copied to the clipboard. The copied content is pasted from the position of the Time Marker 
in the timeline. Position the time marker by tapping once on the Timeline/Marker Display; by touching, holding and sliding the time marker or by sliding your finger in the MIDI Clip Overview/Scrollpad. You can also use the Jump to button. Be aware of the the piano roll Grid size setting and that the Time Marker will snap-to the musical increment selected as it is moved; select **OFF** in the grid size settings to move the markers completely freely. When in Edit mode, you can also paste by long pressing at the point in the piano roll grid where you would like the paste operation to happen. This will bring up a dialog asking whether you want to **Paste** or **Clear clipboard**. If you choose 'Clear clipboard' you will then be able to use the long press to activate the rectangular marquee tool, allowing you to select a group of notes on the grid which you can then copy to the clipboard.

9 The **Grid** 

button opens the Grid size options, seen below, for *snapping-to* on the piano roll editor.

This allows you to choose the musical increment that the placement and movement of MIDI events on the piano roll will snap-to. It does not affect the display of the piano roll, whose visible grid is always displayed dynamically according to the level of zoom. As can be seen, it can be turned **OFF** which will allow placement and movement of events completely freely on the piano roll. Next is the **DYN**, dynamic option. This will have the events snap-to the smallest increment currently displayed visually according to the zoom level on the piano roll. The rest of the options are increments of the current tempo from one **BAR** to **1/32T** (1/32 triplet beat).

10 The **Loop** 

button displays the loop markers 

and engages looped playback mode. The loop markers can be moved by touching, holding and sliding them to the desired time point. Be aware of the the piano roll Grid size setting and that the markers will snap-to the musical increment selected as they are moved; select **OFF** in the grid size settings to move the markers completely freely. Press the Loop button again to turn loop mode off.

11 The **Jump** 

button displays the Jump-to options. These allow you to quickly and easily jump the Time Marker 
and your viewpoint to one of the options available, just as when on the Arranger Screen. For full details, please see here.

12 The **Marker** 

button allows you to place a blue marker 

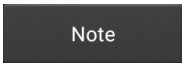
in the Timeline/Marker display at the current position of the Time Marker. Position the time marker by tapping once on the Timeline/Marker Display; by touching, holding and sliding the time marker or by sliding your finger in the MIDI Clip Overview/Scrollpad. You can also use the Jump to button. Be aware of the the piano roll Grid size setting and that the Time Marker will snap-to the musical increment selected as it is moved; select **OFF** in the grid size settings to move the Time Marker completely freely. You will offered the chance the name your marker as you create it. Once created, you can reposition the marker by touching, holding and sliding the marker's blue handle/name display. For full details, please see here and here.

13 The **Next** 

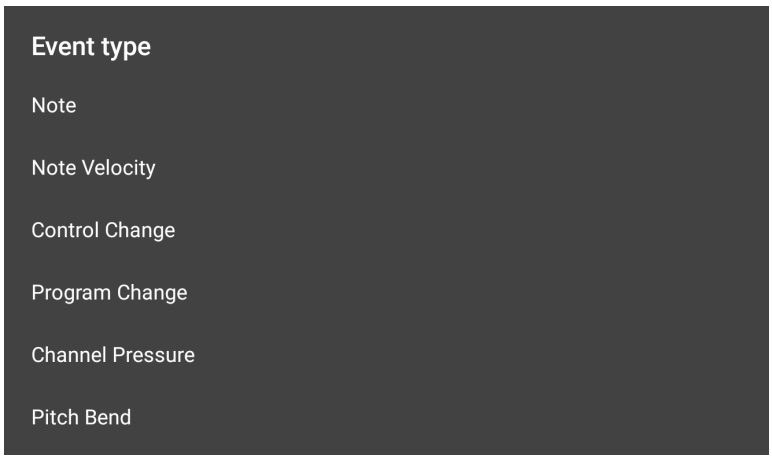
button takes you back to the Arranger Screen. From there, repeated presses will cycle through the Mixer screen, the Master Screen and back to the Arranger Screen again. In order to open the Piano Roll Editor again, double tap on a MIDI clip on a MIDI (Instrument) track.

14 The track name 

is displayed here.

15 The **Event Type Selector** 

button allows you to select the specific type of MIDI event you are Drawing or Editing. This is where you access the options that allow you to refine the performance of the MIDI notes. Pressing the Event Type Selector button opens this dialog.



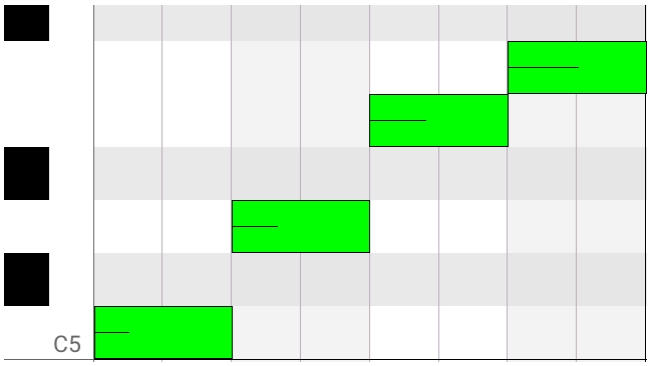
As you can see there are six options available, one of which, Control Change, opens further options.

- **Note**. This is the default event which allows you place and edit MIDI note events on the piano roll. This is what you'll use to compose your music. Notes are represented by rectangular blocks on the piano roll as can be seen below. Their placement vertically defines the pitch of the note. On the left of the piano roll is a virtual keyboard indicating the pitch. Each new octave is indicated on the keyboard: C5 is labeled in the image below. This virtual keyboard can be played by touching it if you want to hear the notes.

Tap on the piano roll to place a note.Tapping *and* holding will allow you to create a note and slide it to the desired pitch and location. Long pressing and holding on a note after it's been created will also allow you to move it (and will select it, see below). Be aware that the notes will be placed in accordance with the piano roll Grid snap-to settings - turn it off if you want to place notes without any snapping-to. The same will apply to any note edits which move or resize the note length.

The duration of the note is indicated by its horizontal length on the piano roll. Different note lengths can be selected for placement on the left of the interface using the Note Length Selector. Note lengths can be changed manually (in both Draw and Edit modes) by long pressing, holding and sliding on its end point (right hand edge). Note event lengths can also be adjusted using the white handles shown in the Timeline/Marker Display area when a note is first placed or is selected by long pressing on it (it is also possible to use this method to alter the length of multiple notes once they've been selected with the rectangular marquee tool). Tap, hold and slide on one of the handles to alter the length of the note from the end or, unlike the previous method, the beginning. Again, this will happen in accordance with the piano roll Grid snap-to settings.

As can be seen in the screenshot below, the velocity level of each note on the piano roll is indicated by a horizontal black line within the note itself. The greater the note's velocity, the longer the line, relative to the note's length, running from left to right until it it fills the full width of the note at maximum velocity (127). In this example below, the velocity of each note is higher than the previous one. For more information on velocity and how to edit it, please see below, here.



The **Piano roll editor event selection time** can be user defined in the **User interface** section of the Settings 

if the notes/events aren't responding to your touch as quickly as you'd like. This setting also defines how notes respond to your touch after you've placed them.

- Tapping on a non-selected note within the time specified in the preference option 'Piano roll editor event selection time' will **delete** the note

- Tapping on a selected or non-selected note and holding it longer than the time specified in the preference option 'Piano roll editor event selection time' will allow the note to be **moved** and will **select** it upon release.

- Tapping on a selected note (notes turn black when selected) within the time specified in the preference option 'Piano roll editor event selection time', will open the note **Options** seen here.

As you can see, these options allow you to **Cut** (remove and copy to clipboard)**, Copy** (copy to clipboard), **Delete** and **Quantize** (snap to exact musical increments of the tempo). When Quantize is selected a further dialog will open allowing you to tailor the quantization to your requirements as described here.

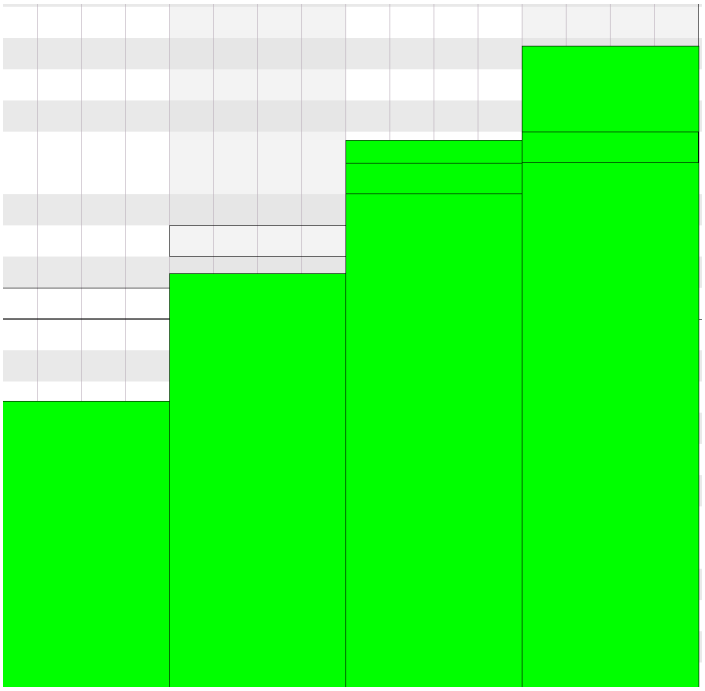
You can also **select multiple notes** by long pressing and holding in an empty area of the piano roll grid to activate the rectangular marquee tool which you can then slide around the notes you want to select.

To **deselect notes**, tap once in any empty area of the piano roll grid.

- **Note Velocity**. This allows you to set the note velocity. Note velocity is often thought of as

the note volume but this isn't correct. Velocity refers to how hard (the speed at which - the velocity) an instrument is hit, or struck or strummed etc. A piano key played very softly is not only much quieter, but it also has a different sound characteristic (timbre) from the same key being struck very hard. Virtual instruments can contain 'velocity layers', meaning they have multiple sets of samples representing the different velocities at which the instrument can be played. The Note Velocity setting for each individual note will then determine which sample, from which set, is used, resulting in a much more realistic recreation of the instrument. When active, each note in the composition will be represented by a vertical bar, as seen below. These bars can be moved up and down with your finger, from 0 to 127, to set each note's velocity. The **Piano roll editor event selection time** can be user defined in the **User interface** section of the Settings 

if the bars aren't responding to your touch as quickly as you'd like. The velocity level will be displayed in the Playback Timer Display as the bars are adjusted. As can be seen here, the notes to which each velocity bar belongs are shown as outlines when in Note Velocity mode.

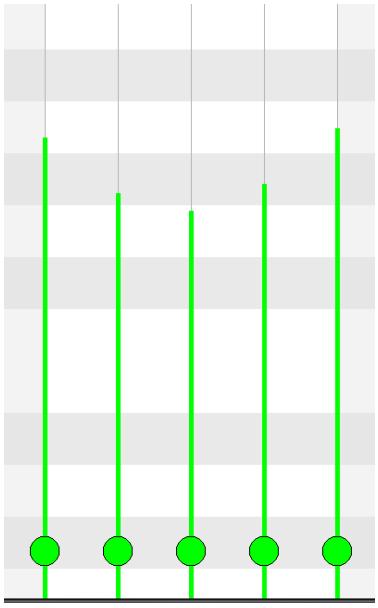


NOTE. Not all virtual instruments have velocity layers and instead use just one set/layer of samples. In this case, changing the velocity *will* only change the volume of the notes.

- **Control Change**. Control Change messages are usually referred to as a CC, with a controller number ranging from 0-127. Most hardware MIDI equipment will send these CC messages from their dials, buttons, faders etc., with a different number allocated to each dial or button. Software can recognize these messages and therefore allocate, or map, particular functions within the software to be controlled by those dials or buttons on the external MIDI equipment. This is what happens when you set up your MIDI remote control.

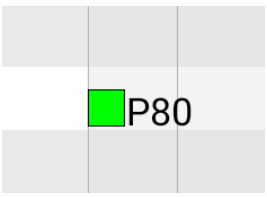
The Control Change option here, though, allows you to Draw and Edit the same type of events (Modulation Wheel, Sustain On/Off, Pan, Portamento and lots more) on the piano roll editor if you do not have any external MIDI equipment connected to control and record changes to these parameters live. Selecting Control Change will open a full list of the options. Select the option you want and draw the levels of that parameter you want at different points onto the piano roll. Be aware that the event points will be created in accordance with the piano roll Grid snap-to settings - turn it off if you want to create continuous smooth changes. Use the Edit mode to change events without adding any more. The value of each individual control change point created will be

shown in the Playback Timer Display as they are created or edited. Use the Remove mode to remove events completely. Control Change events are represented on the piano roll by thin lines whose height represents the level at that point, seen below. The circles at the bottom of the lines indicate the parameter chosen to be controlled from the list of options. If you also add events for a different parameter, you will notice that the circles are in a different place vertically, to distinguish the two sets of events.



- **Program Change**. Also known as a 'Patch change', the program change option allows you to change the program/patch/preset used by the loaded virtual instrument mid-composition on the same track. If the virtual instrument uses the General MIDI (GM) Mapping, as Audio Evolution Mobile's Default Sound Set does, you can refer to the list of instruments found here to set which instrument is assigned to which program number. If the virtual instrument does not conform to the GM standard it will be up to the virtual instrument creator to decide which program/patch/preset is assigned to which program number. As such, it can be a case of trial and error with such instruments.

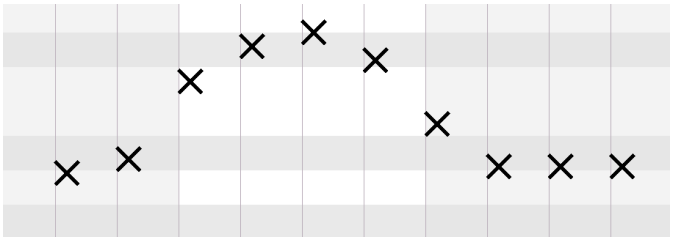
With Program Change selected, place program change points on the piano roll using the Draw mode. Tap and hold to place, sliding up or down to define the program number and left or right to define their position in the timeline. Be aware that the event points will be created/moved in accordance with the piano roll Grid snap-to settings - turn it off if you want to place a program change completely freely. Use the Edit mode to change events without adding any more. Use the Remove mode to remove events completely. The number of each program change event created will be shown in the Playback Timer Display as it is created or edited. Program change events are represented on the piano roll by a colored square with the program (P) number next to it as seen here.



- **Channel Pressure**. Channel Pressure refers to the pressure applied to a key, or button/pad, *after* the initial touch. For this reason it is also known as 'Monophonic Aftertouch' (distinct from 'Polyphonic Aftertouch' because the setting is applied across all notes being sounded at that point - across the whole channel - rather than being set for each note individually). The

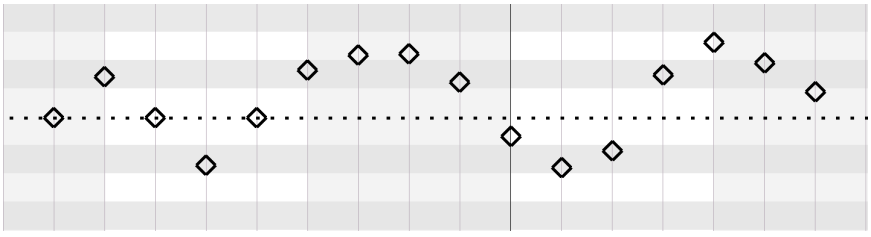
channel pressure level is assigned to control other parameters. Some external MIDI devices therefore allow you to manually link the channel pressure events to the parameter of your choice. So, you might, for example, assign the channel pressure to a filter, which would mean that when you press and hold a key, or pad, you hear the note and then the greater the pressure you place on, or lift off, the key, the greater or lesser the effect of filter applied, all in real time.

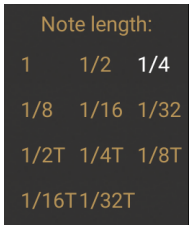
The Channel Pressure mode in Audio Evolution Mobile's piano roll editor therefore allows you to Draw and Edit channel pressure events which can then be used by external MIDI instruments when you're controlling them using the app, provided they have this functionality. Just remember that, since the events are applied across the whole channel, not on a per-note basis, the effect will be heard affecting every note sounding at that point. Be aware that the event points will be created/moved in accordance with the piano roll Grid snap-to settings - turn it off if you want to place channel pressure events completely freely. Channel pressure events are represented on the piano roll by cross marks, seen here.



Soundfonts can also have a parameter - most likely the one most pertinent to that instrument or preset - assigned to the Channel Pressure by the creator of the soundfont, so you may find that creating and editing channel pressure events does have an effect even when you are using it without an external MIDI instrument which supports it.

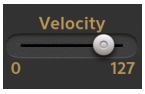
- **Pitch Bend**. This allows you to manually Draw and Edit pitch bend events on the piano roll. When this event mode is active, there will be a thin dotted line displayed across the length of the piano roll (try moving the piano roll display if you can't see it - it might be hidden by one of the lines of the piano roll initially). This dotted line represents the normal pitch without any pitch bend applied. Events placed below this dotted line will bend pitch of all notes sounding at that point downwards. Events placed above that dotted line will bend pitch of all notes sounding at that point upwards. Be aware that the event points will be created/moved in accordance with the piano roll Grid snap-to settings - turn it off if you want to place pitch bend events completely freely. Pitch bend events are represented on the piano roll by small diamond shapes with the thin dotted line representing the standard pitch, seen below.



16 **Note Length Selector** 

. This is where, when you're placing notes on the piano roll in Draw mode, you can quickly and easily select the length of note you want to place.

The range of notes available covers from one full note (one whole bar) all the way up to 1/32T (Triplet) note. Notes can always be resized after they've been placed by long pressing, holding and sliding on their right hand edge. This action will follow the piano roll Grid snap-to settings; turn it **OFF** to freely resize notes without any snapping-to.

17 **Velocity** 

. This velocity slider allows you to set the velocity of notes before you place them on the piano roll. The range is from 0 to 127 and the default level is 100. The slider can also be used to alter the velocity of notes already present (when in Draw mode and with Note selected in the Event Type Selector) by selecting a note or multiple notes with the rectangular marquee (long-press to initiate a rectangular marquee), and moving the velocity slider. The velocity value will be displayed in the Playback Timer Display as the slider is moved.

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

 Start Playback from the beginning of the project.

 Playback from the position of the Time Marker (The green marker  in the Timeline/Marker Display).

 Stop Playback or Recording.

 Record.

19 **Playback Timer Display** 

. This display shows the current time during playback and recording. When playback and recording are stopped it displays the current position of the Time Marker (the green marker  shown in the Timeline/Marker Display). 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. This is also the place where most parameter levels are displayed as they are being changed.

20 **MIDI Clip Overview / Scrollpad**

 . Working on the same principle as the Project Overview/Scrollpad on the Arranger Screen, this area represents the entire MIDI clip you're currently editing in the piano roll. Sliding you finger across it allows you to very quickly move your viewpoint to a particular point and simultaneously position the Time Marker  .

21 **Piano Roll Virtual Keyboard** . The vertical increments of the piano roll represent the pitch of the notes: lowest at the bottom and highest at the top. To help with this, Audio Evolution Mobile provides a virtual keyboard along the vertical axis to the left. The keys can be pressed and the notes heard. Each new octave is labeled on its first note (C0, C1, C2 etc.). Sliding with one finger in the piano roll grid area will move the piano roll and the virtual keyboard will move accordingly when it is moved up or down.

22 **Piano Roll Grid Area**. This is the main area of the piano roll editor, the place where you add and edit MIDI events. Sliding with one finger in this area will move the piano roll viewpoint around. Use pinch/pull to zoom in and out. The grid displayed is shown dynamically depending on the level of zoom. When you reach the part of the piano roll which has a red overlay, this indicates that that area is beyond the current clip size, meaning that the clip needs to be trimmed for any content placed there to be heard during playback. If notes are present on this red area, returning to the Arranger Screen using the Next 

button will display a pop-up asking if you want the clip to be resized to include those events. Alternatively, you can trim the clip yourself by selecting it on the Arranger Screen and using the Clip Trimming Handles to reveal the hidden MIDI events.

NOTE. Don't forget that the appearance of the piano roll editor grid will also be affected by the Time Signature settings in the Tempo Options.

23 **Timeline/Marker Display** showing the Time Marker (the green marker 

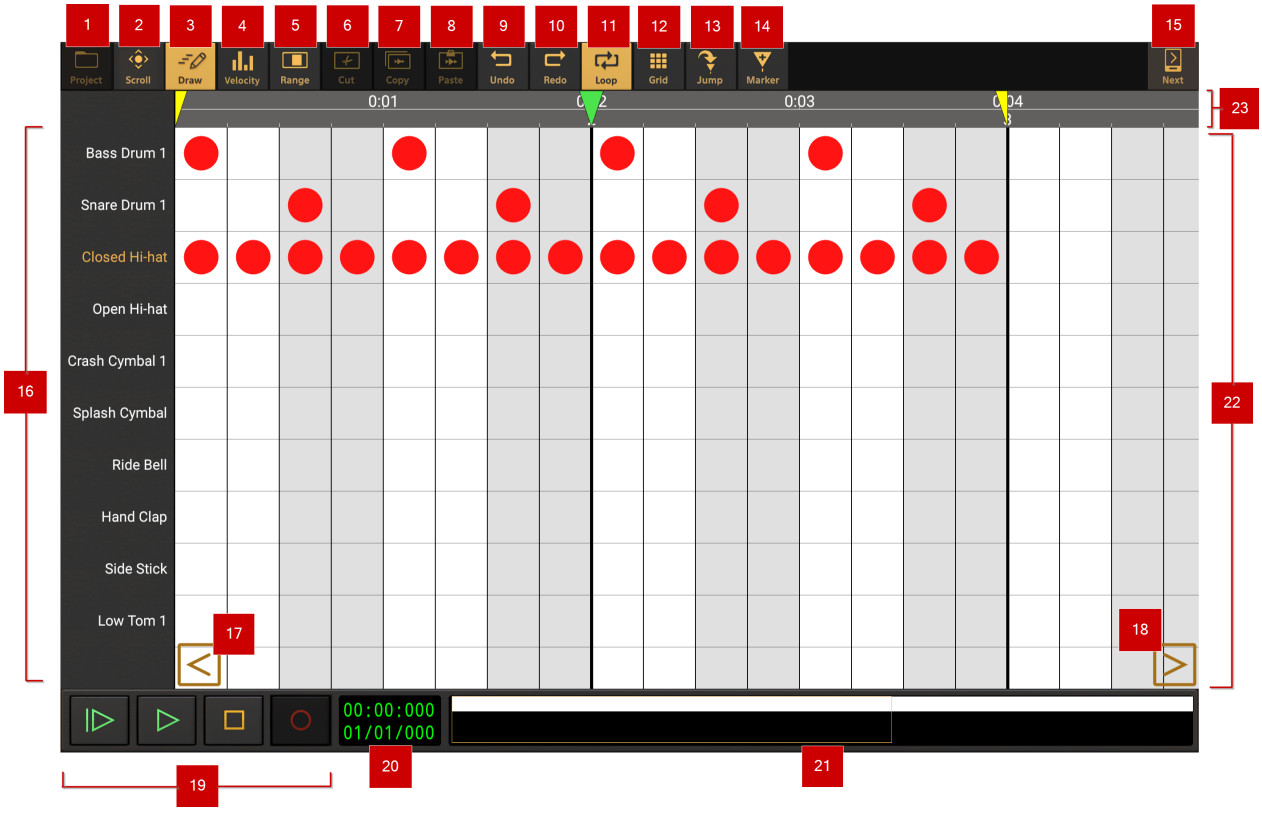
) at the beginning of the project timeline. 

. The numbers on the top show the the duration in minutes and seconds. The numbers on the bottom show the duration in musical bars according to the Tempo Settings. Any Markers and Tempo changes you add to your project will be displayed here as well as the Loop markers when Loop Mode is active and Punch In and Punch Out markers when they are present. For more information on Punch In/Out see here. For more information on Tempo Changes, see here. Single tap on the Timeline/Marker Display to move the Time Marker to that point. Double tap on the Timeline/Marker Display to open the Marker Options.

The Drum Pattern Sequencer

Whilst it is possible to load drum kit presets and create your beats on the piano roll, where each type of drum and percussion (kick, snare, hi-hat etc.) is mapped to a single note, the Drum Pattern Sequencer is specially designed to make the creation of beats much easier. The Drum Pattern Sequencer has been designed to be used with Soundfont/SFZ drum virtual instruments which have been mapped according to the General MIDI (GM) Drum Mapping standard (as can be seen about halfway down here). Loading Soundfont/SFZ drum virtual instruments whose drums have not been mapped accordingly will result in, at best, drums having the wrong name allocated to them on the left; at worst, them not appearing on any of the MIDI notes used by the sequencer at all and therefore not accessible. In such cases you will need to use the standard piano roll editor to create your beats. The drum presets in the Default Sound Set, and all of the Digital Sound Factory drum soundfonts available to buy via the Soundfont Shop, are all mapped according to the GM Standard.

To open the Drum Pattern Sequencer, first create a Drum Pattern track using the Add Track  button on the Arranger Screen. Choose the drum preset you'd like to use from the selection screen shown (by default the Standard drum kit from the Default Sound Set will be chosen on that selection screen) or select Multi-instrument to create your own custom kit. After selecting your drum instrument, the drum pattern sequencer screen seen here will automatically open and a MIDI clip will be placed on the track's timeline.



NOTE. If your device screen is too small to display all of the buttons along the top shown here at the same time, the **More**  button will be displayed, and will allow you to access the functions you're missing.

NOTE. Further control over the way samples are used within a drum pattern track are available by choosing Multi-instrument in the drum instrument selection dialog. Within a multi-instrument drum pattern, each sample has its own channel strip, with FX Grid etc. and an ADSR button which reveals other controls to fine tune the sample. These controls can be available for existing kits by selecting Multi-instrument and choosing that kit as the base instrument for the multi-instrument kit. For full details on multi-instrument drum instruments, please see here.

1 **Project** 

button. You cannot access any Project functions from the drum pattern sequencer screen which is why the Project button is grayed out. Return to the Arranger Screen using the Next button to access those functions.

2 **Scroll** mode 

button. Activating the Scroll mode allows you to freely move through the drum pattern sequencer without accidentally placing, or deleting, any events on the sequencer.

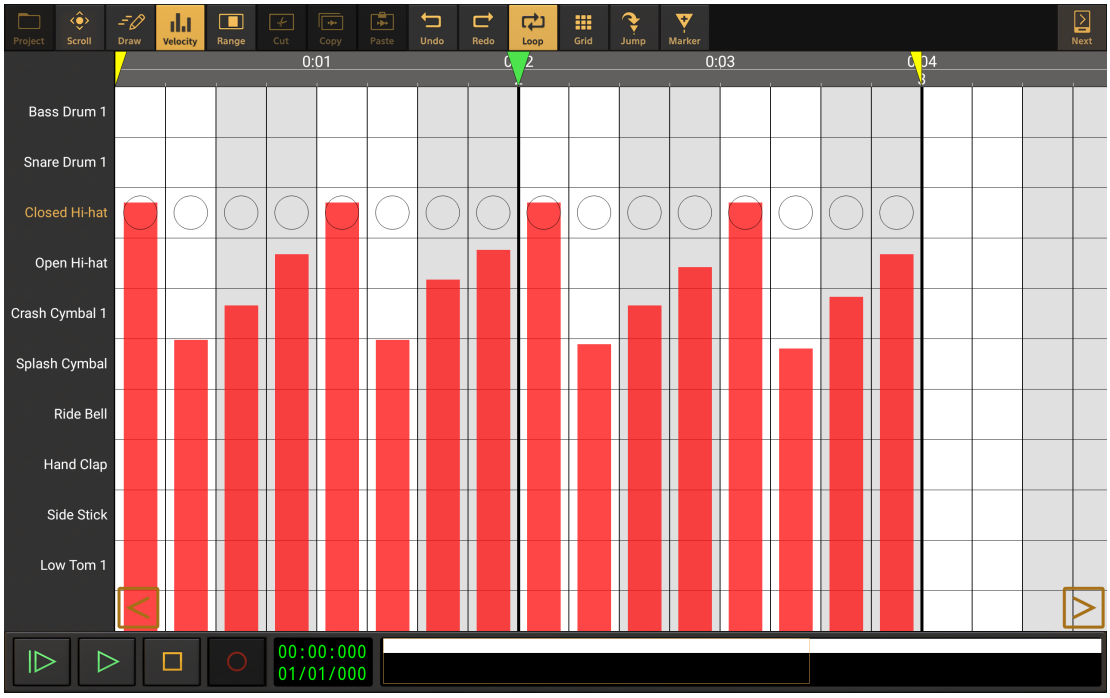
3 **Draw** mode 

button, shown here in its 'lit up' active state. Draw mode allows you to add and remove events (tap to add, tap again to remove) to and from the drum pattern. You can also tap-and-slide to enter a lot of drum notes quickly.

4 Edit **Velocity** mode 

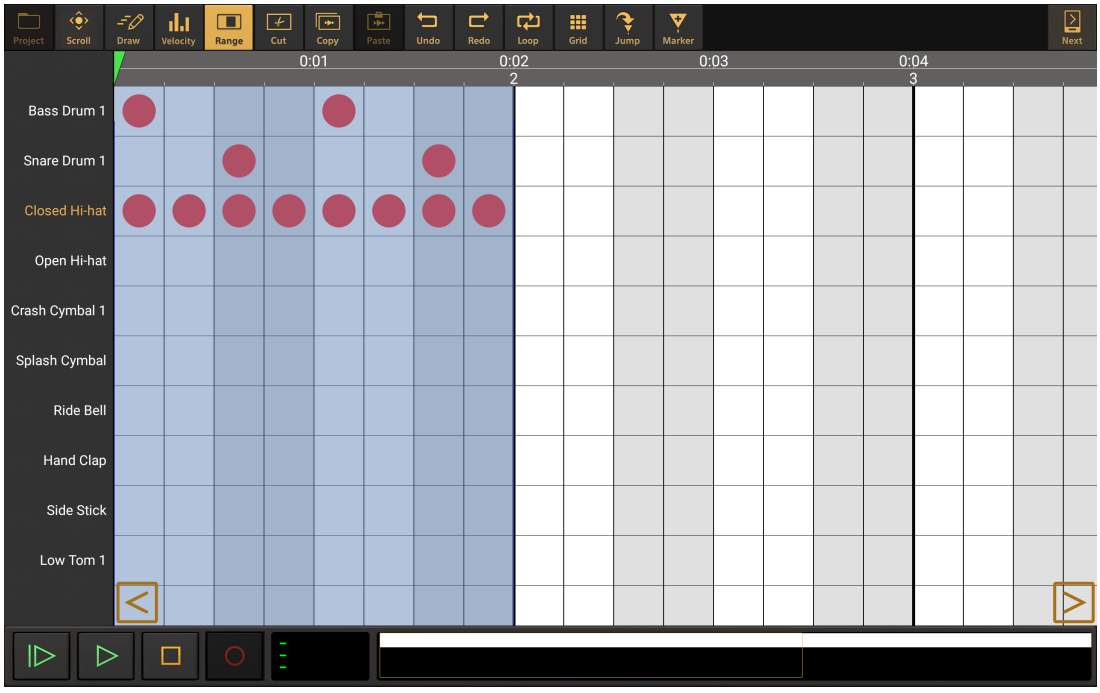
button. Edit velocity mode allows you to adjust the velocity for each individual event. Although velocity is often thought of as volume, please see here for a description of how velocity differs from volume. Select the desired drum type from the Drum Type Selector on the left and the velocities of the events present for that type of drum will be displayed as adjustable bars/columns on the screen, seen below. These bars can be moved up and down with your finger, from 0 to 127, to set each note's velocity. The **Piano roll editor event selection time** can be user defined in the **User interface** section of the Settings 

if the bars aren't responding to your touch as quickly as you'd like. The velocity level will be displayed in the Playback Timer Display as the bars are adjusted. As can be seen here, the events to which each velocity bar belongs are shown as outlines when in Velocity mode.

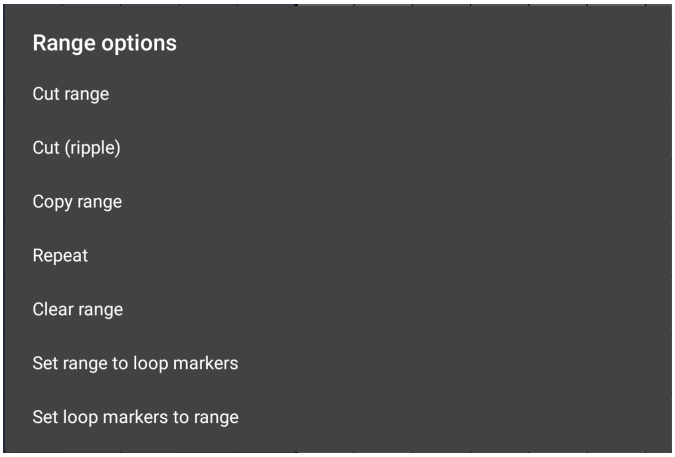


5 **Range** mode 

button. Turning on Range mode allows you to make a selection from the events present in the pattern. To do so, simply touch, hold and slide your finger across the area of the pattern you'd like to select. The range mode, when using the drum pattern sequencer, automatically selects ALL of the drum types' events so you only need to make your selection along the x/time axis. Tap outside the selected range to clear the selection.



Tap inside the blue selected range, seen above, to open the drum pattern Range options seen here.



As can be seen, these options allow you **Cut** the range (remove the selected events and copy them to the clipboard); **Cut (ripple)**, which does the same but also shifts any events to the right of the material cut to the left to fill the gap; **Copy** the range to the clipboard; **Repeat** the selected events by the number of times entered onto the dialog which will appear; **Clear the range** if you want to make a new selection; **Set the range to the loop markers** and **Set the loop markers to the range**. Once a range is selected, the Cut/Cut (ripple) and Copy functions can also be performed without opening these Range Options using the Cut 

and Copy 

buttons. Cut (ripple) will be offered as an option once the Cut button has been pressed.

6 **Cut** 

button. Once you have a Range selected, pressing the Cut button will remove that content from the sequencer and copy it to the clip board, ready to be pasted elsewhere if necessary. Once pressed, you will be given the opportunity to choose between **Cut**, as just described, and **Cut (ripple)**, which does the same but also shifts any events to the right of the material cut to the left to fill the gap that would have otherwise have been left. If no range has been selected, the Cut button will be grayed out as seen in the screenshot above.

7 **Copy** 

button. Once you have a Range selected, pressing the Copy button will copy that content to the clip board, ready to be pasted elsewhere. If no range has been selected, the Copy button will be grayed out as seen in the screenshot above.

8 **Paste** 

button. Pressing the Paste button pastes any content present on the clipboard onto the drum pattern sequencer at the current position of the green Time Marker 

. Position the time marker by tapping once on the Timeline/Marker Display; by touching, holding and sliding the time marker or by sliding your finger in the MIDI Clip Overview/Scrollpad. You can also use the Jump to button. Be aware of drum pattern Grid resolution setting and that the Time Marker will snap-to the grid as it is moved.

Once the Paste button has been pressed, you will be given the option to either **Paste** or **Paste (insert)**. Paste overwrites any existing content with the events on the clipboard. Paste (insert) pastes the clipboard content onto the drum pattern sequencer and shifts any existing content from the point of the time marker to the right to accommodate the pasted content.

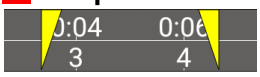
9 **Undo** 

button. The Undo button undoes the last edit made on the clips and tracks within the piano roll 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 list is emptied when the app is closed and will therefore be empty when the app is next launched.

10 **Redo** 

button. The Redo 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.

11 **Loop** mode 

button. Pressing the Loop button displays the loop markers 

and engages looped playback mode. The loop markers can be moved by touching, holding and sliding them to the desired time point. Be aware of the the drum pattern sequencer Grid resolution setting and that the markers will snap-to the grid as they are moved. Press the Loop button again to turn loop mode off.

12 **Grid** 

button. The Grid button opens the Grid Resolution options for the drum pattern sequencer, seen here.

From these options, you can select the musical time increment represented on the sequencer from 1/4 beat to 1/64 beat, with 1/8 triplet beat and 1/16 triplet beat also available. Please note that if you return to a lower resolution from a higher one, the events which cannot be be displayed on the lower resolution grid will be represented as transparent 'ghost' events to keep you aware of their presence even though they can't be displayed properly on the current grid. Here is an example.

Here, four events have been placed for Bass Drum 1 on a 1/16 beat grid. Then, the grid resolution was changed to 1/8 triplet beat and four more events placed. Finally, the grid resolution has been switched back to 1/16 beat, seen above. Since the 1/8 triplet beat events can't be displayed within the 1/16 beat resolution grid, they are shown as transparent 'ghost' events. They are still present though and will be heard during playback.

NOTE. Don't forget that the appearance of the drum pattern sequencer grid will also be affected by the Time Signature settings in the Tempo Options.

13 **Jump** to 

button. Pressing the Jump button displays the Jump-to options. These allow you to quickly and easily jump the Time Marker  and your viewpoint to one of the options available, just as when on the Arranger Screen. For full details, please see here.

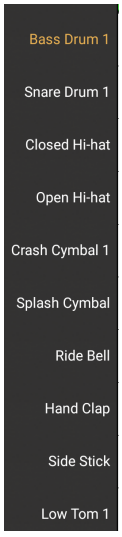
14 **Marker** 

button. The Marker button allows you to place a blue marker 

in the Timeline/Marker display at the current position of the Time Marker. Position the time marker by tapping once on the Timeline/Marker Display; by touching, holding and sliding the time marker or by sliding your finger in the MIDI Clip Overview/Scrollpad. You can also use the Jump to button. Be aware of drum pattern Grid resolution setting and that the Time Marker will snap-to the grid as it is moved. You will offered the chance the name your marker as you create it. Once created, you can reposition the marker by touching, holding and sliding the marker's blue handle/name display. For full details, please see here and here.

15 **Next** 

button. Pressing the Next button takes you back to the Arranger Screen. From there, repeated presses will cycle through the Mixer screen, the Master Screen and back to the Arranger Screen again. In order to open the Drum Pattern Sequencer again, double tap on a MIDI clip on a Drum Pattern track.

16 **Drum Type Selector** 

. The different drum types are shown on the left of the drum pattern sequencer. Tap on the drum's name to select it (for example, to adjust the velocity of the events of that drum type). Alternatively, a drum type will be automatically selected any time an event is placed on its row on the sequencer grid.

Depending on the size of your device screen, you may need to scroll down to see all of the drums available in the kit by default. At the bottom of the list there is a '**+**' icon. This is important, as pressing it allows you to load further drum and percussion sounds into the list and make them available to use on the sequencer. Please remember though that these are based on the General MIDI (GM) drum mapping standard (see here), so a soundfont/SFZ may or may not be mapped according to this standard and, even if it is, it may or may not contain all of the drum and percussion types offered here.

17 **Jump Viewpoint Left**  button. Pressing this button jumps your viewpoint of the drum pattern sequencer to the next 'screen's worth' (with some room for comfort) to the left.

18 **Jump Viewpoint Right**  button. Pressing this button jumps your viewpoint of the drum pattern sequencer to the next 'screen's worth' (with some room for comfort) to the right.

19 **Playback Transport Controls**  . These are the controls for starting and stopping playback and recording. Recording when on the drum pattern sequencer screen is not possible, hence why the Record button is grayed out.

 Start Playback from the beginning of the project.

 Playback from the position of the Time Marker (The green marker  in the Timeline/Marker Display).

 Stop Playback.

 Record. Not possible from the Drum Pattern Sequencer screen.

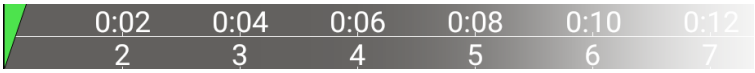
20 **Playback Timer Display**  . This display shows the current time during playback and recording. When playback and recording are stopped it displays the current position of the Time Marker (the green marker  shown in the Timeline/Marker Display). Tapping the Playback Time Display once will open the 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. This is also the place where most parameter levels are displayed as they are being changed.

21 **MIDI Clip Overview / Scrollpad**

 . Working on the same principle as the Project Overview/Scrollpad on the Arranger Screen, this area represents the entire MIDI clip you're currently editing in the drum pattern sequencer. Sliding you finger across it allows you to very quickly move your viewpoint to a particular point and simultaneously position the Time Marker  .

22 **Drum Pattern Sequencer Grid**. This is the main area of the drum pattern sequencer, the place where you add and edit MIDI events. Sliding with one finger in this area will move the piano roll viewpoint around. Use pinch/pull to zoom in and out. When you reach the part of the sequencer which has a red overlay, this indicates that that area is beyond the current clip size. However, unlike the piano roll editor, placing MIDI events in that area will automatically enlarge the clip to include those events as long as they are *at the end of that clip*. Be aware, though, that if this causes the clip to overlap with another clip on the timeline, **both** will be heard in playback. If you place events in the red area *before the beginning of that clip*, you will need to trim the clip manually by selecting it and using the Clip Trimming Handles on the Arranger Screen if you want them to be heard.

NOTE. Don't forget that the appearance of the drum pattern sequencer grid will also be affected by the Time Signature settings in the Tempo Options.

23 **Timeline/Marker Display** 

. The numbers on the top show the the duration in minutes and seconds. The numbers on the bottom show the duration in musical bars according to the Tempo Settings. Any Markers and Tempo changes you add to your project will be displayed here as well as the Loop markers when Loop Mode is active and Punch In and Punch Out markers when they are present. For more information on Punch In/Out see here. For more information on Tempo Changes, see here. Single tap on the Timeline/Marker Display to move the Time Marker to that point. Double tap on the Timeline/Marker Display to open the Marker Options.

Adding Tempo and Time Signature Changes

Audio Evolution Mobile allows you to add tempo changes and time signature changes, both immediate and gradual, to your musical compositions at any point you choose.

This may be obvious to some of you, but it is worth mentioning just in case it doesn't occur to everyone: tempo and time signature changes only affect MIDI tracks; audio tracks will be unaffected. Whilst you can Time Stretch audio clips, which might go some way to getting existing audio to match a changed tempo, it is unlikely to be completely satisfactory. As such, if you are making a song which you know is going to have tempo changes in it, it makes sense to lay down your MIDI tracks first - or even just one of them - apply the tempo changes, and then you have the chance to record your audio whilst listening to the MIDI and incorporate the tempo changes into the performance you record.

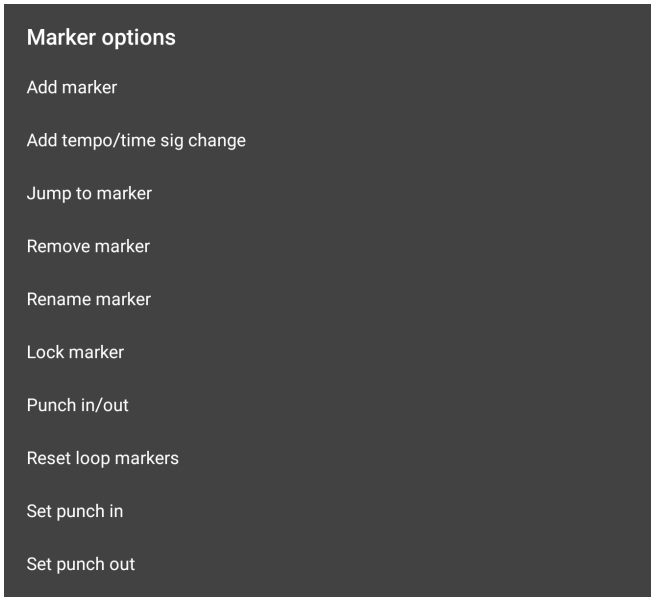
It is also worth noting that Tempo and time signature changes are applied across all (MIDI) tracks present in the project and cannot be applied only to individual tracks.

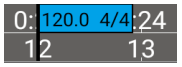
Set your initial track time signature and tempo using the Tempo Settings as described here.

Then, the process for adding and editing tempo and time signature changes is as follows.

First, double tap on the Timeline/Marker Display 

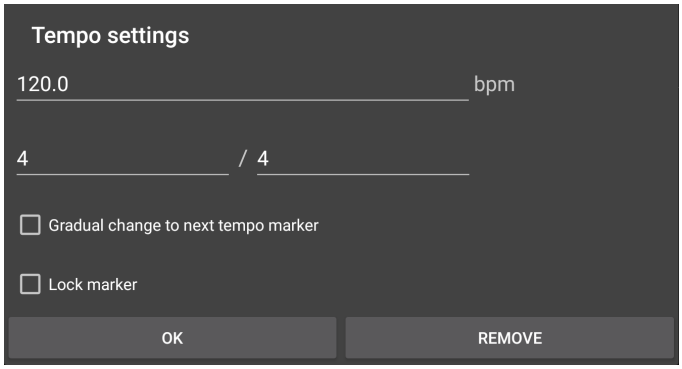
, on the Arranger Screen, Piano Roll Editor or Drum Pattern Sequencer screens, at the start of the bar at which you want the tempo change to happen (tempo changes can only be placed at the starting point of bars) to open the **Marker Options**, seen here.



Select Add tempo/time sig change which will add a blue tempo change marker 

to the Timeline/Marker display at the nearest bar start point to the current position of the green Time Marker  , which will be at the point at which you double tapped. Once a tempo change

marker has been created, another will automatically be placed at the beginning of the Timeline/Marker Display showing the initial tempo at the beginning of the project. It will also open the **Tempo Settings** for tempo changes, seen here.



As can be seen, these settings allow you to enter a new beats per minute (**bpm**) value and change the time signature. There is also a checkbox allowing you to apply a tempo change immediately or, if checked, have it applied gradually between the marker just placed and the next tempo change marker. Obviously, you will need to place another tempo change marker further along the timeline for this to happen but it can be very useful when you want a piece to gradually speed up or slow down.

The checkbox for **Lock marker** will, when active, lock the marker in place to avoid it being moved accidentally.

If you want to change the tempo change settings, double tap on the front of the tempo change marker (where the vertical black marker point is). This will open the Marker Options again. Instead of 'Add tempo/time sig change' there will now be a Edit tempo/time sig marker option. Selecting this will open the Tempo Settings, seen above, again, allowing you to change them as necessary. As can be seen, there is also the option to **Remove** the marker completely if that's what you want to do.

If you need to move a tempo change marker, first - if **Lock marker** has been applied - double tap on the front of the marker to open the Marker Options, open Edit tempo/time sig marker and deselect **Lock marker**. Then, long press, hold and slide on the front of the marker (where the vertical black marker point is). Be aware that the movement of the marker will snap-to the beginning point of each bar as these are the only places at which tempo change markers can be placed.

NOTE. Please be aware that applying tempo changes physically alters the lengths of the note events in MIDI clips and, as such, will change the lengths of MIDI clips on the timeline.

Virtual Instruments

Introduction

MIDI files don't actually contain any audio, they are simply instructions describing how audio is to be played. In order to have the MIDI instructions translated into sounds, you need to use them to control a virtual instrument. Generally speaking, virtual instruments fall into two categories: those that generate their own sounds and those which use audio samples.

Audio Evolution Mobile Studio gives you both types of virtual instrument. Evolution One is a sophisticated virtual analog synthesizer based on Synth One by Audiokit and Audio Evolution Mobile's built in sampler allows you to use Soundfont and SFZ sample-based instruments and create your own SFZ instruments. Additionally, Audio Evolution Mobile offers the stunning Flowtones synthesizer by Toneboosters as an in-app purchase (Android 9 and above only).

In order to use a virtual instrument you first need to add a MIDI Instrument or Drum Pattern track to your project. For information on how to do this, and how to select your virtual instrument, please see here.

Use these quick links to jump to a section.

Evolution One Synthesizer

Evolution One Introduction

Evolution One is Audio Evolution Mobile's powerful virtual analog synthesizer, based on the acclaimed Synth One by Audiokit. It contains everything you'll need to design and create a vast range of high quality synth sounds for your music.

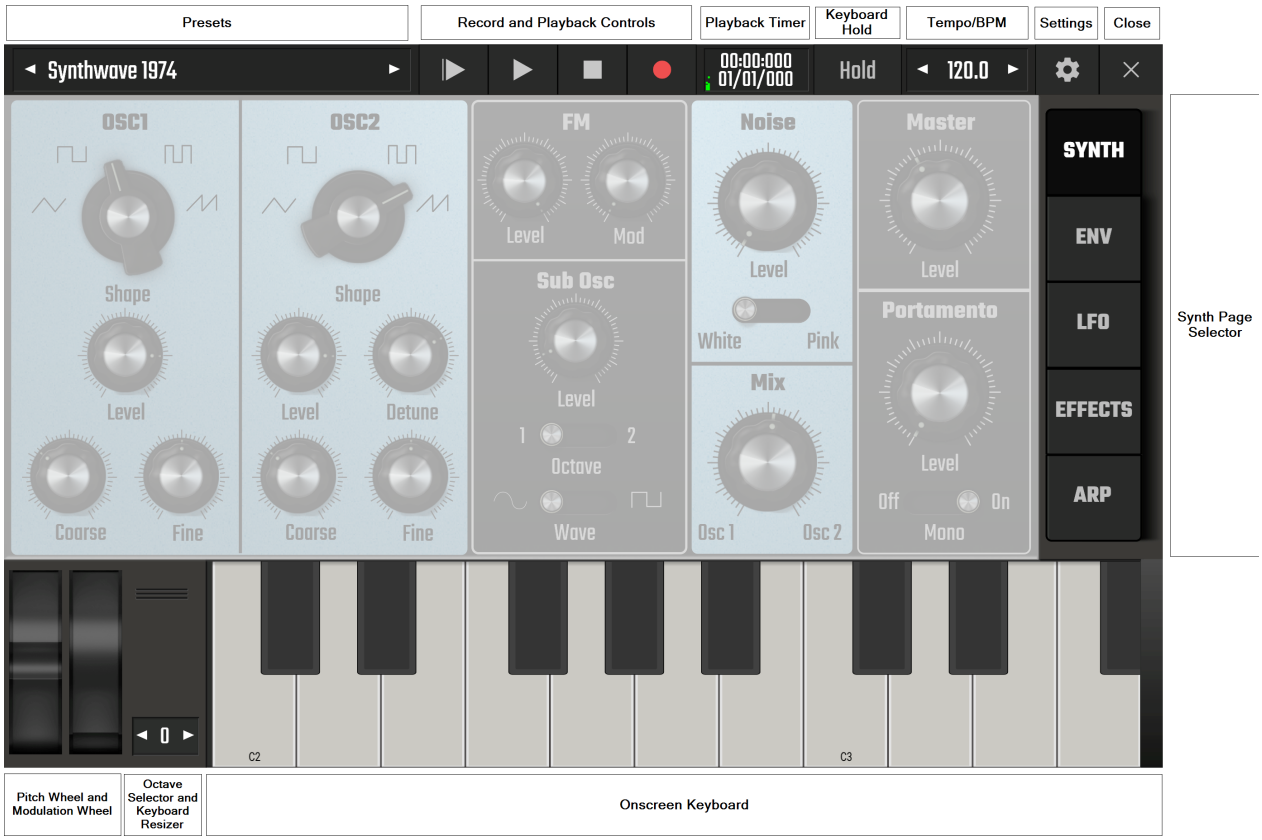
Synthesizers can seem intimidating if you are unfamiliar with them but hopefully this short guide to the features and controls of Evolution One will have you comfortably designing your own sounds in no time.

To use the Evolution One synthesizer, you will first need to create a **MIDI Instrument track** using the Add Track button on the Arranger Screen, as described here. Select **Evolution One** from the instrument selection which will be shown.

NOTE. This guide to the features of Evolution One covers each synth page separately which might give the impression that the user should treat them all separately. This would be wrong. As you become more experienced and confident with the various controls, you will naturally sculpt your sounds using all of the available tools simultaneously to achieve your goal.

Use these quick links to jump to a section.

General Layout and Controls



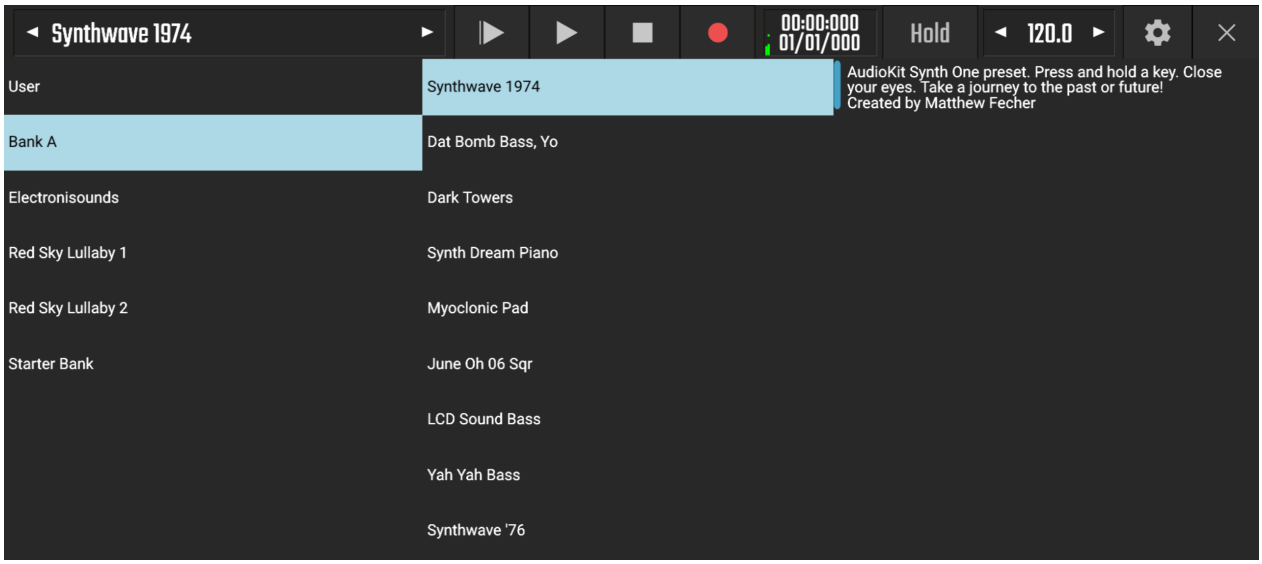
Evolution One has five pages of controls which occupy the center of the Synth Screen display. These pages will be covered individually. This section will explain the general controls indicated on the image above.

Presets Panel

The Presets Panel displays the currently selected preset and allows you to load and save other presets. The arrow buttons allow you to move back and forth through the currently selected preset bank without opening the full presets panel.

Tap the Presets Panel where the name is displayed to bring up the **Load/Save Preset** pop-up.

- Clicking on **Load preset** will open the Preset Selection Panel seen here.



Here you can select your desired preset from the many included with Evolution One. Select the Bank from the list on the left and the individual preset from the list in the middle. Some presets also contain a brief description on the right.

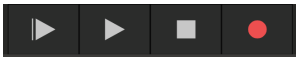
If you want to begin designing your synth sound from a very basic, single waveform starting point, check out the **Starter Bank** which has such starting point presets, ready for you to load and build from. It also contains many other basic synth presets for you to use and improve upon.

Once you have created and saved your own presets, they can be found in the **User** bank.

After you've loaded your chosen preset you can close the Presets Panel by clicking on the preset name in the top panel or by pressing the X/Close button.

- Clicking on the **Save preset** option from the Load/Save Preset pop-up opens the Save dialog.

This allows you to enter the name of your preset, select its sound catagory and enter any text you wish to keep with it.

Record and Playback Controls 

The Evolution One interface allows you to record the synth, via the onscreen keyboard or connected MIDI keyboard, without leaving the synth screen. As can be seen it also allows you to playback and stop your project as well as playback the project from the beginning using the button on the left.

Playback Timer 

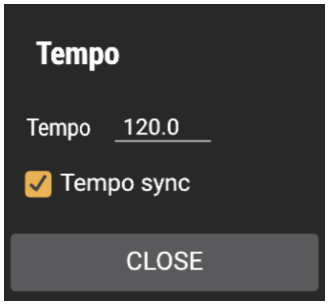
The Playback Timer displays the current position in the project. The top counter shows the time in minutes, seconds and milliseconds. The bottom counter shows the time in bars (or measures), beats and ticks (the resolution is 192 ticks per beat) according to the project Tempo settings. It also displays the current value when the synth parameter dials and sliders are being changed. Lastly, if you have them selected in the synth Settings, this is where the CPU Usage and synth Volume Levels will be displayed - CPU usage on the left, Volume levels on the right. The CPU meters show the CPU usage of the synth itself (left meter) and the overall CPU usage (right meter).

Keyboard Hold 

If this button is lit, any key you press on the on-screen keyboard will continue to play until you press the same note again or deactivate the Hold mode.

Tempo/BPM 

This displays the currently selected project tempo as a BPM (Beats Per Minute) value. Use the arrow buttons to shift one-by-one if necessary. Alternatively click on the Tempo display to open the following dialog.

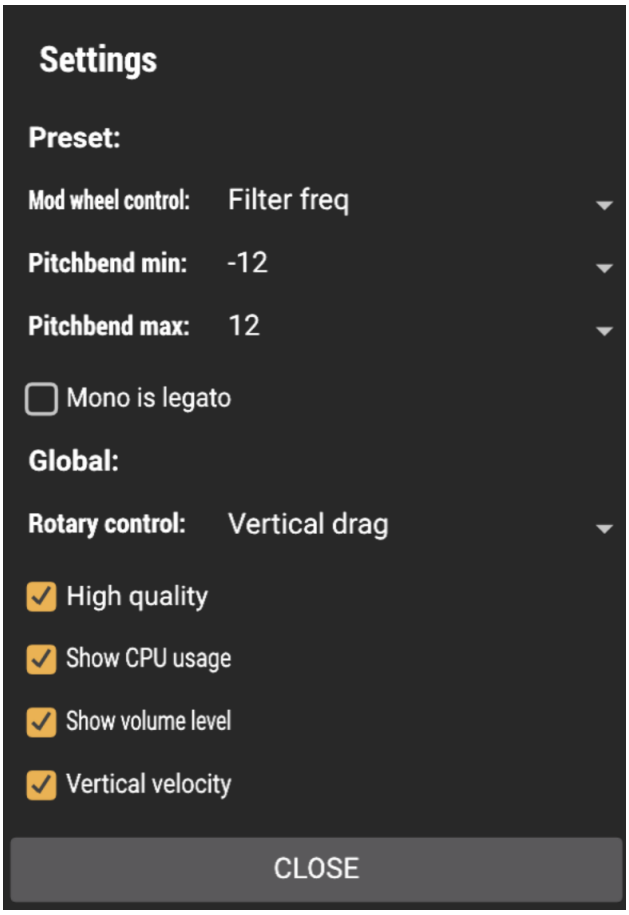


This dialog allows you to enter the **Tempo** manually. It is also where you can select and deselect **Tempo Sync**. Tempo sync can be a very important feature as it determines whether the Rate of

the LFOs and Auto Pan and the Delay Time are synced to increments of the tempo or can be set independent of the tempo.

Settings 

Clicking on the Settings button opens the Settings panel seen here.



These settings give you various options for the currently selected preset and for the synth overall.

The **Mod Wheel Control** allows you to select which parameter the modulation wheel modulates for the currently selected preset. You can choose between Filter Frequency, LFO 1 Rate, LFO 2 Rate, LFO 1 Amount or LFO 2 Amount.

Pitchbend Min and **Pitchbend Max** allow you to set the minimum and maximum amount of pitch bend applied by the Pitch Wheel for the current preset. The maximum range available is -24 to +24 semitones.

The **Mono is Legato** checkbox relates to the Portamento section on the Synth Page where Mono mode (where only one note can be played at a time) can be switched on and off. Legato is a musical term meaning 'tied together' and indicates that notes should be played smoothly and are connected with no silence in-between. Turn on Mono is Legato for the current preset in these

settings and use the switch on the Portamento panel to switch Mono mode on. Now, if a keyboard key is touched *and held* while the next note is touched, the synth will continue to use the first note's Amp Envelope for the next, and subsequent notes instead of appliying a fresh amp envelope for each new note as it would when in Mono mode with Mono is Legato turned off.

Mono is Legato is more easily heard having an effect with some presets than others. This is due to the particular Amp Envelope and Filter Envelope settings used. To hear what it does, try loading the Basic Lead preset from the Starter Bank. Mono mode is already active for this preset but Mono is Legato is not turned on. Open this Settings panel and check the box to turn Mono is Legato on. Press *and hold* a keyboard key while you repeatedly touch and lift off another key: you'll hear how the second note continues to use the first note's amp envelope rather than firing its own every time it is pressed. As soon as the first note is no longer held and released, the synth will use a new envelope for the next key pressed.

Rotary Control determines how the movement of your finger on the screen will control the synth control dials. There are four options: Rotary, Horizontal Drag, Vertical Drag and Horizontal and Vertical Drag. Rotary will make the dials react to your touch as if they are real dials. Horizontal Drag lets you touch, hold the dial and slide from side to side to raise or lower the dial. Vertical Drag allows you to do the same but requires you to slide your finger up and down to control the dial. Lastly, Horizontal and Vertical Drag allows you to touch, hold and slide both side to side and up and down.

The **High Quality** checkbox allows you to turn off high quality mode for the synth if your device is struggling to handle the CPU load. Evolution One is a high quality virtual synthesizer but this does mean that it can be rather resource hungry at times. If you have an older or a less powerful device, you might find that High Quality has been automatically turned off in anticipation of such problems. Having High Quality turned off is usually imperceptible with most presets when listening through device speakers.

NOTE. The important thing to remember is that any audio rendered from Evolution One, whether when exporting or when freezing a track, is always rendered at the highest quality possible regardless of whether High Quality is turned on or not. Having High Quality turned off will not lower the quality of the final, rendered audio.

The **Show CPU Usage** checkbox determines whether the CPU usage meters are displayed to the left of the Playback Timer or not. The CPU meters show the CPU usage of the synth itself (left meter) and the overall CPU usage (right meter).

The **Show Volume Level** checkbox determines whether the volume output levels for the synth are displayed to the right of the Playback Timer or not.

The **Vertical Velocity** checkbox enables you to activate and deactivate the vertical velocity mode for the synth onscreen keyboard. When active, where you touch the keyboard keys determines the velocity (loudness) of the note playback. The further up you touch the key, the softer, the quieter, the note will sound. When this mode is deactivated, the keyboard keys trigger the notes at full velocity regardless of where you touch them.

Close 

The X/Close button closes the Evolution One screen and returns you to the Audio Evolution Mobile Arranger Screen. It can also be used to close the Presets Panel once you have loaded your selected preset.

Synth Page Selector

These buttons allow you to navigate between the different Evolution One Pages.

Onscreen Keyboard

This keyboard can be used to play the synthesizer. You can also connect an external MIDI keyboard should your device and MIDI keyboard meet the requirements. For more information on this see here.

Octave Selector and Keyboard Resizer

The Octave Selector allows you to change the note range displayed on the onscreen keyboard. Above the Octave Selector, touching, holding and sliding the three line handle will resize the onscreen keyboard to your requirements.

Pitch Bend Wheel and Modulation Wheel

The Pitch Bend Wheel, on the left, allows you to bend the pitch of the currently playing note or

notes in real time. The minimum and maximum pitch bend applied is defined per preset in the synth Settings described above. The Pitch Bend Wheel is 'spring loaded' so that it always returns to the note's actual pitch once released.

On the right, the Modulation Wheel, or Mod Wheel, allows you to apply more or less of the type of modulation selected for the preset in the synth settings in real time. The Mod Wheel is not 'spring loaded' and will remain where you put it. Keep it all the way down if you don't want any modulation applied.

The Synth Page

This is the first page you will see when you open Evolution One. It is where you define and mix together the sound elements for your synth sound before using the features on the other pages to sculpt, modulate and perfect your sound.

Use these quick links to jump to a section.

Osc1, Osc2 and Mix

Waves are one of the ways in which energy is transferred. Waves can be described as oscillations or vibrations. Sound waves cause air particles to vibrate back and forth, moving out in all directions from their source at the speed of sound until those vibrations reach our ears, cause the eardrum to vibrate and are translated by our brains into the sounds we hear. The physical shape of the waveforms - the vibrations, the oscillations - give sounds their unique character. Indeed, if you zoom all the way into an audio track on the Arranger Screen, you will see the waveform and how it is vibrating or oscillating over time.

Classic hardware analog synthesizers generate sound waves using electronic Voltage Controlled Oscillators (VCO). Virtual analog synthesizers like Evolution One recreate these electronic oscillators as Digitally Controlled Oscillators (DCO).

Evolution One gives you five oscillators in total (Two DCO, FM, Sub and Noise) but here we concentrate on the controls for the two DCO.

As can be seen, there are four main waveform shapes (Triangle , Square , Narrow Pulse and Sawtooth) each with their own sound characteristics but this isn't the full story. Evolution One allows you to morph between the different waveform shapes as the **Shape** dial is moved. Activate the keyboard Hold function, press a key and move the dial around: you will hear the sound subtly change as the waveform constantly changes shape. This gives you much more scope for possible waveform shapes.

Both oscillators allow you to define the **Shape** of your waveform, set its **Level** (loudness), control its **Coarse** tuning and its **Fine** tuning. Oscillator two also adds a **Detune** control.

Coarse tuning controls the note of the oscillator relative to the note pressed on the keyboard (or triggered on the piano roll). The default value is the same as the note triggered but it can be moved up or down in semitones (between -12 and +24) using the dial. The Playback Timer panel will display the semitone setting as the dial is moved. As always, double tap on the dial to return it to its default value. Try raising the second oscillator by an octave (12 semitones) or a fifth (7 semitones) for easy examples of what can be achieved with Coarse tuning.

Fine tuning controls the pitch of the oscillator relative to the Coarse tuning. This time the increments are much smaller than semitones though. They are called cents. Twelve tone equal temperament (the most commonly used musical system today) divides the octave into twelve semitones of 100 cents each. One approach to making a basic synth sound is to have two identical wave shapes and very slightly alter the Fine tuning of both: one of them tuned down (flat) and the other tuned up (sharp), both by the same small amount. Double tap to reset to default.

Oscillator 2 also has a **Detune** dial. The effect of the Detune dial might initially sound similar to altering the Fine tuning but it is actually different. Detune offsets the pitch (or frequency) of oscillator 2 by a value of Hertz (Hz) rather than the musically defined cents used by Fine tuning. In practice, the Detune algorithm gives more detune in the lower bass notes. It results in a thicker, chorus-like sound with a sense of 'beating' movement as oscillator 2's amount of detune interacts with oscillator 1. Double tap to reset to default.

The **Level** dials can be used to set the volume of each oscillator within your synth sound but you can also use the **Mix** dial, seen below, to control the ratio of Osc 1 to Osc 2 in the output.

FM (Oscillator)

FM stands for Frequency Modulation. Evolution One provides what is referred to as an FM pair. This comprises of a Carrier signal (the signal to which the modulation is applied) and a Modulator (whose frequency modulation index modulates the frequency of the carrier signal). In this case, the process generates side band harmonics as the Mod is increased, resulting in a richer, brighter output waveform.

The **Level** dial controls the overall level of the FM oscillator.

The **Mod** dial controls the amount of Frequency Modulation applied to the carrier signal. If the Mod dial is all the way down, no modulation is applied and all that is heard is the carrier sine wave.

NOTE. Some of you may be surprised that Evolution One doesn't offer a Sine waveform in the oscillator section. However, this is because Evolution One has a sine wave 'hidden' in the FM panel. If you want just a sine wave, turn up the Level in the FM panel and keep the Mod dial (as well as the levels of all the other sound sources) all the way down.

Sub Osc

As already mentioned, there is a sine wave in the FM panel but Evolution One also offers a sine or square wave sub-oscillator. The sub-oscillator gives you an additional oscillator which plays at a fixed one or two octaves below the note triggered. This can give you a fuller, bass-rich sound when required.

The **Level** dial controls the volume level of the sub-oscillator.

The **Octave** selector allows you to select whether the sub-oscillator plays at one, or two octaves below the note triggered.

The **Wave** selector allows you to select whether your sub-oscillator is a Sine wave or a Square wave.

Noise

As we've established here, sound waves vibrate. The Shape of those waveform vibrations give sounds their unique timbre or character. The Frequency of those vibrations - how quickly the wave is vibrating per second - determines the pitch of the sound heard. Finally, the Amplitude - the maximum extent (or height) of vibration or oscillation measured from the mid-point - determines how loud the sound we hear is.

White Noise is an equal amplitude (loudness) of every frequency (pitch) the human ear can hear.

Pink Noise also contains every frequency the human ear can perceive but the higher frequencies have a lower amplitude than the lower frequencies resulting in a softer sound.

The Noise generator in Evolution One can be used on its own to produce interesting sounds and atmospheres when sculpted and modulated. But it can also be very useful if your synth sound is feeling a bit too digital, a bit too 'clean'. Vintage analog synths naturally produced a certain amount of hiss due to their electronic nature. Adding a small amount of noise to your synth sound might just give it what it's missing.

Use the **Level** dial to control the amount of noise present.

Portamento

The Portamento panel allows you to switch Mono mode on and off and, when it's on, control the amount of portamento applied. Portamento is a slide, or glide, between notes.

Mono mode switches the synth from polyphonic mode, where a maximum of six notes can be played at the same time, to monophonic mode, where only one note can be played at a time. Please note, it doesn't change the audio output from a stereo signal to a mono signal - you can still apply spatial modulation and stereo effects like the Delay to presets with Mono switched on.

Use the **On/Off** switch to turn Mono mode on or off.

Use the **Level** dial to apply more or less portamento, slide, between notes. Portamento can only be applied when Mono mode is switched on.

Don't forget that Mono mode will be affected by your 'Mono is legato' status in the synth Settings. A description of Mono is Legato can be found here.

Master

This panel controls the master output **Level** (volume) of the synth.

The Envelope Page

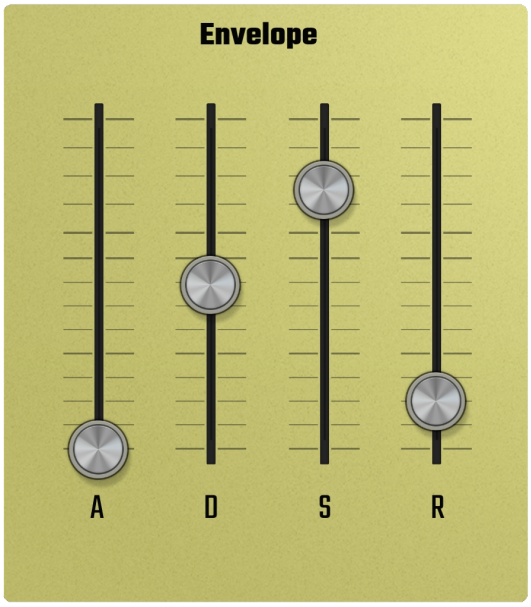
The Envelope Page is where you can sculpt the shape and frequencies of your synth sound.

The Envelope page has two sets of controls. On the left, the **Envelope** shapes the way the synth plays your sound from the moment a note is triggered to the point it reaches silence again. This is the amp or volume envelope.

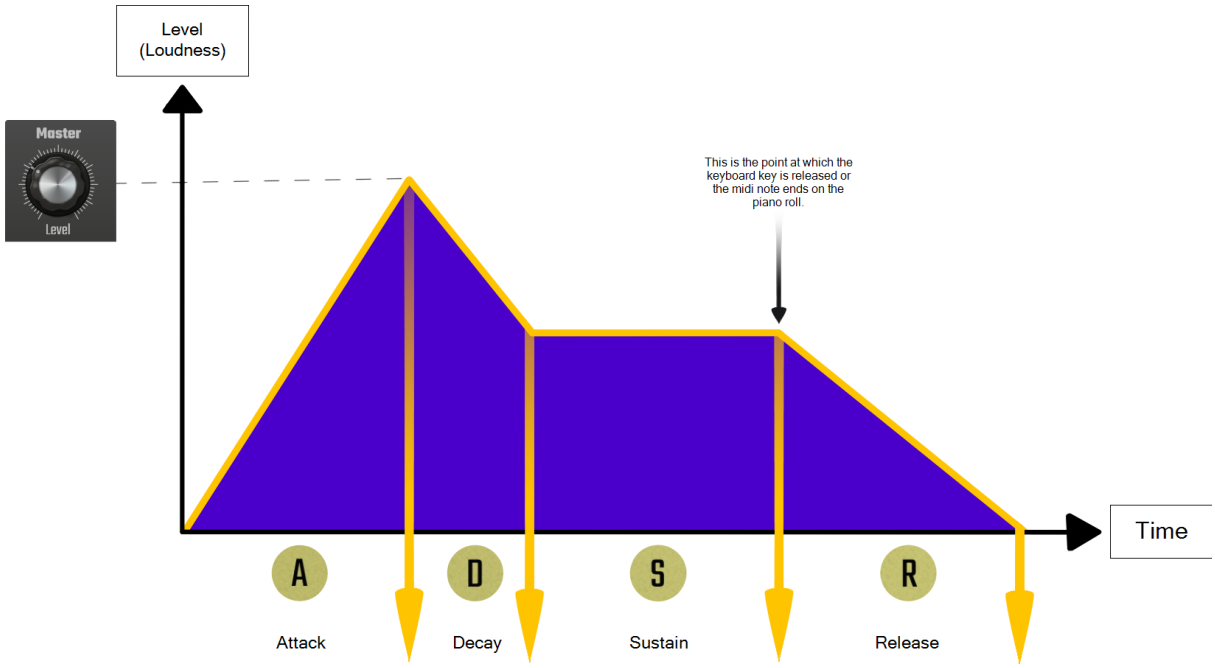
On the right, the **Filter** allows you to remove, or cut, certain frequencies from your sound. As you can see, the Filter also has its own envelope. This controls the way the Filter is applied to your sound over time.

Use these quick links to jump to a section.

The Envelope



The Envelope has four sliders which control the Attack (**A**), Decay (**D**), Sustain (**S**) and Release (**R**). This type of envelope is usually referred to as an ADSR Envelope. In this case, the envelope is being applied to the volume level of the synth sound from the moment it is triggered to the point it reaches silence again.



The diagram above shows how the sound is shaped as it passes through the ADSR volume Envelope.

First is the **Attack** phase. This controls how quickly the sound reaches its maximum volume after the note is triggered by either pressing a key on the keyboard or having a note on the piano roll. A very quick Attack, where the slider is at the bottom, will mean the note sounds immediately after being triggered. A longer Attack, with the slider further up, will cause the note to fade in slowly until it reaches its maximum volume.

Next up is the **Decay** phase. This controls how long it takes for the sound to travel from its maximum volume to the Sustain level. The further up the slider is, the longer the Decay time before the Sustain level is reached.

The third phase is the **Sustain** level. This sets the volume level at which the sound will settle as long as the note is triggered for long enough. The top of the slider range represents the maximum volume reached at the end of the Attack phase so the effect of the Decay and Sustain phases will only be heard if the slider is lower than this maximum.

Lastly, there is the **Release** phase. The Release controls how long it takes for the sound to reach silence after the keyboard key is released or the midi note ends on the piano roll. A very quick release, with the slider at the bottom will cause the sound to stop immediately. A longer release, with the slider further up, will cause the note to gradually fade away until silence is reached.

NOTE. The maximum Master volume level, seen on the diagram, is set on the Synth Page. This is the highest level that will be reached within the Envelope at the end of the Attack phase. Don't forget though that this is about shaping, sculpting and designing your sound: the actual relative volume of individual notes can still be set by editing the Velocity on the piano roll.

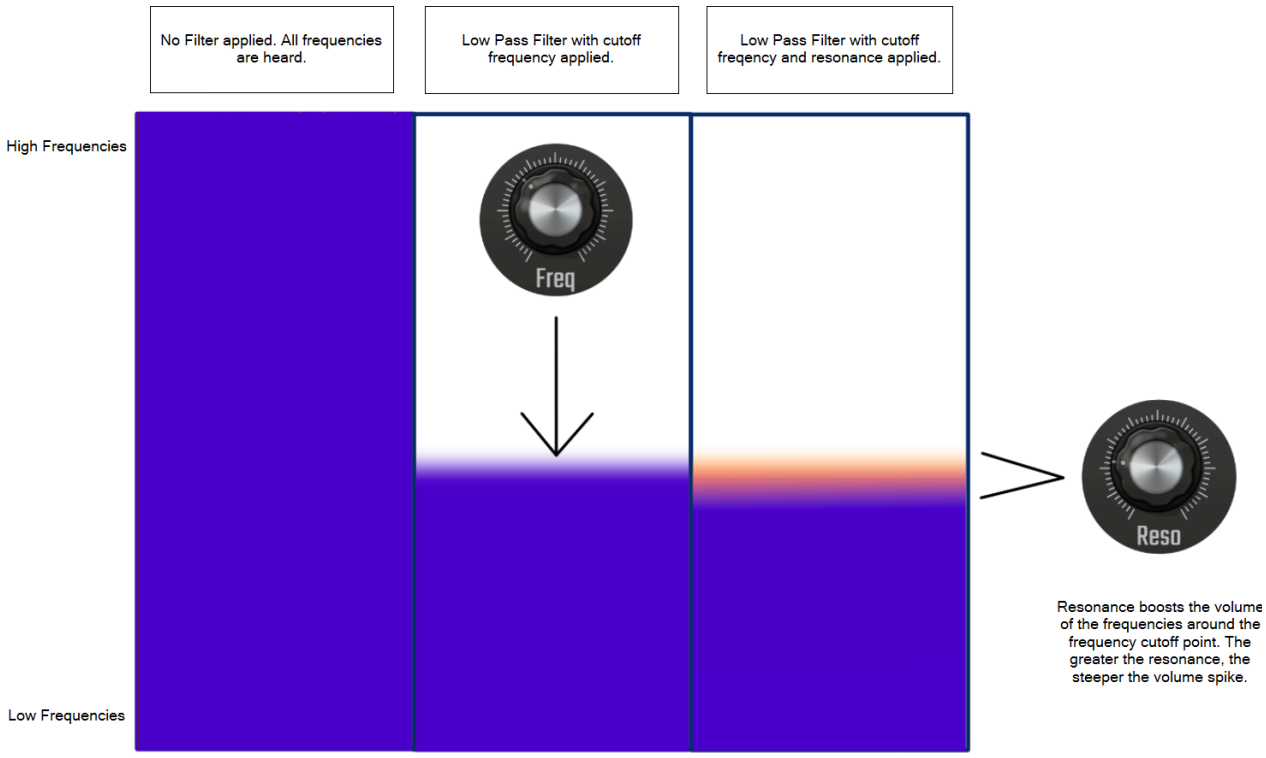
The Filter

The **Filter** section of the Envelope page allows you to filter out frequencies from your synth sound and also has its own Filter Envelope to control how the Filter effects the sound's frequencies over time.

Evolution One has three types of Filter which can be selected using the dial at the top left of the interface. A Low Pass Filter (**LP**), a High Pass Filter (**HP**) and a Band Pass Filter (**BP**).

Use these quick links to jump to a section.

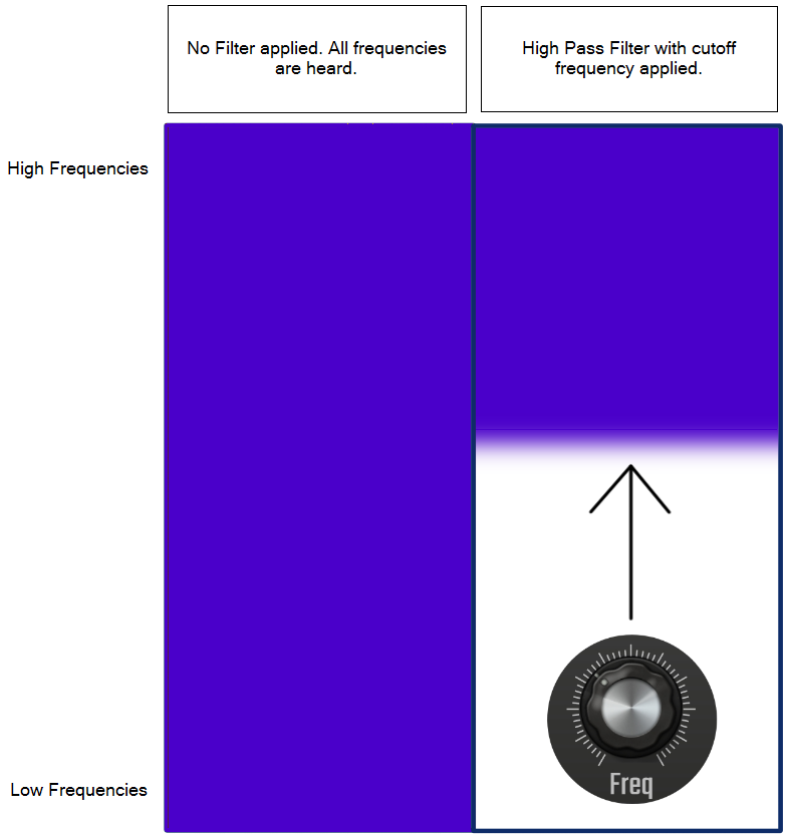
The Low Pass Filter



A Low Pass Filter lets the low frequencies pass through to be heard whilst cutting off the higher frequencies as can be seen in the diagram above. The Cutoff Frequency, which defines the point from which only the lower frequencies are heard, is set using the **Frequency** dial. When it's all the way to the right it is letting all of the frequencies through and the filter is having no effect. The more it is turned anticlockwise, the more frequencies are cut away until only the very lowest ones can pass through and be heard on the far left hand side.

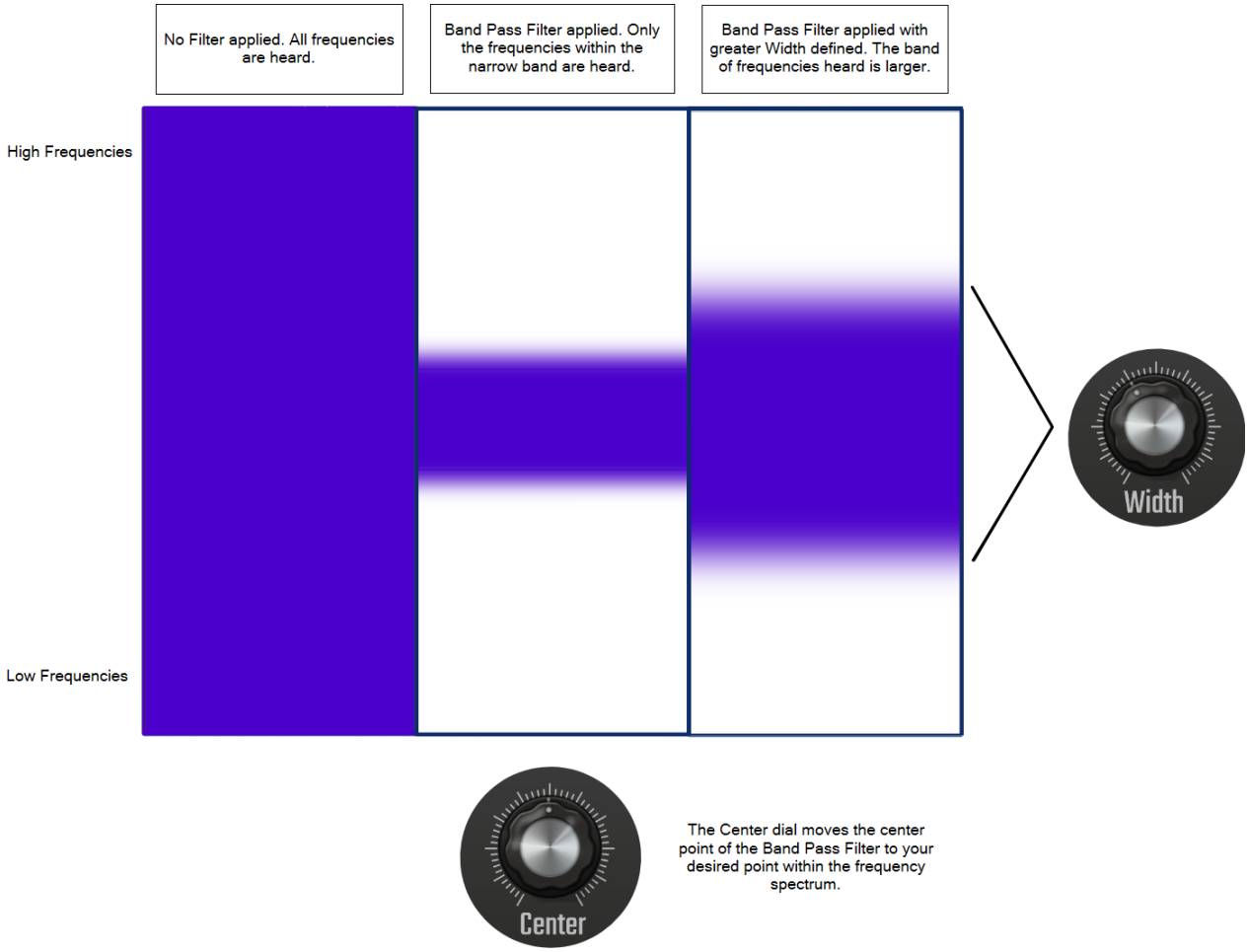
The Low Pass Filter also has a dial to control the **Resonance**. Increasing the Resonance causes the Filter to boost the volume of the frequencies around the Cutoff Frequency point. The higher the Resonance level, the more pronounced this volume spike is.

The High Pass Filter



A High Pass Filter is the opposite of the Low Pass Filter. It lets the high frequencies pass through to be heard whilst cutting off the lower frequencies. The Cutoff Frequency, which defines the point from which only the highest frequencies are heard is, once again, set using the **Frequency** dial. This time, when the dial is all of the way to the left it is letting all of the frequencies through and the filter is having no effect. The more it is turned clockwise, the more frequencies are cut away until only the very highest pass through on the right hand side, though they will probably be out of human hearing range by then! The High Pass Filter in Evolution One doesn't have a Resonance control.

The Band Pass Filter

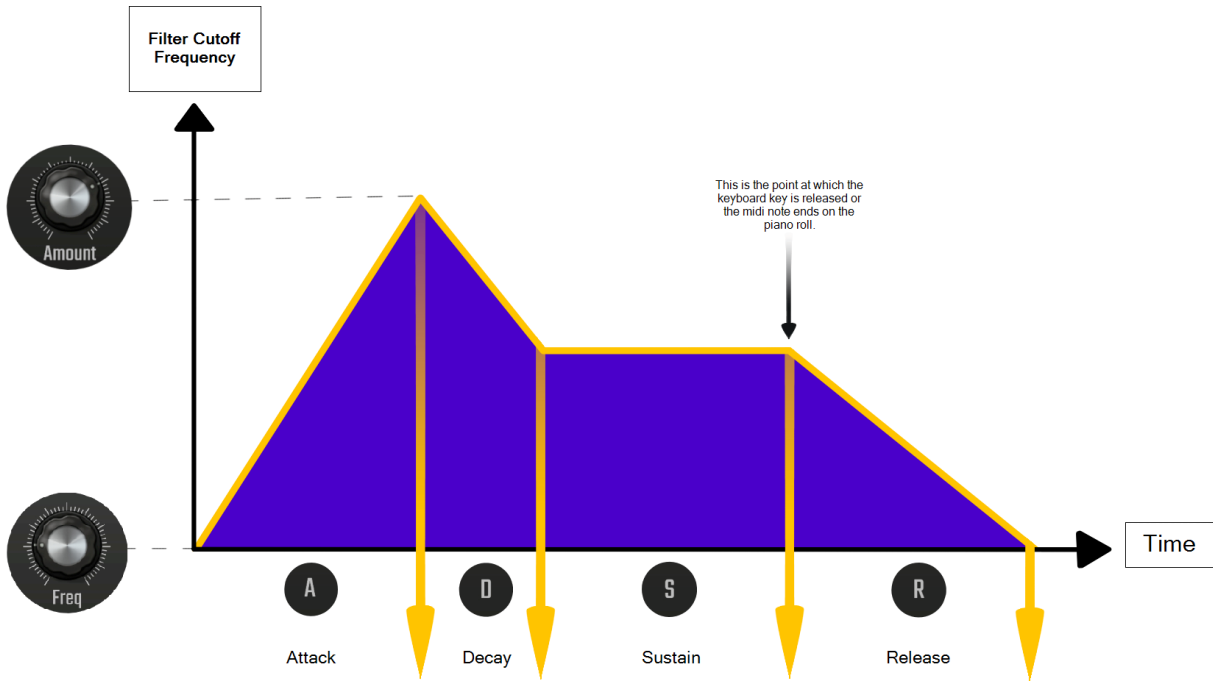


The last type of filter in Evolution One is the Band Pass Filter. This can be thought of as applying a Low Pass Filter and a High Pass Filter at the same time, meaning only the band of frequencies between them pass through to be heard. As shown in the diagram above, you use the **Center** dial to position the Band Pass Filter at your desired point within the frequency range. The **Width** dial allows you to increase, or decrease, the width of the Band Pass Filter so that it lets more, or fewer, frequencies through to be heard.

The Filter Envelope

All of the filters can be used to sculpt the sound by themselves but Evolution One also provides a Filter Envelope to control how the filters effect the frequencies of the sound over time. If this isn't required for your sound, just keep the Amount dial turned off, all the way to the left.

The Filter Envelope is, once again, an ADSR Envelope. Here is a diagram to help explain what the Filter Envelope does, in this example using the Low Pass Filter.



As can be seen, your Cutoff **Frequency** dial setting can be regarded as the lowest cutoff point.

The **Amount** dial defines how much the cutoff will move from this lowest point as it passes through the Filter Envelope. Thus, you can regard the Amount dial as highest cutoff point as shown on the diagram.

The **Attack** phase defines how long it takes for the transition from the lowest cutoff point to the highest cutoff point.

The **Sustain** defines the cutoff point the Filter will settle upon as long as the note is played long enough and so the **Decay** defines how long it will take for the Filter to move from the highest point to the Sustain Level.

The **Release** defines how long it takes for the Filter to return to the lowest cutoff point (as defined by the Cutoff Frequency dial) once the keyboard key is released or the midi note event ends on the piano roll.

NOTE. Don't forget that the Filter Envelope is happening at the same time as the Volume Envelope. So, if your Filter Envelope has a long release time, for example, it won't be heard having any effect if the Volume Envelope has a very quick release time or no release at all.

The LFO Page

We have already discussed oscillators on the Synth Page. The waveforms created by those oscillators are comparatively high frequency waveforms meaning they vibrate very quickly. This is what lifts them to within the human hearing range so that we can hear them. There is another type of oscillator commonly used in synthesizers though: the much slower Low Frequency Oscillator or LFO.

Because of its low frequency, an LFO is out of human hearing range and is used to modulate the levels of other parameters (controls) within the synth. Creatively applying LFO modulation within Evolution One can really open up your sound design possibilities, allowing you to create sounds which fluctuate, move and evolve over time.

Evolution One provides two user assignable LFOs. On the left are the controls for the two LFOs and on the right are the destination parameters which can be modulated by them.

Use these quick links to jump to a section.

The LFO Controls

Both LFO 1 and 2 have the same controls available.

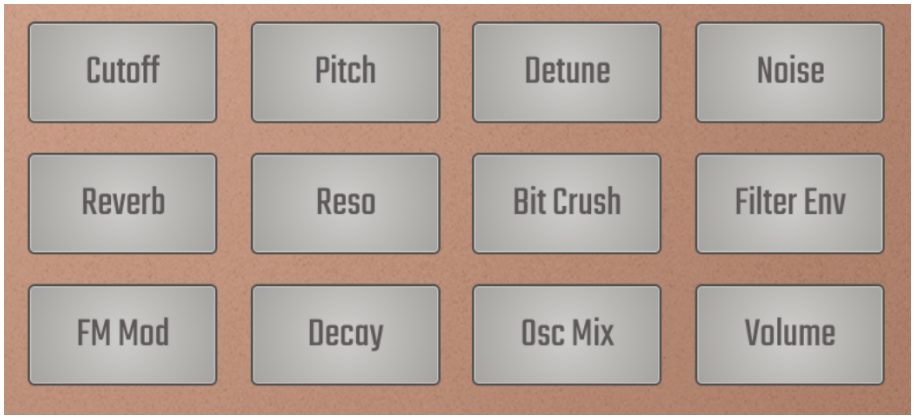
Use the **On/Off** switch to turn the LFO on and off.

As with the oscillator controls on the Synth Page, each LFO allows you to select the waveform **Shape** used. Unlike the Osc 1 and Osc 2 controls though, the LFO shape options are fixed and will not morph from one shape into another. Instead, you will notice the **Shape** dial 'clicks' from one option to another. The waveform shapes available are Sine wave  , Pulse wave  , Sawtooth wave  and Reverse Sawtooth wave  .

The **Rate** dial controls the speed (or frequency) of the LFO. Depending on whether you have 'Sync to tempo' activated in the synth Tempo settings or not, the rate is either freely controlled and measured in Hertz (Hz) or is synced to various musical divisions of the current tempo from 8 Bars at its slowest to 1/64 Triplet at its most rapid. The Hz or tempo divisions are shown in the Playback Timer display as the **Rate** dial is moved.

The **Amount** dial controls the height (or amplitude) of the LFO wave and therefore controls the amount by which the selected parameters will fluctuate as they are modulated by the LFO.

The LFO Modulation Destinations



Both of Evolution One's LFOs offer the same twelve parameter destinations which can be modulated by them. You can select as many of them as you want. This gives you a huge amount of control and many, many creative possibilities.

If you have **Cutoff** selected the LFO will modulate the Cutoff Frequency of your selected filter on the Envelope Page. In the case if the Band Pass Filter, it will modulate the Center of the filter.

Pitch modulates the pitch of your synth sound according to the LFO settings.

Detune modulates the Detune setting for Oscillator 2.

Noise modulates the Level of Noise in your sound.

Reverb modulates the Dry/Wet level of the Reverb effect.

Reso modulates the Resonance amount for the Low Pass Filter and the Width of the Band Pass Filter. The High Pass Filter doesn't have a resonance parameter.

Bit Crush modulates the Sample Rate of the Bit Crusher effect.

Filter Env modulates the Filter Envelope Amount setting.

FM Mod modulates the amount of FM Modulation (the Mod dial).

Decay modulates the Amp ADSR Envelope Decay time.

Osc Mix modulates the Mix setting on the Synth Page which controls the ratio of Oscillator 1 to Oscillator 2 heard.

Volume modulates the Master Level of your sound. Modulating volume with a faster LFO will produce a tremolo effect.

The Effects Page

The Evolution One Effects Page offers you six high quality effects which can be creatively applied to your sound within the synth itself. Don't forget, you can also apply any of Audio Evolution Mobile's other effects outside the synth screen by accessing the FX Grid from the synth track channel on the Arranger Page.

Use these quick links to jump to a section.

Reverb

As sound waves travel out from their source they can reverberate, or bounce, off the surfaces of enclosed spaces. This causes us to hear the sound more than once - the original sound from the source and then the attenuated (lower volume) reverberations bounced off the surfaces. The bigger the size of the space, the longer it takes us to hear the reflected reverberations (the greater the delay time) until, if the space is large enough, we perceive them as an echo. Reverb effects recreate this natural phenomenon and allow you to have your sound exist in a defined imaginary space.

Use the **On/Off** switch to switch the Reverb on and off. The processing involved in high quality reverbs like this can be CPU hungry. If your device struggles to cope you may have to consider keeping the reverb effect turned off.

The **Size** dial controls the size of the imaginary space your sound exists in, with longer reverberations as the size increases.

The **Low Cut** dial controls the amount of lower frequencies cut from the reverberated sound. Lower frequency reverberations can have a longer decay (fade away to silence) time than higher frequencies. In practice, this can result in a muddy sounding reverb. Cutting those low frequencies away can give a clearer reverb when required.

NOTE. You may have noticed that 'decay' was mentioned there and be slightly confused after reading about the decay phase of an ADSR envelope. In an ADSR envelope Decay defines the time it takes for the maximum signal level to decrease to the Sustain level but when talking about sound more generally, decay refers to the amount of time it takes for a sound to fade away to silence.

The **Dry/Wet** dial controls the ratio of 'dry' signal (with no reverb effect) to 'wet' signal (with reverb). It defines the amount of the Reverb effect heard. If this dial is all the way to the left, only the dry signal will be heard. If it is all the way to the right, only the wet signal with the effect applied will be heard.

Delay

Delay effects record the incoming sound and replay it after a time delay. Depending on the feedback time specified, the sound continues to be delayed and replayed, each time getting quieter until silence is reached. They can be used to create echo effects but they don't really simulate natural phenomenons in the way that reverbs do (though reverbs *are* delay based effects). They are very creative tools and widely used, in their various forms, within music production and sound design.

The Delay in Evolution One is a 'Ping-Pong' delay meaning that each replaying of the sound alternates from left to right in the stereo sound field or panorama.

Use the **On/Off** switch to switch the Delay on and off.

The **Time** dial sets the delay time before the sound is replayed. The increments used by this dial differ depending on whether you have Tempo sync activated or not in the synth Tempo Settings. If tempo sync is active, the time options are musical divisions of the current tempo, from a 1/64th triplet on the left to 2 bars on the right. These divisions are shown in the Playback Timer display as the Time dial is moved. If tempo sync is inactive, the Time dial allows you to freely set the delay time independent of the current tempo.

The **Feedback** dial controls the amount of time the output is fed back into the input, therefore controlling how long the delay and playback loop will continue until it fades to silence.

The **Dry/Wet** dial sets the ratio of 'dry' signal (with no Delay effect) to 'wet' signal (with Delay). It defines the amount of the Delay effect heard. If this dial is all the way to the left, only the dry signal will be heard. If it is all the way to the right, only the wet signal with the effect applied will be heard.

Phaser

If two identical sound waves/signals are played from exactly the same point at the same time, the two waveforms will be completely superimposed on top of each other resulting in a summed (the quantity obtained by addition) version of the sound which is double the volume. Superimposed waveforms like this are said to be 'in phase'.

If one of the identical signals is offset (moved), the two signals no longer sit perfectly on top of each other and are said to be 'out of phase'. The phase shift of the second signal causes cancellation of some frequencies and summing of others. Indeed, just as the two in phase signals double the volume, two signals which are completely out of phase at 180° (phase shift is measured in degrees) will cancel each other out completely.

A Phaser creates a copy of the input signal which is fed through a filtering effect where a series of notches, or indentations, in the frequency range cause frequency cuts. These notches are modulated (moved back and forth over time) by a Low Frequency Oscillator (LFO). Finally, this modulated signal is mixed back with the original signal resulting in a constantly moving cancellation and summing of certain parts of the combined signal as the frequencies become more or less in phase. This creates its distinctive sweeping sound.

The **On/Off** switch turns the Phaser effect on and off.

The **Rate** dial controls the speed of the Phaser's internal LFO which modulates the notches in the frequency range. This LFO cannot be Tempo synced.

The **Mix** dial controls the ratio of original signal and modulated signal in the Phaser output. With the dial all the way on the left, only the original signal is heard.

The **Feedback** dial determines how much of the output signal is fed back into the input to intensify the phasing effect.

The **Notch** dial controls the width of the spread of notches in the frequency range used by the filtering effect. The closer the notches are, the more pronounced the effect will be. The further the dial is moved to the right the wider the spread of the notches.

Widener

As explained in the Auto Pan section below, the Evolution One synth sound exists in a stereo sound field. The **Widener** is a clever effect which spreads and widens the stereo effect of the selected preset.

Use the **On/Off** switch to turn the effect on and off.

The **Mix** dial controls the amount of stereo widening applied to the synth sound.

Bit Crusher

All digital audio is defined by samples, or snapshots, of information (data) which are used to capture, describe and reproduce the equivalent analog sound. The speed at which these samples are captured and played back is called the sample rate. Each sample contains bits (binary digits - 1 or 0) which are used to describe the individual samples.The number of bits used per sample is known as the bit depth. The greater the number of bits used to describe each sample and the greater the number of samples per second, the greater the precision and fidelity to the analog sound achievable. So, all digital audio has a sample rate and a bit depth. For example, digital audio using a sample rate of 44.1 kHz with a bit depth of 16-bit, uses 44,100 samples per second and each sample is made up of 16 bits (i.e. each sample is a string of 16 ones and zeros).

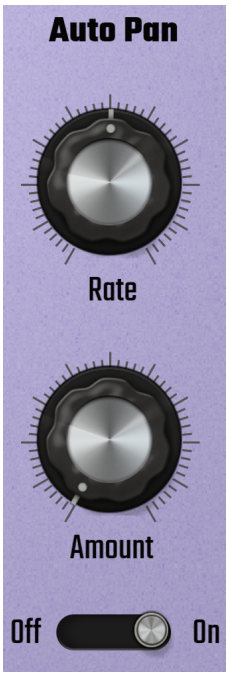
As digital technology has progressed greater sample rates and higher bit depths have become possible (though it is debatable how much of that extra precision is actually perceivable by the human ear beyond a certain point). Back in the earlier days of digital audio though, such things simply weren't possible and lower sample rates and bit depths had to be used. This low sample rate and bit depth, found in early 8-bit samplers and drum machines which typically used sample rates of 28kHz or less, resulted in a 'low-fi' or crunchy sound. This gave such instruments their very own character and appeal, especially in retrospect.

Bit Crushers like this allow you to give your sounds some of this lo-fi digital crunchiness or, indeed, completely crush the sound!

Use the **On/Off** switch to turn the Bit Crusher on and off.

The **Sample Rate** dial allows you to artificially lower the sample rate from 48kHz on the right all the way down to 2.048kHz on the left.

Auto Pan



The Evolution One synth sound exists within a stereo sound field. Indeed, the synth Mono mode which can be selected on the Synth Page, simply switches the synth from polyphonic mode, where a maximum of six notes can be played at the same time, to monophonic mode, where only one note can be played at a time; the sound outputted from the synth is always a stereo signal regardless of the mode selected. The full scope of the left to right sound field is called the panorama, usually just referred to as Pan. Panning controls allow you to position your sound within the stereo sound field.

Evolution One's Auto Pan effect automatically moves your sound back and forth across the sound field between left and right.

The **On/Off** switch is used to switch the effect on and off.

The **Rate** dial controls the speed at which the sound is moved back and forth. Once again, this is dependent on whether you have Tempo sync activated in the synth Tempo Settings. If Tempo sync is active, the Rate options are hard-linked to various divisions of the current tempo, from 8 bars on the left to 1/64 triplet beat on the right. As with all of the synth controls, these options are displayed in the Playback Timer as the dial is moved. If Tempo sync is deselected, the Rate of the Auto Pan can be set freely, independent of the current tempo.

The Arp Page

The Evolution One Arp Page allows you to access two automated ways of the synth playing your sound once a key is pressed and held: an Arpeggiator and a Sequencer.The first time you open Evolution One, the Synthwave 1974 preset will be loaded. When you press and hold a key you'll notice it repeatedly plays a sequence of notes using the key pressed as its starting point: this is the Sequencer in action. If you load the LCD Sound Bass preset from the same preset bank, you'll hear the Arpeggiator being used. Both can be very useful whenever you want a pulsing, rhythmic motif in your music, but they can also be used slowly to achieve a sound that evolves over a long time for a very different effect.

Use these quick links to jump to a section.

The Arpeggiator

A group of notes played at the same time is called a chord. If those notes are played separately, one after the other, up or down, the performer is playing an arpeggio. An Arpeggiator, or Arp, automates this process so that the performer can hold down a single keyboard key (or trigger a single note on the piano roll) and the synth will repeatedly play an arpeggio - a group of notes, one after the other - until the note event ends.

Use the **On/Off** switch to turn the Arp/Seq on and off.

Use the **Arp/Seq** switch to select either the Arp or the Sequencer.

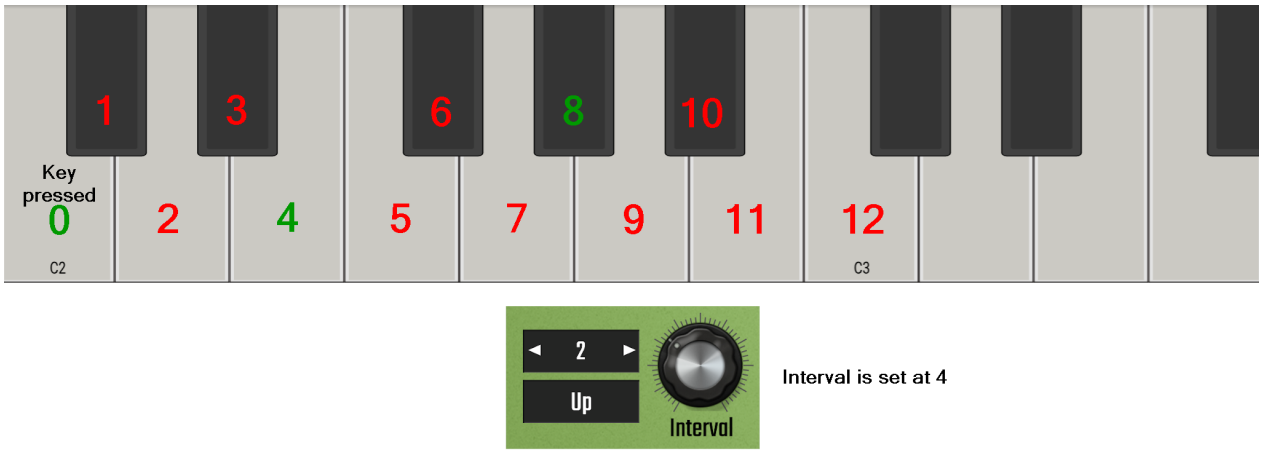
On the next row down, this display 

shows the number of notes (or steps) in the arpeggio *not* including the root note (the key pressed or note on the piano roll). Use the arrow buttons to select from 0 to 3.

Below that, this display 

shows whether the arpeggio is played upwards, downwards or upwards and downwards in pitch. Tap the display to select between **Up**, **Up and Down** and **Down**.

The **Interval** dial selects the musical intervals between the notes played in the arpeggio. It ranges from 0 (the note triggered) to 12 semitones. The number of semitones is shown in the synth Playback Timer display as the Interval dial is moved. Here is an example.



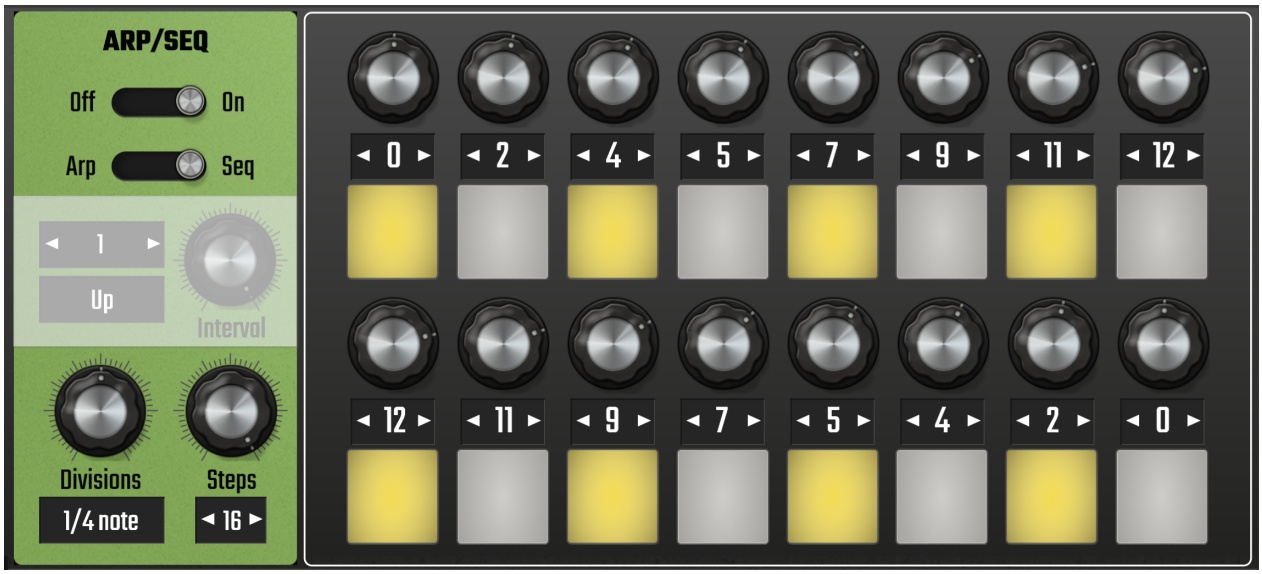
In this example, the **Interval** dial is set at 4, the arpeggio has **2** steps (*not* including the note triggered) and the direction of the arpeggio is **Up**. So, the Arp sounds as follows 0, 4, 8, 0, 4, 8, 0, 4, 8... or C2, E2, G#2, C2, E2, G#2, C2, E2, G#2... Starting from the note triggered, you count up the number of semitones defined by the interval, and then again from that note by the same amount and so on depending on the number of steps in your arpeggio.

If the direction of the arpeggio was set to **Up and Down** in the above example, the Arp would sound like this - 0, 4, 8, 4, 0, 4, 8, 4, 0... or C2, E2, G#2, E2, C2, E2, G#2, E2, C2...

And if the direction was set to **Down**, the Arp would sound like this 8, 4, 0, 8, 4, 0, 8, 4, 0... or G#2, E2, C2, G#2, E2, C2, G#2, E2, C2...

Finally in the Arp controls is the **Divisions** dial. This sets the duration of each note within the arpeggio. The options are all musical divisions of the current tempo, ranging from 1/64 triplet beat for each note on the dial's left to each note being 8 bars long on the dial's right. Thus, the effect of the Arp can be very different based on this setting, from a rapidly firing series of short notes to very long notes changing occasionally.

The Sequencer



The Sequencer is similar to the Arpeggiator in that it plays a series of notes, an arpeggio, one after the other repeatedly from a single note being triggered but it gives you more control over which notes are played and how many steps there are in the sequence. On the left are the dials to control the Divisions and Steps and on the right is the step Sequencer itself.

Use the **On/Off** switch to turn the Arp/Seq on and off.

Use the **Arp/Seq** switch to select either the Arp or the Sequencer.

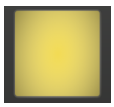
As with the Arp, the **Divisions** dial is used to control the duration of each note within the sequence. The options are all musical divisions of the current tempo, ranging from 1/64 triplet beat for each note on the dial's left to each note being 8 bars long on the dial's right. Thus, like the Arp, the effect of the Sequencer can be very different based on this setting, from a rapidly firing series of short notes to very long notes changing occasionally.

The **Steps** dial determines how many steps, or notes, there are in the sequence before it returns to the beginning and starts again. The minimum is 1 and the maximum is 16 steps. You can also use the arrows on the numerical display to select the number of steps.

On the right is the step Sequencer itself. This area allows you to select the notes heard in your sequence and turn any individual step on or off. In the screenshot above, the sequencer has 16 steps before it repeats and each step has 1/4 note length as can be seen from the Divisions and Steps settings. On the right a Major scale sequence of note intervals, first up, then down, has been defined in semitone intervals through the course of the steps and every other step has been turned off meaning they won't be heard.

The step interval selector dial 

allows you to define the semitone interval of that step. It can be set from -24 to +24 semitones where 0 always represents the note triggered. You can use the dial or the arrows on the numerical display to select the semitone interval for that step.

The step status buttons allow you to turn the individual steps on and off. Yellow  is on. Gray  is off. These allow you to give your sequence a specific rhythm as some steps are sounded (on) and others not (off).

NOTE. Don't forget, both the Arp and the Sequencer will playback their series of notes repeatedly while a note remains triggered. A very short note event, therefore, may not be long enough for the whole series of notes to be heard even once in its entirety. This can provide extra creative possibilities though if used cleverly.

Soundfont and SFZ Instruments

Soundfont and SFZ Instruments

The Audio Evolution Mobile sampler allows you to use Soundfont and SFZ instruments. You can also create your own SFZ instruments. Soundfonts are single files which contain the audio samples and the format's instructions as to how they are allocated across the keyboard range and triggered by incoming midi events. SFZ files are simple text files which contain all of the similar information about how the sampler should use the audio samples when triggered by midi events, but this time the audio samples are contained in a separate folder.

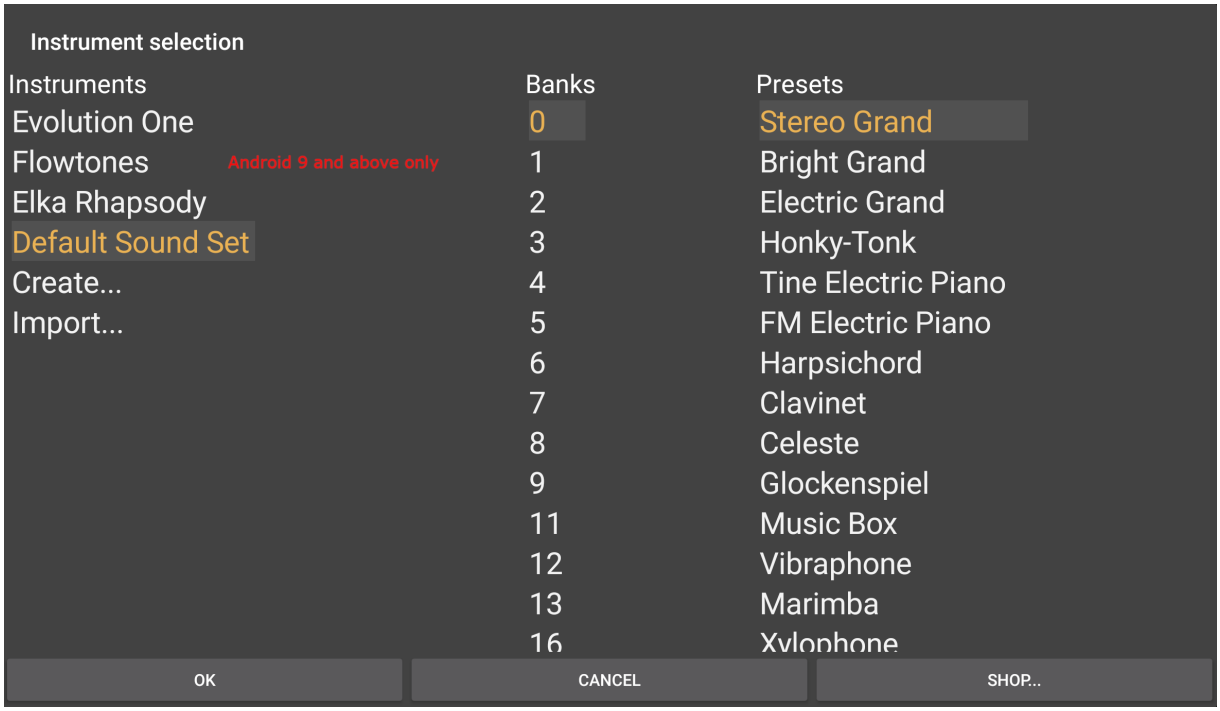
Audio Evolution Mobile not only has a General MIDI (GM) Default Sound Set with a full range of instruments but also has a Soundfont Shop from where you can buy a full range of professional quality soundfont instruments from Digital Sound Factory as in-app purchases. You can also create your own SFZ instrument from within the app and you can, of course, add other soundfont/SFZ instruments directly to the Soundfont folder in the Audio Evolution Mobile folder on your device.

NOTE. **PRE ANDROID 11** - You can set the location for your Audio Evolution Mobile Soundfont directory - the place/folder where your soundfont and SFZ instruments are stored - from within the Other section of the Settings. This allows you to use an external SD card for storage but **PLEASE BE WARNED** that any folder on an SD card created by an app, in this case Audio Evolution Mobile, **WILL BE DELETED** if the app is uninstalled. Such folders, created by an app on an SD card **WILL ALSO BE DELETED** if you use the **Clear data** function in the Android Settings for the app. As such, you **MUST** remember to back-up your soundfonts and SFZs to a different location - or, unmount and remove the SD card - **before** uninstalling the app, and/or using the Clear Data function, or they will either be lost forever or will need to be downloaded again from the Audio Evolution Mobile Soundfont Shop if purchased from there. This behavior is hard-wired into the Android operating system and cannot be avoided unfortunately. Please be aware of this before deciding to access your soundfonts and SFZs from an external SD card. **To avoid such worries**, please use the device's internal storage for the Soundfont directory (as it is by default), ensuring the folder won't be deleted if the app is uninstalled and/or the Clear Data function is used.

VERY IMPORTANT EXTRA INFORMATION FOR ANDROID 11 AND ABOVE The mandatory introduction of Scoped Storage for Android 11 and above means that the above information, regarding using the SD card as the Soundfont directory, remains true but it also means that **the same is true when the device's internal storage is used** because of the new storage setup. Though you will be given the option to leave your app data intact upon uninstalling the app, using the **Clear data** function in the Android Settings for the app, **WILL DELETE** all of your user data (including your Soundfonts and Projects) without warning. PLEASE make sure you read this section so that you're fully aware of what these changes mean.

To use a Soundfont/SFZ instrument, you must first create either a MIDI Instrument or Drum Pattern Track using the Add Track  button on the Arranger Screen.

If you select **Add MIDI instrument track**, the following Instrument Selection dialog will open.



On the left are listed the **Instruments** you have available to use. The first time you select Add MIDI instrument track to open this dialog, you will be prompted to download the free Default Sound Set (*) soundfont. The Evolution One synthesizer and, if you're using Android 9 and above, Toneboosters Flowtones synthesizer, will also be listed, as will the option to Create your own SFZ instrument. This is also the place where any Digital Sound Factory soundfonts you purchase from the Shop will appear. The soundfont shop can be accessed by pressing the **Shop** button at the bottom right of the dialog. Shown in the screenshot above is the Digital Sound Factory **Elka Rhapsody** instrument which is available for free from the shop. Any instruments you create will then be shown in this instrument list as will any soundfonts or SFZ instruments you manually copy into your soundfonts directory.

As can be seen, soundfonts can sometimes contain different **Banks** of presets and these can be selected between in the middle.

Finally, on the right, are the individual **Presets**. These may be completely different instruments, as seen above, or different variations of the same instrument. Evolution One and Flowtones presets are selected from within the synthesizer interfaces and are not shown in this dialog.

NOTE. Repeatedly pressing a preset name in this dialog will allow you to hear how that preset/instrument sounds at different pitches without fully loading it and leaving the selection dialog. This behavior can be turned off in the app Settings for those times where it would get in the way, such as in live performance situations. This option can be found via Settings > Other > Preview soundfont preset.

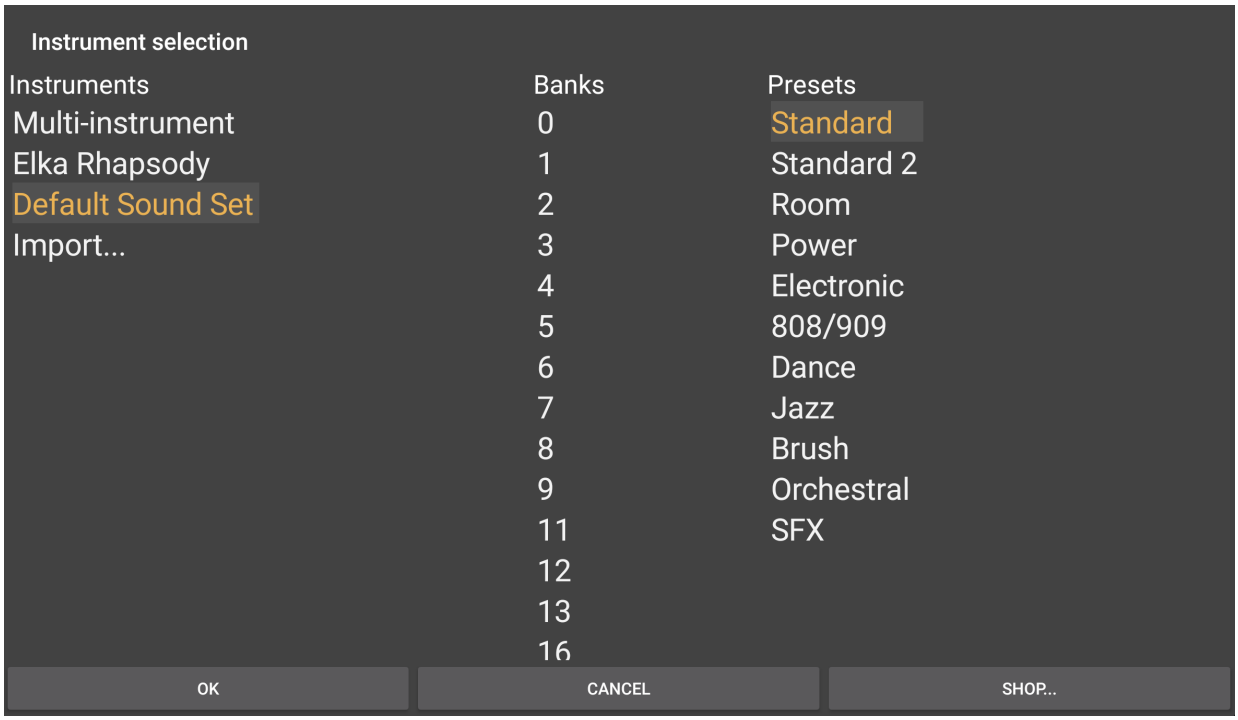
Once you have selected your instrument, bank and preset, press **OK** to confirm, load your selection and take you back to the Arranger Screen from where you can record to, compose on and edit your MIDI track.

Also present, as can be seen, is the **Create...** option which allows you to create your own sfz instrument. This is covered in its own section here.

Lastly, there is the **Import...** option. This allows you to directly import Soundfonts from elsewhere on your device, though please be aware that this only works with sf2 instruments as they are

self-contained files unlike sfz instruments.

If you select **Add drum pattern track** from the Add Track options, you will see the same dialog but it will take you to Bank 128 of the Default Sound Set, where the drum presets can be found, as seen below.



The Drum Pattern Sequencer in Audio Evolution Mobile is set up to conform to General MIDI drum mapping (https://www.midi.org/specifications-old/item/gm-level-1-sound-set) - meaning which MIDI note, or keyboard key, each drum type (Kick, Snare, Hat etc.) is assigned to - and requires this mapping for the correct drum types to be assigned to the correct row of the Drum Pattern sequencer. The Default Sound Set is a General MIDI (GM) soundfont, meaning all of its mappings conform to the standard, including its drum presets. All of the Digital Sound Factory drum soundfonts available in the shop also conform to the correct GM MIDI mapping to be used seamlessly within the Drum Pattern sequencer. Any purchased soundfonts will be shown in the Instruments list on the left of the dialog.

Once you've selected your drum kit preset, press **OK** to confirm and launch the Drum Pattern sequencer. Alternatively, you can select **Multi-instrument** which allows you to create your own custom drum kit from different elements. Full information on creating and using multi-instrument drum pattern instruments can be found here.

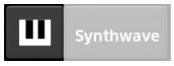
NOTES. You can, and may wish to, use a drum preset on a MIDI Instrument track rather than a Drum Pattern track. This will allow you to access greater editing tools than are available within the Drum Pattern sequencer but it will also allow you to use the on-screen drum pads (by pressing the Open Virtual Keyboard button or the Arm button on the channel strip) to play the drums and record a live finger-drumming performance. Just remember that each drum type is mapped to a single note on the Piano Roll Editor if you want to edit them.

Drum Pattern tracks can also be converted to MIDI Instrument tracks, and vice versa, after they have been created from within the Track Options. Long press in an empty area of the track, not containing a clip, to open the track options or access them from within the Clip/Track

Options by pressing the three dot button on a selected clip on the track.

* The Default Sound Set soundfont used by Audio Evolution Mobile is the GeneralUser GS soundfont and is the work of S. Christian Collins. S. Christian Collins' website can be found here http://schristiancollins.com/index.php , where there is information about virtual instruments, the soundfont and SFZ formats, and additional free soundfont instruments to download, as well as examples of his own music.

Using the Instrument Parameter Controls

The Instrument Parameter Controls for soundfont/SFZ instruments, seen above, can be found above the virtual keyboard once it has been opened by pressing either the Open Virtual Keyboard 

button or the Arm  button, both found on the instrument track's Channel Strip.

These controls allow you to adjust the playback characteristics for the selected instrument. What's more, they can all have an LFO (Low Frequency Oscillator) Modifier applied to them to modify their levels rhythmically over time.

NOTE. It is very important to realize that these parameters, and the ability to change them as you'd expect, can very much depend on the way they have been defined and set within the soundfont/sfz itself by its creator. As such, these controls have been designed to give you the best experience possible but please be aware that you may not always get the results expected because of this feature of soundfonts and SFZs. This is also the reason why some of the control dials might not have the initial positions you'd expect with such controls.

The functions controlled by these parameter dials are as follows.

- **Attack** controls the length of time it takes for a note to reach its maximum volume from silence. A short attack means an 'instant' loud note and a long attack means a slow fade-in from silence as notes are pressed.

- **Decay** controls the length of time it takes for a note to fall from its maximum volume level to the Sustain level.

- **Sustain** sets the volume level upon which a note will settle as long as the key is pressed long enough, or the event is long enough on the piano roll.

- **Release** controls how long it takes for a note to fade to silence once the key is lifted, or the event ends on the piano roll. A quick release will cause the note to stop 'immediately' upon the release of the key and a slow release will mean the the note slowly fades away to silence.

NOTE. These four controls form the ADSR Volume Envelope for the instrument. For more information about ADSR envelopes and volume envelopes please refer to the Evolution One section, here.

- **Cutoff** controls the cutoff frequency point for a Low Pass Filter. When fully to the right, it is letting all frequencies through to be heard. The more it is moved to the left, the more high frequencies are filtered out until, on the left, only the lowest frequencies pass through the filter to be heard.

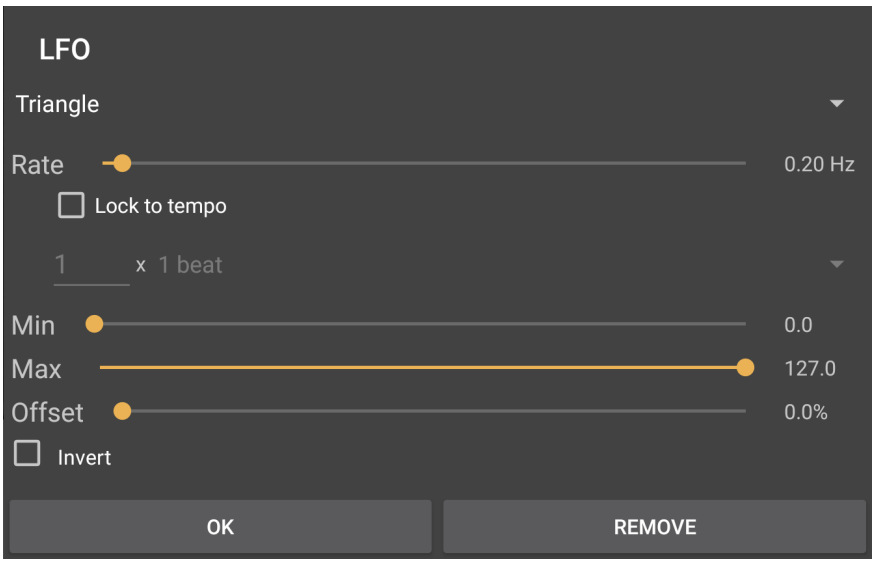
- **Resonance**, when increased, causes the Low Pass Filter to boost the volume of the frequencies around the Cutoff Frequency point. The higher the Resonance level, the more pronounced this volume spike is.

NOTE. For more information about Low Pass filters and Resonance, please refer to the Evolution One section, here.

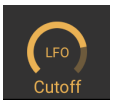
- **Fine Tune** allows you to control the fine tuning/pitch of your instrument. This can be useful if, for example, you've created your own instrument, but the initial sample, and therefore all of your instrument's notes, wasn't, and aren't, quite in tune. Altering this fine tuning control can make the adjustment necessary for the instrument to be in tune with other virtual, and real, instruments.

To use the dials, touch, hold and slide on them to move them and alter the parameter's level. Once you've touched the dial, you can slide out of the way of the dial so you're not obscuring it with your finger as you change the level, if necessary. Alternatively, double tapping the control's dial will open the instrument parameter Options seen here.

Selecting **Reset** will reset the dial to its default level. **Enter value** will open an input dialog, allowing you to enter a numerical value for the level of the dial, giving you much greater accuracy when required. Selecting **Modifier** will show you the modifier options for that parameter. For all of these parameters, the only option is LFO. Selecting **LFO** opens the LFO dialog seen here.



As can be seen, this is where you can define the characteristics for the LFO (Low Frequency Oscillator) which will be used to modify the level of the parameter over time. At the top is the drop-down list to select the LFO waveform shape (Saw, Sine, Square, or Triangle). Next is the **Rate** of the modulation. This can be set using the slider using a value of Hz (Hertz) or you can **Lock to tempo** using the checkbox shown. Once locked to tempo, the tempo increment options used for this 'locking to' will become available (they are grayed out in the screenshot above). The tempo increments available are between 1 bar and 1/32 triplet beat, with 24 and 25 frames per

second also available. Once a tempo increment has been selected, you can then enter the number of that increment to use for the LFO duration before it starts again. So, for example, if you enter '2 x 1 bar', the LFO modifier will take the 2 bars to complete one full cycle before starting again. Next, the **Min** and **Max** sliders allow you to set the minimum and maximum levels for the parameter, between which the LFO modifier will move. Below them, the **Offset** slider allows you to adjust the starting point on the LFO waveform for the cycle to begin from. Finally, the **Invert** checkbox, when selected, inverts the LFO waveform (turns it upside down). Click **OK** to apply the LFO modifier to control the parameter. Opening this dialog again for the same parameter will allow you to alter the settings if required and can also be used to **Remove** the modifier completely. When a parameter is being modified by an LFO it will be indicated like this 

and you will also see the parameter level moving in real time according to the LFO setting. When playback is started *from the beginning of the project*, the LFO will be reset to start afresh according to the LFO settings above. If playback is started from elsewhere in the project, from the current location of the Time Marker  , the LFO will start from the position at which it would have been *at that point on the timeline* had it begun freshly at the beginning of the project. This means you can rely on the aural effects of the modulation always being heard at the same time within the project during playback and export.

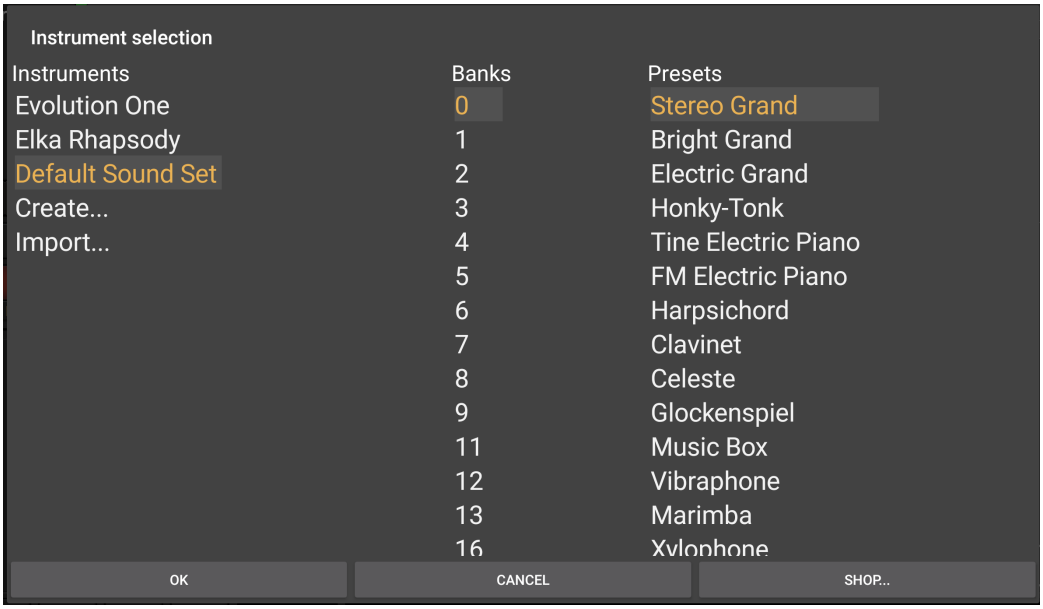
NOTE. If these instrument parameters are changed during recording, when in Touch mode, those changes will be recorded as Automation. After recording has finished, they can be accessed, and edited, via the Automation 

mode. Simply select the relevant parameter from the list of options for the recorded automation to be displayed. Automation for these parameters can also be created manually without the need for anything to be recorded. Please be aware, though, that none of this will not be possible for parameters which *already* have a modifier applied to them: modifiers override automation. As such, if you want to apply automation to parameters with modifiers, you will first need to remove the modifier. For more information on automation, please see here.

Creating your own SFZ Instruments

Audio Evolution Mobile allows you to create your own SFZ instruments, using your own samples/recordings, from within the app.

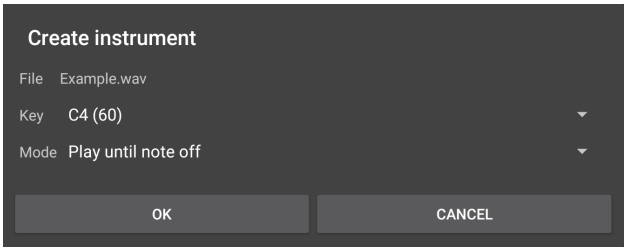
After creating a MIDI Instrument track using the Add Track button, as described here, you will be shown the Instrument Selector seen here.



At the bottom of the list of instruments is the **Create...** option. Selecting this will open the in-app file browser so that you can select a suitable (WAV, AIFF, FLAC, OGG or MP3 format) audio file from your device to use for your instrument.

NOTE. **Android 11 and above only**. If you have used the Documents>AudioEvolutionSampler>Import>Sampler folder on your device to import audio files using the Portal, they can be found in the **Sampler** folder, seen as an option after pressing **Create...**. For more information about using the Audio Evolution Portal please see this section.

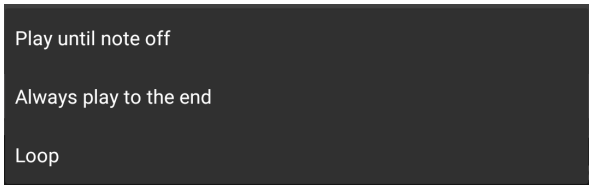
Once you've selected the audio sample you want to use, you will be shown the following **Create instrument** dialog.



This allows you to assign the sample to its root **Key**, the correct MIDI note to represent its actual pitch. Since this single sample will be used across all notes on the keyboard, it is important to get this setting right otherwise none of the pitches in your instrument will match up with the equivalent notes of other virtual, and real, instruments. Identify the sample's correct note/key/pitch and select it from the drop-down list. This will then be the note to which the original sample will be mapped. All of the other keys will use the same sample, but it's playback will be

sped up to create higher notes and slowed down to create the lower notes.

As you can see, there is also the option to select the sample playback **Mode** used for the instrument, again selectable from the drop-down list seen here.



This defines the way the instrument plays each sample/key after it is pressed or triggered by an event on the Piano Roll.

- **Play until note off** means that every note will play the sample while the key is pressed, or triggered, and stop immediately when the key is lifted or the event ends. Keeping your finger on the key, or having a long note on the piano roll, will play the sample until the sample ends and then silence will be heard afterwards. To have the sample play continuously, regardless of its length, you would need to use the **Loop** mode below.

- **Always play to the end** means that pressing a key, or triggering an event, will play the entirety of the sample to played from beginning to its end, regardless of how long that press or event is. This is often referred to as a 'One-shot' mode.

- **Loop** mode is similar to the Play until note off mode in that the sample is played while the key is pressed and stops when the key is lifted. The difference is that the sample will be looped, meaning that once it reaches its end it will return to the beginning and be played again, and so on, for as long as the key is pressed.

NOTE. Don't forget that you have further controls over the playback of the notes of your instrument available via the Instrument Parameter Controls which can be used in combination with the setting for playback chosen here.

Make your sample playback selection and press OK on the Create Instrument dialog to create your instrument. The instrument will be listed with the other virtual instruments on the left of the Instrument Selector seen at the top of this section. It will have the same name as your original sample file, so the instrument created above, from the WAV file 'Example', will be listed as 'Example' on the instrument selection list. Should you want to locate the instrument .sfz file, to use elsewhere, share or backup, it can be found in the Audio Evolution > Sampler > Instruments folder on your device (please see here if you're having trouble locating the Audio Evolution Mobile folder).

Creating a Multi-instrument Drum Instrument

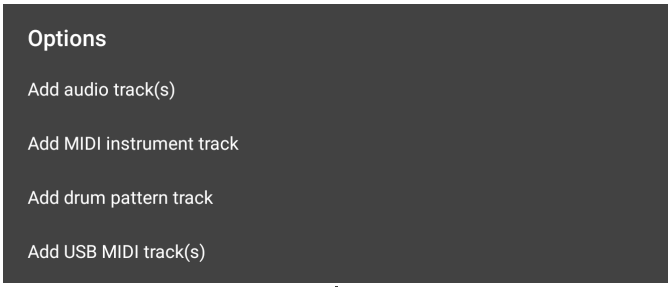
Using the multi-instrument option when creating a drum pattern track allows you to create your own custom drum kits for use in the drum pattern sequencer. These can be made up of a combination of sounds from the soundfont instruments installed on your device, high quality drum samples from the Audio Evolution Mobile factory library (whether that's the 80 free samples included (download required) or the 420 additional samples available to be downloaded after an in-app purchase) and your own samples, which can be easily imported for use.

Creating a bespoke instrument in this way also opens up much greater control over each individual element of the drum kit as each sample used has its own full channel strip, with FX Grid and an additional ADSR button via which can be accessed the sample's ADSR volume envelope, as well as a low pass filter, pitch controls, a rudimentary reverb effect and Cut Groups for the sample.

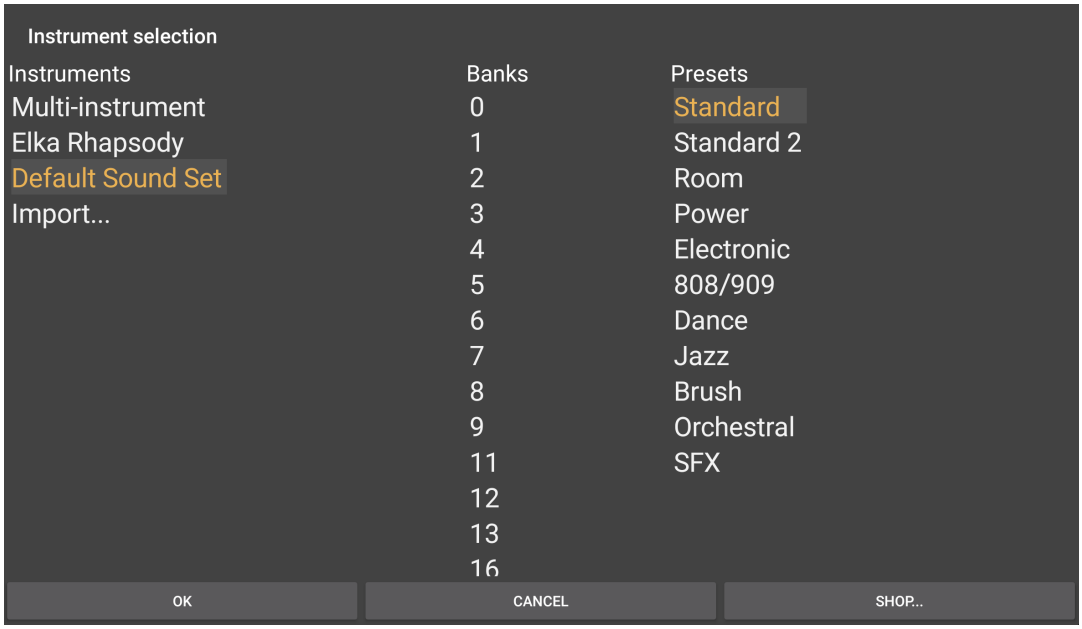
NOTE. If you just want that greater control over each sample within an existing drum kit, simply choose that kit as the Base instrument for your multi-instrument and don't replace any of the drums present.

How to create a multi-instrument drum instrument

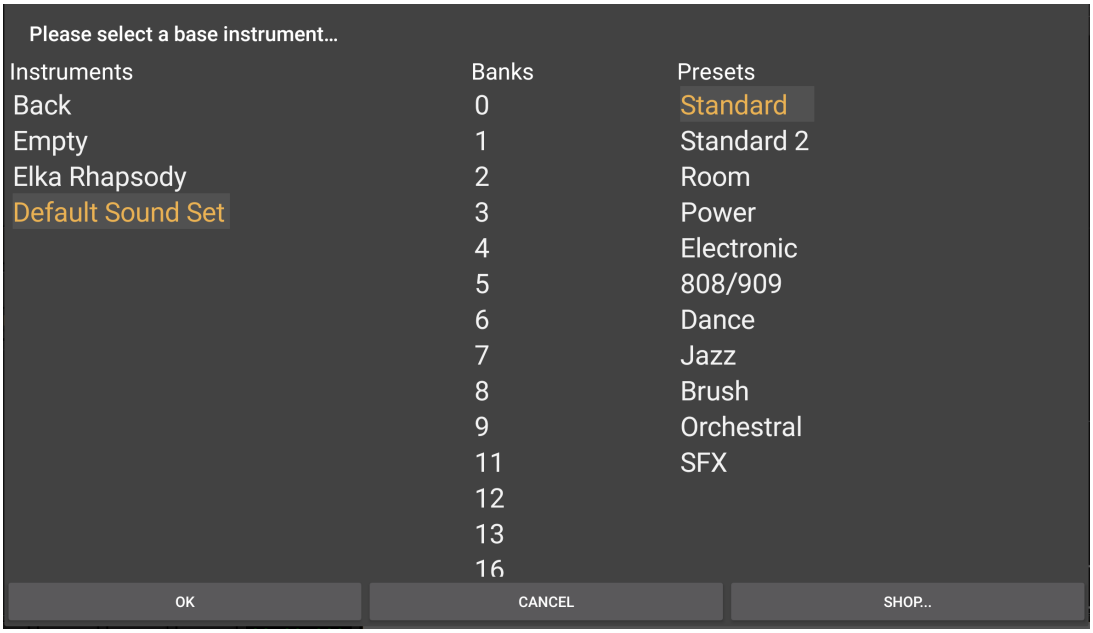
Press the Add Track  button towards the bottom right of the Arranger Screen to open the following dialog and select Add drum pattern track.



This opens the following instrument selection screen.



Select Multi-instrument. You will now see the following options on the instrument selection screen.



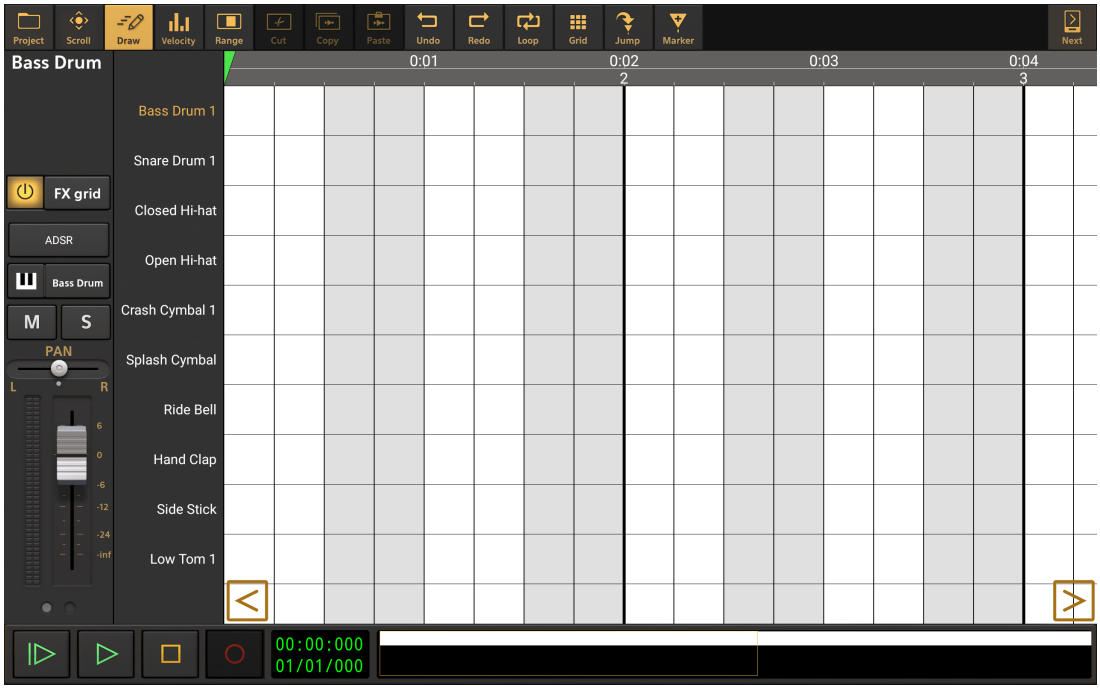
On this screen you can select a base instrument upon which to build your custom drum kit by replacing any elements you wish to. In the screenshot above, the Standard drum kit from the Default Sound Set is selected as the base instrument.

Pressing Back will take you back to the first instrument selection screen.

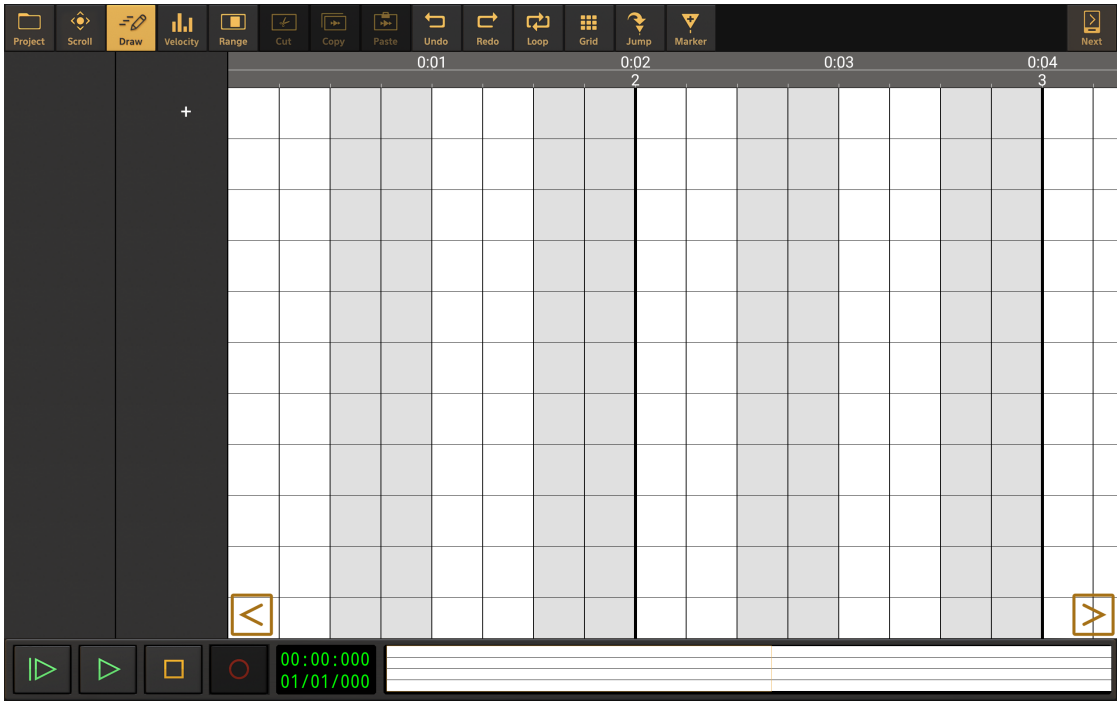
Choosing Empty will create an empty multi-instrument drum instrument, ready for you to add whatever sample elements you require.

Choose your base instrument or select Empty and click on OK. This will open the drum pattern sequencer with either the selected base instrument loaded (seen below, top) or without any samples loaded (seen below, bottom). If this is the first time you've used this feature, you'll be asked if you want to download the 80 free high quality drum samples into the Factory samples folder. This can be downloaded later if you prefer via the Samples folder within the drum sound

browser. An in-app purchase is also available via the Samples folder which allows you to buy and download an additional 420 high quality drum samples split across several popular genres.



Base instrument used for multi-instrument drum pattern instrument.



Empty multi-instrument drum pattern instrument.

As you can see on the drum pattern sequencer with the base instrument used, Bass Drum 1 is selected (tap once on a sample name to select it) at the top of the list of drum samples and to the left can be seen its channel strip. Every sample within the kit has its own channel strip, visible when the sample is selected, offering great control over the samples and, via cut groups, the drum patterns you create. To hide the channel strip and maximize the size of the drum pattern sequencer, swipe left on the bar containing the names of the drum samples. To reveal the channel strip again, swipe to the right on the bar containing the names of the drum samples.

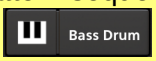
Now you have a multi-instrument drum pattern track, it is simply a case of selecting and importing the samples you want to use in your custom drum kit.

If you have chosen to use a base instrument, you can change which samples are used for any of the elements by tapping on the name of a selected sample on the drum pattern editor (tap once to select a sample, tap again to open the Options). This will open the Options seen here.

Press Remove to clear that sample from the drum pattern sequencer.

Press Replace to choose another sample to be used instead of the current one.

As can be seen, you can also set the default velocity for the current sample from these options.

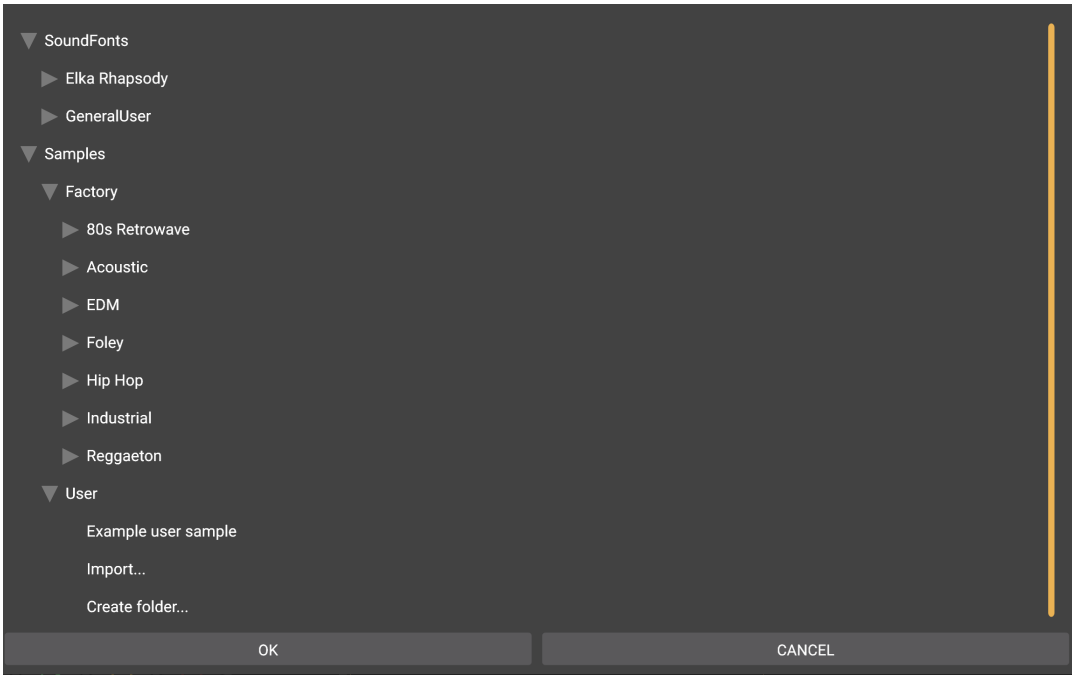
NOTE. Where samples already exist on the multi-instrument drum pattern sequencer, you can also change the sample used by clicking on the sample name button 

on its channel strip which will immediately open the drum sample browser.

If you chose to start off with an empty multi-instrument drum pattern sequencer, as seen on the right above, you simply need to press the + symbol to load your first sample.

When you press Replace, or the + symbol, the drum sample browser will be opened. The drum sample browser utilizes a standard tree view because of the numerous sub-folders which might be present when navigating to the samples contained in soundfont instruments. Please be aware, therefore, that if you press Replace, you will initially be taken to the location of the currently loaded sample, meaning you may wish to close down several levels to get back to the root of the browser, seen below, to begin browsing for your sample more easily. Pressing + will immediately show you this screen.

Opening up the browser tree view a few levels will give you a better idea of how to use it.



As can be seen, there are two main folders - **Soundfonts** and **Samples**.

Soundfonts contains all of the soundfont instruments installed for Audio Evolution Mobile on your device. As you open up the levels of a soundfont, you'll be able to select a specific preset within the soundfont and from there you will be shown the list of General MIDI mapped drums for you to pick from. Tapping on the drum names in the list will preview the sample. It is important to remember that if the preset selected does not have the drums mapped correctly according to the General MIDI standard within the soundfont, these names may, or may not, accurately represent the samples mapped to those notes. This is particularly true if you select an instrument soundfont, such as Elka Rhapsody above, rather than a drum soundfont: you will still be able to select, for example, Bass Drum 1 from a preset within that soundfont but what you'll hear/load is the note from that preset which is mapped to the same location as the Bass Drum 1 would be within a General MIDI drum kit. This opens up creative possibilities of its own though when combined with the ADSR controls for loaded samples! The drum kits in the General User soundfont for Audio Evolution Mobile and all of the high quality drum soundfonts from Digital Sound Factory, available to buy as in-app purchases within Audio Evolution Mobile, are correctly mapped according to General MIDI standard.

Samples contains the **Factory** samples and your own **User** samples. As already explained, 80 high quality drum samples can be downloaded for free into the Factory samples folders, which are split across several popular genres. From this **Samples** folder, you are also able to make an in-app purchase which will allow you to download a further 420 excellent samples into these folders. Inside the folders, the samples are listed individually by name and tapping on the name will preview the sample.

The **User** folder is where you'll find the samples you have imported. In the screenshot above, you can see that 'Example user sample' has already been imported, ready to be selected. The User folder also contains the options to **Import...** your samples and **Create folder...** to help you keep your samples organized in folders within Audio Evolution Mobile.

Clicking on **Import...** will initially ask you whether you would like to import individual sample/s or a

complete directory containing folders of samples (all of the folders of samples in a particular location imported in a single action). Choosing an option will open your device file browser. Navigate to the location where your samples are stored on your device (depending on the Android version your device is running, you may be asked for a one-time permission for Audio Evolution Mobile to access that location). Click on the sample file you wish to import and the sample will be imported into Audio Evolution Mobile's private storage space where it will show up to be selected in the **User** section of the drum sample browser.

Long click on sample names or folder names in the drum sample browser to be given the option to delete them from Audio Evolution Mobile's private app storage.

NOTE. Audio Evolution Mobile only supports sample files which are less than 4MB in size when importing for use in a multi-instrument drum pattern kit.

Once you've located the sample you want in the drum sample browser, press OK to load it into the drum pattern sequencer and repeat the process to complete your custom drum kit.

Having created a kit you are pleased with, you can save the kit by pressing the Project 

button on the drum pattern sequencer screen. Pressing this button also gives you the opportunity to load previously saved user multi-instrument drum kits.

NOTE. It is important to point out that, though the drum samples in the Factory folder are of the highest quality, they are one-shot samples whereas the Digital Sound Factory drum kit soundfonts, available to purchase in the Audio Evolution Mobile soundfont shop, include many different samples per velocity layer and round-robin samples for a more realistic sound, all recorded with the same high quality equipment in the same locations and at the same time, giving the individual drums a completeness together as a kit. This is the reason for the relative difference in price between the in-app purchase of the extra 420 one shot samples for the Factory samples folders and the cost of purchasing one of the Digital Sound Factory drum soundfonts.

The ADSR button options

The channel strips shown for each individual sample within a multi-instrument drum pattern, seen below, have a unique element not seen on other channels strips within the app: the ADSR 

button.

NOTE. Channel strips show controls spread over several pages which are accessed using the circular gray buttons at the bottom of the channel strip. The number of pages will vary according to the size of your device's screen.

Pressing the ADSR button opens the following screen which offers various controls to fine-tune the sample for your needs.

Attack Attack, Decay, Sustain and Release (ADSR) are the volume envelope controls for sample. Attack defines how long it takes the sample to reach its maximum volume.

Decay Decay defines the length of time it takes for the sample volume to drop to the Sustain level after it has reached its maximum volume.

Sustain Sustain is the volume level the sample settles on after the Attack and Decay phases for as long as it remains triggered.

Release Release defines how long it takes the sample volume to drop to complete silence after the trigger is released.

NOTE. For more information on ADSR volume envelopes, please see here.

Cutoff Cutoff and Resonance control a low pass filter for the sample. Cutoff defines the frequency point at which only frequencies lower than that point are let through the filter and heard.

Resonance Resonance controls the the amount that the frequencies specifically around the cutoff point are boosted.

NOTE. For more information on Low Pass filters, please see here.

Fine tune Fine tune and Coarse tune allow you to alter the pitch of your sample. Fine tune makes very small pitch adjustments in cents.

Coarse tune Coarse tune allows you to alter the pitch of the sample in semitones.

Reverb Reverb is a rudimentary reverb effect which can be easily applied to your sample.

Cut group Cut groups are an important aspect of any drum machine. If a sample has been assigned a cut group, its sound will be immediately cut as soon as another sample assigned to the same cut group is triggered on the sequencer during playback. So, for example, if you have the Closed High-hat and Open High-hat both assigned to cut group A, then the naturally long Release of the Open High-hat will be realistically cut short if a Closed High-hat (or any other sample assigned to cut group A) is triggered on the sequencer before it has naturally reached silence. You can choose to assign samples to one, or more, of four cut groups - A, B, C and D.

Double tapping on the parameter dials shown on the ADSR screen will open the following options.

Reset will return the dial to its default value.

Enter value allows you to enter a precise value for the dial/parameter using the numerical keyboard and will be shown the value constraints for the parameter selected (e.g. Enter value between 0 and 127).

Modifier allows you to apply an LFO modulation source to the parameter. For information about LFO modifiers, please see here.

NOTE Parameters for the individual elements within a multi-instrument drum pattern (such as the parameters on the samples' channel strips and effects on their FX grids) are not automatable. The only automation possible on a per-sample basis is via the use of modifiers on the parameters within the ADSR section.

For details on the other parameters and controls shown on the channels strips within a multi-instrument drum pattern sequencer, please see the section on Channel Strips here.

A quick search on the internet will reveal many free Soundfonts and SFZ instruments. Not surprisingly, these instruments vary greatly in quality.

If, though, you are looking for high quality Soundfont instruments, Audio Evolution Mobile provides an in-app Soundfont Shop with a full range of instrument types available from Digital Sound Factory, guaranteeing meticulously sampled, pristine sounds for your musical creations. Access the Soundfont Shop by pressing the Shop button on the Instrument Selector Dialog. Digital Sound Factory have very kindly made their Elka Rhapsody soundfont available for free for all users - download it from the soundfont shop. All other instruments available in the shop require an in-app purchase.

Restoring purchases

If you have installed the app on a new device using the same account you purchased the app with, your previous purchases are not automatically downloaded. Please press the Shop button in the Instrument selection dialog, find your purchases and select **Download** at the bottom right to download the soundfont to your device again.

In case the button says **Purchase** and you are sure you have purchased the selected Soundfont with the currently active account, it usually means that Google has not synchronized your purchases yet. In that case, you can try after a restart of your Android device. If that does not help, please open the Android Settings app, select Apps, then Google Play Services, Manage storage and press the Clear Data button. Then start the app again and see if your purchases are listed in green and press the **Download** button.

In case you remain having problems restoring your purchases, please contact support@audio-evolution.com.

Notes on Toneboosters Flowtones Synthesizer within Audio Evolution Mobile

Toneboosters Flowtones Synthesizer is a premium synthesizer, identical to its desktop counterpart, and contains an extraordinary level of control and options for sculpting and modulating the sounds you can make. It also boasts a catalog of fantastic, built in presets and a truly amazing Randomize function for those who don't want to design sounds themselves from scratch. Flowtones requires an in-app purchase but users can try out all of its features before you buy. In trial mode, 5 seconds of silence will be introduced every 45 seconds and exporting rendered audio from the synth will be blocked.

The enormous power of Flowtones unfortunately comes at the cost of CPU usage and for this reason we have had to limit its availability to devices running Android 9 and above. Devices running lower Android versions will not see it as an option on the Instrument Selection dialog. For devices running Android 9 and above, Flowtones opens for the first time without the High Quality mode turned on. You can switch this mode on via the Settings  button at the top right of the Toneboosters screen and it can be used in combination with Flowtones' own, built-in HQ and Eco modes which can be found in its Settings on the **Out** page accessed on the right of its interface. It is important to remember that you can also **Freeze** MIDI instrument tracks. This temporarily renders a track to audio, meaning the CPU no longer has to process the synth in real time for that/those tracks, and therefore releasing it for performance overall. For full details on freezing tracks, please see here.

Perhaps the most important thing to realize regarding CPU usage and the quality mode selected,

is that any audio rendered from Flowtones is *always* rendered by Audio Evolution Mobile at the highest quality possible, regardless of the quality mode selected within the synth interface.

To add a Flowtones track to your project, just like the other instruments, simply press the Add Track  button on the Arranger Screen and follow the instructions seen here.

Audio Evolution Mobile adds transport controls 

at the top right of the interface, just like the transport controls found in Evolution One. These allow you to start, and stop, playback of your project as well as record yourself playing the Flowtones virtual keyboard, or connected MIDI keyboard, directly to a MIDI clip, which will be automatically created on the track's timeline.

To exit the Flowtones interface and return to the Arranger Screen, simply press the Close  button at the top right.

User created presets can be imported and exported from within the synth interface.

Lastly, please note that, as well as the vast amount of modulation possibilities built into Flowtones, almost all of its parameters can be automated within Audio Evolution Mobile as well (though not using Touch Automation mode).

Toneboosters' comprehensive user manual for Flowtones can be found here and details about their amazing effects, also available as in-app purchases within Audio Evolution Mobile, can be found here.

The FX (Effects) Grid

NOTE. Please also see here for information on Send Effects and how to use them.

Introduction

Audio effects are ways of processing your audio, changing the way the original audio sounds. There are generally considered to be five main categories of effects. There are 'Time-Based' effects like delays and reverbs. There are 'Modulation' effects like phasers, flangers, choruses and tremolos. There are 'Dynamic' effects like compressors and distortions. There are 'Spectral' effects like equalizers and panning. And finally, there are 'Filters'.

Audio Evolution Mobile provides a full range of high quality audio effects, covering all of the categories as well as other effects like Vocal Tune Pro (in-app purchase required) which don't fit neatly into any category. These will allow you to sculpt and refine your music and create exactly the sound you're after. In addition to Audio Evolution Mobile's own effects, you can also purchase the very highly respected ToneBoosters range of effects as in-app purchases, giving you access to professional 'plug-in' effects not usually found in mobile apps, at a reduced price of their desktop counterpart.

Whilst most mobile DAWs only allow you to have serial insert effects, and maybe effect sends, Audio Evolution Mobile also allows you to apply parallel effects processing using its FX Grid. It also allows you to apply modifiers (lock to tempo and LFO) to almost every effect parameter, allowing you to expand your creative possibilities even further.

Use these quick links to jump to a section.

NOTE. Please also see here for information on Send Effects and how to use them.

What is Parallel Processing?

If you have already read about FX (Effect) Sends in the section on Channel Strips, you may already understand more about parallel processing than you realize. Indeed, using effect sends and returns is an example of parallel processing. Effect send/return parallel processing involves a *copy* of the original audio being sent to be processed, whilst another copy of the original audio is left unaffected, and the two signals then being mixed together.

The parallel processing ability of the FX Grid also allows you to have a second copy of the audio signal to be processed at the same time as, in parallel to, the first one. It also allows you to route a copy of the first signal *after* some effects have been applied and then process *that* version of the signal in parallel to the first. And if you want to, after applying some effects, then route that second signal back up to go through the same final processing units on the FX Grid as the first one, you can do that too. In short, parallel processing involves copies of the same audio being processed at the same time as each other and heard together. This gives a great deal of creative freedom and control when applying effects and sculpting exactly the right final sound you're after.

Serial vs Parallel

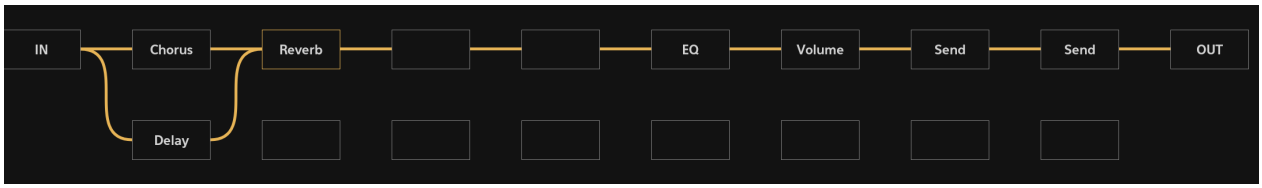
It is helpful, for understanding, to consider the difference between serial effect chains and parallel effect chains. Serial effect chains have the effects applied one after another in series. Parallel effect chains apply effects to more than one copy of the original signal at the same time. Both can be represented on the FX Grid of Audio Evolution Mobile.

1. Serial effect chain.

Imagine you have a recording of a guitar on the track used by this FX Grid. You want to apply both a Chorus effect and a Delay effect to this audio. In this example of serial processing, the audio signal travels through the Chorus effect and then that 'chorused' signal is used for the Delay effect. But, what if you wanted the Delay to be applied to the 'clean' guitar audio, not the already processed 'chorused' signal? Well, you could swap the two effects round on the Grid, but then the Chorus would be applied to the 'delayed' signal which might not be what you're after either. You could duplicate the track and place one effect on either track; that would work but its a bit of a chore to do and it complicates your project. Or, you could place a Send in the first block in the effect chain and have either the Chorus or Delay processed in parallel using that Send/Return. True, that would work, but, in Audio Evolution Mobile, you don't have to do that as you can simply use the parallel processing capabilities already built into the FX Grid.

2. Parallel effect chain.

So here, using parallel processing, the original 'clean' signal/audio is being sent through the Chorus effect at the same time as *a copy* of that clean signal is also being sent through the Delay effect. As it is shown here, the two copies remain separate until they are both heard together at the Output. If though, for example, you wanted to apply *the same* Reverb effect to both the 'chorused' and the 'delayed' signals, you could then simply route the delayed signal back up like this.



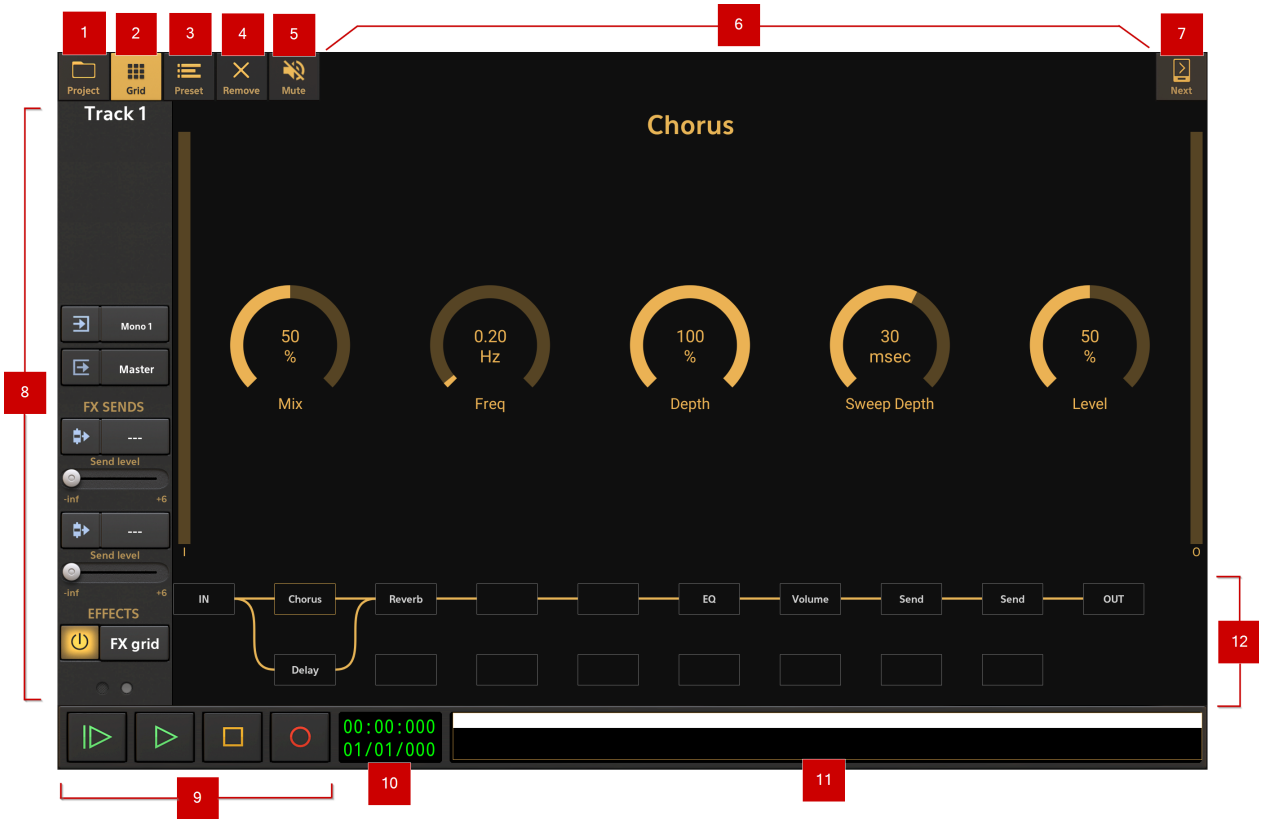
As you can hopefully see, this quickly becomes a very powerful, creative and flexible feature to have as it freely allows you to design at which point an effect is applied and to what signal.

NOTE. Since parallel processing involves using *copies* of the audio signal, be aware that this will increase the volume level accordingly as the copies are combined and heard at the same time. Remember to take this into account and keep an eye on your audio levels.

The FX Grid Screen

You access a track's FX Grid by pressing the FX Grid button 

on its Channel Strip. This opens the FX Grid screen seen here.



NOTES. Some effects will also display an **Info** 

button at the top of the display which, when pressed, will give you a brief description of the effect and its features.

The Compressor and the Toneboosters Compressor will also display a **Sidechain** 

button at the top of the display. For details about this, please see here.

1 **Project** options button 

. Pressing this button opens the Project Options panel. This is where you can set up, load and save your projects, import audio and MIDI, export your tracks and final mixdown and access the cloud sync backup feature. For more information see here.

2 **Show/Hide Grid** 

button. This button allows you to show or hide the FX Grid. This can be especially useful on devices with smaller screens when you want the display of the effect interface to be as large as possible as you alter its parameters.

3 **Preset** 

button. Pressing this allows you to save presets for the selected effect (highlighted in yellow on the grid when selected), load your saved presets, as well as delete presets. Most of the Toneboosters effects come with factory presets as well, though please be aware that the factory presets for the Version 4 (V4) effects can be accessed from within the effect interface itself which is why they don't have a Preset button.

4 **Remove** 

button. Pressing this removes the selected effect from the grid completely. There is no confirmation dialog so please use with caution.

5 **Mute** 

button. When activated, this temporarily mutes/disables the selected effect as if it weren't present in the effects chain. The effect's block on the grid will have a dotted line boundary to indicate it has been muted.

NOTE. You can also turn all *user added* effects (i.e. not including those which are present on the grid by default) on and off using the User added FX On/Off 

button on the track's Channel Strip.

6 **Effect Interface Display**. The main area on this screen is used to display the selected effect's parameters/controls. These are the controls you use to fine tune the effect and achieve the sound your after.

7 **Next** 

button. Pressing the Next button returns you to the Arranger Screen. Please be aware though, that pressing the Next button again after that will not return you to the FX Grid Screen: to enter this screen again, please press the FX Grid button 

on the track's Channel Strip as before.

8 The track's **Channel Strip**. This is the track's Channel Strip, discussed here. Channel strips have their functions displayed over several pages; the smaller the device screen, the more pages required. Use the small gray circular buttons at the bottom of the channel strip to select different pages.

Initially, the FX Grid will be empty except for the default **EQ**, **Volume** and two **Send** blocks. These are the functions which are also represented on the track's channel strip as described here (EQ), here (Volume) and here (Send). They can be moved but cannot be deleted.

The last thing, particularly relevant to the FX Grid, to mention again here is the User added FX On/Off 

button. This can be used to turn all *user added* effects (i.e. not including those which are present on the grid by default, as just mentioned) on and off.

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

 Start Playback from the beginning of the project.

 Playback from the position of the Time Marker (The green marker  in the

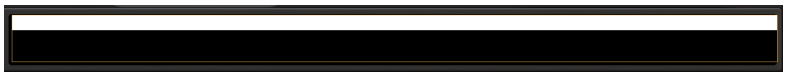
Timeline/Marker Display).

 Stop Playback or Recording.

 Record.

10 **Playback Timer Display** 

. This display shows the current time during playback and recording. When playback and recording are stopped it displays the current position of the Time Marker (the green marker  shown in the Timeline/Marker Display). 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.

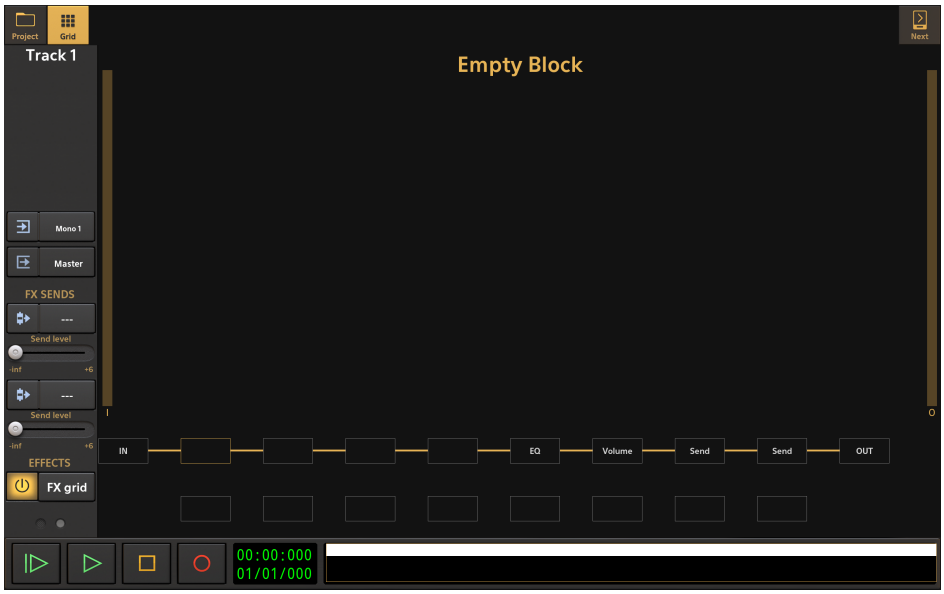
11 **Project Overview / Scrollpad**  . The Project Overview/Scrollpad is a very useful feature which displays a miniature view of the entire project and allows you to quickly move within the timeline. Since you can't see the Timeline on the FX Grid Screen, this can be particularly useful as sliding your finger across the Scrollpad allows you to move through the project and position the Time Marker  , ready for playback from that point. True, you won't be able to *see* the Time Marker, but you will be able to see its position indicated on the Playback Timer Display.

12 **The FX Grid**. This is grid with its blocks, each of which can contain an effect (and extra columns can be added, horizontally, should you need even more blocks). This is where you create your effects chain for the track. As already mentioned in the previous section, you can create either serial or parallel effect chains. The following section will explain how to use the FX Grid.

Using the FX Grid

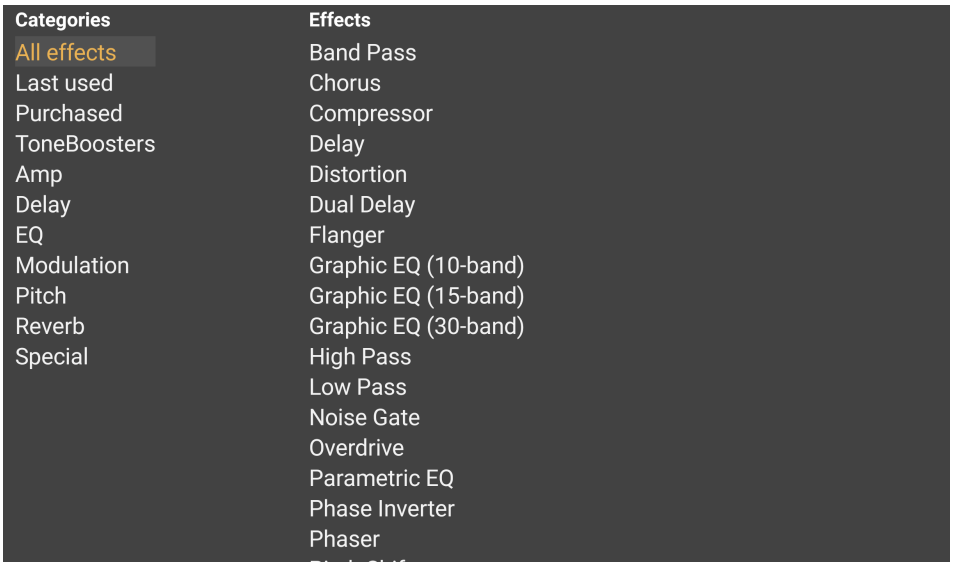
You access a track's FX Grid by pressing the FX Grid button 

on its Channel Strip. This opens the FX Grid screen seen here.



As you can see, initially the FX Grid will be empty except for the default **EQ**, **Volume** and two **Send** blocks. These are the functions which are also represented on the track's channel strip as described here (EQ), here (Volume) and here (Send). They can be moved but cannot be deleted.

To add an effect to the FX Grid, simply tap on an empty block on the grid. This will open the Effect Selector, seen below.



The selector has various categories of effects listed on the left to help you quickly find the effect you're looking for. The effects themselves are listed on the right. Select your effect and it will be loaded into the empty block on the FX Grid.

To make connections between the two rows of the grid, when you want to use parallel processing, press on the block at which point you'd like the signal to be copied and processed in parallel, and *while still holding* that block, press on the block you'd like to route it to with another finger. Performing the same action again will remove the connection, though please note that the connections of blocks along the first row cannot be disconnected. If you want to parallel process the 'clean' audio signal, simply route the **IN** (Input) signal onto both rows, as seen in the example below. Don't forget that the signal on the second row, needs to find its way to the **OUT** (Output) block to be heard, so make sure it travels all the way along the second row and is connected to the OUT block or is connected back up to the first row at some point.

NOTE. Since parallel processing involves using *copies* of the audio signal, be aware that this will increase the volume level accordingly as the copies are combined and heard at the same time. Remember to take this into account and keep an eye on your audio levels.

You can reposition any of the effects by long pressing on their block, holding and sliding to your preferred location on the grid. User added effects can be removed altogether using the Remove button at the top of the interface. Tap on a yellow connection line to be given the option to add another column to the grid when you need more blocks in your effects chain. Depending on your device's screen size, you may need to scroll left and right on the FX Grid to see and access all

of the blocks.

You can Mute individual effects by selecting them (tap on their block) and using the Mute button at the top. You can also turn all *user added* effects (i.e. not including those which are present on the grid by default) on and off using the User added FX On/Off 

button on the channel strip.

Using Modifiers

Audio Evolution Mobile allows you to apply modifiers to almost every effect parameter available other than those found in the Version 4 (V4) Toneboosters effects which generally have their own modifying possibilities built in.

There are two types of modifier available in Audio Evolution Mobile: LFO (Low Frequency Oscillator) modulation and, when pertinent to the parameter selected, Lock to Tempo.

Lock to Tempo does exactly that: it locks the parameter to a particular increment of the currently selected project tempo. This option will only be available for parameters where it is possible to apply such a setting.

The **LFO** option allows you to constantly modulate the parameter value using a user defined Low Frequency Oscillator (LFO). An LFO is a slowly (low frequency) moving (oscillating) waveform. For more information on LFOs, see here. This opens up a huge amount of creative possibilities, from rapidly repeating rhythmical effects to slowly evolving changes in the audio soundscape.

NOTE. Don't forget that you also have the option to manually apply Automation to effect parameters BUT, please be aware that this will not be possible for parameters which already have a modifier applied to them: modifiers override automation. As such, if you want to apply automation to parameters with modifiers, you will first need to remove the modifier.

Using Lock to Tempo

To apply a modifier, simply double tap in the center of the parameter's dial. This will open the following Options.

Selecting **Reset** will return the parameter back to its default level.

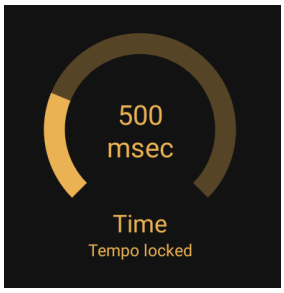
Enter value allows you to enter a numerical value for the parameter level should you require greater accuracy than simply using the dial. The numerical range of the particular parameter will be indicated on the dialog shown so you'll always know what you're working with.

Selecting **Modifier** opens the Modifier Options, seen here.

Select **Lock to tempo** to open the following dialog.

This dialog allows you to select the increment of the current tempo to be used for the parameter value. The tempo increments available are between 1 bar and 1/32 triplet beat, with 24 and 25 frames per second also available. Once the increment is selected, you can then define the multiples of that increment for even greater control. Click **OK** to apply the tempo lock to the parameter. Opening this dialog again for the same parameter will allow you to alter the settings if required and can also be used to **Remove** the modifier completely.

A parameter with 'Lock to tempo' applied will be indicated as seen below. This labeling isn't applied to the ToneBoosters effects, though modifiers *can* be applied to most of the Version 3 effect parameters.



Using LFO Modulation

To apply a modifier, simply double tap in the center of the parameter's dial. This will open the following Options.

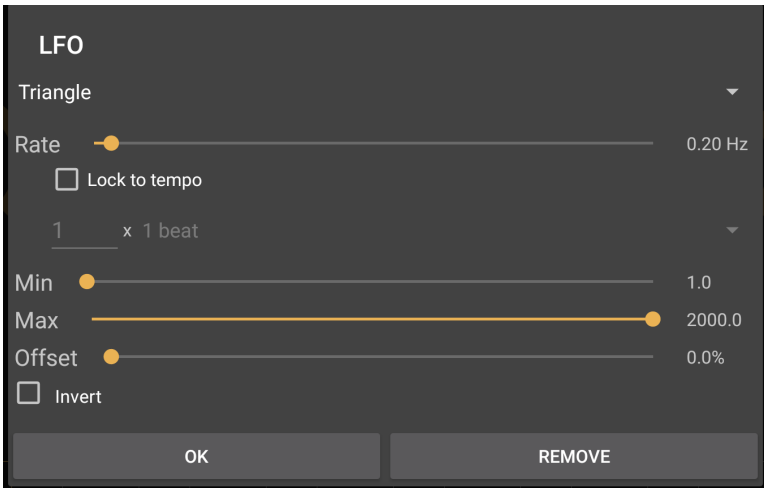
Selecting **Reset** will return the parameter back to its default level.

Enter value allows you to enter a numerical value for the parameter level should you require greater accuracy than simply using the dial. The numerical range of the particular parameter will

be indicated on the dialog shown so you'll always know what you're working with.

Selecting **Modifier** opens the Modifier Options, seen here.

Select **LFO** to open the following dialog.



As can be seen, this is where you can define the characteristics for the LFO (Low Frequency Oscillator) which will be used to modify the level of the parameter over time. At the top is the drop-down list to select the LFO waveform shape (Saw, Sine, Square, or Triangle). Next is the **Rate** of the modulation. This can be set using the slider using a value of Hz (Hertz) or you can **Lock to tempo** using the checkbox shown. Once locked to tempo, the tempo increment options used for this 'locking to' will become available (they are grayed out in the screenshot above). The tempo increments available are between 1 bar and 1/32 triplet beat, with 24 and 25 frames per second also available. Once a tempo increment has been selected, you can then enter the number of that increment to use for the LFO duration before it starts again. So, for example, if you enter '2 x 1 bar', the LFO modifier will take the 2 bars to complete one full cycle before starting again. Next, the **Min** and **Max** sliders allow you to set the minimum and maximum levels for the parameter, between which the LFO modifier will move. Below them, the **Offset** slider allows you to adjust the starting point on the LFO waveform for the cycle to begin from. Finally, the **Invert** checkbox, when selected, inverts the LFO waveform (turns it upside down). Click **OK** to apply the LFO modifier to control the parameter. Opening this dialog again for the same parameter will allow you to alter the settings if required and can also be used to **Remove** the modifier completely.

When playback is started *from the beginning of the project*, the LFO will be reset to start afresh according to the LFO settings above. If playback is started from elsewhere in the project, from the current location of the Time Marker  , the LFO will start from the position at which it would have been *at that point on the timeline* had it begun freshly at the beginning of the project. This means you can rely on the aural effects of the modulation always being heard at the same

time within the project during playback and export.

A parameter with 'LFO' modulation applied will be indicated as seen below and you will also see the dial moving in real time according to the LFO modulation. This labeling isn't applied to the ToneBoosters effects, though modifiers *can* be applied to most of the Version 3 effect parameters and you will see the dials moving in real time.

NOTE. Any modifiers applied, and their settings, will be saved with effect presets you design and save.

Sidechain Compression

Both Audio Evolution Mobile's own Compressor effect and the ToneBoosters Compressor (in-app purchase required) have the ability to sidechain. This is a very useful feature, but one which can often confuse users who are unfamiliar with the process.

What is Compression?

Compression is a way of controlling the dynamic range, the loudness range, of your audio. The Compressor effect can automatically attenuate - turn down, squash, compress - the loudest parts of the audio to bring them more in line with the quieter parts. This compressed signal, with those loudest peaks attenuated, can then be turned back up to match its original overall peak volume again (without distorting/clipping), meaning the lower volume parts of the audio - which weren't compressed - will be louder than they were originally and the audio overall is more dynamically uniform. It is usually advisable to use compression subtly to bring things together. Over-compression should be treated with great caution.

The Audio Evolution Mobile Compressor, seen above, has the five controls which will be found on most compressors.

- **Threshold**. This sets the loudness level the audio needs to go above to make the compression kick in.

- **Ratio**. This sets the amount of attenuation applied by the compression, how much the loud audio is turned down by the effect according to a ratio. The ratios refer to decibels (dB). So, if you have a ratio of 2:1, a signal exceeding the threshold level by 2dB would be attenuated (turned down) to 1dB above the threshold level, and a signal exceeding the threshold level by 6dB would be attenuated to 3dB above the threshold. Higher ratios mean stronger

compression.

- **Attack Time**. This defines how long it takes for the signal to become fully compressed *after* it has exceeded the threshold level.

- **Rel. Time** (Release Time). This defined how long it takes for the compressed signal to go back to the original non-compressed signal after the signal goes below the threshold again.

- **Output Gain**. As mentioned above, the attenuation of the loudest parts of the audio will result in the overall volume being lower. The Output Gain, also referred to as Make-up Gain, allows you to 'make-up' for that lost volume. Audio Evolution Mobile's Compressor has an Input (I) level monitor on the left and an Output (O) level monitor on the right, allowing you to match the original input signal level.

The Audio Evolution Mobile Compressor also has a horizontal monitor along the bottom which shows you the amount of compression being applied in real time.

What is Sidechain Compression?

Regular compression monitors and uses the audio level/volume of the track being compressed to determine when the compression is applied. Sidechain compression monitors and uses the audio level/volume of *a different track* to determine when the compression is applied to the track the compressor effect is on.

One of the first uses of sidechain compression was when DJs wanted to have the volume of the music they were playing automatically lower and duck out of the way whenever they used their microphone. In that case, the sidechain compressor would be *applied* to the channel the music was on, but it would be *triggered* by the sound level of the microphone channel. As soon as the DJ used the microphone, the volume would go above the Threshold set for the sidechain compressor and the compression would be applied to the music channel, lowering its volume out of the way of the microphone.

Another commonly used example of sidechain compression is to have compression applied to a track, triggered, using sidechaining, by the Kick Drum track. This would mean that the compression applied to that track would result in it ducking out of the way (either subtly or in an exaggerated manner depending on the compressor settings used) of the kick drum to keep the drum punching clearly through the mix. You could easily do the same using a vocal track to trigger the compression applied to other tracks to subtly keep the vocals prominent within the mix.

As can be seen, sidechain compression can be very useful.

How to use Sidechain Compression

Select the track you want the compression *applied* to and open its FX Grid using the FX Grid 

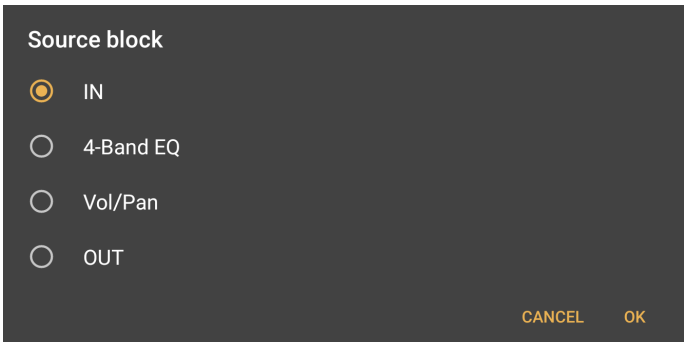
button.

Tap on the empty block you want the Compressor to be placed on and select **Compressor** (or the **ToneBoosters Compressor** if you've purchased it) from the Amp category in the Effects Selector.

Now, press the Sidechain 

button which will be present at the top of the screen for those two effects. This will open the Source Track dialog seen here (obviously, you need more than one track present in your project to be able to use sidechaining).

The **Source track** is the track which will be monitored by the compressor and will be used to trigger the compression being applied when its signal goes above the Threshold set. Pressing **OK** will then open the Source block dialog, below.



The **Source block** defines at which point in the source track's signal chain (on its FX Grid) its level is monitored and used by the compressor. You may, for example, want the compressor to to react to the source track's raw audio levels *before* it's had any effects or processing applied to it: in that situation you would choose **IN**, the point at which it enters its FX Grid. If, on the other hand, you wanted the compressor to react to the source track's audio levels *after* all of its track processing had been applied, you would select **OUT**.

Now it's simply a case of playing back both tracks and adjusting the settings of the compressor until the selected track, with the compressor on it, is being compressed and ducking out of the way of the source track in the way you want.

We are very pleased to be able to have a full range of seventeen professional quality effects from ToneBoosters, as well as their incredibly versatile, fantastic sounding Flowtones synthesizer (Android 9 and above only), available as in-app purchases to use in Audio Evolution Mobile.

These highly thought of effects and instrument are identical to their desktop counterparts and include their wonderful Version 4 effects. ToneBoosters have very kindly allowed us to make their Time Machine effect available to all users for free. All of the other ToneBoosters effects and Flowtones require in-app purchases but Audio Evolution Mobile allows you to try all of them before you buy, by, for the effects, limiting their use to one minute of playback at a time and by introducing 5 seconds of silence every 45 seconds when trying Flowtones. Rendered audio exports will also be blocked in trial mode.

NOTE. ToneBoosters effects, and Flowtones synthesizer, purchased within Audio Evolution Mobile can only be used within Audio Evolution Mobile and cannot be used with other apps.

Further details about Toneboosters Flowtones Synthesizer within Audio Evolution Mobile can be found here.

Detailed user manuals for the ToneBoosters effects and Flowtones Synthesizer are available from their website here or by using the direct links below.

Flowtones

Barricade 4
Compressor 4
Equalizer 4
Reelbus 4
Reverb 4
Sibalance 4
VoicePitcher 4
BitJuggler
DualVCF
Enhancer

Track Essentials 3 - TB Ferox v3
TB Gate v3
TB DeEsser v3
TB Compressor v3
TB Reverb v3
TB Equalizer v3
TB Time Machine v3

Freezing Tracks

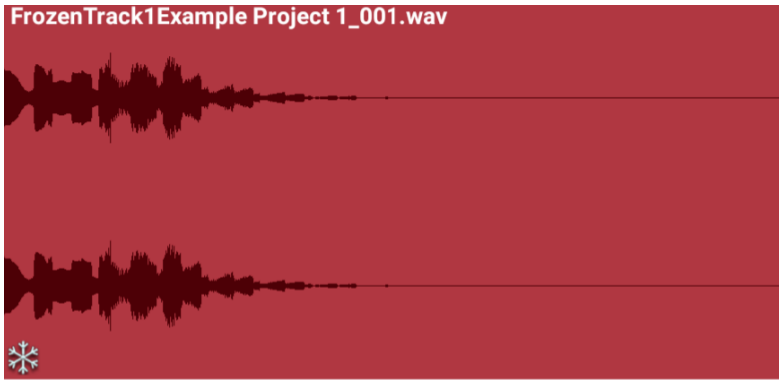
The option to **Freeze** a track, for both audio and MIDI tracks, can be found in their respective Track Options (Audio Track Options, MIDI Instrument Track Options, Drum Pattern Track Options). These can be accessed via the Clip Options (select a clip by tapping on it and press the three dot button to open the Clip Options, then select Track Options at the bottom of the list) or by long pressing in any empty area of the track (i.e. any area not containing a clip) on the timeline.

Freezing tracks temporarily renders the track, including all processing and effects applied, to a single audio clip without any effects added on the timeline. Frozen tracks will include any long effect tails or instrument releases at then end of the track, up to a maximum of ten seconds, so that the full impact of the track is retained perfectly. The difference between manually rendering the track to audio, and then importing that rendered track back into the project, to freezing tracks is that freezing allows the whole process to happen in one action and, more importantly, the freezing process is *reversible*. The state of the track *at the point at which it is frozen* is saved, allowing the track to be unfrozen, giving you back the ability to edit and change any of the effects or processing, and/or edit the MIDI of MIDI tracks. To reverse the process, select **Unfreeze** which will, again, be found in the track options of all frozen tracks.

So, why would you want to freeze your track? Well, the answer is simple: it is to lower the CPU load for your device and maintain performance levels. Real-time effects processing, real-time use of virtual instruments and real-time automation can all be very CPU hungry and cause your device to struggle. An audio file, by comparison, is very easy for your device to handle. Freezing tracks can, therefore, be extremely useful if you are using multiple instances of virtual instruments in your project or are using lots of effects. If your playback starts to stutter or glitch, freezing tracks can really help and is, therefore, an option which should always be remembered.

NOTE. There is one very important thing to remember when working with frozen tracks: *any* changes you make to the track while it is frozen, any adjustments or any effects you add to the frozen track's FX Grid, WILL BE LOST if you then unfreeze the track. This is because, as stated above, the freezing process stores a copy of the track *at the point at which it is frozen*. Unfreezing, therefore, reverts it back to that point in time, meaning any changes made to the track while it is frozen will be lost. Please be aware of this and get used to unfreezing *before* making any changes and then freezing again afterwards. Alternatively, you could **Duplicate** the frozen track (via the Track Options) to which you've made changes, allowing you to then unfreeze one of the, now two copies of that track and still keep the version you've added to or changed.

A frozen track can be identified by the presence of a snowflake symbol at the bottom left of its audio clip, as well as in the clip name, as seen here.



The track's frozen status is also indicated by the snowflake symbol next to its name on its channel strip as seen here.

NOTE. The audio files created by freezing tracks are retained in the project Samples folder, even after those track have been unfrozen.

Automation

Introduction

Automation allows you to automatically alter the parameter values of your tracks, virtual instruments and effects throughout the duration of your project. It can be used to create sonic effects but is perhaps most often used as a mixing tool. Audio Evolution Mobile has three methods of applying automation. The first method is to manually plot your automation for each parameter using the Automation Mode. The second method is to record your parameter changes/automation in real time using the Touch mode. Lastly, the third method is to apply a Modifier to the parameter. This method is only available for Soundfont/SFZ instrument parameters and Effect parameters and is covered in their own sections, here (Soundfont/SFZ instrument parameters) and here (Effect parameters). In this section, we shall concentrate on the first two methods.

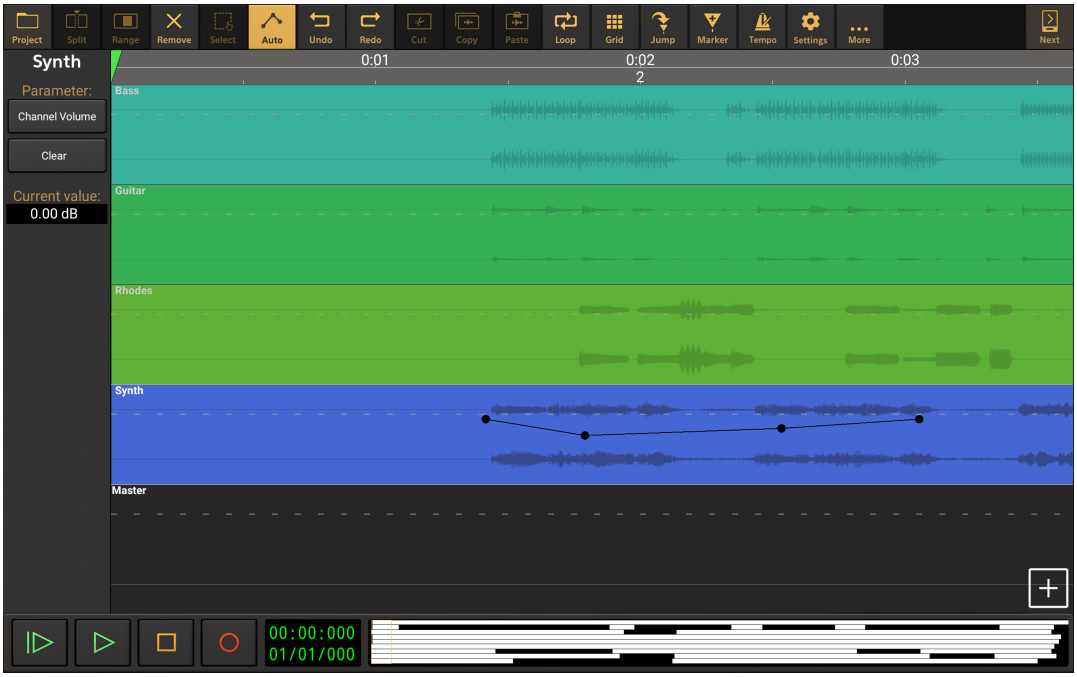
NOTE. Please be aware that Modifiers, applied to Soundfont/SFZ instrument parameters and Effect parameters override automation applied using other methods. As such, you will need to remove the modifier from a parameter before you will be able to apply alternative automation.

Use these quick links to jump to a section.

Using the Automation Mode

To access the Automation Mode, seen below, press the Auto 

button on the Arranger Screen.

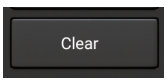


This interface allows you to access every parameter available for each track and plot the automated changes to its level along the course of its timeline. As can be seen, the Master output channel is also shown at the bottom of the tracks to allow for automation to be applied to its parameters as well. In the example above, some channel volume automation has been plotted on the blue Synth track.

On the left of the Automation Mode screen, is a panel of controls for the automation on the selected track.

The **Parameter** 

button opens a drop-down list of all of the parameters available for automation on that track, including the parameters of any virtual instrument or effect that might be present on the track. In the screenshot above, the Channel Volume parameter has been selected. This list can sometimes seem to be bewilderingly long because of the sheer number of parameters available, but if you take your time you should find what you're looking for and will, in the long term, appreciate the wealth of options available. Parameters which already have some automation applied for that track will be indicated in this list with an asterisk (*) next to their name.

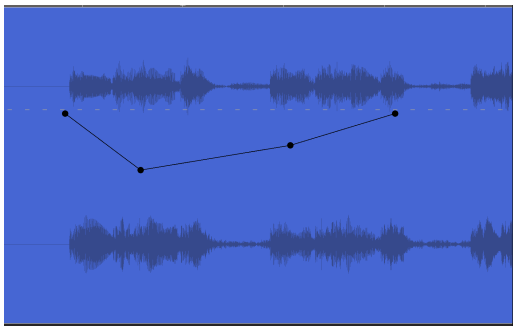
The **Clear** 

button removes all automation for the selected parameter from the track. A confirmation dialog will be shown before this is carried out in case it is pressed by mistake.

The **Current Value** display 

shows the parameter value/level at the last automation point touched. Importantly, tapping this display once opens a dialog which allows you to manually enter a numerical value for the level of the automation point for those times where you need greater accuracy.

Once you have selected the parameter you want to automate, it is simply a case of plotting your automation points on the track itself, as seen here.



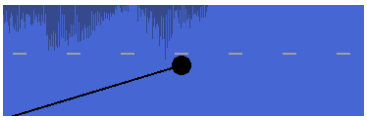
Tap to place a circular automation point, or tap and hold to then be able to move the point before releasing. Existing automation points can be moved by touching and sliding them. As you can see, a straight line is created between each automation point to ensure smooth transitions as the parameter's level changes during playback/export. Place automation points as required for the selected parameter throughout the track's timeline.

Be aware that, if snap-to is enabled in the Grid 

settings, automation points will be placed accordingly on the grid lines. Turn this off to be able to tap and place automation points completely freely. Don't forget you can easily resize the track on the display using pinch/pull in both the vertical and horizontal axis. (You may want to temporarily leave automation mode, by pressing the **Auto** 

button again, before doing this to avoid accidentally selecting other tracks and placing automation points by mistake).

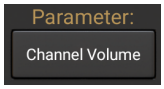
Please note the dotted white line shown horizontally along the automation track. This will be placed at the the default level for the selected parameter, so, in this example for channel volume, it represents 0.00dB. An automation point has that value when it sits *directly below* the dotted line, with its top edge touching the line as seen below.. In other words, the top edge of the circular point indicates the parameter value at that point.



If you make a mistake you can either use the **Undo** 

button or can switch to **Remove Mode** using the button 

at the top of this interface. When in Remove mode, simply slide your finger over any automation points you want to remove.

To automate a different parameter, make a different selection from those available via the Parameter 

button. To place automation points on a different track, tap on it once.

All parameter automation you plot on a track will be represented in real time during playback by the relevant parameter control moving accordingly. So, in this example for the channel volume, the track's volume slider will be seen to move according to the automation at that point during playback. Please note, though, that this does not apply to the controls of the Evolution One synthesizer. Though the full range of Evolution One parameters are available for automation as described here, the automation will not be represented visually by the parameter controls moving during playback. Unlike other parameters, the controls of Evolution One cannot be automated using Touch mode either.

To leave automation mode, press the Auto 

button again to deactivate it.

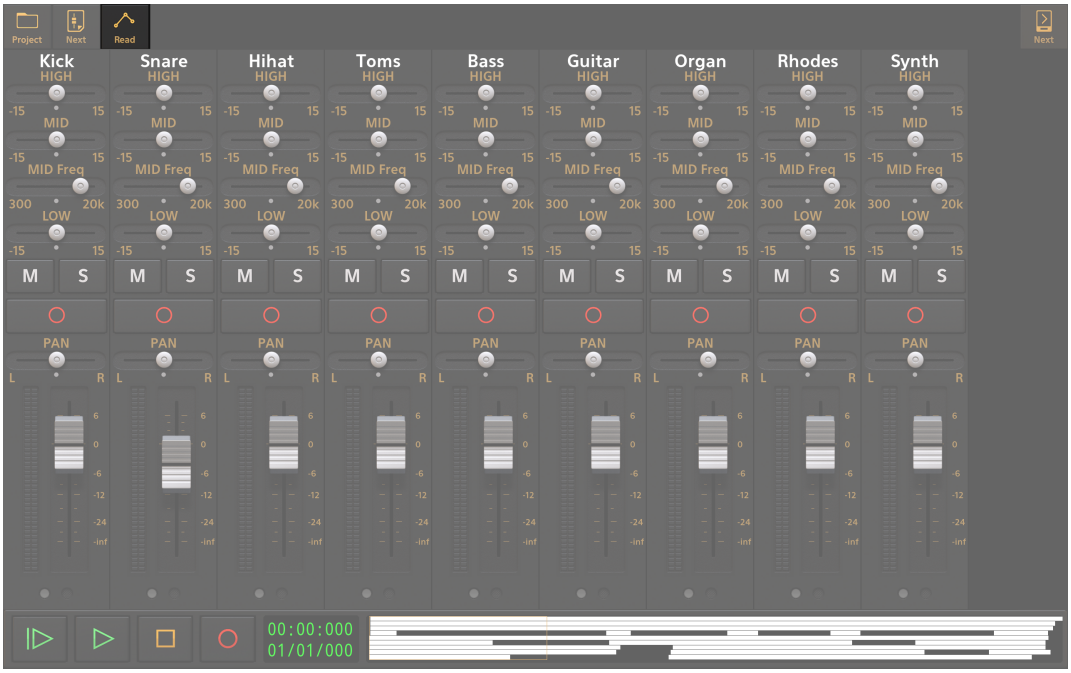
Touch Automation

Touch Mode Automation allows you to automate parameter changes without manually plotting automation points in the Automation Mode. When Touch Mode is active, all you have to do is physically change parameters in real time during playback and those changes will be recorded as automation to be repeated during subsequent playbacks and available to edit on the Automation mode screen.

NOTE. Almost all parameters in Audio Evolution can be automated using Touch Mode Automation. The exceptions to this are the parameter controls within the Evolution One and Flowtones synthesizer interfaces and the parameters within the Version 4 (V4) ToneBoosters effects. The Evolution One, Flowtones and the V4 effects CAN have their parameters automated though, it just needs to be done manually in the Automation Mode as described here.

To use Touch Mode Automation, you first need to activate Touch Mode. The button to do this can be found on the Mixer Screens, so, assuming you're starting from the Arranger Screen, you just need to press the Next 

button, at the top right, once to move to the Mixer Screen seen here.



The button you need to press to activate Touch Mode has been highlighted in the above screenshot. By default it will be in its standard **Read** Mode 

.

Pressing this Read button will change the mode to **Touch** 

as will be indicated on the button itself. You can freely move away from the Mixer Screen once the mode is activated, it will remain active.

With Touch Mode active, any changes you make to parameters (other than those mentioned in the note above) while the project is *either* playing back 
, 
or recording 
will be

recorded as automation and create automation 'tracks' in the Automation Mode screen just as if you had created them manually.

If you want to edit, or remove, this automation, it can be done on the Automation Mode screen by selecting the relevant parameter in the parameter selector 

for the selected track. Remember, to help you, every parameter which has automation applied will be marked in the list of parameters with an asterisk (*).

To deactivate Touch Mode, return to the Mixer Screen using the Next 

button and press the Touch Mode 

button again. This will return the app to Read Mode 

.

The Mixer Screens

Audio Evolution Mobile has two mixer screens; one displaying all of your project's tracks and another displaying the Master output channel and any Group/auxiliary bus channels present in your project. They can be accessed by pressing the Next 

button, top right, on the Arranger Screen: one press takes you to the Mixer Screen, another takes you from there to the Master Screen and one more takes you back to the Arranger Screen.

The Mixer Screen

This screen displays the Channel Strips of all of the tracks in your project next to each other in the manner of a mixing console. If there are more tracks in the project than will fit on the screen all at once, you can swipe to the left over the names on the channel strips to access the channel strips of tracks which are not displayed initially.

Having all of the channel strips laid out next to each other like this allows you to much more easily set the relative volume of each track, position them in the stereo soundfield using the panorama (PAN) control, and make other mixing decisions to bring them all together and perfect your project, ready for export.

The controls found on the channel strips are covered in depth here.

In addition to the buttons and controls/displays familiar to you from the Arranger Screen, there are two other buttons at the top of the screen, next to the Project 

button.

Since the channel strips contain more functionality than can be displayed all at once, their display is split into several 'pages'. The smaller your device screen, the greater the number of

pages which will be required to show all of the functions. You can select different pages using the gray buttons  at the bottom of each strip. However, pressing the **Next** 

button (not to be confused with the other Next button at the top right of the screen) allows you to move all of the channel strips' displays onto the next page at the same time. Repeated presses will take you through all of the pages in order and cycle back to the first page from the final page.

The button next to the Next button is the **Read** 

/Touch 

Mode button. When pressed to activate Touch Mode, any changes made to parameters (with a few exceptions) during playback or recording will be recorded as automation. This means those same actions will automatically be repeated upon the next playback without you having to touch the controls. So, for example, if you want to vary the volume of tracks through the course of your project, you could use this method to automate movements of the tracks' volume sliders. For more information on Touch Automation, please see here.

Use the other Next 

button, top right, to move to the Master Screen.

The Master Screen

The Mixer Screen displays all of the tracks in your project next to each other. The Master Screen displays the output channels, the Master Output and any Groups/Buses you have created to use in your project.

Groups/Buses can be created for various purposes. In the example above, one group/bus has been created and named **Drums**. This is the channel that all of the drum tracks (Kick, Snare, Hihat, Toms) have had their Output set to. This means you can set up the parameters for all of the drum tracks in relation to each other on the Mixer Screen and then use the Drums group/bus here to control the overall level of the entire drum kit combined. For more details on this, please

see here.

The second group/bus that has been created in the example above has been named **Reverb**. This channel is being used as a Send/Return effect for some of the tracks in the project. Since several tracks required the same reverb effect, they could either all have individual reverb effects placed on each of their FX Grids, or they could all use a single effect Send group/bus. Naturally, using just one instance of the reverb effect (on the Send group/bus's FX Grid), as opposed to several instances, is going to be much more CPU friendly and therefore preferable. For full details on using effect Sends, please see here.

The **Master** channel is the final output of all of the audio of your project, whether that is audio coming directly from the tracks or audio which has first been routed through Group/Bus channels.

The controls found on the channel strips are covered in depth here with extra notes specific to Master and Groups channel strips here.

In addition to the buttons and controls/displays familiar to you from the Arranger Screen, there are three other buttons at the top of the screen, next to the Project 

button.

The **Next** 

and **Read** 

/Touch 

buttons are described above in the Mixer Screen section and have the same functions here.

In-between those two buttons can be found the **Add bus** 

button. Press this to add one or more Groups/Buses to your project. Groups can also be created by long pressing just below an existing Group's name on its channel strip to open the Group Options, via the FX Send Group Selectors 

on a track's channel strip, or via the Send blocks on a track's FX Grid.

As just mentioned, long pressing in the area on their channel strip just beneath their name will open the **Group Options** seen here.

As can be seen, these options allow you to add further Groups to your project, remove the Group long pressed upon to open these options, and also rename that Group. Groups can also be renamed by long pressing on their current name on their channel strip.

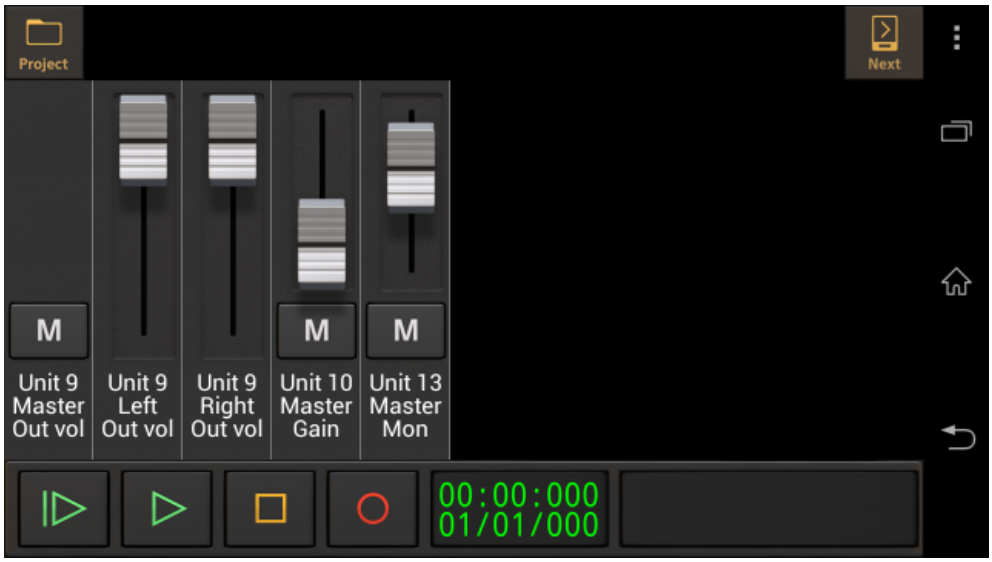
Use the other Next 

button, top right, to move to the Arranger Screen.

Hardware mixer screen

When you have a USB audio interface connected and are using the eXtream Software

Development USB audio driver, a fourth screen after the Master mixer screen may be displayed if the connected USB audio interface exposes internal controls such as input gain and volume.



If you do not see this screen and you arrive back on the time line screen when pressing Next in the Master mixer screen, your device does not expose any controls and you will need to adjust settings using the physical knobs on your device, when available.

There can be many controls: if they do not fit on the screen, you can swipe the controls by sliding your finger left-right at the bottom texts of the controls.

There are three types of controls:

- Out vol: controls output volume
- Gain: controls input gain
- Mon: controls zero-latency monitoring: the amount of input signal that is fed directly to the output to hear yourself playing/singing.

Note that the controls have a number assigned to them. This is an internal number that doesn't mean a lot, but just consider that controls that have the same number belong to each other and control the same 'unit of functionality'. For example, in the picture above, there are two functional units 10 and 11. 10 controls output volume, but is split into three controls: a master, left and right control. Unit 11 control input gain and is split in the same way.

Mixing your Project

Way back at the beginning of this manual, in the What is a DAW? section, it was mentioned how the first stereo recordings were made with two properly positioned microphones to record a live performance. When played back through two speakers, the listener had the impression of different sound elements/instruments existing at different positions in the stereo sound space, just as you would if you heard the performance live. Mixing within a DAW allows you to imagine and create a virtual performance of your sound elements in this sound space by adjusting and automating volume levels, adjusting the panning (Pan) and EQ, as well as adding spacial effects and anything else required. Mixing is simply the way you want all of your tracks to sound when they are played together, mixed.

Mixing audio is an involved process, one that people spend years perfecting and certainly one that everyone gets better at the more they do it. As such, there's little point pretending that it can all be covered here. Instead, here are a few principles generally held to be good practice when mixing.

- First, the best advice when it comes to mixing is actually to make sure your tracks are recorded well in the first place. If your audio is clear and loud without having to tweak anything, more than half the work has been done already. Infinitely better to start off with something which isn't broken than trying to fix it afterwards - it will never sound as good. So, it really pays to take the time to set up your recordings properly, make sure you use headphones when recording subsequent tracks and, if possible, use a USB audio interface to allow you to have more input choices for instruments and microphones and even better quality.

- Mix with your speakers at relatively low volume levels. Not only is ear fatigue (tired ears) a genuine phenomenon, but having a lower volume will enable you to make better judgments regarding the clarity of you mix and whether the important elements are coming through.

- Gain staging. This relates to how you set the optimum volume levels (gain) throughout your signal chain. Since Audio Evolution Mobile uses 32-bit floating-point processing internally, you have slightly more freedom over this than used to be the case. Though it is best practice for the individual track's mixer channel to not go beyond 0dB, it won't, in the 32-bit floating-point domain, cause clipping (volume overload) directly - as it used to - because there's plenty of headroom when using 32-bit floating-point processing. Going beyond 0dB will cause a minor loss of digital resolution though. However, though you can push beyond 0dB on an individual track without harming the signal, you still need to bring it back down below 0dB on its corresponding destination - ultimately, of course, meaning the Master channel (as well as any Bus which outputs directly to a USB audio interface): these channels *must* be set with their peak volume level just below 0dB otherwise clipping and distortion *will* occur. This is because these are the points at which the signal moves back into the fixed-point domain, for export to a fixed-point file format or to be passed through a digital-to-analog converter (DAC).

NOTE. When you *Render* individual tracks to audio files using the Track Options, you must, in that scenario, have them peaking just below 0dB otherwise they *will* clip and distort despite the description of individual tracks above. This is because, as they are rendered, the individual track is moved back into the fixed-point domain directly, without going through any destination channel where the volume has been brought back down. This also applies when you Export to other DAW (rendered tracks) as the same process is taking place.

- It's usually a good idea to start off mixing the loudest part of your song first. For the sake of

example, let's say the loudest part is the song's chorus and the song's verses are quieter. If you mix a one of the verses of the track first and end up making it as loud as possible, you are left with no possibility of making the song's chorus even louder without clipping occurring. If, on the other hand, you mix the song's chorus first and make it as loud as possible, you can then easily ensure the verses are relatively quieter as they should be. Don't forget the Loop mode is available if you just want to hear a certain part of your track repeatedly when mixing.

- Start off with a 'big picture' mix, focusing on the track volumes only. There's little point minutely sculpting and positioning the sound of individual tracks only for all that work to be completely lost when heard in the overall mix. Listen to everything together and adjust only the individual track volumes to get things working together basically the way you want. You will possibly want to automate some of the volume levels of tracks throughout the length of the song too. Fine tuning the mix can be done later.

- Similarly, there's usually little point applying loads of effects and processing to your tracks before you have a basic idea of your overall mix. That way you can only apply effects and make adjustments which are genuinely needed to achieve what you're after rather than ones which might even end up working against your ultimate goal. Don't complicate things unnecessarily.

- Use some Reference Tracks to compare your mix to as you work. Import a few professionally produced tracks into your project; songs which have the sort of sound or feel you're after and use them as guides to what your mix is failing to achieve and what you might need to change.

- Remember to use your ears. It is easy to become focused on what you're seeing on the screen rather than concentrating on what you're hearing. It is what you're hearing which is important though, and it is good to learn to trust what you're hearing rather than being guided by what you're seeing onscreen.

- Likewise, when mixing, try to listen to the entire mix when making adjustments to individual tracks rather than using the Solo button to hear them on their own. It is how they sound *in the mix* which is important, not how they sound on their own.

- Always remember that you have the possibility of Automation available. Automation is a great mixing tool as it's extremely unlikely that a parameter's level is going to be perfect for the entire song. Automation allows automatic changes and adjustments throughout the course of the track and should be used as required.

- Take regular breaks. Not only can your ears become tired (ear fatigue) but you can become so involved with repeated listening that you are no longer being objective in your decision making. Take frequent breaks, reset your ears.

- Throughout the mixing process it is a really good idea to listen to your mix through as many different types of speaker and headphone as possible. Studio monitor speakers are made to give you as flat a frequency response as possible, meaning you hear a true representation of the sound, uncolored, and this is why they are used for mixing whenever possible. Most other speakers are tuned to give an enhanced experience in some way though - a richer, boosted bass or mid-range for example. This means your mix will sound different on different speakers and your goal, when mixing, is to find the sweet-spot where it sounds as good as possible on all of them. Thus, even if you're using studio monitor speakers, you still want to listen to your mix through as many types of speaker as possible, even if this means exporting your mix as you go along to audition it through, say, a car's speaker system.

- Lastly, there really is a lot of free advice about mixing out there. Simply search on YouTube, for example, and you'll easily find some excellent guides are available.

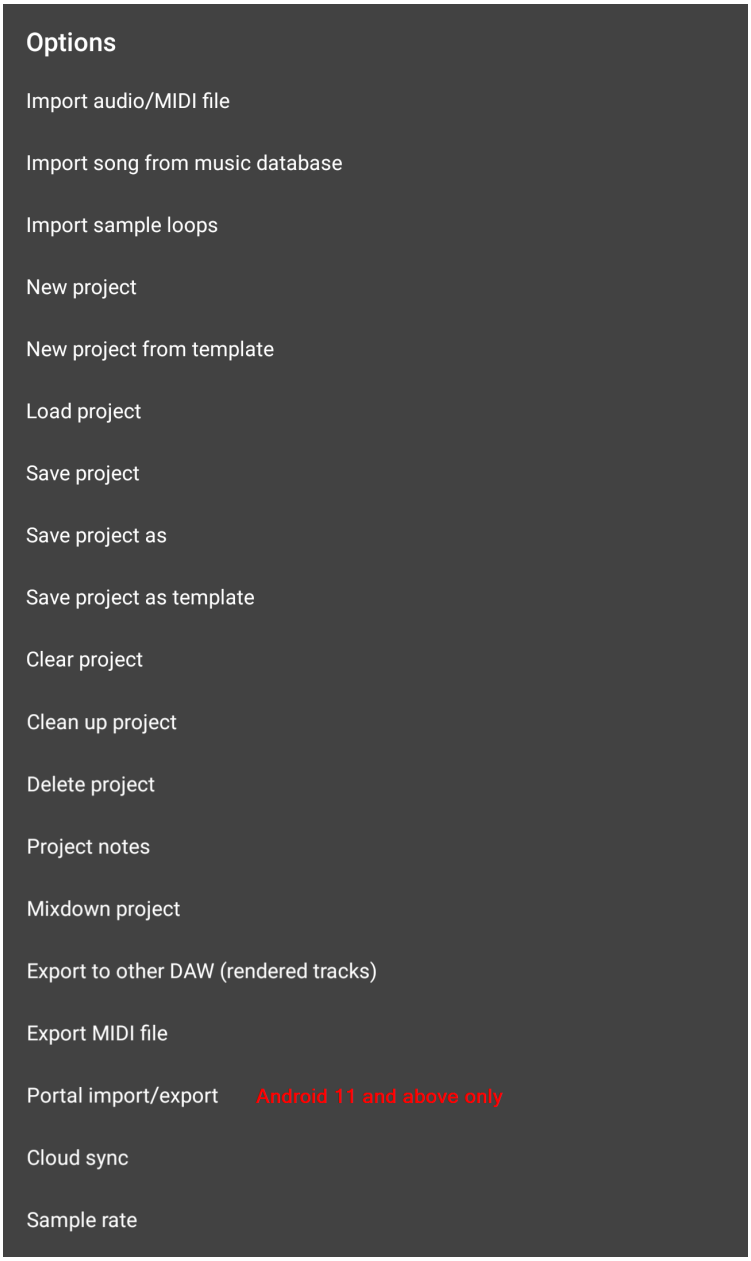
- That said, don't forget, your goals are *your* goals. Don't be afraid to experiment and break the 'rules': if it works and creates the sound you're after, then it works.

Exporting your Project

So, you've perfected your mix, added any effects needed, tweaked all of the controls to sculpt your sound and set up any automation required to modulate parameters as necessary throughout the duration of your song/track. The last thing you need to do, then, is Export your project. There are several options for this and which you choose depends on what you intend to do with the exported audio (or MIDI).

Your export options can be found in the **Project Options**, seen below, accessed by pressing the Project 

button.



Mixdown project is what you'll want to use to create a single stereo file of your project/song/track.

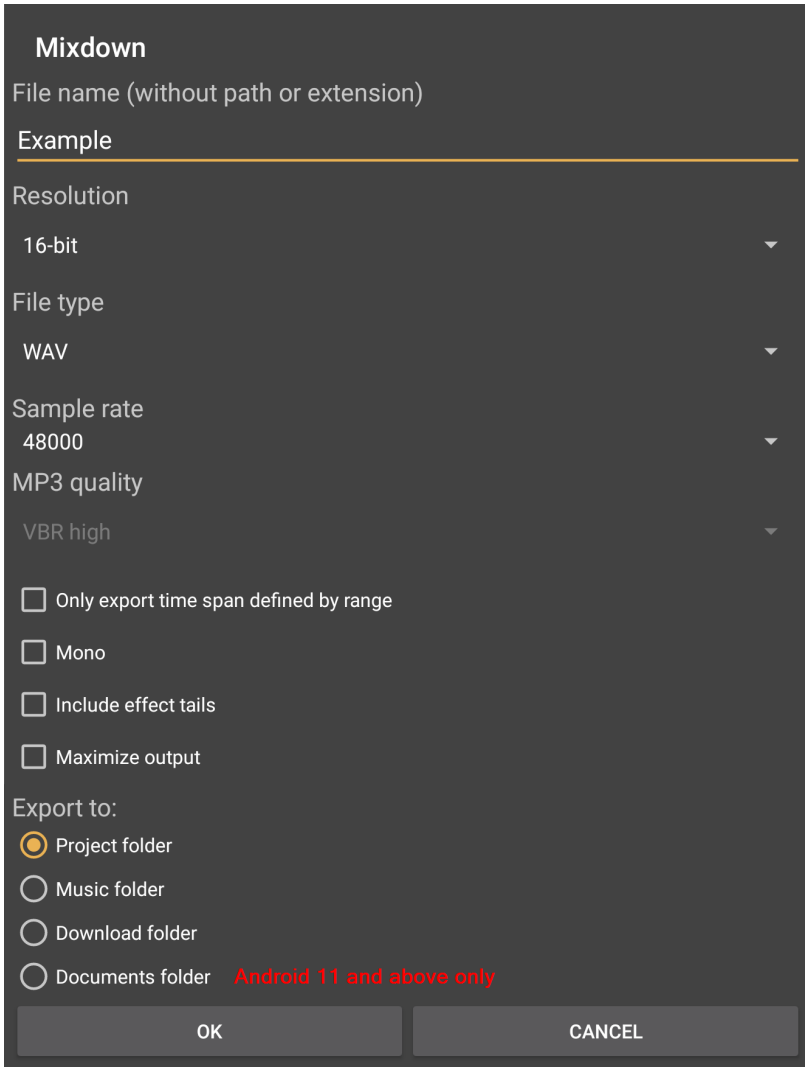
Export to other DAW (rendered tracks) is what you'll want to use to export each track in your

project as an individual audio file. These files (often referred to as audio stems) can then be imported into another Digital Audio Workstation (DAW). This can be really useful if you want to continue working on your project on a desktop computer, or if you want to share your project, with individual tracks intact, with someone who doesn't own Audio Evolution Mobile.

Export MIDI file is what you'll want to use to export the MIDI from your project.

Mixdown Project

To export your completed project as a stereo audio file, select **Mixdown project** from the Project Options. This will open the **Mixdown** dialog seen here.



As can be seen, this allows you to tailor the exported file to your requirements.

- **Base file name (without path or extension)** allows you to name your exported audio file. As it says, don't include any path or extension, just enter your desired name. The Base file name 'Example' has been entered in the screenshot above.

- **Resolution** allows you to select the bit depth resolution for the exported audio file. If you're not sure what bit depth is, please see here. Which bit depth resolution you select depends on what you plan to use your exported audio file for. The higher the resolution, the bigger the

resulting audio file. The Resolution options will be grayed out if OGG or MP3 are selected as the format file type.

- **File type** is where you can select the file format for your export. The options are WAV, AIFF, FLAC, OGG and MP3.

- **Sample Rate** allows you to select the sample rate for the exported audio file. Again, as with the resolution, above, what you choose depends on what the audio file will be used for plus any file size considerations. If, for example, you are exporting the file for mastering, you'll probably want to export using the sample rate and resolution used within the project. If you are exporting to make an audio CD, you want to select 44.1kHz (44100 Hz), 16-bit for CD quality. Alternatively, if you want a smaller file size, you may want to try a lower sample rate. Obviously, exporting in any sample rate other than the one used for the project will result in the exported file having been resampled.

- **MP3 quality** will have its options grayed out unless MP3 is selected as the export format in File Type. The MP3 quality settings offer the full range of VBR (Variable Bit Rate) and CBR (Constant Bit Rate) options to cover all requirements.
- **Only export time span defined by range**, when selected, does exactly that: it only renders and exports the area of the track defined by the Range 

function.

- **Mono**, when selected, exports your track as a mono audio file rather than a stereo one. This results in a smaller file size but, obviously, any sense of the stereo sound field (from the audio on the track itself if it is stereo, or from 'spacial' effects applied to either mono or stereo audio on the track) will be lost.

- **Include effect tails** is selected by default and you will almost certainly want to keep it selected. 'Include effect tails' adds enough time to the end of the exported file to ensure that the 'tails' (fades to silence) of any effects will be included. So, for example, if you have a reverb effect with a long decay time applied to your track, you'll want the reverb decay/tail/fade to silence to be included in your exported audio file rather than have it cut off abruptly when the audio on the original track ends. Likewise, if you have a virtual instrument with a long release time, you'll want to have 'Include effect tails' selected to ensure that the full release/fade to silence of notes right at the end of the track are included in the exported audio file.

NOTE. The maximum possible amount of time added onto any track in order to include effect tails and instrument releases is ten seconds.

- **Maximize output**, when checked, will normalize the outputted audio file to 0dB ensuring that it is as loud as possible.

NOTE. If you are exporting your track to be mastered, you **DO NOT** want this **Maximize output** box to be checked. Indeed, if you are exporting your file for mastering, you want to leave a lot of headroom in the exported file. It is often suggested you should set your Master volume fader to -6dB or lower to ensure this. The reason for this is that the mastering process needs the headroom to work with for processing and the volume will ultimately be maximized as part of the mastering process anyway. It is also often advised when exporting for mastering to remove any compression or limiters you've placed on the Master channel first. If you are using the services of a mastering professionals, they will no doubt give you advice on their requirements with regard to this.

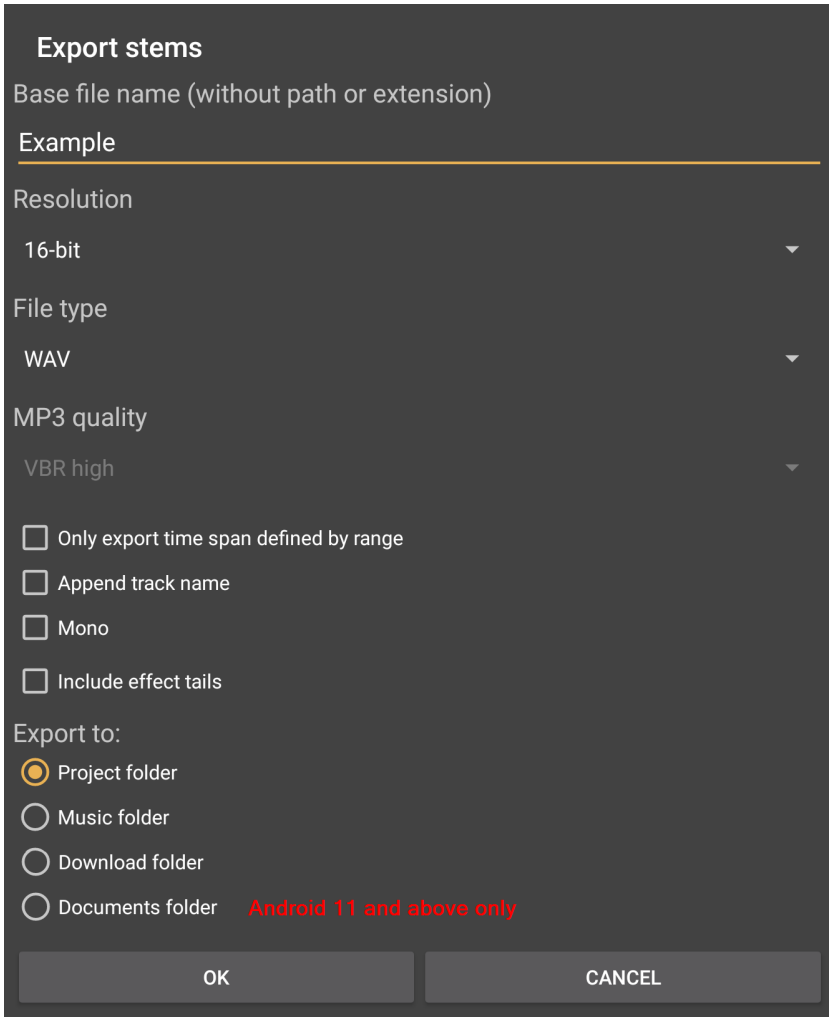
- **Export to** allows you to select the destination folder for the exported audio file.

- **Project folder** will place the exported mixdown in the **Mixdowns** folder within the Project's folder on your device. For help locating the Audio Evolution Mobile folder and its contents on your device, please see here (and here for Android 11 and above).
- **Music folder** will place the exported mixdown in your device's **Music** folder.
- **Download folder** will place the exported mixdown in your device's **Download** folder.
- **Documents folder** (Android 11 and above only) will place the exported mixdown in your device's **Documents** folder.

Once you have everything set up as you want it, press **OK** to mixdown and export your audio file.

Export to other DAW (rendered tracks)

To export your completed project as a series of audio files (stems), one for each track within the project, select **Export to other DAW (rendered tracks)** from the Project Options. This will open the **Export stems** dialog seen here.



This dialog gives you similar options as when you render a track to an audio file using the Track

Options because it is the same process taking place, only this time it is exporting/rendering every track at the same time and you have one additional option:.

- **Append track name**, if selected, will add an underscore (_) and the track name to your Base file name. So, in the example above, if the track being exported was the first track in my project and still had its default name (Track 1), having 'Append track name' active would result in the exported file being named 'Example Track_Track 1.wav' (assuming WAV was selected as the file type format).

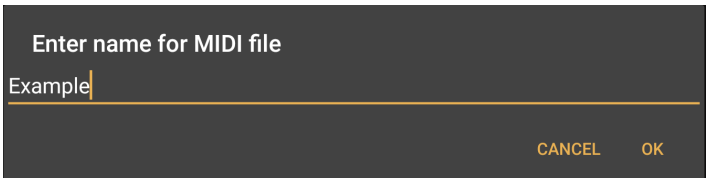
NOTE. In this scenario, despite using 32-bit floating-point processing as described here, you must ensure have all of your tracks' volume levels are peaking just below 0dB otherwise they *will* clip and distort.. This is because, as they are rendered, the individual track is moved back into the fixed-point domain directly, without going through any destination channel where the volume has been brought back down as described in the text linked to.

Once you have everything set up as you want it, press **OK** to export your audio stems. Depending on where you chose to save the audio stems to, they can be found in either the Project folder (where it can be found in the 'Samples' folder), the device Music folder, the device Download folder or (Android 11 and above only) the device Documents folder.

For help locating the Audio Evolution Mobile folder and its contents on your device, please see here (and here for Android 11 and above).

Export MIDI file

As mentioned before in this manual, a single MIDI file can contain multiple MIDI tracks. As such, selecting **Export MIDI file** from the Project Options allows you to export a single MIDI file containing all of the MIDI tracks in your project, ready for you to import into other applications or share with others. Making this selection opens the following dialog, allowing you to name the exported MIDI file.



Once named, click on **OK** to generate the MIDI file. You will be able to find the exported MIDI file in the Project's **Samples** folder on your device. For help locating the Audio Evolution Mobile folder and its contents on your device, please see here.

Cloud sync and backups

In order to back-up your projects or share your projects across devices or with friends, cloud sync is the best option. Please note that any audio you record and any project you save is stored on the device itself. That is, in case you have not changed the Audio Evolution base directory to a SD card, which has its own complications. This means that if you would lose your device or reset it to factory defaults, all your work would be lost. It is therefore very important to make copies of your projects, either to a cloud or a desktop computer whenever possible. We often get asked if we have the customer's files when they lost their phone or updated to a new phone and sold their old one. **NO**, we do **NOT** have your files! Aside from the privacy and copyright implications, that would require petabytes of storage, let alone the vast amount of Internet traffic that would take!

Although you could upload/synchronize your files with any installed cloud app (Drive, Dropbox, etc.) outside of Audio Evolution Mobile, there is a **Cloud sync** feature in the app itself that offers some more advanced synchronization: newer files on the cloud can be downloaded and newer locally stored files can be uploaded per project/folder when needed.

To access **Cloud sync**, please press the **Project** 

button, select **Cloud Sync** and then **Google Drive**. Every Google account has some free cloud storage associated with it. Please check your Drive app/website to verify how much free storage is left. On first use, your account credentials will be requested to log in to the cloud service. If all succeeds (WiFi connection is required due to the large amount of data that could be sent/retrieved), the cloud sync dialog will be displayed. Press **Help** in this dialog to get a complete explanation on how every button works.

Tutorial videos

We are very pleased to have a full series of video tutorials available, made for us by Tim Webb from Discchord.com. These helpful tutorials take you through many aspects of Audio Evolution Mobile and we really recommend viewing them if you are new to the app or are having problems finding or using a particular feature.

The video tutorials can be accessed from within the app itself as long as you have an active internet connection. To do so, press the More 

button on the Arranger Screen. Depending on the size of your device screen, 'Tutorial Videos' will be immediately available from the options shown or, on smaller screens, you may first have to select Options from the list shown and then select 'Tutorial Videos'.

The Video Tutorials can also be found on our website here or on our YouTube channel here.

NOTE. All of the information in these videos was correct at the time of recording but, as Audio Evolution Mobile is constantly developed and updated, some of the information in the older videos may now be out of date. Please take this into account when viewing. They are listed below with the most recent videos first.

Quick links to individual videos.

Evolution One Video
Version 5 Introduction And Arranger Screen Video
Version 5 FX Grid Video
Version 5 Modifiers and Sidechain Video
Version 5 Tempo and Time Signature Change Video
Android Connections Video
Sample Loops Video
Automation Video
Drum Pattern Tracks Video
Piano Roll Editor Video
Instrument Tracks Video
Editing on the Timeline Video
Mixer Channel and Mixer Screens Video
Introduction to Recording (Android) Video Please note that long-tapping the time code area on top to get the marker menu has been replaced by a double tap.
First Start Video
Introduction Video

Where to find the Audio Evolution Mobile Folder on your Device

IMPORTANT NOTE. **If you are using Android 11 or above**, Google has mandated a change to Scoped Storage for all apps meaning the information here no longer applies to you. Please be reassured that this change does not limit the functionality of Audio Evolution Mobile at all, but it does mean that you have to access your data in a slightly different way than was previously the case. A full section relating to Scoped Storage for Android 11 and above, which hopefully tells you everything you need to know can be found here.
The Audio Evolution Mobile folder is where you can find all of your project files, samples, exports, Soundfonts/SFZs, saved presets and everything else related to the app and your projects.

The folder can be found *inside* the **Documents** folder on your device. New users will have the folder placed in this location upon initial installation. Existing users running Android 9 or 10 should have had the Audio Evolution Mobile folder moved automatically as part of an update. Pre-Android 9 existing users may still find the Audio Evolution Mobile folder on the top level of their internal storage, and should leave it there.

NOTE. You can set the location for your Audio Evolution Mobile base directory - the folder referred to here, where your projects are saved to - from within the Other section of the Settings. This allows you to use an external SD card but **PLEASE BE WARNED** that any folder on an SD card created by an app, in this case Audio Evolution Mobile, **WILL BE DELETED** if the app is uninstalled. Such folders, created by an app on an SD card **WILL ALSO BE DELETED** if you use the **Clear data** function in the Android Settings for the app. As such, you **MUST** remember to back-up your projects to a different location **before** uninstalling the app or using the Clear Data function, or they will be lost forever. Alternatively, you could unmount and eject the SD card **before** uninstalling the app or using the Clear Data function. This behavior is hard-wired into the Android operating system and cannot be avoided unfortunately. As such, **it is strongly advised** to keep the Audio Evolution Mobile base directory on the device's internal storage (as it is by default) for the safety of your projects and to ensure that the folder won't be deleted if the app is uninstalled.

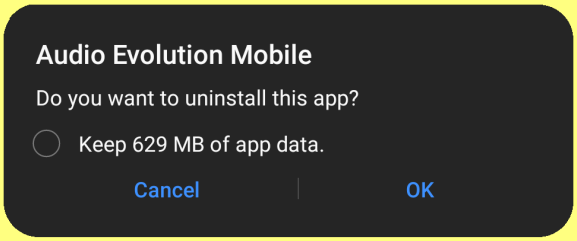
Scoped Storage for Android 11 and above

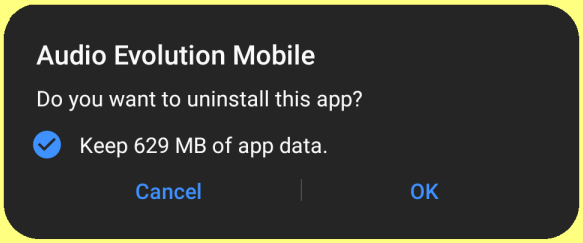
Introduction

With Android version 11, and for all subsequent Android versions, Google has mandated a change to the way in which apps are allowed to access the device's storage. This is the change to Scoped (limited) Storage. Google has made these non-optional changes to increase app security, privacy, and reduce leftover 'app file clutter'.

All apps must now store all of their functional and user data in their app folder located in the Android>Data folder on your device. Apps can no longer have access to the folders of other apps and can only have access to media files like audio, video, photo and documents (such as PDF files) held in certain dedicated communal (shared) folders such as the Music folder, the Pictures folder, the Documents folder or the Download folder. They can also access other forms of data in folders which the app has created itself and the user has given specific permission for the app to access.

VERY IMPORTANT NOTE. These changes to in app data location now mean that if you uninstall an app, **ALL** data associated with that app, including **ALL USER FILES***, will also be **PERMANENTLY DELETED** UNLESS you check the option to '**Keep app data'** as seen in the uninstall dialog seen below. By default this option is NOT selected, so you must remember to do this if you want to keep your Projects and other data.





Please be aware of this and make sure you use the 'Keep app data' option or backup all of your data BEFORE uninstalling apps from this point forward.

The change to Scoped Storage also means that if you use the **Clear data** function within the Android Settings for the app, **ALL** data associated with the app, including **ALL USER FILES*** will be **PERMANENTLY DELETED WITHOUT WARNING!** As such, it is wise to avoid using the **Clear data** function at all. If you must use it PLEASE make sure you back up all of your Projects and other data BEFORE doing so.

The above remains true if you choose to have the Audio Evolution Mobile base directory on your external SD card - in fact, as described here, when using the SD card, **it is true for all Android versions** not just Android 11 and above.

This behavior is hard-wired into the Android operating system and cannot be avoided unfortunately so please make sure you're mindful of this new reality and keep your data safe.

***** The only exception to this is the Audio Evolution Portal folder, which will not be deleted due it being located in the shared/communal Documents folder (as it is recommended to be).

These changes also mean that file browser apps on your device can no longer by default access the Android>Data folder which is where all of the individual apps' data is now stored. As such, developers need to find solutions for the import and export of certain data into and out of their apps. Audio Evolution Mobile can still import audio and midi files using its built-in file browser, as long as they are in the aforementioned communal folders on your device, as they are media files and it can still mixdown and export your rendered tracks to the Music folder as, again, the mixdown is a media file and the Music folder is the dedicated folder for such files. For other types of data which you might want to import or export as a user (such as the import of export of complete project files) we have decided upon the Audio Evolution Portal.

NOTE. Please be aware that you can still access the files in the Android>Data folder via connection to a desktop computer, so the ability to add files or backup projects etc. using this method remains unchanged. Audio Evolution Mobile's files can be found in Android>Data>com.extreamsd.aemobile.

Though the changes can take a bit of getting used to initially, please be reassured that ultimately these changes do not limit the functionality of Audio Evolution Mobile in any way - if it could be done before, it still can, one way or another! Hopefully this part of the manual will make it clear the ways to access data in Audio Evolution Mobile under scoped storage.

Please use these quick links to jump to a section.

The Audio Evolution Portal

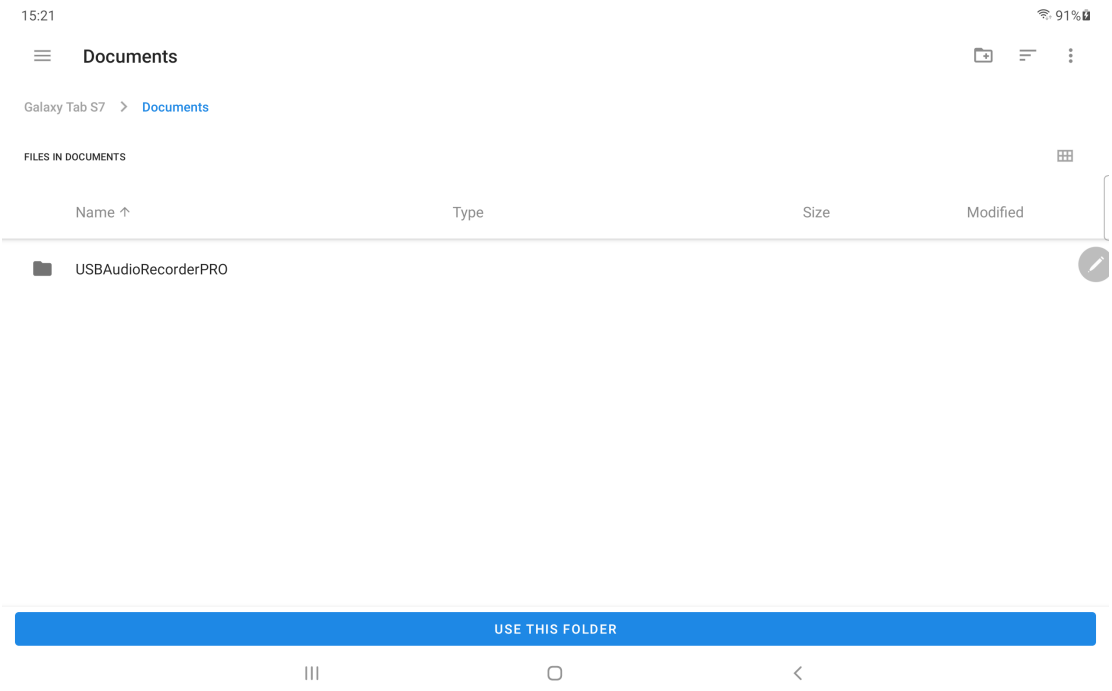
Central to our approach to accommodate this limited storage access for apps in Android versions from 11 onward is the Audio Evolution Portal.

The Audio Evolution Portal is a folder outside the app's data folder which the user can access using their device's file explorer. Likewise, the app can also access this folder after being given permission to do so by the user. This means it can be used, as it's name suggests, as a portal through which you can import and export content as easily as possible. You can place data you want to import into the relevant folder in the AudioEvolutionPortal>Import folder on your device and import it using the Portal interface within the app. Similarly, once it's been exported from within the app using the Portal, you can find data exported from Audio Evolution Mobile in the relevant folders within the AudioEvolutionPortal>Export folder.

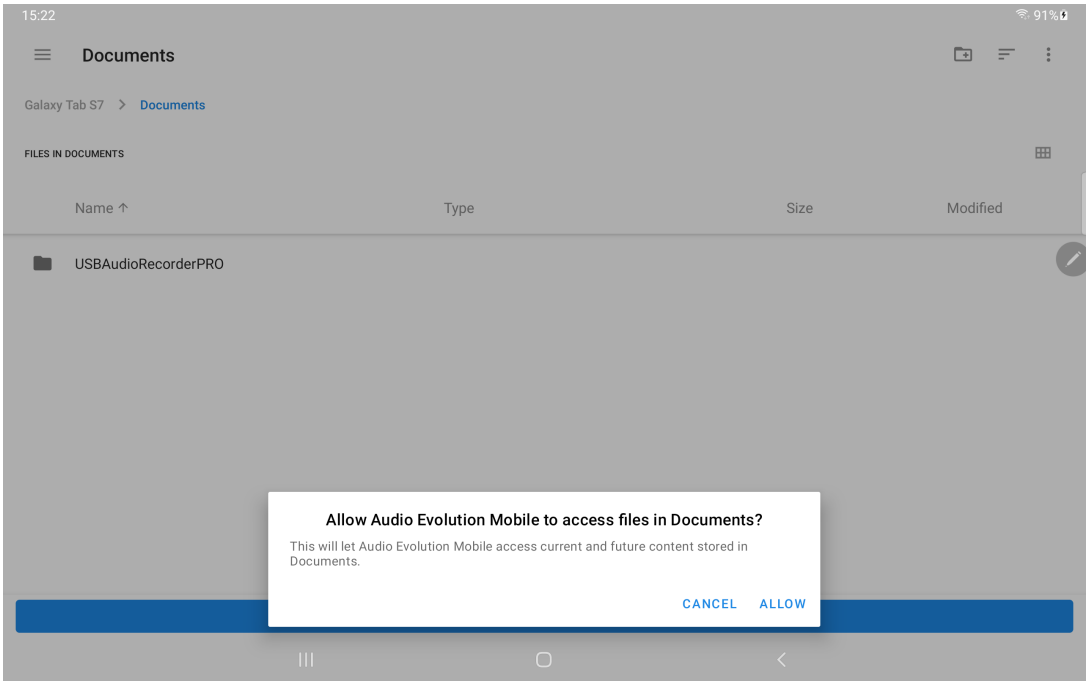
Setting up the Audio Evolution Portal

The location for the Audio Evolution Portal folder on your device can be be chosen by the user from within Audio Evolution Mobile and you will be prompted to do this the first time you select **Portal import/export** from the Project 

Options menu (see 'Using the Audio Evolution Portal' below) after this new storage system has been implemented, either by update or fresh installation. First you will be shown a pop-up with some information about this process; once read, click on **OK** to choose the location for the Audio Evolution Portal. We recommend you choose the device's **Documents** folder as the location for the AEM Portal and this will be pre-selected as can be seen in this screenshot.



After choosing the location for the AEM Portal by clicking on **USE THIS FOLDER**, you will be asked to give permission for Audio Evolution Mobile to access files in that location as seen here.



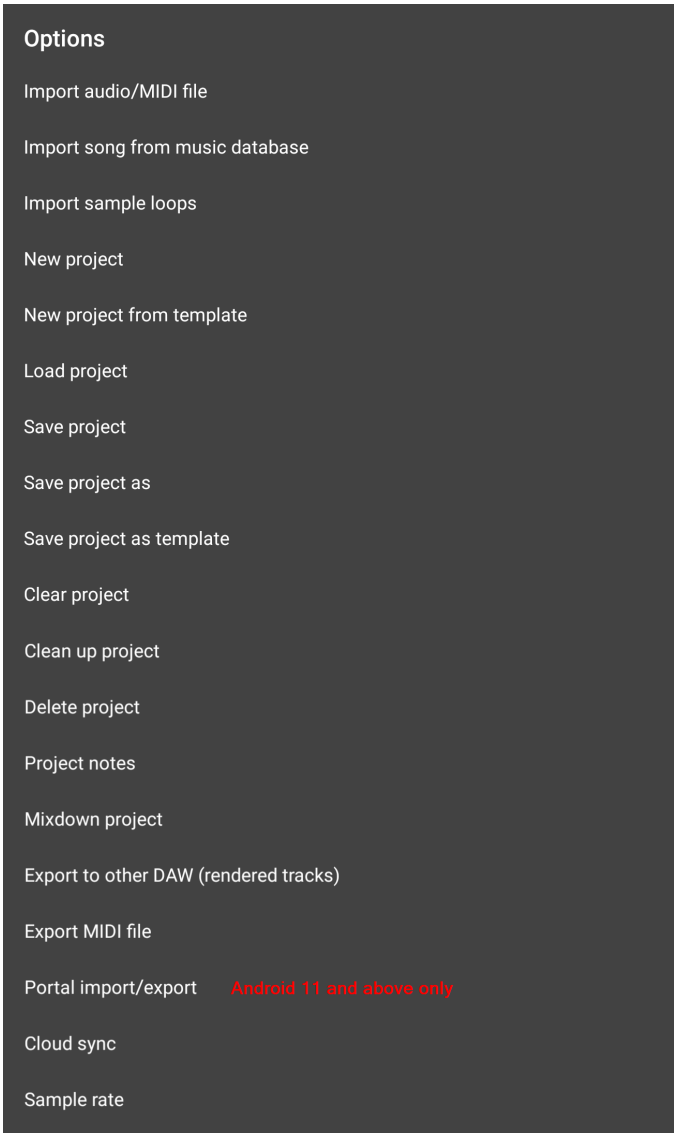
Click on **ALLOW** and the Audio Evolution Portal folder will be created in that location.

If you change your mind or make a mistake, you can change the location of the Audio Evolution Portal folder using the **Modify Portal Directory** button on the in-app Portal interface (see below).

Using the Audio Evolution Portal

The Portal is accessed from within the app by pressing the Project 

button on the Arranger Screen and selecting **Portal import/export** from the options shown, as seen here.



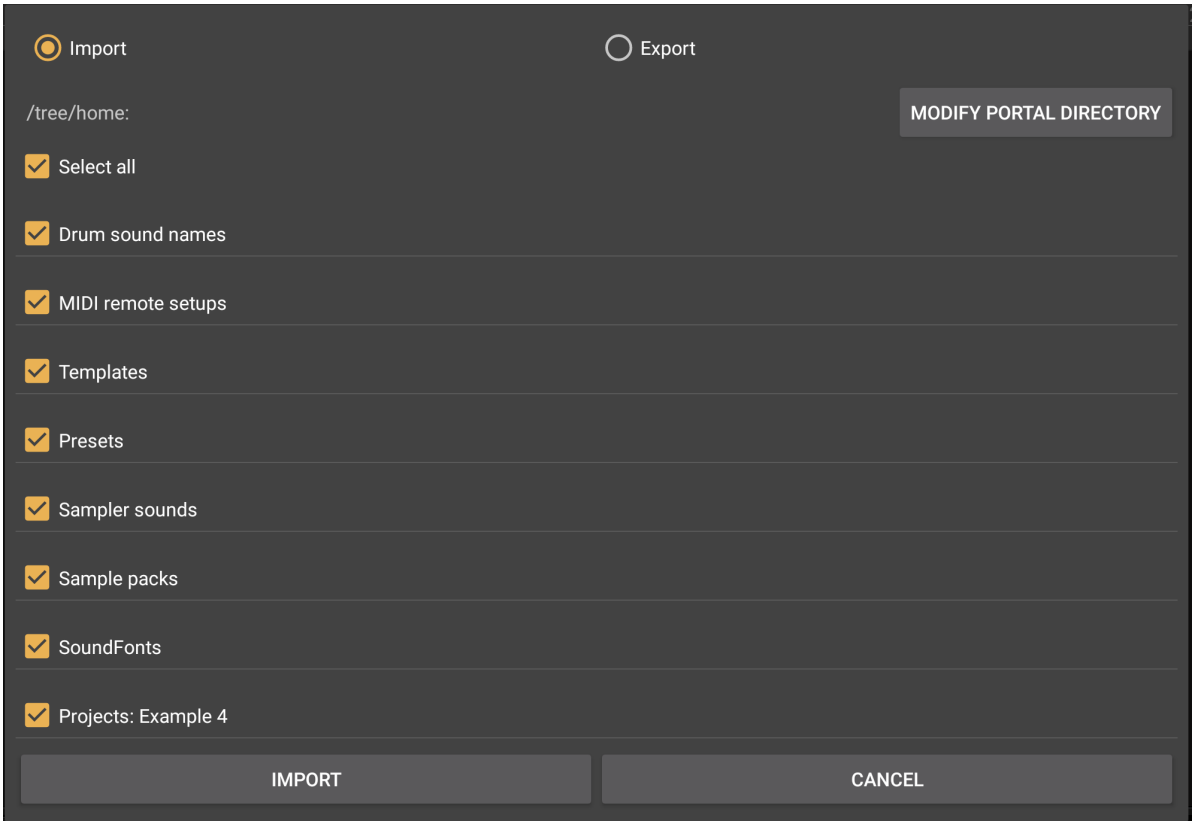
The Portal interface has two selectable areas: **Import** and **Export**. As can be seen in the screenshots in the next sections, these are selected at the top of the interface. Once one has been chosen, the data options available for import or export are shown in the area below. These options are all covered in the next sections.

As previously mentioned, the **Modify Portal Directory** button can be used to select a different location for the Audio Evolution Portal folder on your device if you change your mind.

NOTE. Please be aware that the Audio Evolution Portal looks for *new* data to be imported to avoid duplicates. If a file in your AudioEvolutionPortal>Import folder is already present in the app's private folder in Android>Data, the app will check the last modification date/time and if it is the same or a newer date/time, it will skip the import - it will not be shown as an option for import in the Portal within the app.
On Portal export, the app copies everything selected without a check and will overwrite files with the same name if they already exist in the AudioEvolutionPortal>Export folder.

Portal Import Categories

The Portal Import categories correspond to the folders present in the AudioEvolutionPortal>Import folder on your device. As such, use this as a guide to what is imported when each category is selected and which folder to place certain types of data in, within the AudioEvolutionPortal>Import folder when you want to import it.



Drum Sound Names If you have manually changed the names of the drums of a particular soundfont within the drum pattern sequencer of Audio Evolution Mobile, a file is created so that the app knows to change the names again when the same soundfont is used within the app (the drum names within the soundfont itself remain unchanged). If you have previously exported any of these Drum Sound Name files, this is where to place them to be imported into the app.

MIDI Remote Setups This is where to place any MIDI Remote Setups for Audio Evolution Mobile which you want to import.

Templates This is where to place any Project Templates you want to import.

Presets This is where to place any user created Evolution One or effect presets you want to import. This folder in Documents>AudioEvolutionPortal>Import contains individual folders, automatically created, which correspond to Evolution One and the individual effects available in Audio Evolution Mobile. Please be careful to place the correct preset files into the correct folder so that they are available

as expected after import. Unlike the folders for the effects, the **EvolutionOne** folder contains a **User** folder and it is within this that you should place your synth presets.

Sampler sounds This is where to place any user created sfz instruments you want to import. Don't forget sfz instruments have two parts: an sfz file and an audio sample (or samples, though the instruments created in Audio Evolution Mobile use a single sample). This is also where you can place any audio samples you want to use as the basis for instruments you want to create.

Sample Packs This is where to place the Sample Pack folders you wan to import. Please remember that for Sample Pack audio files to work as expected within Audio Evolution Mobile, they have to use the correct naming convention, as described here.

Soundfonts This is where to place any Soundfont instruments (sf2 or sfz) you want to import.

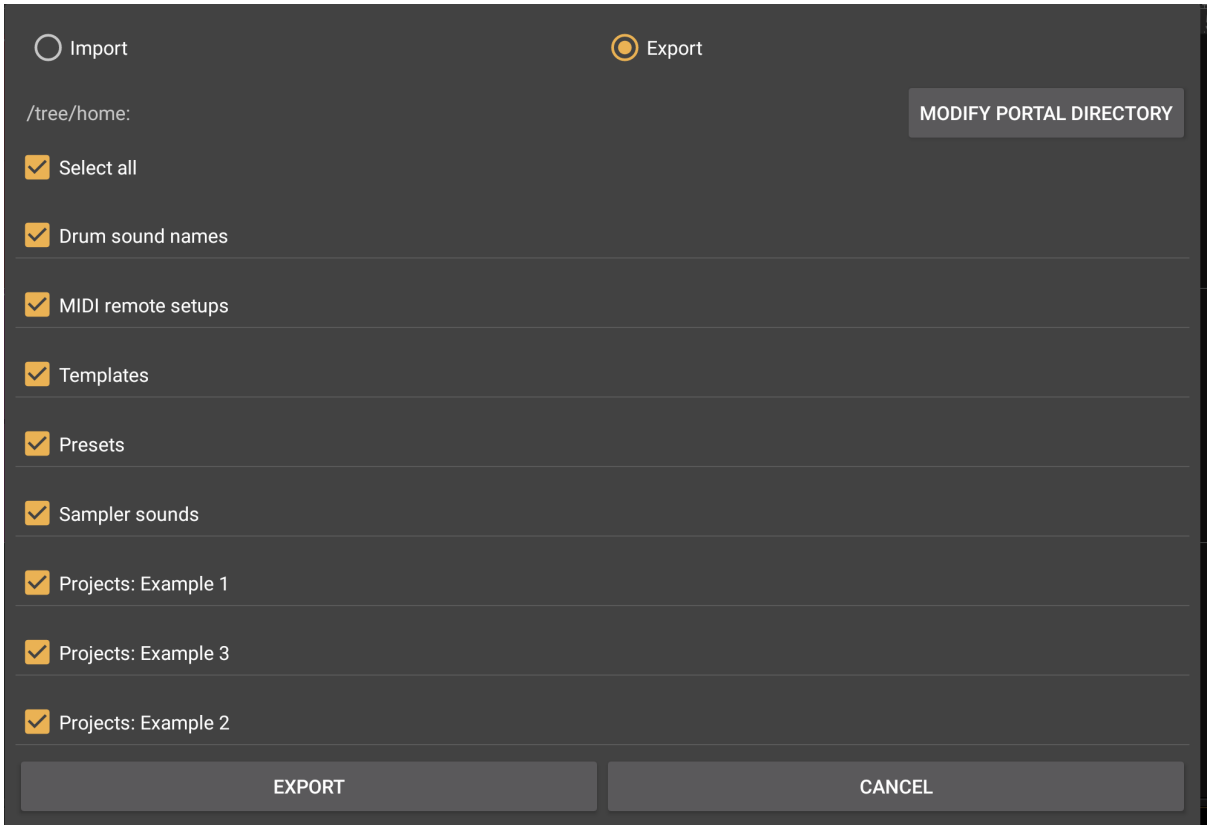
Projects This is where to place any Audio Evolution Mobile project folders you want to import. As can be seen above, unlike the other categories, the Audio Evolution Portal interface displays each Project individually, allowing you to select only the Projects you want to import.

Once you've selected everything you want to import, simply press **Import** and that data will be imported into Audio Evolution Mobile's private storage within Android>data>com.extreamsd.aemobile>files>AudioEvolution.

NOTE. User created presets for the Flowtones synthesizer can be imported/exported from within the synth interface.

Portal Export Categories

The Portal Export categories correspond to the folders present in the AudioEvolutionPortal>Export folder on your device. As such, use this as a guide to what is being exported when each category is selected and in which folder to find that exported data within the AudioEvolutionPortal>Export folder after the export has taken place.



Drum Sound Names If you have manually changed the names of the drums of a particular soundfont within the drum pattern sequencer of Audio Evolution Mobile, a file is created so that the app knows to change the names again when the same soundfont is used within the app (the drum names within the soundfont itself remain unchanged). If you want to backup or share these drum sound name files, make sure this option is selected to export them to the Portal.

MIDI Remote Setups Any MIDI Remote Setups you have set up and saved can be exported to the Portal by selecting this option.

Templates Any Project Templates you have set up and saved can be exported to the Portal by selecting this option.

Presets Any user presets, for the Evolution One synthesizer or any of the effects, you have set up and saved can be exported to the Portal by selecting this option. Once exported, the individual presets will be located in folders specific to each effect and the Evolution One synth within the AudioEvolutionPortal>Export>Presets folder.

Sampler Sounds Selecting this option will export all of your user created instruments to the Portal. These instruments consist of two parts: an sfz text file and an audio sample. Both parts are needed for the instrument to be used.

Projects Projects are individually selectable within the Export section of the Portal dialog. This allows you to select only the particular projects you want to export to the AudioEvolutionPortal>Projects folder.

Once you've selected everything you want to export, simply press **Export** and that data will be exported to the folders in the AudioEvolutionPortal>Export folder on your device.

NOTE. User created presets for the Flowtones synthesizer can be imported/exported from within the synth interface.

Ways to Import

The following table has been made to, hopefully, make it easy for you to see all of the ways to import the resources you require for your Audio Evolution Mobile experience.

NOTE. These instructions assume you have, as recommended, chosen the Documents folder on your device as the location for the Audio Evolution Portal. If you have chosen a different location, please be aware that the location will be (YourChosenFolder)>Audio Evolution Portal.

NOTE. To save space, these instructions also assume you have, as recommended, chosen to keep you Audio Evolution Mobile base directory on the device's internal storage rather than switching to using the external SD card. If using your SD card for the base directory, please navigate to the locations given on your SD card rather than the internal device storage.

NOTE. Audio and MIDI files can also be imported into Audio Evolution Mobile by selecting it as the destination when using the **Open with** function in other apps such as file browsers. For ease of use though, it is recommended to import audio and MIDI files using the methods in the table below.

NOTE. User created presets for the Flowtones synthesizer can be imported/exported from within the synth interface.

Files to Import	In-app function	Audio Evolution Portal	Connect to desktop	Cloud
Audio files	To import audio files into your current Project, first make sure those files are placed in one of the communal folders (such as Download, Music or Documents) accessible by all apps. Press the **Project**  button on the Arranger Screen to open the **Project Options**. Select **Import audio/MIDI file** to open the in-app browser. Locate the audio file/s (or MIDI files) you want to import into your Project on your device. Tap on the file's name to import a single file or use the check-boxes to select multiple files (can be a combination of audio and MIDI files) and then tap on one of their file names to import them all. Once imported, these files can be found in the Project > Samples folder in the app's private storage. Audio (and MIDI) files can also be imported into your Project using the **Project**		You can connect to your desktop computer to place your audio (or MIDI) files in the communal folders before using the in-app browser function to import them into your current Project. Audio (or MIDI) files can also be placed directly into a Project's **Samples** folder by navigating to Android > data > com.extreamsd.aemobile > files > AudioEvolution > Projects > (Your Project) > Samples BUT you will still need to use the in-app browser function to actively import them into your open Project.	

	 button > **Import song from music database** function.			
MIDI files	As audio files above.		As audio files above.	
Projects		First, please ensure that the Project folder/s you want to import into Audio Evolution Mobile are placed in the Documents > AudioEvolutionPortal > Import > Projects folder on your device. Press the **Project**  button on the Arranger Screen to open the **Project Options**. Select **Portal import/export**. Make sure **Import** is selected at the top of the Portal interface and your Project/s should be listed individually in the list of import options below. Select the Project/s you want to import and click on **Import** at the bottom of the interface to import them into the app's private storage. Once imported, the Project/s will be available on the normal **Project**  button > **Load project** interface.	Connect your device to your desktop computer. Navigate to Android > data > com.extreamsd.aemobile > files > AudioEvolution > Projects on the device storage using your desktop's file browser. Copy and paste the required Project folders from your desktop to that location on your device. Upon next launching Audio Evolution Mobile, those Projects from your desktop will will be available on the normal **Project**  button > **Load project** interface.	If you are using Cloud Sync, Projects present on your Cloud but not present on your device can be imported by pressing the **Project**  button > **Cloud sync.** On the Cloud sync interface shown, either press the **Sync** button to sync all data between the device and Cloud or select a specific Project on the Cloud (on the right hand side) and press the **Left facing arrow button** to download that Project to your device. Once downloaded/imported into the app's private storage, the Project/s will be available on the normal **Project**  button > **Load project** interface.
Project Templates		Please ensure that the Project Templates you want to import into Audio Evolution Mobile are placed in the Documents > AudioEvolutionPortal > Import > Templates folder on your device. Press the **Project**  button on the Arranger Screen to open the **Project Options**. Select **Portal import/export**. Make sure **Import** is selected at the top of the Portal interface. Select the **Templates** option (and anything else you'd like to import). Click on **Import** at the bottom of the interface to import them into the app's private storage.	Connect your device to your desktop computer. Navigate to Android > data > com.extreamsd.aemobile > files > AudioEvolution > Templates on the device storage using your desktop's file browser. Copy and paste the required Template files from your desktop to that location on your device. Upon next launching Audio Evolution Mobile, those Templates from your desktop will will be available in the normal **Project**  button > **New project from template** list of templates.	

		Once imported, the Project templates will be available via the normal **Project**  button > **New project from template** interface.		
Soundfont sf2 instruments	Place the sf2 instrument you want to import into one of the communal folders (e.g. Downloads) on your device. Press the Add Track  button on the Arranger Screen. From the options shown select **Add MIDI instrument track**. Select **Import...** at the bottom of the Instrument selection list. Use the browser to locate the sf2 instrument and select it to import it into the app's private folder.	Please ensure that the Soundfont instruments you want to import into Audio Evolution Mobile are placed in the Documents > AudioEvolutionPortal > Import > SoundFonts folder on your device. Press the **Project**  button on the Arranger Screen to open the **Project Options**. Select **Portal import/export**. Make sure **Import** is selected at the top of the Portal interface. Select the **Soundfonts** option (and anything else you'd like to import). Click on **Import** at the bottom of the interface to import them into the app's private storage (or SD card if you have that selected as your Soundfont directory). Once imported, the instruments will be available in the normal **Add track**  > **Add MIDI instrument track** (or drum pattern track) instrument selector.	Connect your device to your desktop computer. Navigate to Android > data > com.extreamsd.aemobile > files > AudioEvolution > Soundfonts on the device storage using your desktop's file browser. Alternatively, if you have your Soundfont Directory set to SD card, navigate to Android > data > com.extreamsd.aemobile > AudioEvolution > Soundfonts on the SD card. Copy and paste the required Soundfont instruments from your desktop to that location on your device. Upon next launching Audio Evolution Mobile, those instruments from your desktop will be available in the normal **Add track**  > **Add MIDI instrument track** (or drum pattern track) instrument selector.	
sfz instruments	Unlike sf2 files, sfz instruments are not self-contained files but separate samples with an additional sfz file. This means they cannot be imported using the Import function detailed above. Instead, please use the Audio Evolution Portal or a connection to a desktop computer.	As sf2 instruments above, remembering to ensure that both parts of the sfz instrument - the sfz file *and* the audio file or folder of audio files are present in the AudioEvolutionPortal > Import > Soundfonts folder.	As sf2 instruments above, remembering to copy and paste both parts of the sfz instrument - the sfz file *and* the audio file or folder of audio files.	
User created sfz instruments	As sfz instruments above.	Please ensure that both parts of the user created sfz instruments (the sfz file and the audio sample it uses) you want to import into Audio Evolution Mobile are placed in the Documents >	Connect your device to your desktop computer. Navigate to Android > data > com.extreamsd.aemobile > files > AudioEvolution > Sampler > Instruments on the device storage using	

		AudioEvolutionPortal > Import > Sampler > Instruments folder on your device. You can also place audio samples you'd like to use for instruments one level up, in the Import > Sampler folder. Press the **Project**  button on the Arranger Screen to open the **Project Options**. Select **Portal import/export**. Make sure **Import** is selected at the top of the Portal interface. Select the **Sampler sounds** option (and anything else you'd like to import). Click on **Import** at the bottom of the interface to import them into the app's private storage. Once imported, the instruments will be available in the normal **Add track**  > **Add MIDI instrument track** (or drum pattern track) instrument selector. Individual samples will be available via the instrument selector **Create...** > **Sampler**.	your desktop's file browser. Copy and paste the required sfz instruments you've previously made from your desktop to that location on your device. Don't forget to copy and paste both parts of the instrument - the sfz file *and* the audio sample it uses. Upon next launching Audio Evolution Mobile, those instruments from your desktop will will be available in the normal **Add track**  > **Add MIDI instrument track** (or drum pattern track) instrument selector.	
Evolution One Synth Presets and Effect Presets		Please ensure that the Presets you want to import into Audio Evolution Mobile are placed in the Documents > AudioEvolutionPortal > Import > Presets > (Specific Folders for each effect and the Evolution One Synth) on the device storage using your desktop's file browser. (NOTE. Unlike the effect folders, the EvolutionOne folder contains a **User** folder and this is the folder you should use). Press the **Project**  button on the Arranger Screen to open the **Project Options**. Select **Portal import/export**. Make sure **Import** is	Connect your device to your desktop computer. Navigate to Android > data > com.extreamsd.aemobile > files > AudioEvolution > Presets > (Specific Folders for each effect and the Evolution One Synth) on the device storage using your desktop's file browser. (NOTE. Unlike the effect folders, the EvolutionOne folder contains a **User** folder and this is the folder you should use). Make sure you've opened the correct folder for the preset file you're going to copy over. Copy and paste the required preset files from your desktop to that location on your device. Upon next launching	

		selected at the top of the Portal interface. Select the **Presets** option (and anything else you'd like to import). Click on **Import** at the bottom of the interface to import them into the app's private storage. Once imported, the presets will be available from within the Evolution One synth or their corresponding effect.	Audio Evolution Mobile, those presets from your desktop will will be available for the synth or relevant effect in their presets lists.	
Drum sound names		Please ensure that the Drum sound names files you want to import into Audio Evolution Mobile are placed in the Documents > AudioEvolutionPortal > Import > DrumSoundNames folder on your device. Press the **Project**  button on the Arranger Screen to open the **Project Options**. Select **Portal import/export**. Make sure **Import** is selected at the top of the Portal interface. Select the **Drum sound names** option (and anything else you'd like to import). Click on **Import** at the bottom of the interface to import them into the app's private storage. Those imported drum sound names will be used for their corresponding Soundfont instruments (obviously, the correct Soundfont instrument must be present for this to happen).	Connect your device to your desktop computer. Navigate to Android > data > com.extreamsd.aemobile > files > AudioEvolution > DrumSoundNames on the device storage using your desktop's file browser. Copy and paste the required Drum Sound Names files you've previously made from your desktop to that location on your device. Upon next launching Audio Evolution Mobile, those bespoke drum sound names from your desktop will be used for their corresponding Soundfont instruments (obviously, the correct Soundfont instrument must be present for this to happen).	

Sample packs	NOTE. The 'Import' being referred to in this table is how to import your Sample Packs into Audio Evolution Mobile's private storage. This needs to be done (using the Portal or a desktop) *before* you can use the **Project**  button > **Import sample loops** function, which then allows you to import those sample loops into your current project.	Please ensure that the Sample pack folders you want to import into Audio Evolution Mobile are placed in the Documents > AudioEvolutionPortal > Import > SamplePacks folder on your device. Press the **Project**  button on the Arranger Screen to open the **Project Options**. Select **Portal import/export**. Make sure **Import** is selected at the top of the Portal interface. Select the **Sample Packs** option (and anything else you'd like to import). Click on **Import** at the bottom of the interface to import them into the app's private storage. Those sample packs will be available via the **Project**  button > **Import sample loops** interface. Please remember that for Sample Pack audio files to work as expected within Audio Evolution Mobile, they have to use the correct naming convention, as described here.	Connect your device to your desktop computer. Navigate to Android > data > com.extreamsd.aemobile > files > AudioEvolution > SamplePacks on the device storage using your desktop's file browser. Copy and paste the required sample pack folders from your desktop to that location on your device. Upon next launching Audio Evolution Mobile, those sample packs from your desktop will be available via the **Project**  button > **Import sample loops** interface. Please remember that for Sample Pack audio files to work as expected within Audio Evolution Mobile, they have to use the correct naming convention, as described here.	
MIDI Remote setups		Please ensure that the MIDI Remote Setup files you want to import into Audio Evolution Mobile are placed in the Documents > AudioEvolutionPortal > Import > MIDIRemoteSetups folder on your device. Press the **Project**  button on the Arranger Screen to open the **Project Options**. Select **Portal import/export**. Make sure **Import** is selected at the top of the Portal interface. Select the **MIDI Remote Setups** option (and anything else you'd like to import). Click on **Import** at the bottom of the interface to	Connect your device to your desktop computer. Navigate to Android > data > com.extreamsd.aemobile > files > AudioEvolution > MIDIRemoteSetups on the device storage using your desktop's file browser. Copy and paste the required MIDI remote setup files from your desktop to that location on your device. Upon next launching Audio Evolution Mobile, those MIDI Remote Setups from your desktop will be available via the **More**  button > **MIDI remote setup** interface.	

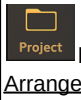
		import them into the app's private storage. Those MIDI Remote Setups will be available via the **More** button > **MIDI remote setup** interface.		

Ways to Export

The following table has been made to, hopefully, make it easy for you to see all of the ways to export all aspects of your Audio Evolution Mobile experience so that you can easily keep all of your data safely backed up or share your work with others.

NOTE. These instructions assume you have, as recommended, chosen the Documents folder on your device as the location for the Audio Evolution Portal. If you have chosen a different location, please be aware that the location will be (YourChosenFolder)>Audio Evolution Portal.
NOTE. When using the in-app browser, you can quickly locate Audio Evolution Mobile's private folders by pressing the **Project Samples Folder**  button once and pressing the **Move up a level**  button three times.

NOTE. User created presets for the Flowtones synthesizer can be imported/exported from within the synth interface.

Files to Export	In-app function	In-app browser (share)	Audio Evolution Portal	Connect to desktop	Cloud
Mixdown project	Press the Project  button on the Arranger Screen and select **Mixdown project**. Follow the procedure detailed here. You will be given the option on the dialog shown to save your exported audio file to the Project folder (default) the device's Music folder, its Download folder or its Documents folder. If the Project folder is chosen, the audio file can be found in Project's Mixdown folder.	The resulting audio file can be shared using the in-app browser following the in-app function **Mixdown project**. Press the Project  button on the Arranger Screen and select **Import audio/MIDI file** to open the browser. Locate the mixed down audio file, either in the Project's Mixdowns folder or the device's Music folder. Long -press on the file name and select **Share** from the pop-up options shown. Then select the destination for the shared file from the options shown.	The resulting audio file can be exported to the Audio Evolution Portal following the in-app function **Mixdown project** as part of a Project export provided the Project folder was chosen as the destination for the in-app function. See Projects below for details on performing a Project export.	Once connected to your desktop computer, and after carrying out the **Mixdown project** in-app function, you can locate the resulting audio file in any of the locations it may exist following any of the procedures to the left of this column which have been carried out.	If you are using Cloud Sync, the resulting audio file will be included in the Project's folder in the next sync you carry out after the **Mixdown project** in-app function has been carried out and provided the Project folder was chosen as the destination for the in-app function.
Mixdown project as stems	Press the Project  button on the Arranger Screen and select **Export to other DAW (rendered tracks)**. Follow the procedure detailed here. You will be given the option on the dialog shown to save your exported audio file to	The resulting audio files can be shared using the in-app browser following the in-app function **Export to other DAW (rendered tracks)**. Press the Project  button on the Arranger Screen and select **Import audio/MIDI file** to open	The resulting audio files can be exported to the Audio Evolution Portal following the in-app function **Export to other DAW (rendered tracks)** as part of a Project export. See Projects below for details on performing a Project export.	Once connected to your desktop computer, and after carrying out the **Export to other DAW (rendered tracks)** in-app function, you can locate the resulting audio files in any of the locations it may exist following any of the procedures to the left of this	If you are using Cloud Sync, the resulting audio files will be included in the Project's folder in the next sync you carry out after the **Export to other DAW (rendered tracks)** in-app function has been carried out.

	the Project folder (default) the device's Music folder, its Download folder or its Documents folder. If the Project folder is chosen, the audio files can be found in Project's Samples folder.	the browser. Locate the audio files in the Project's Samples folder. Long -press on the file name and select **Share** from the pop-up options shown. Then select the destination for the shared file from the options shown.		column which have been carried out.	
Audio clip	Select the audio clip on the timeline by tapping on it. Press the Three Dot Button (expert mode) at the bottom of the selected clip to open the Clip Options. Select **Save to audio file**. Follow the procedure detailed here. You will be given the option on the dialog shown to save your exported audio file to the Project folder (default) the device's Music folder, its Download folder or its Documents folder. If the Project folder is chosen, the audio file can be found in Project's Samples folder.	The resulting audio file can be shared using the in-app browser following the in-app function **Save to audio file**. Press the Project button on the Arranger Screen and select **Import audio/MIDI file** to open the browser. Locate the audio file in the Project's Samples folder. Long -press on the file name and select **Share** from the pop-up options shown. Then select the destination for the shared file from the options shown.	The resulting audio file can be exported to the Audio Evolution Portal following the in-app function **Save to audio file** as part of a Project export. See Projects below for details on performing a Project export.	Once connected to your desktop computer, and after carrying out the **Save to audio file** in-app function, you can locate the resulting audio file in any of the locations it may exist following any of the procedures to the left of this column which have been carried out.	If you are using Cloud Sync, the resulting audio file will be included in the Project's folder in the next sync you carry out after the **Save to audio file** in-app function has been carried out.
Audio track	Select an audio clip on the timeline of the track you want to export by tapping on it. Press the Three Dot Button (expert mode) at the bottom of the selected clip to open the Clip Options. Then select **Track options**. From the track options select **Render track to audio file**. Follow the procedure detailed here. You will be given the option on the dialog shown to save your exported audio file to the Project folder (default) the device's Music folder, its Download folder or its Documents folder. If the Project folder is chosen, the audio file can be found in	The resulting audio file can be shared using the in-app browser following the in-app function **Render track to audio file**. Press the Project button on the Arranger Screen and select **Import audio/MIDI file** to open the browser. Locate the audio file in the Project's Samples folder. Long -press on the file name and select **Share** from the pop-up options shown. Then select the destination for the shared file from the options shown.	The resulting audio file can be exported to the Audio Evolution Portal following the in-app function **Render track to audio file** as part of a Project export. See Projects below for details on performing a Project export.	Once connected to your desktop computer, and after carrying out the **Render track to audio file** in-app function, you can locate the resulting audio file in any of the locations it may exist following any of the procedures to the left of this column which have been carried out.	If you are using Cloud Sync, the resulting audio file will be included in the Project's folder in the next sync you carry out after the **Render track to audio file** in-app function has been carried out.

	Project's Samples folder.				
MIDI track, render as audio	Select a MIDI clip on the timeline of the track you want to export by tapping on it. Press the Three Dot Button (expert mode) at the bottom of the selected clip to open the Clip Options. Then select **Track options**. From the track options select **Render track to audio file**. Follow the procedure detailed here. You will be given the option on the dialog shown to save your exported audio file to the Project folder (default) the device's Music folder, its Download folder or its Documents folder. If the Project folder is chosen, the audio file can be found in Project's Samples folder.	The resulting audio file can be shared using the in-app browser following the in-app function **Render track to audio file**. Press the Project button on the Arranger Screen and select **Import audio/MIDI file** to open the browser. Locate the audio file in the Project's Samples folder. Long -press on the file name and select **Share** from the pop-up options shown. Then select the destination for the shared file from the options shown.	The resulting audio file can be exported to the Audio Evolution Portal following the in-app function **Render track to audio file** as part of a Project export. See Projects below for details on performing a Project export.	Once connected to your desktop computer, and after carrying out the **Render track to audio file** in-app function, you can locate the resulting audio file in any of the locations it may exist following any of the procedures to the left of this column which have been carried out.	If you are using Cloud Sync, the resulting audio file will be included in the Project's folder in the next sync you carry out after the **Render track to audio file** in-app function has been carried out.
MIDI files	Press the Project button on the Arranger Screen and select **Export MIDI file**. Follow the procedure detailed here. The MIDI file (containing all of the MIDI tracks in your project) will be saved to the Project's Samples folder.	The resulting MIDI file can be shared using the in-app browser following the in-app function **Export MIDI file**. Press the Project button on the Arranger Screen and select **Import audio/MIDI file** to open the browser. Locate the MIDI file in the Project's Samples folder. Long -press on the file name and select **Share** from the pop-up options shown. Then select the destination for the shared file from the options shown.	The resulting MIDI file can be exported to the Audio Evolution Portal following the in-app function **Export MIDI file** as part of a Project export. See Projects below for details on performing a Project export.	Once connected to your desktop computer, and after carrying out the **Export MIDI file** in-app function, you can locate the resulting MIDI file in any of the locations it may exist following any of the procedures to the left of this column which have been carried out.	If you are using Cloud Sync, the resulting MIDI file will be included in the Project's folder in the next sync you carry out after the **Export MIDI file** in-app function has been carried out.
Projects		Press the Project button on the Arranger Screen and select **Import audio/MIDI file** to open the browser. Locate the Project folders in the Android > data >	Press the Project button on the Arranger Screen. Select **Portal import/export**. From the dialog shown, make sure **Export** is selected at the top.	Connect to your desktop and use your file browser to navigate to Android > data > com.extreamsd.aemobile > files > AudioEvolution > Projects on your device.	Cloud Sync enables you to easily backup your Project files to your Google Drive cloud storage. Please be aware that this is not an automatic

		com.extreamsd.aemobile > files > AudioEvolution > Projects folder. Long-press on the Project folder you want to share and select **Zip and share** from the pop-up options shown. Select the destination for the shared zipped Project folder from the options shown. This folder needs to be unzipped (extracted) before the Project can be imported back into Audio Evolution Mobile.	Select your **Project's folder** (as well as any other folders you want to export) from the list shown. Press **Export**. Your Project will be exported to the Audio Evolution Portal folder in Documents > AudioEvolutionPortal > Export > Projects.	This folder contains your projects, ready for you to share or backup. If you have chosen to have the Audio Evolution Mobile base directory on the external SD card as described here, navigate on the SD card to Android > data > com.extreamsd.aemobile > AudioEvolution > Projects.	synchronization process, so please remember to sync your Projects (by pressing the Project  button and selecting **Cloud sync** to open the Cloud Sync interface) regularly to keep them up to date in your cloud storage.
Project Templates		Press the Project  button on the Arranger Screen. Select **Import audio/MIDI file** to open the in-app browser. Navigate to the app's private folders. Open **Templates**. Long press on the template you want to share and select **Share** from the pop-up options shown. Then select the destination for the shared template from the options shown.	Press the Project  button on the Arranger Screen. Select **Portal import/export**. From the dialog shown, make sure **Export** is selected at the top. Select **Templates** (as well as any other folders you want to export). Press **Export**. Your project templates will be exported to the Audio Evolution Portal folder in Documents > AudioEvolutionPortal > Export > Templates.	Connect to your desktop and use your file browser to navigate to Android > data > com.extreamsd.aemobile > files > AudioEvolution > Templates on your device. This folder contains your Project Templates, ready for you to share or backup.	
Soundfont sf2 instruments	Soundfont instruments purchased from the in-app Shop as described here can be easily downloaded again if deleted, as long as you're signed into the same Google account on your device. As such, there is no need to have a specific export function. Likewise, you will presumably already have the soundfont instruments you have from other sources backed up somewhere, from where they can be added again if necessary. If you want to backup			Connect to your desktop and use your file browser to navigate to Android > data > com.extreamsd.aemobile > files > AudioEvolution > Soundfonts on your device. This folder contains your soundfont instruments, ready for you to use or backup. If you have your Soundfont Directory set to SD card, navigate to Android > data > com.extreamsd.aemobile > AudioEvolution > Soundfonts on the	

	your instruments, please connect to your desktop.			SD card.	
sfz instruments	As sf2 instruments above.			As sf2 instruments above.	
User created sfz instruments		User created sfz instruments can be shared using the in-app browser but it is much easier to use the Portal export option. Press the Project  button on the Arranger Screen and select **Import audio/MIDI file** to open the browser. Locate the instrument files in the Android > data > com.extreamsd.aemobile > files > AudioEvolution > Sampler > Instruments folder. Long-press on the sfz file and select **Share** from the pop-up options shown. Select the destination for the shared file from the options shown. Then, carry out the process above again to share the audio sample the sfz uses to the same destination.	Press the Project  button on the Arranger Screen. Select **Portal import/export**. From the dialog shown, make sure **Export** is selected at the top. Select **Sampler sounds** (as well as any other folders you want to export). Press **Export**. Your user created sfz instruments will be exported to the Audio Evolution Portal folder in Documents > AudioEvolutionPortal > Export > Sampler > Instruments.	Connect to your desktop and use your file browser to navigate to Android > data > com.extreamsd.aemobile > files > AudioEvolution > Sampler > Instruments on your device. This folder contains your user created sfz instruments, ready for you to use or backup. Don't forget, sfz instruments consist of two parts, the sfz file and the audio sample file it uses. Both files are required for the instrument to be used. If you have chosen to have the Audio Evolution Mobile base directory on the external SD card as described here, navigate on the SD card to Android > data > com.extreamsd.aemobile > AudioEvolution > Sampler > Instruments.	
Evolution One Synth Presets and Effect Presets		Press the Project  button on the Arranger Screen. Select **Import audio/MIDI file** to open the in-app browser. Navigate to the app's private folders. Open **Presets**. Open the folder for Evolution One or the folder for the effect you want to share a user created preset from. Open **User** (Evolution One only - effect preset folders do not contain a separate User folder). Long press on the	Press the Project  button on the Arranger Screen. Select **Portal import/export**. From the dialog shown, make sure **Export** is selected at the top. Select **Presets** (as well as any other folders you want to export). Press **Export**. All of your user created presets (which don't already exist in the destination folders)	Connect to your desktop and use your file browser to navigate to Android > data > com.extreamsd.aemobile > files > AudioEvolution > Presets on your device. This folder contains your user created presets, ready for you to share or backup. If you have chosen to have the Audio Evolution Mobile base directory on the external SD card as described here,	

		preset you want to share and select **Share** from the pop-up options shown. Then select the destination for the shared preset from the options shown.	will be exported to their Audio Evolution Portal folders in Documents > AudioEvolutionPortal > Export > Presets > (Individual folder for each effect and Evolution One).	navigate on the SD card to Android > data > com.extreamsd.aemobile > AudioEvolution > Presets.	
Drum sound names		Press the Project  button on the Arranger Screen. Select **Import audio/MIDI file** to open the in-app browser. Navigate to the app's private folders. Open **DrumSoundNames**. Long press on the drum sound name file you want to share and select **Share** from the pop-up options shown. Then select the destination for the shared Drum sound names from the options shown.	Press the Project  button on the Arranger Screen. Select **Portal import/export**. From the dialog shown, make sure **Export** is selected at the top. Select **Drum sound names** (as well as any other folders you want to export). Press **Export**. All of your user created Drum sound names (which don't already exist in the destination folder) will be exported to the Audio Evolution Portal folder in Documents > AudioEvolutionPortal > Export > DrumSoundNames.	Connect to your desktop and use your file browser to navigate to Android > data > com.extreamsd.aemobile > files > AudioEvolution > DrumSoundNames on your device. This folder contains your user created Drum sound names, ready for you to share or backup.	
Sample packs			Press the Project  button on the Arranger Screen. Select **Portal import/export**. From the dialog shown, make sure **Export** is selected at the top. Select **Sample packs** (as well as any other folders you want to export). Press **Export**. All of your Sample packs (which don't already exist in the destination folder) will be exported to the Audio Evolution Portal folder in Documents > AudioEvolutionPortal > Export > SamplePacks.	Connect to your desktop and use your file browser to navigate to Android > data > com.extreamsd.aemobile > files > AudioEvolution > SamplePacks on your device. This folder contains your Sample packs, ready for you to backup. If you have chosen to have the Audio Evolution Mobile base directory on the external SD card as described here, navigate on the SD card to Android > data > com.extreamsd.aemobile > AudioEvolution > SamplePacks.	
MIDI Remote		Press the Project  button on the	Press the Project  button on the	Connect to your desktop and use your file browser to	

setups		Arranger Screen. Select **Import audio/MIDI file** to open the in-app browser. Navigate to the app's private folders. Open **MIDIRemoteSetups**. Long press on the MIDI Remote Setups you want to share and select **Share** from the pop-up options shown. Then select the destination for the shared MIDI Remote Setup from the options shown.	Arranger Screen. Select **Portal import/export**. From the dialog shown, make sure **Export** is selected at the top. Select **MIDI remote setups** (as well as any other folders you want to export). Press **Export**. All of your Sample packs (which don't already exist in the destination folder) will be exported to the Audio Evolution Portal folder in Documents > AudioEvolutionPortal > Export > MIDIRemoteSetups.	navigate to Android > data > com.extreamsd.aemobile > files > AudioEvolution > MIDIRemoteSetups on your device. This folder contains your MIDI remote setups, ready for you to share or backup.	

Keyboard Shortcuts

When a USB or Bluetooth keyboard is connected to your device, the following shortcuts are available in Audio Evolution Mobile.

Space bar / P / E = Play/Pause
S = Stop
Ctrl+S = Save
R = Record
Q = Quit
A = Arm/Un-arm track
B = Back to start
1..9 = Jump to marker
L = Set marker (also during playback)
- = Zoom out horizontally
+/= = Zoom in horizontally
[= Zoom out vertically
] = Zoom in vertically
I = Import audio/MIDI file
U = Undo
Shift+U = Redo
T = Add Track
Arrow up/down = Track up/down
F3 / SHIFT+3 = Split clips
F4 / SHIFT+4 = Range mode
F6 / SHIFT+6 = Automation mode
F7 / SHIFT+7 = Undo
F8 / SHIFT+8 = Redo

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

Frequently asked questions

Q: When I record, the sound from the existing tracks bleed into the new track. How can I solve that?

The internal microphone will pick up any sound, including the sound coming from your speakers, this is pure physics. To solve this, you need to separate those signals. This can be done by using headphones, a headset (with mic), or a USB audio interface.

When you are using headphones and still get track bleed, make sure that the headphones/headset are fully inserted, otherwise there is a chance that the input pole touches one of the output poles. Try different headphones if the problem still occurs.

Q: Can I install the app on my new device or more than 1 device?

Yes, as long as you use the same account as you purchased the app with.

Q: I have already purchased the app, but the Google Play Store asks me to pay again?

If the Play Store asks to pay again, it simply means that Google hasn't synchronized your purchases yet. You can either wait for that to happen (a few hours to a day), restart your Android device or if that all fails, clear the data/cache of the Google Play Services: please open the Android settings app, select Apps, then select Google Play Services. Press 'Manage data' and then 'Clear data'. The button names can vary a little depending on the Android version but there will always be a similar named option. After this action, please try again.

Q: I have already purchased an in-app item, but the app asks me to pay again?

If the Play Store asks to pay again, it simply means that Google hasn't synchronized your purchases yet. You can either wait for that to happen (a few hours to a day), restart your Android device or if that all fails, clear the data/cache of the Google Play Services: please open the Android settings app, select Apps, then select Google Play Services. Press 'Manage data' and then 'Clear data'. The button names can vary a little depending on the Android version but there will always be a similar named option. After this action, please try again.

Q: The app asks for online license verification when I start the app. Can't I use the app offline?

The app will automatically validate the license once you have an internet connection. After a successful online validation after 24 hours of first running the app, the app can be used offline. Please note that uninstalling and re-installing the app or clearing the app's data will reset this 24-hour scheme.

Thanks to

This manual was written almost completely 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!