

AUDIO MIXING FOR VIRTUAL PERFORMANCES

A guide for mixing separate audio recordings into a final audio performance

CHOOSE YOUR SOFTWARE

You will need to use audio editing software that allows for 'multi-track' editing. This kind of software is known as a 'Digital Audio Workstation' (DAW) and will allow you to:

- Simultaneously listen to all of your performers' recordings
- Make edits and tweaks to each individual recording
- Balance the volume levels for each performer so every part can be heard in the final performance
- Save the full performance as a single combined audio file

There are various Digital Audio Workstations available and whichever you use we'd recommend working on a desktop computer or laptop for the best editing experience, ideally using a good quality pair of headphones

Free software choices:

- Audacity - www.audacityteam.org
An easy to use audio editing programme aimed at beginners
- Cakewalk - www.bandlab.com/products/cakewalk (Windows only)
Music production and audio editing software
- GarageBand - www.apple.com/uk/mac/garageband/ (Apple Mac only)
The beginner-friendly audio and music production software which comes pre-installed on Apple computers
- Reaper (60 day demo version) - www.reaper.fm
A professional quality DAW that may be of interest to those with prior editing experience

Paid for software that you may already own:

- Logic Pro - (Apple Mac only)
- Adobe Audition - (may be available as part of existing Adobe packages)

For collaborators:

- BandLab - www.bandlab.com
This free DAW functions within a web browser and allows for collaboration between multiple users. However the features may appear limited when compared to the traditional DAWs listed above
- All of the above
It is possible to collaborate using any DAW if a user sends their current project file along with all the separate parts to another user, however these working files can be very large to send

PREPARE FILES

Before getting started, organise the recordings you will be using

Save files locally

Download all of the performance recordings and place these together in a folder

Name files

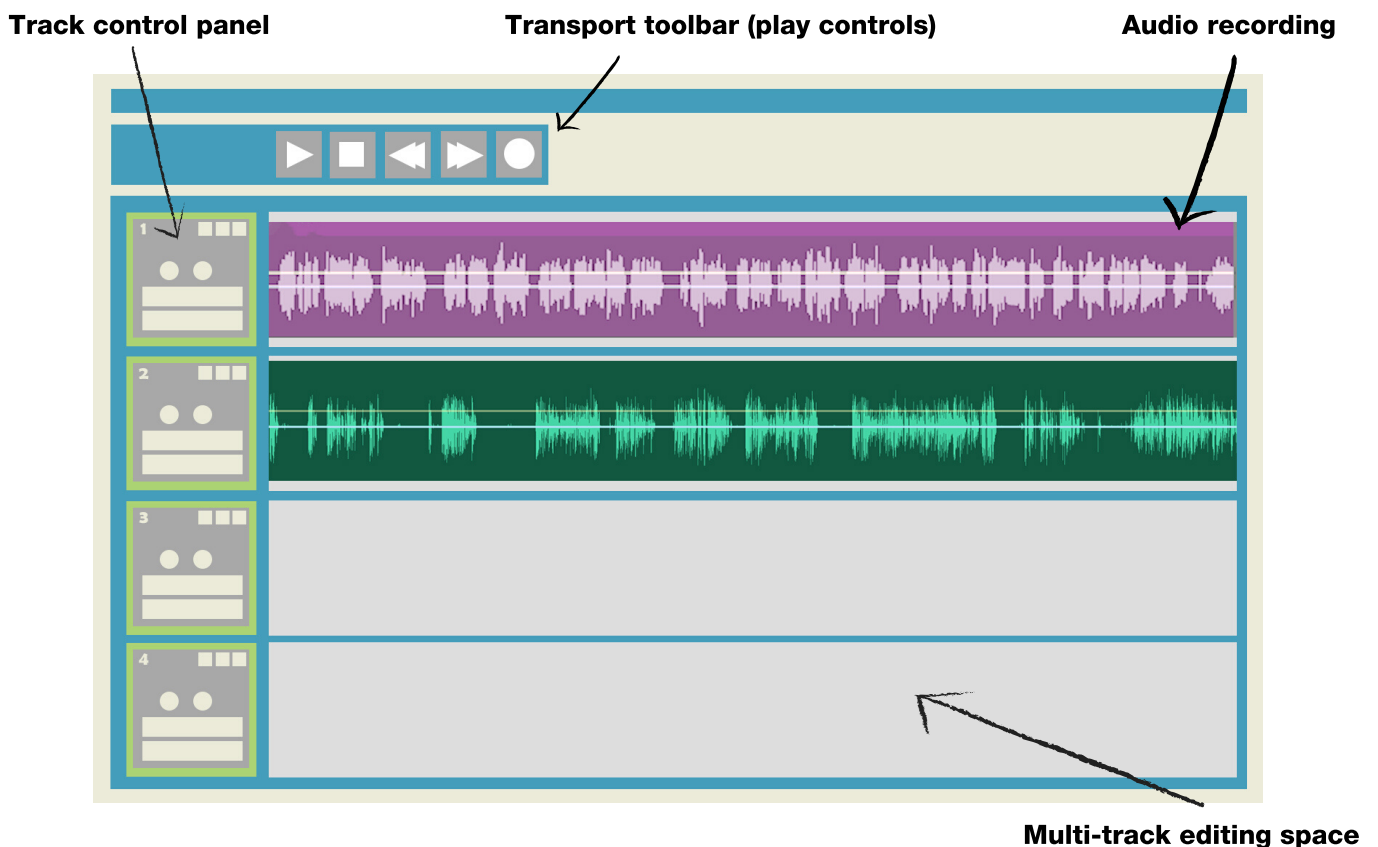
Identify each recording and name each file using a format such as 'instrument or part name - piece name'

Backup

Make a complete copy of the folder containing all the unedited performance recordings

GET TO KNOW THE SOFTWARE

Spend some time experimenting with your chosen software to find your way around the system. Here is a guide to where you will find most features within a Digital Audio Workstation:



Multi-track editing space

This is the main audio editing space. Audio files can be placed into 'tracks' which run horizontally across the screen

Transport toolbar (play controls)

Controls for listening back to your current work, including play, fast forward and rewind

Track control panel

Each track has a basic control panel allowing levels to be adjusted and if needed the track to be muted

Audio recording

When added to a track, audio will display as a waveform. Where the wave is at its tallest the audio will be loudest and when the wave falls to a flat line that indicates silence or a very quiet part of the recording

START A NEW PROJECT & IMPORT RECORDINGS

Now you will need to start a brand new 'Project' and import your group's audio recordings

Create a new project

- Upon launching the Digital Audio Workstation you will be prompted to create a new workspace often known as a 'Project' and to set the audio settings for the project
- It's of particular importance to set the correct bitrate in these settings before importing any files
- For audio only recording productions we'd recommend setting the bitrate to 44.1KHz
- For audio performances you plan to sync with video footage after the audio editing process it's important that you set the project bitrate to 48KHz

Import your files

- Most Digital Audio Workstations will allow you to drag and drop an audio file into the multi-track editing space from the file's location on your computer
- Other pieces of software will have an 'import' button usually found under 'file' on the toolbar
- Some DAWs will prompt you to select the type of track you'd like to add the audio file to and may prompt you to use presets for certain instruments. We recommend selecting a simple 'audio' track if this is the case

If your software does not accept a recording

In the case that your software does not accept one or more of your recording files we recommend using an online file converter such as www.audio.online-convert.com to convert into a suitable file type

SYNCHRONISE PARTS

With all the parts in the software it's now time to get them in sync:

- With all recorded parts on their own individual tracks you will be able to nudge them back and forth along the timeline to synchronise
- If the performers used synchronised a clapping technique on their recordings, the claps should show clearly on the waveforms (as sharp spikes) allowing you to easily line all the parts to be roughly in time
- Zoom into the timeline for greater control when nudging audio files back and forth
- It can be useful to mute all but two of the tracks and listening to those to check they are in sync. Now one by one unmute the other tracks, fine tuning the position of each recording as you go

TRIM RECORDING

To remove the silence captured at the beginning and end of the recording:

- Select the unwanted part heard at the start of the piece, making sure to select all tracks and delete or trim this section
- Repeat this process with the end of the piece while considering that you may want to keep a few seconds of silence at the end of the recording

MIXING

With the performance parts now together it is time to balance the levels or 'mix' your performance. This is quite an art that will really bring the recording to life. Here are some tips to help you in the mix:

Listen separately

Use the 'solo' feature (often found in each track's control panel) to allow you to listen to each part one by one. Take time to listen to each recording, considering the sound quality and anything you would like to adjust.

Adjust levels

In each track's control panel there will be a slider or knob for the output level of that track. Have an experiment with these and see how they work. Some DAWs also have a mixing desk view for this process.

Experiment

Dive in and have an experiment with the mix, adjust the levels as you listen to the full piece on repeat. Think about which parts should be heard more prominently and which parts should blend into the overall sound. While doing this, make use of the 'mute' buttons on each track, so when necessary you can focus on just a few instruments at a time.

Automate

It's likely that your software will have an 'Automation' setting for each track's levels. This allows you to adjust the level of each track continuously over the duration of the piece (perhaps dropping the level at just a certain part of the performance). Experiment with this and see if it's a useful tool for this mix. If using, do be cautious of adjusting levels after setting a track's automations as any mix adjustments will be recorded by the software and could overwrite the levels you had previously set.

Reality

As we're recreating a live performance, try and recreate how the piece would sound if all the players were together in a performance setting.

Output level

Your editing software will have a visual meter in which you can see the overall level of your mix with audio output measured in Decibels (dB). In the mixing process 0 dB is the maximum audio output level and this should never be reached on an individual track or the entire piece as the audio will distort. Keep an eye on the meter while mixing and be sure that the loudest parts of the performance don't peak too high (the meter will turn red indicated the loudest sections).

Panning

Each track's control panel will allow you to pan each instrument further toward the left or right speaker. Use this subtly to bring another dimension to your mix.

Equalisation

Each track will allow you to adjust the bass, mid and high frequencies to some degree. These controls can be used to make instruments or voices stand prominently in the mix and can also be used to lower unwanted sounds or frequencies captured within a recording.

Reverb

It's likely that your software will have some reverb effects which can be applied to each individual track. Do experiment with these, but be aware that when used heavily this can make your mix sound artificial.

Compression

This tool will reduce the dynamic range of the recording, so the loudest parts are suppressed to sound closer to the level of the quietest part of a recording. While not appropriate for all genres, this is a useful tool that may be worth experimenting with. Within the compressor's settings you will find: 'Threshold' - this allows you to choose how loud the recording needs to be before the compressor affects the signal (so you could compress only the very loudest parts) and 'Ratio' - this sets the strength of the effect and how much you choose to reduce those loudest parts of the recording by.

Consider the listener

Do remember that the final performance may be heard by people on various devices with varying audio qualities (headphones, smartphones, laptops etc). If possible it could be worth exporting a test mix and listening to it on a few different devices and then going back and tweaking accordingly to ensure the final performance sounds as good as it possibly can for all.

EXPORT

With the mixing process complete, the piece can now be saved as a single audio file

- In most Digital Audio Workstations there is the option to export or create a multi-track mixdown (often found under 'File' in the toolbar)
- You will now be prompted to choose the file type and quality that you wish to save to
- We recommend saving as a .wav as this will be of high quality and will be perfect if using within a video project
- However if you are planning on sharing the file casually with other performers, it may be more practical to save as a lower quality file type. We recommend mp3 and select the highest quality setting



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