

Adobe Audition 2021

6 – Vinyl Archiving

Recent years have seen a revival in the use of vinyl records for listening to music. There are a lot of reasons why people like vinyl as an alternative to digital music or streaming music services. Many seem to like the warm sound of vinyl. Some like the larger cover artwork and inserts. In some cases, it's simply the experience that goes beyond merely pressing a play button on a small phone screen. And of course, if you're a collector then collecting records is a bit more special than collecting titles on a Spotify playlist. Whatever the reasons, what might have appeared to be a dead format 15 years ago is back in a big way.

Many vinyl records these days include a digital copy. For instance, a record may include a voucher with information for downloading a digital copy that can be played on your phone, in your car stereo etc. But what about records that don't come with a digital copy? Particularly older records that might have been lovingly looked after in someone's collection for decades. In those cases, you might need a way to copy your vinyl record into a digital format that can be played when you don't have a record player. It can also be useful to have backup copies in case your original is damaged.

Many of the tips in this section could also apply to transferring music from other formats such as Cassette tape.

Note Be aware of **copyright** laws when you make a copy of vinyl records. Copyright laws vary in different countries. In Australia it is legal in certain cases to **Format Shift**. This means that it is ok for you to copy music you have purchased from one format to another for your own personal use.

For example, copying songs from a CD or vinyl record you have purchased so that you can listen to them on your computer. However, you must retain the original copy and you must not pass your copies on to other people. So if you give / sell the original vinyl record to someone else then you would be in breach of copyright if you still keep the digital copies. And of course, you can't pass your copies on to other people either.

What is Needed?

To record a record on to a computer you first need a way to transfer the sound from your record on to a computer so that Adobe Audition can record that sound.

USB Turntable

Many modern record players include the capability to connect a record player directly to your computer using a USB cable. This is a nice simple solution for recording to your computer. Not all turntables have this capability though and some people might prefer the increased level of flexibility and control afforded by other solutions.

Audio Interface

If you are not connecting your record player with a USB cable, then your sound needs to come into the computer in another way. This will be accomplished using an audio interface or sound card.

Most computers will have a basic sound interface built into the computer's motherboard that will have several plugs for external connections. Often these are colour coded such as **green** for speakers / headphones, **pink** for microphone and **light blue** for line in. The **line in** plug is what you would usually connect to for recording your vinyl records.



For higher quality audio, dedicated audio interfaces can be purchased. Often these will be connected to a computer externally to avoid any interference from the computer's internal components, and they will often have specialised features that are needed by professional musicians. Even if you can connect your turntable with a USB cable, a quality audio interface might provide a better quality recording.



Preamp

Many turntables will need a device that can take the signal from your record player and prepare it for a stereo system (or a computer's audio interface). If you have something like a DJ mixer then that will likely include a pre-amp that a record player can be connected to. The mixer's output can then be connected to your audio interface or your computer's line-in plug.



You can also buy standalone pre-amps that you can use to connect your turntable to the audio input on your computer. In either case, you would need to ensure that you have the right sort of cable that can connect to your preamp at one end and audio interface at the other end.

A Good Stylus

Whatever type of turntable you have, many record players feature interchangeable needles or cartridges. The quality of the needle can make a difference to the quality of your recording. Some, such as the Ortofon Arkiv, are specifically designed for transferring vinyl to digital.



Clean Your Records

Before playing records, it is important to ensure they are free of dust and other dirt. This is especially important when you are preparing to record to a computer. You can clean-up the recorded sound with Audition but it's best to make sure the recording is as clean as possible in the first place.

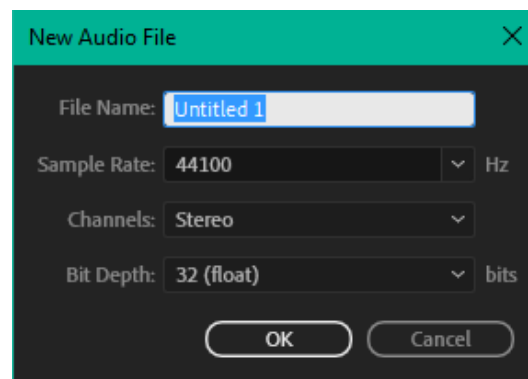
Not only do clean records produce better sound but they can also avoid damaging the records. When a record's stylus is moving along a record's groove, that small amount of friction creates a small amount of heat. If there is dust or dirt in the way then that can permanently damage the record, resulting in small markings in the vinyl that can result in crackle and pop sounds when you play the record. Much of this can be avoided by keeping records clean. This can range from a quick wipe with a brush or cloth to a more extensive clean. Places that sell vinyl records often also sell products for cleaning records.



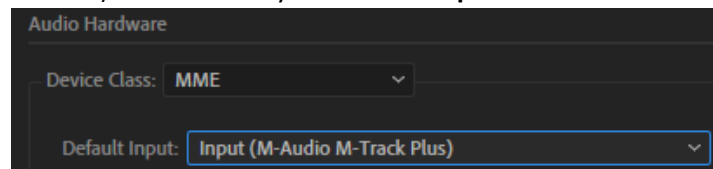
Exercise 1. Preparing for Recording

As you work through these exercises, ensure you have a vinyl record ready for recording. For copyright reasons it is not feasible to provide a recording of a record for you to practice with.

1. Start by ensuring your turntable is connected to your computer and ready to play.
2. Open **Adobe Audition**.
3. From the **File** menu select **New** and then **Audio File**.
4. In the **New Audio File** options, set the **Sample Rate** to *48000*, **Channels** to *Stereo* and **Bit Depth** to *32*. Entering a **File Name** is optional since you can enter that when you save the file later. Click **OK** to create the file.



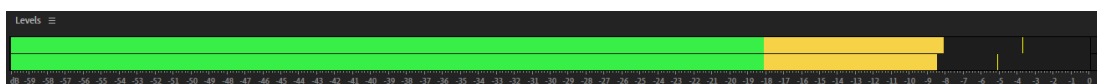
5. Check the audio settings to ensure that Audition is prepared to receive sound input in the way you intend. From the **Edit** menu select **Preferences** and then select **Audio Hardware**.
6. If you have a turntable connected directly to your computer with a USB cable then set it as your **Default Input**. If you are using an audio interface (such as your computer's internal audio or an external audio interface) then set it as your **Default Input**.



7. Click **OK** once the correct input device has been selected.

You can test the recording levels before you actually begin recording. One way is to simply record part of the record and see if the volume levels are suitable. You can also preview the volume meter before recording.

8. **Double-click** the **Levels Meter** along the bottom of the waveform window to activate it and then play part of the record.



You will see the volume levels as the record plays. This will give you an opportunity to adjust recording levels or the playing levels before recording. Remember that you don't want the levels to go all the way to the end as that will result in clipping and distorted sound. If you are unsure then a little too quiet is better than a little too loud as boosting the sound after you record is better than dealing with distorted sound.

Once you are happy with the levels then you are ready for recording.

Exercise 2. Recording the Record

If there is more than one song / track on the side of the record you are going to record, then you could record the whole side and then save each track as a different file. Alternatively, you could record each song separately. In this example we will assume you are recording one song at a time.

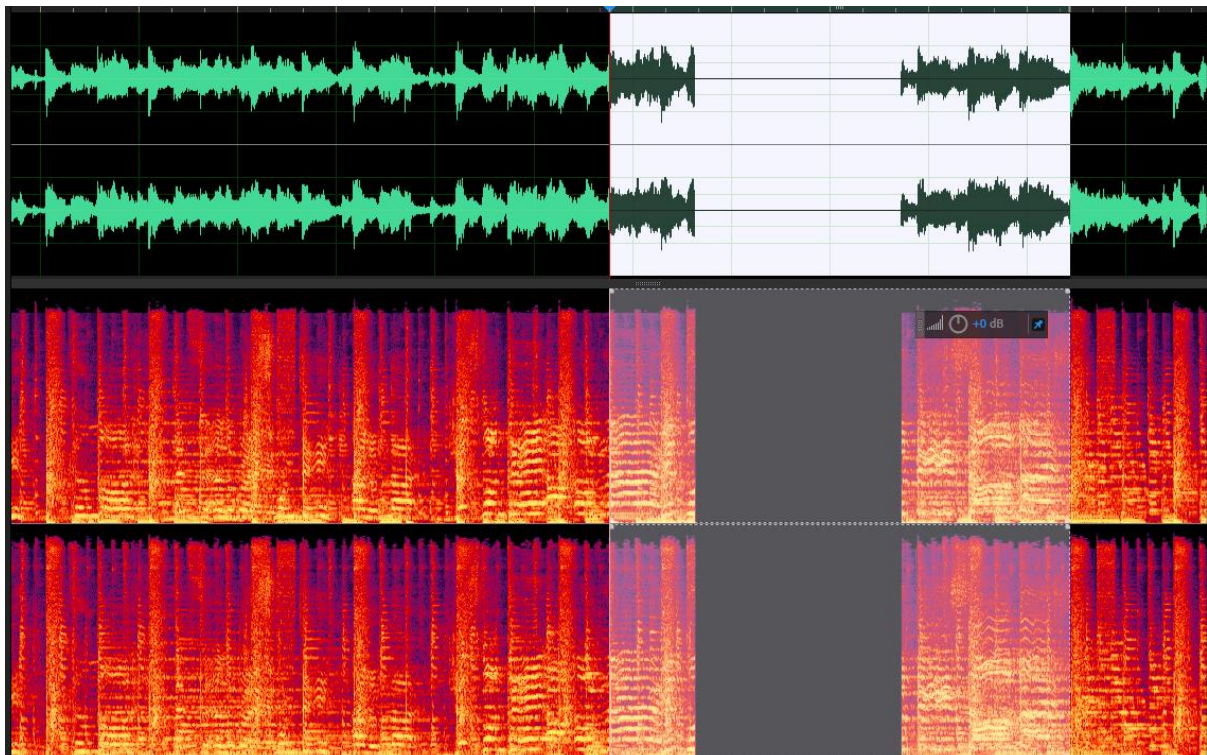
1. When you are ready to record, click the **Record** button in Audition to begin recording. Then start playing the record.

While you are recording, the waveform will appear in Audition as the sound is captured.

2. At the end of the song, click the **Stop** button or press the **spacebar** to end the recording.

What if the needle skips?

If the needle skips while you are recording, then you could start the recording again. Alternatively, you could stop the recording and then start recording from a point slightly before where the needle skipped. Once you have finished recording you could make a selection that starts from a point before the skip and then continues until exactly the same point after you re-started recording. Using beats can help get the selection lined up. You could then press **Del** to remove the selected area, effectively joining the 2 recorded parts together. It can take a bit of practice to make the selection so that the 2 parts of the song fit together seamlessly but zooming in and using spectral view can help.

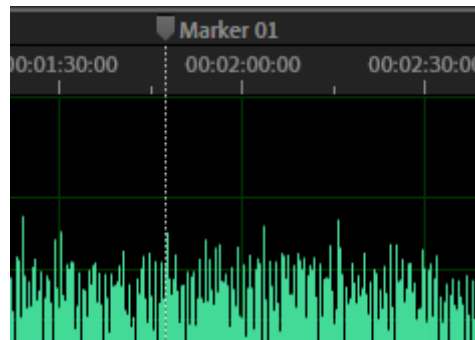


If the needle skips each time it gets to a certain part of the song, then there are a few things you can do. Firstly, make sure there are no bits of dust or dirt stuck in a groove at that part of the record as that could be a cause of the skip. Some careful cleaning on that spot could remove the dirt and stop the record skipping.

If the skipping is caused by a more permanent problem such as a scratch on the record, then when the needle is approaching that part of the record you could use a finger to apply a gentle amount of sideways pressure to the stylus. If you are careful then this could be just enough pressure to stop the

needle from skipping to another groove, but not so much pressure that it pushes the needle the other way.

Tip If you hear any sounds while the record is playing that you might want to clean up when the recording is finished (such as a loud pop sound from a scratch on the record), press **F8** or **M**. This will add a marker that you can use to locate that part of the recording later on.



Cleaning Up the Sound

No matter how careful you are with cleaning and recording the record, there might still be some sounds you want to clean up to improve how the recording sounds.

Important Caveat

Cleaning up the sound can be largely a matter of taste. Some people are perfectly fine with the crackle and pop sound that comes from playing a record and would prefer keeping that in the recording.

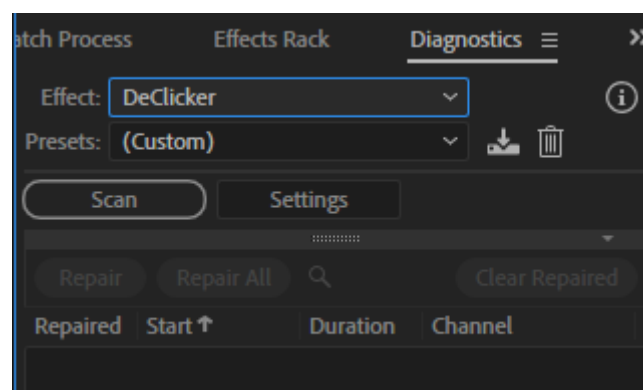
Other people like to get the sound as clean as possible, removing all imperfections in the sound.

Often you might want to find a balance between the two approaches. A bit of careful work in Audition can remove obvious unwanted noise from the record but overdoing it can remove too much of the music you actually want to keep.

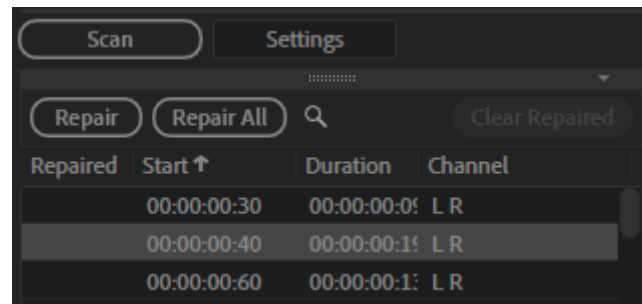
Exercise 3. Audition Diagnostics

Audition's Diagnostic tools can do a pretty good job of cleaning up the general crackle sound that is often present on older records.

1. From the **Window** menu select **Diagnostics** to display the diagnostics panel. It will usually appear to the left below the Files panel.

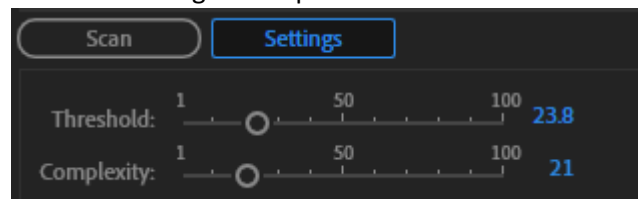


2. Ensure the **Effect** is set to **DeClicker**.
3. Click the **Scan** button. This will scan your recording and collect information about the click sounds in the recording. These sounds are often present in recordings from microphones and vinyl records. The scan button doesn't actually change your recording but prepares for when you are ready to start cleaning.
4. After the scan is finished, a list of all the detected click sounds will appear. Clicking on any one in the list will go to that location on the waveform. This enables you to manually repair clicks by selecting the one you want to fix and clicking the **Repair** button. When you run a scan on a recording of a full song from a vinyl record, there will likely be a long list.



The Diagnostic panel can be used to automatically repair the click sounds in your recording. Before doing so you can adjust the settings to control how extensive the repairs are.

5. Click the **Settings** button in the Diagnostics panel to show or hide the settings.



It might take a bit of trial and error to get settings that give results you're happy with.

The **Threshold** (from 0 to 100) controls the sensitivity. Lower threshold will detect more clicks and pops but setting it too low might remove sounds you don't want to remove.

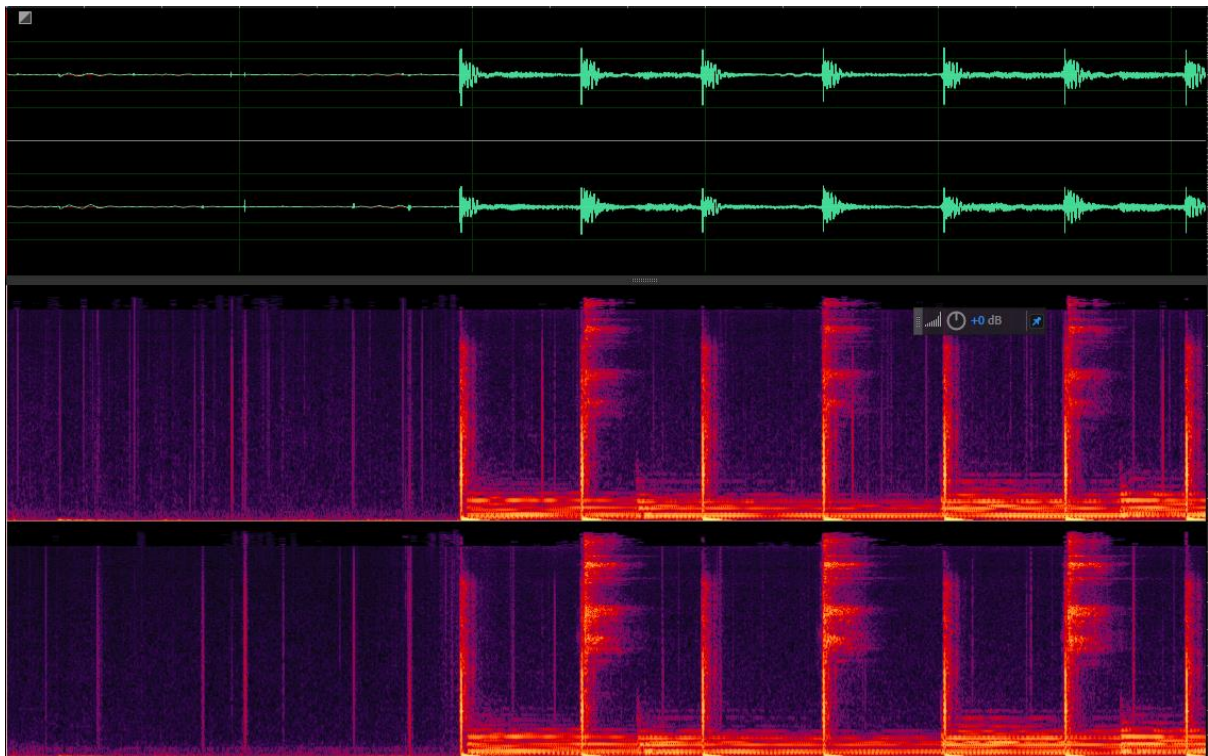
Higher **Complexity** settings will result in heavier processing for more precise results but too high could reduce audio quality.

6. Adjust the settings to amounts similar to the example shown above and click the **Repair All** button.

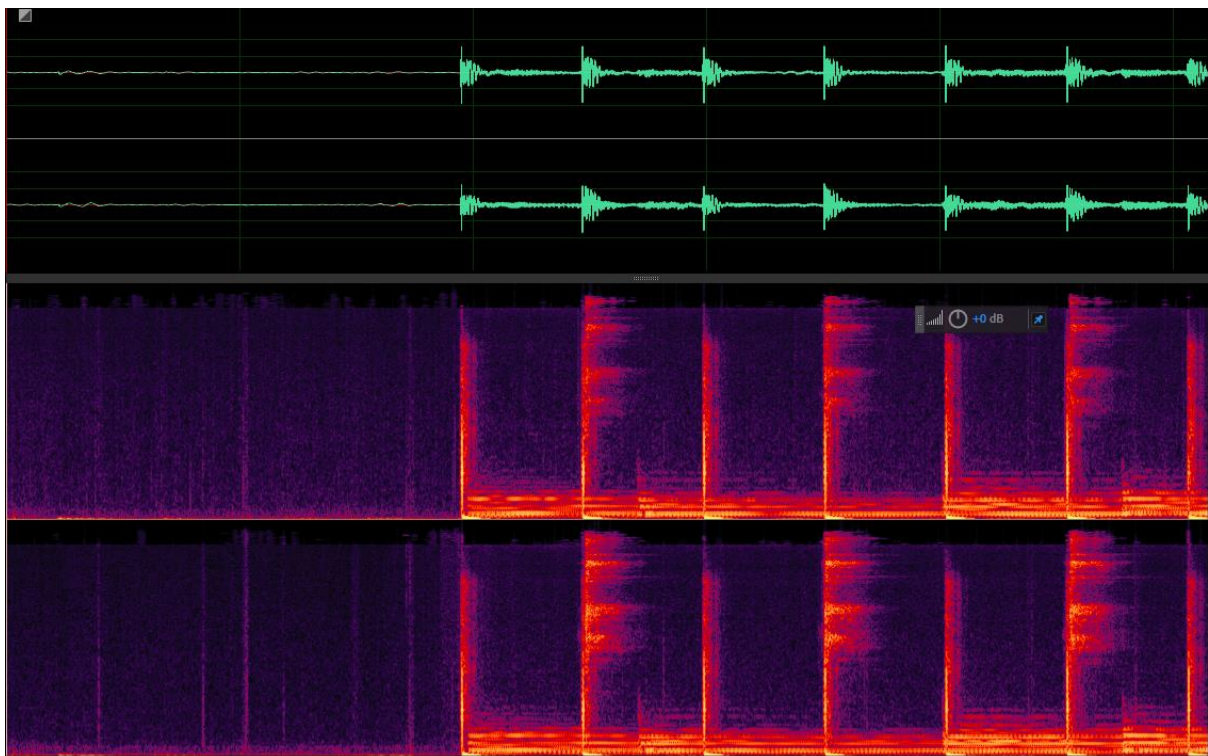
Often this will only repair some of the clicks so it might be necessary to click the **Clear Repaired** button and then click **Repair All** once again.

The example below shows the same recording both before and after repair. As is often the case, the clicks are a lot easier to see in spectral view.

Before Repair



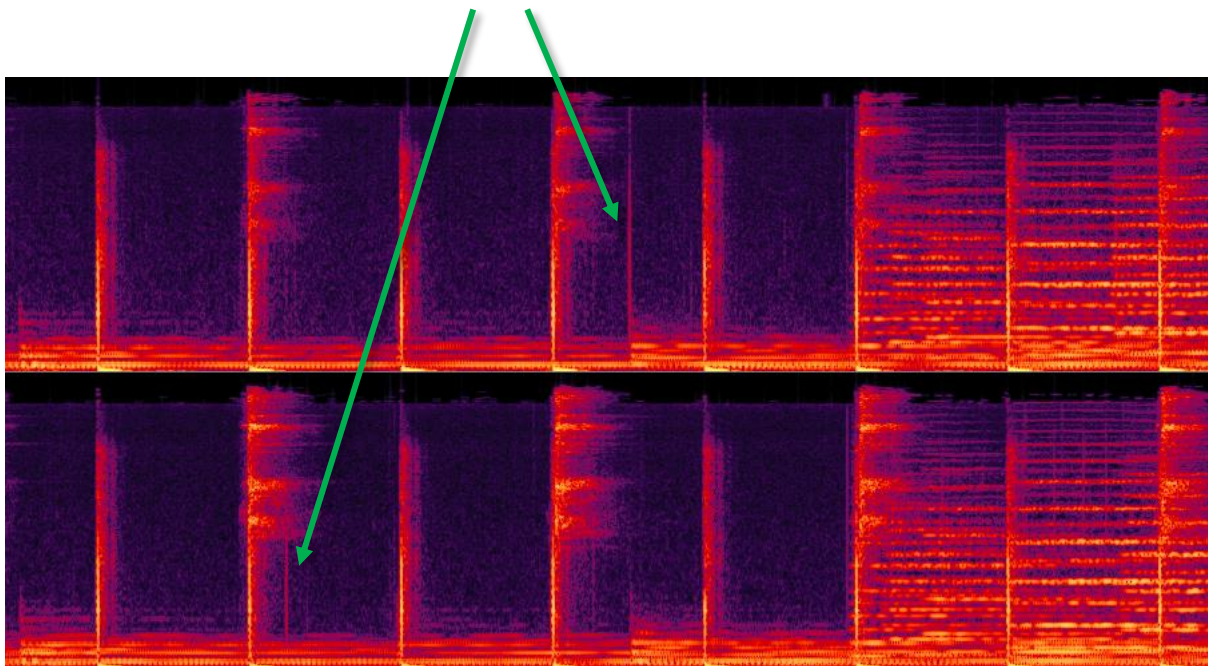
After Repair





Exercise 4. Manual Repairs

Some sounds might need to be repaired manually. Either because the Diagnostic panel doesn't quite get them or because you'd simply prefer to do it yourself. In some cases, these could be loud pop sounds from a scratch in the record like the sort mentioned in an earlier section (hopefully you marked them with the **M** key when you heard them during recording 😊). In **Audition 4 - Recording** we looked at using the Spectral view and the **Spot Healing Brush** to fix problems in your sound. The same techniques can be applied here.

In the example below, the Diagnostic panel has been used to remove the small click sounds but a couple remain. These can easily be seen in the spectral view. The sharp, vertical peaks where the click sounds stand out from the more natural looking peaks from the beats in the recorded song.

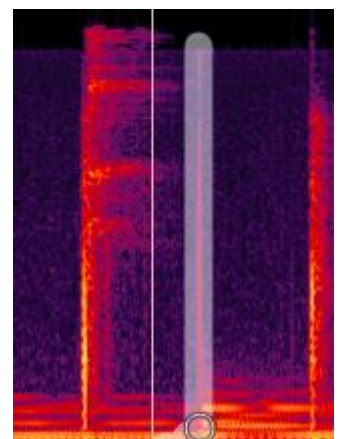


Using **Spectral View** you can look over a sound file and often see clicks before you even hear them playing. When you find a click like this that you want to repair follow the steps below.

1. Turn on **Spectral Frequency Display** if needed by clicking the  icon or pressing **F9**.
2. Activate the **Spot Healing Brush** by clicking the  icon or pressing the letter **B**.
3. Press the **[** and **]** square bracket buttons to adjust your brush size until the circle is wider than the click (not too wide).
4. Draw over the click with the brush until it is covered.

With stereo sound you will have both a left and right channel. Painting on one will also affect the other. If you only need to fix a problem with one channel, make sure you first disable the other channel by clicking the **L** or **R** button to the right of the waveform.

Tip Most clicks show as a straight, vertical line. If you hold down the **Shift** key while using the brush you will be able to paint in a vertical line which can make it easier to cover the click from top to bottom.

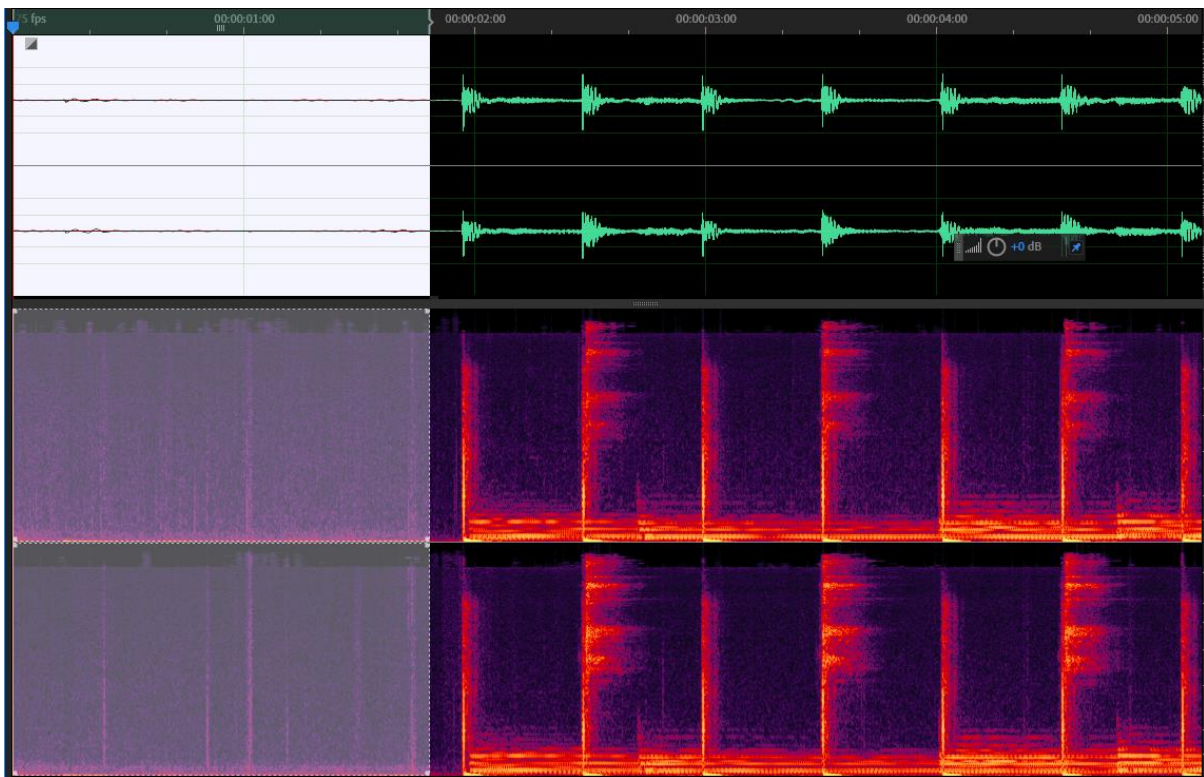


Exercise 5. Noise Reduction

Using Noise Reduction was covered in **Audition 4 – Recording**. While recording from a record the recording will often pick up certain faint noises such as friction noise from the stylus on the record player or even interference noise from nearby electrical devices. Such noises are more noticeable during quieter parts of the music.

Like many of the techniques described in this section, some people might prefer to minimise or even avoid using sound reduction on their recorded audio. It depends on how clean you want the final sound. With enough care however, you can find a balance between reducing unwanted background noise and adversely affecting the recording. The techniques are the same as those described in the **Audition 4 – Recording** section.

1. Select a sample of “blank” sound before the song starts.



2. Press **Shift P** to capture a Noise Print.
3. Press **Ctrl Shift P** to open the Noise Reduction settings.
4. Adjust the settings as shown in **Audition 4 – Recording** to find a suitable balance between cleaning too much and too little.
5. Click **Select Entire File** if needed or select just the part you want to reduce noise from (such as a quieter part of the song where it is more obvious).
6. Click **Apply** to apply the noise reduction.

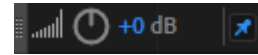
Remember to trim any excess silence from the beginning and end of the file.

Exercise 6. Normalising Sound

In the **Audition 3 – Audio Effects** section we looked at adjusting the volume of your sound to get the optimum volume and the same can be applied to your recorded sound.

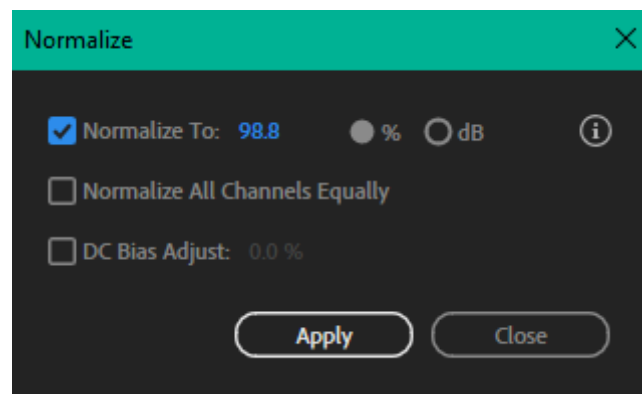
As shown earlier, you can use the **Effects** menu, **Amplify and Compression** and then **Amplify** to adjust the overall volume of a track if it is too loud or too quiet.

Tip You may have noticed a floating volume control in Audition. This **Heads Up Display** or **HUD** provides a quick and easy way of adjusting the volume. This HUD can be repositioned to a location that suits you. It can also be turned on or off from the **Show HUD** option under the **View** menu.

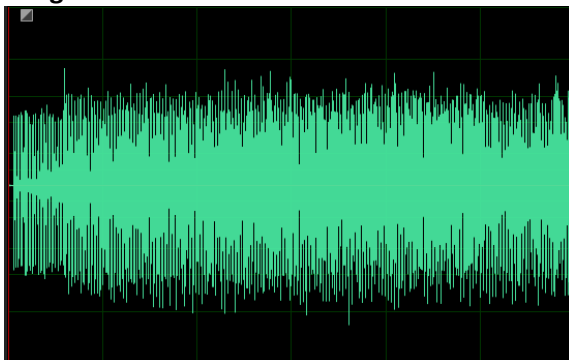


Often it is desirable to have your music boosted to the loudest level it can go to without clipping. The **Normalise** option can be useful here.

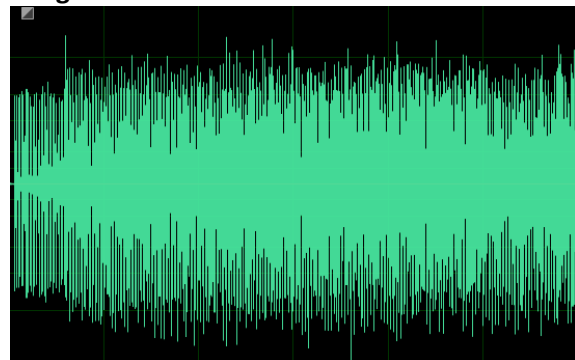
1. To normalise the volume in your recording go to the **Effects** menu, select **Amplitude and Compression** and then select **Normalize**.
2. Set the desired settings and click **Apply**.



Song before normalization



Song after normalization



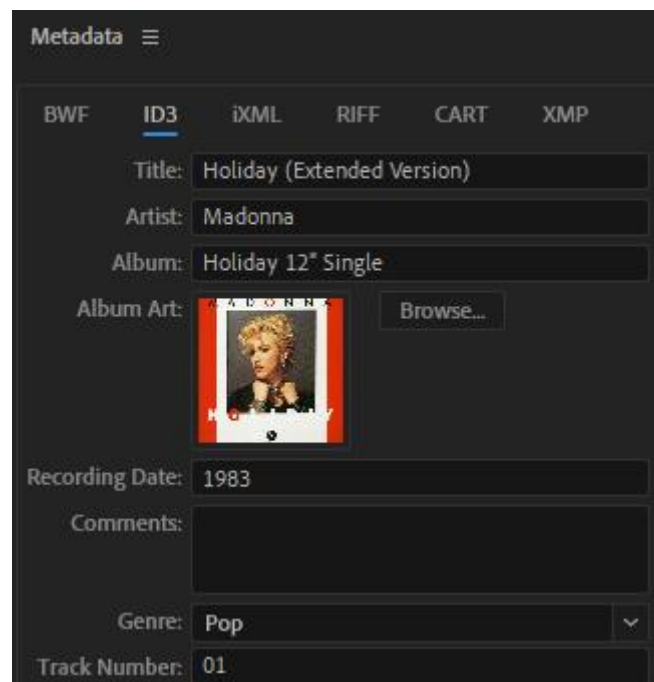
Note At this point your recording might still not sound quite as loud as music you may have purchased on CD or obtained digitally. Especially compared to music that has been “remastered”. Sometimes that is because remastered music has lower frequencies (such as bass) boosted more than other frequencies to make its sound “louder”. Effects such as **Hard Limiter** or **Compressors** can be used to boost frequencies in such a way but without a great deal of care could also alter the sound considerably compared to the original recording.

Exercise 7. Metadata

By now hopefully the sound will be optimised to your tastes and ready for saving. Before finishing though it can be useful to add metadata to your file. **Metadata** is additional information that is saved along with the file which can be displayed in music players. It can include things like song or album title, artist name, genre and year of release. For example if you are playing your completed recording in a car stereo you might want such information to appear on you car stereo's display screen. Such information is also useful if you are searching or sorting music in your digital collection. For example, finding all songs by a particular artist or songs in a certain genre.

1. From the **Window** menu select **Metadata** or press **Ctrl P** to display the Metadata panel if it is not already showing.
2. Select the **ID3** category along the top. This allows you to edit tags that are supported in many common audio file formats such as MP3, WAV and FLAC.
3. Enter the relevant information about the recording.

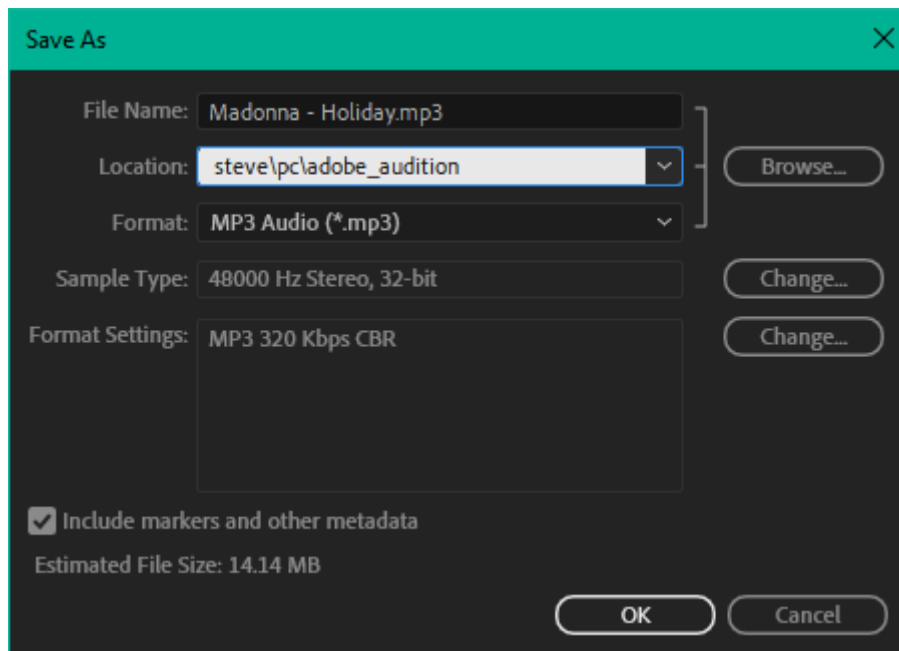
If you have an image that shows the cover art for the record (either one you have scanned yourself or obtained from a website like [Discogs](https://www.discogs.com/)¹), you can load it here so that it can show along with other metadata when you are playing your recording in compatible music players (such as playing it on a phone).



¹ [Discogs](https://www.discogs.com/) is an online database of Vinyl records, CDs and other types of music media. It is a useful reference when you are entering detailed information about records you own. You can even use it to catalogue your own collection.

Exercise 8. Saving the file

1. From the **File** menu select **Save** or press **Ctrl S** to display the file saving options.



Audition 5 - Multitrack discussed the difference between **Lossless** and **Lossy** file formats. When saving your recording you need to decide what format is best suited for you.

If you want the best possible sound quality, then use a lossless format such as **WAV** or **FLAC**. Lack of storage space used to be a key reason for not using lossless formats. However, storage capacity on modern computers has increased enough that even with lossless formats, large amounts of music can normally be stored without too much trouble.

There might still be good reasons for saving in a lossless format such as **MP3**. Particularly if the music needs to be played on a device such as mobile phone or car stereo that might be more limited in the formats it supports. In such cases it might be a good idea to save a lossless version and then save another copy in the lossless format that is required.

