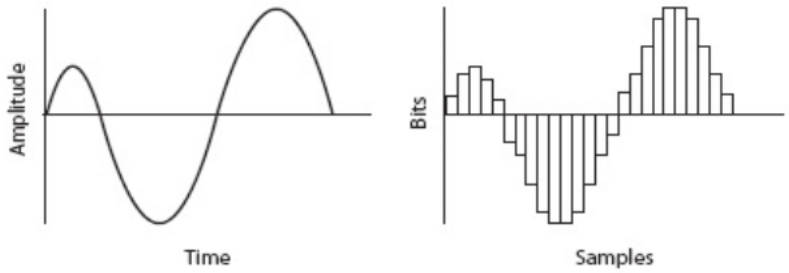
Sample Rates

Sample rate is quality of audio and sampling frequency is the rate at which the A/D converter samples or measure the analog signal while recording Sample Rate refers to how many times per second the audio information is captured.

Sample rates are measured in Kilohertz (KHz). 1 KHz equals 1000 samples per second. So, audio recorded at 44.1 KHz captures data at a rate of 44,100 samples per second. (For example a rate of 48 kHz is 48000 samples per second that is 48000 measurements are generated for each second of sound signal.

Most audio interfaces support sample rates of 44.1, 48, 88.2, and 96 KHz. Many higher-end devices also support 176.4 and 192 KHz sample rates as well.

1. Analog sound signal **2.Digital sample audio**



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S.M.P.T.E. Time Code

SMPTE Time code, is an acronym than stands for Society of Motion Picture Television Engineers. This group created a clock or time based standard first used in television for synchronizing video tape machines for editing purposes. The time code will be recorded on one audio track. Then, at playback time, the time code audio is read and decoded by a SMPTE time code reader device.

A S.M.P.T.E. display reads time as **00.00.00.00**. From left to right this hours, 0 minutes, 0 seconds, 0 frames, 0 sub frames. By comparing S.M.P.T.E tracks on two different machines a synchronizer can Lock or synchronize the two machines. This is done by establishing a Master machine whose timing is imposed on a Slave machine by the synchronizer.

Audio Mix down

Mixing down is the process of recording the output from multiple tracks to a stereo or multi-channel format. This process is also often referred to as bouncing, which traditionally has been done to combine several tracks together to free up resources or reduce track count. Mix down is often the last phase of music production, but in Pro Tools mix down can be done any time you want to bounce tracks or create a completed mix for use outside of your session.

Mono mix down The number of audio track has been mixed as a single track **(Mono)** mix down mono literally means "ONE"
one track. Down the middle. no left. no right. no panning.

Stereo mix down The number of audio track has been mixed as two track **(Stereo)** mix down stereo has two tracks. One left, one right.

Once all your tracks are recorded and edited, it's time for mix down here is the general procedure;

1. Balance the all audio tracks and set the level 0db.
2. Adding EQ, Effects and Panning to audio tracks.
3. Set up the automation (Mixing the Dialogue, Effects, BGM)
4. Once your mix is perfected, Export it to a mono or stereo file.

Audio file formats

The Audio Files category includes compressed and uncompressed audio formats, which contain waveform data that can be played with audio playback software. This category also includes MIDI files, musical scores, and audio project files, which typically do not contain audio data.

Common audio file extensions include **.WAV**, **.AIF**, **.MP3**, **and .MIDI.**

1. **Wave** (wav)

2. **AIFF** (Audio interchange file format)

3. **MIDI** (Musical Instruments file format)

4. **MP3** (MPEG Level-1 Layer-3- Motion picture expert group)

5. **MP3** PRO (An improvement over MP3.Songs encoded at 64 kbps

6. **WMA** (Windows Media Audio)

7. **Real Audio** (Format is used for music downloads)

8. **AAC (**Advanced Audio coding)
   (MPEG) AAC offers better sound quality than MP.3 at same bit rate.

Blu-ray Disc (BD)

Blu-ray Disc (official abbreviation **BD**) is an optical disc storage medium designed to supersede the DVD format. The disc diameter is 120 mm and disc thickness 1.2 mm plastic optical disc, the same size as DVDs and CDs. Blu-ray Discs contain 25 GB (23.31 GiB) per layer, with dual layer discs (50 GB) being the norm for feature-length video discs. Triple layer discs (100 GB) and quadruple layers (128 GB) are available for BD-XL Blu-ray re-writer drives.[2] Currently movie production companies have not utilized the triple or quadruple layer discs; most consumer owned Blu-ray players will not be able to read the additional layers, while newer Blu-ray players may require a firmware update to play the triple and quadruple sized discs.

The name *Blu-ray Disc* refers to the blue laser used to read the disc, which allows information to be stored at a greater density than is possible with the longer-wavelength red laser used for DVDs.

Blu-ray Disc

Media type = High-density optical disc

Encoding = MPEG-2H.264/MPEG-4 AVCVC-1

Capacity = 25 GB (single-layer) 50 GB (dual-layer) 100/128 GB (BDXL)

Usage = Data storage High-definition video (1080p)
High-definition audio
Stereoscopic 3D
PlayStation 3 games

Developed by Blu-ray Disc Association.

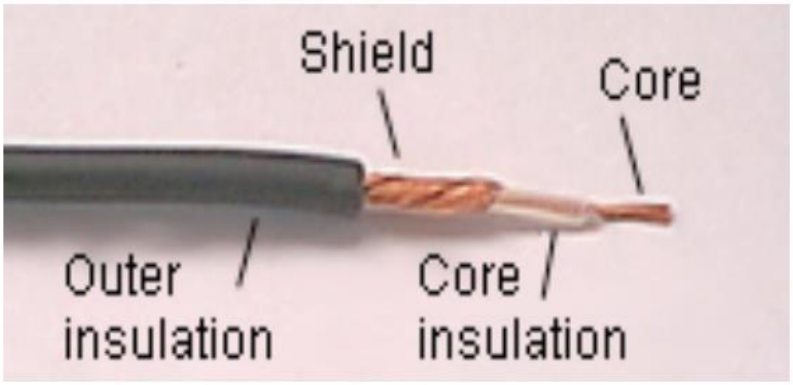
Audio Cables and Connectors

Audio Cables

There are two main types of audio cable we will look at: *Single core / shielded* (unbalanced) and *One pair / shielded* (balanced).

Single Core / Shielded Cable

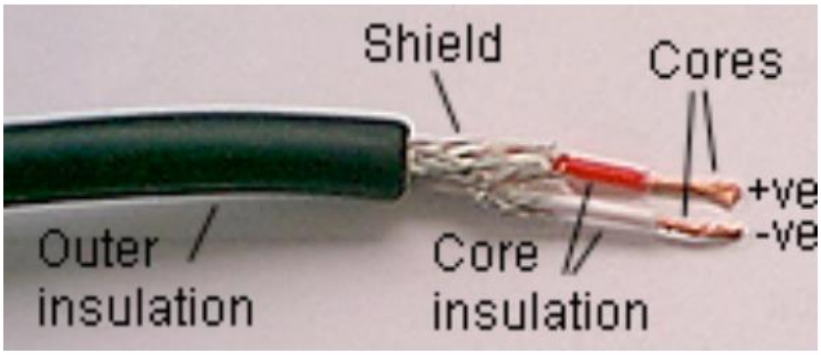
In a single core / shielded cable, the single core is used for the +ve, or 'hot', and the shield is used for the -ve, or 'cold'.
This type of cable is used for unbalanced audio signals.



Single core / shielded cable

One Pair / Shielded Cable

A one pair / shielded cable has one core as the +ve, and the other core is -ve. The shield is earthed.
This type of cable is used for balanced audio signals.



One pair / shielded cable