



Adobe Audition ▾

Understanding audio bitrate.

Learn how sound becomes digital and discover what makes high-quality audio. Known as bitrate, find out how this aspect of digital music and audio files affects the listening experience.

Turning music, speech, and sound into audio data.

Digital audio is digital information. That information can be dense or sparse, high-quality or low. *Bitrate* is the term used to describe the amount of data being transferred into audio. A higher bitrate generally means better audio quality. "Bitrate is going to determine audio fidelity," says producer and engineer Gus Berry. "You could have the greatest-sounding recording of all time, but if you played it with a low bitrate, it would sound worse on the other end."

Understanding bitrate is essential to recording, producing, and distributing audio. To truly comprehend bitrate, you also need to learn what makes up an audio file and what different types of audio files exist.

Try Audition, free for 7 days, then US\$20.99/mo.

Try for free



Adobe Audition ▾

Those snapshots can be very different. Just like images vary in quality and clarity, [types of audio files](#) differ in how large they are, how much information they contain, and what role they fill. While there are some exceptions, uncompressed files will contain the most information and therefore have the highest bitrate. Compressed lossy files generally have the least amount of information and therefore a lower bitrate.

Image by Jonathan Petersen

- **Uncompressed files:** These audio files are very large, and include all of the possible information that audio equipment can detect. Uncompressed file formats include WAV, AIFF, and PCM.
- **Compressed lossless files:** These file types are compressed, but in a way that no information gets lost. They include FLAC, WMA, and ALAC. These files are larger than compressed and smaller than uncompressed files.
- **Compressed or lossy files:** Generally the smallest types of file formats, compressed files remove some information that is not entirely essential. Popular lossy audio file formats include MP3s and AAC. "Those are the things typically being streamed on Apple Music and Spotify," says Rodocker.

Try Audition, free for 7 days, then **US\$20.99/mo.** **Try for free**

**Adobe Audition** ▾

Those individual samples vary in the amount of information they have. Bit depth is the number of bits in each sample, or how information-rich each of those 44,100 pieces of audio is.

A high sample rate and a higher bit depth both increase the amount of information in an audio file, and likewise increase the file size. Just like some photos have a high resolution, audio files with a high sample rate and high bit depth have more detail. Having more detail generally requires a higher bitrate.



There is no best bitrate, only the right bitrate.

The right bitrate for a file depends on what you want to use that file for and the means of delivering the audio. In general, a high bitrate means high-quality audio, provided the sample rate and bit depth are also high. More information, in a very general sense, means better sound quality.

Audio CD bitrate is always 1,411 kilobits per second (Kbps). The MP3 format can range from around 96 to 320Kbps, and streaming services like Spotify range from around 96 to 160Kbps.

Try Audition, free for 7 days, then **US\$20.99/mo.**

Try for free

**Adobe Audition** ▾

listening to your audio on mass-market earbuds or headphones, they will not be able to get everything that high-fidelity audio offers anyway. CD-quality bitrate, which is high, sounds its best on a professional stereo system that is able to adequately express the very high and very low frequencies 1,411Kbps is able to accommodate. Most earbuds, and many desktop speakers, will not be able to express those frequencies.

Finding the right bitrate.

When you're starting a new audio project, it's good to record the best quality you possibly can, with a high sample rate and bit depth. When producing audio, you need to keep in mind how your listener will be interacting with your audio.

Regardless, if you're creating audio of any kind you should always keep your highest-quality files around to future-proof against new technology. Future audio formats could require greater bitrates, and future connections or hardware could potentially deliver high-fidelity audio. It's entirely possible that commercial audio hardware in the next decade or so will be able to express bitrates greater than 160Kbps, so keep your old uncompressed files. It's always possible to convert uncompressed files into a new format.

Knowing what type of files to use is only one part of audio production. Learning how to work with a [graphic equalizer](#) and understanding [how to mix music](#) will greatly improve the audio you produce, whatever the bitrate.

Contributors

Gus Berry, Peter Rodocker

Do more with Adobe Audition.

Your pro workstation for [recording and mixing audio](#), [creating podcasts](#), and designing [sound effects](#).

You might also be interested in...

Try Audition, free for 7 days, then **US\$20.99/mo.**

Try for free

**Adobe Audition** ▾**Best audio format file types.**

Lossy or lossless? Compressed or uncompressed? Find the audio format that fits your needs.

**Finding the best DAW for your audio needs.**

Learn how to select a music or podcast mixing platform to meet.

Setting up a home recording studio.

Explore the basics of creating a space at home to capture high-quality audio.

**Music mixing dos and don'ts for beginners.**

Get basic tips on how to begin your exploration of music mixing.

[Discover more on video](#)

Get Adobe Audition.

Create, mix, and design sound effects with the industry's best digital audio editing software.

7 days free, then **US\$20.99/mo.**

Try for free

[Home](#) > [Adobe Creative Cloud](#) > [Video](#) > [Discover](#) > [Audio bitrate](#)

Shop for



Try Audition, free for 7 days, then **US\$20.99/mo.**

Try for free

Sign In

Adobe Audition

Experience Cloud

Support

Resources

Adobe Account

Adobe

Featured downloads

Adobe Audition

Photoshop

Illustrator

Change region

Facebook icon

Twitter icon

LinkedIn icon

Instagram icon

Try Audition, free for 7 days, then US\$20.99/mo.

Try for free