

# Streaming media

Streaming media is a rage nowadays. TV channels, social media sites, online radio stations, and OTT apps are a few common examples of mediums that stream content. If you are wondering why there is a sudden spike in the number of streaming media and how streaming media differs from the earlier media files, this blog will help you understand.

## Overview

Streaming media is an audio or video file played directly from the Internet. One of the most significant benefits of streaming media is that you can skip to a later moment in the file and instantly start listening to or watching from that moment onward without waiting for the earlier part to complete downloading.

## What is streaming media

In streaming media, a body of content, say, a movie or song, is sliced into short and logical segments. Each of these segments acts as a discrete file. Due to the segmentation, content for streaming media is called segmented content. MPD and M3u8 are the two leading file formats for live streaming. All streaming media have an index file. The index file includes the location and duration of every segment and acts as a single point of reference to play streaming media. Media file players can read index files and run them in a way that you perceive watching a motion picture.

## Advantages of streaming media

In streaming media, if you choose to watch a movie or a TV program from anywhere in between, the segment that contains the moment you choose to watch from - downloads outright, without requiring the skipped section to be downloaded. Such an outright download of a segment is possible because each segment is treated as a discrete file. In the case of earlier media files, if you chose to watch a movie or a program from a moment in the middle, you had to bear with content buffering when the preceding section was downloading.

The breaking up of content into short segments also allows live streaming. When watching a live-streaming event, content is constantly sent and received over the Internet, and the index file updates as and when any new feed arrives.

Streaming media requires very little storage space; thus, you seldom run out of storage in your device. Also, you don't require installing additional software or a codec on your device to play live streaming. In streaming media, the live-streaming content is briefly stored (cached). So, even if you join a live-streaming event a few minutes after it has begun or pause it for some time in the middle, you can still watch the content streamed before you joined or during the time you paused. Alternatively, you can catch up live to watch the event in real-time.

## Disadvantages of streaming media

Although there are many advantages to streaming content, there are a few disadvantages, too. You always need an Internet connection to watch streaming media—even if you have watched the same content previously on the same device. It would help if you also had an Internet connection that is fast

enough to stream without noticeable buffering. For some streaming content, you need to pay a subscription for access.

### Quality of streaming content

Frame rate, encoding, bit rate, and resolution are the four factors that collectively determine the quality of segmented content. Frame rate is the number of frames a camera captures in a second; ten frames per second (fps) is regarded as a minimum to produce the illusion of continuous motion. The nature of the human eye and brain results in creating this illusion. The human eye and brain can only process 10 to 12 separate images per second, retaining an image for up to a fifteenth of a second. If a subsequent image replaces it within this period, it creates an illusion of continuity; we perceive the images not as static but as ones in motion.

Encoding is the process of converting a frame into bits and bytes. A bit (short for binary digit) is a computer's smallest data unit. Bit rate is the number of bits transmitted over the Internet per second.

Resolution is the number of pixels present in every square inch of an image. A pixel (or picture element) is an image's smallest unit of information. The higher the number of pixels per square inch, the higher the image's clarity.

### What is adaptive streaming

Adaptive streaming is streaming content to users based on their Internet speed and device capability. If a user has a slow Internet connection or their device does not support high-quality display, they stand to miss out on consuming streaming content if the content that streams is only in a high-quality format. In adaptive streaming, a file is reproduced in multiple formats of varying quality. While keeping the fps, bit per second, and encoding constant, altering the resolution of the content render files of different quality.

Adaptive streaming ensures that the streaming media is consumable by the broadest possible cross-section of users—from users with the lowest Internet speed and poorest device capability to those with the best Internet speed and device capability. The user's media player determines the available Internet speed and the device's capability. In adaptive streaming, the initial segments stream with the most inferior version. But, as soon as the media player recognizes that a user's Internet speed and device capability are high enough, the subsequent segments that stream are of a compatible superior version.