

## Project study

This project takes me to study video streaming, HLS, FFMPEG library, PHP/FFMPEG APIs, integrate the PHP/FFMPEG library to a Laravel project, and finally the way of presenting the video streaming on the web page

## Project requirements

we need to upload a video, make it streamable and make the user able to pick a suitable video resolution, or a video resolution that suits his internet connection

## Video streaming

Streaming media is multimedia that is constantly received by and presented to an end-user while being delivered by a provider, that means there will be a little bit difference between the video that will be prepared to be streamed, and a video prepared to be downloaded, first of all let's talk about **HLS**

### HLS (HTTP live stream)

is an HTTP-based **adaptive bitrate streaming** (technique used in streaming multimedia over computer networks) communications protocol

HLS resembles MPEG-DASH in that it works by breaking the overall stream into a sequence of small HTTP-based file downloads, each downloading one short chunk of an overall potentially unbounded transport stream

## How it works

We need to make copies of the original video with different formats, each format has a certain bitrate.

So, the scenario of work will be: a web server accepts requests from clients and delivers all the resources (.m3u8 playlist file and .ts segment files) needed for streaming.

.m3u8 is a file that contains references of the fragmented files (.ts files)

Then, when the client has the .m3u8 file, he can determine what the suitable quality for him.

## PHP/FFMPEG APIs

->exportForHLS(): make the video stream able

->addFormat(\$BitrateFormat): choose a bitrate to format the video

## presenting the video streaming on the web page

used the **Video.js** library with **vjs-quality-picker**, this library take the .m3u8 file and as its content, it will map each quality number to its video URL.

## Resources

[https://en.wikipedia.org/wiki/HTTP\\_Live\\_Streaming](https://en.wikipedia.org/wiki/HTTP_Live_Streaming)

[https://en.wikipedia.org/wiki/Adaptive\\_bitrate\\_streaming](https://en.wikipedia.org/wiki/Adaptive_bitrate_streaming)

<https://github.com/PHP-FFMpeg/PHP-FFMpeg>

<https://github.com/protonemedia/laravel-ffmpeg#hls>