

# Multimedia Data Categories

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## Abstract

Storing multimedia data is a task of storing several media data such as text, images, audio and video. This paper defines three different ways of storing multimedia data as a single item – as a single file, a file collection or a zip-container. Multimedia streaming is not considered.

## Categories of multimedia data

Multimedia experiences combine different media types. According to Dr. Dave Marschall from the Cardiff University this includes text, images, graphics, audio, video and animation [1]. A simple example is a text document with images. An other simple example is a video with subtitles. And all websites with text and pictures we enjoy on the web browser are a combination of different media types too.

The data of the certain media types usually are stored in data formats, that are typical (or optimized) for that media type. So, if there is several media types involved, the question is, how the different media data can be stored as a single item? Engineers found several solutions. If we only talk about storing but not about streaming multimedia data, the solutions can be divided into three categories. This paper distinguishes these three categories of storing multimedia experiences:

- single file,
- file collection,
- zip-container.

## Examples of multimedia data stored in a single file

- **PDF files**  
PDF files store documents, containing text and also pictures, and sometimes even more media formats in a single file.
- **JPEG files**  
Photos taken by modern digital cameras often are stored in files, using the JPEG compression. These files often contain additional data in EXIF format.
- **MP3 files**  
Music and other audio, stored in MP3 files often contains metadata and pictures in the ID3v2 format.

## Examples of multimedia data stored as a file collection

- **Web pages**

Web pages are stored at the web server in several files. The file types are: HTML, CSS, JavaScript, picture files (JPEG, PNG, SVG), audio and video files (MP3, MP4 and so on). Although a HTML file may contain CSS, JavaScript, SVG, etc., typically the different data is stored in different files.

- **MP3 files together with LRC files**

Many MP3 player show the lyrics in sync with the sound, if there is a LRC file of the same name.

- **MP4 files together with SRC files**

The VLC media player shows subtitles in sync with the video, if there is a SRT file of the same name as the video file.

## Examples of multimedia data in a zip-container

- **EPUB**

The files of E-books in the EPUB format are zip-container, containing files similar to files for storing web sites. So, they contain files of these types: HTML (or XHTML), CSS, JPEG, etc.

- **EPUB Media Overlays**

E-books in the EPUB format may contain audio book data. Media Overlays are an extension to the EPUB format, used for that purpose.

## References

- [1] Dr Dave Marshall, Introduction to Multimedia. What is Multimedia?,  
<https://users.cs.cf.ac.uk/Dave.Marshall/Multimedia/node10.html> (last visited at 2020-05-19)