

## Media Formats and Codecs

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File formats are very different to codecs. Codecs are ways to compress data files, file formats are the file extension (.file).

We use rich media in many day to day situations, for example, DVD video, mobile phone video or internet video, or iTunes MP3, or other MP3. Codecs and formats play a large part in how we use and can view audio or video data.

This list is compiled into video (descending quality order) and audio (main formats), with some information on good media players and open source codec packs.

### Video

**HD video:** [[http://en.wikipedia.org/wiki/High-definition\\_video](http://en.wikipedia.org/wiki/High-definition_video)]

HD refers to high definition video with higher resolution than is standard (SD, 720 x 576 and lower). Commonly this means 1280 x 720 pixels and above. This is high definition video, not to be confused with high definition television (HDTV), which is different.

**Blueray:** [[http://en.wikipedia.org/wiki/Blu-ray\\_Disc](http://en.wikipedia.org/wiki/Blu-ray_Disc)]

Blueray is not so much a format as a delivery platform for DVD high definition video, or other data storage.

**DV and miniDV:** [<http://en.wikipedia.org/wiki/DV>]

DV was developed by Sony, JVC, Panasonic and others in the mid 90's as a high quality recording format for video. It is similar in quality to MPEG2. It was a huge improvement on previous semi pro formats (e.g. video 8). It is also used in some professional situations like broadcast TV news programmes.

**Video CD (VCD):** [[http://en.wikipedia.org/wiki/Video\\_CD](http://en.wikipedia.org/wiki/Video_CD)]

A common term for video on a CD. Video CD uses various codecs to achieve long films on small data storage space (less than 700MB). It includes KVCD, XVCD and DVCD. VCD is normally MPEG1 compressed at constant bitrate.

**MPEG2:** [<http://en.wikipedia.org/wiki/MPEG-2>]

Mpeg2 is widely used for terrestrial and satellite television broadcast. It is also the core of most digital television and DVD formats.

**M2v (MPEG2 video):** [<http://en.wikipedia.org/wiki/M2V>]

This is a video only file, and must be accompanied by a separate audio file (wav or aiff) to have audio heard. This is DVD quality, and is required for use with Adobe Encore DVD authoring software. When exporting using Adobe Premier pro, an audio and video file will be exported separately.

**MPEG1:** [<http://en.wikipedia.org/wiki/MPEG-1>]

The most well known aspect of MPEG1 compression is mp3 audio. However, video CD and much digital television use MPEG1 too. It is a half way house between the higher data ratios of MPEG2 and the more intense compression of avi or similar formats. It is able to retain high quality of perceived data while managing good compression of files.

**Audio Video Interleave (avi, asf):** [[http://en.wikipedia.org/wiki/Audio\\_Video\\_Interleave](http://en.wikipedia.org/wiki/Audio_Video_Interleave)]

Originally developed by Matrox, for Microsoft platform, AVI can now be viewed using the QuickTime or VLC player on Apple Mac. This format includes audio and video data. The .asf is a streaming format of an avi file. There are several other ways to compress AVI files, listed below:

**Divx:** [<http://en.wikipedia.org/wiki/DivX>]

Uses MPEG4 standard, originally for the divx player, but can be viewed on a wide variety of players and provides excellent quality for the web. Drawback is that most people do not have the divx web player installed. Divx is proprietary software.

**Xvid:** [<http://en.wikipedia.org/wiki/Xvid>]

Xvid (divx spelt backwards) is the main competition to Divx and is an open source (free) divx type codec. It also uses MPEG4 standard, and can achieve great quality compressed files.

**MPEG4:** [<http://en.wikipedia.org/wiki/MPEG-4>]

MPEG4 is a developing format based on MPEG2 and MPEG1. The most common use of MPEG4 is in mobile video, using the MP4 file extension. It is the format of choice for the Apple iPhone, though it can be used for many other applications and most players will be able to view mp4 files. It is capable of high quality at small file sizes.

**Matroska (mkv):** [<http://www.matroska.org/>]

Matroska files are audio or video, and are increasingly popular for compressing larger files into more manageable sizes. The disadvantage of this format is that you must have very up to date codec packs installed, or at least be using the VLC media player.

**Windows Media (wmv):** [[http://en.wikipedia.org/wiki/Windows\\_Media](http://en.wikipedia.org/wiki/Windows_Media)]

Windows Media is a windows platform video format. It is now quite old and also is not very efficient in quality versus file size. It cannot be viewed by Apple Mac.

**QuickTime (mov):** [<http://en.wikipedia.org/wiki/QuickTime>]

QuickTime is an Apple Mac developed player and media format, which can be used with the Windows or Apple Mac platform. QuickTime can play a number of media files, including virtual panoramas. The player can also play Avi and MP4 files.

**Flash Video (flv):** [[http://en.wikipedia.org/wiki/Flash\\_Video](http://en.wikipedia.org/wiki/Flash_Video)]

Flash video is the format of choice for delivering video on the web. As 97% of internet browsers have the flash player installed, it makes it easier to use Flash video than any other format when embedding a video in a webpage. Though you do need the Adobe Flash player to view the video, you can make .flv files using free software like the Riva Encoder (<http://rivavx.com/?encoder>), as well as the Adobe Flash Video Encoder, which comes bundled with the Adobe Flash authoring environment.

## Real Media

Real media are proprietary media data formats from RealNetworks that usually require the [Real Player](#) (though sometimes the VLC player can play Real Media). Apple Mac, Linux and Windows platforms can all use the Real Player. To make Real Media you must use Real Producer software. There are several file extensions associated with Real Media:

**rm** – real media

**ram** (streaming file) – real audio media

**rmvb** – real media variable bitrate

**rv** – real video

## Mobile Formats

Some main mobile media formats:

MP4 (see above)  
3gp, 3g2, 3gpp  
AMR audio (amr, awb)

The Real Player (see above) is often the default player for mobile media file formats.

Mobile Media Converter (free)  
<http://www.miksoft.net/mobileMediaConverter.htm>

## Audio

Audio formats can either be Windows, Apple Mac or open source. Main formats and qualities are listed below:

*wav* – high quality, mastering (44 or 48kb)  
*aiff, aif* – Mac versions of wav files, high quality  
*mp3* – various qualities, from 128 kb to 320 kb.  
*m3u* (streaming) – streaming file to play an mp3 without downloading it.  
*wma* – windows media audio

*Ogg Vorbis* – open source audio codec [<http://www.vorbis.com/>]  
*FFMPEG* – open source audio (and video) codec [<http://www.ffmpeg.org/>]  
*Lame* - mp3 open source codec [<http://lame.sourceforge.net/>]

## Good Media Players

Media player classic (enhanced version of windows media player version 6.4)  
[http://www.free-codecs.com/download/Media\\_Player\\_Classic.htm](http://www.free-codecs.com/download/Media_Player_Classic.htm)

VLC player (VideoLan)  
<http://www.videolan.org/vlc/>

KMPlayer  
<http://kmplayer.en.softonic.com/>

BS Player  
<http://www.bsplayer.org/en/bs.player/download/>

## Open Source codec packs

K Lite codec pack  
[http://www.free-codecs.com/download/K\\_lite\\_codec\\_pack.htm](http://www.free-codecs.com/download/K_lite_codec_pack.htm)

CCCP codec pack  
[http://www.cccp-project.net/wiki/index.php?title=Main\\_Page](http://www.cccp-project.net/wiki/index.php?title=Main_Page)

Nimo codec pack  
[http://www.free-codecs.com/download/nimo\\_codec\\_pack.htm](http://www.free-codecs.com/download/nimo_codec_pack.htm)