About MPEG (Moving Picture Experts Group) file format

.mpg is one of a number of file extensions for MPEG-1 or MPEG-2 audio and video compression. MPEG-1 Part 2 video is rare nowadays, and this extension typically refers to an MPEG program stream (defined in MPEG-1 and MPEG-2) or MPEG transport stream (defined in MPEG-2). Other suffixes such as .m2ts also exists specifying the precise container, in this case MPEG-2 TS, but this has little relevance to MPEG-1 media.

MP3 is an audio-specific format that was designed by the Moving Picture Experts Group (MPEG) as part of its MPEG-1 standard and later extended in MPEG-2 standard.

**MPEG-1**

MPEG-1 is a standard for lossy compression of video and audio. Development of the MPEG-1 standard began in May 1988. Fourteen video and 14 audio codec proposals were submitted by individual companies and institutions for evaluation. MPEG-1 is designed to compress VHS-quality raw digital video and CD audio down to 1.5 Mbit/s (26:1 and 6:1 compression ratios respectively) without excessive quality loss, making video CDs, digital cable/satellite TV and digital audio broadcasting (DAB) possible.

Today, MPEG-1 has become the most widely compatible lossy audio/video format in the world, and is used in a large number of products and technologies. Perhaps the best-known part of the MPEG-1 standard is the MP3 audio format it introduced.

The MPEG-1 standard is published as ISO/IEC 11172 – Information technology—Coding of moving pictures and associated audio for digital storage media at up to about 1.5 Mbit/s. The standard consists of the following five Parts:

**Systems**

Specifies the system layer of the coding. Was developed principally to support the combination of the video and audio coding methods defined in ISO/IEC 11172-2 and ISO/IEC 11172-3. The system layer supports the following basic functions: the synchronization of multiple compressed streams on playback, the interleaving of multiple compressed streams into a single stream, the initialization of buffering for playback start up, continuous buffer management, and time identification.

**Video**

Specifies the coded representation of video for digital storage media and the decoding process. Is primarily applicable to digital storage media supporting a continuous transfer rate up to about 1.5 Mbit/s, such as compact disc, digital audio tape, and magnetic hard disc, and for non-interlaced video formats having approximately 288 lines of 352 pels and picture rates around 24 Hz to 30 Hz. Nevertheless it can be used more widely than this because of the generic approach taken.

**Audio**

Specifies the coded representation of high quality audio for storage media and the method for decoding of high quality audio signals. Is intended for application to digital storage media
providing a total continuous transfer rate of about 1.5 Mbit/s for both audio and video bitstreams, such as CD, DAT and magnetic hard disc, and for sampling rates of 32 kHz, 44.1 kHz, and 48 kHz.

**Conformance testing**

Specifies how tests can be designed to verify whether bitstreams and decoders meet requirements specified in parts 1, 2 and 3 of ISO/IEC 11172. Summarizes the requirements, cross references them to characteristics, and defines how compliance with them can be tested. Gives guidelines how to construct tests and determine their outcome. Defines some actual tests only for audio.

**Reference software**

Coding of moving pictures and associated audio for digital storage media at up to about 1.5 Mbit/s — Part 5: Software simulation, example software showing how to encode and decode according to the standard

<table>
<thead>
<tr>
<th>MPEG-1 Parts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part</td>
</tr>
<tr>
<td>Part 1</td>
</tr>
<tr>
<td>Part 2</td>
</tr>
<tr>
<td>Part 3</td>
</tr>
<tr>
<td>Part 4</td>
</tr>
<tr>
<td>Part 5</td>
</tr>
</tbody>
</table>

MPEG-1 video and Layer I/II audio may be able to be implemented without payment of license fees. The ISO patent database lists one patent for ISO 11172, US 4,472,747, which expired in 2003. The near-complete draft of the MPEG-1 standard was publicly available as ISO CD 11172 by December 6, 1991. Due to its age, many of the patents on the technology have expired. Neither the Kuro5hin article "Patent Status of MPEG-1, H.261 and MPEG-2" nor a thread on the gstreamer-devel mailing list were able to list a single unexpired MPEG-1 video and Layer I/II audio patent. A discussion on whatwg mentioned the now expired US 5,214,678 patent as a possible patent on audio layer II. A full MPEG-1 decoder and encoder can not be implemented royalty free since there are companies that require patent fees for implementations of MPEG-1 Layer 3 Audio as discussed in the MP3 article. HD Video Converter will create a pretty simple solution for both Windows and Mac users to play MPG files on Nokia Lumia 920.

**MPEG-1 Layer 3 audio**

MPEG-1 or MPEG-2 Audio Layer III, more commonly referred to as MP3, is a patented encoding format for digital audio which uses a form of lossy data compression. It is a common audio format for consumer audio storage, as well as a de facto standard of digital audio compression for the transfer and playback of music on most digital audio players.
.mp3 is the most common extension for files containing MPEG-1 Layer 3 audio. An MP3 file is typically an uncontained stream of raw audio; the conventional way to tag MP3 files is by writing data to “garbage” segments of each frame, which preserve the media information but are discarded by the player. This is similar in many respects to how raw .AAC files are tagged.

**MPEG-2**

MPEG-2 is a standard for “the generic coding of moving pictures and associated audio information”. MPEG-2 describes a combination of lossy video compression and lossy audio data compression methods which permit storage and transmission of movies using currently available storage media and transmission bandwidth.

**MPEG-4**

MPEG-4 is a method of defining compression of audio and visual (AV) digital data. It was introduced in late 1998 and designated a standard for a group of audio and video coding formats and related technology agreed upon by the ISO/IEC Moving Picture Experts Group (MPEG) under the formal standard ISO/IEC 14496 – Coding of audio-visual objects. Uses of MPEG-4 include compression of AV data for web streaming media and CD distribution, voice, telephone, videophone and broadcast television applications.

MPEG-4 absorbs many of the features of MPEG-1 and MPEG-2 and other related standards, adding new features such as (extended) VRML support for 3D rendering, object-oriented composite files (including audio, video and VRML objects), support for externally specified Digital Rights Management and various types of interactivity.

MPEG-4 is one of the latest audio and video compression method standardized by MPEG group, designed especially for low-bandwidth (less than 1.5MBit/sec bitrate) video/audio encoding purposes. Companies promoting MPEG-4 compatibility do not always clearly state which “part” level compatibility they are referring to. The key parts to be aware of are MPEG-4 part 2 including
Advanced Simple Profile, used by codecs such as DivX, Xvid, Nero Digital and 3ivx and by QuickTime 6 and MPEG-4 part 10 (MPEG-4 AVC/H.264 or Advanced Video Coding, used by the x264 encoder, by Nero Digital AVC, by QuickTime 7, and by high-definition video media like Blu-ray Disc). MPEG-4 Converter is compatible with Mac OS X and Windows operating system. You can convert HD MP4 to other video formats, or convert other video files to HD MP4 format. AVC-Intra is Panasonic’s 10-bit codec that implements a newer and more efficient broadcast master-quality h.264 compression.


http://www.hd-converter.com/convert-hd/mpeg-4-mp4-for-mac-mountain-lion-or-windows-8.html

http://en.wikipedia.org/wiki/MPEG-4