

# VMPEG (Version 1.6a Lite) Help Contents

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# Copyright

VMPEG 1.6a is copyrighted software, © Stefan Eckart, 1995. You may use, copy and distribute this program solely for demonstration purposes, only in unmodified form and without charging money for it. Commercial use of this demonstration version is strictly prohibited.

**Disclaimer:** This program comes without any warranty. You are using it at your own risk.

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Email is preferred. Suggestions for improvements and bug reports are highly appreciated. Although I can not answer all VMPEG related emails due to time constraints, all of them are taken into account for future releases.

## About VMPEG

VMPEG is a fast viewer for MPEG encoded video sequences (.mpg files). VMPEG plays MPEG system layer streams containing both video and audio. Streams from Compact Disc (CD-I, Video CD) are of this type. VMPEG also plays video compression layer streams containing no audio. This type of stream is the predominant one on the World Wide Web (WWW). Audio only streams (\*.mp2) are currently not supported.

'Real-time' video and audio playback of Video CD type streams (352x288 or 352x240 resolution, 1.5 Mbit/sec, multiplexed video/audio streams) requires at least a '486DX2/66 with a VLB or PCI graphics card. For good results a Pentium 90 is recommended. A '386DX/33 is sufficient for playback of video only streams of up to about 176x144 (QCIF). VMPEG does not run on '286 processor systems.

VMPEG now comes with an MCI driver which permits using the Media Player (and other MCI based applications) to play MPEG files in a manner similar to Video for Windows AVI files. The most noticeable advantage of using the MCI driver is random access into the MPEG stream (via the position slider of the MPEG player). Please refer to the file README.TXT for further information on how to install the MCI driver.

The speed of the standard Windows 3.1 graphics device interface (GDI) is not adequate for smooth playback of video sequences. To improve speed, it is recommended to install WinG, a Windows extension which considerably accelerates screen output. While WinG is included in the full VMPEG archive, it is also available separately by anonymous ftp:

WinG: [ftp.microsoft.com:/developr/drg/WinG/WinG10.ZIP](ftp://microsoft.com:/developr/drg/WinG/WinG10.ZIP)

and somewhere on CompuServe.

The 'official' distribution site for VMPEG is currently

[ftp.netcom.com:/pub/cf/cfogg/vmpeg/](ftp://netcom.com:/pub/cf/cfogg/vmpeg/)

Refer to this location for the most recent release of VMPEG.

MPEG (Moving Pictures Expert Group) is a video compression algorithm standardized by the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC) as ISO/IEC IS 11172. Main application of MPEG is the storage and retrieval of video on/from Compact Disc at a rate of about 1.5 Mbit/sec.

## Demonstration vs. Full version

VMPEG 1.6a Lite is a demonstration version. While video playback is unlimited, audio is restricted to the first 15 seconds of an MPEG sequence and stereo playback is inhibited.

The full version of VMPEG, currently in the final test stage (and I am still looking for distributors), provides unrestricted stereo audio output, direct playback from Video CD and CD-i, and DCI support.

The Display Control Interface (DCI), defined by Intel and Microsoft, is a driver-level interface providing device-independent access to video output related graphics card features like color-space conversion, image sizing (interpolation to full-screen), and graphics overlays.

The Media Control Interface is part of the Windows Multimedia API. It allows the unified control of multimedia devices (CD audio discs, MIDI synthesizers, waveform sound data in- and output, etc.) by high-level commands. These may either be text strings (e.g. "play test.mpg") or program calls using predefined data structures.

## Loading an MPEG stream

Use the File->Open... menu item to select an MPEG stream for playback. This will stop and close the previously selected stream.

The second method for loading an MPEG stream is by starting VMPEG with a command line containing the file name of the stream as a parameter. This is for example used for playing MPEG files from a WWW browser. Upon several user requests, VMPEG no longer automatically terminates when reaching the end of the stream.

If you register the .mpg extension with the file manager, you can play MPEG files simply by double clicking them.



## Audio Configuration

Enter the audio configuration dialog by selecting the Configure->Audio... menu item.

**Audio On / Off** lets you turn audio on or off. This, like the other audio configuration options, becomes only effective after the next Play command.

The **8 bit / 16 bit** option determines the data format of the decoded audio. As the speed penalty for 16 bit audio is negligible, the only use for this option is to cope with 8 bit sound cards which don't support 16 bit waveform data.

The **-12dB / 0dB / +12dB** option controls playback volume. This may be useful to avoid distortion with audio data recorded at a very high level or quantization noise with very low volume audio (especially in 8 bit mode).

**Mono / Left / Right** selects the channel for multi-channel audio (stereo or dual channel). Mono plays the sum of both channels. This demonstration version does not support stereo playback.

## Video Configuration

Enter the video configuration dialog by selecting the Configure->Video... menu item.

**Gray / 8 bit / 8 bit 4x / 24 bit** selects the display format. Grayscale display is fastest while 24 bit gives best quality. 8 bit display is in most cases the best choice, combining high display speed with moderate color reproduction. The 8 bit 4x mode stretches the display by a factor of 2 in each direction.

**Sync / All / I&P / I / fps** determines which frames are to be displayed and at what speed. Sync selects synchronous display, achieved by either repeatedly displaying or by skipping frames. Sync mode is required for synchronous playback of video and audio. fps permits manual setting of the playback speed in the range of 1 to 60 frames per second (fps). The All option displays all frames at maximum speed, I&P skips B frames, I skips both B and P frames.

The **WinG** checkbox enables WinG. This can drastically improve playback speed on Windows 3.x, especially for VLB and PCI graphics cards. This option requires installation of the WinG Windows extensions, see [About VMPEG](#).

## Controls

The main window of VMPEG contains four buttons: **Stop**, **Play**, **Pause**, **Step**. These are used to control playback of the selected MPEG stream. The same functions are also available as menu items in the **Control** menu.

Press **Stop** (or **F5**) to end playback of the MPEG stream. This will rewind the stream to the beginning. You can also stop playback by closing the video window (by double clicking the system menu button).

Press **Play** (or **F6**) to start playback of a stopped MPEG stream or to continue playback of a paused stream.

Press **Pause** (or **F7**) to temporarily stop playback of the MPEG stream. To continue playback, press Play. To step forward through the sequence press Step.

Press **Step** (or **F8**) to step forward through a paused MPEG stream. Each step will advance to the next video frame.

## Information and Statistics

The Help menu contains two entries providing additional information.

The **Stream Info...** item displays information contained in the headers of the video and audio streams. The coding pattern shows the picture types used for the first couple of frames in the sequence (I = intra coded pictures, P = predictive coded pictures, B = bidirectionaly interpolated pictures). Sequence headers are denoted by an **s**, Group of Pictures headers by a **g**.

The **Performance Stats...** item shows the effective frame rate of the most recently played MPEG stream. It is only updated if the stream is played completely. If you stop playback by pressing the Stop control button, the statistics are not updataed.

## References

1. Coding of moving pictures and associated audio for digital storage media up to about 1,5 Mbit/s, International Standard ISO/IEC IS 11172, 1993.
2. Stefan Eckart, High performance software MPEG video player for PCs, Proceedings of the IS&T/SPIE Symposium on Electronic Imaging: Science & Technology / Digital Video Compression: Algorithms and Technologies 1995.
3. Documentation of the MSSG MPEG-2 codec (mpeg2codec, see below).
4. Documentation of the PVRG MPEG software: a thorough overview covering many aspects of MPEG.

## Related Software

Note: this list is perhaps not quite up-to-date

This list is definitely incomplete, but it's all I have at my fingertips. Of course there are programs for other systems as well (Mac, Amiga etc.). A variety of additional MPEG related resources are listed in

[ftp.netcom.com:/pub/cf/cfogg/other\\_ftp\\_sites](ftp.netcom.com:/pub/cf/cfogg/other_ftp_sites)

**mpeg2codec** MPEG-1 and MPEG-2 codec from the MPEG Software Simulation Group  
Authors: Stefan Eckart, Chad Fogg, Cheung Aeyung, Sorin Papuc  
Includes source code for Unix X11 and Windows (Win32s / NT) and compiled versions for PC.  
[ftp.netcom.com:/pub/cf/cfogg/mpeg2/\\*](ftp.netcom.com:/pub/cf/cfogg/mpeg2/*)

**mpeg2play** a speed optimized version of the decoder from mpeg2codec  
[ftp.netcom.com:/pub/cf/cfogg/mpeg2/mpeg2play\\*](ftp.netcom.com:/pub/cf/cfogg/mpeg2/mpeg2play*)

**mpeg\_play** V2.1R1, part of Berkeley MPEG Tools (Version 1.0; Release 1; May 10, 1995)  
Authors: Lawrence A. Rowe, Ketan Patel, Brian Smith, et al., Computer Science Division-EECS, Univ. of Calif. at Berkeley  
<mm-ftp.cs.berkeley.edu/pub/multimedia/mpeg/bmt1r1.tar.gz>

**cmpeg** an MPEG encoder for the PC (DOS, 640K, no '386 req.) for Targa, PBPLUS and Alchemy RAW images  
Author: Stefan Eckart  
<garbo.uwasa.fi:/pc/graphics/cmpeg10.zip>

**dmpeg** MPEG decoder and player for the PC (DOS, 640K, VGA)  
Author: Stefan Eckart  
<garbo.uwasa.fi:/pc/graphics/dmpeg11.zip>

**mpegwin** Port of mpeg\_play for MS-Windows  
Author: Michael Simmons, [msimmons@ecel.uwa.edu.au](mailto:msimmons@ecel.uwa.edu.au)  
<ftp.ecel.uwa.edu.au:/users/michael/mpegw32h.zip>  
(US mirror: <ftp.netcom.com:/pub/ms/msimmons/mpegw32h.zip>)  
(HiColor & TrueColor support, Shareware)

**mpeg.exe** DOS MPEG player from Xing Technologies (XingIt V2.1)  
(high speed, but decodes only a small subset of the MPEG standard, audio (.WAV,.MP2) support, Windows)  
[mpegview.zip](#) (available from many ftp sites)

MPEGv1.1/1.2alpha      MPEG Software Encoder/Decoder  
Authors: Portable Video Research Group (PVRG)  
[havefun.stanford.edu:/pub/mpeg/MPEGv\\*.tar.Z](http://havefun.stanford.edu/pub/mpeg/MPEGv*.tar.Z)

display a display program for pictures and animations including MPEG (based on mpeg\_play)  
Author: Jih-Shin Ho, [u7711501@bicmos.ee.nctu.edu.tw](mailto:u7711501@bicmos.ee.nctu.edu.tw)  
[NCTUCCCA.edu.tw:/PC/graphics/disp/disp\\*.zip](http://NCTUCCCA.edu.tw/PC/graphics/disp/disp*.zip)

mplex an MPEG-1 system layer multiplexer; combines separate MPEG-1 encoded video and audio into a single multiplexed system layer stream  
Author: Christoph Moar, [moar@informatik.tu-muenchen.de](mailto:moar@informatik.tu-muenchen.de)  
[ftp.informatik.tu-muenchen.de:/pub/comp/graphics/mpeg/mplex/mplex-1.0a\\_beta.tar.gz](http://ftp.informatik.tu-muenchen.de/pub/comp/graphics/mpeg/mplex/mplex-1.0a_beta.tar.gz)

musicin, musicout      ISO MPEG committee audio codec, supports layer I and II  
[sunsite.unc.edu:/pub/electronic-publications/IUMA/audio\\_utils/converters/](http://sunsite.unc.edu/pub/electronic-publications/IUMA/audio_utils/converters/)

