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INFOGRAPHIC – The History of Digital Video File Formats

## INFOGRAPHIC – THE HISTORY OF DIGITAL VIDEO FILE FORMATS

By Real Team | Posted On April 22, 2012 | Video Formats

Can you believe it? In 2012, Americans are on track to watch more video streaming over the Internet than they will on DVD or Blu-ray combined, according to [a new study by IHS](#).

Consumers will pay to legally stream over 3.4 billion movies online, 1 billion more than physical media this year!

It's amazing to think how far we've come since 1984, when the very first digital video format (H.120) was developed. Even though it just had a max resolution of 176 x 144 and a pithy 2 Mbit/s bitrate, this breakthrough set the stage for digital video. Because of innovations that started with the H.120 digital video format, we are now able to stream very high quality videos and movies over the World Wide Web (in high definition).

In celebration of the growth of online streaming video, we put together a history/overview of digital file formats. Enjoy, and be sure to leave your comments below!

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# A BRIEF HISTORY OF DIGITAL VIDEO

## IN THE BEGINNING



... was the Ampex Quadruplex, the first successful video tape format. Released in 1956, it finally made video recordings "portable."

Although, with its 2" wide tape and mammoth docking bays, it was a far cry from today's thumb-sized storage devices and digital formats.

**What followed...** over the course of 3.5 decades was a series of analog video formats, from Betamax to JVC's failed analog HDTV cassette, W-VHS.



During that time, digital storage was created in the form of digital cassettes, laserdisc, and DVD. This all set the stage for modern digital formats.

### THE EVOLUTION OF COMPRESSION STANDARDS

### VIDEO COMPRESSION THE FILETYPES WE USE EVERY DAY

**H.120** 1984

**THE FIRST DIGITAL VIDEO STANDARD**

**BITRATE:** 2 Mbit/s  
**RESOLUTION:** 176 x 144 (30 frames/sec in black & white)

The first digital video standard was created by International Telecommunication Union - Telecommunication Standardization Sector, to get researchers on the same page with video encoding.

Researchers quickly learned that in order to stream video at a usable bitrate, groups of pixels would have to be coded together. This led to future standards, which finally compressed video practically.

**H.261** 1988

**THE BASIS OF ALL MODERN VIDEO STANDARDS ARRIVES**

**BITRATE:** 40 Kbit/s - 2 Mbit/s  
**RESOLUTION:** 352 x 288

Developed in 1988 by the International Telecommunication Union, H.261 is the first major digital video compression standard, and what most video standards and codecs were originally based on.

This is a historic milestone in digital video as the H.120 was not adequate quality for any real adoption.

**MPEG-1** 1991

**MPEG HITS THE SCENE**

**BITRATE:** 1.5 Mbit/s  
**RESOLUTION:** 352 x 288

Developed by the Movie Picture Experts Group, the MPEG-1 standard was designed for compressing VHS-quality video and compact discs down to 1.5 Mbit/s.

MPEG defined strictly how the bitstreaming and decoding of video files should be, but left the method of compressing and encoding video down open ended, which led to various encoders of varying efficiencies being developed based on this standard.

1992



Released in 1992, AVI was launched by Microsoft to be its video container for Windows. Due to its many limitations, including a lack of aspect ratio information, it has largely been replaced by WMV, part of the ASF container format.

**MPEG-2 (H.262)** 1994

**MPEG AND ITU JOIN FORCES, DECENT VIDEO EMERGES (THE NEXT ITERATION, H.263, QUICKLY FOLLOWS)**

**BITRATE:** 9.8 Mbit/s  
**RESOLUTION:** 720 x 480 (and lower)

MPEG-2, aka H.262, is developed jointly with ITU. It offers better resolution and higher bit rates, and became the standard video codec used by DVD and digital TV.

It evolved out of MPEG-1's shortcomings, mainly the lack of an easy way to encode higher resolution video, only 2 audio channels, one only color space, and lack of standardized support for interlaced video.

1997



Based on the H.263 standard, Real Networks' proprietary container, RM can hold Real Audio or Real Video Files (RV). Real Video was released in 1997 for streaming media over the web.

**MPEG-4, H.264, VC-1** 1998

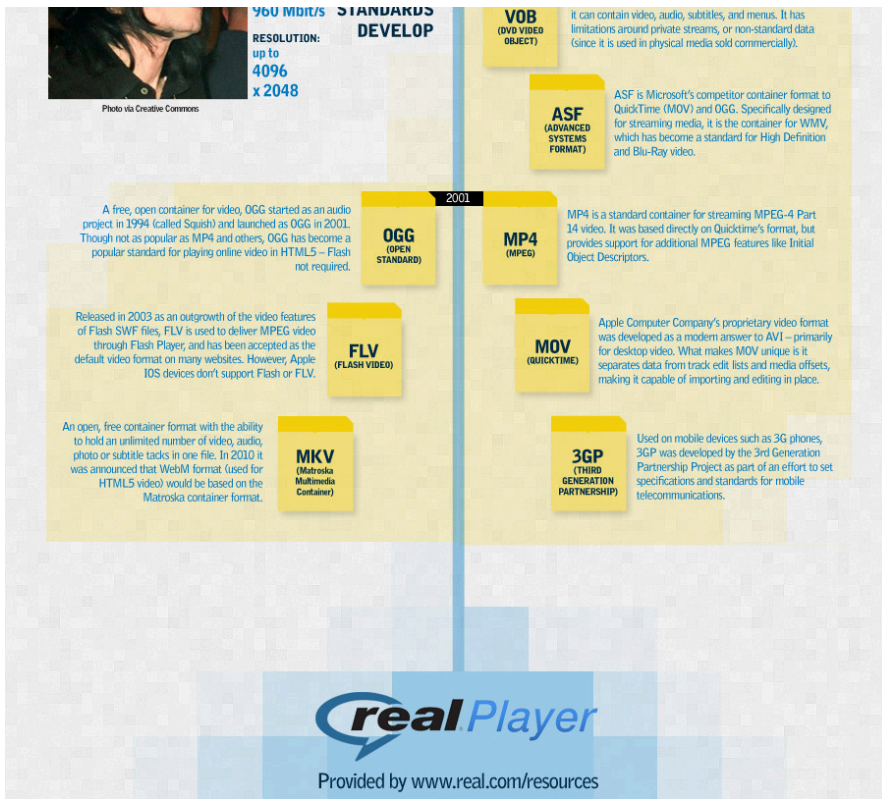
**MASSIVE LEAPS IN QUALITY AS MPEG-4 AND HI-DEF STANDARDS**

**BITRATE:** up to 20 Mbit/s

MPEG-4 was developed for better support for features like 3D rendering, digital rights management, and high resolution.

DivX, Xvid and other formats emerge based on the MPEG-4 (Part 2) standard. MPEG-4 (Part 10) and H.264 and Microsoft's VC-1 all emerge as standards that become part of Blu-Ray and HDTV.

VOB is the container format for DVDs. Based on MPEG,



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## About The Author

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