Public Beta

QuickTime 4

New Features

- Streaming Internet services
— Play live and stored streaming video and audio using standards-based low-bit-rate compressors and decompressors
— Experience smooth playback even over 28.8-Kbps modems
— Network protocol support: HTTP, RTP/RTSP, FTP
— URL data handler
— Ability to open an HTTP, RTSP, or FTP URL, including password-protected FTP sites, in the QuickTime Player
- Easy-to-use QuickTime Player interface
— Visible Timecode and audio EQ display
— Single-click access to your favorite QuickTime movies
- Automatic selection of the best-quality movie for a given Internet connection, processor speed, or spoken language
— Internet decompressors: H.263, GSM, MS DVI, RTP DVI, MPEG-1 Layer 3 (MP3)
- Small, fast dynamic Internet installer
— Component installation updates your system as you need it
- Optimized audio sample rate conversion for improved playback quality
- Bass, treble, and balance control
- Sophisticated lens flare and zoom effects
- QuickTime API support for Java
- QuickTime VR speed and accuracy improvements
- QuickDraw 3D support for compressed textures and wired sprite actions
- QuickDraw 3D performance improvements
- Media import and export for PNG, TIFF, TARGA, MacPaint, Macromedia Flash, and FlashPix formats (import only for FlashPix)
- Image sequence movie exporters

QuickTime™

QuickTime 4 software offers unparalleled quality, ease of use, and functionality for anyone authoring, publishing, or streaming digital media. QuickTime is not simply an application, but a complete technology for handling video, sound, animation, graphics, text, music, and even 360-degree virtual reality (VR) scenes. Now, with the introduction of QuickTime 4, media authors not only have access to the wealth of capabilities built into QuickTime, they also have the ability to stream digital video.

Enhancing the web experience

Web streaming for digital media

QuickTime 4 evolves the process of publishing video on the Internet into a practical, everyday experience. Through a combination of industry-standard streaming protocols and media compression technology, QuickTime 4 delivers perfectly synchronized audio and video streams with remarkable clarity and quality.

The QuickTime Player provides a simple, intuitive, elegant interface for playing back live or stored streaming video.

Other Web Features

- Fast Start. For HTTP streaming, the Fast Start feature of the QuickTime Plug-in has been extended to all QuickTime-enabled applications. It presents the first frame of a QuickTime movie or QuickTime VR scene almost immediately, and automatically begins playing the movie as it is downloaded.
- Movie "hot spots." You can attach URLs to specific areas of QuickTime and QuickTime VR movies, and to movie elements such as sprites, facets of QuickDraw 3D images, and text tracks. These URLs can link to other QuickTime movies, QuickTime VR panoramas, QuickTime 4 streams, objects, animations, music, text, web graphics, or separate web pages.
- Automatic web page launching. You can encode individual frames of QuickTime movies with URLs that will automatically open one or more specified web pages. The new pages can be displayed next to the still-playing movie. This is a very powerful way to link web-based or CD-based QuickTime movies to other links on the web.
- Poster frame previews of movies. You can embed still images representing QuickTime movies on a web page to enable the page to load faster. The full movie is streamed when the user clicks on one of these movie posters.
- Processor delivery. The QuickTime Plug-in can detect processor speed differences, and can allow media authors to send highly compressed materials to more robust systems for decoding and higher-quality playback.
- Data rate adjustments. The QuickTime Plug-in automatically selects the best version of a QuickTime movie for the viewer's connection speed. The author simply creates multiple versions of the finished movie, specifies which file should be selected for each rate of downloading, and puts a single link on the web page.
- Alternate languages. The plug-in can play alternate versions based on language options. For example, a single embedded link could reference movies with Spanish, French, and English sound tracks or text captioning. A particular language can be automatically selected based on the localized system software on the user's computer.

The broadcast receptor of the QuickTime Plug-in makes it possible to view unicast on demand and multicast streams using RTP/RTSP. You can save a QuickTime movie favorite (similar to creating a bookmark) to a data stream on a server with QuickTime 4, and play back these broadcasts through any QuickTime 4–enabled application, including the QuickTime Player, Macromedia Director, and Microsoft PowerPoint. Any application that supports playback of QuickTime movies through the standard Movie Controller can play live and on-demand streaming content.

High-quality, low-bandwidth productions for the web

Using QuickTime 4, you have access to more than 35 media formats for web content production. You can import video, audio, text, graphics, and other elements into a wide variety of authoring programs, including those from Adobe, Apple, Avid, Digital Origin, Eidos, Electrifier, Macromedia, Media 100, Scitex, Terran Interactive, Totally Hip software, and many more.

Once you've created the content you want to publish, you can compress it using a QuickTime compressor, such as Sorenson Video 2, QDesign Music 2, Qualcomm PureVoice, Intel Indeo, or Apple Cinepak. Sorenson Video gives extensive control over the video data stream, as well as scene and frame data, and the resulting video content can be displayed faster than ever before. The QDesign Music 2 compressor represents a breakthrough in audio encoding and decoding technology that enables unprecedented audio quality, creating file sizes small enough to play over a 28.8-Kbps modem.

Simply save your media file to disk or to a system containing QuickTime Streaming Server software. You can stream using your favorite compressors, scale the playback capabilities for different types of computers, disable "Save" to protect copyrighted works, add Macromedia Flash content directly to a QuickTime file, and create favorites for movie files.* All of this is possible using accepted industry standards for web distribution, including RTP, RTSP, SDP, HTTP, and FTP.

Support for multiple platforms and browsers

QuickTime offers a consistent interface and functions for accessing Internet multimedia content across all popular browsers and platforms. More than 130,000 web pages already use QuickTime and QuickTime VR movies to educate, inform, and entertain their site visitors. In addition, 140,000 web designers use QuickTime to prepare their content for the web. Now, with QuickTime 4, these web designers no longer need to convert their files from QuickTime to .RA or .ASF formats to stream their content. QuickTime streaming software enables direct playback of QuickTime movies from a QuickTime Streaming Server.

The QuickTime Plug-in enables Microsoft Internet Explorer, Netscape Navigator, and America Online browsers to display QuickTime-based media within a web page. This allows web designers to integrate dynamic content directly into their sites without requiring a separate helper application. The plug-in supports more than 30 different media types, including live and stored streams from QuickTime Streaming Servers and QuickTime VR, and makes it possible to view over 80 percent of all Internet media with a single plug-in.

*Some QuickTime Player features require QuickTime 4 Pro.

The standard for streaming digital video

Apple has been delivering quality digital video with QuickTime since 1991. Professionals have been using QuickTime to create television shows, special effects, interactive presentations, games, and more. Today, QuickTime is rapidly becoming the most popular distributed media technology for Windows- and Mac OS–based computers.

Millions of users

Since QuickTime is often included with the operating system, many people don't even know they have QuickTime—yet it's at work whenever they ask their computer to play a video, audio, or VR file. It's no wonder that top computer entertainment companies such as Broderbund, Cendant Software, CNN, Cyan, Disney, HBO, Macromedia, Mattel, McGraw-Hill, Microsoft, Prentice Hall, Pixar, SegaSoft, Voyager, and Warner Music all use QuickTime to deliver digital media. Only QuickTime provides such a high level of performance, compatibility, and quality.

An open standard

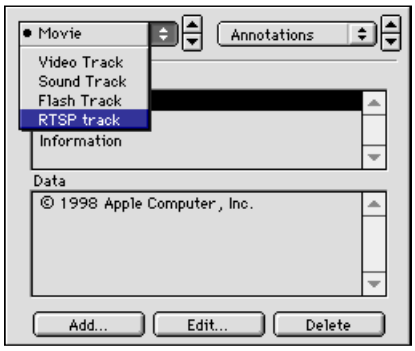
QuickTime embraces other standards and incorporates them into its environment. It supports every major file format for pictures, including BMP, GIF, JPEG, PICT, and PNG. QuickTime also supports every important professional file format for video, including AVI, AVR, DV, M-JPEG, MPEG-1, and OpenDML. Key standards for web streaming, including HTTP, RTP, and RTSP as set forth by the Internet Engineering Task Force, are supported as well. QuickTime supports Timecode tracks, including the critical standard for video Timecode set forth by SMPTE. And for musicians, QuickTime supports MIDI standards such as the Roland Sound Canvas and the GS format extensions.

QuickTime is not a proprietary environment. Not only can QuickTime movies be played back on both Windows- and Mac OS–based systems (including Windows 95, Windows 98, and Windows NT), it can also be used on web servers in UNIX, Windows, or Mac OS environments. QuickTime movies can also be played back in any standard web browser, including Microsoft Internet Explorer, Netscape Navigator, Netscape Communicator, and America Online.

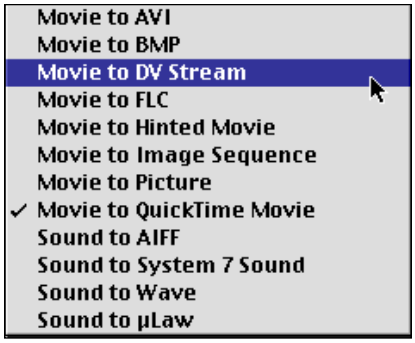
Unlike more limited or proprietary formats, QuickTime makes it easy to combine media types and authoring tools from multiple platforms. Content creators can work on the platform of their choice and then deliver the output to a wide range of playback devices and computer platforms. Robust multiplatform support dramatically reduces production time, because different creators can simultaneously work on the same content using different platforms. QuickTime 4 extends this capability to any RTP/RTSP standards-based server running a QuickTime Streaming Server.

Unsurpassed media-authoring capabilities

QuickTime is a powerful multiplatform foundation for dynamic media ranging from simple audio and still images to music, video, and even virtual reality. QuickTime has been used in stand-alone authoring and playback tools and has been incorporated into web browsers, word processing applications, database programs, and other software for Windows and Mac OS systems. Since QuickTime content can be viewed with the most popular systems and applications, it gives media producers access to the broadest possible audience—all of whom will experience QuickTime movies exactly as they were created.



QuickTime-enabled applications can open, combine, and use files from a variety of sources, including new Macromedia Flash tracks and RTSP URLs used in QuickTime streaming.



QuickTime provides new functionality to existing formats for Windows, such as AVI and WAV. You can export different kinds of tracks to be hinted for streaming, including FLC and AVI, without the need for additional hardware.

The new QuickTime Player provides enhanced user controls, a new look and feel, and the ability to save and bookmark your favorite movies, regardless of where they're stored. You can even save movie favorites that are stored on a web server elsewhere in the world. And QuickTime files can be viewed from any location that QuickTime is installed. You don't need a web browser to watch a streaming QuickTime file—you can use a Java applet; current versions of Microsoft Word, Microsoft Excel, FileMaker Pro, or Macromedia Director; or numerous other programs.

QuickTime provides unmatched backward compatibility. QuickTime movies produced in years past can easily be incorporated into new productions, including QuickTime 4 streaming content. With QuickTime 4 Pro, streaming tracks can be added to any QuickTime content with a click of the mouse. Simply saving files with the Hint Track feature enabled makes files ready for delivery on the Internet using a QuickTime Streaming Server.

Support for many media types

QuickTime can work with more types of media than any other technology. Whether you're creating streaming video web sites, CD-ROMs, DVDs, or professional video, QuickTime gives you the best options for quality and bandwidth efficiency.

- **Video.** QuickTime supports AVI, AVR, DV, OpenDML, and other professional digital video formats. Although AVI and other files can contain only audio and video, QuickTime can enhance these files with text, additional music tracks, and any other supported media types. QuickTime 4 features video compressors and decompressors that can handle needs ranging from CD-ROMs and DVDs to dial-up Internet access. QuickTime can stream video over the Internet even with 28.8-Kbps modems. QuickTime 4 includes Sorenson Video 2, which delivers the best possible video quality while maintaining the smallest file size. Sorenson Video incorporates the latest compression techniques, motion compensation, and data rate control methods to provide unmatched video at virtually any speed. With QuickTime, Cinepak, IMA, Intel Indeo Video, and the industry-standard H.263 compressor, you can target almost any audience, giving you the highest level of cross-platform compatibility.

- **MPEG format.** The MPEG standard for Macintosh is used extensively for consumer products, combining high-quality audio with low data rates. An Apple extension for QuickTime 4 for Macintosh provides direct access to MPEG-1 audio and video, including the popular MPEG-1, Layer 3 (MP3). You can also play back MP3 files with QuickTime 4 for Windows. The QuickTime file format for MPEG-4 has been chosen as an ISO standard, so QuickTime files you create today will be ready for MPEG-4 tomorrow.

- **Speech and music.** QuickTime brings high-quality digital audio to all types of applications, whether the audio is used by itself or with other media types. Support for Qualcomm's PureVoice technology gives media authors access to some of the highest-quality voice compression available, in a format so compact that it can be enjoyed over a 14.4-Kbps modem. Since PureVoice is optimized for speech, it offers a much more effective solution than multipurpose audio formats. QuickTime 4 also provides amazing audio fidelity for music at greatly reduced bit rates through support of the QDesign Music 2 compressor. This compressor represents a breakthrough in audio encoding and decoding technology by providing unprecedented fidelity at as little as 1 percent of the original file size. Such efficiency is vitally important for the bandwidth-limited situations frequently encountered on the Internet. For example, one minute of CD-quality audio can be reduced from an 11-megabyte file to a 150-kilobyte file that delivers full-bandwidth, 16-bit, 44.1-kHz stereo in real time over a 28.8-Kbps connection.

- **MIDI and music.** MIDI music is an integral part of the QuickTime architecture. It can be used alone or with video, animation, still images, or other visual elements. In addition to playing music through internal or external speakers, QuickTime can route musical information to external MIDI devices, effects processors, and drum machines. QuickTime 4 delivers CD-quality, low-bandwidth music by supporting over 200 instruments with the Roland Sound Canvas sound set. It also supports GS format extensions, which allow additional expressions for General or standard MIDI sequences. On Windows systems, QuickTime supports the use of the MIDI Mapper for use with external MIDI hardware.

- **Still images and pictures.** The extensive collection of still-image importers in QuickTime 4 allows media authors to leverage photography and illustrations created in a wide range of formats. QuickTime 4 now has the ability to open FlashPix images with PictureViewer and export to PNG, TIFF, TARGA, and MacPaint images, while supporting 16-bit-per-channel files. It also supports multiple images in TIFF, FlashPix, and Adobe Photoshop formats. To enable you to work easily within workgroups, QuickTime 4 supports BMP, GIF, JPEG, PICT, PNG, and SGI formats.

- **Text.** QuickTime supports searchable text tracks, with a Find command in the QuickTime Player or your custom application to allow content creators and users to quickly find a particular scene by searching through its script or annotation text. A single QuickTime movie can have multiple text tracks, simplifying the creation of multilingual movies. Text annotation can be used with any QuickTime-enabled media types: AVI for video files, and WAV, AIFF, or MPEG-1 for audio files. It can also be deployed as an HREF track, allowing you to embed URLs in your movies.

- **Animations and sprites.** Macromedia Flash animation can now be played with any QuickTime application, including the QuickTime Plug-in. For superior animation with compact files, QuickTime 4 integrates a curve-based vector animation compressor and flexible sprite capabilities. For some types of animations, these vector-based tools can produce a dramatically smaller file than traditional compressors and prerendered video tracks can produce. QuickTime 4 also supports alpha channel compositing and special effects up to 16 bits per pixel.

Robust media-authoring tools

Apple's QuickTime architecture is not just a single piece of software; it is a collection of more than 200 software components that can be mixed and matched as desired by developers. All these components work together seamlessly to provide many different media services. Its modular architecture is highly efficient, because each component is loaded into memory only when it is needed. It is also versatile, allowing media authors to work with multiple data sources and types in almost any combination. For example, a QuickTime file can include a video track, a spoken audio track, a music track, and a text track—all perfectly synchronized.

The modular design also provides a flexible framework for adding new components and technologies to QuickTime. Since all the major multimedia developers support QuickTime, content creators and users have a broad choice of add-on products that work extremely well together. QuickTime boasts the widest selection of media-authoring tools available, ranging from entry-level products to professional video editing stations offered by Avid, Digital Origin, Eidos, Media 100, Miro, Pinnacle/Truevision, Puffin, Sanyo, Scitex, Sony, and Terran Interactive. Since these products are all based on the QuickTime foundation, existing work can almost always be imported and enhanced when upgrading to more advanced software, protecting your investment in media files.

QuickTime 4 Pro

For those who need a tool to easily create, view, and store professional-quality video and audio content for the Internet, CD-ROMs, and DVD-ROMs, Apple offers QuickTime 4 Pro. QuickTime 4 Pro includes the QuickTime Player, PictureViewer, and the new QuickTime Plug-in, with the features you need to author, save, and deploy content. This software opens up a host of new possibilities for creating and delivering digital video and interactive Internet content—for consumers and professionals alike. From real-time viewing of high-quality movie clips over the Internet to effortless editing of home camcorder videos, QuickTime 4 Pro gives consumers access to the same authoring technologies used in professional media products. And the QuickTime Player has a new, user-friendly interface.

QuickTime 4 includes a complete set of built-in software-based effects, including cross-fade, chroma keying, SMPTE wipes, and color adjustments. Developer-defined effects and transitions are supported through a powerful plug-in architecture. The filters provided in QuickTime 4 include blur, edge detection, lens flare, zoom, emboss, film noise, HSL balance, RGB balance, and sharpen. There are also 11 basic video transitions (cross-fade, explode, implode, slide, wipe, and others), each of which can have many variations. The transition architecture is fully open and extensible, allowing third-party developers to add more transitions.

QuickTime 4 Specifications

Digital media file formats

Digital video

- AVI
- DV
- OpenDML
- QuickTime Movie

Digital audio

- AIFF/AIFC
- AU
- MPEG-1, Layer 1 (Macintosh)
- MPEG-1, Layer 2 (Macintosh)
- MPEG-1, Layer 3 (MP3)
- Sound Designer II
- WAV

Still images

- BMP
- FlashPix*†
- GIF*†
- JPEG/JFIF*†
- MacPaint
- Photoshop
- PICT*†
- PNG*†
- QuickTime Image File*†
- SGI
- TARGA
- TIFF*†

  ColorSync profile extracting and embedding for file formats that support them: JPEG/JFIF, QuickTime Image, FlashPix, PNG, GIF, TIFF, PICT

Animation

- 3DMF
- Autodesk Animator (FLC/FLI)
- Animated GIF
- PICS

MIDI

- Complete Roland Sound Canvas sound set
- Roland GS format extensions
- General MIDI
- Karaoke MIDI
- Support for MIDI Mapper in Windows*

Digital capture media types

- DV
- MIDI
- SMPTE Timecode
- Sound
- Text
- Video

Import/export file formats

Import file formats

- 3DMF
- AIFF/AIFC
- AU
- BMP
- DV
- FlashPix*‡
- JPEG/JFIF
- Macromedia Flash*‡
- MIDI
- Photoshop
- QuickDraw Picture
- QuickTime Movie
- Text
- WAV

Export file formats

- AIFF/AIFC
- AU
- AVI*
- BMP
- DV
- FLC*
- Image Sequence*
- JPEG/JFIF
- MacPaint*
- MIDI
- Photoshop
- PNG*
- QuickDraw Picture
- QuickTime Movie
- Text
- WAV
- TIFF*
- TARGA*

Compressed data formats

Video formats

- Animation
- Apple Graphics
- Apple Video
- ARGB
- CCIR 601
- Cinepak
- DV NTSC
- DV PAL
- GIF
- H.263
- H.261
- JPEG
- Microsoft Video 1
- Motion JPEG Format A
- Motion JPEG Format B
- OpenDML Motion JPEG
- Photoshop
- PNG
- RGB
- Sorenson Video 1 and 2
- TIFF
- Vector Animation
- Windows RLE
- Windows Uncompressed
- YUV 4:1:1
- YUV 4:2:2

Video supported through additional Apple extensions:

- MPEG-1 (Macintosh)

Video supported through third-party extensions:

- AVR (Avid Video Resolution)
- Duck TrueMotion V2.0
- Eidos Escape*
- Intel Indeo Video 4.4 and 3.2 (Macintosh)*
- Iterated ClearVideo

Audio formats

- 32-bit IEEE Floating Point
- 64-bit IEEE Floating Point per sample*
- ALaw 2:1
- AU
- DV
- GSM*
- IMA ADPCM
- LPC*
- MACE 3:1
- MACE 6:1
- MS ADPCM
- MS DVI*
- PCM (8, 16, 24, and 32 bits)
- QDesign Music 1 and 2
- Qualcomm PureVoice
- RTP DVI*

Audio supported through third-party extensions:

- G.723
- G.728

Media types

- 3D
- Macromedia Flash*
- MIDI
- MPEG
- Music
- Sound
- Streaming (RTSP)*
- Text
- Timecode (including SMPTE)
- Tween
- Video
- Virtual Reality (VR objects, VR panoramas)
- Sprite animation*

* New in QuickTime 4
† Support for 16-bit-per-channel files
‡ Import of multiple images and layers in FlashPix, Photoshop, PNG, TIFF, TARGA, MacPaint

Internet-related formats and additions

- QuickTime for Java classes*
- Publisher controlled “no-save” option*
- Automatic selection of the best-quality movie for a given Internet connection, processor speed, or spoken language*

Supported network protocols

- HTTP
- FTP*
- RTP*
- RTSP*
- SDP*
- URL*

RTP payload packetization formats

- 8- and 16-bit raw audio
- ALaw*
- DVI
- GSM
- H.261
- H.263+*
- JPEG
- LPC
- µLaw
- QDesign Music
- Qualcomm PureVoice
- Sorenson Video

Partial frame recovery for the following RTP payload formats

- H.261
- H.263+*
- JPEG*
- QDesign Music*
- Qualcomm PureVoice*
- Sorenson Video*

* New in QuickTime 4

Component classes

- Audio Digitizer
- Capture Channel
- Capture Interface Panel
- Clock
- Data Decompressor*
- Data Handler
- File Previewer
- Graphics Format Importer
- Image Compressor
- Image Decompressor
- Image Transcoder
- Interpolator
- Media Handler
- Movie Controller
- Movie Exporter
- Movie Importer
- Musical Instrument Provider
- Software Music Synthesizer
- Sound Compressor
- Sound Decompressor
- Sound Mixer
- Standard Image Compression
- Standard Sound Compression
- Stream and Protocol Component
- Video Digitizer
- Video Output

Hardware abstraction

- 3D Rendering
- Clock/Timers
- Digital Media Capture
- Image Compositing
- Image Compression
- Media Storage
- MIDI Synthesis
- Sound Compression
- Sound Mixing
- Sound Output

Browsers supported by the QuickTime Plug-in

- Microsoft Internet Explorer 3.0 or later for Macintosh and Windows
- America Online 3 or later for Macintosh and Windows*
- Netscape Navigator 3.0 or later for Macintosh and Windows

System Requirements

Windows-based systems

- Intel or compatible processor or any MPC2-compliant PC (minimum 66-MHz 486 processor; also supports Pentium, Pentium Pro, Pentium II with MMX, and Pentium III processors; Pentium processor recommended for effects, 3D, Sorenson Video, DV, RTP streaming features, or QDesign Music)
- At least 16MB of RAM
- Windows 95, Windows 98, or Windows NT 4.0 system software
- Sound Blaster or compatible sound card and speakers
- DirectX version 3.0 or later recommended

Mac OS–based systems

- 68020, 68030, 68040, or PowerPC processor (PowerPC processor recommended for effects, 3D, Floating-Point Audio, DV, MPEG, RTP streaming features, or QDesign Music)
- At least 8MB of RAM recommended for 68020, 68030, or 68040 processor–based systems; at least 16MB of RAM recommended for PowerPC processor–based systems
- Mac OS 7.1 or later

Availability

Both the Mac OS and Windows versions of QuickTime 4 software can be downloaded free of charge from the Apple QuickTime web site at www.apple.com/quicktime.

For More Information

For more information about these products, visit www.apple.com/quicktime.

Apple stands behind its products with world-class service and support. Offering quality parts, extended hardware service options, phone support, and support via the Internet, we provide you with support choices that meet your needs. For more information, visit www.apple.com/support.

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