

Understanding Codecs

What are codecs? How do they affect which video files you can and cannot play with your ScreenPlay Pro HD?

What is a codec?	2
Codecs and Multimedia File Types	2
ScreenPlay Pro HD – Supported Multimedia File Types	3
Why won't my video file play?	3
More Codec Compatibility	4



What is a Codec?

Like many terms in the high-tech world, the word “codec” has more than one meaning. The term originated as a shortened form of “encoder-decoder” and referred to a hardware circuit capable of converting an analog signal (audio or video) to digital data and/or decoding a digital data stream and changing it back to an analog signal. This meaning of codec now applies to any device or computer algorithm that encodes or decodes a signal.

Here are some examples:

- Computer microphones use codecs to create digital audio samples from raw analog sound signals.
- Telephone companies use codecs to convert binary (digital) signals to and from analog signals so they can be transmitted over both digital and analog networks.
- The process of creating a digital audio or video file uses codecs to encode the analog signal as digital data. Similarly, the process of playing back an audio or video file requires use of the same (or at least a compatible) codec to decode the digital data stream so it can be heard or viewed.

A second meaning of codec is “compressor-decompressor” and refers to any technology for compressing and decompressing data. For example, a .zip file is created with a software codec that uses a general data compression algorithm to encapsulate one or more files and decrease the file size. For audio and video files, this meaning of codec applies to any hardware or software that reduces the size of digital audio samples and video frames in order to speed up transmission and save storage space.

Compression/decompression codecs try to maintain audio and video quality while compressing the binary data. Some codecs use **lossy** methods that actually discard bits that most people cannot hear or see. **Lossless** codecs preserve all of the data of the original analog signal but are not as effective at reducing file sizes. MP3 is an example of a lossy audio codec, while WAV is a lossless codec.

Codecs and Multimedia File Types

Most audio/video files use both encoding and compression codecs, and there are thousands of audio and video codecs in use. The wide range of available codecs creates compatibility issues for any multimedia player – in order to decompress and decode an audio or video file, the player must have the codec that was used to create the file or a compatible codec that understands the file’s digital encoding and/or compression.

To add to the complexity, some audio and video file types are directly related to the type of codec used to create the file (for example, MP3 audio files or MPEG video files), while others are container formats that many codecs might use. A **container format** encapsulates both audio and video data, and often some form of metadata that synchronizes the audio and video streams. Some examples of well-known container formats include AVI, DivX, MP4, MKV, Ogg, ASF, and QuickTime’s MOV format.

With a container format, each of the data streams in the container may be handled by a different program, process or device. In order to render the container as integrated audio and video signals that you can view on a computer or your TV, the player must be able to interpret all of the codecs used to create the various data streams in the container. Multimedia players like the Iomega ScreenPlay Pro HD include the most widely used codecs for the file types they support, but there are still likely to be files that won’t display the video, audio, or both.



ScreenPlay Pro HD – Supported Multimedia File Types

The ScreenPlay Pro HD supports the following types of multimedia files. Keep in mind that some of the video file types are codecs (for example, MPEG-1) while some are containers that use multiple codecs for the various data streams included in the container.

NOTE: Although the ScreenPlay Pro HD supports the listed file types, it might not be able to support every codec used to create the files.

Audio	• AAC	• AC3 (Dolby Digital Encoding)
	• AIF	• DTS
	• MP3	• M4A
	• Ogg Vorbis	• PCM
	• WAV	• WMA

Video*	• MPEG-1
	• MPEG-2 – AVI, VOB
	• MPEG-4 – AVI, DivX 3.11, 4.x, 5.x, XviD
	• DivX HD
	• DVD

Photos	• BMP
	• JPG
	• JPEG

*Supported file extensions for videos and associated audio/support files include avi, dat, divx, mov, mp2, mp4, mpe, mpeg, mpg, m4a, m4v, vob, xvid, ifo, iso (DVD ISO), MKV, DMF, TS

Why won't my video file play?

The reason is in the note just before the table in the previous section. Just because two video files show up as the same file type, it doesn't mean that they were created with the same codecs. The ScreenPlay Pro HD includes the most common codecs for each supported file type, but it's impossible to cover all of the codecs simply because there are so many of them. Incompatibilities are bound to occur, and when they do, the file refuses to play nicely.

More Codec Compatibility

If you have a video file that won't play using your ScreenPlay Pro HD, you might be able to play it using the streaming Transcode Server software included with the drive. For detailed instructions, see "Using Transcode Server Software" in the series of white papers on "Making the Most of Your ScreenPlay Pro HD".

NOTE: The Transcode Server software may not be able to interpret all codecs.



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