

FLV File Format

A Flash Video file (.FLV) consists of a short header, and then interleaved audio, video, and metadata packets. The audio and video packets are stored very similarly to those in [SWF](#), and the metadata packets consist of [AMF](#) data.

FLV Header

Field	Data Type	Example	Description
Signature	byte[3]	"FLV"	Always "FLV"
Version	uint8	"\x01" (1)	Currently 1 for known FLV files
Flags	uint8 bitmask	"\x05" (5, audio+video)	Bitmask: 4 is audio, 1 is video
Offset	uint32_be	"\x00\x00\x00\x09" (9)	Total size of header (always 9 for known FLV files)

FLV Stream

Following the header is a stream of tags until EOF.

Field	Data Type	Example	Description
PreviousTagSize	uint32_be	"\x00\x00\x00\x00" (0)	Total size of previous tag, or 0 for first tag
Type	uint8	"\x12" (0x12, META)	Determines the layout of Body, see below for tag types
BodyLength	uint24_be	"\x00\x00\x0e" (224)	Size of Body (total tag size - 11)
Timestamp	uint24_be	"\x00\x00\x00" (0)	Timestamp of tag (in milliseconds)
Padding	byte[4]	"\x00\x00\x00\x00"	Reserved?
Body	byte[BodyLength]	...	Dependent on the value of Type

FLV Tag Types

Tag code	Name	Description
0x08	AUDIO	Contains an audio packet similar to a SWF SoundStreamBlock plus codec information
0x09	VIDEO	Contains a video packet similar to a SWF VideoFrame plus codec information
0x12	META	Contains two AMF packets, the name of the event and the data to go with it

FLV Tag 0x08: AUDIO

The first byte of an audio packet contains bitflags that describe the codec used, with the following layout:

Name	Expression	Description
soundType	(byte & 0x01) » 0	0: mono, 1: stereo
soundSize	(byte & 0x02) » 1	0: 8-bit, 2: 16-bit
soundRate	(byte & 0x0C) » 2	0: 5.5 kHz, 1: 11 kHz, 2: 22 kHz, 3: 44 kHz
soundFormat	(byte & 0xf0) » 4	0: Uncompressed, 1: ADPCM, 2: MP3, 5: Nellymoser 8kHz mono, 6: Nellymoser

The rest of the audio packet is simply the relevant data for that format, as per a [SWF](#) SoundStreamBlock

FLV Tag 0x09: VIDEO

The first byte of a video packet describes contains bitflags that describe the codec used, and the type of frame

Name	Expression	Description
codecID	(byte & 0x0f) » 0	2: Sorensen H.263, 3: Screen video, 4: On2 VP6
frameType	(byte & 0xf0) » 4	1: keyframe, 2: inter frame, 3: disposable inter frame

In some cases it is also useful to decode some of the body of the video packet, such as to acquire its resolution (if the initial onMetaData META tag is missing, for example).

TODO: Describe the techniques for acquiring this information. Until then, you can consult the [Project Description](#) sources.

FLV Tag 0x12: META

The contents of a meta packet are two [AMF](#) packets. The first is almost always a short uint16_be length-prefixed UTF-8 string ([AMF](#) type 0x02), and the second is typically a mixed array ([AMF](#) type 0x08). However, the second chunk typically contains a variety of types, so a full [AMF](#) parser should be used.

HTTP Streaming

It is possible to semi-stream flv over http using a trick which sends the normal headers then skips forward to a desired point in the file and moves the timestamps forward accordingly.

The [FLV Metadata injector](#) is a free closed-source tool which can inject this information into a FLV file. [A sample php script and fla is available at FlashComGuru](#)

flv.txt · Last modified: 2006/05/22 07:18 by spender

Reference : <http://osflash.org/flv>