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Australian Standard™

Information technology—Coding of audio-visual objects

Part 14: MP4 file format

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PREFACE

This Standard was prepared by the Standards Australia Committee IT-029, Coded Representation of Picture, Audio and Multimedia/Hypermedia Information.

This Standard is identical with, and has been reproduced from, ISO/IEC 14496-14:2003, *Information technology—Coding of audio-visual objects*—Part 14: *MP4 file format*.

The objective of this Standard is to provide the multimedia community with the specifications of the MP4 file format. It is a flexible format defining storage, editing, displaying and streaming of MPEG-4 content in files.

The terms 'normative' and 'informative' are used to define the application of the annex to which they apply. A normative annex is an integral part of a standard, whereas an informative annex is only for information and guidance.

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Reference to International Standard		*Australian Standard/New Zealand Standard*	
ISO/IEC		AS/NZS	
14496	Information technology—Coding of audio-visual objects	14496	Information technology—Coding of audio-visual objects
14496-1	Part 1: Systems	14496.1	Part 1: Systems
		AS	
14496-12	Part 12: ISO base media file format	14496.12	Part 12: ISO base media file format

Only referenced documents that have been adopted as Australian or Australian/New Zealand Standards have been listed.

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0.1 Derivation

This specification defines MP4 as an instance of the ISO Media File format [ISO/IEC 14496-12 and ISO/IEC 15444-12].

The general nature of the ISO Media File format is fully exercised by MP4. MPEG-4 presentations can be highly dynamic, and there is an infrastructure — the Object Descriptor Framework —, which serves to manage the objects and streams in a presentation. An Initial Object Descriptor serves as the starting point for this framework. In the usage modes documented in the ISO Media File, an Initial Object Descriptor would normally be present, as shown in the following diagrams.

0.2 Interchange

The following diagram gives an example of a simple interchange file, containing two streams.

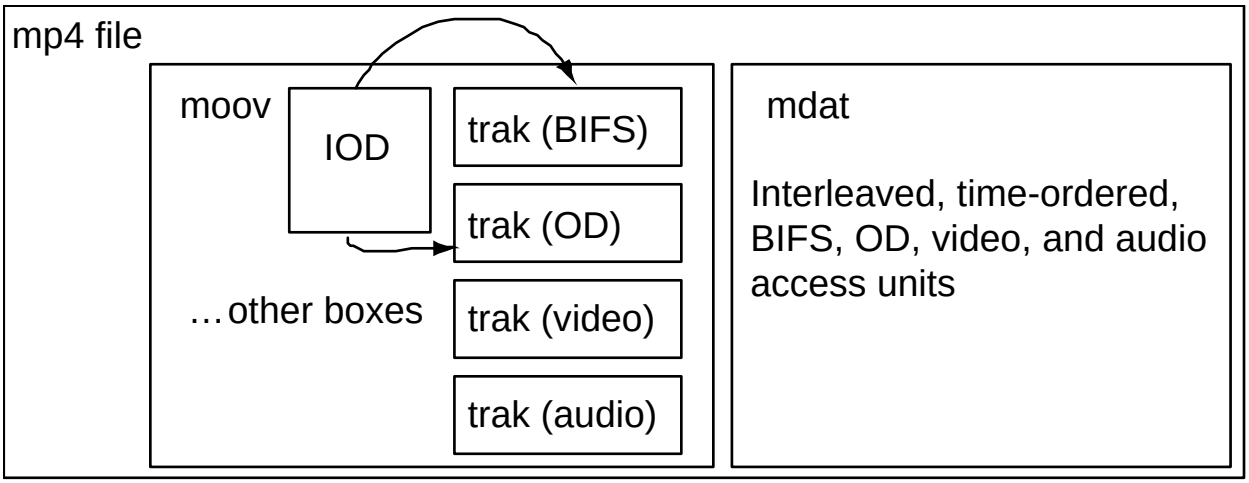

Figure 1 — Simple interchange file

0.3 Content Creation

In the following diagram, a set of files being used in the process of content creation is shown.

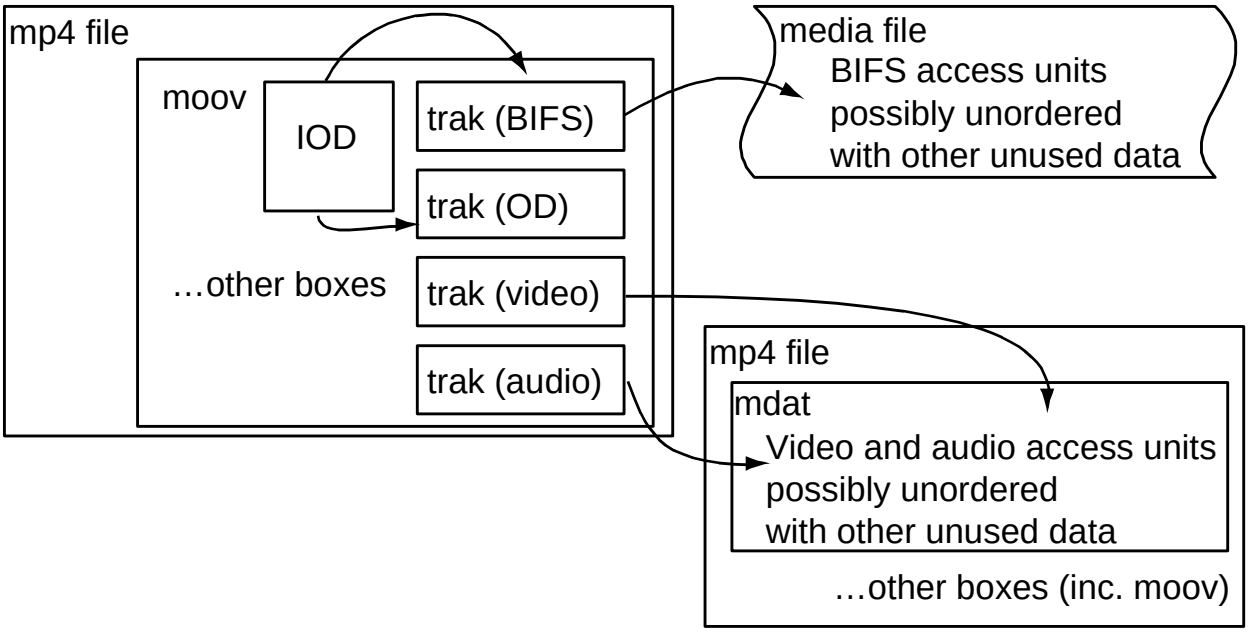

Figure 2 — Content Creation File

0.4 Streamed presentation

The following diagram shows a presentation prepared for streaming over a multiplexing protocol, only one hint track is required.

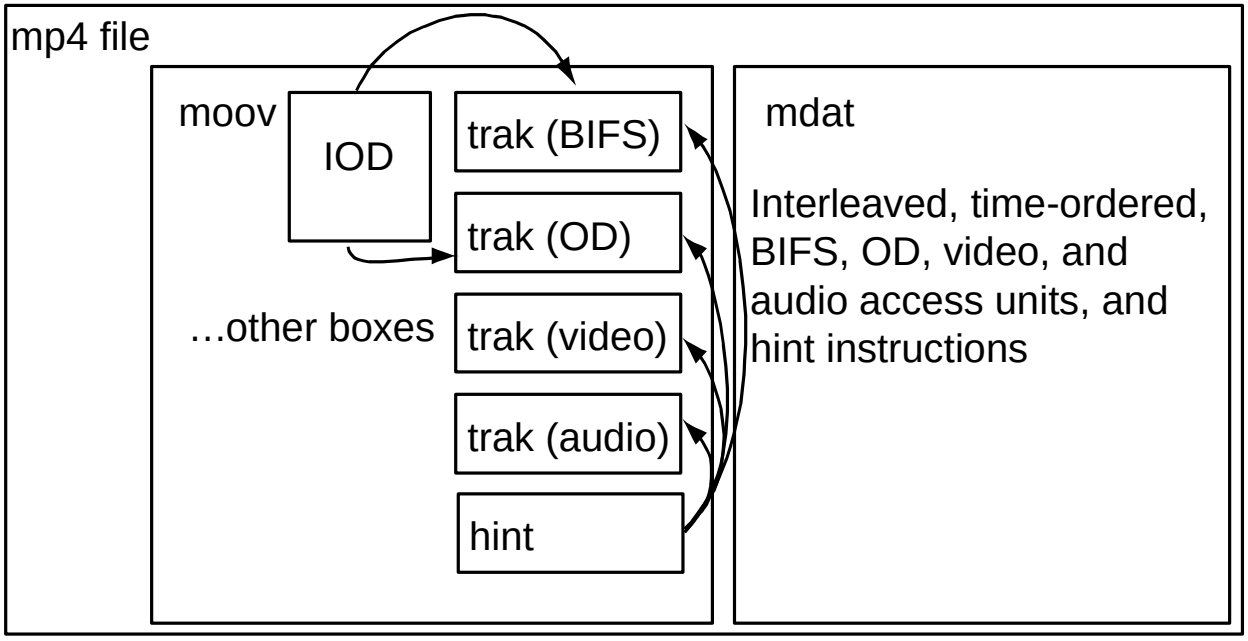

Figure 3 — Hinted Presentation for Streaming

NOTES

AUSTRALIAN STANDARD

Information technology — Coding of audio-visual objects —

Part 14:
MP4 file format

1 Scope

This International Standard defines the MP4 file format, as derived from the ISO Base Media File format.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 14496-1:2001, *Information technology — Coding of audio-visual objects — Part 1: Systems*

ISO/IEC 14496-12: *Information technology — Coding of audio-visual objects — Part 12: ISO base media file format* (technically identical to ISO/IEC 15444-12)

3 Storage of MPEG-4

3.1 Elementary Stream Tracks

3.1.1 Elementary Stream Data

To maintain the goals of streaming protocol independence, the media data is stored in its most ‘natural’ format, and not fragmented. This enables easy local manipulation of the media data. Therefore media-data is stored as access units, a range of contiguous bytes for each access unit (a single access unit is the definition of a ‘sample’ for an MPEG-4 media stream). This greatly facilitates the fragmentation process used in hint tracks. The file format can describe and use media data stored in other files, however this restriction still applies. Therefore if a file is to be used which contains ‘pre-fragmented’ media data (e.g. a FlexMux stream on disc), the media data will need to be copied to re-form the access units, in order to import the data into this file format.

This is true for all stream types in this specification, including such ‘meta-information’ streams as Object Descriptor and the Clock Reference. The consequences of this are, on the positive side, that the file format treats all streams equally; on the negative side, this means that there are ‘internal’ cross-links between the streams. This means that adding and removing streams from a presentation will involve more than adding or deleting the track and its associated media-data. Not only must the stream be placed in, or removed from, the scene, but also the object descriptor stream may need updating.

For each track, the entire ES-descriptor is stored as the sample description or descriptions. The SLConfigDescriptor for the media track shall be stored in the file using a default value (predefined = 2), except when the Elementary Stream Descriptor refers to a stream through a URL, i.e. the referred stream is outside the scope of the MP4 file. In that case the SLConfigDescriptor is not constrained to this predefined value.

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