
**Information technology — MPEG
systems technologies —**

**Part 13:
Media orchestration**





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Foreword

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Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Audiovisual equipment is pervasive; everyone with a smartphone, a tablet or a laptop has both recording and display equipment at their disposal, usually connected to a local or a public network. This equipment is increasingly sophisticated, with higher resolutions and better lenses (for video), often multiple microphones (for audio), coupled with other sensors (e.g. for geolocation) and increasingly sophisticated processing capabilities. These devices can not only decode in real time, but usually also perform decent encoding. Sensors and displays come in the form of personal smart phones, but also include smart watches, omnidirectional cameras and a variety of virtual reality and augmented reality head-mounted devices. All these devices can either be a source of multimedia content (audio, video or audiovisual) or consume such content. Often, devices play both roles.

The proliferation of these multimedia-capable devices combined with ever-increasing bandwidth, including mobile bandwidth, necessitates better and standardized mechanisms for coordinating such devices, the associated media streams and the available resources, like media processing and transmission. This process is called “orchestration”. Orchestration includes coordination in time (synchronization) and in space, as well as the coordination of computational resources to perform the coordination functions.

This document was developed to address the need for specifying this coordination between capture devices (“sources”) and play-back devices (“sinks”) in a heterogeneous environment. In this context, “heterogeneous” refers to the fact that devices can be of different nature (e.g. a mix of consumer and professional devices) and on different networks.

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Information technology — MPEG systems technologies —

Part 13:

Media orchestration

1 Scope

This document specifies an architecture for media orchestration, as well as associated messaging and control, timed metadata, the carriage of that timed metadata, and orchestration data.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 13818-1:2019, *Information technology — Generic coding of moving pictures and associated audio information — Part 1: Systems*

ISO/IEC 14496-3:2009, *Information technology — Coding of audio-visual objects — Part 3: Audio*

ISO/IEC 14496-3:2009/Amd 5:2015, *Information technology — Coding of audio-visual objects — Part 3: Audio— Amendment 5: Support for Dynamic Range Control, New Levels for ALS Profile, and Audio Synchronization*

ISO/IEC 14496-12:2015, *ISO Base Media File Format*

ISO/IEC 14496-12:2015/Amd 1:2017, *ISO Base Media File Format — Amendment 1: DRC extensions*

ISO/IEC 23001-10:—¹⁾, *Information technology — MPEG systems technologies — Part 10: Carriage of timed metadata metrics of media in ISO base media file format*

ISO/IEC 23005-6:2019, *Information technology — Media context and control — Part 6: Common types and tools*

ISO/IEC 23008-1, *Information technology — High efficiency coding and media delivery in heterogeneous environments — Part 1: MPEG media transport (MMT)*

ETSI TS 103 286 02:2017, *Digital Video Broadcasting (DVB); Companion Screens and Streams; Part 2: Content Identification and Media Synchronization* [online]. Available at http://www.etsi.org/deliver/etsi_ts/103200_103299/10328602/

IETF RFC 3986, *Uniform Resource Identifier (URI): Generic Syntax* [online]. Edited by T. Berners-Lee. January 2005. Available at <https://www.ietf.org/rfc/rfc3986.txt>

IETF RFC 6455:2011, *The WebSocket Protocol* [online]. Edited by I. Fette. December 2011. Available at <https://www.ietf.org/rfc/rfc6455.txt>

IETF RFC 5905, *Network Time Protocol Version 4: Protocol and Algorithms Specification* [online]. Edited by D. Mills. June 2010. Available at <https://tools.ietf.org/html/rfc5905>

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