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Part 3: Media data formats and application programming interface (API)

Technologies de l'information — Internet des objets media — Partie 3: API et formats des données

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives or www.iec.ch/members_experts/refdocs).

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This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

This third edition cancels and replaces the second edition (ISO/IEC 23093-3:2022), which has been technically revised.

The main changes are as follows:

— Addition of new APIs and data formats;

— Addition of MController base types;

— Removal of MAnalyser APIs and individual data formats.

A list of all parts in the ISO/IEC 23093 series can be found on the ISO and IEC websites.

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 and www.iec.ch/national-committees.

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Introduction

The ISO/IEC 23093 series provides an architecture and specifies APIs and compressed representation of data flowing between media things (MThings).

The APIs for MThings facilitate the discovery of other MThings in the network, as well as the connection and efficient exchange of data between MThings. The APIs also support transaction tokens to access valuable functionalities, resources, and data from MThings.

MThing-related information comprises characteristics and discovery data, mission descriptions from system designers and end-users, raw and processed sensed data, and actuation information. The ISO/IEC 23093 series specifies input and output data formats for media sensors, actuators, storages, and analysers. In addition, media analysers can process sensed data from media sensors to produce analysed data, which can be cascaded to other media analysers to extract semantic information. Multiple MThings can be gathered and operated autonomously using mission descriptions given by system designers and end-users.

This document contains the tools to describe the data exchanged between media things (e.g. media sensors, media actuators, media storages) and their corresponding APIs. It addresses the normative aspects of the data and APIs for media things and also illustrates non-normative examples.

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Information technology — Internet of media things —

Part 3:
Media data formats and application programming interface (API)

1 Scope

This document specifies the syntax and semantics of description schemes for representing data exchanged by media things (e.g. media sensors, media actuators, and media storages). Moreover, it specifies the APIs to exchange these data between media things. The following interfaces are under the scope of this document:

— APIs for accessing media sensors, actuators, storage, managers, controllers, and aggregators;

— structured data formats (XML) representing media thing's base data types, including sensors, actuators, storage, managers, aggregators, controllers, and their elements;

— structured data formats (XML) representing the media sensor's output data; and,

— structured data formats (XML) representing media actuator's commands.

This document does not specify how sensing and actuating are carried out but defines the interfaces between the media things.

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 15938-3, *Information technology — Multimedia content description interface — Part 3: Visual*

ISO/IEC 23005-2, *Information technology — Media context and control — Part 2: Control information*

ISO/IEC 23005-5, *Information technology — Media context and control — Part 5: Data formats for interaction devices*

ISO/IEC 23093-1, *Information technology — Internet of media things — Part 1: Architecture*

ISO/IEC 23093-2:2025, *Information technology — Internet of media things — Part 2: Discovery and communication API*

ISO/IEC 23093-5:2025, *Information technology — Internet of media things — Part 5: IoMT autonomous collaboration*

ISO/IEC 23093-6:2026, *Information technology — Internet of media things — Part 6: IoMT Media data formats and API for distributed AI processing*

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3 Terms, definitions, and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 23093-1 and ISO/IEC 23093-2 and the following apply.

ISO and IEC maintain terminology databases for use in standardisation at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1.1
media actuator
MActuator
MThing that can actuate

3.1.2
media aggregator
MAggregator
MThing that contains multiple MThings

3.1.3
media analyser
MAnalyser
MThing that can analyse media or metadata and produce interpreted media, metadata, or commands

3.1.4
media manager
MManager
MThing that can register a list of MThings or be facilitated to search other MThings

3.1.5
media sensor
MSensor
MThing that can sense and produce media data

3.1.6
media storage
MStorage
MThing that can save media or metadata

3.1.7
media thing controller
mThing controller
MController
MThing that can generate standard mission descriptions, control and monitor the progress of the mission of the participating MThings

3.1.8
mission
task that MThings carry out

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