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Foreword

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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 23093-4:2023), which has been technically revised.

The main changes are as follows:

— modification of introduction;

— addition of new APIs;

— addition of binary reference software and its conformance streams.

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

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 conformance and reference software implementing ISO/IEC 23093-3, 5, and 6, which includes the tools to describe data exchanged between media things and their APIs.

The International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC) draw attention to the fact that it is claimed that compliance with this document may involve the use of patents.

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Information technology — Internet of media things —

Part 4:
Reference software and conformance

1 Scope

This document specifies the conformance and reference software implementing ISO/IEC 23093-3, 5, and 6. The information provided is applicable for determining the reference software modules available for ISO/IEC 23093-3, 5, and 6, understanding the functionality of the available reference software modules, and utilising the available reference software modules.

Furthermore, this document provides means for conformance testing, i.e. bitstreams – XML and binary descriptions – that conform or do not conform to ISO/IEC 23093-3, 5, and 6.

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 23093-1:2025, *Information technology — Internet of media things — Architecture*

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

ISO/IEC 23093-3:2025, *Information technology — Internet of media things — Part 3: Media data formats and APIs*

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

ISO/IEC 23093-6:2025, *Information technology — Internet of media things — Part 6: Media data formats and API for distributed AI processing*

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, ISO/IEC 23093-2, ISO/IEC 23093-3, ISO/IEC 23093-5, and ISO/IEC 23093-6 apply.

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

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

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

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3.2 Abbreviated terms

API application programming interface

MACV media actuator command vocabulary

MAOV media analyser output vocabulary

MSOV media sensor output vocabulary

MTDL media thing description language

MCOV media controller output vocabulary

4 Reference software for ISO/IEC 23093-3, 5, and 6

4.1 General

This clause specifies the reference software for ISO/IEC 23093-3, 5, and 6. The software is available at https://standards.iso.org/iso-iec/23093/-4/ed-3/en. The instruction manual of the software is presented in Annex A. The reference software is written in Java®[1)] and adopts the following package structure:

Name	*Definition*
`org`	Java package name for reference software provided by organisations such as ISO/IEC, W3C, or similar.
`org.iso`	Java package name for reference software provided by ISO/IEC.
`org.iso.mpeg`	Java package name for reference software.
`org.iso.mpeg.iomt`	Java package name for reference software developing the ISO/IEC 23093 series. — `org.iso.mpeg.iomt.mtdl`, `org.iso.mpeg.iomt.msov`, and `org.iso.mpeg.iomt.macv` for ISO/IEC 23093-3. — `org.iso.mpeg.iomt.mcov` for ISO/IEC 23093-5. — `org.iso.mpeg.iomt.maov` for ISO/IEC 23093-6. NOTE Code included within these packages can automatically generate tools such as JAXB (Java Architecture for XML Binding)[1].

4.2 ISO/IEC 23093-3 APIs for MTDL

4.2.1 General

This subclause specifies the API to the ISO/IEC 23093-3 reference software. The API is defined in Java® and adopts the following package structures:

Name	*Definition*
`org.iso.mpeg.iomt.mtdl`	Java package name for API to the ISO/IEC 23093-3 reference software.

4.2.2 APIs for MThing

This subclause specifies classes related to the basic information of an `MThing`.

1) Java® is the trademark of a product supplied by Oracle®. This information is given for the convenience of users of this document and does not constitute an endorsement by ISO or IEC of the product named. Equivalent products may be used if they can be shown to lead to the same results.

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