

---

---

**Information technology — Media  
context and control —**

**Part 6:  
Common types and tools**

*Technologies de l'information — Contrôle et contexte de supports —  
Partie 6: Types communs et outils*





**COPYRIGHT PROTECTED DOCUMENT**

© ISO/IEC 2019

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: +41 22 749 01 11  
Fax: +41 22 749 09 47  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

Published in Switzerland

# Contents

Page

<b>Foreword</b>	<b>iv</b>
<b>Introduction</b>	<b>v</b>
<b>1 Scope</b>	<b>1</b>
<b>2 Normative references</b>	<b>1</b>
<b>3 Terms, definitions and abbreviated terms</b>	<b>1</b>
3.1 Terms and definitions	2
3.2 Abbreviated terms	3
<b>4 Common types</b>	<b>3</b>
4.1 General	3
4.2 Schema wrapper conventions	3
4.3 Mnemonics for binary representations	4
4.4 Common header for binary representations	4
4.4.1 General	4
4.4.2 XML representation syntax	4
4.4.3 Binary representation syntax	4
4.4.4 Descriptor components semantics	5
4.5 Basic datatypes	6
4.5.1 General	6
4.5.2 Syntax	6
4.5.3 Binary representation syntax	6
4.5.4 Semantics	6
4.6 Color-related datatypes	7
4.6.1 General	7
4.6.2 Syntax	7
4.6.3 Binary representation syntax	8
4.6.4 Semantics	9
4.6.5 Additional validation rules	11
4.7 Time stamp type	11
4.7.1 General	11
4.7.2 Syntax	11
4.7.3 Binary representation syntax	12
4.7.4 Semantics	13
<b>5 Profiles</b>	<b>14</b>
5.1 Media orchestration profile	14
5.1.1 General	14
5.1.2 Sensors and sensor capabilities used in media orchestration profile	15
5.1.3 Media orchestration profile, Level 1	15
<b>Annex A (normative) Classification schemes</b>	<b>23</b>
<b>Annex B (informative) Schema documents</b>	<b>122</b>
<b>Annex C (informative) Complete information for media orchestration profile</b>	<b>123</b>
<b>Bibliography</b>	<b>143</b>

## 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](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)) or the IEC list of patent declarations received (see <http://patents.iec.ch>).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

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

This fourth edition cancels and replaces the third edition (ISO/IEC 23005-6:2016), which has been technically revised.

The main changes compared to the previous edition are as follows:

- New classifications schemes such as 3D printer file format type CS, 3D printer type CS, printing material type CS, printing material characteristics type CS, and odor sensor technology CS are added.
- Definition of media orchestration profile is added.

A list of all parts in the ISO/IEC 23005 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](http://www.iso.org/members.html).

## Introduction

The ISO/IEC 23005 series (MPEG-V) provides an architecture and specifies information representation of data flowing in and out of the real world and virtual worlds.

The data for the real world are communicated through sensors and actuators. The data for virtual worlds consist of properties of virtual objects and multi-sensorial data embedded in audio-visual content. MPEG-V specifies data formats for sensors, actuators, virtual objects, and audio-visual content.

Data captured from the real world could need to be adapted for use in a virtual world and data from virtual worlds could also need to be adapted for use in the real world. The ISO/IEC 23005 series does not specify how the adaptation is carried out but only specifies the interfaces.

Data for sensors are sensor capabilities, sensed data, and sensor adaptation preferences.

Data for actuators are sensory device capabilities, sensory device commands, and sensory effect preferences.

Data for virtual objects are characteristics of avatars and virtual world objects.

Data for audio-visual content are sensory effects.

This document contains the data types and tools (e.g., timestamp, unit, normative vocabularies) which are used in more than one part of the ISO/IEC 23005 series. This document also specifies standard profiles and levels to be used in specific application domains.

[Annex B](#) contains details of the schema for this document.

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.

ISO and the IEC take no position concerning the evidence, validity and scope of these patent rights.

The holders of these patent rights have assured ISO and the IEC that they are willing to negotiate licences under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statements of the holders of these patent rights are registered with ISO and the IEC. Information may be obtained from the companies listed below.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights other than those identified below. ISO and the IEC shall not be held responsible for identifying any or all such patent rights.

ISO ([www.iso.org/patents](http://www.iso.org/patents)) and IEC (<http://patents.iec.ch>) maintain on-line databases of patents relevant to their standards. Users are encouraged to consult the databases for the most up to date information concerning patents.

Company	Address
Samsung Electronics Co.Ltd.	416, Maetan-dong, Yeongtong-gu, Suwon-si, Gyeonggi-do, 152-848, Korea
Gwangju Institute of Science and Technology	261 Cheomdan - gwagiro (Oryong-dong), Buk-gu, Gwangju 500-712, Korea
Electronics and Telecommunications Research Institute (ETRI)	218 Gajeongno, Yuseong-gu, Daejeon, 305-700, Korea
Konkuk University	1 Hwayang-dong, Gwangjin-gu, Seoul, 143-701, Korea



# Information technology — Media context and control —

## Part 6: Common types and tools

### 1 Scope

This document provides definitions of data types and tools, which are used in other parts of the ISO/IEC 23005 series, but are not specific to a single part.

This document specifies syntax and semantics of the data types and tools common to the tools defined in the other parts of the ISO/IEC 23005 series, such as basic data types which are used as basic building blocks in more than one of the tools in the ISO/IEC 23005 series, colour-related basic types which are used in light and colour-related tools to help in specifying colour-related characteristics of the devices or commands, and time stamp types which can be used in device commands, and sensed information to specify timing related information.

Classification schemes, which provide semantics of words or terms and normative way of referencing them, are also defined in [Annex A](#), if they are used in more than one part of the ISO/IEC 23005 series.

The tools defined in this document are not intended to be used alone, but to be used as a part or as a supporting tool of other tools defined in other parts of the ISO/IEC 23005 series, except for the profile and level definitions.

This document also contains standard profiles and levels to be used in specific application domains. The profile and level definitions include collection of tools from ISO/IEC 23005-2 and ISO/IEC 23005-5 with necessary constraints.

### 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 15938-5:2003, *Information technology — Multimedia content description interface — Part 5: Multimedia description schemes*