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Information technology — Media context and control —

Part 2: Control information

*Technologies de l'information — Contrôle et contexte de supports —
Partie 2: Informations de contrôle*

Withhold

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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. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

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).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is 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 23005-2:2013), which has been technically revised.

ISO/IEC 23005 consists of the following parts, under the general title *Information technology — Media context and control*:

- *Part 1: Architecture*
- *Part 2: Control information*
- *Part 3: Sensory information*
- *Part 4: Virtual world object characteristics*
- *Part 5: Data formats for interaction devices*
- *Part 6: Common types and tools*
- *Part 7: Conformance and reference software*

Introduction

This International Standard (MPEG-V) provides an architecture and specifies associated information representations to enable interoperability between virtual worlds, e.g. digital content provider of a virtual world, gaming (serious), simulation, DVD, and the real world, e.g. sensors, actuators, vision and rendering, robotics (e.g. for revalidation), (support for) independent living, social and welfare systems, banking, insurance, travel, real estate, rights management, and many others.

Virtual worlds (often referred to as 3D3C for 3D visualization and navigation and the 3Cs of Community, Creation and Commerce) integrate existing and emerging media technologies (e.g. instant messaging, video, 3D, VR, AI, chat, voice, etc.) that allow for the support of existing and the development of new kinds of social networks. The emergence of virtual worlds as platforms for social networking is recognized by businesses as an important issue for at least two reasons.

- 1) It offers the power to reshape the way companies interact with their environments (markets, customers, suppliers, creators, stakeholders, etc.) in a fashion comparable to the Internet.
- 2) It allows for the development of new (breakthrough) business models, services, applications and devices.

Each virtual world, however, has a different culture and audience making use of these specific worlds for a variety of reasons. These differences in existing metaverses permit users to have unique experiences. Resistance to real-world commercial encroachment still exists in many virtual worlds, where users primarily seek an escape from real life. Hence, marketers should get to know a virtual world beforehand and the rules that govern each individual universe.

Although realistic experiences have been achieved via devices such as 3D audio/visual devices, it is hard to realize sensory effects only with presentation of audiovisual contents. The addition of sensory effects leads to even more realistic experiences in the consumption of audiovisual contents. This will lead to the application of new media for enhanced experiences of users in a more realistic sense.

Such new media will benefit from the standardization of control and sensory information which consists of sensory effect metadata, sensory device capabilities/commands, user sensory preferences, and various delivery formats. The MPEG-V architecture can be applicable for various business models for which audiovisual contents can be associated with sensory effects that need to be rendered on appropriate sensory devices.

This part of ISO/IEC 23005 contains the tools of the control information for the media. It addresses the normative aspects of the control information including device capability description, user preference information, and also illustrates some non-normative examples.

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Information technology — Media context and control —

Part 2:

Control information

1 Scope

This part of ISO/IEC 23005 specifies syntax and semantics of the tools required to provide interoperability in controlling devices in real as well as virtual worlds. In Figure 1, the scope of this part of ISO/IEC 23005 with tools defined in this part of ISO/IEC 23005 is shown. The adaptation engine (RV or VR engine), which is not within the scope of standardization, takes six inputs [sensory effects (SE), user's sensory effect preferences (USEP), sensory devices capabilities (SDC), sensor capability (SC), sensor adaptation preferences (SAP), and sensed information (SI)] and outputs sensory devices commands (SDCmd) and/or sensed information (SI) to control the devices in real world or virtual world objects. It is applicable to the interfaces between the adaptation engine and the capability descriptions of actuators/sensors in the real world, the user's sensory preference information, which characterize devices and users, and the sensor adaptation preferences information, which characterize sensors and users, so that appropriate information to control devices (actuators and sensors) can be generated. In other words, user's sensory preferences, sensory device capabilities, sensor adaptation preferences, and sensor capabilities are within the scope of this part of ISO/IEC 23005.

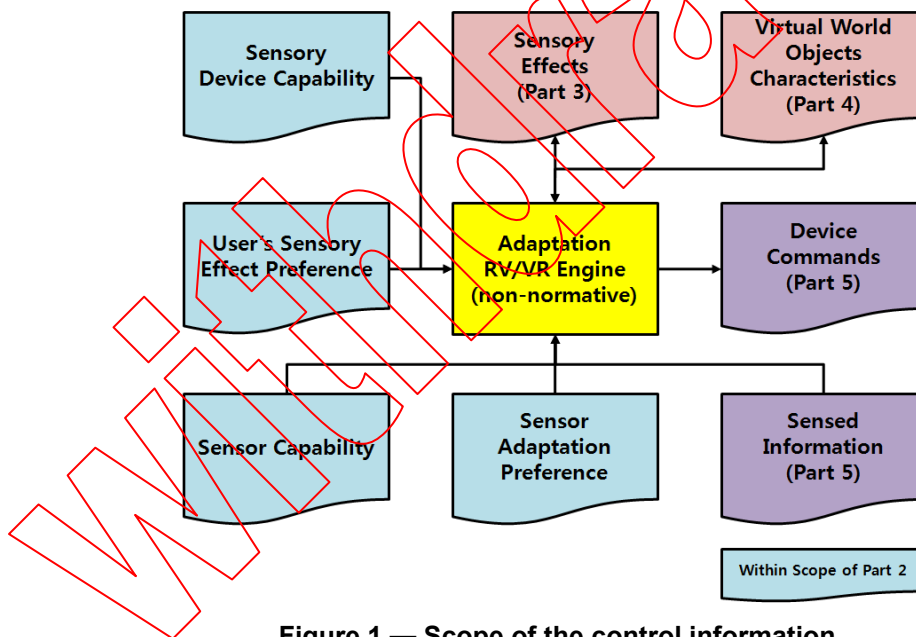


Figure 1 — Scope of the control information

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

ISO/IEC 21000-7, *Information technology — Multimedia framework (MPEG-21) — Part 7: Digital Item Adaptation*

ISO/IEC 23005-6:2016, *Information technology — Media context and control — Part 6: Common types and tools*