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

**Part 4:
Virtual world object characteristics**

*Technologies de l'information — Contrôle et contexte de supports —
Partie 4: Caractéristiques d'objet du monde virtuel*

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

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 23005-4:2013), 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 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 permit users to have unique experiences.

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 includes 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.

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 in Annex E.

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Information technology — Media context and control —

Part 4: Virtual world object characteristics

1 Scope

This part of ISO/IEC 23005 specifies syntax and semantics of description schemes and descriptors used to characterize a virtual world object related metadata, making it possible to migrate a virtual world object (or only its characteristics) from one virtual world to another and to control a virtual world object in a virtual world by real world devices.

The system architecture of this International Standard is depicted in Figure 1 and the scope of this part of ISO/IEC 23005 is highlighted. That is, only the information representation that acts as an input to the possible R→V/V→R Adaptation and as an exchangeable information format to support interoperability between the virtual worlds, as defined in ISO/IEC 23005-1, is specified in this part of ISO/IEC 23005.

NOTE The actual R→V/V→R Adaptation is deliberately informative and left open for industry competition.

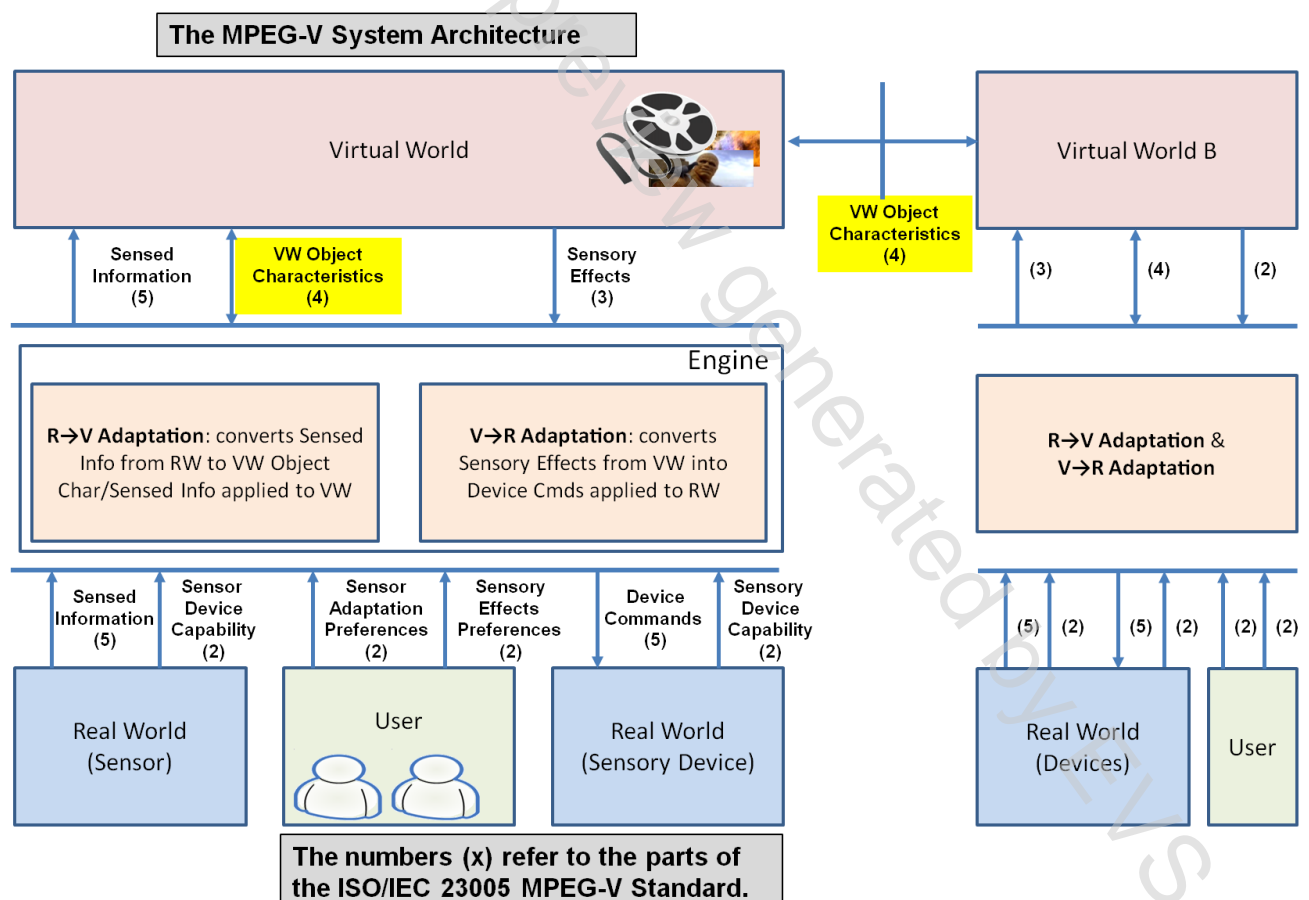


Figure 1 — System architecture

2 Normative references

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

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

ISO/IEC 21000-5, *Information technology — Multimedia framework (MPEG-21) — Part 5: Rights Expression Language*

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

3 Terms, definitions, abbreviated terms and prefixes

3.1 Terms and definitions

For the purpose of this document, the terms and definitions given in ISO/IEC 23005-6 and the following apply.

3.1.1

avatar

entity that can be used as a (visual) representation of the user inside the virtual environments

EXAMPLE A player's representation in the video game and human or fantastic representations of a person's self in non-gaming online worlds.

3.1.2

avatar metadata

defines the description schemes and descriptors to represent *avatars* (3.1.1)

3.1.3

Extensible Markup Language

set of rules for encoding documents in machine-readable form

3.1.4

Rights expression language

machine-readable language that declares rights and permissions

3.1.5

Uniform Resource Identifier

compact string of characters for identifying an abstract or physical resource

3.1.6

Uniform Resource Locator

compact string representation for a resource available via the Internet

3.1.7

virtual object

entity that is any (visual) object except for avatars in the virtual environment

3.1.8

virtual object metadata

defines the description schemes and descriptors to represent *virtual objects* (3.1.7)

3.1.9

virtual world object

entity that includes avatars and virtual objects in the virtual world