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**Information technology — Multimedia
application format (MPEG-A) —**

**Part 16:
Publish/Subscribe Application Format**

*Technologies de l'information — Format des applications
multimedias —*

Partie 16: Format des applications Publier/Souscrire



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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 ISO documents 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 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 the following URL: www.iso.org/iso/foreword.html.

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

A list of all parts in the ISO/IEC 23000 series can be found on the ISO website.

Introduction

ISO/IEC 23000 (also known as “MPEG-A”) is a suite of MPEG standards designed to support a fast track to standardization of tested and verified technologies taken from the MPEG body of standards combined to form Multimedia Application Formats (MAF). If a needed piece of technology is not available within MPEG to achieve the desired format functionality, then additional technologies originating from other organizations may be included by reference.

The MAF defined by the Publish/Subscribe Application Format (PSAF) allows parties of the Publish/Subscribe (PubSub) communication model to support functionalities that are specific to publication, search and consumption of media content (in the following called Resource). The PubSub communication parties are:

- a) *Publishers*:
 - 1) create and store Resource Information (RI) on a publicly accessible location (e.g. an Information Centric Network);
 - 2) create and send Publications Information (PI) to Match Service Providers (MSP);
- b) *Subscribers*:
 - 1) create and send Subscriptions Information (SI) to Match Service Providers (MSP);
- c) *Match Service Providers (MSP)*:
 - 1) perform matches of Subscriptions with Publications;
 - 2) send Notification Information (NI) to users listed in PIs and SIs when a Match has been found;
- d) *Consumers*:
 - 1) receive Notification Information (NI);
 - 2) access the Resource present in or referenced by the Resource Information (RI).

NOTE In PubSub, senders do not communicate information directly to the intended receivers but rely on a service that mediates the sender-receiver relationship and sends notifications to relevant parties.

It should be noted that in PSAF, "Publisher" is not necessarily a user who distributes media to end users and "Subscriber" is not necessarily synonymous with end user or consumer. Indeed, in PSAF, Publisher may represent a user who has created a media item and wants to offer it to publishers and Subscriber may represent a publisher who is looking for media to be published and distributed.

PSAF specifies four formats — RI, PI, SI, and NI — to allow Publishers, Subscribers, Match Service Providers and Consumers to manage and control the way the information they exchange is used while trying to achieve their purposes.

The structure of the document is as follows:

[Clause 2](#) lists normative references. [Clauses 3](#) and [4](#) define the abbreviated terms and the terms used in this document. [Clause 5](#) specifies the PSAF reference model. [Clause 6](#) specifies the DIDL profile schema specific for PSAF and the PSAF Metadata Schema.

Information technology — Multimedia application format (MPEG-A) —

Part 16: Publish/Subscribe Application Format

1 Scope

This document specifies four formats that are used by parties communicating using the Publish/Subscribe (PubSub) communication model for their multimedia communication purposes.

The PubSub parties are: Publisher, Subscriber, Match Service Provider (MSP) and Consumer and the formats employed are Resource Information (RI), Publication Information (PI), Subscription Information (SI) and Notification Information (NI).

This document specifies RI, PI, SI and NI in such a way that typical multimedia communication requirements can be supported. The following is a non-exhaustive list of such requirements.

- The Publisher can
 - describe the Resource for consumption purposes,
 - define the contract that will bind the Publisher and a Consumer,
 - request a device to report use of the Resource,
 - describe the Resource for distribution purposes,
 - define the contract that will bind the Publisher and a Match Service Provider (MSP) of a match involving the Publication, and
 - request the MSP to notify/not to notify a list of users.
- The Subscriber can
 - query the Resource,
 - define the contract that will bind the Subscriber and a Match Service Provider (MSP), and
 - request the MSP to notify/not to notify a list of users of a match involving the Subscription.

This document does not specify the protocols used to carry these payloads.

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 15938-4, *Information technology — Multimedia content description interface — Part 4: Audio*

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

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ISO/IEC 15938-12, *Information technology — Multimedia content description interface — Part 12: Query format*

ISO/IEC 21000-2, *Information technology — Multimedia framework (MPEG-21) — Part 2: Digital Item Declaration*

ISO/IEC 21000-3, *Information technology — Multimedia framework (MPEG-21) — Part 3: Digital Item Identification*

ISO/IEC 21000-15, *Information technology — Multimedia framework (MPEG-21) — Part 15: Event Reporting*

ISO/IEC 21000-20, *Information technology — Multimedia framework (MPEG-21) — Part 20: Contract Expression Language*

ISO/IEC 21000-21, *Information technology — Multimedia framework (MPEG-21) — Part 21: Media contract ontology*

ISO/IEC 21000-22, *Information technology — Multimedia framework (MPEG-21) — Part 22: User Description*