INTERNATIONAL STANDARD

ISO/IEC 23004-3

First edition
2007-09-15

Information technology — Multimedia Middleware —

Part 3: Component model

Technologies de l'information — Intergiciel multimédia —

Partie 3: Modèle de composant

Reference number
ISO/IEC 23004-3:2007(E)

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Published in Switzerland

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

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.

ISO/IEC 23004-3 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

ISO/IEC 23004 consists of the following parts, under the general title *Information technology — Multimedia Middleware*:

— *Part 1: Architecture*

— *Part 2: Multimedia application programming interface*

— *Part 3: Component model*

— *Part 4: Resource and quality management*

— *Part 5: Component download*

— *Part 6: Fault management*

— *Part 7: System integrity management*

Introduction

MPEG, ISO/IEC JTC 1/SC 29/WG 11, has produced many important standards (MPEG-1, MPEG-2, MPEG-4, MPEG-7, and MPEG-21). MPEG feels that it is important to standardize an application programming interface (API) for Multimedia Middleware (M3W) that complies with the requirements found in the annex to the Multimedia Middleware (M3W) Requirements Document Version 2.0 (ISO/IEC JTC 1/SC 29/WG 11 6981).

The objectives of Multimedia middleware (M3W) are to allow applications to execute multimedia functions with a minimum knowledge of the middleware and to allow applications to trigger updates to the middleware to extend the middleware API. The first goal can be achieved by standardizing the API that the middleware offers. The second goal is much more challenging, as it requires mechanisms to manage the middleware API and to ensure that this functions according to application needs. The second goal can support the first, by reducing the needed standard API to those that provide middleware management. Consequently, applications can use these standard management APIs to generate the multimedia system they require.

ISO/IEC 23004 provides the following:

1) a *vision* for a multimedia middleware API framework to enable the transparent and augmented use of multimedia resources across a wide range of networks and devices to meet the needs of all Users;

2) a method to facilitate the integration of APIs to software components and services in order to harmonize *technologies* for the creation, management, manipulation, transport, distribution and consumption of content;

3) a *strategy* for achieving a multimedia API framework by the development of specifications and standards based on well-defined functional requirements through collaboration with other bodies.

Information technology — Multimedia Middleware —

Part 3:
Component model

1 Scope

This part of ISO/IEC 23004 defines the Multimedia Middleware (M3W) Component Model and Core Framework. The context of the M3W Component Model and Core Framework is described in ISO/IEC 23004-1.

2 Organization of this document

This part of ISO/IEC 23004 has the following high level structure:

— Clause 1 defines the scope of this part of ISO/IEC 23004.

— Clause 3 gives an overview of documents that are indispensable for the application of this part of ISO/IEC 23004.

— Clause 4 gives the terms and definitions used in this part of ISO/IEC 23004.

— Clause 5 gives an overview of the interface suites that are part of the Core Framework.

— Clause 6 contains the detailed specification of the interfaces of the Core Framework that are part of the M3W API. These interfaces are structured as follows:

  — Instantiation of realization elements: This subclause contains the interface specifications for instantiation of realization elements based on the uuid of a Service (Run Time) as well as based on the uuid of a logical component (Service Manager).

  — Interaction with and between realization elements: This subclause contains the interface specifications for invocation of an operation on a remote Service as well as enabling remote entities to invoke an operation on a local Service.

— Clause 7 gives an overview of the realization of the component model and core framework.

— Clause 8 describes the development and packaging of realization elements.

— Clause 9 describes the iterator idiom that is used in the execution framework.

— Clause 10 describes the M3W execution framework. This contains the concepts of the component model that are relevant at runtime as well as the elements of the core framework that are needed at runtime for instantiation.

— Clause 11 describes an optional service that enables the instantiation and binding of realization elements based on the uuid of a logical component.

— Service, Meta Data, and Composition: Informative clause that describes the Meta Data of Services and logical components that enables the Service Manager to instantiate and bind realization elements (services) based on the uuid of a logical component.

— Clause 12 describes the optional services that enable the remote invocation of operations of a service.

3 Normative references

The following referenced documents are indispensable for the application 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 23004-1*, Information technology — Multimedia Middleware — Part 1: Architecture*

W3C REC-xml-20001006, Extensible Markup Language (XML) 1.0 (Second Edition), W3C Recommendation 6 October 2000.

W3C REC-xmlschema-1-20041028, XML Schema Part 1: Structures Second Edition, W3C Recommendation 28 October 2004

W3C REC-xmlschema-2-20041028, XML Schema Part 2: Datatypes Second Edition, W3C Recommendation 28 October 2004