AS ISO/IEC 21000.10—2006

Australian Standard™

Information technology—Multimedia framework (MPEG-21)

Part 10: Digital Item Processing

This Australian Standard was prepared by Committee IT-029, Coded Representation of Picture, Audio and Multimedia/Hypermedia Information. It was approved on behalf of the Council of Standards Australia on 19 April 2006.
This Standard was published on 8 May 2006.

The following are represented on Committee IT-029:

Australian Broadcasting Authority (ABA)
Australian Broadcasting Corporation (ABC)
Australian Consumers Association
Australian Subscription Television
CSIRO Mathematical & Information Services
Department of Defence (Australia)
Free TV Australia
School of Computer Science and Mathematics
Victoria University of Technology
Special Broadcasting Service (SBS)
The University of New South Wales
University of Wollongong

This Standard was issued in draft form for comment as DR 06074.

Australian Standard™

Information technology—Multimedia framework (MPEG-21)

Part 10: Digital Item Processing

First published as AS ISO/IEC 21000.10—2006.

Published by Standards Australia GPO Box 476, Sydney, NSW 2001, Australia

ISBN 0 7337 7396 6

PREFACE

This Standard was prepared by the Standards Australia Committee IT-029, Coded Representation of Picture, Audio and Multimedia/Hypermedia Information.

This Standard is identical with, and has been reproduced from ISO/IEC 21000-10:2006, *Information technology—Multimedia framework (MPEG-21),* Part 10: *Digital Item Processing*.

The objective of this Standard is to provide the Australian multimedia industry with tools enabling users to provide suggested interactions with digital items to enable the inclusion of a dynamic aspect to static declarations of digital items.

Standards Australia is in the process of adopting most of ISO/IEC 21000 series Standards. Refer to the website for current list.

The terms 'normative' and 'informative' are used to define the application of the annex to which they apply. A normative annex is an integral part of a standard, whereas an informative annex is only for information and guidance.

As this Standard is reproduced from an international standard, the following applies:

(a) Its number appears on the cover and title page while the international standard number appears only on the cover.

(b) In the source text 'this part of ISO/IEC 21000' should read 'this Australian Standard'.

(c) A full point substitutes for a comma when referring to a decimal marker.

References to International Standards should be replaced by references to Australian or Australian/New Zealand Standards, as follows:

Reference to International Standard		*Australian Standard*	
ISO/IEC		AS ISO/IEC	
21000	Information technology – Multimedia framework (MPEG-21)	21000	Information technology – Multimedia framework (MPEG-21)
21000-2	Part 2: Digital Item Declaration	21000.2	Part 2: Digital Item Declaration
21000-3	Part 3: Digital Item Identification	21000.3	Part 3: Digital Item Identification
21000-5	Part 5: Rights Expression Language	21000.5	Part 5: Rights Expression Language
21000-6	Part 6: Rights data dictionary	21000.6	Part 6: Rights data dictionary
21000-7	Part 7: Digital item adaptation	21000.7	Part 7: Digital item adaptation
21000-9	Part 9: File Format	21000.9	Part 9: File Format

Only international references that have been adopted as Australian or Australian/New Zealand Standards have been listed.

CONTENTS

Page

INTRODUCTION

Today, many elements exist to build an infrastructure for the delivery and consumption of multimedia content. There is, however, no “big picture” to describe how these elements, either in existence or under development, relate to each other. The aim for ISO/IEC 21000 (MPEG-21) is to describe how these various elements fit together. Where gaps exist, MPEG-21 will recommend which new standards are required. ISO/IEC JTC 1/SC 29/WG 11 (MPEG) will then develop new standards as appropriate while other relevant standards may be developed by other bodies. These specifications will be integrated into the multimedia framework through collaboration between MPEG and these bodies.

The result is an open framework for multimedia delivery and consumption, with both the content creator and content consumer as focal points. This open framework provides content creators and service providers with equal opportunities in the MPEG-21 enabled open market. This will also be to the benefit of the content consumers, providing them access to a large variety of content in an interoperable manner.

The vision for MPEG-21 is to define a multimedia framework *to enable transparent and augmented use of multimedia resources across a wide range of networks and devices* used by different communities.

A key concept of the multimedia framework is the Digital Item. In MPEG-21 a Digital Item is a structured digital object with a standard representation, identification, and metadata. An equally important concept in the multimedia framework is the notion of the User. In MPEG-21 a User is any entity that interacts with the multimedia framework and as such includes all members of the value chain (e.g., creator, rights holders, distributors and consumers of Digital Items) and include, for example, individuals, consumers, communities, organizations, corporations, consortia, and governments.

Part 2 of MPEG-21 specifies the mechanism for declaring the structure and makeup of Digital Items. Such Digital Item Declarations are static by nature. This 10th part of MPEG-21 specifies tools enabling Users to provide suggested interactions with Digital Items, thereby enabling the inclusion of a dynamic aspect to the static declaration of Digital Items.

AUSTRALIAN STANDARD

Information technology — Multimedia framework (MPEG-21) —

Part 10:
Digital Item Processing

1 Scope

This Part of ISO/IEC 21000, entitled Digital Item Processing (DIP), specifies the syntax and semantics of tools that may be used to process Digital Items. The tools provide a normative set of tools that specify the processing of a Digital Item in a predefined manner.

This technology is specified in one normative clause and three normative annexes:

— Digital Item Methods:

  Digital Item Methods (Clause 5) specifies the set of tools enabling Digital Item Users to include sequences of instructions for adding predefined functionality to a Digital Item. Such a sequence of instructions is a Digital Item Method. Digital Item Methods are authored with the Digital Item Method Language (see 5.2) which includes bindings to Digital Item Base Operations (see 5.4). For extended functionality, Digital Item eXtension Operations (see 5.5) allow such processing to be implemented more efficiently in a higher level programming language. Tools for integrating Digital Item Methods into Digital Item Declarations are also specified (see 5.3).

— ECMAScript bindings for Digital Item Base Operations:

  Annex A specifies the ECMAScript bindings for the Digital Item Base Operations described in 5.3.

— Java bindings for Digital Item Base Operations:

  Annex B specifies the Java bindings for the Digital Item Base Operations described in 5.4.

— Calling Java based DIM Custom Digital Item Methods:

  Annex C specifies the mechanism for calling Java based Digital Item eXtension Operations. Digital Item eXtension Operations are described in 5.6.

2 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 16262:2002, *Information technology — ECMAScript language specification*

ISO/IEC 21000 (all parts), *Information technology — Multimedia framework (MPEG-21)*

IETF RFC 2046, *Multipurpose Internet Mail Extensions (MIME) Part Two: Media Types*, 1996

IETF RFC 3986, *Uniform Resource Identifier (URI): Generic Syntax*, 2005