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Information technology — Rich media user interfaces

Part 3: Conformance and reference software

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Partie 3: Conformité et logiciel de référence

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Contents

Page

Foreword iv
Introduction v
1 Scope 1
2 Normative references 1
3 Terms and definitions 1
4 Conformance of Widgets 1
4.1 Introduction 1
4.2 Conformance of manifests 1
4.3 Conformance of packages 2
4.4 Conformance of context information 2
4.5 Conformance of the MPEG-U widget scripts 2
5 Conformance of Widget Managers 2
6 Conformance Sequences 3
6.1 Introduction 3
6.2 Sequences 3
6.3 Coverage of MPEG-U features 4
7 Reference software description 7
7.1 Overview and architecture 7
7.2 Reference software description 8
Bibliography 11

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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 23007-3 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

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ISO/IEC 23007 consists of the following parts, under the general title *Information technology — Rich media user interfaces*:

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— *Part 1: Widgets*

— *Part 2: Advanced user interaction (AUI) interfaces*

— *Part 3: Conformance and reference software*

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Introduction

User interfaces represent a crucial feature for many consumer devices and services. User interfaces have recently evolved to support more media types including audio, video, 2D or 3D graphics and have become rich media user interfaces. User interfaces are also moving towards a collection of small dedicated applications, called Widgets.

Additionally, more and more devices are capable of displaying rich media user interfaces, from desktop computers, to mobile devices, to home appliances including TV sets. In this heterogeneous environment, users expect a homogeneous, unified experience when interacting with their devices.

In ISO/IEC 23007, Widgets can be processed by entities running on different devices, called Widget Managers, in charge of processing and managing the life cycle of the widgets supporting communications with other entities locally or remotely deployed and enabling widget mobility across devices.

The objective of ISO/IEC 23007 is to provide normative interfaces between Widgets and Widget Managers, to allow Widgets from different service providers to run, communicate and be transferred within a unique framework.

ISO/IEC 23007, rich media user interfaces is also known as MPEG-U. ISO/IEC 23007-1 addresses the normative aspects of the MPEG-U Widgets. In particular, it specifies widget packaging formats, aspects for widget communications with external entities and for widget mobility. It also contains a technical annex describing a list of use cases and examples to address such use cases. ISO/IEC 23007-2 addresses advanced user interaction (AUI) interfaces. This part of ISO/IEC 23007 addresses reference software and conformance aspects.

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Information technology — Rich media user interfaces —

Part 3:
Conformance and reference software

1 Scope

This part of ISO/IEC 23007 specifies how to test whether data and decoders meet requirements specified by ISO/IEC 23007-1. It also describes the procedures for testing the conformance of widgets and widget managers to the requirements defined in ISO/IEC 23007-1.

In this part of ISO/IEC 23007, widget generators are not addressed specifically. A generator can be said to be an ISO/IEC 23007 generator if it generates widgets compliant with the syntactic and semantic requirements specified in ISO/IEC 23007-1.

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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.

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ISO/IEC 23007-1, *Information technology — Rich media user interfaces — Part 1: Widgets*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 23007-1 apply.

4 Conformance of Widgets

4.1 Introduction

Widgets use standard representations for describing manifests, W3C WPC packages, ISOFF packages and context information. This clause describes how to check conformance of all these representations.

4.2 Conformance of manifests

The first step for checking conformance of the MPEG-U XML manifest syntax is to validate the XML document against the relax NG for the configuration document (http://www.w3.org/TR/widgets/#relax-ng-for-the-configuration-document) provided by the W3C WPC specification. If this step fails, the widget manifest is considered a non-conformant MPEG-U manifest.

The second step is to check conformance according to the MPEG-U syntax. The electronic attachments of ISO/IEC 23007-1 provide an XML Schema for that purpose. A conformant W3C WPC configuration document is a valid MPEG-U manifest if the XML schema validation succeeds.

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The next step is to verify that the scene constructs referenced in the manifest are present in the scene description pointed to by the manifest. This verification is specific to the scene description language used.

4.3 Conformance of packages

A widget package is conformant to ISO/IEC 23007 if it is conformant to the W3C WPC specification or if it is a conformant ISOFF-based widget package.

An ISOFF-based widget package is conformant to ISO/IEC 23007 if the following rules are validated:

— it is a compliant ISO/IEC 14496-12 file or a compliant ISO/IEC 21000-9 file;

— it uses the brand declared in ISO/IEC 23007-1 either in the list of compatible brand or in the major brand;

— it contains a conformant manifest as a primary item and stored in an XML box, with a internet MediaType and handler type as defined in ISO/IEC 23007-1;

— all resources declared in the manifest with IRI relative to the manifest are described in the item location box.

4.4 Conformance of context information

A widget context information document is conformant to ISO/IEC 23007 if it is a valid XML file according to the XML Schema provided as an electronic attachment to ISO/IEC 23007-1.

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4.5 Conformance of the MPEG-U widget scripts

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Scripts of MPEG-U widgets shall obey the constraints specified in Clause 9 of ISO/IEC 23007-1:2010, as well as constraints specified in the WAE specification.

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5 Conformance of Widget Managers

Widget managers are responsible for the processing widgets, e.g. for providing MPEG-U communication capabilities to widgets and for managing context information. Normative behaviours of Widgets managers are demonstrated by the Reference Software.

The following behaviours are defined as non normative:

— Composition and presentation of the scene description language used in the widget;

— Presentation of available widgets to the user and use of a selection mechanism for activation of the full or simplified representation;

— Transitions between the full and simplified representation;

— Management of Communication privileges;

— Widget communication activation and deactivation.

For some of these non-normative behaviours, utility software is provided.

Conformant MPEG-U widget managers shall be W3C Widgets-compliant user agents, and obey constraints specified in ISO/IEC 23007-1 as well.

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6 Conformance Sequences

6.1 Introduction

Electronic attachments are organized in the following fashion:

- directory mp4: widgets packaged in MP4 files (extension .mgt)
- directory wgts: widgets packaged in ZIP files (extension .wgt)
- directory widgets: unpackaged widgets

Widgets are implemented in SVG and ECMA-Script unless specified otherwise.

6.2 Sequences

6.2.1 animatedIcon

This widget has an active icon, animated with scripting.

Directory: widgets/animatedIcon

6.2.2 c1

This c1 widget and its component c1comp test many features of MPEG-U, including activation and deactivation of a component, binding of multiple interfaces, exchanging various kinds of messages… c1 displays success messages numbered from 000 to 023. One message appears twice as 0--. Any number missing in the sequence means there is a bug.

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Directory: widgets/c1 & widgets/c1comp

6.2.3 c2

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This c2 widget and its component c1comp test some features of MPEG-U, in particular the saving and restoring of a preference. c1 displays success messages numbered from 000. One message appears twice as 0--. Any number missing in the sequence means there is a bug.

Directory: widgets/c2 & widgets/c1comp

6.2.4 core

This core widget and its component comp test the predefined messages from the core interfaces specifically.

Directory widgets/core/main & widgets/core/comp

6.2.5 upnp_light_switch

Tests the connection with an UPNP service. Intended for use with the Intel Network Light.

Directory: widgets/upnp_light_switch

6.2.6 light_switch_pair

These two widgets test the connection of two widgets in local or remote mode. One acts as a switch and the other as a light bulb.

Directory: widgets/light_switch_pair/comwidin and widgets/light_switch_pair/comwidout

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