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ITU-T J.202

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SERIES J: CABLE NETWORKS AND TRANSMISSION OF TELEVISION, SOUND PROGRAMME AND OTHER MULTIMEDIA SIGNALS

Application for Interactive Digital Television

Harmonization of procedural content formats for interactive TV applications

ITU-T Recommendation J.202

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ITU-T Recommendation J.202

Harmonization of procedural content formats for interactive TV applications

Summary

This Recommendation defines APIs, semantic guarantees and system aspects of platform behaviour for harmonized procedural content formats for interactive TV applications.

Source

ITU-T Recommendation J.202 was prepared by ITU-T Study Group 9 (2001-2004) and approved under the WTSA Resolution 1 procedure on 14 May 2003.

FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications. The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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ITU-T Recommendation J.202

Harmonization of procedural content formats for interactive TV applications[1]

1 Scope

This Recommendation is intended to harmonize the application environment for interactive TV applications. The potential for commonality in the procedural application environment is based on the analysis of the common core identified in the work leading to this Recommendation. Such commonality would benefit content providers through knowledge of commonly adopted procedural functionality and economies of scale.

2 References

In this clause, references are either specific (identified by date of publication, edition number, version number, etc.) or non-specific:

- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

2.1 Normative references

The following documents contain provisions which, through reference in this text, constitute provisions of the present Recommendation.

– ETSI TS 102 819 V1.1.1 (2003-01), *Digital Video Broadcasting (DVB) Globally Executable MHP (GEM) Specification 1.0.0*, http://pda.etsi.org/pda/home.asp?wki_id=17842

– ETSI TS 101 812 V1.2.1, *Digital Video Broadcasting Multimedia Home Platform (MHP) version 1.0.2*, http://pda.etsi.org/pda/home.asp?wki_id=15159

– ITU-T Recommendation J.200 (2001), *Worldwide common core – Application environment for digital interactive television services*.

2.2 Informative references

– ARIB STD-B24 (ver. 3.2) *Data Coding and Transmission Specification for Digital Broadcasting*.

– ARIB STD-B23 (ver. 1.0) *Application Execution Engine Platform for Digital Broadcasting*.

– ATSC Standard A/100, DTV Application Software Environment (DASE-1) Level 1, Parts 1 through 8, ATSC CS/100-[1-8], http://www.atsc.org/standards/html

– ISO/IEC 13522-5:1997, *Information technology – Coding of multimedia and hypermedia information – Part 5: Support for base-level interactive applications*. (See also 6M/97)

– ETSI ES 202 184 (draft), *MHEG-5 Broadcast Profile*.

– ETSI TS 102 812 V1.1.1 Digital Video Broadcasting (DVB); Multimedia Home Platform (MHP) Specification 1.1, http://pda.etsi.org/pda/home.asp?wki_id=13397

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[1] This Recommendation is part of a series which will include one dealing with declarative and one dealing with the bridging element, as identified in ITU-T Rec. J.200.

– SCTE OpenCable Application Platform Specification, OCAP 1.0 Profile, OC-SP-OCAP1.0-I07-030522, http://www.opencable.com/downloads/specs/OC-SP-OCAP1.0-I07-030522.pdf

3 Terms and definitions

See TS 102 819 V1.1.1 clause 3.1 and TS 101 812 V1.2.1 clause 3.1.

4 Abbreviations and acronyms

See TS 102 819 V1.1.1 clause 3.2 and TS 101 812 V1.2.1 clause 3.2.

5 Conventions

See TS 102 819 V1.1.1 clause 4.

6 Common platform definitions for interactive TV using procedural applications

The recommended platform definitions for interactive TV consist of:

1) the common core in Annex A which is derived from the commonality in ARIB STD-B23, DASE-1, MHP 1.0.2, MHP 1.1 and OCAP 1.0;
2) the specification given in TS 102 819 V1.1.1 as described in Annex B, that provides semantic guarantees and system aspects of platform behaviour. The strict adherence to the APIs in Annex A ensure binary interoperability;
3) the complete specifications that build on TS 102 819 V1.1.1, by providing additional guarantees required by individual organizations, where necessary;
4) the system-specific additions such as those given in Appendices I through V and possible future additions, if necessary.

Further, attention is drawn to the fact that where there are current systems, such as BML (see ARIB STD-B24) and MHEG-5, which are in extensive use, the addition of some functionalities may be required to assist migration to the harmonized system in future. An example is given in Appendix VI.

Annex A

Common core APIs

java.awt
java.awt.event
java.awt.image
java.beans
java.io
java.lang
java.lang.reflect
java.net
java.security
java.security.cert
java.util
java.util.zip
javax.media
javax.media.protocol
javax.tv.graphics
javax.tv.locator
javax.tv.media
javax.tv.media.protocol
javax.tv.net
javax.tv.service
javax.tv.service.guide
javax.tv.service.navigation
javax.tv.service.selection
javax.tv.service.transport
javax.tv.util
javax.tv.xlet
org.davic.media
org.davic.resources
org.havi.ui
org.havi.ui.event
java.math
java.rmi
java.security.spec
javax.net
javax.net.ssl
javax.security.cert
org.davic.mpeg

org.davic.mpeg.sections
org.davic.net
org.davic.net.dvb
org.davic.net.tuning
org.dvb.application
org.dvb.dsmcc
org.dvb.event
org.dvb.io.ixc
org.dvb.io.persistent
org.dvb.lang
org.dvb.media
org.dvb.net
org.dvb.net.tuning
org.dvb.net.rc
org.dvb.test
org.dvb.ui
org.dvb.user

Annex B

Globally executable MHP

For this annex, ETSI Standard TS 102 819 V1.1.1 applies. This Standard specifies a set of interfaces, and the semantic guarantees underlying those interfaces to enable binary interoperability of applications between different receiver specifications and/or standards.

The full text of TS 102 819 V1.1.1 can be found on the ETSI website at http://pda.etsi.org/pda/home.asp?wki_id=17842.

Appendix I

Specific additional APIs common to MHP 1.0.2 and MHP 1.1

org.davic.mpeg.dvb
org.davic.net.ca
org.dvb.net.ca
org.dvb.si

Appendix II

OCAP 1.0 specific additional APIs

org.ocap.application
org.ocap.event
org.ocap.hardware
org.ocap.hardware.pod
org.ocap.media
org.ocap.net
org.ocap.resource
org.ocap.service
org.ocap.system
org.ocap.system.error
org.ocap.ui.event

Appendix III

ARIB STD-B23 specific additional APIs

jp.or.arib.tv.media
jp.or.arib.tv.net
jp.or.arib.tv.si
jp.or.arib.tv.ui

Appendix IV

MHP 1.1 specific additional APIs

java.applet
java.awt.datatransfer
java.text
org.dvb.application.inner
org.dvb.application.plugins
org.dvb.application.storage
org.dvb.dom.bootstrap
org.dvb.dom.css
org.dvb.dom.dvbhtml
org.dvb.dom.environment
org.dvb.dom.event
org.dvb.dom.inner
org.dvb.internet
org.dvb.smartcard
org.w3c.dom
org.w3c.dom.css
org.w3c.dom.events
org.w3c.dom.html
org.w3c.dom.stylesheets
org.w3c.dom.views

Appendix V

DASE-1 specific additional APIs

com.sun.awt
com.sun.lang
java.text
java.util.jar
javax.tv.carousel
org.atsc.application
org.atsc.carousel
org.atsc.data
org.atsc.dom
org.atsc.dom.environment
org.atsc.dom.html
org.atsc.dom.views
org.atsc.graphics
org.atsc.management
org.atsc.net
org.atsc.preferences
org.atsc.registry
org.atsc.security
org.atsc.si
org.atsc.system
org.atsc.trigger
org.atsc.user
org.atsc.xlet
org.w3c.dom
org.w3c.dom.css
org.w3c.dom.events
org.w3c.dom.html
org.w3c.dom.stylesheets
org.w3c.dom.views

Appendix VI

Proposed changes to the MHP specification in order to assist migration to MHP from MHEG-5

The process of migration may be assisted by modification and/or addition to a harmonized specification. By way of example, proposals for migration from MHEG-5 to DVB-MHP, as mentioned in clause 5, are given below:

1) Extend the graphics APIs to support drawing lines thicker than 1 pixel for all primitives. This could be implemented by extending the underlying PersonalJava specification or by making DVB-specific extensions.

2) Add 14:9 font support to the DVBTextLayoutManager. If this is not feasible, then it may be possible to use a defensive solution of 16:9 for all display types. This would distort the font (by compressing it horizontally) but would ensure the expected text flow.

   However, the logical widths calculated when using this aspect ratio would be different, resulting in the line breaks being inserted at different points in the body of text. More importantly, anything other than very basic formatted text (relying on tabulation) would have a slim chance of being rendered correctly.

3) Add VK_CANCEL to the set of minimum supported key events.

4) Synchronize the character repertoire to MHEG repertoire specified in ETSI ES 202 184.

5) Provide CI AppMMI extensions; the ability for an interoperable plug-in to register itself as a handler for specific application domains, and the ability to operate a data pipe to the source module.

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