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

Application for Interactive Digital Television

**Worldwide common core – Application
environment for digital interactive television
services**

Recommendation ITU-T J.200

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Recommendation ITU-T J.200

Worldwide common core – Application environment for digital interactive television services

Summary

Recommendation ITU-T J.200 identifies the structure, the origins and the specification sources for a harmonized environment, including a set of application programming interfaces (APIs) for interactive television services.

History

Edition	Recommendation	Approval	Study Group
1.0	ITU-T J.200	2001-03-09	9
1.1	ITU-T J.200 (2001) Cor. 1	2004-05-14	9
2.0	ITU-T J.200	2010-04-29	9

FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications, information and communication technologies (ICTs). 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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Introduction

This Recommendation is the result of collaboration, within ITU-T and ITU-R, of organizations such as DVB, ARIB, ATSC, OpenCable, ABNT, etc., who have contributed to the process of harmonizing the application environment for a wide range of media throughout the world. This Recommendation outlines the structure of application environments specified by organizations such as those listed above and indicates the high level of commonality which has been achieved. It includes the origin and key specification sources used to define the application environment in the normative references, as well as relevant terms, definitions, abbreviations and acronyms. Additional descriptions of terms and acronyms relating to the general subject of digital video have also been included for information.

Recommendation ITU-T J.200

Worldwide common core – Application environment for digital interactive television services

1 Scope

This Recommendation defines the high-level architecture for a harmonized set of interactive content formats and application programming interfaces (APIs) capable of providing the variety of functionalities required by advanced interactive applications to be delivered over television networks to end-users' homes. This application environment can also be used for downloading purposes, display purposes, network control and security.

This Recommendation is intended to provide the "umbrella" for the work in progress preparing the detailed Recommendations defining the specifications for the application environment for various applications and also the mechanisms provided for future extensions. There will of course be some regional or media-specific requirements which demand variation from the common structure recommended. However, this "umbrella" Recommendation is intended to encourage and assist continued harmonization of the work in progress in the ITU on the application environment for digital interactive television services.

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

[ITU-T J.201] Recommendation ITU-T J.201 (2009), *Harmonization of declarative content format for interactive television applications*.

[ITU-T J.202] Recommendation ITU-T J.202 (2008), *Harmonization of procedural content formats for interactive TV applications*.

3 Definitions

3.1 Terms defined elsewhere

None.

3.2 Terms defined in this Recommendation

This Recommendation defines the following terms:

3.2.1 application: Information that expresses a specific set of observable behaviour.

3.2.2 application entity: A unit of information that expresses some portion of an application.

3.2.3 application environment (environment): The context or software environment in which an application is processed.

3.2.4 application programming interface (API): Software libraries that provide uniform access to system services.

- 3.2.5 application resource:** A bit-stream serialization (a physical embodiment) of an application entity.
- 3.2.6 application resource collection:** The set of application resources that embody an application entity collection.
- 3.2.7 broadcast markup language (BML) standard:** An XML [b-W3C XML] application language [b-ARIB STD B-24] that deals with tags and attributes for multimedia representation exclusively.
- 3.2.8 cascading style sheets (CSS):** Standard for the style sheet for a markup language document.
- 3.2.9 content:** A general term that refers to any of the following: application, application resource collection, or application resource.
- 3.2.10 declarative application:** An application which primarily makes use of declarative information to express its behaviour; an XML document instance is an example of a declarative application.
- 3.2.11 declarative application environment:** An environment that supports the processing of declarative applications; an XML user agent (browser) is an example of a declarative application environment.
- 3.2.12 digital storage media command and control (DSM-CC):** A control method defined in [b-ISO/IEC 13818-6], which provides access to files and streams for digital interactive services.
- 3.2.13 document object model (DOM):** An API that defines the logical structure of XML [b-W3C XML] and HTML [b-W3C HTML] documents and the way a document is accessed and manipulated. It is also called DOM-API. It is an interface independent from platforms and languages.
- 3.2.14 document object model (DOM) object:** An object generated by a HTML [b-W3C HTML] document.
- 3.2.15 ECMAScript:** Programming language defined by [b-ECMAScript].
- 3.2.16 execution engine:** A subsystem in a receiver that evaluates and executes procedural applications consisting of computer language instructions and associated data and media content. An execution engine may be implemented with an operating system, computer language compilers, interpreters and application programming interfaces (APIs), which a procedural application may use to present audiovisual content, interact with a user, or execute other tasks that are not evident to the user. A common example of an execution engine is the JavaTV software environment, using the Java programming language and byte code interpreter, JavaTV APIs, and a Java virtual machine for program execution.
- 3.2.17 extensible HTML (XHTML):** Reformulation of HTML [b-W3C HTML] as an application language of XML [b-W3C XML].
- 3.2.18 formatter:** A subsystem in a receiver that evaluates and presents declarative applications consisting of content in multiple formats. A formatter also responds to formatting information associated with the content, to user inputs, and to script statements that control presentation behaviour and initiate other processes in response to user input and other events. An example of a formatter is a nested context language (NCL) [b-NCL] formatter engine.
- 3.2.19 function:** A process which conveys or transforms data in a predictable way. It may be effected by hardware, software or a combination of both.
- 3.2.20 GINGA:** The middleware specification for the Brazilian digital TV system. It comprises two execution environments, for both declarative and imperative applications.