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Information technology — Coding of audio-visual objects —

Part 6: Delivery Multimedia Integration Framework (DMIF)

*Technologies de l'information — Codage des objets audiovisuels —
Partie 6: Charpente d'intégration de livraison multimédia (DMIF)*

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1. 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 part of ISO/IEC 14496 may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

International Standard ISO/IEC 14496-6 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

This second edition cancels and replaces the first edition (ISO/IEC 14496-6:1999), which has been technically revised.

ISO/IEC 14496 consists of the following parts, under the general title *Information technology — Coding of audio-visual objects*:

- *Part 1: Systems*
- *Part 2: Visual*
- *Part 3: Audio*
- *Part 4: Conformance testing*
- *Part 5: Reference software*
- *Part 6: Delivery Multimedia Integration Framework (DMIF)*

Annexes A to I of this part of ISO/IEC 14496 are for information only.

Introduction

The digital technology has transformed the generation, storage and communication of information. With this, the information age was borne allowing humankind to generate multimedia contents, communicate them and store them in meaningful ways. Digitization has also meant a rich variety of delivery and storage technologies, each bringing its own unique characteristics, over which multimedia material is communicated, broadcast or stored. The MPEG Delivery Multimedia Integration Framework (DMIF) allows each delivery technology to be used for its unique characteristics in a way transparent to application developers. DMIF specifies the semantics for the DMIF-Application Interface (DAI) in a way that it satisfies the requirements for both broadcast, local storage and remote interactive scenarios while maintaining uniformity across all cases. By including the ability to bundle connections into sessions DMIF enables network operators to apply appropriate billing policies in the provision of multimedia services. By adopting QoS metrics which relate to the media and not to the transport mechanism, DMIF hides the delivery technology details to applications. These unique features of DMIF give multimedia application developers what they need in terms of permanence and richness beyond what is possible with each individual delivery technology. With DMIF, application developers can begin to invest in commercial multimedia applications with the assurance that their investment will not be made obsolete by new delivery technologies. In order to fully reach its goal, DMIF needs "real" instantiation of its DMIF-Application Interface, and well defined, specific mappings of DMIF concepts and parameters into existing signalling infrastructures.

Information technology — Coding of audio-visual objects —

Part 6:

Delivery Multimedia Integration Framework (DMIF)

1 Scope

This part of ISO/IEC 14496 specifies the Delivery Layer of ISO/IEC 14496, which allows applications to transparently access and view multimedia streams whether the source of the streams is located on an interactive remote end-system, the streams are available on broadcast media or they are on storage media.

In this part of ISO/IEC 14496, the following aspects are covered:

DMIF communication architecture

DMIF-Application Interface (DAI) definition

URL semantic to locate and make available the multimedia streams

DMIF Default Signalling Protocol (DDSP) for remote interactive scenarios, and its related variations using existing native network signaling protocols

Information flows for player access to streams on remote interactive end-systems, from broadcast media or from storage media

2 Conformance

2.1 Requirements for conformance

DMIF conformance is only requested at the boundary of the equipment implementing a DMIF Instance. This includes the syntax and semantics of the particular Control protocol selected for a particular network (e.g., DMIF signalling messages), as well as the compliance to the mappings defined for broadcast and local storage systems.

DMIF conformance specifications is provided in ISO/IEC 14496-4.

2.2 DMIF-Application Interface

The DAI is a reference point. The exact syntax of the DAI is not defined by this part of ISO/IEC 14496, and does not represent a conformance point.

The DAI does not impose any programming language, nor syntax (e.g., the exact format for specifying a particular parameter -within the bounds of its semantic definition- or the definition of reserved values). Moreover the DAI provides only the minimal semantics for defining the behaviour of DMIF.

A real interface needs more than what is specified in the DAI (e.g.; methods to initialise, reset, reconfigure, destroy, query the status or register services). Most of these aspects, as well as the detailed syntax, deeply depend on the implementation and language bindings. Moreover such details have no impact on the DMIF model and on the conformance issues, and therefore they are out of the scope of DMIF.

2.3 DMIF signalling messages

This part of ISO/IEC 14496 specifies the syntax and semantics of a few instances of protocols for DMIF peer to DMIF peer interactivity, designed for specific network environments. A DMIF Instance making use of one of the specified protocols shall fully comply to it. A DMIF Instance implementing a protocol not specified in this International Standard cannot be tested for conformance, but may still be evaluated at the DAI Reference Point.

3 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC 14496. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO/IEC 14496 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ETS 300 401:1997, *Radio broadcasting systems: Digital Audio Broadcasting (DAB) to mobile, portable and fixed receivers.*

IEEE 802:1990, *IEEE Organization Unique Identifier.*

ISO/IEC 13818-6:1998, *Information technology — Generic coding of moving pictures and associated audio information — Part 6: Extension for DSM-CC.*

ISO/IEC 14496-1:—¹⁾, *Information technology — Coding of audio-visual objects — Part 1: Systems.*

ITU-T Recommendation Q.2931:1995, *Broadband Integrated Services Digital Network (B-ISDN) — Digital Subscriber Signalling System No. 2 (DSS 2) — User-Network Interface (UNI) — Layer 3 specification for basic call/connection control.*

ITU-T Recommendation E.164:1997, *The international public telecommunication numbering plan.*

RFC1738:1994, *Uniform Resource Locators (URL).*

1) To be published. (Revision of ISO/IEC 14496-1:1999)