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SERIES H: AUDIOVISUAL AND MULTIMEDIA SYSTEMS

Infrastructure of audiovisual services – Supplementary
services for multimedia

Generic functional protocol for the support of supplementary services in ITU-T H.323 systems

Recommendation ITU-T H.450.1

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Recommendation ITU-T H.450.1

Generic functional protocol for the support of supplementary services in ITU-T H.323 systems

Summary

Recommendation ITU-T H.450.1 describes the procedures and the signalling protocol between ITU-T H.323 entities (packet-based multimedia communications systems) for the control of supplementary services. The signalling protocol which is defined within this Recommendation is common to all ITU-T H.323 supplementary services.

Detailed procedures applicable to individual supplementary services are specified by other Recommendations of the ITU-T H.450.x-series and by individual manufacturers for proprietary services using the capabilities defined in this Recommendation.

The procedures of this Recommendation are derived from the generic functional protocol specified in ISO/IEC 11582 for private integrated services networks (PISN).

The revision approved in May 2011 corrects errors discovered in the initial publication.

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History

Edition	Recommendation	Approval	Study Group
1.0	ITU-T H.450.1	1998-02-06	16
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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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As of the date of approval of this Recommendation, ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementers are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database at <http://www.itu.int/ITU-T/ipr/>.

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Recommendation ITU-T H.450.1

Generic functional protocol for the support of supplementary services in ITU-T H.323 systems

1 Scope

This Recommendation defines the signalling protocol between ITU-T H.323 entities for the control of supplementary services. Detailed procedures applicable to individual supplementary services are specified by other Recommendations of the ITU-T H.450.x-series and by individual manufacturers for proprietary services using the capabilities defined in this Recommendation.

The procedures of this Recommendation are derived from the generic functional protocol specified in [ISO/IEC 11582] for private integrated services networks (PISN).

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 H.225.0] Recommendation ITU-T H.225.0 (2009), *Call signalling protocols and media stream packetization for packet-based multimedia communication systems*.
- [ITU-T H.245] Recommendation ITU-T H.245 (2009), *Control protocol for multimedia communication*.
- [ITU-T H.323] Recommendation ITU-T H.323 (2009), *Packet-based multimedia communications systems*.
- [ITU-T I.112] Recommendation ITU-T I.112 (1993), *Vocabulary of terms for ISDNs*.
- [ITU-T I.210] Recommendation ITU-T I.210 (1993), *Principles of telecommunication services supported by an ISDN and the means to describe them*.
- [ITU-T X.680] Recommendation ITU-T X.680 (1994) | ISO/IEC 8824-1:1995, *Information technology – Abstract Syntax Notation One (ASN.1) – Specification of basic notation*.
- [ITU-T X.680 Amd.1] Recommendation ITU-T X.680 (1994)/Amd.1 (1995) | ISO/IEC 8824-1:1995/Amd.1:1996, *Information technology – Abstract Syntax Notation One (ASN.1) – Specification of basic notation – Amendment 1: Rules of extensibility*.
- [ITU-T X.681 Amd.1] Recommendation ITU-T X.681 (1994)/Amd.1 (1995) | ISO/IEC 8824-2:1995/Amd.1:1996, *Information technology – Abstract Syntax Notation One (ASN.1) – Information object specification – Amendment 1: Rules of extensibility*.
- [ITU-T X.691] Recommendation ITU-T X.691 (1995) | ISO/IEC 8825-2:1996, *Information technology – ASN.1 encoding rules – Specification of Packed Encoding Rules (PER)*.

- [ITU-T X.880] Recommendation ITU-T X.880 (1994) | ISO/IEC 13712-1:1995, *Information technology – Remote Operations: Concepts, model and notation.*
- [ISO/IEC 11582] ISO/IEC 11582:2002, *Information technology – Telecommunications and information exchange between systems – Private Integrated Services Network – Generic functional protocol for the support of supplementary services – Inter-exchange signalling procedures and protocol.*

3 Terms and definitions

3.1 Terms defined elsewhere

This Recommendation uses the following terms defined elsewhere:

- 3.1.1 **object identifier:** [ITU-T X.680].
- 3.1.2 **ITU-T H.323 entity:** [ITU-T H.323].
- 3.1.3 **service:** [ITU-T I.112].
- 3.1.4 **signalling:** [ITU-T I.112].
- 3.1.5 **supplementary service:** Clause 2.4 of [ITU-T I.210].

3.2 Terms defined in this Recommendation

This Recommendation defines the following terms:

- 3.2.1 **application protocol data unit (APDU):** A sequence of data elements exchanged between peer application layer entities, e.g., remote operations service (ROS) APDUs.
- 3.2.2 **call independent:** A property of information which is conveyed in a message which does not use the call reference of a call.
- 3.2.3 **call independent signalling connection:** A signalling connection established between SS-Control entities located in different ITU-T H.323 entities for the exchange of call independent signalling information.
- 3.2.4 **call related:** A property of information which is conveyed in a message which uses the call reference of a call.
- 3.2.5 **destination entity:** In the context of a single one-way exchange of information between two SS-Control entities, the ITU-T H.323 entity where the receiving SS-Control entity is located.
- 3.2.6 **ITU-T H.450.1 supplement service APDU:** A specific APDU defined by Recommendation ITU-T H.450.1.
- 3.2.7 **interpretation APDU:** A specific APDU defined by Recommendation ITU-T H.450.1.
- 3.2.8 **invocation:** A request by a SS-Control entity to perform an operation in a remote SS-Control entity.
- 3.2.9 **mistyped:** A property of an application protocol data unit (APDU) whose structure does not conform to the structure defined in Recommendation ITU-T H.450.1 or the structure defined for a particular supplementary service.
- 3.2.10 **ROS APDU:** An APDU defined by the remote operations service (ROS).
- 3.2.11 **source entity:** In the context of a single one-way exchange of information between two SS-Control entities, the ITU-T H.323 entity where the sending SS-Control entity is located.

3.2.12 supplementary service control (SS-Control) entity: An entity that exists within an ITU-T H.323 entity and provides the procedures associated with the support of a particular supplementary service.

3.2.13 unrecognized: A property of a message, information element, APDU or operation value whose type identifier is not one supported by the destination entity.

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations:

APDU	Application Protocol Data Unit
ASN.1	Abstract Syntax Notation One
LAN	Local Area Network
MSI	Manufacturer-Specific Information
NFE	Network Facility Extension
PISN	Private Integrated Services Network
RAS	Registration, Admission and Status
ROS	Remote Operations Service
SS	Supplementary Service

5 General principles

The generic functional protocol defined in this Recommendation provides the means to exchange signalling information for the control of supplementary services over a LAN. It does not by itself control any supplementary service but rather provides generic services to specific SS-Control entities. Procedures for individual supplementary services based on these generic procedures are defined in other Recommendations of the ITU-T H.450.x-series or may be manufacturer-specific.

The generic functional protocol operates in conjunction with the call signalling protocol defined in [ITU-T H.225.0].

The generic functional protocol provides mechanisms for the support of supplementary services which relate to existing ITU-T H.323 calls or are entirely independent of any existing ITU-T H.323 calls. In performing a supplementary service, whether call independent or call related, use is made of the information transfer procedures specified below.

Supplementary service operations require an association between the respective peer SS-Control entities. This association is achieved implicitly by the transport connection used for call signalling.

SS-Control entities use the services of the remote operations service (ROS). The remote operations service (ROS) for [ITU-T H.323] is defined in clause 8.3 and based on [ITU-T X.880].

6 Procedures for the transport of APDUs

6.1 Call-related procedures

For the call-related transport of ITU-T H.450.1 supplementary service application protocol data units (APDUs), the call signalling channel and call reference of the call to which the APDU relates shall be used.

APDUs shall be conveyed in the User-user information element which shall be handled according to clauses 6.3 and 6.4.