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SERIES H: AUDIOVISUAL AND MULTIMEDIA SYSTEMS

Infrastructure of audiovisual services – Communication procedures

Gateway control protocol: Identification of content of communication

Recommendation ITU-T H.248.60

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Recommendation ITU-T H.248.60

Gateway control protocol: Identification of content of communication

Summary

Recommendation ITU-T H.248.60 defines an H.248 package to tag traffic of an individual H.248 stream/termination.

Source

Recommendation ITU-T H.248.60 was approved on 16 March 2009 by ITU-T Study Group 16 (2009-2012) under Recommendation ITU-T A.8 procedures.

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.

Compliance with this Recommendation is voluntary. However, the Recommendation may contain certain mandatory provisions (to ensure e.g. interoperability or applicability) and compliance with the Recommendation is achieved when all of these mandatory provisions are met. The words "shall" or some other obligatory language such as "must" and the negative equivalents are used to express requirements. The use of such words does not suggest that compliance with the Recommendation is required of any party.

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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.248.60

Gateway control protocol: Identification of content of communication

1 Scope

This Recommendation allows a media gateway controller (MGC) to request a media gateway (MG) to label/tag the content of communication using an H.248 interface. The tag for a particular media flow is termed as content of communication identifier (CCID) as H.248 signalling element. The inclusion of the CCID information in those packets is part of a dedicated encapsulation header.

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.248.1] Recommendation ITU-T H.248.1 (2005), *Gateway control protocol: Version 3* plus Amendment 1 (2008).

3 Definitions

3.1 Terms defined elsewhere

None.

3.2 Terms defined in this Recommendation

None.

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations:

CA	(H.248) Control Association
CC	Content of Communication
CCCI	Content of Communication Control Interface
CCID	Content of Communication Identifier
LCD	LocalControl Descriptor
MG	Media Gateway
MGC	Media Gateway Controller
SDU	Service Data Unit
UDP	User Datagram Protocol

5 Conventions

None.

6 Content of communication identity package for IP-based transport of content of communication

Package Name: Content of Communication Identity Package

Package ID: cci (0x00d1)

Description: This package enables the MGC to assign a correlation identifier for content of communication to a H.248 Termination/Stream.

Version: 1

Extends: None.

6.1 Properties

6.1.1 Content of communication identifier

Property Name: Content of Communication Identifier

Property ID: ccid (0x0001)

Description: This property corresponds to the correlation identifier for content of communication.

Type: Double

Possible values: Any value

NOTE – Profiles may further limit the value range and/or assign "special values".

Default: None.

Defined in: LocalControl

Characteristics: Read/Write

6.2 Events

None.

6.3 Signals

None.

6.4 Statistics

None.

6.5 Error codes

None.

6.6 Procedures

6.6.1 General

When traffic tagging is required for a media stream (of a bearer connection), the MGC sets the content of communication ID in the LocalControl descriptor (LCD) which is then passed to the MG via a H.248 command. For each bearer packet received, the MG tags the packet with the correlation identifier for content of communication as the key. Appendix I provides some examples of possible forwarding methods.

6.6.2 Example use case(s)

This package may be applied to any kind of service that copies IP-based bearer traffic. Traffic copying may be, for instance, used for (but not limited to):

a) online tests, with the limitation on a unidirectional traffic flow delivered towards a test equipment acting as traffic sink;

b) online monitoring of traffic for QoS purposes (e.g., in case of particular performance metrics which may not be provided by the MG itself);

c) simple and limited tracing capabilities of bearer traffic;

NOTE – Any advanced tracing service (e.g., as defined by [b-ETSI TS 132 421], [b-ETSI TS 132 422], [b-ETSI TS 132 423]) may benefit from the use of the 3GPP-defined H.248 *trace* package according to [b-ETSI TS 129 232].

d) access to intercepted bearer traffic.

Appendix I

Example protocol stacks at content delivery interface

(This appendix does not form an integral part of this Recommendation)

This appendix provides examples for possible encapsulation methods.

I.1 Default transport: IP-over-IP

The original IP packet, either an IP version 4 or version 6 packet, shall be encapsulated in another IP packet. This is conceptually an IP-over-IP tunnelling method (like already known from correspondent technologies like: "IP in IP encapsulation" [b-IETF RFC 2003], GRE (generic routing encapsulation) see [b-IETF RFC 2784] or the GPRS terrestrial IP transport domain (with so-called GTP tunnels)).

The IP tunnel itself may again use either IP version 4 or version 6. UDP should be the default transport protocol for the tunnel. The 4-byte word from the signalled *ccid* value shall be added in front of the original IP packet, which serves as a layer 4 service data unit (SDU) for the layer 4 tunnel protocol (e.g., the UDP payload in case of UDP). The mapping of *ccid* values to the 4-byte encapsulation header may be defined by a profile specification.

The described IP-over-IP transport mechanism represents an "*IP layering with additional encapsulation header*" tunnelling method.

There would be a unique protocol layering per network domain, i.e., a unique content delivery interface type per H.248 media gateway, and thus, per H.248 control association (CA). The applied protocol layering may be therefore defined by a profile specification using this package (or using provisioning).

I.2 Other encapsulation schemes

There may be other different possible protocol encapsulation schemes, like for instance:

- An application layer approach by using the *ccid* property value for the generation and insertion of digital signatures (on application layer) for the traffic at the content delivery interface; or even
- A non-IP-based packet-switched bearer technology for content delivery.

This Recommendation does not limit other encapsulation alternatives; however, a mutual agreement between MGC and MG would be then required (which would be an H.248 profile specification using the *cci* package).

Bibliography

[b-ETSI TS 129 232] ETSI TS 129 232 (2007), *Universal Mobile Telecommunications System (UMTS); Media Gateway Controller (MGC) – Media Gateway (MGW) interface; Stage 3 (3GPP TS 29.232 version 7.7.0 Release 7)*.

[b-ETSI TS 132 421] ETSI TS 132 421 (2007), *Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS);Telecommunication management; Subscriber and equipment trace; Trace concepts and requirements (3GPP TS 32.421 version 7.2.0 Release 7)*.

[b-ETSI TS 132 422] ETSI TS 132 422 (2007), *Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Telecommunication management; Subscriber and equipment trace; Trace control and configuration management (3GPP TS 32.422 version 7.2.0 Release 7)*.

[b-ETSI TS 132 423] ETSI TS 132 423 (2007), *Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Telecommunication management; Subscriber and equipment trace; Trace data definition and management (3GPP TS 32.423 version 7.4.0 Release 7)*.

[b-IETF RFC 2003] IETF RFC 2003 (1996), *IP Encapsulation within IP*.

[b-IETF RFC 2784] IETF RFC 2784 (2000), *Generic Routing Encapsulation (GRE)*.

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