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Gateway control protocol: H.248.1 packages for H.323 and H.324 interworking

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ITU-T Recommendation H.248.12

Gateway control protocol: H.248.1 packages for H.323 and H.324 interworking

CONTENTS

Page

1	Introduction	5
2	Scope	5
3	References.....	6
4	H.324 package	7
4.1	Properties.....	8
4.1.1	Communication mode	8
4.1.2	Highest Multiplexing Level	8
4.1.3	Demultiplex.....	8
4.1.4	Remote H.223 capability.....	9
4.1.5	Incoming Multiplex Table.....	9
4.1.6	Outgoing Multiplex Table.....	9
4.2	Events	10
4.3	Signals	10
4.4	Statistics.....	10
4.4.1	MUXPDU sent	10
4.4.2	MUXPDU received.....	10
4.4.3	MUXPDU error.....	10
4.5	Procedures	10
5	H.245 Package	11
5.1	Properties.....	11
5.1.1	H.245 channel state	11
5.1.2	Terminal Type	12
5.2	Events	12
5.2.1	H.245 Message	12
5.2.2	H.245 Channel Closed	15
5.3	Signals	15
5.4	Statistics.....	15
5.5	Procedures	15
6	H.323 Bearer Control Package	15
6.1	Properties.....	16
6.1.1	Fast Connect.....	16
6.1.2	H.245 Message Encapsulation	16
6.2	Events	16
6.3	Signals	17
6.4	Statistics.....	17
6.5	Procedures	17

7	H.245 Command Package	17
7.1	Properties.....	18
7.1.1	Incoming MiscellaneousCommand.....	18
7.1.2	Outgoing Miscellaneous Command.....	18
7.1.3	Incoming H223MultiplexReconfiguration Command	18
7.1.4	Outgoing H223MultiplexReconfiguration Command	19
7.2	Events	19
7.3	Signals	19
7.4	Statistics.....	19
7.5	Procedures	19
8	H.245 Indication package	19
8.1	Properties.....	19
8.1.1	Incoming MiscellaneousIndication	19
8.1.2	Outgoing MiscellaneousIndication	20
8.2	Events	20
8.3	Signals	20
8.4	Statistics.....	20
8.5	Procedures	20
9	Call flows.....	20
9.1	H.323-Annex C/H.324 interworking with H.245 in MG	20
9.1.1	Calls with origination by the Annex C/H.324 side	20
9.1.2	Calls with origination by the H.323 side.....	22
9.2	H.323-Annex C/H.324 interworking with H.245 in MGC.....	23
9.3	Tunnelling of Annex C/H.324 bitstream	25
	Annex A Extended H.324, H.245 command and H.245 indication packages	26
A.1	Scope	26
A.2	References	26
A.3	Definitions	26
A.4	Abbreviations and acronyms	26
A.5	Extended H.324 package	27
A.5.1	Properties.....	27
A.5.2	Events.....	28
A.5.3	Signals	28
A.5.4	Statistics	28
A.5.5	Procedures	28
A.6	Extended H.245 command package	31
A.6.1	Properties.....	31
A.6.2	Events.....	31
A.6.3	Signals	31

A.6.4	Statistics	31
A.6.5	Procedures	32
A.7	Extended H.245 indication package	32
A.7.1	Properties.....	32
A.7.2	Events	33
A.7.2.1	Skew Update	33
A.7.3	Signals	34
A.7.4	Statistics	34
A.7.5	Procedures	34
A.8	H.245 transport package	35
A.8.1	Properties.....	36
A.8.2	Events	36
A.8.3	Signals	36
A.8.4	Statistics	37
A.8.5	Procedures	37
Bibliography		37

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Gateway control protocol: H.248.1 packages for H.323 and H.324 interworking

Summary

This Recommendation defines several H.248.1 packages that are intended for Media Gateways designed to support interworking between H.323 terminals and H.324 terminals. More specifically, this Recommendation contains: package "h324" for creating terminations supporting H.324, package "h245" for creating terminations supporting H.245 channels for H.324 calls, package "h323bc" for creating terminations supporting H.245 channels for H.323 calls, package "h245com" for the communication of H.245 commands between a MGC and MG, and package "h245ind" for the communication of H.245 indications.

This revision allows the MGC to request the MG to report when the h223Skewindication parameter exceeds a certain amount.

1 Introduction

This Recommendation gathers packages for H.245, H.245 parameters specific to H-series audiovisual terminals, and Annex C/H.324 terminals for use with the H.248.1 gateway control protocol. The packages in this Recommendation are in conformance with clause 12/H.248.1 package definition guidelines.

Amendment 1 introduced extended H.324, H.245 command and H.245 indication packages for interworking with H.324 terminals having different H.324 capabilities, when the interworking function is handled by the MGC.

Amendment 2 introduces a H.245 transport package that allows H.245 signalling to be sent between a MGC and MG across H.248.

2 Scope

This Recommendation describes packages for the H.248.1 gateway control protocol related to interworking of H.323 and H.324 terminals, as follows:

- Package "h324" for termination of H.324 bitstream on MGs.
- Package "h245" for termination of H.245 messages on MGs.
- Package "h323bc" for H.245 parameters specific to H.323.
- Package "h245com" for providing properties that allow the MGC to indicate to the MG that the MGC has sent or received an H.245 command.
- Package "h245ind" for providing properties that allow the MGC to indicate to the MG that the MGC has sent or received an H.245 indication.

With the terminations implementing "h324", "h245com" and "h245ind" packages, the decomposed gateway may support H.324 communication with the H.245 control function in the MGC. In the H.324 and H.323 interworking scenario with this decomposed gateway, H.245 control messages are terminated in the MGC (a backhaul is used between the MG and the MGC to transport H.245 messages between the MG and the MGC, on the H.324 side). The terminations for media on both H.324 and H.323 sides are managed by the MGC.

With the terminations implementing "h324" and "h245" packages, the decomposed gateway may support H.324 communication with H.245 control in the MG. In the H.324 and H.323 interworking

scenario with this decomposed gateway, H.245 control messages from the H.324 side and the H.323 side are terminated in the "h245" termination and in the "h323bc" termination respectively, and are processed in the MG. The MG manages the logical channels for media.

Annex A describes extended H.324, H.245 command, H.245 indication and H.245 transport packages for interworking with H.324 terminals having different H.324 capabilities, when the interworking function is handled by the MGC.

3 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.223] Recommendation ITU-T H.223 (07/2001), *Multiplexing protocol for low bit rate multimedia communication*
- [ITU-T H.245] Recommendation ITU-T H.245 (05/2006), *Control protocol for multimedia communication*
- [ITU-T H.248.1] Recommendation ITU-T H.248.1 (2002), *Gateway control protocol: Version 2*
- [ITU-T H.248.15] Recommendation ITU-T H.248.15 (2002), *Gateway control protocol: SDP H.248 package attribute*
- [ITU-T H.323] Recommendation ITU-T H.323 (11/2000), *Packet-based multimedia communications systems*
- [ITU-T H.324] Recommendation ITU-T H.324 (09/2005), *Terminal for low bit-rate multimedia communication*
- [ITU-T V.8] Recommendation ITU-T V.8 (11/2000), *Procedures for starting sessions of data transmission over the public switched telephone network*
- [ITU-T V.8bis] Recommendation ITU-T V.8bis (11/2000), *Procedures for the identification and selection of common modes of operation between data circuit-terminating equipments (DCEs) and between data terminal equipments (DTEs) over the public switched telephone network and on leased point-to-point telephone-type circuits*
- [ITU-T V.34] Recommendation ITU-T V.34 (02/1998), *A modem operating at data signalling rates of up to 33 600 bit/s for use on the general switched telephone network and on leased point-to-point 2-wire telephone-type circuits*
- [ITU-T V.42] Recommendation ITU-T V.42 (10/1996), *Error-correcting procedures for DCEs using asynchronous-to-synchronous conversion*
- [ITU-T V.42bis] Recommendation ITU-T V.42bis (01/1990), *Data compression procedures for data circuit-terminating equipment (DCE) using error correction procedures*
- [ITU-T V.140] Recommendation ITU-T V.140 (02/1998), *Procedures for establishing communication between two multiprotocol audiovisual terminals using digital channels at a multiple of 64 or 56 kbit/s*
- [ITU-T X.691] Recommendation ITU-T X.691 (07/2002), *Information technology – ASN.1 encoding rules: Specification of Packed Encoding Rules (PER)*

4 H.324 package

Package Name: H.324
 Package ID: h324 (0x002c)
 Version: 1
 Extends: None
 Description: This package is defined to support terminations for calls using ITU-T Rec. H.324. The transport mechanism or bearer channel will be different for each environment where the package is used.

Figure 1 shows the functional view of a H.324 multimedia call and the MGC control points defined in the H.324 package. In ITU-T Rec. H.324, there are three communication modes defined according to the underlying network: a PSTN mode defined in ITU-T Rec. H.324 main body (H.324P), a mobile network mode defined in Annex C/H.324 (H.324M), and an ISDN mode defined in Annex D/H.324 (H.324I). One of these communication modes shall be selected when the termination implementing the H.324 package is invoked by the MGC.

In version 1 of the H.324 package, only the functionalities required of the H.324M mode are defined. The functionalities for H.324P and H.324I are FFS, and will be defined in version 2, or later.

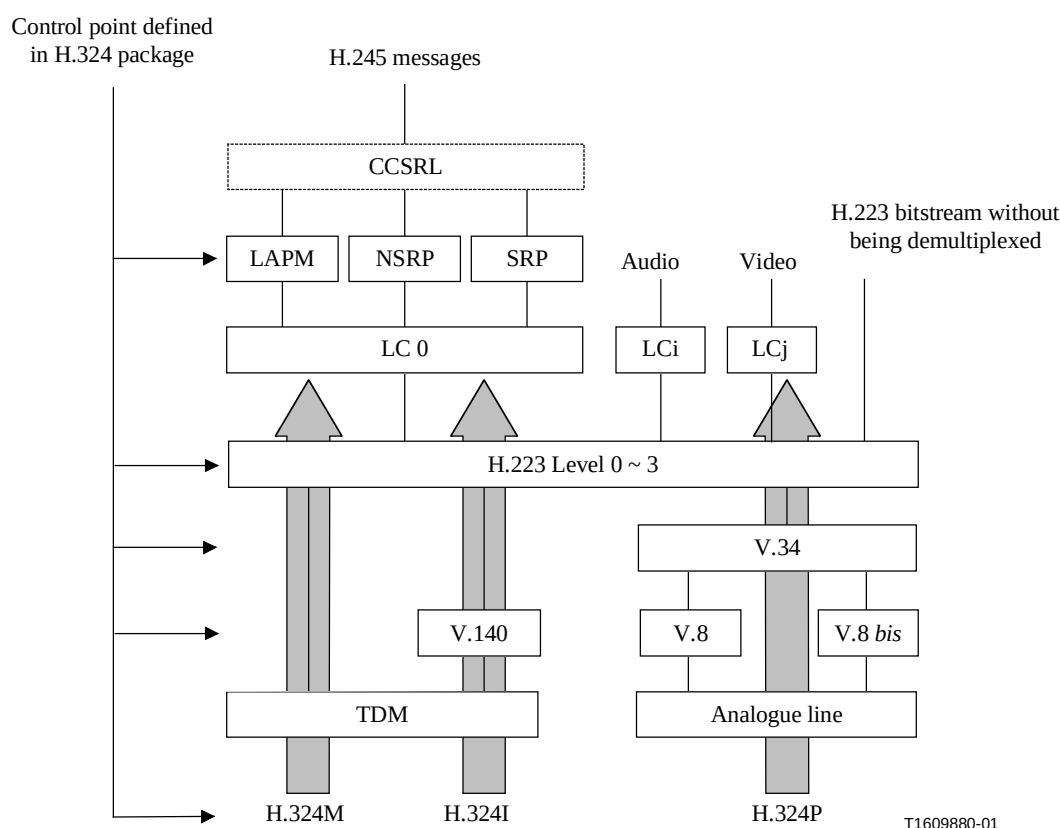


Figure 1/H.248.12 – Control point defined in H.324 package

4.1 Properties

4.1.1 Communication mode

Property Name:	Communication mode
Property ID:	cmod (0x0001)
Type:	Enumeration
Possible values:	H324P (0x0001): H324 operating in the base PSTN mode using a V-series modem H324M (0x0002): Annex C/H.324 (Mobile) H324I (0x0003): Annex D/H.324 (ISDN)
Default:	Provisioned
Defined in:	TerminationState
Characteristics:	Read/Write
Description:	This property indicates the communication mode to be followed by the termination.

4.1.2 Highest Multiplexing Level

Property Name:	Highest Multiplexing level
Property ID:	muxlv (0x0002)
Type:	Enumeration
Possible values:	Level0 (0x0001): H.223 level 0 defined in ITU-T Rec. H.223 Level1 (0x0002): H.223 level 1 defined in Annex A/H.223 Level2 (0x0003): H.223 level 2 defined in Annex B/H.223 Level3 (0x0004): H.223 level 3 defined in Annex C/H.223
Default:	Level0
Defined in:	TerminationState
Characteristics:	Read/Write
Description:	This property indicates the highest level of H.223 multiplexing which can be used by the termination. The indicated level is used in the multiplex level initialization phase as defined in C.6/H.324. If the communication mode property is set to 'H324P' or 'H324I', the value of the highest multiplexing level property shall be set to 'Level0'.

4.1.3 Demultiplex

Property Name:	Demultiplex
Property ID:	demux (0x0003)
Type:	Boolean
Possible values:	TRUE (0x0001): H.223 multiplexed stream is demultiplexed FALSE (0x0000): H.223 multiplexed stream is not demultiplexed
Default:	TRUE
Defined in:	LocalControl

Characteristics:	Read/Write
Description:	This property specifies the operation on the H.223 multiplexed stream received by the termination. If set to 'FALSE', the H.223 multiplexed stream is relayed to the other termination without being demultiplexed. If set to 'TRUE', each logical channel data is extracted from the multiplexed stream, and is given to the appropriate termination.

4.1.4 Remote H.223 capability

Property Name:	Remote H.223 capability
Property ID:	h223capr (0x0004)
Type:	Octet String
Possible values:	This property indicates the value of the H.245 H223Capability structure encoded by applying the Packed Encoding Rules (PER) specified in ITU-T Rec. X.691.
Defined in:	LocalControl
Characteristics:	Read/Write
Description:	This property indicates the remote endpoint's capabilities specific to the H.223 multiplex capability. The MGC shall set the value of the 'h223capr' property to the value of the H223Capability in the received H.245 message.

4.1.5 Incoming Multiplex Table

Property Name:	Incoming Multiplex Table
Property ID:	muxtbl_in (0x0005)
Type:	Octet String
Possible values:	This property indicates the value of H.245 MultiplexEntrySend message received by the MGC (see description for details). The MultiplexEntrySend structure is encoded by applying PER.
Default:	Provisioned
Defined in:	LocalControl
Characteristics:	Read/Write
Description:	This property indicates the H.223 multiplex table which associates each octet within an H.223 MUX-PDU with a particular logical channel number. Upon receipt of the MultiplexEntrySend message from the remote endpoint, the MGC shall decide whether it confirms or rejects each multiplex table entry. The MGC shall create an equivalent MultiplexEntrySend message that contains only the entries that it confirmed to the remote H.324 terminal and the MGC shall send the created message as the content of the muxtbl_in property so that the MG can perform the demultiplexing of the incoming H.223 MUX-PDUs.

4.1.6 Outgoing Multiplex Table

Property Name:	Outgoing Multiplex Table
Property ID:	muxtbl_out (0x0006)

Type:	Octet String
Possible values:	This property indicates the value of H.245 MultiplexEntrySend message sent by the MGC (see description for details). The MultiplexEntrySend structure is encoded by applying PER.
Default:	Provisioned
Defined in:	LocalControl
Characteristics:	Read/Write
Description:	This property indicates the H.223 multiplex table which associates each octet within an H.223 MUX-PDU with a particular logical channel number. Upon receipt of the MultiplexEntrySendAck message from the remote endpoint, the MGC shall send multiplex table entries which are confirmed by the remote endpoint as the content of the muxtbl_out property. Thus the MG can perform the multiplexing of the outgoing H.223 MUX-PDUs.

4.2 Events

None.

4.3 Signals

None.

4.4 Statistics

4.4.1 MUXPDU sent

Statistics ID:	muxsent (0x0001)
Type:	Integer
Units:	number of MUX-PDUs
Description:	Number of MUX-PDUs sent from the termination.

4.4.2 MUXPDU received

Statistics ID:	muxrec (0x0002)
Type:	integer
Units:	number of MUX-PDUs
Description:	Number of MUX-PDUs received by the termination.

4.4.3 MUXPDU error

Statistics ID:	muxerr (0x0003)
Units:	number of MUX-PDUs
Description:	Number of the received MUX-PDU in which MUX-PDU header error is detected.

4.5 Procedures

MGC shall create an H.324 termination with the appropriate value of the "cmod" property. MG shall establish the connection according to procedures defined in ITU-T Rec. H.324 for the communication mode indicated by the 'cmod' property.