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Supplement 2

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SERIES H: AUDIOVISUAL AND MULTIMEDIA SYSTEMS

ITU-T H.248.x sub-series packages guide – Release 12

ITU-T H-series Recommendations – Supplement 2

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For further details, please refer to the list of ITU-T Recommendations.

Supplement 2 to ITU-T H-series Recommendations

ITU-T H.248.x sub-series packages guide – Release 12

Summary

Supplement 2 to ITU-T H-series Recommendations summarizes packages that have been standardized in the time-frame from June 2000 to January 2009. It identifies packages that meet ITU-T H.248.x sub-series requirements for package definition and are for general use by the wider standards community.

H.248.x sub-series packages guide – Release 12 provides for the:

- identification of packages that are considered technically consistent with ITU-T H.248.x sub-series principles and packages definition rules in clause 12 of Recommendation ITU-T H.248.1;
- identification of packages that are currently being worked upon;
- identification of packages that have been worked upon over a certain period of time;
- identification of packages with overlapping functionality.

Implementors are encouraged to review the packages in this supplement before proposing new packages.

Release 12 contains:

- New packages defined in Recommendations ITU-T H.248.19, H.248.61 and H.248.64.
- Revised packages defined in Recommendations ITU-T H.248.1v3 Amd.2, H.248.9, H.248.19, H.248.52 and H.248.53.
- References to new work items: Recommendations ITU-T H.248.68 (ex H.248.RDT), H.248.69 (ex H.248.MSRP), H.248.70 (ex H.248.DMI), H.248.71 (ex H.248.RECRTCP), H.248.72 (ex H.248.MONA) and H.248.73 (ex H.248.MSCML).
- Reference to a new 3GPP package.

Source

Supplement 2 to ITU-T H-series Recommendations was agreed on 6 February 2009 by ITU-T Study Group 16 (2009-2012).

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.

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Supplement 2 to ITU-T H-series Recommendations

ITU-T H.248.x sub-series packages guide – Release 12

1 Scope

This supplement summarizes packages that have been standardized in the time-frame from June 2000 to January 2009. It identifies packages that meet ITU-T H.248.x sub-series requirements for package definition and are for general use by the wider standards community.

H.248.x sub-series packages guide – Release 12 provides for the:

- identification of packages that are considered technically consistent with H.248.x sub-series principles and packages definition rules in clause 12 of [ITU-T H.248.1];
- identification of packages that are currently being worked upon;
- identification of packages that have been worked upon over a certain period of time;
- identification of packages with overlapping functionality.

ITU-T Study Group (sg) 16 invites package authors/editors to share their current and future work on packages in the form of contribution, liaison or communication to ITU-T Study Group 16. This will assist ITU-T Study Group 16 in producing future releases of this supplement. ITU-T Study Group 16 will then endeavour to provide constructive comments to assist you in your packages work. If ITU-T SG 16 determines that your packages are consistent with ITU-T H.248 and, particularly, clause 12 of [ITU-T H.248.1], it will include these in the "Externally defined packages that meet requirements" clause of the ITU-T H.248.x sub-series packages guide.

2 References

[ITU-T H.248.1] Recommendation ITU-T H.248.1 v3 (2005), *Gateway control protocol: Version 3*.

[ITU-T Q.1950] Recommendation ITU-T Q.1950 (2002), *Bearer independent call bearer control protocol*.

See clauses below for individual references.

3 Definitions

None.

4 Abbreviations

None.

5 ITU-T Study Group 16 packages

Package name and description	Identity		Version	Reference	Status
	Text	Binary			
Annex E ITU-T H.248.1 **Basic packages** The packages contained in this annex are:				Annex E ITU-T H.248.1 v3 (2005) Amendment 2	Done In progress
• generic package;	g	0x0001	2		
• base root package;	root	0x0002	2		
• tone generator package;	tonegen	0x0003	2		
• tone detection package;	tonedet	0x0004	1		
• basic DTMF generator package;	dg	0x0005	2		
• DTMF detection package;	dd	0x0006	2		
• call progress tones generator package;	cg	0x0007	2		
• call progress tones detection package;	cd	0x0008	1		
• analog line supervision package;	al	0x0009	1		
• basic continuity package;	ct	0x000a	1		
• network package;	nt	0x000b	1		
• RTP package;	rtp	0x000c	1		
• TDM circuit package;	tdmc	0x000d	1		
• segmentation package;	seg	0x00a3	1		
• notification behaviour package.	nb	0x009a	1		
Amendment 2 contains enhancements to the DTMF detection package					
ITU-T H.248.2 **Facsimile, text conversation and call discrimination packages** This Recommendation describes packages for fax, text telephone, call type discrimination, and data call detection. The packages contained in this Recommendation are:				ITU-T H.248.2 (2005)	Version 1 done ftmd & ctyp version 2 done
The call type discrimination package defines control and monitoring of a PSTN line for the signalling protocols used in the beginning of a session of data transmission for fax, text telephony or data.	ctyp	0x0011	3		

Package name and description	Identity		Version	Reference	Status
	Text	Binary			
The text telephone package defines control of a PSTN text telephone session in any of the modes supported by the automoding text telephone Rec. ITU-T V.18.	txp	0x0010	1		
The fax package defines control of a PSTN fax transmission.	fax	0x0012	1		
The fax/textphone/modem tones detection package defines control over a termination for detection of any signals from a fax, text telephone or data modem during a connection in voice mode.	ftmd	0x000e	2		
The text conversation package defines control over a real-time interactive text conversation session using a universal presentation format and transferred with a transport method from a multimedia protocol in any network environment.	txc	0x000f	1		
The IP fax package defines control over facsimile transmission in a packet network.	ipfax	0x0013	2		
ITU-T H.248.3 **User interface elements and actions packages**	dis	0x0014	1	ITU-T H.248.3 (2000) Cor.1 (2004)	Done
	key	0x0015	1		
	kp	0x0016	1		
	labelkey	0x0017	1		
	kf	0x0018	1		
	ind	0x0019	1		
	ks	0x001a	1		
	anci	0x001b	1		
ITU-T H.248.6 **Dynamic tone definition package** This package defines a mechanism to redefine existing tones and create new tones for playback. The existing tones are the ones described in supported packages that extend the tonegen generic package.	dtd	0x001c	1	ITU-T H.248.6 (2000)	Done

Package name and description	Identity		Version	Reference	Status
	Text	Binary			
ITU-T H.248.7 **Generic announcement package** This package supports announcement functionality at a Media Gateway. This announcement could be realized by the Media Gateway as different sorts of messaging. For example, it could be an audio announcement, a text message or a composition of text messages.	an	0x001d	1	ITU-T H.248.7 (2004)	Done
ITU-T H.248.9 **Advanced media server packages** The basic audio package provides support for the standard IVR operations of PlayAnnouncement, PlayCollect, and PlayRecord. It supports direct references to simple audio as well as indirect references to simple and complex audio. It provides audio variables, control of audio interruptability, digit buffer control, special key sequences, and support for reprompting during data collection. The advanced audio package extends the base package by providing an arbitrary number of user-defined qualifiers to be used in resolving complex audio structures. For example, the user could define qualifiers for any or all of the following: language, accent, audio file format, gender, speaker, or customer. The Jan. 2005 Revision includes: • new variable type "tone" for dynamic audio segment specification; • set extension of basic syntax: introduction of a new selector for text attributes; • variable type "Phrase": introduction of subtypes; • signal PlayCollect: enhanced functionality, new parameters.	 aasb aasdc aasrec aassm bannsyx vvsyx setsyx phrsyx asr aastts mpp mrp edtmf	 0x0033 0x0034 0x0035 0x0036 0x0047 0x0048 0x0049 0x004a 0x00a6 0x00a8 0x00a9 0x00b3 0x00??	 3 3 3 1 1 2 3 2 1 2 2 2 1	ITU-T H.248.9 (2005) Amd.1 (2007) Revised	Done In progress

Package name and description	Identity		Version	Reference	Status
	Text	Binary			
Amendment 1 includes: • enhancements to aasb and aasrec; • automatic speech recognition; • text to speech set syntax; • advanced audio server base package for TTS enhancement; • multimedia play package; • multimedia recording package. The 02/2009 revision includes: • enhancement to aasb, aasdc, aasrec, mpp and mrp.					
ITU-T H.248.10 **Media gateway resource congestion handling package** This package makes it possible for the MG to control its load.	chp	0x0029	1	ITU-T H.248.10 (2001)	Done
ITU-T H.248.11 **Media gateway overload control package** This is a more in-depth proposal than ITU-T H.248.10.	ocp	0x0051	1	ITU-T H.248.11 (2002)	Done
ITU-T H.248.12 **H.248.1 packages for H.323 and H.324 interworking** This Recommendation gathers together packages for ITU-T H.245, ITU-T H.245 parameters specific to H-series audiovisual terminal and Annex C ITU-T H.324 for use with the ITU-T H.248.1 gateway control protocol. The packages in this Recommendation are in conformance with clause 12 ITU-T H.248.1 package definition guidelines.	h245 h323bc h324 h245com h245ind	0x002a 0x002b 0x002c 0x002d 0x002e	1 1 1 1 1	ITU-T H.248.12 (2001)	Done
Annex A ITU-T H.248.12 **Extended H.324, H.245 command and H.245 indication packages** This annex introduces package extensions that allow the MGC to control the interworking between ITU-T H.324 and ITU-T H.323. Amendment 2 adds a new package to allow tunnelling of ITU-T H.245 messages between a MGC and MG.	h324ext h245comext h245indext h245tp	0x0063 0x0064 0x0065 0x00b4	1 1 1 1	Amd.1/ ITU-T H.248.12 (2002) Amd.2 (2007)	Done

Package name and description	Identity		Version	Reference	Status
	Text	Binary			
ITU-T H.248.13 **Quality alert ceasing package** This package enables the MG to indicate when a line has returned to normal quality.	qac	0x0037	1	ITU-T H.248.13 (2002)	Done
ITU-T H.248.14 **Inactivity timer package** This is used by MG to poll whether or not the MGC is still alive. Revision 1 only contains procedural updates.	it	0x0045	1	ITU-T H.248.14 (2002) Revision 1 (03/2009)	Done
ITU-T H.248.15 **SDP H.248 package attribute** This Recommendation describes SDP attributes to allow the text local and remote descriptor to contain properties.	NA	NA	NA	ITU-T H.248.15 (2002)	Done
ITU-T H.248.16 **Enhanced digit collection packages and procedures**	xdd edd	0x0052 0x0066	1 1	ITU-T H.248.16 (2002), plus Cor.1 (2004)	Done
ITU-T H.248.17 **Line test packages** This Recommendation contains a number of packages that enables line tests to be performed.				ITU-T H.248.17 (2002), plus Cor.1 (2004)	Done
• quiet termination test component;	qtlt	0x0053	1		
• loopback line test response;	lltr	0x0054	1		
• ITU-T 404 Hz line test package;	itult404	0x0055	1		
• ITU-T 816 Hz line test package;	itult816	0x0056	1		
• ITU-T 1020 Hz line test package;	itult1020	0x0057	1		
• ITU-T 2100 Hz disable tone line test package;	itultdist	0x0058	1		
• ITU-T 2100 Hz disable echo canceller tone line test package;	itultdisecd	0x0059	1		
• ITU-T 2804 Hz tone line test package;	itult2804	0x005a	1		
• ITU-T noise test tone line test package;	itultntt	0x005b	1		
• ITU-T digital pseudo random test tone line test package;	itultdprt	0x005c	1		
• ITU-T ATME No. 2 test line response package;	itultatme2	0x005d	1		
• ANSI 1004 Hz test tone line test package;	ansilt1004	0x005e	1		

Package name and description	Identity		Version	Reference	Status
	Text	Binary			
• ANSI test responder line test package;	ansilttres	0x005f	1		
• ANSI 2225 Hz test progress tone line test package;	ansilt2225	0x0060	1		
• ANSI digital test signal line test package;	ansiltdts	0x0061	1		
• ANSI inverting loopback line test response.	ansiinvlltr	0x0062	1		
ITU-T H.248.18 **Package for support of multiple profiles** This package enables the MGC to determine what packages are on the MG.	prp	0x0050	1	ITU-T H.248.18 (2002)	Done
ITU-T H.248.19 **Decomposed multipoint control unit, audio, video and data conferencing packages** This Recommendation describes the decomposition of a media control unit, requirements and packages for media resource functions.				ITU-T H.248.19 (2004) plus Amd.1 (2006) plus Amd.2 (03/2009)	Done
• floor control package;	fcp	0x006e	2		
• indication of being viewed package;	indview	0x006f	1		
• volume control package;	vcp	0x0070	1		
• volume detection package;	vdp	0x0072	1		
• volume level mixing package;	vlmp	0x0073	1		
• mixing volume level control package;	mvlcp	0x0074	1		
• voice activated video switch package;	vavsp	0x0075	1		
• lecture video mode package;	lvmp	0x0076	1		
• contributing video source package;	cvsp	0x0077	1		
• video window package;	vwp	0x0078	1		
• tiled window package;	tilwin	0x0079	1		
• text overlay package;	top	0x00a1	1		
• border and background package.	bbp	0x00a2	1		

Package name and description	Identity		Version	Reference	Status
	Text	Binary			
Amendment 2 includes: • stream support in fcp package; • floor status change handling package; • floor control policy package; • floor control signalling package; • Include Participant in Mix Package; • Speaker Reporting Package;	 fschp fcpoli fcsig ipm speakrep	 0x00aa 0x00ab 0x00e5 0x00e6 0x00e7	 1 1 1 1 1		
ITU-T H.248.20 **The use of local and remote descriptors with H.221/H.223 multiplexing** This Recommendation describes how the local and remote descriptors are filled in for ITU-T H.221 and ITU-T H.223 multiplexing terminations.	NA	NA	NA	ITU-T H.248.20 (2002)	Done
ITU-T H.248.21 **Semi-permanent connection handling package** This Recommendation describes a package to enable the media gateway controller to indicate to the media gateway that terminations and the connection between the "semi-permanent" marked terminations shall be treated as semi-permanent.	semper	0x006a	1	ITU-T H.248.21 (2004)	Done
ITU-T H.248.22 **Shared risk group package** ITU-T H.248.22 describes a package to enable the media gateway controller (MGC) to indicate to the media gateway (MG) to use or to not use network resources associated with a shared risk group when setting up connections. A shared risk group is a group of resources that share the same risk of failure.	shrisk	0x006b	1	ITU-T H.248.22 (2003)	Done

Package name and description	Identity		Version	Reference	Status
	Text	Binary			
ITU-T H.248.23 **Enhanced alerting packages** This Recommendation defines two packages that provide enhanced alerting and data transfer capabilities for ITU-T H.248:				ITU-T H.248.23 (2005)	Done
• enhanced alerting package;	alert	0x003b	2		
• analogue display signalling package.	andisp	0x003c	2		
Version 2 of the packages increases the ring cadences from 15 to 256.					
ITU-T H.248.24 **MF tone generation and detection packages** This Recommendation defines two packages that provide multi-frequency tone generation and detection capabilities for ITU-T H.248:				ITU-T H.248.24 (2003)	Done
• multifrequency tone generation package;	mfg	0x003d	1		
• multifrequency tone detection package.	mfd	0x003e	1		
ITU-T H.248.25 **Basic CAS packages** This Recommendation defines basic channel associated signalling (CAS) and R1 packages and supplemental CAS packages:				ITU-T H.248.25 (2003) plus Cor.1 (2004) Superseded by Revision (01/2007)	Done
• basic CAS package;	bcas	0x003f	2		
• robbed bit signalling package;	rbs	0x0040	1		
• operator services and emergency services package;	oses	0x0041	1		
• operator package.	osext	0x0042	1		
Revision (01/2007) adds read-only CAS state properties.					
ITU-T H.248.26 **Enhanced analogue lines packages** This Recommendation defines several packages that provide support for extended line supervision and metering analog lines capabilities for ITU-T H.248:				ITU-T H.248.26 (2005)	Done
• extended analogue line supervision package;	xal	0x0043	1		
• automatic metering package;	amet	0x0044	2		

Package name and description	Identity		Version	Reference	Status
	Text	Binary			
• metering pulse detection package.	metd	0x0096	1		
ITU-T H.248.27 **Supplemental tones packages** This Recommendation defines three packages that provide additional tones capabilities for ITU-T H.248:				ITU-T H.248.27 (2003)	Done
• conferencing tones generation package;	conftn	0x0038	1		
• diagnostic tones package;	test	0x0039	1		
• carrier tones generation package.	carr	0x003a	1		
ITU-T H.248.28 **International CAS packages** The international CAS package (icas) provides an extension to the basic CAS packages, defining additional line signals and events required for international signalling protocols.				ITU-T H.248.28 (2004) Superseded by Revision (01/2007)	Done
• international CAS package;	icas	0x007b	2		
• CAS blocking package.	casblk	0x007c	1		
Revision (01/2007) adds read-only CAS state properties.					
ITU-T H.248.29 **International CAS compelled register signalling packages**				ITU-T H.248.29 (2005) plus Cor.1 (2007)	Done
• international CAS compelled package;	icasc	0x007d	1		
• international CAS compelled with overlap package;	icasco	0x007e	1		
• international CAS compelled with end-to-end package;	icasce	0x007f	1		
• generic CAS compelled register signalling package.	icascgen	0x0094	1		

Package name and description	Identity		Version	Reference	Status
	Text	Binary			
ITU-T H.248.30 **RTCP extended performance metrics packages** This Recommendation describes a set of extended performance metrics for voice over IP QoS reporting that provides more detailed insight into call quality and causes of degradation than basic RTCP statistics. The metrics described in this Recommendation are consistent with those described in the RTCP XR voice over IP metrics payload described in IETF RFC 3611.				ITU-T H.248.30 (2004) Superseded by Revision (01/2007)	Done
• RTCP XR base package;	rtcpxr	0x0080	1		
• RTCP XR burst metrics package.	xrbm	0x0081	1		
Revision (01/2007) introduces the:					
• received RTCP XR package;	recrtcpxr	0x00b0	1		
• received RTCP XR burst metrics package.	recxrbm	0x00b1	1		
ITU-T H.248.31 **Adaptive jitter buffer package** This Recommendation defines a package that extends the base network package; it allows the media gateway controller (MGC) to specify the nominal value and the minimum value of the adaptive jitter buffer on the media gateway (MG).				ITU-T H.248.31 (2004)	Done
• adaptive jitter buffer package.	ajb	0x007a	1		
ITU-T H.248.32 **Detailed congestion reporting package** This Recommendation defines a package that allows the MG to report its resource usage to the MGC; based on that report, the MGC may take corrective action to improve the efficiency of the whole system.				ITU-T H.248.32 (2005)	Done
• detailed congestion control package.	dcr	0x0092	1		

Package name and description	Identity		Version	Reference	Status
	Text	Binary			
ITU-T H.248.33 **PCM frame spare bit package** This Recommendation describes a relay mechanism of PCM frame spare bits, by using ITU-T H.248 events and signals. The scope is limited on spare bits S_i and S_{a4}-S_{a8} of the 2048 kbit/s basic frame structure (see Rec. ITU-T G.704). These bits are typically designated for national and international use, specific point-to-point applications, etc.	pcmsb	0x0085	1	ITU-T H.248.33 (2005)	Done
ITU-T H.248.34 **Stimulus analogue line package** The stimulus analogue line package defines ITU-T H.248 signals and events that are exchanged between a MG and MGC for controlling analogue POTS lines. The signals and events defined in the package are stimulus in nature and enable the full set of POTS services that are delivered via a V5 LE and AN to be ubiquitously provided in a NGN MG and MGC architecture.	stimal	0x0093	1	ITU-T H.248.34 (2005) NOTE – Also contained in ES/TISPAN-03009-NGN-R1.	Done
ITU-T H.248.35 **Coin-operated phone control package** This Recommendation defines a package that provides control of coin phones for ITU-T H.248.	coin	0x0095	1	ITU-T H.248.35 (2005)	Done
ITU-T H.248.36 **Hanging termination detection package** This Recommendation describes a hanging termination detection package which is used to determine potential state mismatch in the record of context and termination identities between the media gateway controller and the media gateway. It also offers guidance on the action to take once a potential mismatch is detected.	hangterm	0x0098	1	ITU-T H.248.36 (2005)	Done

Package name and description	Identity		Version	Reference	Status
	Text	Binary			
ITU-T H.248.37 **IP NAPT traversal package** This Recommendation allows a media gateway controller to control Internet protocol (IP) network address and port translation (NAPT) traversal. The use of IP NAPT traversal is especially useful in session border controllers (SBC) where media traversal is required.				ITU-T H.248.37 (2005) Revised (2008)	
• IP NAT traversal package;	ipnapt	0x0099	1		Done
Revision 1 introduces the:					
• address reporting package,	adr	0x00ac	1		
• statistics for discarded packets due to latching package.	lstat	0x00e4	1		
ITU-T H.248.38 **Base context package** This Recommendation defines a package that contains properties that affect a context as a whole.	bc	0x009b	1	ITU-T H.248.38 (2006)	Done
ITU-T H.248.39 **ITU-T H.248 SDP parameter identification and wildcarding** This Recommendation provides guidance on the use of SDP in ITU-T H.248.	NA	NA	NA	ITU-T H.248.39 (2006)	Done
ITU-T H.248.40 **Application data inactivity detection package** This Recommendation defines a package that enables the MGC/MG to detect when the flow of IP application data has stopped.	adid	0x009c	1	ITU-T H.248.40 (2007)	Done
ITU-T H.248.41 **IP domain connection package** This Recommendation defines a package that contains an IP realm identifier used to indicate which packet network the media represented by the termination belongs to. Amendment 1 introduces mechanisms that allow the MGC to discover the IP realms that are available at the MGW at a certain time. It also introduces a length limitation in the IP realm property.	ipdc	0x009d	1	ITU-T H.248.41 (2006) Amendment 1 (2008)	Done
• IP Realm Availability Package.	ipra	0x00e0	1		

Package name and description	Identity		Version	Reference	Status
	Text	Binary			
ITU-T H.248.42 **DCME interworking package** This Recommendation defines a package used for interfacing digital circuit multiplication equipment (DCME). Revision 1 adds new parameters for events, to allow the MGC to resynchronize itself in the event it loses track of this state.	dcme	0x009e	2	ITU-T H.248.42 (2006) Revision 1 (03/2009)	Done
ITU-T H.248.43 **Gate management packages** This Recommendation defines gate management and gate control packages define a number of properties to support gate management procedures at the boundary between two IP transport domains. The packages in this Recommendation allow an MG to be configured to filter packets based on rules for different criteria such as source address/port, destination address/port, incoming protocol and/or outgoing protocol. The packages contained within this Recommendation are:				ITU-T H.248.43 (ex. H.248.GMGC) (2008)	Done
• source address/port filtering package;	gm	0x008c	2		
• outgoing destination address/port filtering package;	dapf	0x00b6	1		
• incoming protocol filtering package;	ipf	0x00b7	1		
• outgoing protocol filtering package;	opf	0x00b8	1		
• incoming filtering behaviour package;	ifb	0x00b9	1		
• outgoing filtering behaviour package.	ofb	0x00ba	1		
ITU-T H.248.44 **Multi-level precedence and pre-emption package** This Recommendation defines a package that provides signals for use with precedence features, such as those used by military, government and disaster recovery applications.	prectn	0x009f	1	ITU-T H.248.44 (2007)	Done

Package name and description	Identity		Version	Reference	Status
	Text	Binary			
ITU-T H.248.45 **MGC information package** This Recommendation defines a package to enable a MGC to store data on a MG that can be subsequently retrieved to facilitate MGC recovery action.	mgcinfo	0x00a0	1	ITU-T H.248.45 (2006)	Done
ITU-T H.248.46 **Connection capability control package** This Recommendation defines a package that allows a MGC to determine and control whether the MG allows the application of optimization mechanisms with regard to efficiency maximization of MG data-path resources, and/or optimization of QoS/performance metrics to the MG internal connection.	ccc	0x00ad	1	ITU-T H.248.46 (ex. H.248.CCC) (2007)	Done
ITU-T H.248.47 **Statistic conditional reporting package** This Recommendation contains a ITU-T H.248 package that defines a generic method of reporting when statistics meet a predefined condition. Revision 1 adds a new parameter to the SCR package to request event timestamp notification. It also adds new conditions for reporting based on value metrics.	scr	0x00ae	2	ITU-T H.248.47 (ex. H.248.SCR) (2007) Revised (2008)	Done
ITU-T H.248.48 **RTCP HR QoS statistics packages** This Recommendation defines a package which allows MGs to report media transmission quality and call quality to MGCs, using RTCP HR metrics.	qhr	0x00af	1	ITU-T H.248.48 (ex. H.248.QHR) (planned 2009)	In progress

Package name and description	Identity		Version	Reference	Status
	Text	Binary			
ITU-T H.248.49 **SDP RFC packages** This Recommendation defines a package to determine which SDP RFC is used for a MGC and MG control association. It also contains a package to determine the SDP capabilities used. • session description protocol RFC package; • session description protocol capabilities package.	sdpr sdpc	0x00bb 0x00bc	1 1	ITU-T H.248.49 (ex. H.248. SDPVER) (2007)	Done
ITU-T H.248.50 **NAT traversal toolkit packages** This Recommendation describes packages to enable various network address translator (NAT) traversal techniques to be employed in order to facilitate media flow between networks. The MGC may utilize any of the packages in any order to gather addresses, map them and then maintain connectivity with and through NATs. The packages contained within this Recommendation are:				ITU-T H.248.50 (ex. H.248.NATTT) (planned 2009)	In progress
• STUN base package;	stunb	0x00bd	1		
• MG STUN client package;	mgstunc	0x00be	1		
• MG TURN client package;	mgturnc	0x00bf	1		
• MGC STUN client package;	mgcstunc	0x00c0	1		
• STUN information package;	stuni	0x00c1	1		
• MG Act-as STUN server package;	mgastuns	0x00c2	1		
• originate STUN continuity check package;	ostuncc	0x00c3	1		
• MGC originated STUN request package;	mgcostunr	0x00c4	1		
• keepalive request package.	kar	0x00c5	1		

Package name and description	Identity		Version	Reference	Status
	Text	Binary			
ITU-T H.248.51 **Termination connection model package** This package allows a media gateway controller to audit a media gateway in order to determine what termination connection configurations are allowed in a context. It provides the media gateway controller an automatic means to determine the information contained in ITU-T H.248.1 Appendix III "Profile Definition template" 6.4 "Connection Model".	tcm	0x00c6	1	ITU-T H.248.51 (ex. H.248.TCM) (2007)	Done
ITU-T H.248.52 **Quality of service packages** This Recommendation provides ITU-T H.248 packages for different support mechanisms with regard to quality of service (QoS). The QoS class package may be used in various areas with relations to QoS like, e.g., MG level admission control functions. The differentiated service package is specifically designed to support QoS marking for IPv4- or IPv6-based ITU-T H.248 streams/terminations. This Recommendation contains the following packages:				ITU-T H.248.52 (ex. H.248.QoS) (2008) Amendment 1 (03/2009)	Done
• QoS class package;	qos	0x00c7	1		
• differentiated services package;	ds	0x008b	2		
• General IP header QoS octet package.	gih	0x00e1	1		
Amendment 1 introduces the ability to indicate transparent behaviour.					

Package name and description	Identity		Version	Reference	Status
	Text	Binary			
ITU-T H.248.53 **Traffic management packages** ITU-T H.248 media gateways may support interfaces with packet-switched networks (via ephemeral terminations). Such kind of bearer connections could be subject of traffic control mechanisms. This Recommendation focuses on the traffic policing function. This Recommendation contains the following packages:				ITU-T H.248.53 (ex. H.248.TMAN) (2008) Revision 1 (03/2009)	Done
• traffic management package;	tman	0x008d	2		
• traffic policing statistics package;	tmanr	0x00c8	2		
• packet size package.	pacs	0x00c9	1		
Revision 1 defines new statistics in the tmanr package.					
ITU-T H.248.54 **MPLS support packages** This Recommendation defines an ITU-T H.248 package, which allows media gateways connected to an MPLS domain to bind ITU-T H.248 streams or terminations to MPLS label switched paths.	mpls	0x0090	1	ITU-T H.248.54 (ex. H.248.MPLS) (2007)	Done
ITU-T H.248.55 **Generic Pull mode package** This Recommendation describes how ITU-T H.248 entities behave in a next generation network (NGN) environment where policy control (i.e., QoS resource control) is used. It defines an ITU-T H.248 package, which may be used in a specific resource control scenario whereby the user initiates the resource request.	plm	0x00ca	1	ITU-T H.248.55 (ex. H.248.PLM) (2008)	Done
ITU-T H.248.56 **Virtual private network packages** This Recommendation defines ITU-T H.248 packages for VPN support where media gateways are located at the boundary of virtual private networks. This Recommendation focuses on Ethernet-based virtual local area networks, representing a network-based Layer 2 VPN type.	vlan	0x0091	1	ITU-T H.248.56 (H.248.VPN) (2007)	Done

Package name and description	Identity		Version	Reference	Status
	Text	Binary			
ITU-T H.248.57 **RTP control protocol package** This Recommendation contains functionality to describe the use of the RTP control protocol (RTCP) in ITU-T H.248-controlled media gateways. RTCP is used for instance to monitor the quality of service and to convey information about the participants in an ongoing RTP session.	rtcph	0x00b5	1	ITU-T H.248.57 (2008)	Done
ITU-T H.248.58 **Packages for application level H.248 statistics** This Recommendation defines ITU-T H.248 statistics which are used for measurements on an application data level.	rtpad	0x00cb	1	ITU-T H.248.58 (2008)	Done
ITU-T H.248.59 **Event timestamp notification package** This package is to provide a gateway-wide means of determining whether or not a media gateway supports the use of timestamps with the event detection time at event notification. If timestamps are supported, it allows the media gateway controller to request that timestamps are always reported with an event notification.	etn	0x00cc	1	ITU-T H.248.59 (2007)	Done
ITU-T H.248.60 **Identification of content of communication package** This Recommendation defines an ITU-T H.248 package to tag traffic of an individual ITU-T H.248 stream/termination.	cci	0x00d1	1	ITU-T H.248.60 (ex. H.248.cci) (2009)	Done
ITU-T H.248.61 **Packages for network level H.248 statistics** This Recommendation contains the following packages: • IP layer octets count statistics package; • IP layer packet count statistics package.	 ipocs ippcs	 0x00d0 0x00e8	 1 1	ITU-T H.248.61 (H.248.ipocs) (03/2009)	Done

Package name and description	Identity		Version	Reference	Status
	Text	Binary			
ITU-T H.248.62 **Re-answer package** This Recommendation provides a mechanism to Re-Answer a call that had been finished by a callee or a caller, in order to make the speech between caller and callee resume and continue.	ra	0x00e2	1	ITU-T H.248.62 (ex. H.248.ra) (06/2008)	Done
ITU-T H.248.63 **Resource management packages** This Recommendation contains packages that allow the MGC to indicate which resources may be used in the context and whether the use of certain resources will change or not for the life of the termination/stream. The MG can then use this information to optimize the allocation and use of resources. By allowing the MG to optimize its resources in this way, it allows more busy hour context attempts.	rmr rmc arm	0x00cd 0x00ce 0x00cf	1	ITU-T H.248.63 (ex. H.248.resman) (2009)	Done
ITU-T H.248.64 **IP Router package** This Recommendation contains the following packages: • IP router package; • IP router NAT package.	 ipr iprnat	 0x00d4 0x00??	 1 1	ITU-T H.248.64 (ex. H.248.ipr)	In progress
ITU-T H.248.65 **Support of the resource reservation protocol** This Recommendation defines a package that allows the ITU-T H.248 entities to make the resource reservation, i.e., set up the bearer path with the desired QoS. Based on this package, the MGC and the MG are able to initiate/terminate the RSVP messages.	rsvp	0x00d2	1	ITU-T H.248.65 (ex. H.248.rsvp) (2009)	Done

Package name and description	Identity		Version	Reference	Status
	Text	Binary			
ITU-T H.248.66 **Packages for RTSP and H.248 interworking** This Recommendation contains the following packages:				ITU-T H.248.66 (ex. H.248.rtsp)	In progress
• Media resource identification package;	mri	0x00d5	1		
• Range format support package;	rfs	0x00d6	1		
• Media resource description expiry package;	mrde	0x00d7	1		
• Media block size package;	mbs	0x00d8	1		
• RTSP media resource syntax package;	mrs	0x00d9	1		
• RTSP play package;	rtspp	0x00da	1		
• Signal pause package;	sp	0x00db	1		
• Data delivery speed adjustment package;	ddsa	0x00dc	1		
• Playback relative scale adjustment package;	prsa	0x00dd	1		
• RTP information package;	rtpinfo	0x00de	1		
• RTP interleaving package.	rtpint	0x00df	1		
ITU-T H.248.67 **GCP Transport Mode Indication Package**	trm	0x00d3	1	ITU-T H.248.67 (ex. H.248.trm)	In progress
ITU-T H.248.**PIPA Package Identifier Publishing and Application Package** This Recommendation defines a ITU-T H.248 package that allows a media gateway controller (MGC) to indicate to a media gateway (MG) how it would like the base and extended package identifiers to be published, and determine the "base-extension" relationship of the packages supported by the MG as well as their publishing status.	pipa	0x00??	1	ITU-T H.248.pipa	In progress
ITU-T H.248.68 **Package for removal of digits and tones** This Recommendation defines a package that allows a media gateway controller (MGC) to indicate to a media gateway (MG) whether it should remove tones and/or DTMF digits	rdt	0x00e9	1	ITU-T H.248.68 (ex. H.248.rdt) (2009)	Done

Package name and description	Identity		Version	Reference	Status
	Text	Binary			
ITU-T H.248.69 **Packages for Interworking between MSRP and H.248** This Recommendation contains the following packages:				ITU-T H.248.69 (ex. H.248.MSRP) (2009)	Done
• MSRP statistics package;	msrpstat	0x00ea	1		
• MSRP connection status package;	msrpcs	0x00eb	1		
• Play message package;	mess	0x00ec	1		
• Delete stored message package;	delmess	0x00ed	1		
• Message session information package;	msi	0x00ee	1		
• Message filtering package;	mf	0x00ef	1		
• Stored message information package;	sminf	0x00f0	1		
• Record message package.	recmess	0x00f1	1		
ITU-T H.248.70 **Dialling Method Information Packages** This Recommendation contains the following packages:				ITU-T H.248.70 (ex. H.248.DMI) (2009)	Done
• Digit dialling method information package;	dmi	0x00f2	1		
• Digit dialling method information for extended digitmap detection package;	xdmi	0x00f3	1		
• Digit dialling method information for enhanced digitmap detection package.	edmi	0x00f4	1		
ITU-T H.248.71 **Received RTCP Package** This Recommendation contains the following packages:				ITU-T H.248.71 (ex. H.248.RECRTCP)	In progress
• Received RTCP package;	recrtcp	0x00f5	1		
• RTCP feedback package.	rtcpfb	0x00f6	1		
ITU-T H.248.72 **H.248 support for MONA** This Recommendation contains the following packages:				ITU-T H.248.72 (ex. H.248.MONA)	In progress
• H.245 transport package for SPC use;	h245tpspc	0x00f7	1		
• MONA preference package;	monapref	0x00f8	1		

Package name and description	Identity		Version	Reference	Status
	Text	Binary			
ITU-T H.248.73 **MSCML and H.248 Interworking** This Recommendation contains the following package: • Gain enhancement package.	tgc	0x00f9	1	ITU-T H.248.73 (ex. H.248.MSCML)	In progress
ITU-T H.248.MRCP **Media Resource Control enhancements Packages** This Recommendation contains the following packages: • Media start package; • Trim package; • Recording sensitivity package; • Enhanced ASR package; • Enhanced TTS package; • Play offset control package.	mstart trim recs easr etts poc	0x00?? 0x00?? 0x00?? 0x00?? 0x00?? 0x00??	1 1 1 1 1 1	ITU-T H.248.MRCP	In progress

6 Externally defined packages that meet requirements

The packages identified in this clause are consistent with regard to the package definition rules contained in clause 12 of [ITU-T H.248.1].

6.1 ITU-T Study Group 11

Package name and description	Identity		Version	Reference	Status
	Text	Binary			
Bearer characteristics package This package contains the functionality required to identify which bearer services are to be supported by a MG. Version 2 introduces a new value for TDM bearer characteristics.	bcp	0x001e	2	A.3 of [ITU-T Q.1950]	Done
Bearer network connection cut through package This package provides the functionality to be able to determine the cut through capabilities of the bearer network.	bnct	0x001f	1	A.4 of [ITU-T Q.1950]	Done
Reuse idle package This package provides the ability to determine the reuse of idle bearer functionality network.	ri	0x0020	1	A.5 of [ITU-T Q.1950]	Done
Generic bearer connection package This package provides the functionality to be able to establish/modify/release a bearer connection.	gb	0x0021	1	A.6 of [ITU-T Q.1950]	Done

Package name and description	Identity		Version	Reference	Status
	Text	Binary			
Bearer control tunnelling package This package describes the functionality to be able to support the transport of "bearer information transport" information between an MGC and MG.	bt	0x0022	1	A.7 of [ITU-T Q.1950]	Done
Basic call progress tones generator with directionality This package defines the basic call progress tones as signals and extends the allowed values of the tl parameter of playtone in tonegen. In addition, this package extends the tone generator package with the ability to specify in which direction the tone is played.	bcg	0x0023	1	A.8 of [ITU-T Q.1950]	Done
Expanded call progress tones generator package This package defines the expanded call progress tones as signals and extends the allowed values of the tl parameter of playtone in tonegen. In addition, this package extends the tone generator package with the ability to specify in which direction the tone is played.	xcg	0x0024	1	A.9 of [ITU-T Q.1950]	Done
Basic services tones generation package This package defines signals for use by telephony services and allows for specification of directionality.	srvtn	0x0025	1	A.10 of [ITU-T Q.1950]	Done
Expanded services tones generation package This package defines additional signals for use by telephony services and allows for specification of directionality.	xsrvtn	0x0026	1	A.11 of [ITU-T Q.1950]	Done
Intrusion tones generation package This package defines for use by operator-based telephony services and allows for specification of directionality.	int	0x0027	1	A.12 of [ITU-T Q.1950]	Done
Business tones generation package This package defines for use by business telephony services and allows for specification of directionality.	biztn	0x0028	1	A.13 of [ITU-T Q.1950]	Done
Connection group identity package The connection group ID is required information in a BIWF if a connection is to be established in the direction toward the BICC access network and the private virtual facility capability is invoked.	xg	0x0067	1	Annex E of [ITU-T Q.1950]	Done

Package name and description	Identity		Version	Reference	Status
	Text	Binary			
SPNE control package This package defines properties and events for SPNE functions controlled by or integrated into a media gateway. Note that echo cancellers associated with media gateways are assumed to be compliant with Rec. ITU-T G.168 as indicated in Rec. ITU-T G.177.	spne	0x0069	1	ITU-T Q.115.0	Done

6.2 3GPP CT4

Package name and description	Identity		Version	Reference	Status
	Text	Binary			
3GUP (user plane) package This package identifies that the user plane package is used for the termination. It also contains some parameters for the user plane functions in the MGW.	threegup	0x002f	1	3GPP TS 29.232 v7.0.0	Done
Circuit switched data package This package contains the information needed to be able to support GSM and UMTS circuit switched data from the media gateway.	threegcsd	0x0030	1	3GPP TS 29.232 v7.0.0	Done
TFO package This package defines events and properties for tandem free operation (TFO) control. TFO uses in-band signalling and procedures for transcoders to enable compressed speech to be maintained between a tandem pair of transcoders. This package allows an MGW which has inserted a transcoder to support TFO.	threegtfoc	0x0031	2	3GPP TS 29.232 v7.0.0	Done
3G Expanded call progress tones generator package This package extends "expanded call progress tones generator package" as defined in [ITU-T Q.1950]. The package adds a new toneId for CAMEL prepaid warning tone.	threegxcg	0x0032	1	3GPP TS 29.232 v7.0.0	Done
3G Modification of link characteristics package	threegmlc	0x0046	1	3GPP TS 29.232 v7.0.0	Done

Package name and description	Identity		Version	Reference	Status
	Text	Binary			
CTM text transport The CTM text transport package is intended for enabling robust real-time text conversation through a voice channel primarily intended for communication over mobile networks. This package includes the mechanisms needed to transport T.140 text conversation streams in a voice channel environment, using the CTM cellular text telephone modem specified in 3GPP TS 26.226. The transport mechanism allows for alternating transport of voice and text.	threegctm	0x0068	1	3GPP TS 29.232 v7.0.0	Done
Enhanced circuit switched data package This package extends "circuit switched data package", as defined in 15.1.2 of the referenced document. This package adds a new property to define the user bitrate at a Nb/Iu termination.	threegcsden	0x0082	1	3GPP TS 29.232 v7.0.0	Done
IP transport package This package contains the information needed to be able to support IP transport from RAN to the media gateway.	threegiptra	0x0083	1	3GPP TS 29.232 v7.0.0	Done
Flexible tone generator package This package extends "3G expanded call progress tones generator package", as defined in 15.1.4 of the referenced document. This package adds a new tone for call duration control in CAMEL phase 4, supporting variable sequence of tones and burst list.	threegflex	0x0084	1	3GPP TS 29.232 v7.0.0	Done
Call trace package This package defines properties for subscriber and equipment trace activation and deactivation properties to be attached to the trace record generated by MGW.	calltrace	0x0097	1	3GPP TS 29.232 v7.0.0	Final
ASCI Group call package This package contains the information needed to be able to support VGCS (3GPP TS 43.068) and VBS (3GPP TS 43.069) services.	threegasci	0x00b2	1	3GPP TS 29.232 v7.5.0	Final
3G Interface Type package This package contains a property to specify the used interface type for IP terminations, i.e., Nb over IP with SIP-I based Nc, A interface over IP or Mb interface.	threegint	0x00e3	1	3GPP TS 29.232 v8.4.0	Final

6.3 ITU-T Study Group 9

Package name and description	Identity		Version	Reference	Status
	Text	Binary			
ISUP Trunk tones generator package This package defines the ISUP trunk tones played from a trunk gateway as signals and extends the allowed values of the tl parameter of playtone in tonegen.	isuptn	0x006c	1	Annex A/ ITU-T J.171.2	Done

7 Packages undergoing development

The packages identified in this clause are currently under development and/or have not been reviewed by SG 16. The packages identified here may have inconsistencies with regard to the package definition rules contained in clause 12 of [ITU-T H.248.1]. The packages below may also overlap in functionality.

7.1 ATMF (ATM forum)

Package name and description	Identity		Version	Reference	Status
	Text	Binary			
ATMF is no longer defining its own packages. Reference is made to IETF developed packages. For more information, see BTD-VMOA-LESH248-01.02 LES Using AAL 2 – ITU-T H.248 Signalling Addendum October 2001.					

7.2 ETSI Tispan

Package name and description	Identity		Version	Reference	Status
	Text	Binary			
Aggregate bearer control package This package defines aggregate bearer load control information flows between a MG and MGC in order to provide admission control functionality based on aggregate bandwidth usage measurements and transport network QoS performance.	aggr	?	1	ETSI DTS 03022 v0.0.3	In progress
TIPHON extended ITU-T H.248/MEGACO package (EMP) specification; ICF control over reference point This package defines a property to enable the MGC to act as a MIDCOM agent and control a "gateway" acting as a middlebox. • middle box package.	emb	0x008a	1	ETSI TS 101 332 (2002)	Done

Package name and description	Identity		Version	Reference	Status
	Text	Binary			
ITU-T H.248 profile for gate control The referenced document defines a profile of the MEGACO protocol for controlling gates between IP transport domains. It also defines specific packages that are required by this profile specification.				ETSI TS 102 333 (2004)	Done
• differentiated services package;	Superseded by ITU-T H.248.52				
• gate management package;	Superseded by ITU-T H.248.43				
• traffic management package;	Superseded by ITU-T H.248.53				
• gate recovery information package;	Superseded by ITU-T H.248.45				
• NAT traversal package;	Superseded by ITU-T H.248.37				
• MPLS package;	Superseded by ITU-T H.248.54				
• VLAN package.	Superseded by ITU-T H.248.56				
MGC information package	mgcinfo	0x00a0	1	ETSI TS 183 022 (2005)	Superseded by ITU-T H.248.45
ETSI notification behaviour package	etsi_nb	0x00a4	1	ETSI ES 283 039-3	NOTE – The use of the ITU notification behaviour package is encouraged.
ETSI notification rate package	etsi_nr	0x00a5	1	ETSI ES 283 039-4	

7.3 IETF Megaco

Package name and description	Identity		Version	Reference (Note)	Status
	Text	Binary			
Megaco/ITU-T H.248 sub-series NAS packages				draft-ietf-megaco-naspkg-05.txt	Expired
• Basic NAS package;	nas	0x004b	1		
• NAS incoming package;	nasin	0x004c	1		
• NAS outgoing package;	nasout	0x004d	1		
• NAS control package;	nasctl	0x004e	1		
• NAS root package.	nasroot	0x004f	1		

Package name and description	Identity		Version	Reference (Note)	Status
	Text	Binary			
Megaco R2 packages and call flows	NA	NA	NA	draft-ietf-megaco-r2package-04.txt	Expired
NOTE – The packages are official work items adopted by the IETF Megaco work group. These references can be found at the URLs ftp://www.ietf.org/internet-drafts/ or https://datatracker.ietf.org/idtracker/.					

7.4 IETF individual submissions

Package name and description	Identity		Version	Reference	Status
	Text	Binary			
MF tone generation and detection packages	NA	NA	NA	draft-bothwell-megaco-mftonepkgs-03.txt	Expired. Superseded by ITU-T H.248.24.
ISDN package for Megaco	NA	NA	NA	draft-bouwen-megaco-isdn-pack-00.txt	Expired
Enhanced alerting packages for Megaco/ITU-T H.248 sub-series	NA	NA	NA	draft-boyle-megaco-alerting-03.txt	Expired. Superseded by ITU-T H.248.23.
Supplemental tones packages for Megaco/ITU-T H.248 sub-series	NA	NA	NA	draft-boyle-megaco-tonepkgs-07.txt	Expired. Superseded by ITU-T H.248.27.
MGC cookie package for Megaco/ITU-T H.248 sub-series	mgcckie	0x00??	NA	draft-cutler-megaco-mgc-cookie-02.txt	Expired
Megaco/ITU-T H.248 sub-series basic CAS packages	NA	NA	NA	draft-manyfolks-megaco-caspackage-02.txt	Expired. Superseded by ITU-T H.248.25.
Enhanced line services packages	NA	NA	NA	draft-taylor-megaco-enhalpkgs-01.txt	Expired. Superseded by ITU-T H.248.26.
Name pattern package for Megaco	nampat	0x00??	NA	draft-rosen-megaco-namepatterns-01.txt	Expired

Package name and description	Identity		Version	Reference	Status
	Text	Binary			
Megaco/ITU-T H.248 sub-series QoS packages The referenced document is in progress and defines the basic QoS package that addresses the different means of supporting quality of service (QoS) on IP networks. This memo also defines the RSVP package (that falls into the integrated services model) and the differentiated services package in association with the Megaco/ITU-T H.248 protocol.	bqos rsvp diffserv	0x00?? 0x00?? 0x00??	NA	draft-madhubabu-megaco-qospackage-00.txt	Expired
Megaco/ITU-T H.248 FXO packages The referenced document describes the events and signals helpful for signalling between central office (CO) and foreign exchange office (FXO) at customer premises equipment (CPE).	NA	NA	NA	draft-sridhar-megaco-fxopackage-01.txt	Expired
AAL 2 package	NA	NA	NA	draft-barr-megaco-aal2bearer-00.txt	Expired
Megaco ATM package	NA	NA	NA	draft-rosen-megaco-atm-package-01.txt	Expired
NOTE – This clause identifies packages that individuals have submitted to the IETF. These have not been taken as official work items of the IETF Megaco work group.					

8 ITU-T H.248 sub-series MIBS

MIB name	Reference (Note)
ITU-T H.248 sub-series MIB	<draft-ietf-megaco-mib-06.txt>
ITU-T H.248 ringing MIB	<draft-pitchandi-megaco-ringing-mib-00.txt>
ITU-T H.248 sub-series tones MIB	<draft-doyle-megaco-tonesmib-00>
NOTE – These references can be found at the URLs ftp://www.ietf.org/internet-drafts/ or https://datatracker.ietf.org/idtracker/.	

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