



**Digital cellular telecommunications system (Phase 2+) (GSM);  
Universal Mobile Telecommunications System (UMTS);**

**LTE;**

**IMS Application Level Gateway (IMS-ALG)**

**- IMS Access Gateway (IMS-AGW);**

**Iq Interface;**

**Stage 3**

**(3GPP TS 29.334 version 13.8.0 Release 13)**



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**Keywords**

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# Contents

Intellectual Property Rights .....	2
Legal Notice .....	2
Modal verbs terminology.....	2
Foreword.....	6
1 Scope .....	7
2 References .....	8
3 Definitions, symbols and abbreviations .....	11
3.1 Definitions .....	11
3.2 Symbols.....	12
3.3 Abbreviations .....	12
4 Applicability.....	13
4.1 Architecture .....	13
5 Profile Description .....	13
5.1 Profile Identification.....	13
5.2 Summary .....	13
5.3 Gateway Control Protocol Version .....	14
5.4 Connection model.....	14
5.5 Context attributes .....	15
5.6 Terminations.....	15
5.6.1 Termination names .....	15
5.6.1.1 IP Termination .....	15
5.6.1.1.1 ABNF Coding Overview and prose specification .....	15
5.6.1.1.2 ASN.1 Coding Overview and prose specification .....	16
5.6.2 Multiplexed terminations .....	16
5.7 Descriptors .....	17
5.7.1 TerminationState Descriptor .....	17
5.7.2 Stream Descriptor .....	17
5.7.2.0 General .....	17
5.7.2.1 LocalControl Descriptor.....	18
5.7.3 Events descriptor .....	19
5.7.4 EventBuffer descriptor.....	20
5.7.5 Signals descriptor.....	20
5.7.6 DigitMap descriptor .....	22
5.7.7 Statistics descriptor .....	22
5.7.8 ObservedEvents descriptor .....	23
5.7.9 Topology descriptor .....	23
5.7.10 Error descriptor.....	23
5.8 Command API.....	26
5.8.1 Add .....	26
5.8.2 Modify .....	26
5.8.3 Subtract.....	27
5.8.4 Move.....	27
5.8.5 AuditValue.....	27
5.8.6 AuditCapabilities .....	27
5.8.7 Notify.....	28
5.8.8 ServiceChange .....	28
5.8.9 Manipulating and auditing context attributes.....	30
5.9 Generic command syntax and encoding.....	30
5.10 Transactions .....	30
5.11 Messages .....	31
5.12 Transport .....	31
5.13 Security .....	32
5.14 Packages .....	32

5.14.1	Mandatory Packages .....	32
5.14.2	Optional Packages .....	34
5.14.3	Package usage information .....	36
5.14.3.1	Generic (g) .....	36
5.14.3.2	Base root (root) .....	37
5.14.3.3	Differentiated Services (ds).....	38
5.14.3.4	Gate Management (gm).....	38
5.14.3.5	Traffic management (tman).....	40
5.14.3.6	Inactivity Timer (it).....	41
5.14.3.7	IP Domain Connection (ipdc) .....	41
5.14.3.8	Media Gateway Overload Control Package (ocp).....	42
5.14.3.9	Hanging Termination Detection (hangterm) .....	42
5.14.3.10	Media Gateway Resource Congestion handling Package (chp).....	43
5.14.3.11	IP Realm Availability (ipra).....	43
5.14.3.12	IP NAPT Traversal (ipnapt).....	44
5.14.3.13	RTCP Handling Package (rtcp).....	44
5.14.3.14	Application Data Inactivity Detection (adid) .....	45
5.14.3.15	Explicit Congestion Notification for RTP-over-UDP Support (ecnrous).....	46
5.14.3.16	MG Act-as STUN Server (mgastuns) .....	48
5.14.3.17	Originate STUN Continuity Check (ostuncc) .....	49
5.14.3.18	TCP basic connection control (tcpbcc) .....	50
5.14.3.19	TLS basic session control (tlbsc).....	51
5.14.3.20	Stream endpoint interlinkage (seplink) .....	52
5.14.3.21	MG located Bearer Level ALG (mgbalg) .....	53
5.14.3.22	STUN Consent Freshness (stnconfres).....	53
5.14.3.23	Media Grouping (mggroup) .....	55
5.14.3.24	SCTP basic connection control package (sctpbcc).....	56
5.14.3.25	SCTP Re-configuration Stream Reset (sctpreset) .....	57
5.15	Mandatory support of SDP and Annex C information elements .....	59
5.16	Optional support of SDP and Annex C information elements.....	62
5.17	Procedures .....	67
5.17.1	Formats and Codes .....	67
5.17.2	Call Related Procedures .....	73
5.17.2.1	General .....	73
5.17.2.2	Reserve AGW Connection Point.....	73
5.17.2.3	Configure AGW Connection Point.....	79
5.17.2.4	Reserve and Configure AGW Connection Point.....	87
5.17.2.5	Release AGW Termination.....	96
5.17.2.6	Termination Heartbeat Indication .....	96
5.17.2.7	IP Bearer Released .....	97
5.17.2.8	Media Inactivity Notification .....	97
5.17.2.9	Change Through Connection .....	98
5.17.2.10	Change Flow Direction .....	98
5.17.2.11	ECN Failure Indication .....	99
5.17.2.12	ICE Connectivity Check Result Notification .....	99
5.17.2.13	ICE New Peer Reflexive Candidate Notification.....	99
5.17.2.14	Notify TCP connection establishment Failure Indication .....	100
5.17.2.15	Notify (D)TLS session establishment Failure Indication .....	100
5.17.2.16	STUN Consent Freshness Test Failure Notification .....	101
5.17.2.17	Notify SCTP Stream Reset.....	101
5.17.2.18	Notify SCTP Stream Reset Result .....	102
5.17.3	Non-Call Related Procedures.....	102
5.17.3.1	General .....	102
5.17.3.2	IMS-AGW Out Of Service.....	103
5.17.3.3	IMS-AGW Communication Up .....	104
5.17.3.4	IMS-AGW Restoration .....	104
5.17.3.5	IMS-AGW Register .....	105
5.17.3.6	IMS-AGW Re-Register.....	105
5.17.3.7	IMS-ALG Ordered Re-register .....	106
5.17.3.8	IMS-ALG Restoration.....	106
5.17.3.9	IMS-ALG Out of Service.....	107
5.17.3.10	Audit Value .....	107

5.17.3.11	Command Rejected .....	109
5.17.3.12	AGW Capability Change .....	109
5.17.3.13	IMS-AGW Resource Congestion Handling – Activate.....	109
5.17.3.14	IMS-AGW Resource Congestion Handling – Indication.....	110
5.17.3.15	Inactivity Timeout – Activation .....	110
5.17.3.16	Inactivity Timeout – Indication.....	111
5.17.3.17	Realm Availability Change – Activation .....	111
5.17.3.18	Realm Availability Change – Indication .....	111
5.17.3.19	Termination Out Of Service.....	112
<b>Annex A (informative):</b>	<b>Change history .....</b>	<b>113</b>
History .....		115

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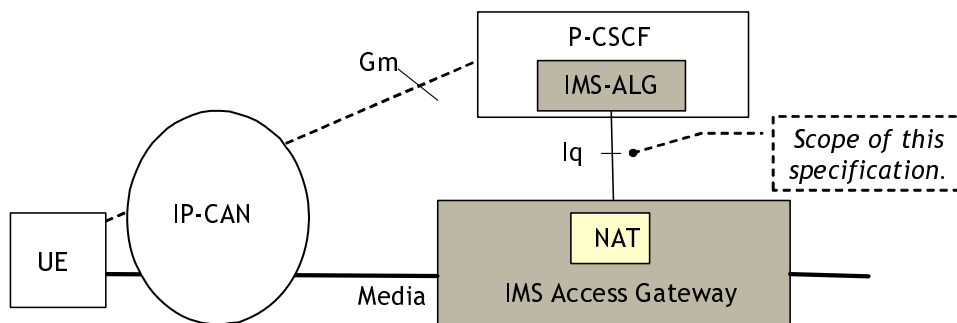
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# 1 Scope

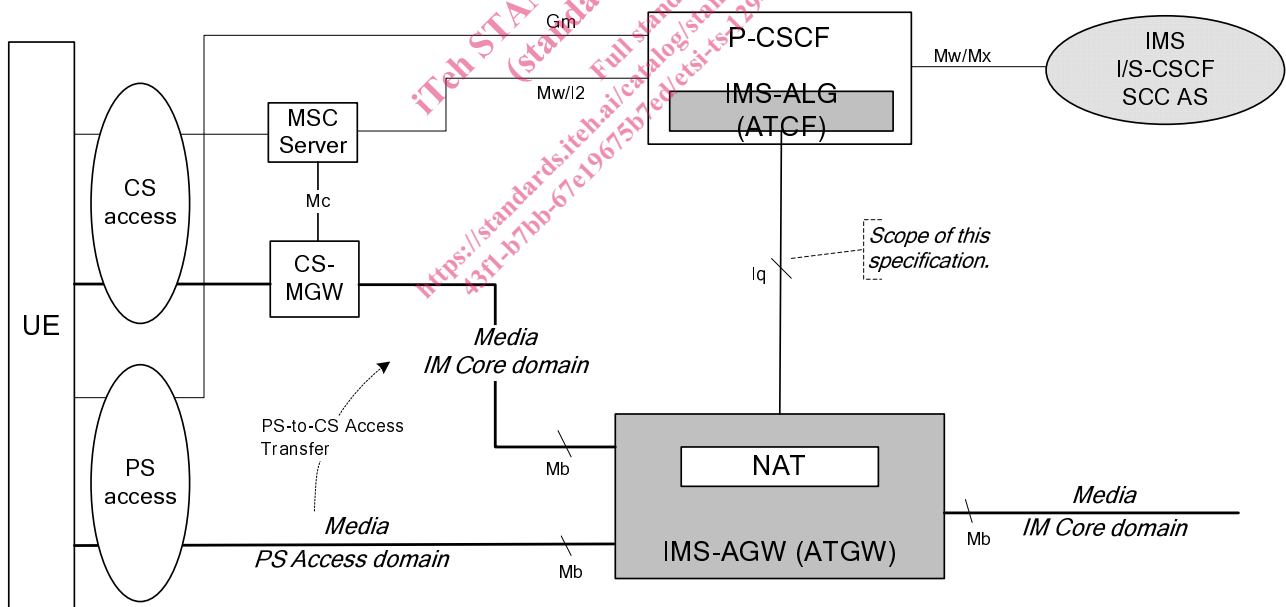
The present document describes the protocol to be used on the IMS Application Level Gateway (ALG) – IMS Access Gateway (IMS-AGW) interface. The basis for this protocol is the H.248 protocol as specified in ITU-T. The IMS architecture is described in 3GPP TS 23.228 [2]. The underlying reference model and stage 2 information is described in Annex G of 3GPP TS 23.228 [2] and in 3GPP TS 23.334 [23].

This specification describes the application of H.248 on the Iq interface (see Figure 1). Required extensions use the H.248 standard extension mechanism. In addition certain aspects of the base protocol H.248 are not needed for this interface and thus excluded by this profile.



**Figure 1: Reference model for IMS access**

The reference model for the IMS-ALG and the IMS-AGW supporting the ATCF/ATGW function is shown in Figure 1a below.

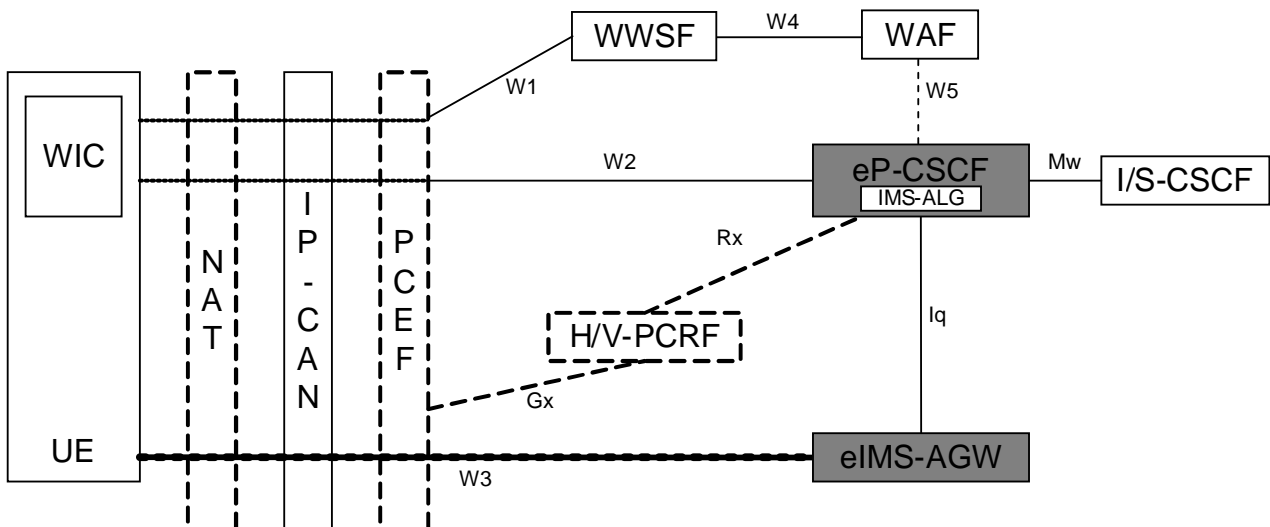


**Figure 1a: Reference model for IMS-ALG/IMS-AGW with ATCF/ATGW function**

See 3GPP TS 23.237 [38] clause 5.2 for a comprehensive description of the reference model.

The reference model for the P-CSCF enhanced for WebRTC (eP-CSCF) and the IMS-AGW enhanced for WebRTC (eIMS-AGW) to support WebRTC client access to IMS is shown in Figure 1b as below, see 3GPP TS 23.228 [2] Annex U for a comprehensive description of the reference model.





**Figure 1b: Reference Architecture for eP-CSCF/eIMS-AGW supporting WebRTC access to IMS**

NOTE: The presence of dashed elements in the figure depends on the configuration. PCC functional elements are present only for EPC access with QoS. The corresponding PCC elements for fixed access are also optionally supported but not shown. The NAT in figure 1b is meant for non-cellular access to IMS.

## 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
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- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [2] 3GPP TS 23.228: "IP Multimedia Subsystem (IMS); Stage 2".
- [3] ETSI TS 183 018 V3.5.1 (2009-07): "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Resource and Admission Control: H.248 Profile Version 3 for controlling Border Gateway Functions (BGF) in the Resource and Admission Control Subsystem (RACS); Protocol specification".
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- [5] ITU-T Recommendation H.248.57 (10/2014): "Gateway control protocol: RTP Control Protocol Package".
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- [19] IETF RFC 3551 (2003): "RTP Profile for Audio and Video Conferences with Minimal Control".
- [20] IETF RFC 4145 (2005): "TCP-Based Media Transport in the Session Description Protocol (SDP)".
- [21] IETF RFC 3605 (2003): "Real Time Control Protocol (RTCP) attribute in Session Description Protocol (SDP)".
- [22] ITU-T Recommendation X.690 (11/2008): "ASN.1 encoding rules: Specification of Basic Encoding Rules (BER), Canonical Encoding Rules (CER) and Distinguished Encoding Rules (DER)".
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- [24] ITU-T Recommendation H.248.40 (01/2007): "Gateway control protocol: Application Data Inactivity Detection package".
- [25] IETF RFC 4585 (2006): "Extended RTP Profile for Real-time Transport Control Protocol (RTCP) - Based Feedback (RTP/AVPF)".
- [26] 3GPP TS 26.114: "IP Multimedia Subsystem (IMS); Multimedia telephony; Media handling and interaction".
- [27] 3GPP TS 33.210: "Technical Specification Group Services and System Aspects;3G Security; Network Domain Security; IP Network Layer Security".
- [28] IETF RFC 3556 (2003): "Session Description Protocol (SDP) Bandwidth Modifiers for RTP Control Protocol (RTCP) Bandwidth".
- [29] IETF RFC 4568 (2006): "Session Description Protocol (SDP) Security Descriptions for Media Streams".
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- [49] ITU-T Recommendation H.248.92 (10/2014): "Gateway control protocol: Stream endpoint interlinkage package".
- [50] ITU-T Recommendation H.248.93 (10/2014): "Gateway control protocol: ITU-T H.248 support for control of transport security using the datagram transport layer security (DTLS) protocol".
- [51] IETF RFC 793: "Transmission Control Protocol – DARPA Internet Program – Protocol Specification".
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- [55] IETF RFC 8122: "Connection-Oriented Media Transport over the Transport Layer Security (TLS) Protocol in the Session Description Protocol (SDP)".
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Editor's note: The above document cannot be formally referenced until it is published as an RFC.

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---

## 3 Definitions, symbols and abbreviations

### 3.1 Definitions

For the purposes of the present document, the following terms and definitions apply.

**Address:** term used for "network address" (IP address)

**End-to-access edge security:** media protection extending between an IMS UE and the first IMS core network node in the media path without being terminated by any intermediary node.

**Port:** term used for "transport port" (L4 port).

**Transcoding:** transcoding in general is the translation from one type of encoded media format to another different media format, e.g. G.711 A-law to  $\mu$ -law or vice versa, G.729 to AMR with 4.75 rate.

NOTE 1: The definition of "transcoding" is according clause 3.10 of ITU-T Recommendation V.152 [23].

NOTE 2: Transcoding belongs to the category of "media aware" IP-to-IP interworking.

**Transparent Forwarding:** media gateway packet forwarding behaviour with the characteristic of Lx-PDU integrity. This is a unidirectional characteristic of an Lx-PDU flow.

NOTE 3: The definition is according clause 3.2.10 of ITU-T Recommendation H.248.88 [71].

NOTE 4: The semantic covers both traffic directions when applied on H.248 Streams (due to their inherent characteristic of bidirectionality).

**Transport Address:** term used for the combination of a *Network Address* and a *Transport Port*.

For the purposes of the present document, the following terms and definitions as defined in 3GPP TS 23.334 [23] apply:

**ICE lite**

**Full ICE.**

## 3.2 Symbols

For the purposes of the present document, the following symbols apply:

Iq                      Interface between the IMS Application Level Gateway (ALG) (IMS-ALG) and the IMS Access Gateway (IMS-AGW)

## 3.3 Abbreviations

For the purposes of the present document, the abbreviations defined in 3GPP TR 21.905 [1] apply, with the following additions. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in 3GPP TR 21.905 [1].

ABNF	Augmented Backus-Naur Form
ATCF	Access Transfer Control Function
ATGW	Access Transfer Gateway
B-ALG	Bearer Level Application-Level Gateway
BFCP	Binary Floor Control Protocol
CVO	Coordination of Video Orientation
DSCP	Differentiated Service Code Point
e2ae	End-to-Access-Edge (security model)
ECN	Explicit Congestion Notification
eIMS-AGW	IMS Access Gateway enhanced for WebRTC
eP-CSCF	P-CSCF enhanced for WebRTC
FECC	Far End Camera Control
ICE	Interactive Connectivity Establishment
IMS-AGW	IMS Access Gateway
IMS-ALG	IMS Application Level Gateway
IP	Internet Protocol
LD	Local Descriptor (H.248 protocol element)
MG	Media Gateway
MGC	Media Gateway Controller
MPS	Multimedia Priority Service