

# ETSI TS 123 334 V14.9.0 (2024-04)



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

**LTE;**

**IP Multimedia Subsystem (IMS)**

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

**- IMS Access Gateway (IMS-AGW) interface:**

**Procedures descriptions**

**(3GPP TS 23.334 version 14.9.0 Release 14)**



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**Reference**

RTS/TSGC-0423334ve90

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**Keywords**

GSM,LTE,UMTS

**ETSI**

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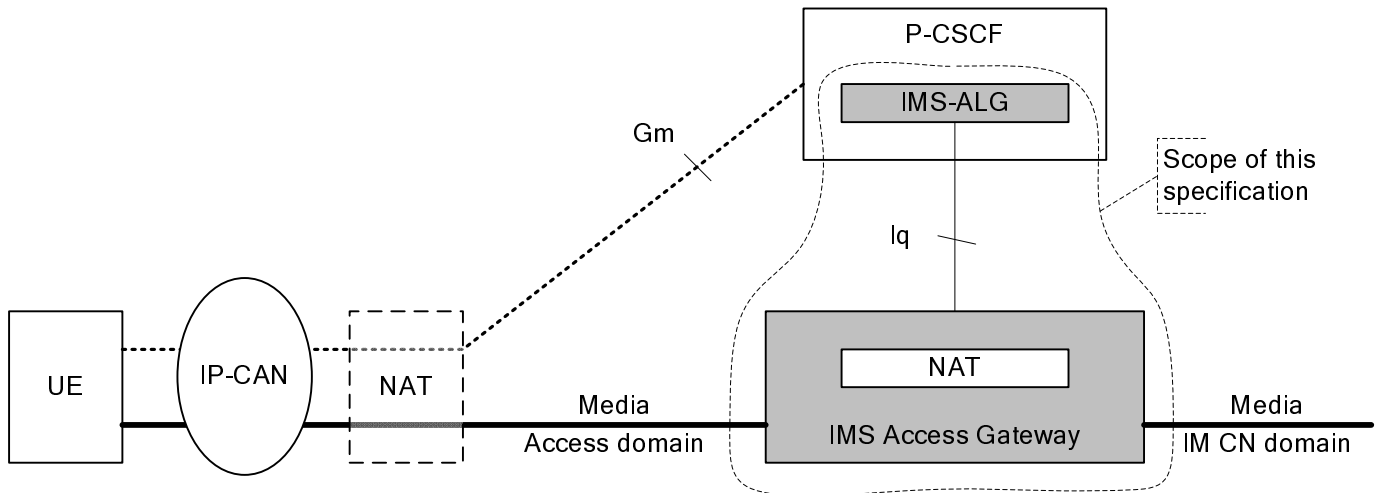
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# 1 Scope

Annex G of 3GPP TS 23.228 [2] gives out an IMS Application Level Gateway (IMS-ALG) and IMS Access Media Gateway (IMS-AGW) based reference model to support NAPT-PT, gate control and traffic policing between IP-CAN and IMS domain.



**Figure 1.1: Scope of the specification**

Figure 1.1 illustrates the reference model for Iq:

- the dashed line represents the IP signalling-path with SIP (at Gm) as call/session control protocol between the UE and the P-CSCF (IMS-ALG);
- the bold, horizontal line represents the IP media-path (also known as (IP) bearer-path or (IP) data-path; the notion 'media' is used as generic term for "IP application data"); and
- the vertical line represents the Iq control-path with H.248 as gateway/policy control protocol between the IMS-ALG and the IMS-AGW (H.248 messages are transported over IP).

The Iq reference point is between the P-CSCF (IMS-ALG) and the IMS-AGW. It conveys the necessary information that is needed to allocate, modify and release (IP) transport addresses.

The present document defines the stage 2 description for the Iq reference point. The stage 2 shall cover the information flow between the P-CSCF (IMS-ALG) and IMS-AGW. The protocol used over the Iq interface is the gateway control protocol according ITU-T Recommendation H.248 (which is specified for Iq by an H.248 profile according 3GPP TS 29.334 [3]).

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- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- 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] 3GPP TS 29.334: "IMS Application Level Gateway (IMS-ALG) – IMS Access Gateway (IMS-AGW) Iq interface, stage 3".
- [4] IETF RFC 2663: "IP Network Address Translator (NAT) Terminology and Considerations".
- [5] 3GPP TS 32.260: "Telecommunication management; Charging management; IP Multimedia Subsystem (IMS) charging".
- [6] IETF RFC 3556: "Session Description Protocol (SDP) Bandwidth Modifiers for RTP Control Protocol (RTCP) Bandwidth".
- [7] IETF RFC 3605: "Real Time Control Protocol (RTCP) attribute in Session Description Protocol (SDP)".
- [8] 3GPP TS 23.205: "Bearer independent circuit-switched core network; Stage 2".
- [9] ITU-T Recommendation H.248.1 (05/2002): "Gateway Control Protocol: Version 2" including the Corrigendum1 for Version 2 (03/04).
- [10] IETF RFC 2216: "Network Element Service Template".
- [11] 3GPP TS 24.229: "IP Multimedia Call Control Protocol based on SIP and SDP".
- [12] 3GPP TS 33.328: "IMS Media Plane Security".
- [13] IETF RFC 4568: "Session Description Protocol (SDP) Security Descriptions for Media Streams".
- [14] IETF RFC 3711: "The Secure Real-time Transport Protocol (SRTP)".
- [15] IETF RFC 5124: "Extended Secure RTP Profile for Real-time Transport Control Protocol (RTCP)-Based Feedback (RTP/SAVPF)".
- [16] IETF RFC 3168: "The Addition of Explicit Congestion Notification (ECN) to IP".
- [17] IETF RFC 6679: "Explicit Congestion Notification (ECN) for RTP over UDP".
- [18] 3GPP TS 23.237: "IP Multimedia subsystem (IMS) Service Continuity; Stage 2".
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- [20] 3GPP TS 29.162: "Interworking between the IM CN subsystem and IP networks".
- [21] 3GPP TS 26.114: "IP Multimedia Subsystem (IMS); Multimedia Telephony; Media handling and interaction".
- [22] 3GPP TS 22.153: "Multimedia Priority Service".
- [23] IETF RFC 5285: "A General Mechanism for RTP Header Extensions".
- [24] IETF RFC 6236: "Negotiation of Generic Image Attributes in the Session Description Protocol (SDP)".
- [25] IETF RFC 4975: "The Message Session Relay Protocol (MSRP)".
- [26] IETF RFC 6714: "Connection Establishment for Media Anchoring (CEMA) for the Message Session Relay Protocol (MSRP)".
- [27] IETF RFC 4583: "Session Description Protocol (SDP) Format for Binary Floor Control Protocol (BFCP) Streams".
- [28] IETF RFC 5246: "The Transport Layer Security (TLS) Protocol Version 1.2".
- [29] IETF RFC 793: "Transmission Control Protocol – DARPA Internet Program – Protocol Specification".
- [30] IETF RFC 4145: "TCP-Based Media Transport in the Session Description Protocol (SDP)".
- [31] IETF RFC 4582: "The Binary Floor Control Protocol (BFCP)".

- [32] IETF RFC 6347: "Datagram Transport Layer Security Version 1.2".
- [33] IETF RFC 7345: "UDP Transport Layer (UDPTL) over Datagram Transport Layer Security (DTLS)".
- [34] Void
- [35] GSM Association RCC.07: "Rich Communication Suite 5.1 Advanced Communications Services and Client Specification, Version 2.0, 03 May 2013".
- [36] GSM Association RCC.07: "Rich Communication Suite 5.1 Advanced Communications Services and Client Specification, Version 3.0, 25 September 2013".
- [37] Void
- [38] ITU-T Recommendation H.248.84 (07/2012): "Gateway control protocol: NAT-traversal for peer-to-peer services".
- [39] IETF RFC 5245: "Interactive Connectivity Establishment (ICE): A Protocol for Network Address Translator (NAT) Traversal for Offer/Answer Protocols".
- [40] IETF RFC 5389: "Session Traversal Utilities for NAT (STUN)".
- [41] IETF RFC 5766: "Traversal Using Relays around NAT (TURN): Relay Extensions to Session Traversal Utilities for NAT (STUN)".
- [42] IETF RFC 5763: "Framework for Establishing a Secure Real-time Transport Protocol (SRTP) Security Context Using Datagram Transport Layer Security (DTLS)".
- [43] IETF RFC 5764: "Datagram Transport Layer Security (DTLS) Extension to Establish Keys for the Secure Real-time Transport Protocol (SRTP)".
- [44] 3GPP TS 24.371: "Web Real-Time Communications (WebRTC) client access to the IP Multimedia (IM) Core Network (CN) subsystem; Protocol specification".
- [45] IETF RFC 6135: "An Alternative Connection Model for the Message Session Relay Protocol (MSRP)".
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- [47] IETF RFC 5746: "Transport Layer Security (TLS) Renegotiation Indication Extension".
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- [49] IETF RFC 7675: "Session Traversal Utilities for NAT (STUN) Usage for Consent Freshness".
- [50] IETF RFC 6716: "Definition of the Opus Audio Codec".
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- [52] 3GPP TS 26.445: "Codec for Enhanced Voice Services (EVS); Detailed Algorithmic Description".
- [53] IETF RFC 4566: "SDP: Session Description Protocol".
- [54] IETF RFC 4867: "RTP Payload Format and File Storage Format for the Adaptive Multi-Rate (AMR) and Adaptive Multi-Rate Wideband (AMR-WB) Audio Codecs".
- [55] IETF RFC 4566: "SDP: Session Description Protocol".
- [56] IETF RFC 7587: "RTP Payload Format for the Opus Speech and Audio Codec".
- [57] IETF RFC 6544: "TCP Candidates with Interactive Connectivity Establishment (ICE)".
- [58] IETF RFC 4571: "Framing Real-time Transport Protocol (RTP) and RTP Control Protocol (RTCP) Packets over Connection-Oriented Transport".

- [59] IETF RFC 6947: "The Session Description Protocol (SDP) Alternate Connectivity (ALTC) Attribute".
- [60] IETF RFC 5761: "Multiplexing RTP Data and Control Packets on a Single Port".
- [61] IETF RFC 8831: "WebRTC Data Channels".
- [62] IETF RFC 8873: "Message Session Relay Protocol (MSRP)".
- [63] IETF RFC 4960: "Stream Control Transmission Protocol".
- [64] IETF RFC 8841: "Session Description Protocol (SDP) Offer/Answer Procedures for Stream Control Transmission Protocol (SCTP) over Datagram Transport Layer Security (DTLS) Transport".
- [65] IETF RFC 8864: "Negotiation Data Channels Using the Session Description Protocol (SDP)".
- [66] IETF RFC 5939: "Session Description Protocol (SDP) Capability Negotiation".
- [67] IETF RFC 6871: "Session Description Protocol (SDP) Media Capabilities Negotiation".
- [68] IETF RFC 4573: "MIME Type Registration for RTP Payload Format for H.224".
- [69] ITU-T Recommendation H.224 (01/2005): "A real time control protocol for simplex applications using the H.221 LSD/HSD/MLP channels".
- [70] ITU-T Recommendation H.281 (11/1994): "A far end camera control protocol for videoconferences using H.224".
- [71] IETF RFC 8858: "Indicating Exclusive Support of RTP and RTP Control Protocol (RTCP) Multiplexing Using the Session Description Protocol (SDP)".
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- [77] IETF RFC 4585: "Extended RTP Profile for Real-time Transport Control Protocol (RTCP)-Based Feedback (RTP/AVPF)".
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- [79] IETF RFC 7728: "RTP Stream Pause and Resume".
- [80] IETF RFC 8122: "Connection-Oriented Media Transport over the Transport Layer Security (TLS) Protocol in the Session Description Protocol (SDP)".
- [81] IETF RFC 8842: "Session Description Protocol (SDP) Offer/Answer Considerations for Datagram Transport Layer Security (DTLS) and Transport Layer Security (TLS)".

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## 3 Definitions, symbols and abbreviations

### 3.1 Definitions

For the purposes of the present document, the terms and definitions given in TR 21.905 [1] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in TR 21.905 [1].