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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 14.6.0 Release 14)

A GLOBAL INITIATIVE

Reference
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Contents

Foreword

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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.

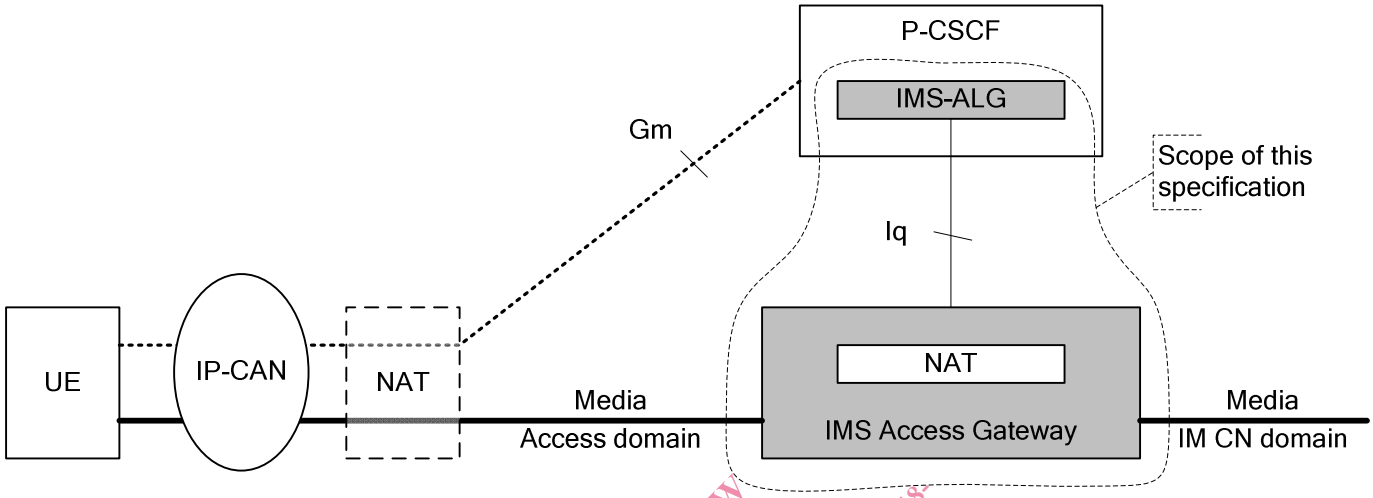

Figure 1.1: Scope of the specification

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]).

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.
- 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".

[19] 3GPP TS 24.237: "IP Multimedia subsystem (IMS) Service Continuity; Stage 3".

[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] IETF draft-schwarz-mmusic-sdp-for-gw-04: "SDP codepoints for gateway control".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

[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".

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[46] OMA-TS-CPM_Conversation_Function-V2_0-20150113-C: "CPM Conversation Functions, Candidate Version 2.0 – 13 Jan 2015".

[47] IETF RFC 5746: "Transport Layer Security (TLS) Renegotiation Indication Extension".

[48] 3GPP TS 33.310: "Network Domain Security (NDS); Authentication Framework (AF)".

[49] IETF RFC 7675: "Session Traversal Utilities for NAT (STUN) Usage for Consent Freshness".

[50] IETF RFC 6716: "Definition of the Opus Audio Codec".

[51] 3GPP TS 26.441: "Codec for Enhanced Voice Services (EVS); General Overview".

[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 draft-ietf-rtcweb-data-channel-13: "WebRTC Data Channels".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

[62] IETF draft-ietf-mmusic-msrp-usage-data-channel-13: "MSRP over Data Channels".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

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[64] IETF draft-ietf-mmusic-sctp-sdp-26: "Session Description Protocol (SDP) Offer/Answer Procedures For Stream Control Transmission Protocol (SCTP) over Datagram Transport Layer Security (DTLS) Transport".

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[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".

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[74] IETF RFC 4103: "RTP Payload for Text Conversation".

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[76] Void.

[77] IETF RFC 4585: "Extended RTP Profile for Real-time Transport Control Protocol (RTCP)-Based Feedback (RTP/AVPF)".

[78] IETF RFC 5104: "Codec Control Messages in the RTP Audio-Visual Profile with Feedback (AVPF)".

[79] IETF RFC 7728: "RTP Stream Pause and Resume".