

# ETSI TS 123 334 V15.4.0 (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 15.4.0 Release 15)**



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**Reference**

RTS/TSGC-0423334vf40

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**Keywords**

GSM,LTE,UMTS

**ETSI**

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# Contents

Intellectual Property Rights .....	2
Legal Notice .....	2
Modal verbs terminology.....	2
Foreword.....	8
1 Scope .....	10
2 References .....	10
3 Definitions, symbols and abbreviations .....	13
3.1 Definitions .....	13
3.2 Symbols.....	14
3.3 Abbreviations .....	14
4 Architecture .....	15
4.1 Reference architecture .....	15
4.2 NAT Function .....	17
4.3 ATCF/ATGW Function .....	18
4.4 eP-CSCF/eIMS-AGW Function.....	18
5 Functional Requirements.....	19
5.1 General .....	19
5.2 Gate Control & Local NAT .....	19
5.3 IP realm indication and availability.....	19
5.4 Remote NAT traversal support.....	20
5.5 Remote Source Address/Port Filtering .....	20
5.6 Traffic Policing .....	20
5.7 Hanging Termination Detection .....	20
5.8 QoS Packet Marking .....	21
5.9 Handling of RTCP streams.....	21
5.9.1 General.....	21
5.9.2 RTP/RTCP transport multiplexing .....	22
5.10 Media Inactivity Detection .....	22
5.11 IMS Media Plane Security .....	23
5.11.1 General.....	23
5.11.2 End-to-access-edge Security .....	23
5.11.2.1 End-to-access-edge security for RTP based media using SDES .....	23
5.11.2.2 End-to-access-edge security for TCP based media using TLS.....	24
5.11.2.2.1 General .....	24
5.11.2.2.2 e2ae security for session based messaging (MSRP).....	25
5.11.2.2.3 e2ae security for conferencing (BFCP) .....	26
5.11.2.3 End-to-access-edge security for UDP based media using DTLS .....	26
5.11.2.3.1 General .....	26
5.11.2.3.2 e2ae security for T.38 fax over UDP/UDPTL transport.....	26
5.11.2.4 End-to-access-edge security for RTP based media using DTLS-SRTP .....	27
5.11.2.5 End-to-access-edge security for RTP based voice and video media using DTLS-SRTP over TCP.....	28
5.11.2.6 End-to-access-edge security for WebRTC data channels using UDP/DTLS/SCTP transport .....	29
5.11.3 End-to-end Security .....	29
5.11.3.1 End-to-end security for RTP based media .....	29
5.11.3.2 End-to-end security for TCP-based media using TLS .....	29
5.12 Explicit Congestion Notification support .....	30
5.12.1 General.....	30
5.12.2 Incoming SDP offer with ECN.....	30
5.12.3 Incoming SDP offer without ECN.....	30
5.12.4 Detection of ECN failures by IMS-AGW .....	30
5.13 Transcoding.....	31
5.13.1 General.....	31
5.13.2 Handling of common codec parameters.....	31

5.13.3	Handling of the EVS speech codec.....	32
5.13.4	Handling of the OPUS speech and audio codec for WebRTC.....	50
5.14	Multimedia Priority Service (MPS) Support.....	53
5.15	Coordination of Video Orientation.....	54
5.16	Generic image attributes.....	55
5.17	TCP bearer connection control.....	55
5.17.1	Stateless TCP handling.....	55
5.17.2	State-aware TCP handling.....	56
5.17.2.1	General.....	56
5.17.2.2	State-aware TCP handling without support of modifying the TCP setup direction.....	56
5.17.2.3	State-aware TCP handling with support of modifying the TCP setup direction.....	57
5.18	Interactive Connectivity Establishment (ICE).....	59
5.18.1	General.....	59
5.18.2	ICE lite.....	59
5.18.3	Full ICE.....	61
5.18.4	STUN consent freshness for WebRTC.....	63
5.19	MSRP handling.....	63
5.19.1	General.....	63
5.19.2	IMS-ALG procedures to support IETF RFC 6714 with application agnostic MSRP handling by the IMS-AGW.....	64
5.19.3	IMS-ALG procedures to support IETF draft-ietf-simple-msrp-sessmatch with application agnostic MSRP handling by the IMS-AGW.....	64
5.19.4	IMS-ALG procedures for application aware MSRP interworking by the IMS-AGW.....	65
5.19.5	Application-aware MSRP interworking at the IMS-AGW.....	65
5.19.6	MSRP data channels.....	65
5.20	Web Real-Time Communication (WebRTC).....	66
5.20.1	General.....	66
5.20.2	WebRTC data channel.....	67
5.20.2.1	General.....	67
5.20.2.2	Data Channel Establishment.....	67
5.20.2.3	Data Channel Release.....	72
5.20.2.3.1	General.....	72
5.20.2.3.2	Release of one WebRTC data channel.....	73
5.20.2.3.3	Release of all or last active WebRTC data channels within an SCTP Association.....	74
5.20.2.4	MSRP within WebRTC data channel.....	74
5.20.2.5	Void.....	75
5.20.2.6	T.140 within WebRTC data channel.....	75
5.20.3	Media Plane Optimization.....	75
5.20.3.1	General.....	75
5.20.3.2	WIC originating call.....	76
5.20.3.3	WIC terminating call.....	77
5.21	Alternate Connection (ALTC) Addresses Management.....	79
5.21.1	General.....	79
5.22	Video Region-of-Interest (ROI).....	79
5.22.1	General.....	79
5.22.2	"Far End Camera Control" mode.....	79
5.22.3	"Predefined ROI" mode.....	80
5.22.4	"Arbitrary ROI" mode.....	81
5.23	SDP Capability Negotiation (SDPCapNeg).....	81
5.24	RTP-level pause and resume.....	82
5.25	RTCP Codec Control Commands and Indications.....	83
6	IMS-ALG to IMS-AGW Procedures.....	84
6.1	Non-Call Related Procedures.....	84
6.1.1	General.....	84
6.1.2	IMS-AGW Unavailable.....	84
6.1.3	IMS-AGW Available.....	85
6.1.4	IMS-AGW Recovery.....	86
6.1.5	IMS-ALG Recovery.....	87
6.1.5.1	General.....	87
6.1.5.2	IMS-ALG Restoration.....	87
6.1.6	IMS-AGW Re-register.....	87

6.1.7	IMS-AGW Re-registration Ordered by IMS-ALG .....	88
6.1.8	Audit of IMS-AGW .....	88
6.1.8.1	Audit of Value.....	88
6.1.8.2	Audit of Capability.....	89
6.1.9	IMS-AGW Capability Change.....	89
6.1.10	IMS-ALG Out of service .....	89
6.1.11	IMS-AGW Resource Congestion Handling - Activate .....	90
6.1.12	MGW Resource Congestion Handling -Indication .....	90
6.1.13	Control association monitoring.....	90
6.1.14	Realm Availability Monitoring.....	91
6.1.15	Failure of IP Port, Interface or Group of Interfaces .....	92
6.2	Call Related Procedures .....	92
6.2.1	Gate Control & Local NA(P)T procedure.....	92
6.2.2	IP realm indication procedure .....	95
6.2.3	Remote NA(P)T traversal support procedure .....	95
6.2.4	Remote Source Address/Port Filtering .....	95
6.2.5	Traffic Policing .....	96
6.2.6	Hanging Termination Detection .....	96
6.2.7	QoS Packet Marking .....	97
6.2.8	Media Inactivity Detection .....	97
6.2.9	Handling of RTCP streams .....	98
6.2.10	IMS end-to-access-edge Media Plane Security.....	98
6.2.10.1	General .....	98
6.2.10.2	End-to-access-edge security for RTP based media using SDES .....	98
6.2.10.3	End-to-access-edge security for TCP-based media using TLS .....	98
6.2.10.3.1	End-to-access-edge security for session based messaging (MSRP) .....	98
6.2.10.3.1.1	IMS UE originating procedures for e2ae .....	98
6.2.10.3.1.1.1	Incoming TCP bearer establishment triggers an outgoing TCP bearer establishment .....	98
6.2.10.3.1.1.2	IMS-ALG requests sending an outgoing TCP bearer establishment .....	101
6.2.10.3.1.2	IMS UE terminating procedures for e2ae .....	103
6.2.10.3.1.2.1	Incoming TCP bearer establishment triggers an outgoing TCP bearer establishment .....	103
6.2.10.3.1.2.2	IMS-ALG requests sending an outgoing TCP bearer establishment.....	106
6.2.10.3.2	End-to-access-edge security for conferencing (BFCP).....	108
6.2.10.3.2.1	IMS UE originating procedures for e2ae .....	108
6.2.10.3.2.1.1	Incoming TCP bearer establishment triggers an outgoing TCP bearer establishment .....	108
6.2.10.3.2.2	IMS UE terminating procedures for e2ae .....	111
6.2.10.3.2.2.1	Incoming TCP bearer establishment triggers an outgoing TCP bearer establishment .....	111
6.2.10.4	End-to-access-edge security for UDP based media using DTLS .....	114
6.2.10.4.1	General .....	114
6.2.10.4.2	Session establishment from IMS access network for T.38 fax using "UDP/TLS/UDPTL" .....	114
6.2.10.4.3	Session establishment towards IMS access network for T.38 fax using "UDP/TLS/UDPTL" .....	117
6.2.10.4.4	IMS-AGW procedure for e2ae security of T.38 fax using "UDP/TLS/UDPTL" .....	119
6.2.10.4.5	DTLS session establishment failure indication .....	119
6.2.10.5	End-to-access-edge security for RTP based media using DTLS-SRTP.....	120
6.2.10.6	End-to-access-edge security for WebRTC data channels using SCTP-over-DTLS transport.....	124
6.2.10.6.1	General .....	124
6.2.10.6.2	Call flow for data channel establishment from WIC towards IMS access network and MSRP session establishment.....	124
6.2.10A	IMS end-to-end Media Plane Security.....	127
6.2.10A.1	End-to-end security for RTP based media using SDES .....	127
6.2.10A.2	End-to-end security for TCP-based media using TLS .....	127
6.2.11	Change Through-Connection.....	127
6.2.12	Emergency Calls.....	127
6.2.13	Explicit Congestion Notification support .....	127
6.2.13.1	General .....	127
6.2.13.2	ECN Active Indicated (ECN transparent) .....	127
6.2.13.3	ECN support requested (ECN endpoint) .....	128
6.2.13.4	ECN Failure Indication (ECN endpoint).....	128
6.2.14	Access Transfer procedures with media anchored in IMS-AGW (ATGW) .....	129
6.2.14.1	General .....	129
6.2.14.2	H.248 context model .....	129

6.2.14.3	PS session origination or termination with media anchoring in IMS-AGW (ATGW) signaling procedures .....	131
6.2.14.4	PS to CS Access Transfer procedure with media anchored in IMS-AGW (ATGW) .....	133
6.2.14.5	ECN support during PS to CS Access Transfer procedure with media anchored in IMS-AGW (ATGW) .....	134
6.2.14.6	Support of generic image attributes .....	135
6.2.14.6.1	General .....	135
6.2.14.6.2	Indication of generic image attributes .....	136
6.2.14.7	Handling of common codec parameters .....	136
6.2.14.8	EVS speech codec support .....	137
6.2.15	Multimedia Priority Congestion Control Procedures .....	152
6.2.15.1	General .....	152
6.2.15.2	IMS-AGW Resource Congestion in ADD response, request is queued .....	152
6.2.15.3	IMS-AGW Resource Congestion in ADD response, IMS-ALG seizes new IMS-AGW .....	153
6.2.15.4	IMS-AGW Priority Resource Allocation .....	153
6.2.15.5	IMS-AGW Priority User Data marking .....	154
6.2.15.6	IMS-AGW Priority Modification .....	154
6.2.16	Coordination of Video Orientation .....	155
6.2.17	Procedures for Interactive Connectivity Establishment (ICE) .....	156
6.2.17.1	ICE lite .....	156
6.2.17.2	Full ICE .....	156
6.2.17.3	Connectivity check result notification (full ICE) .....	157
6.2.17.4	New peer reflexive candidate notification (full ICE) .....	157
6.2.17.5	STUN consent freshness test .....	158
6.2.17.6	STUN Consent Freshness Test Failure Notification .....	159
6.2.18	TCP bearer connection control .....	159
6.2.18.1	General .....	159
6.2.18.2	Stateless TCP handling .....	159
6.2.18.3	State-aware TCP handling without support of modifying the TCP setup direction .....	159
6.2.18.4	State-aware TCP handling with support of modifying the TCP setup direction .....	159
6.2.19	Application-aware MSRP interworking at the IMS-AGW .....	161
6.2.20	Alternate Connection (ALTC) Addresses Management .....	162
6.2.21	Video Region-of-Interest (ROI) .....	164
6.2.21.1	Video Region-of-Interest (ROI) using FECC .....	164
6.2.21.2	"Predefined ROI" mode .....	165
6.2.21.3	"Arbitrary ROI" mode .....	166
6.2.22	WebRTC .....	167
6.2.22.1	Establishment of a WebRTC data channel .....	167
6.2.22.2	Release of a WebRTC data channel .....	167
6.2.22.3	Media Plane Optimization .....	169
6.2.22.3.1	Media Plane Optimization including DTLS layer for WIC originating call .....	169
6.2.22.3.2	Media Plane Optimization excluding DTLS layer for WIC originating call .....	171
6.2.23	RTP-level pause and resume .....	173
6.2.24	RTCP Codec Control Commands and Indications .....	173
7	Charging .....	174
8	Messages/Procedures and Contents .....	175
8.1	General .....	175
8.2	Reserve and Configure AGW Connection Point .....	176
8.3	Reserve AGW Connection Point Procedure .....	185
8.4	Configure AGW Connection Point Procedure .....	192
8.5	Release AGW Termination .....	200
8.6	Termination heartbeat indication .....	200
8.7	IMS-AGW Out-of-Service .....	201
8.8	IMS-AGW Communication Up .....	201
8.9	IMS-AGW Restoration .....	202
8.10	IMS-AGW Register .....	202
8.11	IMS-ALG Restoration .....	203
8.12	IMS-AGW Re-register .....	203
8.13	IMS-ALG Ordered Re-registration .....	204
8.14	Audit Value .....	204

8.15 Audit Capability .....205

8.16 Capability Update.....205

8.17 IMS-ALG Out of Service .....206

8.18 IMS-AGW Resource Congestion Handling - Activate.....206

8.19 IMS-AGW Resource Congestion Handling - Indication.....207

8.20 Inactivity Timeout Activate.....207

8.21 Inactivity Timeout Notification .....208

8.22 Command Reject.....208

8.23 Realm Availability Activate .....209

8.24 Realm Availability Notification .....209

8.25 IP Bearer Released .....210

8.26 Media Inactivity Notification .....210

8.27 Termination Out-of-Service .....211

8.28 Change Through-Connection .....211

8.29 Change Flow Direction .....212

8.30 ECN Failure Indication .....212

8.31 Notify (D)TLS session establishment Failure Indication .....213

8.32 Notify TCP connection establishment Failure Indication.....213

8.33 ICE Connectivity Check Result Notification .....214

8.34 ICE New Peer Reflexive Candidate Notification .....214

8.35 STUN Consent Freshness Test Failure Notification .....215

8.36 Notify SCTP Stream Reset.....215

8.37 Notify SCTP Stream Reset Result.....216

**Annex A (informative): Change history .....217**

History .....219

  
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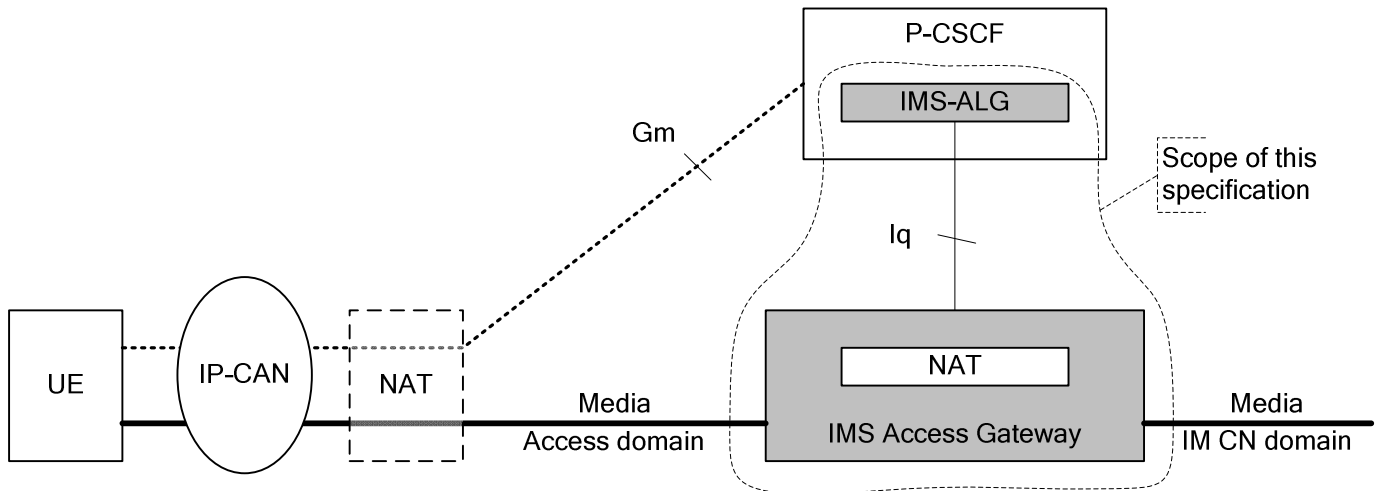
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# 1 Scope

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].