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ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
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1 Scope

The objective of this document is to address the Inter-IMS Network to Network Interface (II-NNI) consisting of Ici and Izi reference points between IMS networks in order to support end-to-end service interoperability.

The present document addresses the issues related to control plane signalling (3GPP usage of SIP and SDP protocols, required SIP header fields) as well as other interconnecting aspects like security, numbering/naming/addressing and user plane issues as transport protocol, media and codecs actually covered in a widespread set of 3GPP specifications. A profiling of the Inter-IMS Network to Network Interface (II-NNI) is also provided.

Charging aspects are addressed as far as SIP signalling is concerned.

IMS emergency session establishment between IMS networks is addressed as far as SIP signalling is concerned.

SIP signalling traversing the NNI between a CSCF and MRB, e.g. for media control or Voice Interworking with Enterprise IP-PBX, and SIP signalling traversing the NNI on the Mr interface between the CSCF and the MRFC, or on the Mr' interface between the AS and MRFC, or on the Rc interface between AS and MRB is not considered in the present release of this specification.

SIP signalling traversing the NNI between an application server and the remaining IMS functional entities (e.g. for MCPTT interface SIP-2 in figure 7.3.1-2 in 3GPP TS 23.280 [200]) is not considered in the present release of this specification.

SIP signalling traversing the NNI between an ISC gateway and an AS in an enterprise network, e.g. for media control and voice interworking with enterprise IP-PBX, on the ISC interface between the ISC gateway and the enterprise network is not considered in the present release of this specification.

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2 References

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- 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] IETF RFC 791: "Internet Protocol".

[3] 3GPP TS 23.002: "Network architecture".

[4] 3GPP TS 23.228: "IP Multimedia Subsystem (IMS); Stage 2".

[5] 3GPP TS 24.229: "Internet Protocol (IP) multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3".

[6] 3GPP TR 24.930: "Signalling flows for the session setup in the IP Multimedia core network Subsystem (IMS) based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3".

[7] IETF RFC 2460: "Internet Protocol, Version 6 (IPv6) Specification".

[8] 3GPP TS 29.162: "Interworking between the IM CN subsystem and IP networks".

[9] 3GPP TS 22.228: "Service requirements for the IP multimedia core network subsystem".

[10] 3GPP TS 33.210: "3G security; Network Domain Security (NDS); IP network layer security".

[11] 3GPP TS 26.114: "IP Multimedia Subsystem (IMS); Multimedia Telephony; Media handling and interaction".

[12] ETSI TS 181 005 V1.1.1: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Services and Capabilities Requirements".

[13] IETF RFC 3261: "SIP: Session Initiation Protocol".

[14] IETF RFC 3966: "The tel URI for Telephone Numbers".

[15] IETF RFC 3860: "Common Profile for Instant Messaging (CPIM)".

[16] IETF RFC 3859: "Common Profile for Presence (CPP)".

[17] IETF RFC 4975: "The Message Session Relay Protocol (MSRP)".

[18] IETF RFC 3262: "Reliability of provisional responses in Session Initiation Protocol (SIP)".

[19] IETF RFC 3428: "Session Initiation Protocol (SIP) Extension for Instant Messaging".

[20] IETF RFC 6665: "SIP-Specific Event Notification".

NOTE: In earlier releases of this document the predecessor IETF RFC 3265 is used.

[21] IETF RFC 3903: "An Event State Publication Extension to the Session Initiation Protocol (SIP)".

[22] IETF RFC 3515: "The Session Initiation Protocol (SIP) REFER method".

[23] IETF RFC 3311: "The Session Initiation Protocol (SIP) UPDATE method".

[24] IETF RFC 7315: "Private Header (P-Header) Extensions to the Session Initiation Protocol (SIP) for the 3GPP".

[24A] IETF RFC 7976: "Updates to Private Header (P-Header) Extension Usage in Session Initiation Protocol (SIP) Requests and Responses".

[24B] IETF RFC 7913: "P-Access-Network-Info ABNF Update".

[25] IETF RFC 7044: "An Extension to the Session Initiation Protocol (SIP) for Request History Information".

[26] IETF RFC 6050: "A Session Initiation Protocol (SIP) Extension for the Identification of Services".

[27] IETF RFC 4168: "The Stream Control Transmission Protocol (SCTP) as a Transport for the Session Initiation Protocol (SIP)".

[28] Void.

[29] 3GPP TS 32.260: "Telecommunication management; Charging management; IP Multimedia Subsystem (IMS) charging".

[30] 3GPP TS 22.173: "IP Multimedia Core Network Subsystem (IMS); Multimedia Telephony Service and supplementary services; Stage 1".

[31] 3GPP TS 24.173: "IMS multimedia telephony communication service and supplementary services; Stage 3".

[32] 3GPP TS 24.607: "Originating Identification Presentation (OIP) and Originating Identification Restriction (OIR) using IP Multimedia (IM); Core Network (CN) subsystem".

[33] 3GPP TS 24.616: "Malicious Communication Identification (MCID) using IP Multimedia (IM) Core Network (CN) subsystem".

[34] IETF RFC 3323: "A Privacy Mechanism for the Session Initiation Protocol (SIP)".

[35] 3GPP TS 23.003: "Numbering, addressing and identification".

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[36] 3GPP TS 24.610: "Communication HOLD (HOLD) using IP Multimedia (IM) Core Network (CN) subsystem".

[37] 3GPP TS 24.615: "Communication Waiting (CW) using IP Multimedia (IM) Core Network (CN) subsystem".

[38] 3GPP TS 24.628: "Common Basic Communication procedures using IP Multimedia (IM) Core Network (CN) subsystem".

[39] IETF RFC 6086: "Session Initiation Protocol (SIP) INFO Method and Package Framework".

[40] IETF RFC 3312: "Integration of resource management and Session Initiation Protocol (SIP)".

[41] IETF RFC 4032: "Update to the Session Initiation Protocol (SIP) Preconditions Framework".

[42] IETF RFC 3313: "Private Session Initiation Protocol (SIP) Extensions for Media Authorization".

[43] IETF RFC 3327: "Session Initiation Protocol Extension Header Field for Registering Non-Adjacent Contacts".

[44] IETF RFC 3325: "Private Extensions to the Session Initiation Protocol (SIP) for Network Asserted Identity within Trusted Networks".

[45] IETF RFC 3608: "Session Initiation Protocol (SIP) Extension Header Field for Service Route Discovery During Registration".

[46] IETF RFC 3486: "Compressing the Session Initiation Protocol (SIP)".

[47] IETF RFC 3329: "Security Mechanism Agreement for the Session Initiation Protocol (SIP)".

[48] IETF RFC 3326: "The Reason Header Field for the Session Initiation Protocol (SIP)".

[49] IETF RFC 6432: "Carrying Q.850 Codes in Reason Header Fields in SIP (Session Initiation Protocol) Responses".

[50] IETF RFC 3581: "An Extension to the Session Initiation Protocol (SIP) for Symmetric Response Routing".

[51] IETF RFC 3841: "Caller Preferences for the Session Initiation Protocol (SIP)".

[52] IETF RFC 4028: "Session Timers in the Session Initiation Protocol (SIP)".

[53] IETF RFC 3892: "The Session Initiation Protocol (SIP) Referred-By Mechanism".

[54] IETF RFC 3891: "The Session Initiation Protocol (SIP) 'Replaces' Header".

[55] IETF RFC 3911: "The Session Initiation Protocol (SIP) 'Join' Header".

[56] IETF RFC 3840: "Indicating User Agent Capabilities in the Session Initiation Protocol (SIP)".

[57] IETF RFC 5079: "Rejecting Anonymous Requests in the Session Initiation Protocol (SIP)".

[58] IETF RFC 4458: "Session Initiation Protocol (SIP) URIs for Applications such as Voicemail and Interactive Voice Response (IVR)".

[59] IETF RFC 4320: "Actions Addressing Identified Issues with the Session Initiation Protocol's (SIP) Non-INVITE Transaction".

[60] IETF RFC 4457: "The Session Initiation Protocol (SIP) P-User-Database Private-Header (P-header)".

[61] IETF RFC 5031: "A Uniform Resource Name (URN) for Emergency and Other Well-Known Services".

[62] IETF RFC 5627: "Obtaining and Using Globally Routable User Agent (UA) URIs (GRUU) in the Session Initiation Protocol (SIP)".

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[63] Void.

[64] IETF RFC 5002: "The Session Initiation Protocol (SIP) P-Profile-Key Private Header (P-Header)".

[65] IETF RFC 5626: "Managing Client-Initiated Connections in the Session Initiation Protocol (SIP)".

[66] IETF RFC 5768: "Indicating Support for Interactive Connectivity Establishment (ICE) in the Session Initiation Protocol (SIP)".

[67] IETF RFC 5365: "Multiple-Recipient MESSAGE Requests in the Session Initiation Protocol (SIP)".

[68] IETF RFC 6442: "Location Conveyance for the Session Initiation Protocol".

[69] IETF RFC 5368: "Referring to Multiple Resources in the Session Initiation Protocol (SIP)".

[70] IETF RFC 5366: "Conference Establishment Using Request-Contained Lists in the Session Initiation Protocol (SIP)".

[71] IETF RFC 5367: "Subscriptions to Request-Contained Resource Lists in the Session Initiation Protocol (SIP)".

[72] IETF RFC 4967: "Dial String Parameter for the Session Initiation Protocol Uniform Resource Identifier".

[73] IETF RFC 4964: "The P-Answer-State Header Extension to the Session Initiation Protocol for the Open Mobile Alliance Push to Talk over Cellular".

[74] IETF RFC 5009: "Private Header (P-Header) Extension to the Session Initiation Protocol (SIP) for Authorization of Early Media".

[75] IETF RFC 4694: "Number Portability Parameters for the 'tel' URI".

[76] Void.

[77] IETF RFC 4411: "Extending the Session Initiation Protocol (SIP) Reason Header for Preemption Events".

[78] IETF RFC 4412: "Communications Resource Priority for the Session Initiation Protocol (SIP)".

[79] IETF RFC 5393: "Addressing an Amplification Vulnerability in Session Initiation Protocol (SIP) Forking Proxies".

[80] IETF RFC 5049: "Applying Signaling Compression (SigComp) to the Session Initiation Protocol (SIP)".

[81] IETF RFC 5688: "A Session Initiation Protocol (SIP) Media Feature Tag for MIME Application Sub-Types".

[82] IETF RFC 5360: "A Framework for Consent-Based Communications in the Session Initiation Protocol (SIP)".

[83] IETF RFC 7433: "A Mechanism for Transporting User-to-User Call Control Information in SIP".

[83A] IETF RFC 7434: "Interworking ISDN Call Control User Information with SIP".

[84] IETF RFC 7316: "The Session Initiation Protocol (SIP) P-Private-Network-Indication Private Header (P-Header)".

[85] IETF RFC 5502: "The SIP P-Served-User Private-Header (P-Header) for the 3GPP IP Multimedia (IM) Core Network (CN) Subsystem".

[86] Void.

[87] IETF RFC 8497: "Marking SIP Messages to Be Logged".

[88] IETF RFC 6228: "Response Code for Indication of Terminated Dialog".

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Full standard:
https://standards.iteh.ai/catalog/standards/sist/09c67fa1-1000-4162-bb4f-d8f2320fd17a/etsi-ts-129-165-v14.13.0-2020-01