



ATIS-0500032.v003

ATIS Standard on -

**ATIS STANDARD FOR IMPLEMENTATION OF AN IMS-BASED NG9-1-1
SERVICE ARCHITECTURE**



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ATIS Standard for Implementation of an IMS-based NG9-1-1 Service Architecture

Alliance for Telecommunications Industry Solutions

Approved July 11, 2024

Abstract

This Standard defines the Stage 2 (architecture) and Stage 3 (protocol) specifications for an IMS-based NG9-1-1 Service Architecture. This Standard includes the architecture, functional elements, call flows, protocols, and interfaces which were derived from the Stage 1 requirements in ATIS-0500023, "Applying Common IMS to NG9-1-1 Networks".

Foreword

The Alliance for Telecommunication Industry Solutions (ATIS) serves the public through improved understanding between carriers, customers, and manufacturers.

The ESIF IP Multimedia Subsystem for 9-1-1 (IMS911) subgroup led this joint work effort that addresses the application of common IMS (Stage 1, 2, and 3) for the processing, transport, and/or delivery of Emergency Service calls within the NG9-1-1 network to the appropriate Public Safety Answering Point (PSAP). This is a joint effort with the Emergency Services Interconnection Forum Next Generation Emergency Service (ESIF NGES) Subcommittee, Packet Technologies and Systems Committee (PTSC) and the Wireless Technologies and Systems Committee Systems and Network Subcommittee (WTSC SN).

The Emergency Services Interconnection Forum (ESIF) provides a forum to facilitate the identification and resolution of technical and/or operational issues related to the interconnection of wireline, wireless, cable, satellites, Internet and emergency services networks.

The ESIF Next Generation Emergency Services (NGES) Subcommittee coordinates emergency services needs and issues with and among SDOs and industry forums/committees, within and outside ATIS, and develops emergency services (such as E9-1-1) standards, and other documentation related to advanced (i.e., Next Generation) emergency services architectures, functions, and interfaces for communications networks.

The Packet Technologies and Systems Committees (PTSC) develops and recommends standards and technical reports related to services, architectures, and signaling, in addition to related subjects under consideration in other North American and international standards bodies. PTSC coordinates and develops standards and technical reports related to telecommunications networks in the U.S., reviews and prepares contributions on such matters for submission to U.S. ITU-T and U.S. ITU-R Study Groups or other standards organizations, and reviews for acceptability or per contra the positions of other countries in related standards developments and takes or recommends appropriate actions.

The Wireless Technologies and Systems Committee (WTSC) develops and recommends standards and technical reports related to wireless and/or mobile services and systems, including service descriptions and wireless technologies. WTSC develops and recommends positions on related subjects under consideration in other North American, regional, and international standards bodies.

The WTSC Systems and Networks Subcommittee (WTSC SN) develops, maintains, amends and enhances American National Standards and ATIS deliverables related to system aspects, networks, and terminals within the GSM family (GSM/EGPRS/UMTS) such as circuit-switched, packet-switched and IP multimedia services including future developments.

Suggestions for improvement of this document are welcome. They should be sent to the Alliance for Telecommunications Industry Solutions, ESIF, 1200 G Street NW, Suite 500, Washington, DC 20005.

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Table of Contents

Preface	1
1 Scope, Purpose, & Application	2
1.1 Scope.....	2
1.2 Purpose	2
1.3 Application	2
2 Normative References	2
3 Informative References.....	5
4 Definitions, Acronyms, & Abbreviations	5
4.1 Definitions	5
4.2 Acronyms & Abbreviations.....	7
5 Introduction.....	10
6 Assumptions & Requirements	10
6.1 Basic Assumptions	10
6.2 Requirements	11
7 Architecture	12
7.1 Overview.....	12
7.2 IMS-Based NG9-1-1 Service Architecture Functional Elements	13
7.2.1 Emergency Call Session Control Function (E-CSCF)	13
7.2.2 Interrogating Call Session Control Function (I-CSCF).....	13
7.2.3 Location Retrieval Function (LRF).....	14
7.2.4 Routing Determination Function (RDF).....	14
7.2.5 Location Server (LS).....	14
7.2.6 Interconnection Border Control Function (IBCF)	14
7.2.7 Legacy Network Gateway (LNG).....	15
7.2.8 Emergency Call Routing Function (ECRF).....	15
7.2.9 Legacy PSAP Gateway (LPG).....	15
7.2.10 Application Server (AS).....	16
7.2.11 Multimedia Resource Function Controller (MRFC).....	16
7.2.12 Multimedia Resource Function Processor (MRFP)	16
7.2.13 Transit Function (TRF).....	16
7.3 Support for Secure Telephone Identity (STI) Services	17
7.3.1 STI Verification of 9-1-1 Originations.....	18
7.3.2 STI Authentication of PSAP-Originated Calls.....	19
7.4 Resource Priority Header Signing and SIP Priority Header Signing.....	22
7.5 Reference Protocols	25
8 Stage 2 Call Flows.....	27
8.1 Legacy Wireline Origination to i3 and Legacy PSAPs	27
8.1.1 Delivery of Legacy Wireline Emergency Call Origination to i3 PSAP.....	27
8.1.2 Delivery of Legacy Wireline Emergency Call Origination to Legacy PSAP.....	30
8.2 Legacy CMRS Origination to i3 and Legacy PSAPs	32
8.2.1 Delivery of Legacy Wireless Emergency Call Origination to i3 PSAP Using WCM.....	32
8.2.2 Delivery of Legacy Wireless Emergency Call Origination to Legacy PSAP Using WCM.....	36
8.2.3 Delivery of Legacy Wireless Emergency Call Origination to i3 PSAP using NCAS.....	40
8.2.4 Delivery of Legacy Wireless Emergency Call Origination to Legacy PSAP using NCAS	44

8.3	IMS Originating Network to i3 and Legacy PSAPs – LbyV	49
8.3.1	Delivery of Emergency Call Origination from IMS Origination Network to i3 PSAP with LbyV	49
8.3.2	Delivery of Emergency Call Origination from IMS Origination Network to Legacy PSAP with LbyV	51
8.4	IMS Originating Network to i3 and Legacy PSAPs – LbyR	55
8.4.1	Delivery of Emergency Call Origination from IMS Origination Network to i3 PSAP with LbyR	55
8.4.2	Delivery of Emergency Call Origination from IMS Origination Network to Legacy PSAP with LbyR	58
8.5	Non-IMS Originating Network to i3 and Legacy PSAPs – LbyV	62
8.5.1	Delivery of Emergency Call Origination from Non-IMS VoIP Origination Network to i3 PSAP with LbyV	62
8.5.2	Delivery of Emergency Call Origination from Non-IMS VoIP Origination Network to Legacy PSAP with LbyV	66
8.6	Non-IMS VoIP Originating Network to i3 and Legacy PSAPs – LbyR	70
8.6.1	Delivery of Emergency Call Origination from Non-IMS Origination Network to i3 PSAP with LbyR	70
8.6.2	Delivery of Emergency Call Origination from Non-IMS Origination Network to Legacy PSAP with LbyR	73
8.7	TTY Interworking on Emergency Calls to Legacy/i3 PSAPs	78
8.7.1	RTT Calls from IMS Originating Network to Legacy PSAP via NG9-1-1	78
8.7.2	TTY Calls from Legacy Originating Network to an i3 PSAP via NG9-1-1	80
8.7.3	TTY Calls from Legacy Originating Network to a Legacy PSAP via NG9-1-1	85
8.8	Call Transfer/Bridging	89
8.8.1	Support for Attended Emergency Call Transfer Requests from i3 PSAPs to Transfer-to PSAPs/Destinations	90
8.8.2	Support for Attended Emergency Call Transfer Requests from Legacy PSAPs to Transfer-to PSAPs/Destinations	124
8.8.3	Support for Blind Transfer Requests from i3 PSAPs to Transfer-to PSAPs/Destinations	136
8.9	Policy Routing Scenarios	142
8.10	Failure Scenarios	145
8.10.1	Error Conditions	145
8.11	PSAP-Originated Calls	146
8.11.1	PSAP Callbacks	146
8.11.2	Follow-Up Calls	149
8.11.3	Emergency Support Calls	151
8.11.4	Non-Emergency Calls	153
8.12	Caller Identity and Resource-Priority Header Authentication/Signing and Verification Call Flows	154
8.12.1	9-1-1 Origination from an IMS Originating Network	154
8.12.2	9-1-1 Origination from a Non-IMS VoIP Originating Network	157
8.12.3	Callback to IMS Home Network - Transit Function Interacts with STI-AS	158
8.12.4	Callback to IMS Home Network - Exit IBCF Interacts with STI-AS	160
8.12.5	Callback to Non-IMS VoIP Home Network – Transit Function Interacts with STI-AS	163
8.12.6	Callback to Non-IMS VoIP Home Network – Exit IBCF Interacts with STI-AS	164
9	Stage 3	166
9.1	Procedures & Header Usage for the Emergency CSCF (E-CSCF)	167
9.1.1	Header Usage	168
9.2	Procedures & Header Usage for the Location Retrieval Function (LRF)	168
9.2.1	Processing of Origination from i3-Compliant Originating Network or LNG	169
9.2.2	Routing Incoming Signaling Information to Facilitate Error Handling	169
9.2.3	Header Usage	169
9.2.4	Procedures at Policy Routing Function (PRF)	169
9.3	Procedures at the RDF	171
9.3.1	Procedures for Provisioning the RDF	171
9.4	Procedures at the LNG	172
9.4.1	SS7 Wireline to SIP Header Mapping Example	173
9.4.2	CAMA Wireline to SIP Header Mapping Example	173
9.4.3	FG D Wireline to SIP Header Mapping Example	174
9.4.4	SS7 Wireline Compatibility Mode to SIP Header Mapping Example	174

9.4.5	CAMA MF WCM to SIP Header Mapping Example.....	175
9.4.6	FG D MF WCM to SIP Header Mapping Example	175
9.4.7	SS7 NCAS to SIP Header Mapping Example.....	176
9.4.8	CAMA MF NCAS to SIP Header Mapping Example.....	176
9.4.9	FG D MF NCAS to SIP Header Mapping Example	176
9.5	Procedures at the LPG	177
9.6	Procedures at the IBCF	178
9.6.1	Entry Point IBCF.....	178
9.6.2	Exit Point IBCF.....	179
9.7	Procedures at the I-CSCF	180
9.8	Procedures at the Conferencing Application Server (AS).....	180
9.9	Procedures at the Multimedia Resource Function Controller (MRFC)	181
9.10	Procedures at the Multimedia Resource Function Processor (MRFP).....	181
9.11	Procedures at the Transit Function.....	181
9.12	Procedures at the STI-AS.....	182
9.13	Procedures at the STI-VS.....	182
10	Location Validation	183
11	Test Calls.....	183
12	Logging.....	184
13	Discrepancy Reporting	184
14	Security Considerations.....	185
15	Network Monitoring Thresholds	186
A	SIP INVITE Profile for Emergency Calls.....	189
B	Message Examples	192
B.1	Legacy Fixed Line UE to Traditional Legacy PSAP (Wireline) Example	192
B.2	Legacy Mobile UE to Traditional Legacy PSAP (Wireless) Example	193
B.3	Fixed Line IP OSP UE to Traditional Legacy PSAP Example	193
B.4	Mobile IP OSP UE to Traditional Legacy PSAP Example	194
C	Analysis of Network Monitoring Thresholds in IMS-based NG9-1-1 Emergency Services Network	195

Table of Figures

Figure 7.1:	IMS origination network emergency call architecture from 3GPP TS 23.167	12
Figure 7.2:	IMS-Based NG9-1-1 Service Architecture	13
Figure 8.1:	Delivery of Legacy Wireline Emergency Call Origination to i3 PSAP	28
Figure 8.2:	Delivery of Legacy Wireline Emergency Call Origination to Legacy PSAP.....	30
Figure 8.3:	Delivery of Legacy Wireless Emergency Call Origination to i3 PSAP Using WCM	33
Figure 8.4:	Delivery of Legacy Wireless Emergency Call Origination to Legacy PSAP Using WCM	37
Figure 8.5:	Delivery of Legacy Wireless Emergency Call Origination to i3 PSAP Using NCAS41	37
Figure 8.6:	Delivery of Legacy Wireless Emergency Call Origination to Legacy PSAP Using NCAS.....	45
Figure 8.7:	Delivery of IMS Emergency Call Origination to i3 PSAP with LbyV	50
Figure 8.8:	Delivery of IMS Emergency Call Origination to Legacy PSAP with LbyV	52
Figure 8.9:	Delivery of IMS Emergency Call Origination to i3 PSAP with LbyR.....	56

Figure 8.10: Delivery of IMS Emergency Call Origination to Legacy PSAP with LbyR 59

Figure 8.11: Delivery of Non-IMS Emergency Call Origination to i3 PSAP with LbyV 64

Figure 8.12: Delivery of Non-IMS Emergency Call Origination to Legacy PSAP with LbyV 67

Figure 8.13: Delivery of Non-IMS Emergency Call Origination to i3 PSAP with LbyR 71

Figure 8.14: Delivery of Non-IMS Emergency Call Origination to Legacy PSAP with LbyR 74

Figure 8.15: RTT Calls from IMS Originating Network to Legacy PSAP via NG9-1-1 79

Figure 8.16: TTY Calls from Legacy Originating Network to an i3 PSAP via NG9-1-1 – Part I 82

Figure 8.17: TTY Calls from Legacy Originating Network to an i3 PSAP via NG9-1-1 – Part II 84

Figure 8.18: TTY Calls from Legacy Originating Network to a Legacy PSAP via NG9-1-1 – Part I 85

Figure 8.19: TTY Calls from Legacy Originating Network to a Legacy PSAP via NG9-1-1 – Part II..... 88

Figure 8.20: Conferencing Functional Architecture..... 90

Figure 8.21: i3 PSAP Establishes Conference with Conferencing AS/MRFC..... 92

Figure 8.22: i3 PSAP Requests that IBCF/B2BUA be Invited to the Conference 94

Figure 8.23: i3 PSAP Requests that a Transfer-to i3 PSAP be Invited to the Conference 96

Figure 8.24: i3 PSAP Requests that a Transfer-to Legacy PSAP be Invited to the Conference 99

Figure 8.25: Transfer-from i3 PSAP Disconnects from the Conference – Transfer-to PSAP is an i3 PSAP 101

Figure 8.26: Transfer-from i3 PSAP Disconnects from the Conference – Transfer-to PSAP is a Legacy PSAP 102

Figure 8.27: Transfer-to i3 PSAP Completes the Transfer and Terminates the Call 104

Figure 8.28: Transfer-to Legacy PSAP/LPG Completes the Transfer and Terminates the Call 106

Figure 8.29: Transfer-from i3 PSAP Invokes the Conference..... 109

Figure 8.30: Application Server (AS) Bridges Call #1 and Call #2 via IBCF#2 111

Figure 8.31: Application Server (AS) Invites Transfer-to i3 PSAP to Conference..... 113

Figure 8.32: Application Server (AS) Invites Transfer-to Legacy PSAP to Conference 116

Figure 8.33: Transfer-from i3 PSAP Drops out of Conference with Transfer-to i3 PSAP 119

Figure 8.34: Transfer-from i3 PSAP Drops out of Conference with Transfer-to Legacy PSAP 120

Figure 8.35: Conference AS/MRFC Released by Transfer-to i3 PSAP 122

Figure 8.36: Conference AS/MRFC Released by Transfer-to Legacy PSAP..... 123

Figure 8.37: Legacy PSAP Requests Transfer; LPG Establishes Conference with Conferencing AS/MRFC 125

Figure 8.38: Transfer-from Legacy PSAP Disconnects from the Conference – Transfer-to PSAP is an i3 PSAP 128

Figure 8.39: Transfer-from Legacy PSAP Disconnects from the Conference – Transfer-to PSAP is a Legacy PSAP 129

Figure 8.40: Legacy PSAP Establishes Conference with Conferencing AS/MRFC 131

Figure 8.41: Transfer-from Legacy PSAP Drops out of Conference with Transfer-to i3 PSAP 134

Figure 8.42: Transfer-from Legacy PSAP Drops out of Conference with Transfer-to Legacy PSAP 135

Figure 8.43: Blind Transfer: Transfer-from i3 PSAP to Transfer-to i3 PSAP 137

Figure 8.44: IMS Based Call to i3 PSAP – PRF Example..... 144

Figure C.1: Call Setup, Call Routing and Dereferencing Transactions 195

Figure C.2: Other Transactions 196

Table of Tables

Table 9-1: Mapping at LNG	173
Table 9-2: SS7 Wireline to SIP Header Mapping Example.....	173
Table 9-3: CAMA MF Wireline to SIP Header Mapping Example	174
Table 9-4: FG D MF Wireline to SIP Header Mapping Example.....	174
Table 9-5: SS7 WCM to SIP Header Mapping Example.....	174
Table 9-6: CAMA MF WCM to SIP Header Mapping Example.....	175
Table 9-7: FG D MF WCM to SIP Header Mapping Example.....	175
Table 9-8: SS7 NCAS to SIP Header Mapping Example.....	176
Table 9-9: CAMA MF NCAS to SIP Header Mapping Example	176
Table 9-10: FG D MF NCAS to SIP Header Mapping Example.....	177
Table A-1: SIP INVITE Header Profile Legend	189
Table A-2: SIP INVITE Header Profile	190

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ATIS Standard on –

Implementation of an IMS-based NG9-1-1 Service Architecture

Preface

ATIS has developed a Next Generation 9-1-1 network and emergency call processing architecture based on contributions received since 2011 and based on requirements by a number of wireless carriers to have an IMS-based Multimedia Subsystem (IMS)-compatible NG9-1-1 design¹. Additionally, the NENA i3 Architecture Working Group² deferred the IMS-based Emergency Services IP Network (ESInet) development to ATIS. ATIS' goal in developing this standard has been transparent interoperability between the two network designs.

ATIS' intent in this development work was to produce a standard method for IMS-based carriers to offer NG9-1-1 services wholly within their IMS platforms, while maintaining consistency and interoperability with the NENA i3 ESInet/NGCS (Next Generation Core Services) design goals. This kind of standards approach allows IMS-based carriers to take advantage of complete IMS interoperability and features found in their existing IMS ecosystems, while still remaining interoperable with downstream i3 PSAPs that implement NENA i3 standards and interfaces.

It is also ATIS' goal to assure that terminating NG9-1-1 entities, such as i3 PSAPs, and the upstream networks that are built on the ATIS IMS-based NG9-1-1 Service Architecture to be as completely interoperable with their systems and networks as that of a NENA i3 NG9-1-1 standard SIP-based architecture. This goal of transparency, both upstream and downstream between architectures, ensures that an i3 PSAP should find no difference whether the i3 PSAP interconnects to a NENA i3 ESInet with NGCS, or interconnects to an ATIS IMS-based NG9-1-1 Service Architecture. This consistent interoperability principle has guided all of ATIS' development work since the beginning, as documented within the original Issue Statement underlying this work.

The ATIS IMS-based NG9-1-1 Service Architecture provides compatibility for IMS-based carriers acting as an NG9-1-1 System Service Provider (911SSP) to seamlessly interoperate with NENA i3 ESInet architectures.

For entities early in the process of selecting ESInet solutions, the expectation within this ATIS development work was that the ATIS IMS-based NG9-1-1 Service Architecture would offer a choice for carriers that already had an IMS ecosystem, but not be considered a viable architecture choice for 9-1-1 service entities that had no plans for an IMS infrastructure.

Public Safety entities should naturally understand the applicability of an IMS-based NG9-1-1 Service Architecture network approach to processing emergency calls, yet in this case, they can remain confidently focused on NENA i3-based NG9-1-1 architectures, (this is because IMS may be of interest to carriers, not to jurisdictions), which means that Public Safety's progress and momentum to adopt NG9-1-1 will not be impeded by the introduction of this ATIS NG9-1-1 Service Architecture standard.

¹ IMS is a set of standards based on the IETF RFC 3261 [Ref 18] family of standards that also introduces additional requirements, specific for carrier operators not differentiated in the more general SIP RFCs.

² The NENA i3 Architecture Working Group developed NENA-STA-010.3 [Ref 27].