



# **ATIS/TIA Joint SMS-to-9-1-1 Standards Activity Progress**

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# SMS-to-9-1-1 “ORDER from CHAOS”

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- In March 2012, situation was CHAOS with multiple vendor solutions per city/county/state.
- Texting to 9-1-1 in danger of turning into regional service unlike nationwide voice calling to 9-1-1.
- Customers learned to expect consistent treatment in dialing 9-1-1 for voice calls throughout the country.
- An industry standard will create ORDER to allow for same look/feel nationwide for SMS-to-9-1-1

# Genesis of a Joint ATIS/TIA Standard

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- Desire for same SMS-to-9-1-1 treatment throughout US regardless of phone technology type or mobile operator
- ATIS and TIA agree to work a joint standard project for the development of an SMS-to-9-1-1 standard in March 2012
  - GSM/UMTS/LTE in scope of ATIS
  - Cdma2000 in scope of TIA

# SMS-to-9-1-1 Simplifying Assumptions

- Works with both SMS-supporting feature phones and modern smartphones
- Must have valid SMS subscription
- Customer will dial “9-1-1” short code as destination address
  - Some phones today reject “9-1-1” as an SMS destination address
- No Over-the-Top SMS-like apps supported
- No redesign of SMS service in operator networks
- No pre-registration required
  - Everybody can use the service with no registration required.
- Only coarse location used to route messages to correct PSAP
  - Serving cell site, or
  - Coarse lat/long generated by operator’s LBS platform

# Significant Progress to Report

- J-STD-110, *Joint ATIS/TIA Native SMS to 9-1-1 Requirements and Architecture Specification* published in March 2013
- Defines the requirements, architecture, and procedures for text messaging to 9-1-1 emergency services
- Uses native wireless operator SMS capabilities
- Supports the existing generation and next generation (NG9-1-1) Public Safety Answering Points (PSAPs)

# Obtain your J-STD-110 NOW

- Since the end of March 2013, J-STD-110 has been and currently is available via the ATIS Document Center
  - Complimentary electronic downloads of the standard are available to all interested parties until June 30, 2013
    - After June 30<sup>th</sup>, the list price of the standard will be \$265 (electronic download) and \$320 (paper/CD-Rom)
  - The direct link to the standard is:
    - <http://www.atis.org/docstore/product.aspx?id=27924>
  - Any questions regarding the accessing of this document, please contact: [doccenter@atis.org](mailto:doccenter@atis.org)

# All Good Standards Include Acronyms!

ALI	Automatic Location Identification
ANI	Automatic Number Identification
apps	Applications
ATIS	Alliance for Telecommunications Industry Solutions
BCF	Border Control Function
CAMA	Centralized Automatic Message Accounting
CMRS	Commercial Mobile Radio Service
E9-1-1	Enhanced 9-1-1
ECRF	Emergency Call Routing Function
ESInet	Emergency Services IP Network
ESRP	Emergency Services Routing Proxy
FCC	Federal Communications Commission
HTTP	Hypertext Transport Protocol
IETF	Internet Engineering Task Force
ISDN	Integrated Services Digital Number

# Acronyms (continued)

IWF	Interworking Function
LBS	Location-Based Services
LbyR	Location by Reference
LbyV	Location by Value
LoST	Location to Service Translation
LPG	Legacy PSAP Gateway
LS	Location Server
MF	Multi-Frequency
MLP	Mobile Location Protocol
MMS	Multimedia Messaging Service
MSISDN	Mobile Station ISDN Number
MSRP	Message Session Relay Protocol
NCAS	Non-Call Associated Signaling
NG9-1-1	Next Generation 9-1-1



# Acronyms (continued)

OTT	Over-The-Top
pANI	Pseudo Automatic Number Identification
PSAP	Public Safety Answering Point
PST	Public Safety Telecommunicator
RFC	Request for Comment
RS	Routing Server
SIP	Session Initiation Protocol
SLIS	Standard Location Immediate Service
SM MO	Short Message Mobile Originated
SM MT	Short Message Mobile Terminated
SMPP	Short Message Peer-to-Peer
SMS	Short Message Service
SMSC	Short Message Service Center
SR	Selective Router

# Acronyms (continued)

SS7	Signaling System #7
TCC	Text Control Center
TDM	Time Division Multiplexing
TIA	Telecommunications Industry Association
TTY	Teletypewriter
URI	Uniform Resource Identifier
URN	Uniform Resource Name
WCM	Wireline Compatibility Mode

# J-STD-110 SMS-to-9-1-1 Architecture

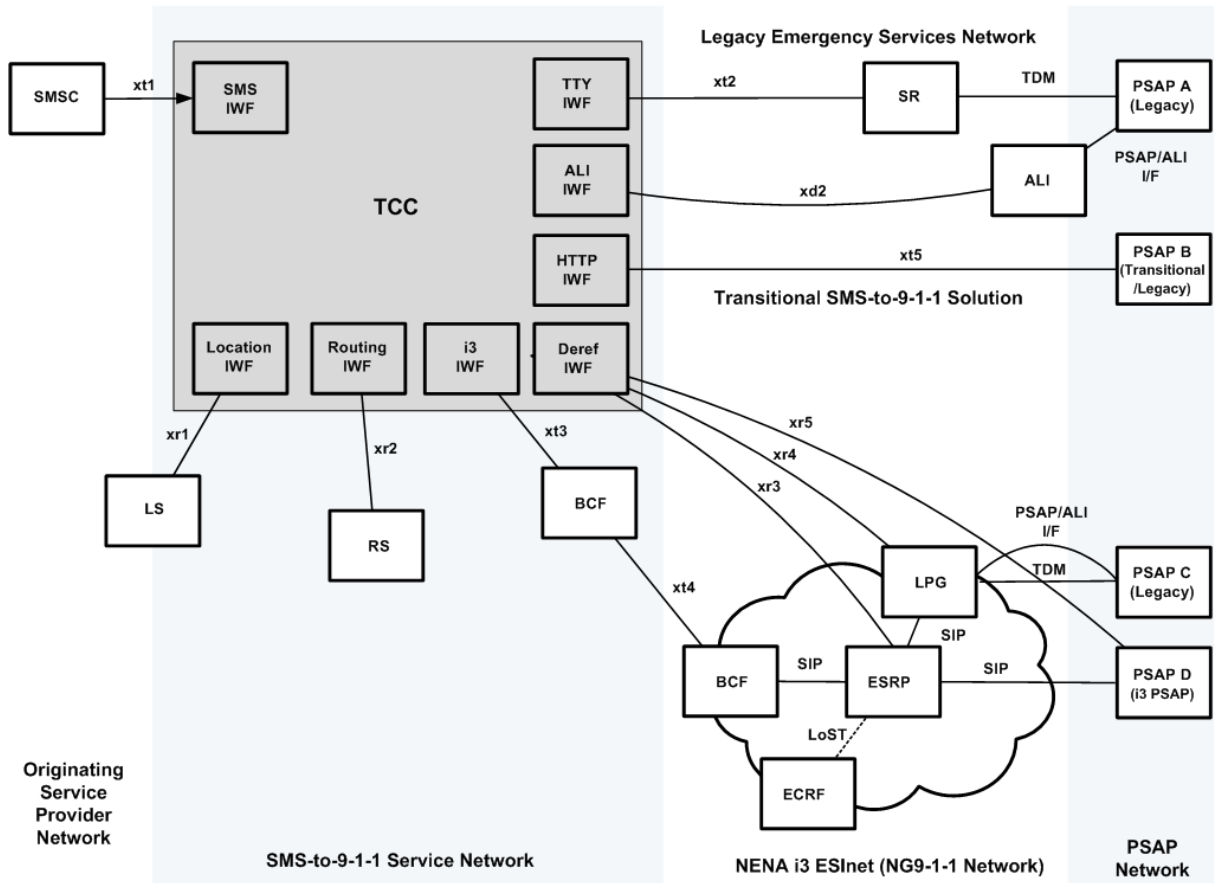


Figure 1, J-STD-110, *Joint ATIS/TIA Native SMS to 9-1-1 Requirements and Architecture Specification*

# Protocols on Various Interfaces

**Table 1: Definition of Reference Points Between Functional Entities**

REFERENCE POINT #	FUNCTIONAL ENTITY	FUNCTIONAL ENTITY	PROTOCOLS CONSIDERED
xd1	TCC / ALI IWF	ALI	Mobile Location Protocol (MLP) [Ref 3]. Emergency Services Protocol (ESP) [Ref 4].
xr1	TCC / Location IWF	LS	Mobile Location Protocol (MLP) [Ref 3].
xr2	TCC / Routing IWF	RS	Location-to-Service Translation (LoST) [Ref 5].
xr3	TCC / Deref IWF	ESRP	Location Dereferencing Protocol using HELD Deref [Ref 7].
xr4	TCC / Deref IWF	LPG	Location Dereferencing Protocol using HELD Deref [Ref 7].
xr5	TCC / Deref IWF	PSAP D (NENA i3)	Location Dereferencing Protocol using HELD Deref [Ref 7].

Table 1, J-STD-110, *Joint ATIS/TIA Native SMS to 9-1-1 Requirements and Architecture Specification*

# Protocols on Various Interfaces (continued)

REFERENCE POINT #	FUNCTIONAL ENTITY	FUNCTIONAL ENTITY	PROTOCOLS CONSIDERED
xt1	TCC / SMS IWF	SMSC	Short Message Peer-to-Peer Protocol (SMPP) [Ref 2].
xt2	TCC / TTY IWF	Selective Router	Signaling System 7 (SS7) [Ref 24] Centralized Automatic Message Accounting (CAMA) [Refs 22 & 23].
xt3	TCC / i3 IWF	BCF	Session Initiation Protocol (SIP) [Ref 8] with Message Session Relay Protocol (MSRP) [Ref 6]. The reference points for MSRP are not shown.
xt4	BCF	ESInet BCF	Session Initiation Protocol (SIP) [Ref 8] with Message Session Relay Protocol (MSRP) [Ref 6]. The reference points for MSRP are not shown.
xt5	TCC / HTTP IWF	PSAP B (Transitional)	HTTP (assumed, details not defined).

Table 1, J-STD-110, *Joint ATIS/TIA Native SMS to 9-1-1 Requirements and Architecture Specification*

# Ongoing ATIS/TIA Standards Efforts

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## CMRS and TCC Provider Implementation Guidelines for the Joint ATIS/TIA SMS to 9-1-1 Standard (J-STD-110)

- Example: TCC distribution network, as monolithic TCC cannot connect to 6000+ PSAPs.
- Planned letter ballot Sept. 2013

## Implementability Fixes for J-STD-110

- Example: Support for PSAP request for temporary suspension of messages from FCC Bounce-back Report and Order
- Planned letter ballot Sept. 2013

# SMS-to-9-1-1 Coordination Group (SCG)

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- Roger Hixson (NENA) chairing coordination effort with all relevant industry and government parties, including ATIS
- Need for close ties between SCG and ATIS
  - Especially for ATIS implementation guidelines project and for ATIS implementability fixes project

# SMS-to-9-1-1 is a Near-term Interim Solution

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- Longer-term standards-based solution is Multimedia Messaging Emergency Services (MMES)
- MMES includes text messaging, pictures, videos
- Real Time Text (RTT) may be supported in MMES
- ATIS to begin addressing North American MMES requirements/standards in 3Q2013.



# 3GPP Multimedia Emergency Services (MMES)

- Messaging component first introduced as Non-Voice Emergency Services (NOVES) in 3GPP SA1 (see study report in 3GPP TR 22.871)
- 3GPP TS 22.101 Section 10 contains SA1 requirements added for IMS Multimedia Emergency Sessions (MES)
- Includes long-term vision of messaging for Next Gen emergency services
- First version MMES completed in 3GPP Release 11

# Opportunities for Next Gen Priority Messaging

- SMS originally designed in Europe in early 1990s
- SMS has no priority mechanisms
- MMES may be used by public to reach emergency services. Such messaging may be given priority (e.g., SIP Invite with sos:urn)
- Messaging protocols for Next Gen could be enhanced to allow for priority capabilities for emergency services messaging and for 3GPP Multimedia Priority Service (MPS) users (e.g., government priority services users)

# 3GPP MMES Issues to be Resolved

- Real-Time Text (RTT) for real-time (character-at-a-time) service
- SIP Message for message-at-a-time (IM) service
- Whether Message Session Relay Protocol (MSRP) or Extensible Messaging and Presence Protocol (XMPP) will assist with session management for MMES?
- There is a need for the industry to standardize as quickly as possible the media formats and protocols on which an MMES texting service will be based

# Future expectations



# Standards allow future expectations to be met

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THANK YOU!