Commonwealth of Virginia
SMS Text-to-9-1-1 Implementation Guide for Virginia's PSAPs

Created at the direction of the Text-to-9-1-1 Subcommittee, goal of this guide is to be a resource for PSAPs that are interested in implementing SMS text-to-9-1-1 at their locality. This document compiles various materials from organizations such as the FCC, NENA, and APCO that have information on text-to-9-1-1 implementation.

Developed by the

E9-1-1 Services Board

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Purpose

As directed by the Text-to-9-1-1 Subcommittee, the SMS (Short Message Service) Text-to-9-1-1 Implementation Guide and the SMS Text-to-9-1-1 Planning Kit have been developed for PSAPs in Virginia that are interested in implementing SMS text-to-9-1-1. This guide contains a concise compilation of information from various organizations such as the FCC, NENA, and APCO with a planning kit of templates and resources that PSAPs may use in the implementation process. For further reading, the kit includes informational documents such as NENA's FAQs and VITA's text-to-9-1-1 whitepaper. Also, the Additional Resources section at the end contains hyperlinks to comprehensive materials pertaining to SMS text-to-9-1-1 implementation.

This guide briefly describes the three methods of implementing SMS text-to-9-1-1: 1) web browser with Internet access, 2) direct IP, and 3) TDD/TTY. The focus is on the web browser with Internet solution, since it is the recommended method for the State of Virginia.

Background

On August 8, 2014, the Federal Communications Commission (FCC) adopted the **Second Report and Order and Third Further Notice of Proposed Rulemaking** (FCC 14-118) that requires text messaging providers to enable people in the United States to text 9-1-1 in an emergency. As a result of this ruling, when a PSAP requests text-to-9-1-1, the Commercial Mobile Service Providers (CMSPs) have six months to deploy text-to-9-1-1 at the PSAP. This ruling requires all wireless carriers and certain IP-based text application providers to be prepared to support text-to-9-1-1 by December 31, 2014.

The four major CMSPs (AT&T, Sprint, T-Mobile, and Verizon) as well as others are able to provide SMS text messaging to support text-to-9-1-1; however, in order to deploy text-to-9-1-1, the PSAP needs to contact each of the carriers. They should also work with their IT staff to ensure that their hardware and software can receive and send 9-1-1 text messages.

Organizations such as NENA, APCO, and the FCC have provided various documents, guides, and reference materials pertaining to text-to-9-1-1 deployment which are compiled in this guide. The **SMS Text-to-9-1-1 Planning Kit** brings together many of these resources to help PSAPs plan for and implement text-to-9-1-1. In addition to templates and a checklist, this kit provides a step-by-step overview of what needs to be done as well as informational documents for further reading.

Direct references to the planning kit items are mentioned as PK1 (planning kit item number 1), PK2, etc. in this document.

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SMS Text-to-9-1-1 Planning Kit Contents

PK1. **SMS Text-to-9-1-1 Implementation Planning Checklist for web-based solution**: From NENA's *Interim SMS Text-to-9-1-1 Information and Planning Guide*.

PK2. **Request for Service Letter:** TEMPLATE letter for the PSAP to send to each CMSP. Source: NENA

PK3. **Commercial Mobile Service Provider (CMSP) Contact List**: Contact information of the four major wireless carriers—AT&T, Sprint, T-Mobile, and Verizon. Source: NENA

PK4. **SMS Text-to-9-1-1 Questionnaire**: PSAP completes and sends to each CMSP. Source: NENA

PK5. **Information to be supplied by Public Safety and Guidelines for PSAPs or 9-1-1 Authorities:** Source: APCO

PK6. **Text-to-9-1-1 Readiness and Certification Form**: Instructions and form to be sent to the FCC as soon as text-to-9-1-1 is deployed at the locality. Source: FCC

PK7. **SMS Text-to-9-1-1 Status Change Notification E-mail**: Instructions along with TEMPLATE message that PSAP copies/pastes in an e-mail to the FCC.

PK8. **NENA's FAQ's for Interim Text-to-9-1-1 Solution** (Informational)

PK9. **APCO's Interim SMS Text-to-9-1-1 Information and Planning Guide** (Informational)

PK10. **Virginia Text-to-9-1-1 Whitepaper** (Informational)

Using the Guide and Planning Kit

The SMS Text-to-9-1-1 Guide and the SMS Text-to-9-1-1 Planning Kit have been developed for PSAPs planning to deploy **SMS text-to-9-1-1**, also known as **interim text-to-9-1-1**. This technology only supports text messages via carrier native SMS. It is an interim solution, because SMS text-to-9-1-1 does not support multimedia, such as photos, videos, and multiple recipients, which are sent as Multimedia Messaging Service (MMS) messages.

The goal of this guide and planning kit is to help PSAPs in their planning and deployment of text-to-9-1-1. Throughout the implementation process, the PSAP coordinates with the CMSP and TCC as well as with IT personnel at the PSAP. When there are questions or concerns at any stage of the process, it is important to express them to the CMSP, TCC and/or IT personnel.

Public education is an integral part of the implementation process. As more citizens embrace texting in their everyday lives, texting 9-1-1 in reaching the PSAP in an emergency has become a reality. Virginia's deaf and hard of hearing community have been proactive in asking PSAPs in Virginia to provide this service. Also, domestic violence organizations and police authorities have mentioned text-to-9-1-1 as a crucial means to contact the PSAP for individuals involved in a domestic violence or home invasion event. The public should know that texting 9-1-1 should be used as a last resort in contacting the PSAP. The links in the Additional Resources section provide information on community outreach as well as additional resources on SMS text-to-9-1-1.

Interim SMS Text-to-9-1-1 Information and Planning Guide Checklist

NENA has provided an informative step-by-step guide in a checklist format that identifies the tasks and responsibilities for the introduction of SMS text-to-9-1-1. The guide provides direction in deploying text-to-9-1-1 at the PSAP using the following methods: web browser based with Internet access, direct IP, and TDD/TTY solutions. The three SMS text-to-9-1-1 methods are described below. The Alliance for Telecommunications Industry Solution (ATIS) is the original source in this guide's creation.

Web browser based with Internet access - This solution requires that a PSAP have a dedicated computer with Internet access. The telephone number associated with the device used for texting and the x/y coordinates of the cell sector centroid associated with the texting device are displayed on 9-1-1 equipment in the PSAP. Also, the web browser solution enables full duplex conversations. This will allow a PSAP call taker and a 9-1-1 caller to be texting simultaneously without fear of cutting off the other person's text.

The Text-to-9-1-1 Subcommittee recommends that a text aggregator be included in the web browser solution. This solution would aggregate all text-to-9-1-1 traffic from multiple wireless carriers and TCC vendors, allowing PSAPs to interact with a single service provider for text-to-9-1-1. It would also expand the capabilities of the basic web browser solution by including efficient two-way texting conversations and transferability among participating PSAPs. The current ATIS standard for texting does not include requirements for transferring, so the enhanced capabilities offered by the text aggregator provide significant functional capabilities to PSAPs that transfer calls on a frequent basis.

However, aggregator solutions come with one-time and recurring costs. The Subcommittee is recommending that the PSAP Grant Program be the potential funding source for these costs.

Nationwide, the web browser solution is the most widely used deployment method. Platform providers are focusing resources on this delivery method because it is the solution most requested by PSAPs. When the web browser solution was first deployed, the text message was not incorporated into PSAP first response systems, such as a computer aided dispatch system; however, interfaces have been developed and are now more readily available. Also, TCC providers are working to develop a unified interface for the delivery of web browser Text to 9-1-1 traffic to avoid having a separate interface page for each deployed carrier.

Direct IP - Direct IP delivery of Text-to-9-1-1 messages requires an IP based PSAP with IP connectivity to an Emergency Services IP Network (ESInet). This method most resembles the NENA i3 NG 9-1-1 solution, but it requires that a PSAP have connection to an IP network, as well as 9-1-1 equipment capable of receiving IP messages. Currently, there are no industry adopted standards for i3 NG9-1-1 Text to 9-1-1. As a result, any Direct IP solutions deployed today would need to be reworked once a statewide ESInet is deployed in Virginia. As a result, since Virginia PSAPs do not meet the requirements for Direct IP Text to 9-1-1, this is not an available option.

Telecommunications Device for the Deaf (TDD)/Teletype (TTY) over standard PSAP trunks - This method of Text-to-9-1-1 delivery requires the least modification to the PSAP equipment. SMS calls are converted to TTY messages and relayed to the PSAP over the existing PSAP wireless 9-1-1 trunks. This process does not require any changes to the existing 9-1-1 call handling equipment or network, but it is the most limiting of the Text to 9-1-1 deployment solutions. It cannot be upgraded to a web browser or direct IP solution and simultaneous voice and text communication is not available.

Currently, the web browser solution with the use of a text aggregator is recommended for the State of Virginia until an ESInet is developed.

The checklist identifies the following key entities that need to work together for successful deployment:

- PSAP or 9-1-1 Authority
- CMSP (Commercial Mobile Service Provider): the big four are AT&T, Sprint, T-Mobile, and Verizon
- TCC (Text Control Center): Intrado and TCS are the ones currently available in the United States.

Six deployment tasks:
1. Initial Service Request
2. Project Kick-Off
3. Configure TCC Network
4. Training
5. Field Testing
6. Deployment

The checklist below from NENA's Interim SMS Text-to-9-1-1 Information and Planning Guide describes each of the tasks above for the web browser based solution. The tasks that indicate the PSAP as the owner/initiator are highlighted in yellow.

This checklist is also available for printing and reference in the planning kit (PK1). The checklists for the other two solutions (direct IP and TDD/TTY) are on NENA's web site as a Word document: http://www.nena.org/resource/resmgr/Docs/Interim_SMS_Text_Appx_F.docx

Legend for Responsibilities Columns of Deployment Tasks Table
"I" indicates involved in the deployment task.
"O" indicates the owner of the deployment task.

√	TASK DESCRIPTION	RESPONSIBILITY		
		TCC	**CMSP**	**PSAP**
	1 - **Initial Service Request**			
	1.1 - PSAP requests service from each CMSP Template letter and CMSP contact list in planning kit: **PK2**, **PK3**	I	I	O
	1.4 - PSAP completes questionnaire for each CMSP Sample questionnaire: **PK4**			O
	1.2 - CMSP acknowledgement of service request		O	
	2 - **Project Kick-Off**			
	2.1 - Confirm details from questionnaire	I	O	
	2.2 - Obtain PSAP Admin Contact	O		I
	2.3 - Obtain PSAP boundaries	O		I
	2.4 - Obtain PSAP IP Address	O		I
	2.5 - Obtain liability letter from PSAP PSAP must verify or provide the PSAP boundary information and sign an end user license agreement. Appendix E from the National SMS Text-to-9-1-1 Service Coordination Group describes information that the PSAP needs to supply: **PK5**	I		O
	3 - **Configure TCC Network**			
	3.1 - Provision PSAP in Text Control Center (TCC)	O		I
	3.2 - Verify / Update PSAP Boundary in TCC GIS systems	O		I
	3.3 - Open TCC Firewall for PSAP IP Address	O		I
	3.4 - Obtain/integrate internet connectivity to call stations (if needed) It is important that the PSAP works with its IT personnel as well as the CMSP and TCC providers. IT personnel should be aware of IT-related activity throughout the implementation process and should be involved in communicating with the CMSP and TCC providers, as needed.			O
	3.5 - Upgrade browser software on stations (if needed)			O
	3.6 - Open PSAP Firewall for TCC IP Address	I		O
	3.7 - Set alternative routing policy	I		O
	4 – **Training**			
	4.1 - Create Web Browser Admin User	O		I
	4.2 - Web Browser Admin training	O		I
	4.3 - Create Web Browser User Logins			O
	4.4 - PSAP Call Taker Training Sample training documents: http://www.nena.org/?text_training_docs. Also refer to planning kit for additional resources: **PK8, PK9, PK10**	I		O
	5 - **Field Testing**			
	5.1 - Pre-production testing	O	I	I
	5.2 - Provide PSAP Readiness / Test Plan	O	I	I
	5.3 - Network cutover	O	I	I
	5.4 - Schedule and complete SMS to 9-1-1 Test Cases The PSAP must schedule time to test SMS text-to-9-1-1 to ensure that it works effectively at the PSAP. The CMSP and TCC providers are involved in this process as well.	I	I	O

√	Task Description	Responsibility		
		TCC	CMSP	PSAP
	5.5 - PSAP signs off on completed Test Cases			O
	6 – **Deployment**			
	6.1 - CMSP sends "Live" notification to PSAP	I	O	I
	6.2 - Submit Completed PSAP Text-to-9-1-1 Readiness and Certification Form to FCC and copy VITA The PSAP is required to submit a form to the FCC that acknowledges readiness to accept and send SMS text-to-9-1-1. VITA keeps track of text-to-9-1-1 deployment throughout the state, and the information will be available to the PSAPs, so please copy VITA in the submission e-mail. Form, instructions, and template e-mail: **PK6**, **PK7**			O
	6.3 - Public Announcement / Public Education Public announcement and education is an integral step in deploying SMS text-to-9-1-1. Calling 9-1-1 is the preferred method of communication. Texting 9-1-1 should only be used as a last resort.		I	O

*Source: **Interim SMS Text-to-9-1-1 Information and Planning Guide**,*
http://www.nena.org/resource/resmgr/Docs/Interim_SMS_Text_Appx_F.docx

As soon as text-to-9-1-1 is available for each carrier, the PSAP must submit a completed **PSAP Text-to-9-1-1 Readiness** form to the FCC and copy Lewis Cassada at VITA (lewis.cassada@vita.virginia.gov). You may use the **Text-to-9-1-1 Status Change Notification** template to copy/paste in an e-mail with the FCC form attached. VITA keeps track of text-to-9-1-1 deployment throughout the state, and the information will be available to the PSAPs. In addition, the FCC tracks nationwide deployment in its PSAP Text-to-9-1-1 Readiness and Certification Registry: http://www.fcc.gov/encyclopedia/psap-text-911-readiness-and-certification

Additional Resources

"Interim SMS Text-to-9-1-1 Information and Planning Guide," APCO International.
http://www.apcointl.org/resources/next-generation-communications-systems/text-to-9-1-1.html

"Media & Public Questions and Answers About Text-to-9-1-1," NENA.
http://www.nena.org/resource/resmgr/docs/QA_on_Text_to_9-1-1_FINAL.docx

"PSAP Text-to-9-1-1 Readiness and Certification Registry," FCC.
http://www.fcc.gov/encyclopedia/psap-text-911-readiness-and-certification

"Second Report and Order and Third Further Notice of Proposed Rulemaking (FCC 14-118)," FCC.
https://apps.fcc.gov/edocs_public/attachmatch/FCC-14-118A1.pdf.

"Sending Text Messages to 911," National 911 Program. http://www.911.gov/911-issues/texting911.html

"SMS Text-to-9-1-1 Resources for PSAPs & 9-1-1 Authorities," NENA.
http://www.nena.org/?page=textresources

"Text-to-9-1-1 Whitepaper," VITA.
http://vita.virginia.gov/uploadedFiles/VITA_Main_Public/ISP/E-911/2015/WPFINv3.pdf

"What You Need to Know About Text-to-911," FCC. http://www.fcc.gov/text-to-911

Abbreviations Used in this Document

Abbreviation	Meaning
APCO	Association of Public-Safety Communications Officials
ATIS	Alliance for Telecommunications Industry Solution
CMSP	Commercial Mobile Service Provider
ESInet	Emergency Services IP Network
FCC	Federal Communications Commission
GIS	Geographic Information System
IP	Internet Protocol
IT	Information Technology
MMS	Multimedia Messaging Service
NENA	National Emergency Number Association
NG9-1-1	Next Generation 9-1-1
PSAP	Public Safety Answering Point
SMS	Short Message Service
TCC	Text Control Center
TDD	Telecommunication Device for the Deaf
TTY	Text Telephone (*or* Teletype)
VITA	Virginia Information Technologies Agency