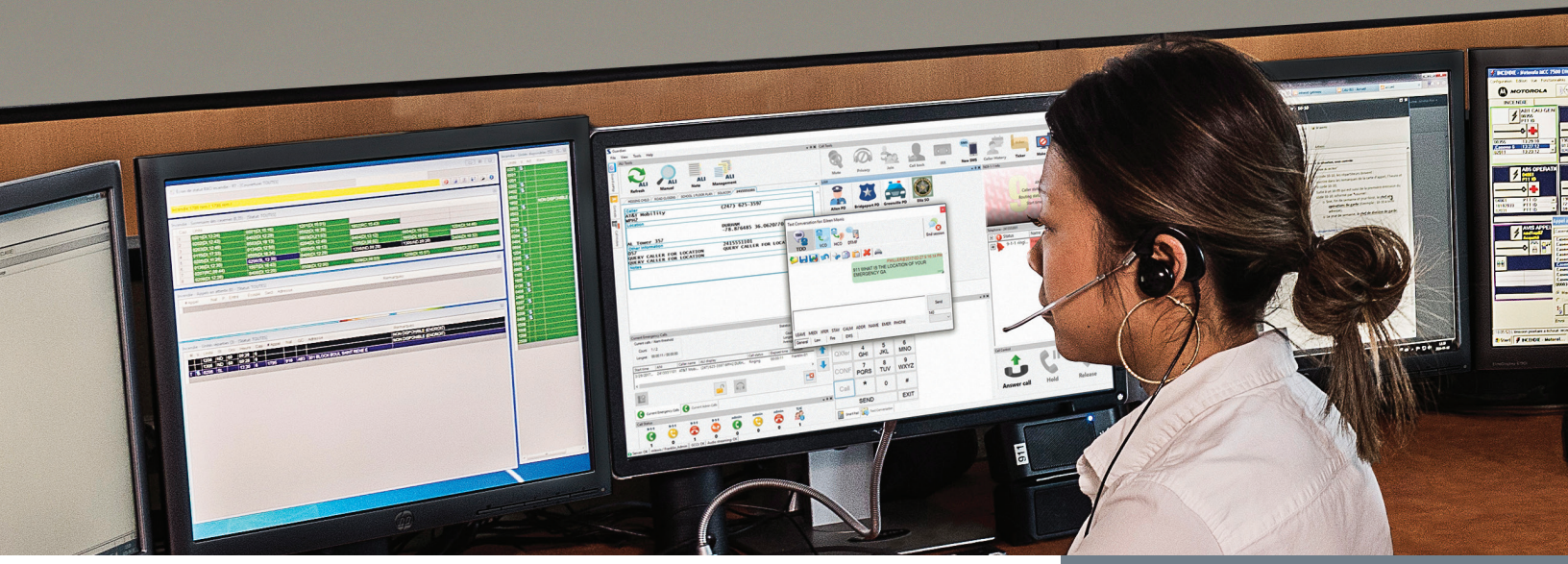
SOLACOM

TEXT-TO-911: GETTING IT RIGHT THE FIRST TIME

WHY AN INTEGRATED TEXT-TO-911 SOLUTION IS THE BEST APPROACH FOR PUBLIC SAFETY AND PSAP OPERATIONS

A Solacom White Paper



The Time Has Come for Text-To-911

Rapid advances in technology continue to change the way people communicate. Not that long ago, it was rare for a PSAP to receive a 9-1-1 call from a mobile phone. Today, it's hard to imagine a 9-1-1 system that doesn't support calls from mobile phones. The user-friendly smartphones that enable mobile communications also make it fast and easy for people to type to one another instead of talking. Texting has become so useful and so ubiquitous that it won't be long before we can hardly remember a time when 9-1-1 systems didn't support it.

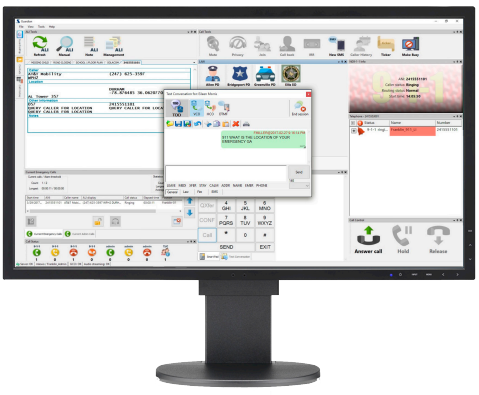
There are three main reasons why the widespread adoption of texting makes it necessary for Public Safety Answering Points (PSAPs) to add text-to-911 capabilities.

First, texting has replaced TDD/TTY communications for the hearing and speech impaired. The need for PSAPs to support this segment of the population is one of the main reasons the Federal Communications Commission (FCC) is strongly encouraging PSAPs to accept text-to-911 calls.

Second, the ability to have text conversations is critical in situations where people are threatened, but cannot talk on the phone. Situations involving domestic abuse, home invasions, and kidnappings are another key reason the FCC is pushing for mandatory text-to-911 support. In these cases, the ability to communicate silently with authorities can mean the difference between life and death.

Cellular Phones are Used for Most 9-1-1 Calls

- In 2015, 80 percent of consumers used cellular phones to make 9-1-1 calls while approximately 16 percent used wireline phones.[1]
- Cellular phone usage increased by 31 percent in 2015, compared to 2014, while wireline phone usage decreased by 8 percent.[1]



Third, texting is the preferred form of communications for younger generations and has been embraced by older generations. Younger generations have grown up texting rather than talking on the phone. And older generations have found that it is an efficient way to communicate with friends, family, and business associates.

As texting becomes increasingly ubiquitous, more and more people will assume that text-to-911 is a viable option and try it before calling. Obviously, everyone who sends a text expects the message to be answered. In an emergency, receiving a bounce-back message then having to make a phone call wastes precious time.

Although supporting text-to-911 service is not mandatory for PSAPs today, it soon will be. The FCC has already set and extended deadlines for mandatory text-to-911 service. And it has stated that all wireless carriers and other providers of text messaging applications in the United States must provide the ability to deliver emergency texts to PSAPs that request the service within six months.

Given these realities, the decision for PSAPs today is not whether they will implement text-to-911, but rather how they will implement it.

Tens of Thousands of Text-To-911 Calls Go Unanswered Every Year

Terry Hall, chief of emergency communications for the York-Poquoson-Williamsburg Regional 9-1-1 Call Center in Virginia, said more than 30,000 text-to-911 messages went unanswered during 2013.[2]

Three Options for Text-To-911

FCC rules allow each PSAP to decide how it wants to support text-to-911 capabilities. PSAPs have three options, each with advantages and disadvantages for the PSAP and for the public:

- Legacy TDD/TTY systems
- Web-based systems
- NG9-1-1 systems

Legacy TDD/TTY Systems are Outdated

Legacy TDD/TTY machines are already in place at PSAPs, so using them to support text-to-911 is a viable option for most PSAPs looking to implement text-to-911 capabilities immediately. And call takers are already familiar with the machines.

When a legacy TDD/TTY system is used for text-to-911, the text message is converted to a standard TDD/TTY call at the Text Control Center (TCC), then forwarded to the TDD/TTY machine at the PSAP. But, these legacy systems are:

- **Notoriously slow.** Communication exchanges are transmitted one character at a time, so lengthy messages can take several minutes to arrive. In safety-related situations, this latency can be devastating.
- **Error-prone.** Static or noise on the line can cause enough character mistranslations that messages are unreadable or could be misinterpreted. In addition, newer characters that text-savvy people may use, such as emojis, are not supported and can lead to additional translation inaccuracies.
- **Unreliable.** TDD/TTY machines provide no confirmation of successful communication. Transmissions can fail with no indication. This increases stress for both parties. It can also potentially increase danger for the person in distress.

Most importantly, using legacy TDD/TTY machines for text-to-911 is a very temporary solution. These systems will soon need to be replaced with a more robust and full-featured solution that addresses their significant weaknesses.

Millions of Americans Have Hearing and Speech Challenges

- Approximately 15 percent, or 37.5 million, American adults aged 18 and over report some trouble hearing.[3]
- Approximately 7.5 million people in the United States have trouble using their voices.[4]

Web-Based Systems Have Limitations

Web-based text-to-911 systems can be implemented relatively quickly by a PSAP and require only a computer, a web browser, and an internet connection.

When a web-based system is used for text-to-911, the PSAP connects to the TCC and receives text messages through a web browser. These systems:

- **Operate in isolation.** Because they are not integrated with the call handling system, text-to-911 communications need to be dealt with separately from voice calls. The web-based system may also require a separate computer. These factors increase complexity and potentially confusion for call takers who are trying to simultaneously use multiple disparate systems.
- **Can require dedicated resources.** If it is impractical or too difficult for call takers to juggle multiple systems, the PSAP will need to provide a dedicated resource just to manage text communications. This is inefficient, expensive, and can lead to additional isolation between voice and text conversations.
- **Do not offer key capabilities.** Most web-based text-to-911 systems do not support simultaneous use of text and voice, and do not offer logging or tracking capabilities for text messages. These limitations mean PSAPs cannot provide full support to people in distress, have no proof of text exchanges, and have no record of the resulting actions.

Adopting a web-based system can seem like a reasonable compromise when faced with the option of continuing with an outdated TDD/TTY system. However, it is another short-term solution; the limitations of web-based systems will quickly become insurmountable as the number of text-to-911 calls increases.

Text Messaging Is the Most Used Data Service in the World

- The number of monthly texts sent increased more than 7,700% between 2006 and 2016.[5]
- 22 billion texts are sent every day, not including app-to-app messaging.[5]

Integrated Text-To-911 Systems are Designed for the Long Term

NG9-1-1 systems that provide integrated text-to-911 capabilities as part of a full-featured call handling and management solution give PSAPs considerably more functionality and flexibility for the short and long term.

With a fully integrated solution, text-to-911 capabilities are purpose-built into the call handling and management process. This allows call takers to manage text communications in the same way as voice communications and to leverage all of the advanced features of the NG9-1-1 system for their text conversations.

Integrated text-to-911 systems use the Session Initiation Protocol (SIP) and the Message Session Relay Protocol (MSRP) to communicate with the TCC, as recommended by NENA for NG9-1-1 systems. However, migrating to an NG9-1-1 call handling system that integrates text-to-911 does require:

- **Higher initial investment.** Full-featured NG9-1-1 call handling systems address all voice and text call management requirements. Typically, they are built on a foundation that is designed to support today's needs as well as long-term requirements. Therefore, they have the highest initial costs of the three text-to-911 options.
- **More planning.** Migrating to a full-featured NG9-1-1 call handling system that integrates text-to-911 affects all aspects of PSAP operations. As a result, PSAPs need a carefully thought-out migration plan to ensure that the transition to the NG9-1-1 solution is carried out smoothly and does not disrupt operations.
- **Updated procedures.** To support integrated text-to-911 and the other more advanced call handling capabilities that a full-featured NG9-1-1 solution offers, PSAPs need to define new standard operating procedures for call takers, supervisors, and support staff.

Despite the challenges, PSAPs should keep in mind that migrating to NG9-1-1 is inevitable and that NENA considers the ability to support text-to-911 capabilities using SIP and MSRP to be a baseline NG9-1-1 requirement.

With an integrated solution, PSAPs that are just starting on the path to NG9-1-1 have an opportunity to incorporate text-to-911 capabilities into their operation from the beginning. PSAPs that have already begun migrating toward NG9-1-1 can easily integrate text-to-911 capabilities into their call handling system. In the long run, the integrated approach puts PSAPs in a better position to increase the efficiency and effectiveness of their operations today and to support more advanced capabilities in the future.

The U.S. Has Entered a New Era in Communications

Texting is now the dominant way of communicating for Americans younger than 50.[6]

Five Key Criteria for a Next-Generation Text-To-911 Solution

There are five key criteria PSAPs should consider when looking for a call handling solution that offers fully integrated support for text-to-911.

Full Integration With the Call Handling System

When text-to-911 capabilities are integrated into a complete NG9-1-1 call handling system, call takers have a single, intuitive user interface for all call handling functionality. While the notification method may be unique for voice calls versus text messages, the two call types are answered and managed in the same way on the same computer.

Call takers use a standard text panel and text bubbles to communicate with the caller, but can also take advantage of the features and functions associated with voice calls, including transfer and join capabilities. They can also see call status information, such as the number of calls ringing, on hold, in progress, and abandoned for voice and text calls.

With an integrated system, there is no need to maintain a separate computer, learn a different user interface, or assign separate resources to deal with text communications. Because the text interface is integrated, intuitive, and familiar to call takers, minimal training is required to support text-to-911 within the call handling system.

Multimedia Conferencing

When call takers can simultaneously communicate using text, voice, and instant messaging from the same user interface, they have more flexibility in terms of how they handle the call. They also have easy and instant access to additional support when needed. For example, call takers can communicate by text with the person in distress, while at the same time:

- Talking to a supervisor who can see the full text exchange and use that information to assist the call taker.
- Talking to a first responder or an expert at an outside agency to get guidance or background information that will help them better support the person in distress.
- Using instant messages to exchange input and insight with colleagues who are supporting a related call, have expertise with particular scenarios, or are familiar with the person in distress.

Text-To-911 Can Make a Difference

"I was trying to whisper, but he got in and punched me and asked me who I was talking to. . . 9-1-1 works, but I wish it worked with text. If they had it back then, it might have made a difference."

— "Lisbeth," a battered woman who was one of 41,000 Americans to sign a petition asking Congress to pass legislation requiring emergency centers to update their systems to accommodate texting[7]

Integration With the Existing CAD System

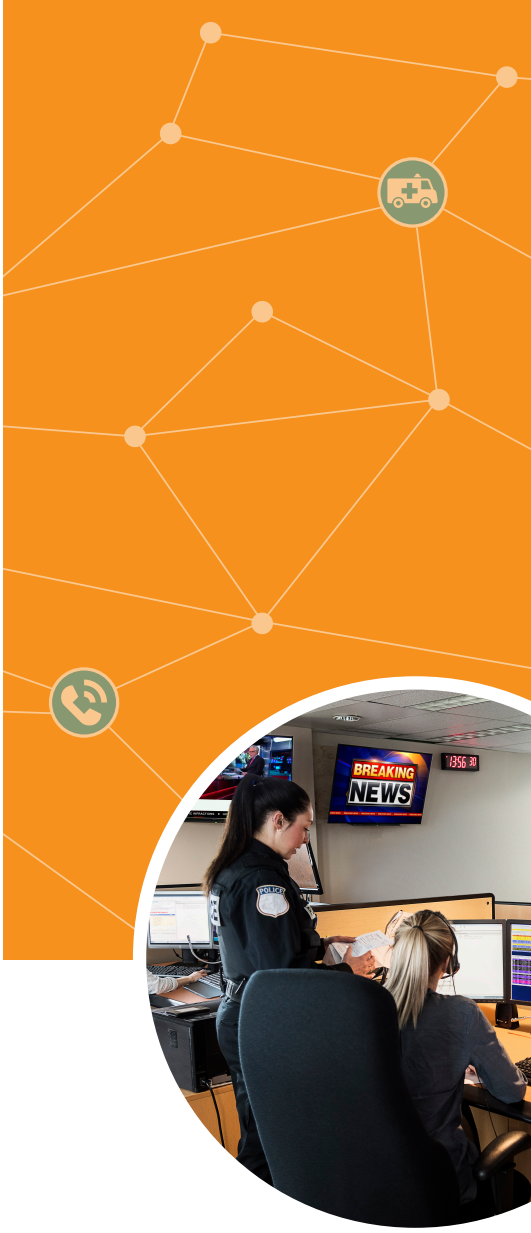
For PSAPs that also manage dispatches, an integrated solution also offers the ability to forward text-to-911 messages directly to an existing computer-aided dispatch (CAD) system. As a result:

- There is no need to upgrade the CAD system to support text-to-911 specifically or NG9-1-1 call handling in general.
- The dispatcher does not need to re-enter the text conversation into the CAD.
- All text conversations are preserved in the CAD database for future reference and analysis.

Integration With Maps

Typically, PSAPs answer calls in the order they arrive. However, if there is an incident at a large venue or a highly attended event, PSAPs will likely receive numerous text messages about the incident in a very short period of time.

When a map application is integrated into the call handling system, call takers can quickly see which text messages were sent from the location of the initial incident and which were sent from a different location. They can then prioritize their call answering order to ensure that both the known incident and new incidents are dealt with as quickly as possible.



Precomposed Text Messages

Unlike voice conversations, there are natural delays in text conversations while the participants on each end read messages and type responses. Precomposed messages allow call takers to accelerate their responses instead of taking the time to type responses.

Precomposed messages may simply state “What is your emergency?”, or they may be tailored to provide reassurance, “The ambulance is on its way,” or instructions “Please leave the building immediately. Do not use the elevator.” Precomposed messages can also be quickly edited by the call taker to jump-start a customized response for a particular situation.

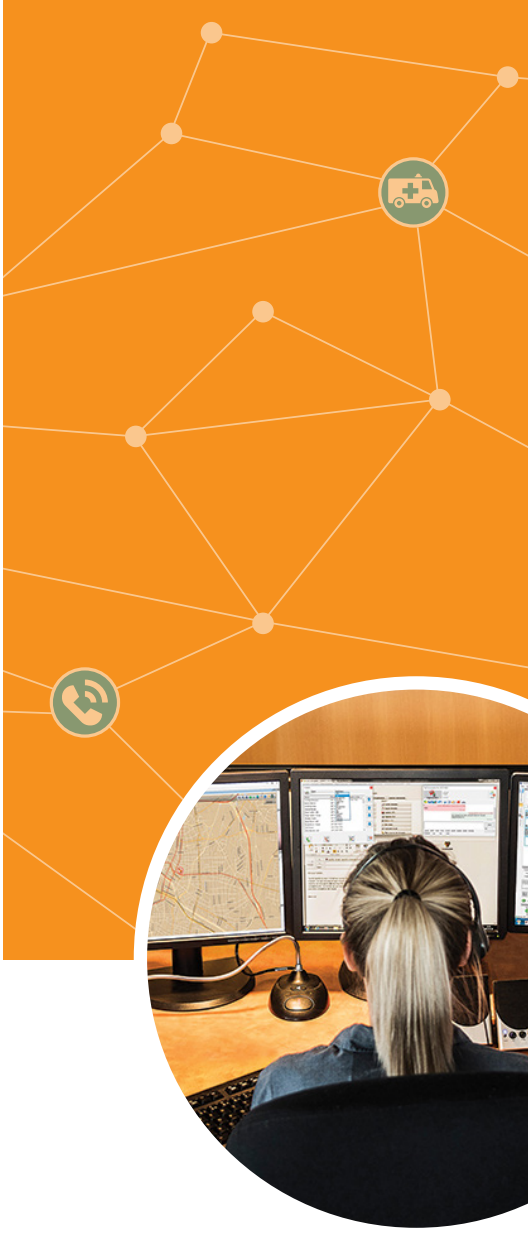
Solacom Is the Ideal Partner for Text-To-911 Capabilities

Support for text-to-911 calls will soon become mandatory for PSAPs. Making the move requires careful planning and evaluation of the pros and cons of each option within the context of broader NG9-1-1 requirements.

Solacom understands that PSAPs evaluating text-to-911 options face numerous challenges and that each PSAP must migrate toward an integrated solution at a pace that is right for their operation. For this reason, Solacom's Guardian 9-1-1 Call Handling solution supports all three text-to-911 options that are available to PSAPs. This makes it easier for all PSAPs to adopt a text-to-911 approach that fits their unique operating requirements today and enables them to evolve to fully integrated text-to-911 capabilities over time.

For PSAPs ready to integrate text-to-911 capabilities, Solacom offers Guardian Text. This full-featured text-to-911 offering integrates easily into the Guardian 9-1-1 Call Handling solution and offers all of the key capabilities PSAPs need. For added flexibility, Guardian Text goes beyond standard requirements by offering outbound text-from-911 capabilities. Solacom also works closely with PSAPs to determine how to enhance existing text-to-911 features and prioritize the addition of new capabilities as requirements emerge.

Ultimately, PSAPs that choose a fully integrated approach to text-to-911 will be in a better position to support the way people need and want to communicate. They will be ready for the time when text-to-911 becomes mandatory. And they will be strongly positioned to support new ways of communicating as technology continues its inevitable evolution.



Acronyms

CAD	Computer-Aided Dispatch
FCC	Federal Communications Commission
MSRP	Message Session Relay Protocol
NG9-1-1	Next Generation 9-1-1
PSAP	Public Safety Answering Point
SIP	Session Initiation Protocol
TCC	Text Control Center
TDD/TTY	Telecommunication Device for the Deaf/Teletypewriter

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Additional Information

Click here for more information about how Solacom can help you make the move to fully integrated text-to-911 as part of a complete NG9-1-1 call handling and management solution for your PSAP.

Contact Us

Solacom 9-1-1 call handling and management solutions are built on more than 30 years of research and innovation in the application of advanced hardware and software technologies for public safety. Today, Solacom Guardian 9-1-1 solutions support thousands of agencies affecting millions of lives annually — from dense urban environments to statewide deployments.

Contact us today to discover how our Guardian solutions can help your PSAP streamline 9-1-1 call handling and management processes and enable more efficient collection of critical information in emergency situations.

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