



**ATIS-0100066**

**Service Providers: Outage Reporting Structure and  
Potential Types of 9-1-1 Outages**

**TECHNICAL REPORT**



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### ATIS-0100066, *Service Providers: Outage Reporting Structure and Potential Types of 9-1-1 Outages*

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# **Service Providers: Outage Reporting Structure and Potential Types of 9-1-1 Outages**

**Alliance for Telecommunications Industry Solutions**

Approved June 28, 2018

## **Abstract**

The Alliance for Telecommunication Industry Solutions (ATIS) Network Reliability Steering Committee (NRSC), in conjunction with the Association of Public-Safety Communications Officials (APCO), the National Association of State 911 Administrators (NASNA), and the National Emergency Number Association (NENA) has produced this joint technical report to improve Public Safety Answering Point (PSAP) notification in the event of a service outage. This technical report guides providers of all types that report service impacting outages to the PSAP community. Additionally, this document provides education to the public safety community on the types of outages that may occur and the information that may be available from the provider. A template that is consistent in nature to ease consumption by the PSAP while providing known information that is pertinent and actionable was also developed. The template and definitions contained within this technical report represent a consensus effort achieved by a working group that included representation from carriers, third party providers, 9-1-1 industry associations, and the PSAP community.

## Foreword

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The Alliance for Telecommunications Industry Solutions (ATIS) serves the public through improved understanding between carriers, customers, and manufacturers. The Network Reliability Steering Committee (NRSC) strives to improve network reliability by providing timely consensus-based technical and operational expert guidance to all segments of the public communications industry.

The Network Reliability Steering Committee (NRSC) Situational Awareness for 9-1-1 Outages Task Force (NSA-TF) is a joint Task Force composed of industry, 9-1-1 association, and PSAP representatives. The NSA-TF has a goal of providing actionable information to Public Safety Answering Points (PSAPs) and service providers in the case of a 9-1-1 outage.

The mandatory requirements are designated by the word *shall* and recommendations by the word *should*. Where both a mandatory requirement and a recommendation are specified for the same criterion, the recommendation represents a goal currently identifiable as having distinct compatibility or performance advantages. The word *may* denotes an optional capability that could augment the standard. The standard is fully functional without the incorporation of this optional capability.

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

At the time of consensus on this document, NRSC and the NRSC Situational Awareness for 9-1-1 Outages Task Force, which was responsible for its development, had the following leadership:

### NRSC Leadership:

Andy Gormley (T-Mobile), NRSC Co-Chair

Andis Kalnins (Verizon), NRSC Co-Chair

### NSA-TF Leadership:

Andy Gormley (T-Mobile), NSA-TF Co-Chair

Mary Boyd (West Safety Services), NSA-TF Co-Chair

The NRSC Situational Awareness for 9-1-1 Outages Task Force was responsible for the development of this document.

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ATIS Technical Report on –

# Service Providers: Outage Reporting Structure and Potential Types of 9-1-1 Outages

## 1 Scope, Purpose, & Application

This technical report is intended to guide providers of all types that report service impacting outages to the Public Safety Answering Point (PSAP) community. In addition, this effort is intended to educate the public safety community on the types of outages that may occur and the information that may be available from the provider. The goal of the effort was to create a template that is consistent in nature to ease consumption by the PSAP while providing known information that is pertinent and actionable. The template and definitions contained within this technical report represent a consensus effort achieved by a working group that included representation from carriers, third party providers, 9-1-1 industry associations, and the PSAP community.

## 2 Background

Service providers, as described below, periodically can experience a degradation within their networks impacting the ability to process and deliver 9-1-1 calls. These companies represent extremely diverse and complex networks, and all work towards a common goal of delivering 9-1-1 calls to the appropriate PSAP. When an unfortunate network degradation occurs, impacting 9-1-1 special facilities,<sup>1</sup> the complexity of the networks requires skilled technicians to isolate and restore communications. In an effort to provide additional insight into this complex communications environment, this document is designed to define, summarize and educate public safety 9-1-1 authorities on:

- The types of companies serving as service providers;
- The potential types of 9-1-1 outages; and
- The 9-1-1 services potentially impacted in an outage.

## 3 Types of Service Providers That May Report

Service providers involved with the delivery of a 9-1-1 call are categorized and defined below as:

- Wireless – Delivers telephony over a wireless connection
- Wireline – Delivers telephony over a wired connection
- VoIP – Delivers telephony using internet protocol technology over a broadband-capable connection as a managed service or an over-the-top application
- Covered 9-1-1 Service Provider – Provides processing and delivery of 9-1-1 calls and data to a set of PSAPs.

These categories are not mutually exclusive as any of the first three may serve as a Covered 9-1-1 Service Provider in certain cases.

## 4 Potential Types of 9-1-1 Impacts That Service Providers May Report

Depending on the nature of the outage, multiple service providers may report the same event.

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<sup>1</sup> 47 C.F.R. §4.5 (e).

When a degradation of service is experienced within a service provider's (e.g. wireline, wireless, VoIP, covered 9-1-1 service provider<sup>2</sup>) network, or within a PSAP, the following types of 9-1-1 services are potentially, impacted:

- **Voice: Call Delivery Impacted**
  - Full – Complete loss of 911 call delivery
  - Partial – Loss of % of 911 call delivery
  - Intermittent – Loss of 911 call delivery irregularly.
- **Data: Automatic Number Identification (ANI) / Automatic Location Identification (ALI) Impacted**
  - Full – Loss of either ANI or ALI or both
  - Partial – Loss of a portion of either ANI or ALI or both
  - Intermittent – Loss of a portion of either ANI or ALI or both irregularly.

## 5 Public Safety Answering Points (PSAP) Capacity Issues and Equipment Outages

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PSAPs can experience mass calling events within their areas that stress their operations. Standard outage notification procedures may not apply in these conditions.

PSAPs can also experience on-premise outages that impact a service provider's ability to deliver 9-1-1 calls into the appropriate public safety agency. PSAP outages are not a reportable outage to the FCC; however, the following systems can impact call delivery:

- 911 Customer Premise Equipment (CPE)
  - 911 Call Handling Equipment (hardware/software)
  - Computer Aided Dispatch Equipment (hardware/software)
- Internal Local Area Network (LAN)
- Generator/Back-up Power Failures
- Stand Alone ALI Database Systems
- Physical Facility Systems or Environment (e.g. fire).

## 6 Template Definitions

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- **Company Performing PSAP Notification**
  - In today's evolving 9-1-1 ecosystem, there are several types of companies potentially involved in the processing and delivery of a 9-1-1 call to a PSAP. 9-1-1 calls initiated by a caller are handled by a service provider. A service provider delivers the 9-1-1 call into a central 9-1-1 service system (serving multiple PSAPs within a county, region, or state). A 9-1-1 service system may be provided by a Local Exchange Carrier, a third party, or a governmental 9-1-1 Authority. The service provider or the 9-1-1 system provider may be the first entity aware of the outage and may generate the PSAP notification.
- **Company Experiencing Outage Event**
  - As noted above, there are several types of companies potentially involved in the processing and delivery of a 9-1-1 call to the PSAP. The Company Experiencing Outage Event is the company that is responsible for the affected network and or systems.

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<sup>2</sup> 47 C.F.R. § 12.4(a)(4): (4) Covered 911 service provider. (i) Any entity that: (A) Provides 911, E911, or NG911 capabilities such as call routing, automatic location information (ALI), automatic number identification (ANI), or the functional equivalent of those capabilities, directly to a public safety answering point (PSAP), statewide default answering point, or appropriate local emergency authority as defined in §§ 64.3000(b) and 20.3 of this chapter; and/or (B) Operates one or more central offices that directly serve a PSAP. For purposes of this section, a central office directly serves a PSAP if it hosts a selective router or ALI/ANI database, provides equivalent NG911 capabilities, or is the last service-provider facility through which a 911 trunk or administrative line passes before connecting to a PSAP.

- **Notification Type**
  - *Initial* is intended to make the PSAP aware that a 9-1-1 service affecting event has been recognized and that restoration efforts are in process. The Initial notification also includes information about the failure or outage event owners (if known), contact methods, possible impacts, geography potentially impacted by the event (single- PSAP, regional, multi-state, or other), an expected time to resolution if known, and information on apparent cause, if known.
  - *Update* is intended to provide the PSAP with information that has been gathered or determined in the interim between the *Initial* and the *Final* notifications. Updates will be provided if a significant change occurs in the status of the outage. If no update is provided, the PSAP can assume that the information remains the same.
  - *Final* is intended to provide the PSAP with an awareness that all systems and networks are operating as designed. Additional information regarding the event may be included.
- **Impact of Outage Event**
  - The Impact of Outage Event is intended to help the PSAP understand the ramifications of the outage event and guide the execution of the appropriate local contingency plan. The local contingency plan is typically different for a PSAP that is not receiving any 9-1-1 calls than a PSAP that is not receiving ALI or location data.
- **Geography of the Outage Event**
  - The Geography of the Outage Event (single- PSAP, regional, multi-state, or other) is directly related to the nature of the impacted system. For example, a cable cut could be very localized or impact an entire state, a network or database event could span multiple states. The information provided here is intended to help the PSAP understand the ramifications of the outage event and guide the execution of the appropriate local contingency plan. Depending on the nature of the outage, contingency planning may be a local, regional or state function.
- **Incident ID**
  - Unique identifier associated with the outage event.
- **Expected Date and Time to Resolution (ETTR)/Duration**
  - The ETTR/Duration is intended to assist the PSAP in planning and execution of their local contingency plan. It is important to note that at the time of an *Initial* notification, the ETTR/Duration may not be known. Short duration outage events may be resolved prior to a company determining an ETTR.
- **Cause of Outage Event**
  - This information on apparent cause, if known, can provide guidance to the PSAP and/or 9-1-1 Authority. The initial evaluation of the cause (hardware, software, network, other) may be altered as more investigation takes place.
- **Additional Information on the Event (When Known)**
  - Companies may include additional, pertinent information.
  - Companies may include list of all company served PSAPs receiving this same report.
- **Time Format**
  - The PSAP Outage Event notifications have standardized on a common date/time format to help the PSAP understand the presented information.
  - The format is: XX:XX (Military time NO AM/PM) (Time Zone)(DD-MON-YY)
  - The reporting company will determine what time zone to use.
- **Company Specific Statement**
  - Companies may attach dissemination instructions.



## 7 Template

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Included with this technical report is the excel template.