



Next-Gen Analytics and Reporting Capabilities

What to Look for and Why

A Solacom Guide



Public safety answering points (PSAPs) have had to track and record 9-1-1 calls for years now. However, the call logging capabilities used to this point have been quite basic. Now, as PSAPs evolve to Next Generation 9-1-1 (NG9-1-1) call handling systems that comply with the NENA i3 standard, they must evaluate and select a far more sophisticated analytics and reporting solution.

Almost every NG9-1-1 system vendor offers some level of analytics and reporting functionality. The key for PSAPs evaluating solutions is to understand which capabilities are the most important for their operations and why that is the case.

Simplify Reporting, Improve Operations

With the right combination of call logging, tracking, and reporting capabilities, PSAPs can quickly and easily generate the detailed reports needed to meet local, state, and national requirements. They also gain insight that helps them streamline operations, increase efficiency, and better serve callers. With a clear view of exactly what's happening in their operations, PSAPs can:

- Adapt priorities and optimize staffing levels on the fly to match current call activities
- Quickly identify and follow up on issues, such as sudden spikes in the number of abandoned calls
- Analyze longer-term call trends to better plan staffing requirements and keep pace with evolving caller behaviors
- Streamline call handling and administrative processes to match call types and volumes
- Assess call taker performance to identify situations where additional coaching and training is needed

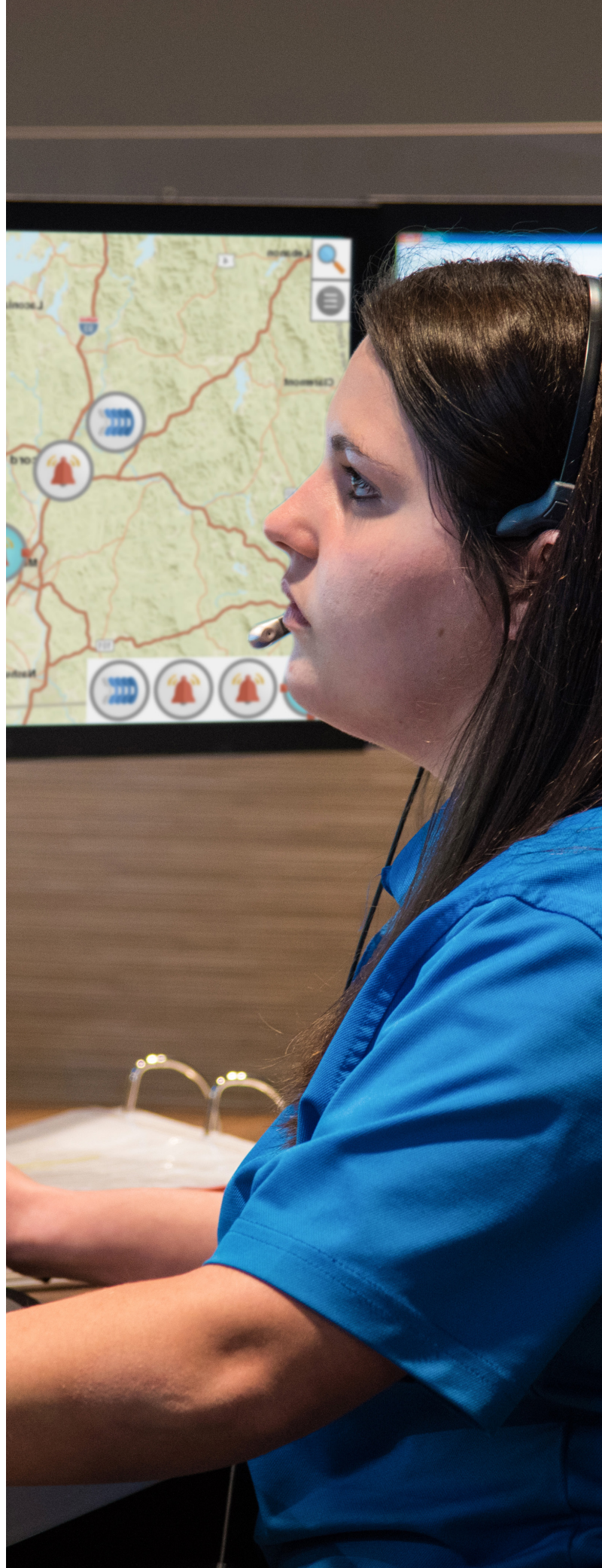
To help PSAPs evaluate analytics and reporting solutions, this guide describes the key call logging, tracking, and reporting capabilities PSAPs should look for as they evolve to NG9-1-1 operations.

Support for Old and New Data Formats

As you evolve to NG9-1-1 call handling and management, you will inevitably need to generate reports that are based on data from a combination of legacy, NG9-1-1, and third-party sources. That means your analytics and reporting system must have the flexibility to process data that is in the formats you deal with today and the formats you're expecting to deal with in the short and long term.

Location data provides a good example of the need to support multiple data formats. Today, many PSAPs are still using Automatic Location Information (ALI) and Master Street Address Guide (MSAG) databases. These databases provide a simple string of data that must be "decoded" to identify details. In contrast, modern databases, such as NG9-1-1 geographic information system (GIS) databases and third-party location databases, break data into standard, named fields.

Confirm that the analytics and reporting solution supports a wide variety of data formats and that it can be easily adapted to support formats you're not aware of today. For example, at some point in your transition to NG9-1-1, you may need to support data in the NENA ALI Query Service (AQS) format or another standard format for ALI data exchange and GIS mapping.



Extremely Detailed Data and a Modern Database

Software that captures extensive information about call activity and stores it in a fast-access database lets you quickly gain insight into almost any aspect of your operations.

Look for solutions that track and log call details through every piece of network and system equipment and through each stage of a call progress. This detail will give you significantly more call information to work with than is available through traditional Call Detail Record (CDR) feeds. To comply with the NENA i3 standard, details that should be captured include:

- Call taker actions, such as answering calls, transferring calls, putting calls on hold, and muting them
- Call times, including start time, transfer time, and end time
- The number of times calls rang at different call taker positions
- Attachments, such as screen captures taken during the call
- ALI from an ALI provider
- Location-to-Service Translation (LoST) protocol data
- HTTP-Enabled Location Delivery (HELD) protocol data

The software should be able to use this data to calculate durations, such as:

- How long a call rang at different positions before it was answered
- How many call taker positions rang at that time
- How long the call taker communicated with the caller
- How long calls were put on hold

The software should also be able to track cellphone calls all the way from the originating tower to the call taker.

The database that stores all of this data must meet any information storage and disposal requirements mandated in your jurisdiction. Look for solutions that allow you to customize factors, such as the types of data that are stored, the length of time each type of data is stored, and whether voice recordings and text transcripts are stored for the same amount of time as statistical data.

Database speed and storage capabilities are particularly important to consider when multiple PSAPs or agencies will use the same database to store and retrieve data.

Real-Time Data Collection and Dashboard Displays

When everyone in the PSAP has access to critical operational data in near real time, staff in every role can fine-tune their actions to keep performance levels and call efficiency as high as possible.

Imagine a big-screen TV that visually tracks incoming call volumes, call types, ring times, call transfers, and answer rates as the numbers change. Now, with just a glance at the screen:

- Supervisors can track the percentage of calls that are being answered within 10 seconds. And they can quickly reassign staff or call in off-duty staff to better manage unexpected peaks in call volumes.
- Call takers can adapt their actions and priorities to match current call activity levels.
- Administrators can focus their efforts on the areas that need it most to better support call takers.

Including dashboard displays in reports is also a great way to summarize information so that key details stand out and statistics are fast and easy to review.



Text-To-911 Call Tracking and Logging

It's no longer enough to track and record only voice conversations. With the surge in text-to-911 calls, you need to track and log text conversations just as you do voice conversations.

That means the reporting and analytics solution must track all of the call volume, timing, and location details associated with short message service (SMS) calls as well as TDD/TTY calls. And it must store the full text of these conversations in a secure database.

When text call statistics and content are captured and stored in the same way as voice calls, you can:

- Monitor text-to-911 call volumes in conjunction with voice call volumes to more accurately gauge workloads and fine-tune resource assignments
- Include statistics about the number and duration of incoming text calls in reports to help governing bodies better understand communication trends and to justify requests for additional technology and human resources
- Provide transcripts of text conversations to support court proceedings and fulfill Freedom of Information requests
- Analyze text conversations for quality assurance to ensure procedures are being followed, to identify training requirements, and to provide examples of best practices

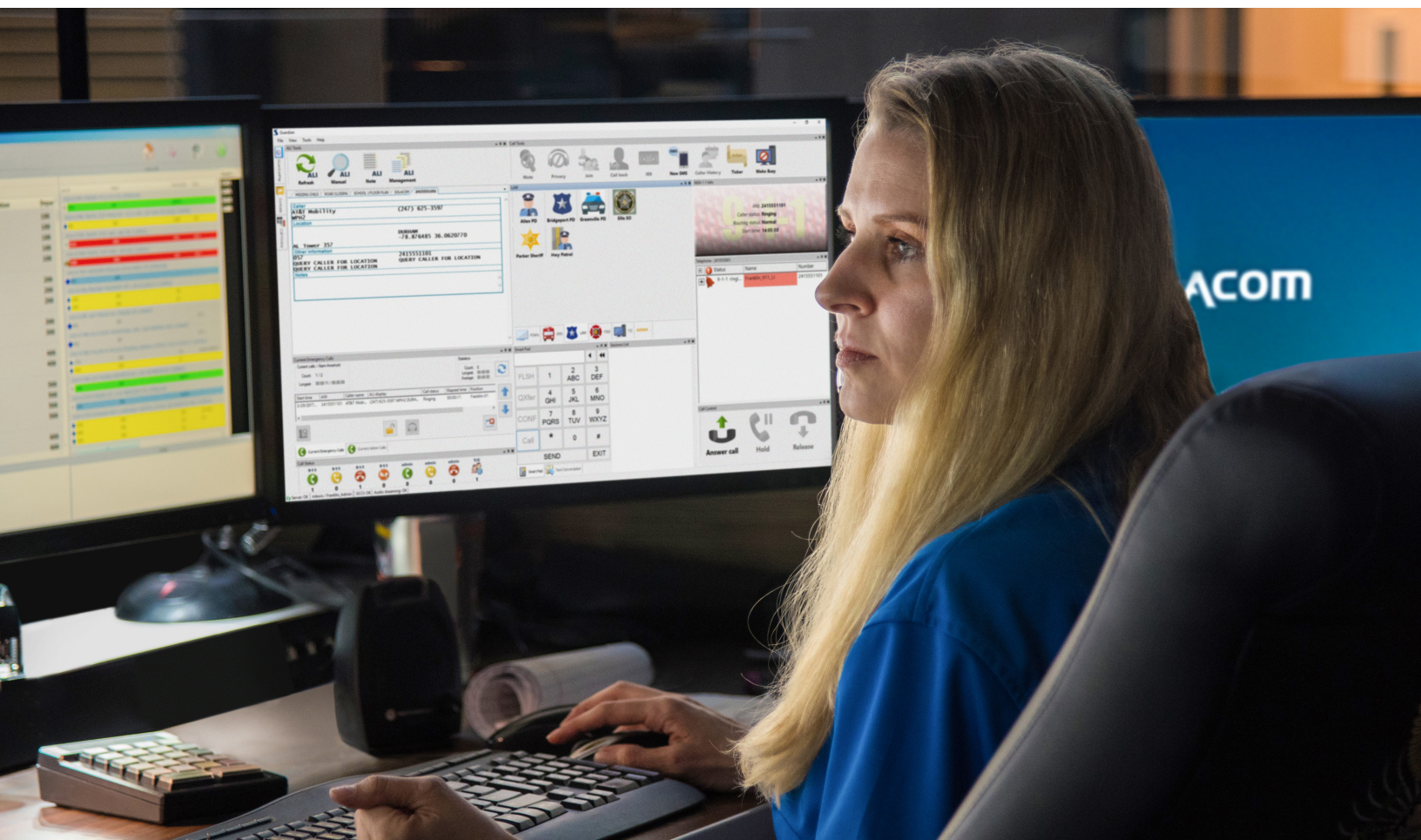


Flexible Report Generation

The ability to generate a wide variety of report types using templates, standalone queries, and ad-hoc reports lets you meet mandatory reporting requirements, quickly analyze new issues, and analyze trends.

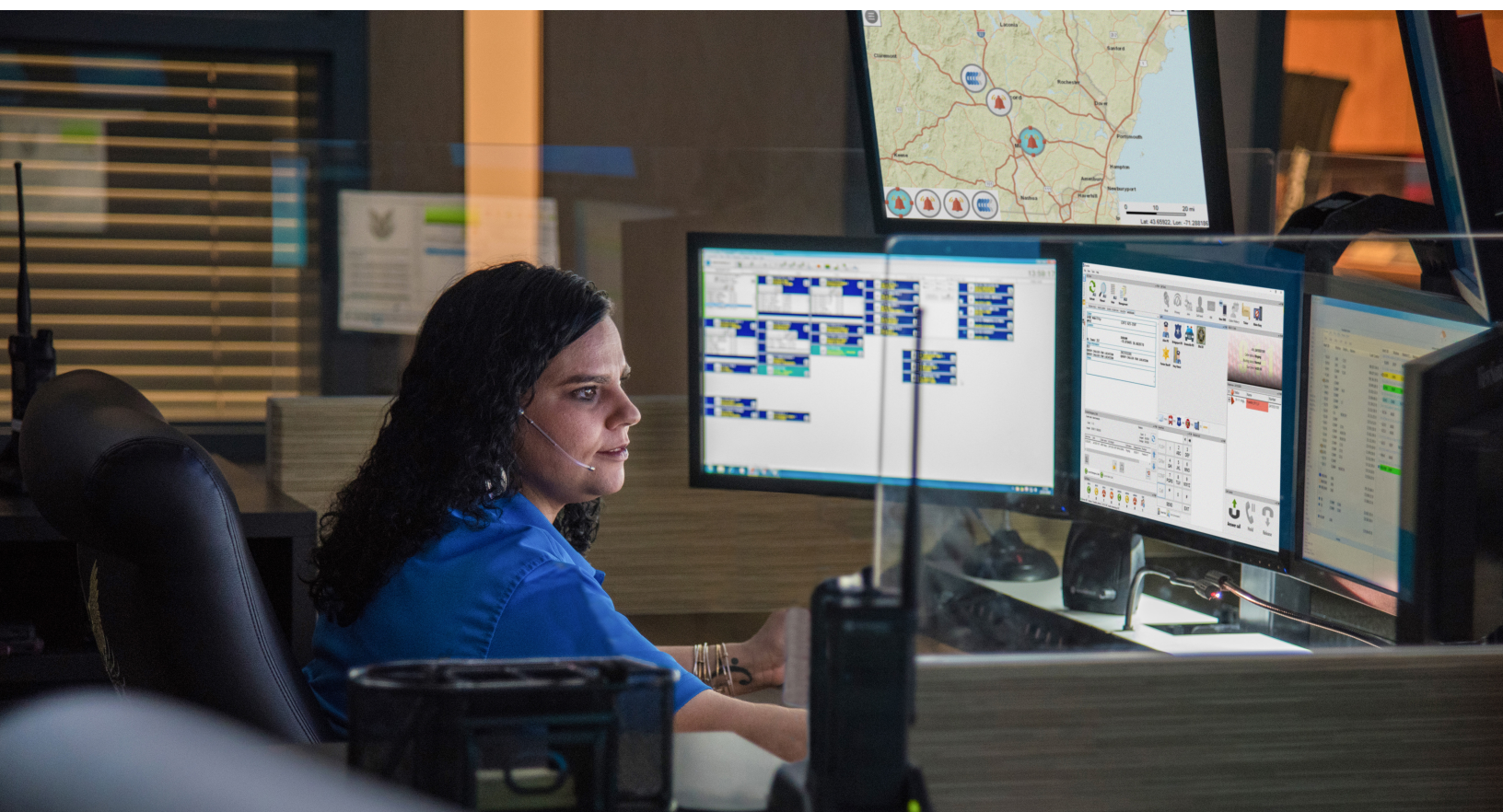
The most flexible solutions include an extensive library of default templates that you can use as is or easily customize to meet specific reporting requirements. If you notice an issue or a trend in one of your standard reports, you should be able to quickly query the database to follow up or create a new report that captures all of the details related to that particular activity.

With the ability to easily manipulate report information and generate ad-hoc reports, you can gain insight into areas you may not have thought of when you were evaluating the system. For example, an unusually high number of cellphone calls transferred from a PSAP could indicate that 9-1-1 call routing needs to be changed so that cellphone calls originating from a particular tower are routed to a different PSAP.



While you should be able to generate any number of detailed reports, the following are particularly useful:

- 9-1-1 calls by hour of day
- 9-1-1 calls by hour period
- 9-1-1 calls by day single
- 9-1-1 calls by day
- 9-1-1 calls by day period
- 9-1-1 calls by day of week
- 9-1-1 calls by week start date
- 9-1-1 calls by week period
- 9-1-1 calls by week current
- 9-1-1 calls by month current
- 9-1-1 calls by month name
- 9-1-1 calls by call taker
- 9-1-1 calls single call trace
- 9-1-1 calls answered versus abandoned
- 9-1-1 calls overflowed and answered
- 9-1-1 calls answered versus abandoned by PSAP
- 9-1-1 calls overflowed and directed
- 9-1-1 callbacks by PSAP
- 9-1-1 calls transferred to PSAP
- 9-1-1 calls that are uninitialized wireless calls
- 9-1-1 calls by location
- 9-1-1 calls transferred from PSAP
- 9-1-1 calls answered by city
- 9-1-1 TTY calls
- 9-1-1 calls answered by class of service
- 9-1-1 calls answered by ESN
- All call taker logouts
- Administrative calls by hour
- All 9-1-1 calls sorted by division and call taker
- Administrative calls by week
- Specific details about a single 9-1-1 call
- Administrative calls by line
- Administrative calls by day
- Administrative calls abandoned
- Administrative calls by month
- Automatic Call Distribution (ACD) queue statistics
- Administrative calls by call taker



Security and Role-Based Permissions

The confidential nature of 9-1-1 conversations and the associated statistics mean you need sophisticated, yet flexible mechanisms for data protection and user permissions.

The ability to securely segregate access to 9-1-1 data is particularly important when multiple agencies within a jurisdiction share software and systems. For example, there may be just one person within a county who is authorized to access recorded 9-1-1 conversations and provide them to police. Or, multiple PSAPs within a state may each need to generate confidential reports based on data from a single database.

Within a PSAP, the ability to separate data and provide role-based access privileges is equally important. For example, call takers may need the ability to retrieve their own recorded conversations but should not have access to all recorded conversations. However, supervisors will likely need access to all conversations. Supervisors will also need access to the data required to generate reports for their shifts. But they may not be authorized to access other data. Whereas directors may be the only people with the authority to access all of the data and system capabilities.

Before evaluating solutions, create a list of your unique requirements for data security and role-based access. In addition to the considerations described above, determine:

- Who should have permission to create new report types
- Who needs to generate which reports
- Whether the person generating reports also requires the ability to edit reports
- Who can email reports
- How you will manage passwords
- How you will ensure network security within the PSAP and across agencies



Customizable Configurations and an Integrated Solution

A purpose-built analytics and reporting solution that can be customized for your unique operational and process requirements gives you far more flexibility than a preconfigured, off-the-shelf solution that has been adapted for all PSAPs.

Depending on whether you are sharing the solution with other PSAPs or agencies, the solution should support configurations ranging from single sites to hosted and geo-diverse architectures.

For smooth operations, ensure the analytics and reporting capabilities can be seamlessly integrated with your NG9-1-1 call handling solution. Look for a vendor that will partner closely with you to understand all of your call logging, tracking, and reporting requirements within the context of your overall call handling requirements, then design and build a fully customized and integrated system. This approach helps you avoid the time, cost, and operational risks that come with systems comprised of multiple disjointed packages.

Ask the vendor to integrate and thoroughly test the reporting and analytics solution with the overall NG9-1-1 call handling and management system before it is installed. This extra step helps to ensure that all hardware and software components work smoothly together and that the overall system meets operational requirements before it is installed. It also means you don't have to interrupt workflows or disrupt work environments to deal with unexpected integration issues.

UPGRADE TO ADVANCED ANALYTICS AND REPORTING

Solacom provides the Guardian Management Information System (MIS), a fully customizable analytics and reporting solution for complete call logging, tracking, and reporting of voice, text, and video information.

The Guardian MIS puts real-time and historical data at your fingertips. Use dashboards to view current activities at a glance, easily generate preconfigured or ad-hoc reports, and quickly access voice and text conversations. Apply secure, yet flexible, permissions to restrict access to data and functionality based on roles and responsibilities.

The Guardian MIS solution was designed and built to serve PSAPs. It complies with NENA i3 standards, supports legacy data formats, and adapts easily to support new requirements. And it is integrated with the Solacom Guardian 9-1-1 Call Handling solution to give you fast, easy, and secure access to all of the data needed to streamline operations and meet compliance requirements.



Additional Information

[Click here](#) for more information about the advanced call tracking, logging, and reporting capabilities in the Solacom Guardian Management Information System (MIS).

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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