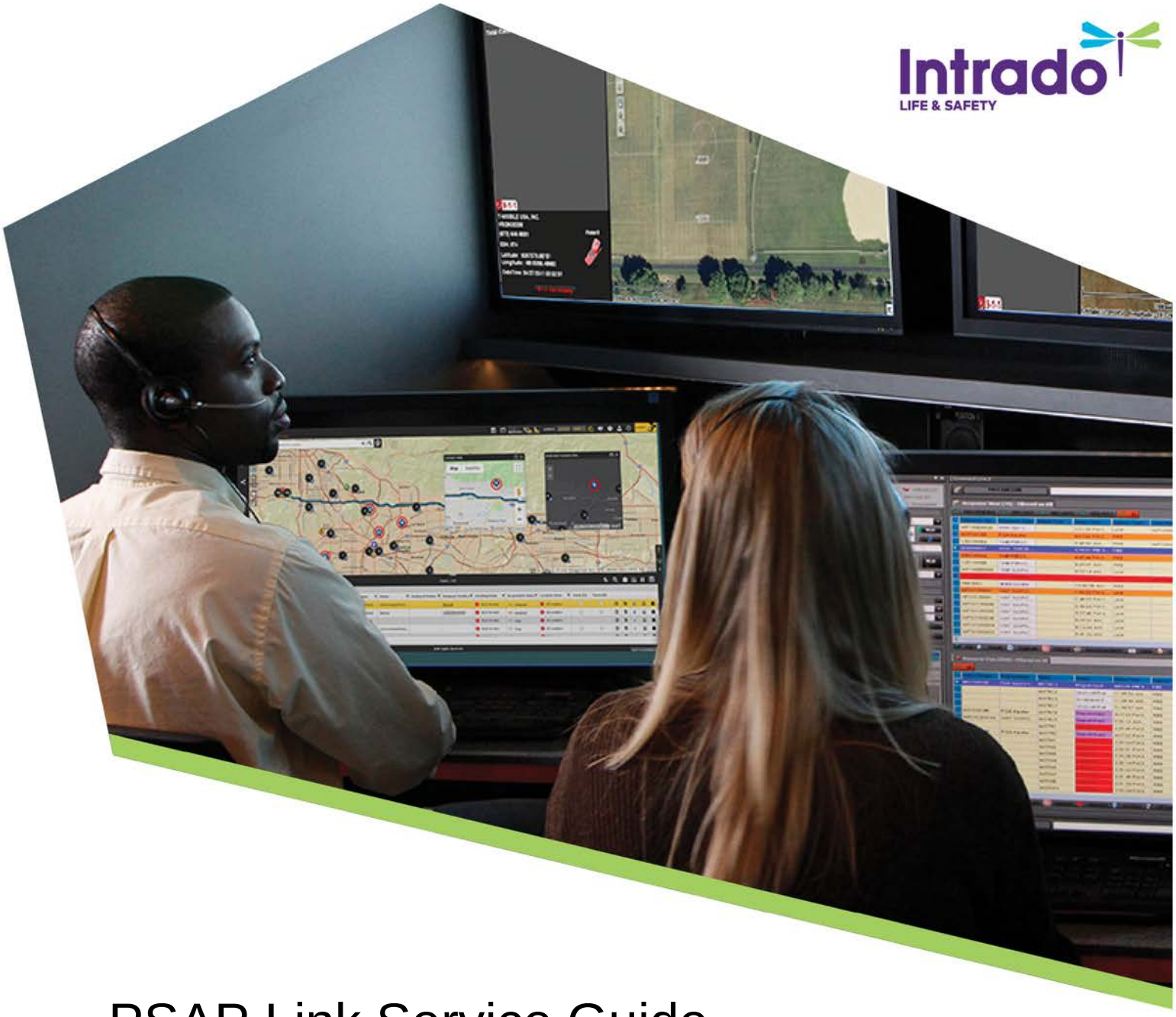
Intrado
LIFE & SAFETY



PSAP Link Service Guide

Version 2021.01.27

Information to Insight

www.intrado.com/Life-Safety

Contents

Intrado

1. Introduction

This service guide describes Intrado's Emergency Routing Service for Call Centers (PSAP Link) services (the "Services").

2. Services Overview

Organizations such as Health Care & Insurance, Personal Assistance, and Telematics companies run call centers to provide users with a broad array of valuable services from a centralized location. However, in an emergency situation, call centers must be able to connect their users to the appropriate Public Safety Answering Point ("PSAP"). This is essential for the safety of their users and is required by FCC regulations.

Services provide call centers with E911 connectivity to over 5,500 PSAPs across the United States. Using standards-based interfaces, Services ensure that 911 calls are delivered to the appropriate PSAP, based on the caller's geographic location. Specifically, Services provide the following features:

- Pre-validate users' primary addresses to save time in emergency situations.
- Validate the user's current location address in real-time and then transfer the user emergency call to the correct PSAP.
- Transfer the user emergency call to Intrado's Emergency Call Response Center ("ECRC") if the address cannot be validated, or to handle failure scenarios.

Services are comprised of the following components for service in the U.S.

2.1. Services Components

VoIP Positioning Center ("VPC")	Stages ESQK for proper ALI retrieval by the PSAP Delivers routing instructions to the 911 Call Server Provides the caller's location and callback number to the PSAP via the nALI National ALI Steering agreement with various carriers

National ALI Database ("nALI")	Record Storage of Civic Address SOAP/XML Service for record provisioning
Emergency Routing Service Database ("ERSDB")	Maintains Emergency Services Number ("ESN") polygon boundaries for VoIP Determines the physical PSAP for call routing based on caller's coordinates Includes street-level GIS data and information provided by the 911 authority Two commercial, industry-recognized datasets are used to geo-code street-level information

Emergency Services Gateway ("ESGW")	Signaling and media interworking point between the IP domain and the conventional selective routing trunks Connected using redundant SS7 or CAMA trunks to each regional selective router Converts calls from IP to Public Switched Telephone Network ("PSTN") Uses routing information provided by the VPC to deliver the call to the appropriate selective router
911 Call Server	Handles 911 calls Receives routing instructions from the VPC Forwards calls to the appropriate ESGW
Media Gateway ("MGW")	Used for PSTN call delivery only Signaling and media interworking point between the IP domain and the conventional ISDN/PRI trunks Converts calls from IP to PSTN Uses routing information provided by the VPC to deliver calls to the appropriate destination
ECRC	Used for unprovisioned callers, out of coverage and failover scenarios Operated 24/7/365 APCO trained and certified staff

2.2. Connectivity

Call Delivery	PSTN via access numbers
Provisioning	Web-based administrative Dashboard Real-time SOAP/XML HTTPS interface SSL encryption 128 bit crypto key
Enhanced 911 Coverage	5,500 PSAPs across the US Delivers basic 911 calls* to PSAPs in NENA i1 coverage areas

* A basic 911 call implies location is not automatically provided to the PSAP. If routed via the ECRC the ECRC call agent can verbally confirm the location on behalf of the call center organization (and user) to the PSAP call taker if known.

2.3. Maintenance and Support

Technical Support Center ("TSC")	Customer support and troubleshooting 24/7/365 Emergency number Email and Web support
Network Operation Center ("NOC")	24/7/365 Network monitoring

2.4. Other

PSAP Link Dashboard	Sample Web GUI Interface that allows the provisioning of records with Civic Address location in the National ALI and retrieval of access numbers
PSAP Link SOAP/XML Interface	Web SOAP/XML Interface that allows the provisioning of records with Civic Address location in the National ALI and retrieval of access numbers
Data Centers	Carrier grade, fully redundant 60 Hudson Street, New York City, NY 1 Wilshire Blvd, Los Angeles, CA
Licensing	Annual subscription service Based on the number of calls
Standards Compliance	NENA i2 (08-001) RFCs • SIP: 2543, 3261, 2976, 3265, 3262, 3325 • RTSP: 2326 • RTP: 1889 • SOAP: 3902 • Presence-based GEOPRIV Location Object Format: 3863, 4119, 5139 SSL 3.0

2.5. Call Flows

The call flow is based on NENA standard interfaces where applicable (NENA i1, i2).

a. A call is placed by a remote client (or by a telematics device) to the call center.
b. The call center verifies if the call should be transferred to public safety. If the call must be transferred to public safety, the call center uses the PSAP Link SOAP/XML interface or Dashboard to request a transfer number. The request includes the Civic Address obtained from the call centers provider.
c. The National ALI selects an available transfer number, and stores a subscriber record with the corresponding Civic Address and transfer number. The call center PSAP Link Dashboard returns the assigned transfer number to the call center operator.
d. The call center operator starts a new call leg to the PSAP by ringing the transfer number.
e. The call originates in the Intrado data centers and is converted to SIP by the MGW.
f. The 911 Call Server forwards the call to the VPC and uses the access number as a location key.
g. The VPC queries the nALI (LIS) to get the location ("LO"). The end user's LO is cached, and associated to the call. In this case the LO includes the caller's geolocation, city, state, and ZIP.
h. The VPC retrieves PSAP routing numbers from the ERSDB.
i. In an i2 call, the VPC then allocates an Emergency Service Query Key ("ESQK"), and delivers the ESQK and routing numbers to the ESGW.
j. The ESGW receives the ESQK and routing numbers, and uses this information to determine the SR to which the call and ESQK should be routed. The SR receives the ESQK and routes the call to the appropriate PSAP.
k. The PSAP receives the ESQK, which it uses to request ALI location information from the regional ALI database.
l. The regional ALI requests the location information from the VPC based on the ESQK. The VPC returns the cached LO associated with the current emergency caller back through the ALI, to the PSAP.

Note: In an i1 call, the VPC delivers a contingency routing number ("CRN") to the 911 Call Server. Call is routed by Intrado to a PSAP administrative line using PSTN. No location automatically displayed at the PSAP. Steps 8-12 only apply to i2 call routing.

2.6. ECRC

2.6.1. ECRC Call Handling

For the following scenarios, APCO-trained call takers will handle calls to the ECRC as described:

- Call with location, no location, or wrong location at ECRC. ECRC Call taker confirms location, makes any necessary corrections, and routes call to PSAP, based on actual location of the caller
- Dropped call with location. Call taker informs appropriate PSAP, and PSAP follows internal SOP to callback the caller and dispatch emergency responders.
- Dropped call with no location. Call taker uses other means to contact Service Provider or Organization associated with DID, to determine location of the caller. Call taker uses location to route call to appropriate PSAP

Note: call routing from ECRC to PSAP uses NENA i2 where coverage is available.

2.6.2. ECRC Call Route Scenarios

The following scenarios describe when emergency calls are routed to the ECRC:

- Call originating in Canada. ECRC call taker transfers the call to the PSAP via O-ECRS trunks.
- No i2 coverage available (optional) and PSAP administrative lines are not staffed 24/7 or restricted.
- No subscriber record in National ALI. If the subscriber record does not exist at the National ALI, the call is routed to the ECRC for manual verification.
- Call made from a non-validated address. Customers that allow users to enter non-validated address information can have the emergency calls sent to the ECRC for validation and PSAP routing.
- Network connectivity failure between Customer and Services (requires specific provisioning of the call center voice switch).
- Network connectivity failure between Services and ESGW.