

RapidSOS

Clearinghouse

Getting accurate location and rich emergency data to 9-1-1 and first responders.

RAPIDSOS 

Overview

RapidSOS Clearinghouse

The RapidSOS Clearinghouse is a standards compliant Location Information Server (LIS) and Additional Data Repository (ADR). The Clearinghouse receives accurate mobile caller location and other emergency data from smartphones, apps, and IoT devices (connected cars, wearables, connected homes, etc.) and securely sends the relevant data to 911 and first responders.



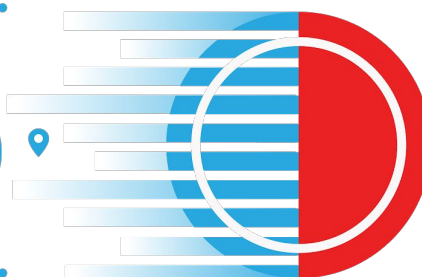
Note: the RapidSOS Clearinghouse is a free service for public safety. Connected device companies pay RapidSOS to provide value-add safety services to their users.

How it Works

Connected Devices



RAPIDSOS Clearinghouse



Public Safety



1

During a 911 call, life-saving emergency data is sent from IoT devices and apps to the RapidSOS Clearinghouse

2

Emergency data is securely sent to the RapidSOS Clearinghouse (data is only available during a 911 call)

3

ECCs with Clearinghouse access receive emergency data within milliseconds of the call delivery

Data Available in the RapidSOS Clearinghouse

Accurate Mobile Caller Location

Citizens often ask, “Why can Uber find me but 9-1-1 can’t?” The answer is that apps like Uber locate users based on device-based hybrid location, whereas 9-1-1 today still uses a network-centric approach that often falls back to cell-tower triangulation when a GPS fix cannot be obtained, for instance when the caller is located indoors.

Device-based hybrid location, sometimes referred to as “fused location,” combines all of the sensors on a smartphone. In comparative location testing, device-based location has shown to be **faster** and **more accurate** than traditional network-based location mechanisms.

NETWORK-BASED LOCATION

Phase 1

Generally not considered “dispatchable location.”

- Civic address of cell tower, or cell sector

Phase 2

Best practice for carriers is to use GPS location technology, with network-based mechanisms as a fallback when no GPS is available. GPS is very accurate, but only works reliably in outdoor environments since a clear line of sight to satellites is required. Indoors, GPS will typically fail and carriers will instead rely on network-based mechanisms or fall back to Phase 1.

- Constrained by limitations and common failures of ALI databases
- Significant delays: re-bid incurs a delay of about 25-30 seconds, in some cases it takes even longer or may not arrive at all
- “Either/or” solution
 - Mostly cell tower triangulation
 - Some carriers: aGPS (only outdoors)

DEVICE-BASED HYBRID LOCATION

Combines all sensors on the device

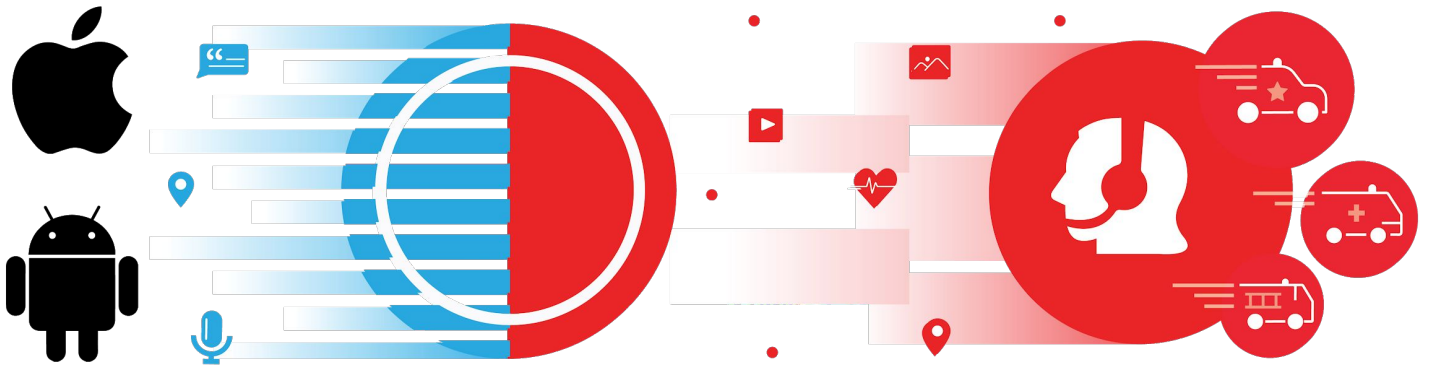
- GPS
- WiFi Access Points
- Bluetooth beacons
- Barometric pressure
- Pedestrian dead reckoning, gyro sensors, accelerometers, etc.

“Hybrid” indicates that the device can fuse the different sources together and provide the best location based on context and environment, as opposed to having to choose “either/or” and waiting for one method to fail before trying the next.

Fused or hybrid location will always look for a combination and validation of different methods, and choose what's most reliable. In indoor environments, the device mostly relies on WiFi access points and enhances and validates the location with other mechanisms, whereas in outdoor environments the device mostly relies on GPS. In all cases, location is cross-referenced across sources to make it **more robust and reliable**.

How it Works

DBH Location via the Clearinghouse

**1**

During a 911 call, the caller's location is calculated using all the sensors on the device (GPS, WiFi, bluetooth beacons, etc.)

2

The caller's device location is securely sent to the RapidSOS Clearinghouse

3

ECCs with Clearinghouse access receive the location information in addition to the Carrier information

Data Sources:

iPhones (iOS 12+)

Androids (4.0+)

Note: No app needed!



Data is Supplemental:

This is not a replacement to the Carrier location Emergency Communications Centers (ECCs) already receive through the ALI – rather, it is a supplemental source of data to help dispatchers quickly and securely access caller location. 911 centers with access to the RapidSOS Clearinghouse will receive the Android and Apple device location data in addition to the ALI location they are used to.

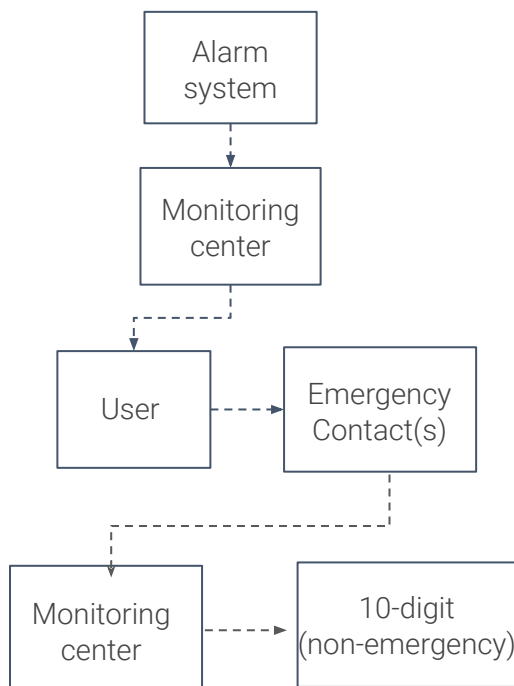
Data Available in the RapidSOS Clearinghouse

Additional Emergency Data

Companies (home, car, etc.) want to send data to 911 but have traditionally been limited to a voice-connection through a 10-digit non-emergency line.

With the RapidSOS Clearinghouse, public safety can now receive NG911 data (location, additional emergency data) through one standards compliant Clearinghouse.

The ALL: Limited to 512 Bytes of Data



Speaks address and situation

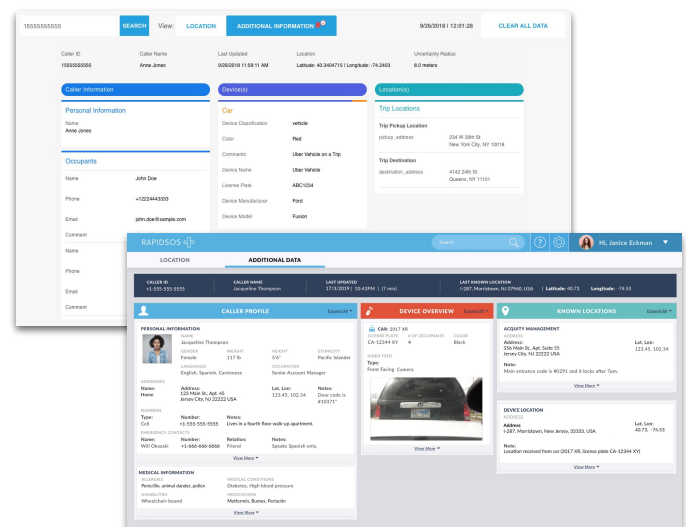
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210
WPH1 11:42 12/18
(339) 227-0911 COID=VZW
VZW CALL 800-451-5242
87
TERRACE

NE SECTOR
ROXBURY MA

ESN=610 MTN:617-511-7214
LAT:+042.329990 LON:-071.094246
ELV:+00000COF:719 COP:090

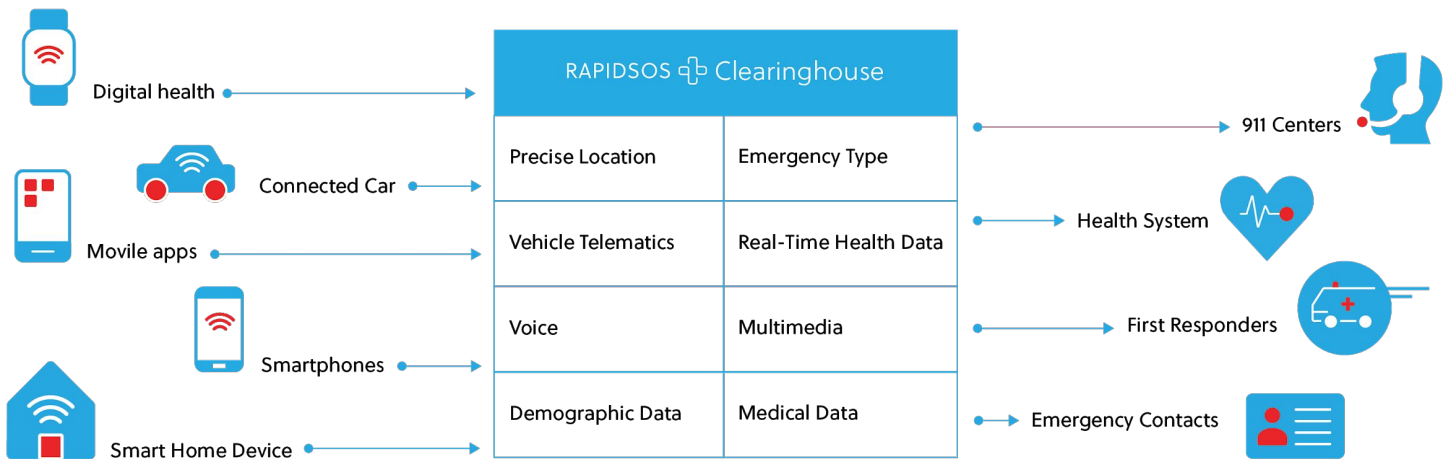
WIRELESS CALLER
QUERY CALLER FOR LOCATION
```

RapidSOS: Unlimited Emergency Data



How it Works

Additional Data via the Clearinghouse



Text/Chat

- Accurate location
- Caller details (name, etc.)
- Opt-in personal information (health and medical, deaf/hard of hearing, etc.)
- Opt-in camera feed from device
- Contextual data (if you can't speak, etc.)

Smart Home Data

- Life-saving environmental and occupancy data (smoke density, temperature, etc.)
- Can communicate more information faster than verbal-only call
- Potential for device-triggered calls
- Devices can capture multimedia

Connected Car Data

- Life-saving crash and passenger data
- Can communicate more information faster than verbal-only call
- Potential for device-triggered calls

Wearable Data

- Life-saving medical information
- Can communicate more information faster than verbal-only call
- Potential for device-triggered calls

Images/Videos

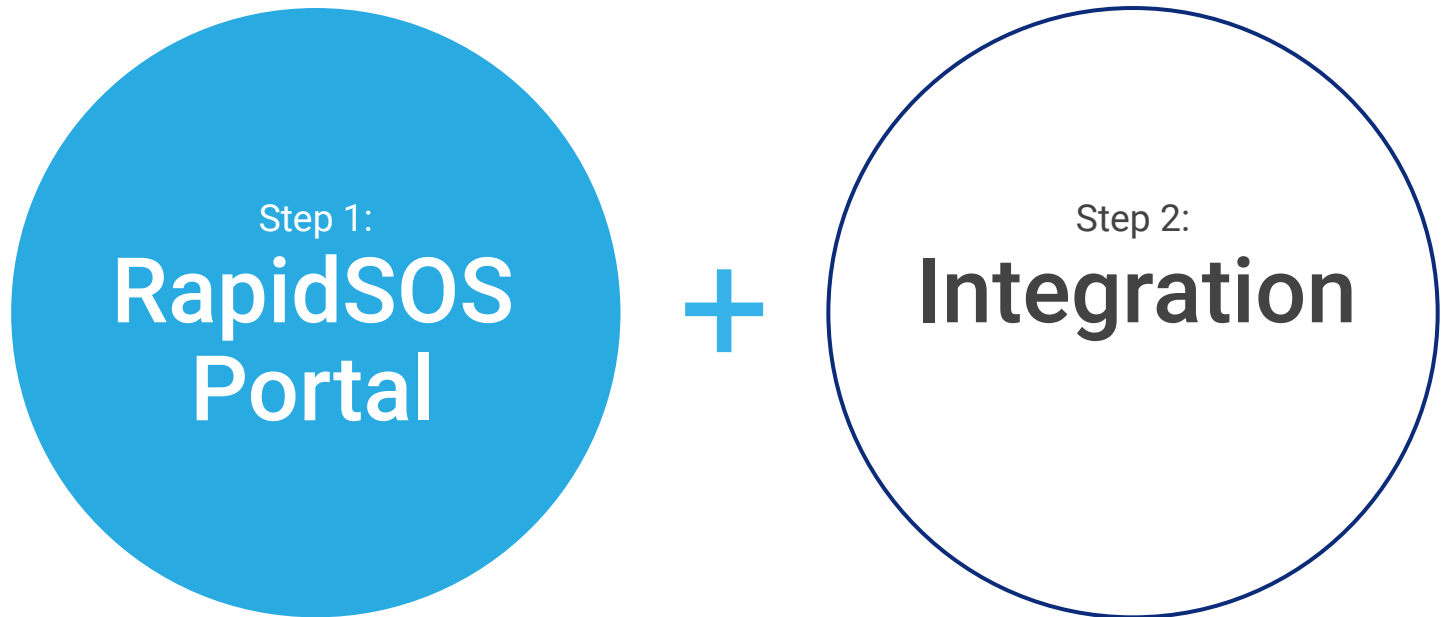
- Heightened situational awareness
- Can communicate more information faster than verbal-only call

Sample Additional Data Sources

- Uber
- Waze
- Harman Spark
- Invisawear
- Avaya
- MedicAlert

How to Access

Accessing the RapidSOS Clearinghouse



Integration Partners

Full list with press releases can be found [here](#).

CPE



Mapping



CAD



How to Access

Step 1: RapidSOS Portal

The fastest way to get access to all data from the RapidSOS Clearinghouse today

Simple

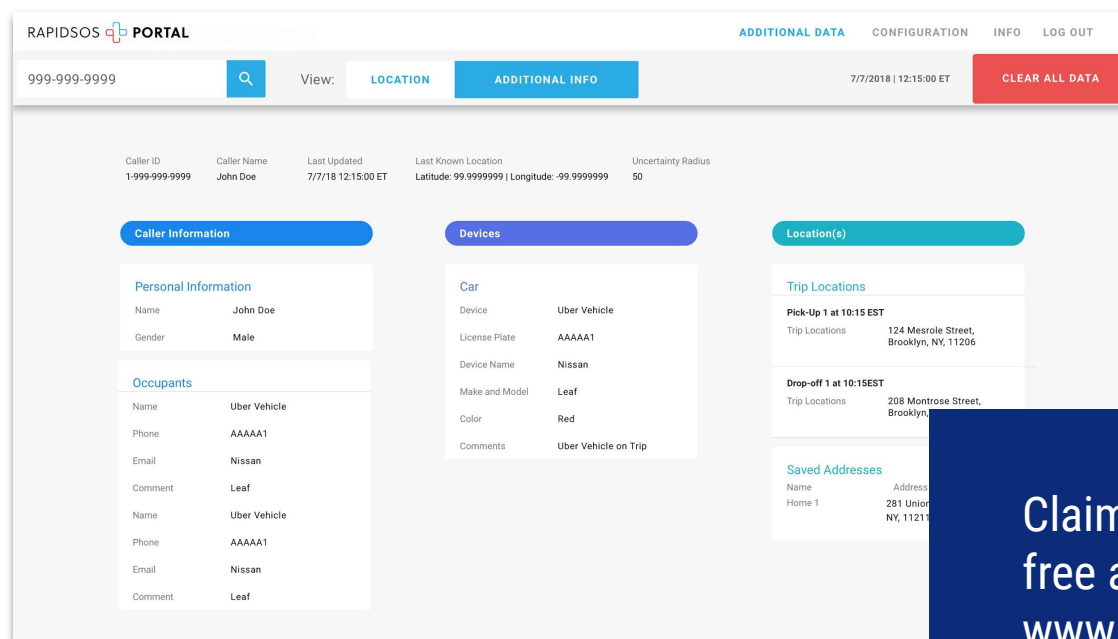
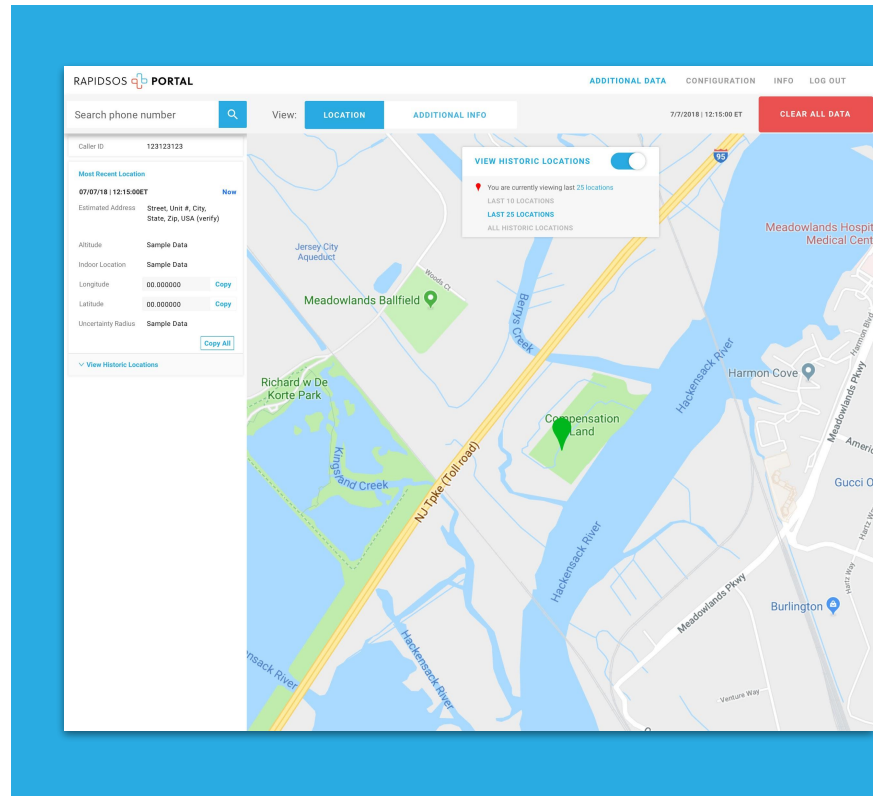
RapidSOS Portal is a simple browser-based tool to receive device location and more from the RapidSOS Clearinghouse

Secure

RapidSOS Portal uses a secure browser connection and doesn't require any new hardware or software

Accessible

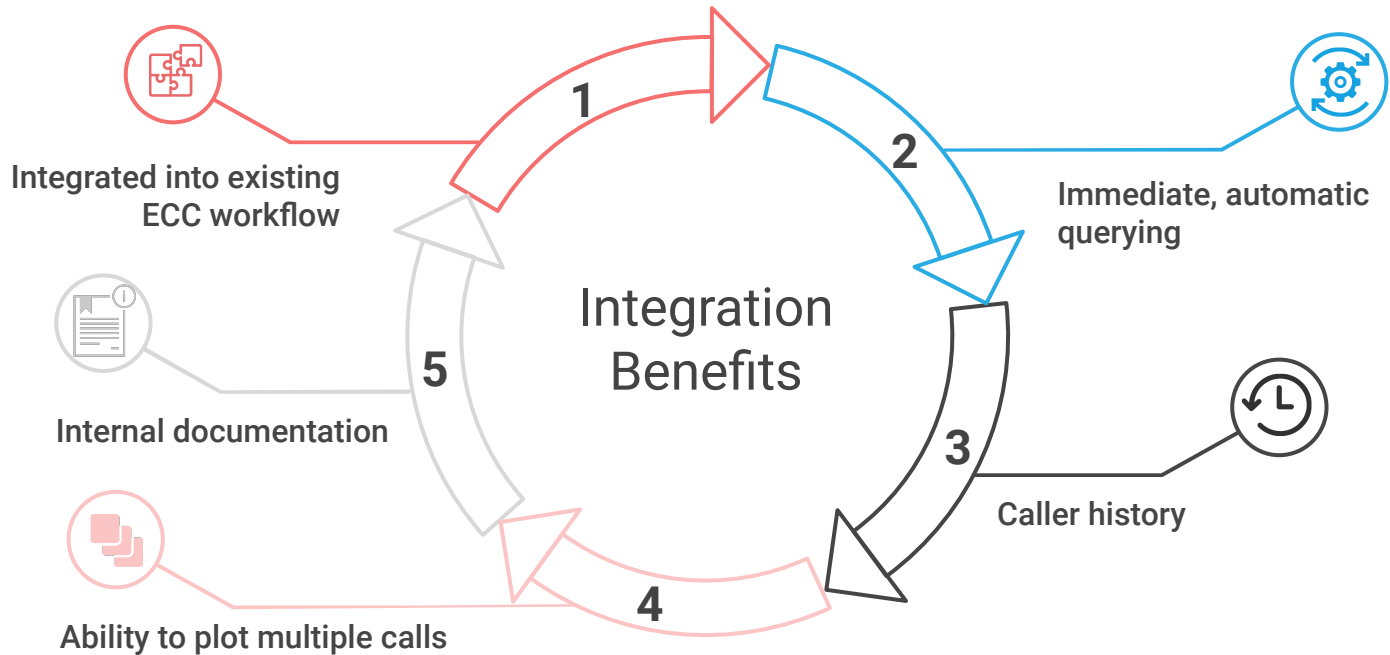
Any authorized PSAP can use RapidSOS Portal, regardless of what call-taking, CAD or mapping product they currently use



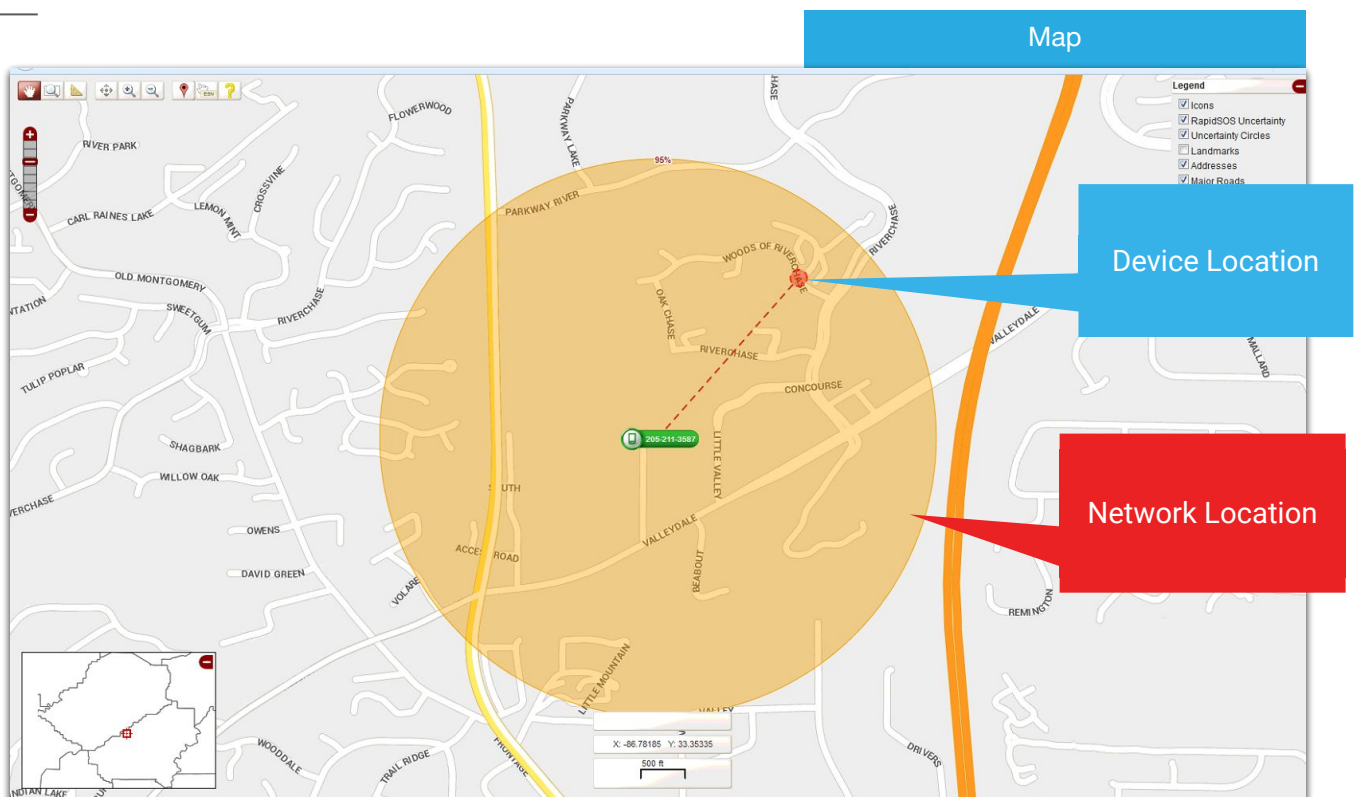
Claim your ECC's
free account at
www.rapidsosportal.com

How to Access

Step 2: Integration



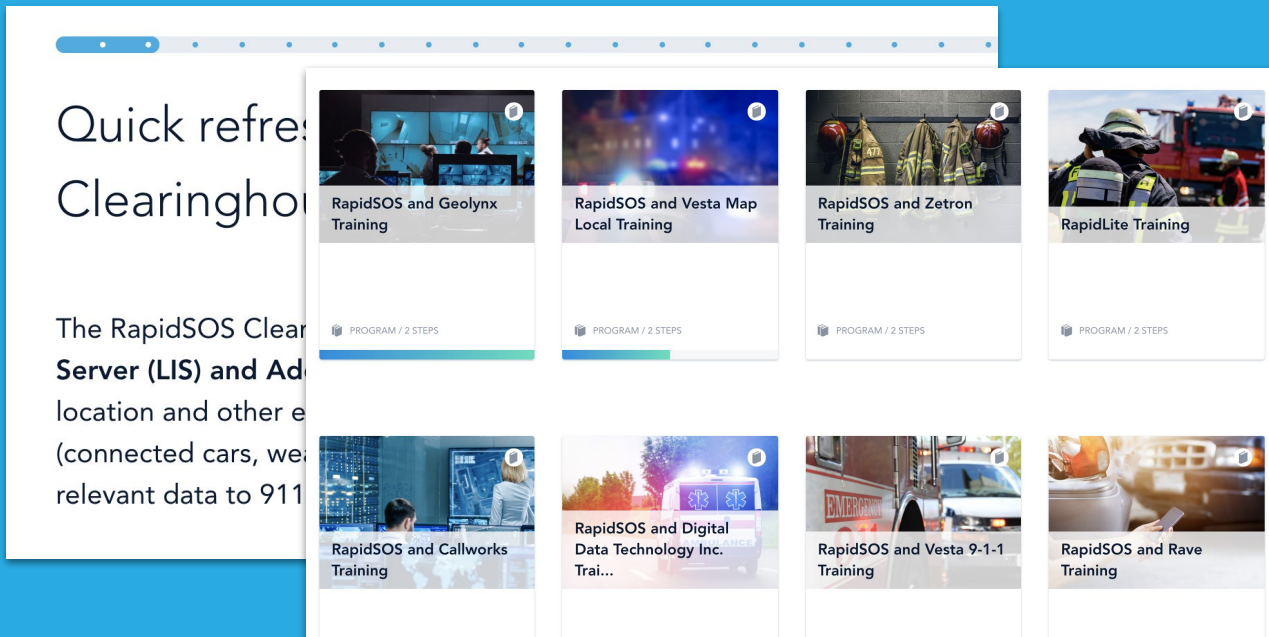
Integration Example



Operationalizing the RapidSOS Clearinghouse

Training Information

Free training portal provided for Clearinghouse users:



Washington DC: Trained 400 Call-Takers in a Few Weeks

700K
residents

20M
visitors annually

1.5M
911 calls annually



"I have 400 employees, we got our training out in a couple of weeks and they're doing it and it's easy... our call-takers have come back with very positive feedback, it's very easy for them."

Karima Holmes,
Director Washington DC Office of Unified
Communications

RapidSOS Clearinghouse Results

Comparative Location Testing

Results from RapidSOS Clearinghouse Android Emergency Location Service (ELS) pilot project conducted in January 2018. Full report available [here](#).

Key Finding 1:

ELS through the Clearinghouse was more accurate and faster than traditional E911 location.

Key Finding 2:

PSAPs successfully received Android ELS supplemental location from the Clearinghouse, integrated into their existing software.

Key Finding 3:

This location technology was used during real emergencies, saving lives.

Speed of Delivery

To compare speed of delivery between ELS and the ALI, availability of ELS location was compared to the availability of Phase 2 location to the call-taker.

25-30 sec faster

ELS via the Clearinghouse typically arrived 25-30 seconds faster than Wireless Phase 2

Reported Location Accuracy

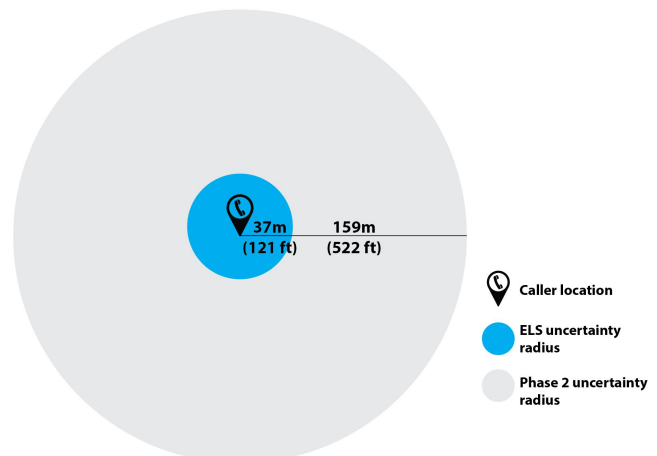
To compare location accuracy between ELS and the ALI, uncertainty data was captured. The results show that ELS via the Clearinghouse provides more accurate location data than the ALI.

76%

ELS location reported an uncertainty of less than 50 meters for 76% of calls

Average Reported Uncertainty (all calls)

Phase 1 radius too large to be displayed at scale



RapidSOS Clearinghouse Results

Sample Success Stories from PSAPs

"We have had RapidSOS for 3 days and it has already helped save a mother and 3 children."

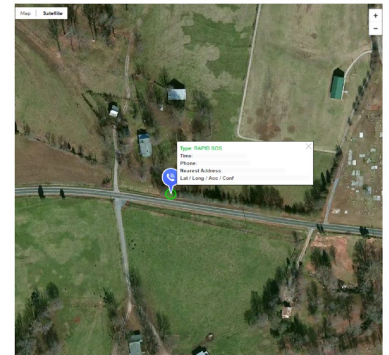
- Cherokee County, SC

PHASE 1

Cell tower location

RAPIDSOS

Accurate location of the caller



"A nine-year-old girl called 911 to report a man in her backyard while her parents were away. During the call, the cell phone disconnected due to low battery. Without the added benefit of precise location services, the call would have been geo-located blocks away. With the enhanced location services, we were able to find the girl and make sure she was safe."

- Seattle Police Communications Center

"We had a boat that crashed into Alcatraz, and that call that we received from one of the people on the boat was very frantic and they weren't able to give a precise location. We used RapidSOS Portal and it was able to pinpoint the exact building that they were next to and we were able to assist them very quickly."

- San Francisco Department of Emergency Management

"We had a water rescue yesterday about a mile out in the gulf and were able to use RapidSOS Portal to see exactly where the person was in the water. It was even showing the movement as the person drifted. It did help us give a better location to responders. The boater was a fisherman who had overturned his kayak."

- Pinellas County, FL