# Interface Control Document

for

Genesys SIP Server

E911MANAGER

## Revision History

| Date | Version | Revision | Made By |
|---|---|---|---|
| 12/21/2017 | 1.0 | • Initial Draft | Steve Dote |
| 1/3/2018 | 1.1 | • Failover Scenarios Added | Steve Dote |
| 1/4/2018 | 1.2 | • Minor Revisions | Steve Dote |
| 2/26/2018 | 1.3 | • Updated Figures<br>• Updated Application Requirements<br>• Added Call Flow | Steve Dote |
| 5/1/2019 | 1.4 | • Updated the Application Requirements<br>• Updated Genesys SIP server configuration for ELIN callback<br>• Updated Table of Contents and Table of Figures | Dennis Penaranda |
| 10/8/2019 | 1.5 | • Added Workspace SIP Endpoint version | Dennis Penaranda |
| 06/03/2020 | 1.6 | • Added System Requirements section<br>• Added SIP networking requirements<br>• Clarified verbiage for E911 Anywhere Emergency Gateway | Dennis Penaranda |

# Table of Contents

Table of Contents ..... 3
Table of Figures ..... 3
Introduction ..... 4
Supplemental Documentation ..... 4
Solution Design ..... 4
Requirements ..... 6
System Versions ..... 6
System Requirements ..... 6
Network Requirements ..... 6
Application Requirements ..... 7
SIP Server Cluster Failover & E911 Manager Failover ..... 8
Genesys SIP Server Configuration ..... 9
Sample Call Flow ..... 10

# Table of Figures

Figure 1: Solution Design ..... 5
Figure 2: E911 Manager Call Server Configuration ..... 7
Figure 3: Call Flow ..... 10

# Introduction

This document details the technical aspects of the integration between RedSky's E911 Manager ®and Genesys SIP Server. E911 Manager provides an automated solution for Enhanced 9-1-1 Services with Genesys SIP Server. E911 Manager tracks the location of IP phones and updates the Genesys SIP Server with the appropriate location information.

This document is intended for Genesys SIP Server and E911 Administrators. After reading this document an administrator should be able to fully prepare the enterprise's environment for integration with E911 Manager.

# Supplemental Documentation

In addition to the RedSky documentation provided here, we also have a join partnership document located at the link below.

https://docs.genesys.com/Documentation/SIPS/8.1.1/IntegrationReferenceManual/RedSky

# Solution Design

E911 Manager requires IP connectivity to the Genesys SIP Server. E911 Manager performs three major functions for the Genesys platform:

**Device Downloads** – Initial download of currently registered devices on the Genesys SIP Server. Then each time a download occurs, E911 Manager processes the list and updates the device locations.

**Monitoring of Registration Events** - When E911 Manager processes a registration event for IP device, the application will determine the location of the endpoint. Once the location has been found, E911 Manager sends an update to the Genesys SIP Server with the ELIN that should be outpulsed if the phone places an emergency call.

**Monitoring of Emergency Calls** - When an emergency call is placed, the Genesys SIP Server sends a SIP message to E911 Manager. E911 Manager then processes this message and sends the appropriate Screen pop, SMS, or email messages to users that have subscribed for alerts.

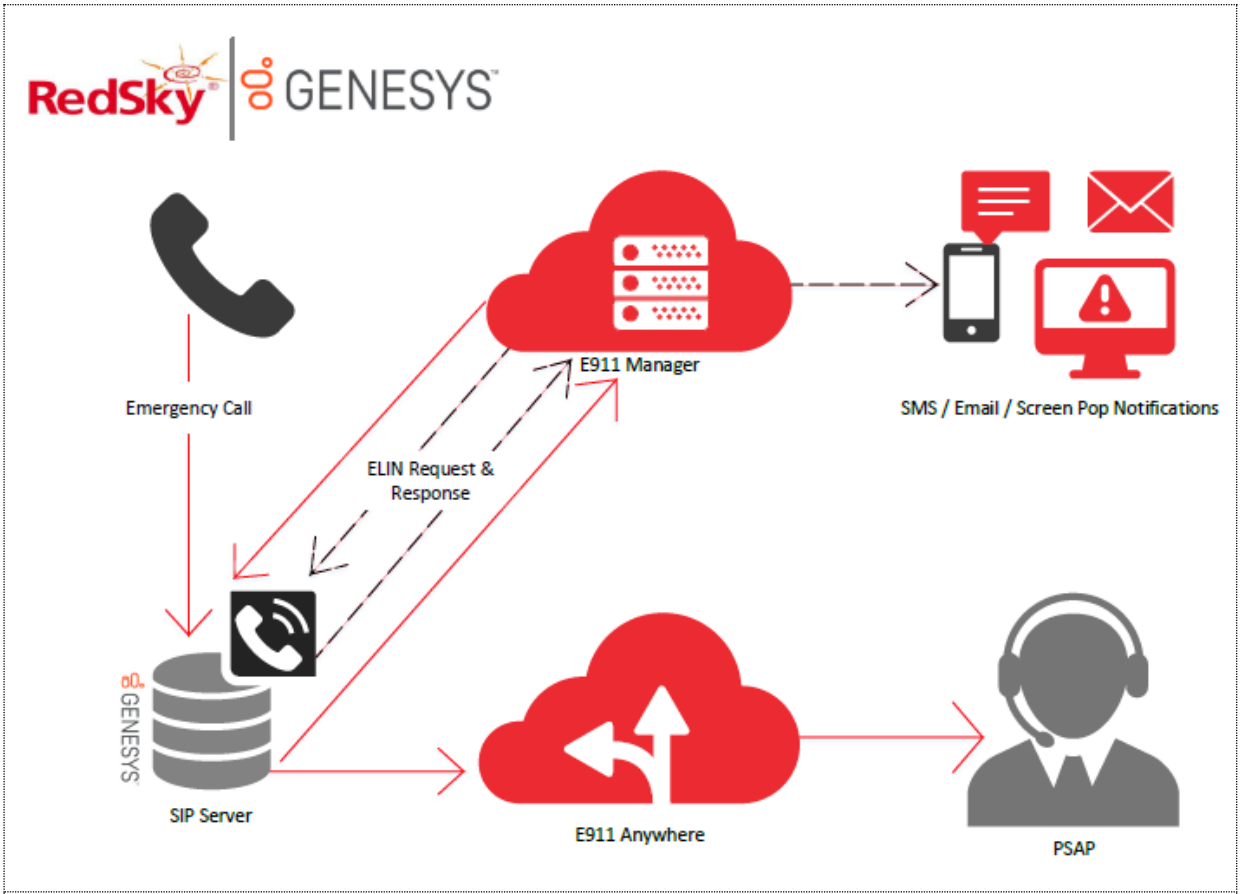


**Figure 1: Solution Design**

# Requirements

## *System Versions*

| Component | Software Version |
|---|---|
| **Genesys SIP Server** | • 8.1.102.81 + |
| **Workspace SIP Endpoint** | • 8.5.113.02 + |
| **E911 Manager** | • 6.7.0 + |
| **RedSky E911 Anywhere Emergency Gateway** | • 6.5.122 + |

## *System Requirements*

| | |
|---|---|
| **SIP** | The VoIP protocol used to deliver emergency calls. The default ports are TCP or UDP 5060. |

## *Network Requirements*

The RedSky support team will require remote access to the server, the below list outlines the necessary ports and protocols.

| | | | |
|---|---|---|---|
| **SSH/SFTP** | TCP | 22 | • E911 Manager Linux Server Admin |
| **HTTPS** | TCP | 443 | • E911 Manager Web Interface<br>• Web/Real time updates to ALI providers |
| **SNMP** | UDP | 161 | • Layer 2 Network Discovery |
| **SIP** | TCP/UDP | 5060 | • Interface for registration and device processing as well as emergency call notification<br>• SIP messaging for emergency calls |
| **SIPS / TLS (Optional)** | TCP | 5061 | • Interface for registration and device processing as well as emergency call notification |
| **SIP (RTP)** | UDP | 30000-60000 | • Audio or media stream for SIP |

## *Application Requirements*

The following information will be required to configure the E911 Manager application. You add a 'call server' by navigating to the 'Add Call Server' page in the UI. See field descriptions directly below image.

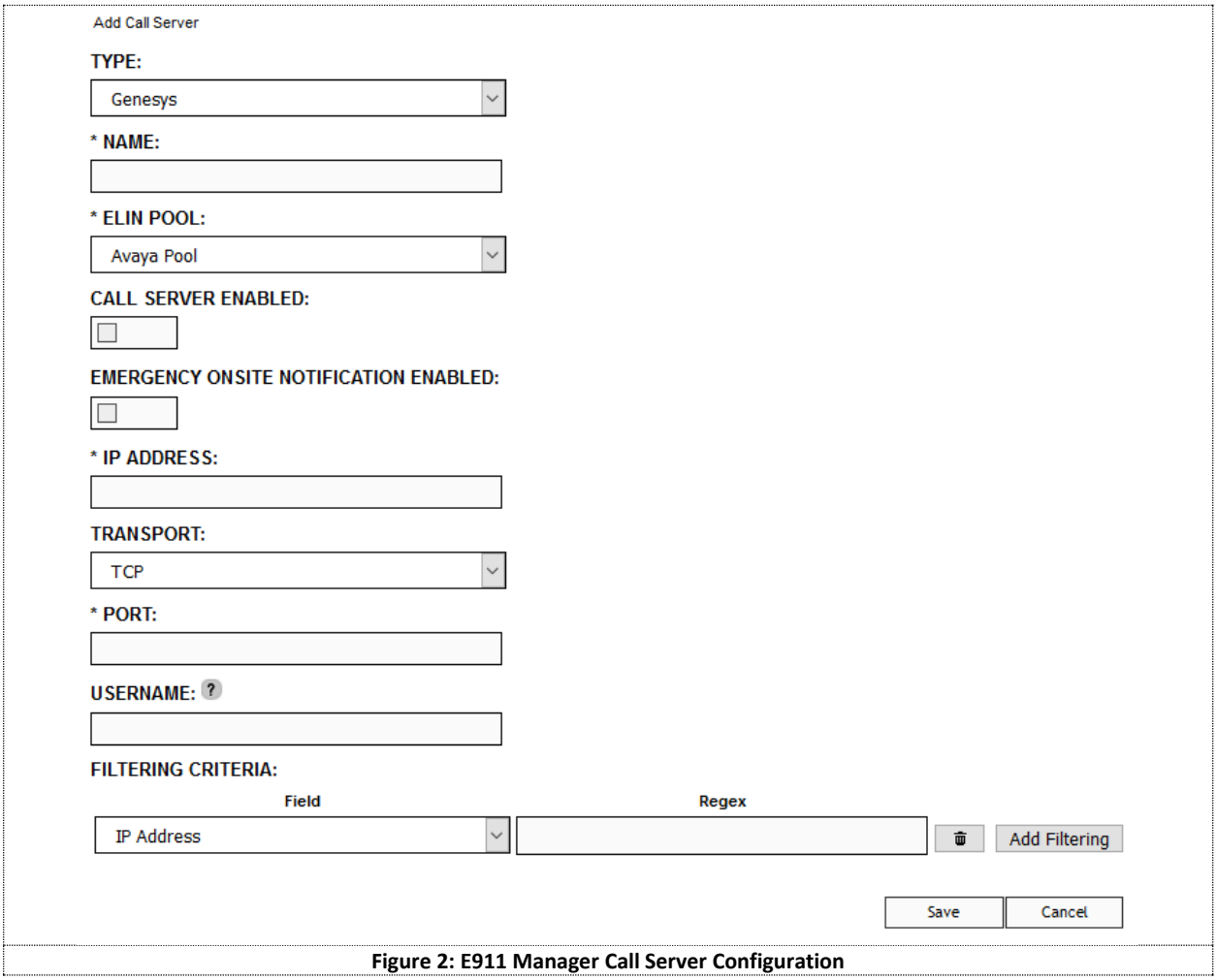


**Figure 2: E911 Manager Call Server Configuration**

| | |
|---|---|
| **Type*** | • Genesys SIP Server |
| **Name*** | • User friendly name for the Genesys SIP Server |
| **Genesys SIP Server IP Address*** | • Signaling IP for the Phone System. IP address that enables E911 Manager to send and receive messages. |
| **Transport Protocol – TCP/UDP**** | • Enables two hosts to establish a connection and exchange streams of data. |
| **Transport Protocol – TLS**** | • Transport method suitable for when encryption is required. |
| **ELIN Pool*** | • Selects the ELIN Pool/ELIN Range that is assigned to the call server. |
| **Call Server Enabled** | • Activates / deactivates the integration |
| **Emergency Onsite Notification Enabled** | • Activates / deactivates EON functionality (EON call<br>• server licensing is required) |
| **Port*** | • Enter the port that will be used for integration communication (Default TCP/UDP – 5060 & TLS – 5061) |
| **Username*** | • Used in 302 redirect response when an emergency call is placed (defaults to 911)<br>• Username should be set in a way to match prefix of the Trunk DN pointing to RedSky E911 Anywhere Emergency Gateway |
| **Filtering Criteria** | • Regex can be used to filter on IP Address, SIP Username, or MAC Address. If these filters are applied, devices matching the expression will be filtered. |

*Required Fields

** One of the Transport Protocols must be selected

## SIP Server Cluster Failover & E911 Manager Failover

E911 Manager supports the ability to communicate with a cluster of Genesys SIP Servers. E911 Manager subscribes to each SIP Server, but only processes messages from one of the SIP Servers. E911 Manager nodes will automatically attempt to re-subscribe to the Genesys SIP Server in the event that the subscription is lost due to Genesys SIP Server or E911 Manager failure. Any device changes will be captured even if there are changes during a failover period.

## Genesys SIP Server Configuration

For use with E911 Manager, the following elements will need to be configured:

Configure the following DN configuration objects under the SIP Server switch:

- The DN object of type **Trunk** for the RedSky E911 Manager must have the following options configured in the **TServer** section:
  - **contact**—Set to the RedSky E911 Manager URI. The URI format is described in the **contact** option description in the Framework 8.1 SIP Server Deployment Guide.
  - **prefix**—Set to a value that matches emergency call starting digits.
  - **contact-list**—Configure this option if there is more than one instance of the Red Sky E911 Manager in the environment.
  - **oos-check**
  - **oos-force**
  - **emergency-device**—Set to `true`.
- The DN object of type **Trunk** for the RedSky E911 Anywhere Emergency Gateway must have the following options configured in the **TServer** section:
  - **contact**—Set to the RedSky E911 Anywhere Emergency Gateway URI.
  - **prefix**—Set to a value different from the Trunk DN pointing to Red Sky E911 Manager Server.
  - **contact-list**—Configure this option if there is more than one instance of the Red Sky Server in the environment.
  - **oos-check**
  - **oos-force**
  - **emergency-device**—Set to `true`.

The SIP Server Application must contain the following configuration options in the **TServer** section:

- **subscription-event-allowed**—Set this option to `reg` or `*` (asterisk).
- **subscription-max-body-size**—Define the maximum size of the NOTIFY XML body (in bytes) within the SUBSCRIBE dialog. The default value is `14336`. The range of valid values is `0–500000`. If the option is set to `0` (zero), the message body can be any size. The zero value can be used for TCP transport but is not recommended for UDP. For bulk notification, SIP Server sends more than one NOTIFY, so adjust the size accordingly.
- **sip-elin-timeout**—Define the time interval, in seconds, for SIP Server to keep in memory the association between a 911 caller and the Emergency Location Identification Number (ELIN) assigned to the caller. The default value is `1200`. The range of valid values is `0–3600`. If a call arrives at that ELIN before the timeout expires, the call is sent to the associated 911 caller DN. If within this time interval there are several emergency calls with the same ELIN, SIP Server directs the callback to the latest caller.

## Sample Call Flow

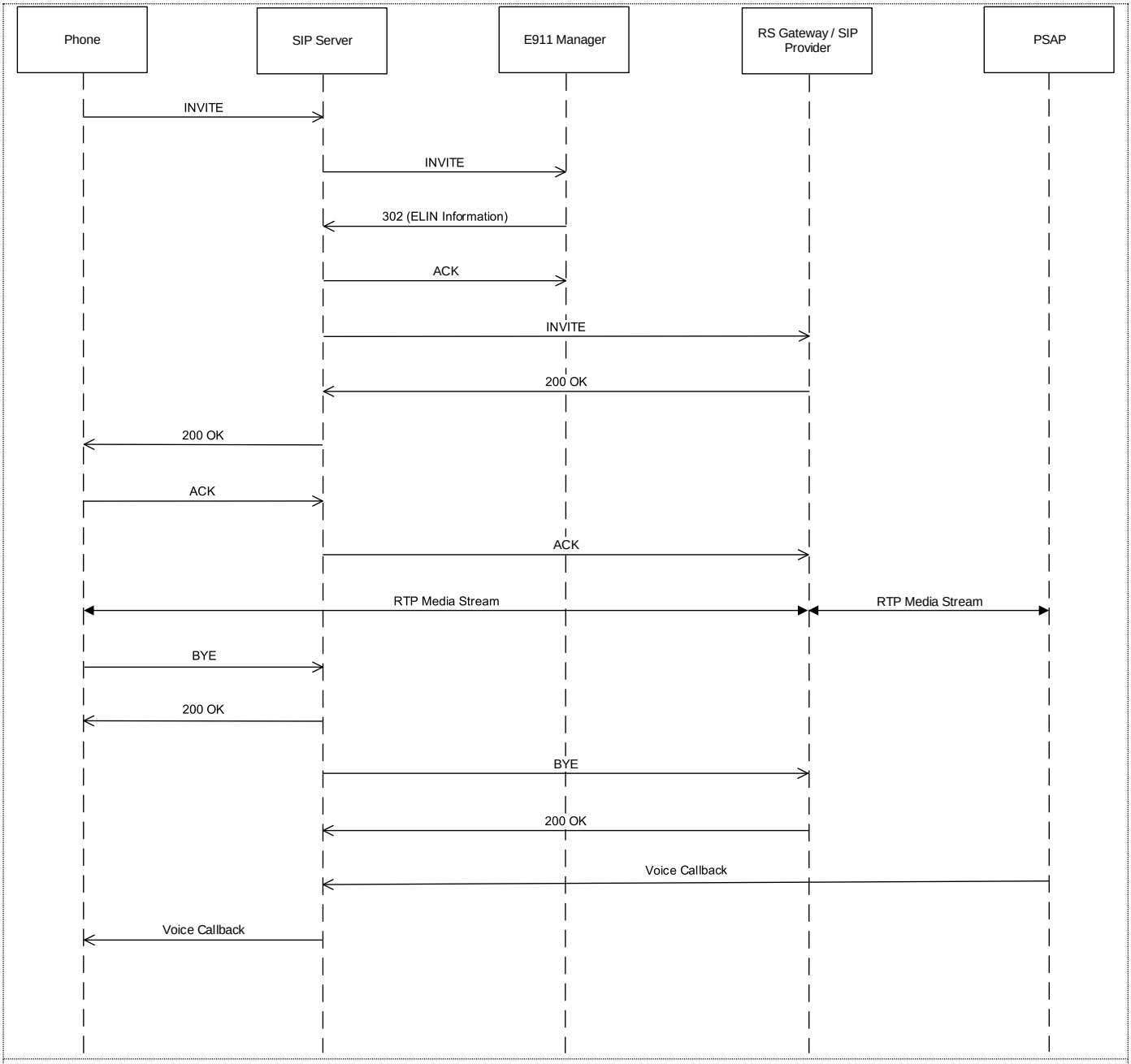


**Figure 3: Call Flow**