MiVoice Office 250

RAY BAUM'S Act General Overview and Solution Deployment Guide

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Chapter 1 Kari's Law and RAY BAUM'S Act

In August 2019, the United States (US) government adopted rules for implementing two federal acts that strengthen emergency calling: Kari's Act and Section 506 of RAY BAUM's Act.

The Multi-line Telephone Systems – Kari's Act and RAY BAUM's Act 911 Direct Dialing, Notification, and Dispatchable Location Requirements is described in the following link:

https://www.fcc.gov/mlts-911-requirements

FAQ about the RAY BAUM's Act can be found in the following link:

https://www.fcc.gov/files/mltsfaqspdf

The RAY BAUM's Act classifies devices into:

- Fixed MLTS devices - devices that connect to a single end point (e.g., a desk or office phone) and are not capable of being moved to another location by the end user, although they may be capable of being moved to a different location by a professional installer or network manager.
- Non-Fixed MLTS devices - devices that the end user can move from one location to another without assistance.

Chapter 2 Introduction of MiVoice Office 250 Support for Section 506 of RAY BAUM's Act

The MiVoice Office 250 (MiVO250) system, as a MLTS, implements section 506 of RAY BAUM's Act and Kari´s Act support in conjunction with third party Next Generation of 911 (NG911) emergency service in the USA.
For the MiVoice Office 250, there are the following device categories:

- Fixed MLTS Devices – Analog and Digital devices.
- Non-Fixed MLTS Devices – IP Devices, SIP Devices, softphones, teleworkers, etc.

To provide full support of the requirements above, the MiVoice Office 250 has added support to:

- More accurately report on a user's location, via Customer Emergency Service Identification (CESID).
- Integrate with NG911 provider Intrado.

Depending on a customer's MiVO250 solution deployment, the use of these enhancements may or may not be required.

How does a Customer know if they need any of the RAY BAUM Enhancements?

The primary reason for a customer requiring the Intrado solution to meet RAY BAUM'S requirements is that their deployment has OFF-PREMISE users/devices, such as Teleworker devices and/or Mitel Phone Manager PC softphones.
If a customer only has digital and/or analog ON-PREMISE devices, the Intrado solution is not required and CESID programming can be done as it is done today. However, the customer may be required to purchase additional CESIDs (DID numbers) to accommodate their deployment should their office be large enough to require more granularity in defining a dispatchable location.
If a customer only has ON-PREMISE users/IP devices in their deployment, the Intrado solution is not required. However, if the customer has IP devices, there are new features added to the MiVO 250, such as IP to CESID and BSSID to CESID Mappings, that may be required to help track the location of IP devices when they are moved ON-PREMISE. In addition, the customer may be required to purchase additional CESIDs to accommodate their deployment should their office be large enough to require more granularity in defining the dispatchable location
If a customer only has only ON-PREMISE users and devices and their office is small enough in area to only require a single CESID, the Intrado solution is not required, nor the configuration of the new MIVO250 features to support RAY BAUM'S Act, and they can continue to program the CESID as they do today.
In this document, Section 506 of RAY BAUM's Act and Kari´s Act is called RAY BAUM'S for simplification.

Chapter 3 Solution: MiVO250 – RAY BAUM'S High Level Architecture

For Kari's Act requirements for direct dialing of 911, the MiVoice Office 250 can be pre-configured to allow direct dialing of 911 (emergency calls), without having to dial any outgoing prefix or access code.

Using the Intrado Solution, Emergency calls are sent via a SIP trunk to the Next Generation 911(NG911) provider and the provider redirects the call(s) to the appropriate Public Safety Answering Points (PSAPs) based on the Civic Address of the location as identified by the NG911 provider – in this case Intrado. Intrado address validation includes all 50 states in the United States, as well as Puerto Rico and Canada. However, all calls from a Canadian location will be routed to Intrado's Emergency Call Relay Center (ECRC). The ECRC will answer the emergency call and transfer it to the local emergency services.

The MiVoice Office 250 must be configured correctly to send location identifiers to the Next Generation 911 provider during emergency calls. The Next Generation 911 provider (Intrado) will look up the location identifiers to determine the civic address, which is used in the signaling to the PSAP.

The solution primarily includes MiVO250, supported MiVO250 IP endpoints (MiNET and SIP) and integration with a 3rd party application.

Figure 1 below shows MiVO250 RAY BAUM'S High Level Architecture view using a single MiVO250 system.

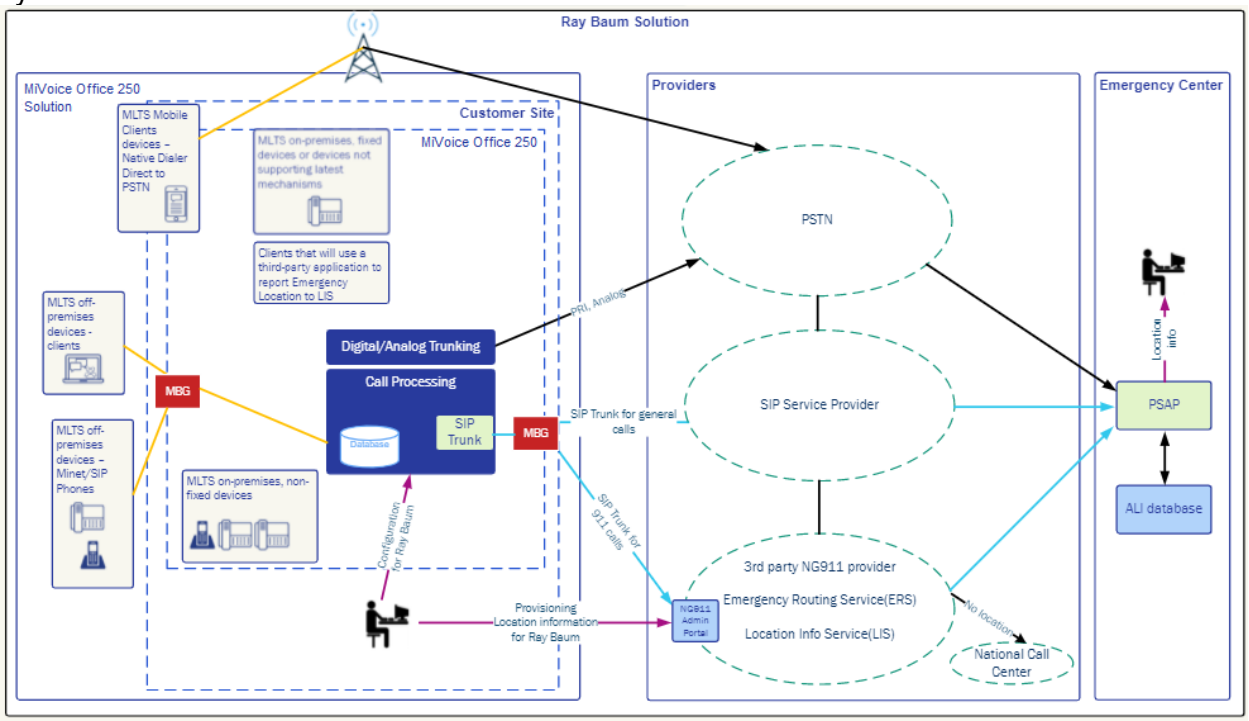


Figure 1: High Level Architecture

The MiVoice Office 250 RAY BAUM'S solution is composed of the following components:

- Next Generation 911 Provider. Currently there is a single option – Intrado. The integration described in this guide also requires that the customer has a valid service agreement with Intrado.

  Note: Mitel does not provide this service agreement directly. Intrado services include:

  - Location Information Service (LIS) – Stores dispatchable locations and can basically be thought of as a customer's own personal Automatic Location Information (ALI) database.
  - Emergency Routing Services (ERS) – Routes 911 calls to the appropriate geographical Public Safety Answering Point (PSAP) and passes along the dispatchable location within the LIS. When a dispatchable location cannot be found in the LIS, the call will be routed to the Emergency Call Relay Center (ECRC). It is necessary to route emergency calls to SIP trunks integrated with Intrado when using Mitel Phone Manager PC softphones or Teleworkers. Emergency calls from other devices can also be routed to SIP trunks from Intrado, and it may have advantages over using other SIP trunks.
  - E911 applications that can be installed on a laptop or mobile phone that assist in providing dispatchable location to their LIS for these nomadic devices.
  - External LIS APIs that allow endpoints to register and provide their dispatchable location to the LIS and in return receive a token to be used in the Geolocation header of a SIP Invite as a reference to the dispatchable location in the LIS.

- MBG
  - SIP Trunking to/from Intrado
  - Network Definition - MiVoice Office 250
  - Teleworker support

- MiVoice Office 250 PBX system
  - To meet RAY BAUM's Act requirements, IP endpoints (MiNET and SIP) are now required to provide location information to the MiVO250 for the MiVO250 to pass along to Intrado. This can include IP information, the CESID, and BSSID.
  - System Administrators will need to define a variety of CESIDs for physical locations (wire-map) of their premises so that they can be provisioned on both the MiVO250 and Intrado NG911 portal. The following settings are available on MiVO250 for configuration:

    - SIP Peer Trunk Group dedicated to signaling with Intrado.
    - Station settings.
    - Emergency mapping (IP Address to CESID and BSSID to CESID).
    - Automatic Route Selection (ARS) configuration for Emergency call routing.

The Mitel MiVoice Border Gateway (MBG) is used as a Session Border Controller (SBC) between the MiVO250 and Intrado. The MiVO250 can be configured to connect to Intrado directly, however, it is recommended to use the MBG in the setup.
A SIP trunk is setup between the MiVO250 and MBG and between the MBG and Intrado.
The MiVO250 contains emergency identification information for select devices that is used with the RAY BAUM's Act solution. More details on the supported devices and location identification will be provided later in this document.
With Intrado, a web portal is used to configure the information required for the solution to work properly. The information required depends on the provider, but some information is mandatory. For example - civic address, valid DID for callback calls (10 digits), valid DID number, extension number or alternate identification of a device or a user.
Most devices that are supported in the MiVO250 portfolio are supported for RAY BAUM'S. The exception is off-premises 52xx and prior generation devices.
Additional MBGs may be used for Remote Users (Teleworkers) using 53xx MiNET phones, MiCollab clients and SIP 6900 Series phones.

Chapter 4 System and Solution Boundaries

IP Endpoints
MiNET and SIP endpoints can reside both On and Off Premise and are handled in different ways, depending on their location.
Rethinking the Customer Emergency Service Identification (CESID)
Today the CESID is both:

1. A location identifier (LID) used by the PSAP to find the emergency caller's Dispatchable Location.
2. The callback number to be used should the emergency call drop and the PSAP must call them back. This callback number is not necessarily the emergency caller, it could be the customer's Security desk, as an example.

If integrating Intrado, it is no longer a requirement the CESID be a dialable callback number. When this concept is applied, the CESID can now be exclusively used as a location identifier (LID) and is no longer required to be a dialable PSTN number. The Calling Party Number (CPN) to be used as the callback number, should the call drop, will now use the callers current CPN configuration on the MiVO250 or a callback number assigned/allocated on the Intrado portal, otherwise known as Intrado's Extension Bind feature.
Wire-maps
In preparation for configuring this solution, wire-mapping will be required, where an admin will have to:

- Identify physical entities that can be used as a location identifier, such as, Layer 2 switches, DECT base stations, Wireless Access Points (WAPs), and IP Subnets.
- Assign a unique CESID/LID to these physical entities.

Chapter 5 Solution: Requirements for MiVO250 RAY BAUM's Integration with Intrado

Product Solution Minimum Lineup

Product	Minimum SW Release	Minimum Requirements/Comments
MiVO250	6.3 SP7	At least one SIP Trunk route is required.
MiVoice Office Application Suite	5.3	Pop-up support (for supporting teleworker devices). Device based provisioning to enable sending of the MAC Address of connected Wireless Base Station during calls.
MBG	11.3	Minimum 1 MBG in the solution with the appropriate SIP Trunk licenses. While it's not the minimum requirements, it is recommended to have two MBGs for redundancy.
53xx Minet	6.5.1	Pop-up support (for supporting teleworker devices).
SIP DECT 6xx	8.3 SP1	Device based provisioning of a CESID that is to be sent during calls.
IP DECT 56xx(ASCOM)	11.6	Device based provisioning of a CESID that is to be sent during calls.
RFP 12 Single Cell Solution RFP 14 Single Cell Solution (RTX)	v530b6 v610b1	Device based provisioning of a CESID that is to be sent during calls.
5634 Wireless(ASCOM)	3.0.2	Device based provisioning to enable sending the MAC Address of connected Wireless Base Station during calls.
69xx SIP	6.1 HF2	Pop-up support (for supporting teleworker devices).

Establishing a Contract with Intrado

The channel partner/customer must have an agreement with Intrado. They should be prepared with the following information:

Item	Comments
Locations	The quantity of locations required to satisfy RAY BAUM's Act. I.e., dispatchable locations.
Subscribers	For the MiVO250 solution, this will include all users and devices that can make emergency calls.
911 Location Manager Clients	The number of users/devices that will require the NG911 application (Mitel Phone Manager PC softphone).
Notification Clients	The number of email address recipients for 911 Notifications to satisfy Kari's Law.
Network Maps Feature	This is required to be able to configure on-premises subnets and Wireless Access Points.
911 Location Manager	This optional feature allows access to Intrado's 911 Location Manager application that is to be used for Mitel Phone Manager PC softphone in the MiVO250 solution.
Callback Determination Preference: Extension BIND feature(XBind)	For Intrado to support emergency callbacks to Subscribers without a DID number, Intrado must be asked to set the Callback Determination Preference to Extension BIND feature (XBind). This optional feature binds an Intrado owned DID to an emergency caller's internal DN for use by a PSAP if an emergency call were to be dropped. The PSAP would call the Intrado DID, and Intrado will route back to the MiVO250. The SIP trunk to Intrado must also be configured as a private SIP trunk. A private SIP trunk is a trunk that sends internal DNs of callers rather than their DID/CPN numbers, which is a public SIP trunk. How this is configured on the MiVO 250 is later described in this document. **NOTE**: If this feature is enabled, the transport protocol of the SIP trunk between MiVO250 and Intrado must be UDP. As MiVO250 only supports UDP, this is not an issue.
Location Determination Preference: ERL ID in SIP header	For Intrado to properly associate a location on an emergency call from the MIVO250, Intrado must be asked to set the Location Determination Preference to ERL ID in the SIP header.

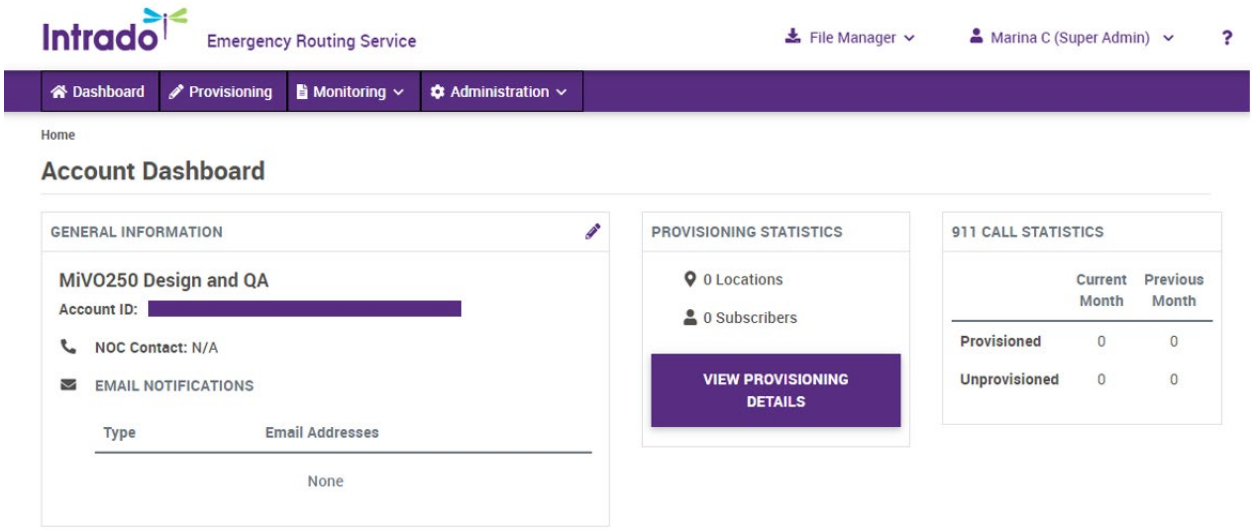
Important: Without the Extension BIND feature, Intrado will expect the Subscriber ID (which identifies a user/callback destination) to be a 10-digit Softphone ID, and an emergency callback will come back to the MiVO250 via the public PSTN. In that case the MiVO250 must be setup to use CPN/DID for each end-point/user that can make an emergency call.
Additionally, if you are using a public PSTN trunk as a backup to Intrado, it is highly recommended to have a CPN/DID for each possible device making a 911 call.

Intrado Portal - ERS (Emergency Routing Service)

The Intrado Portal is available via the web. The URL will come from Intrado via a welcome email. For more detailed information on the use of this portal, see the Intrado ERS User Guide.pdf, available from Intrado.

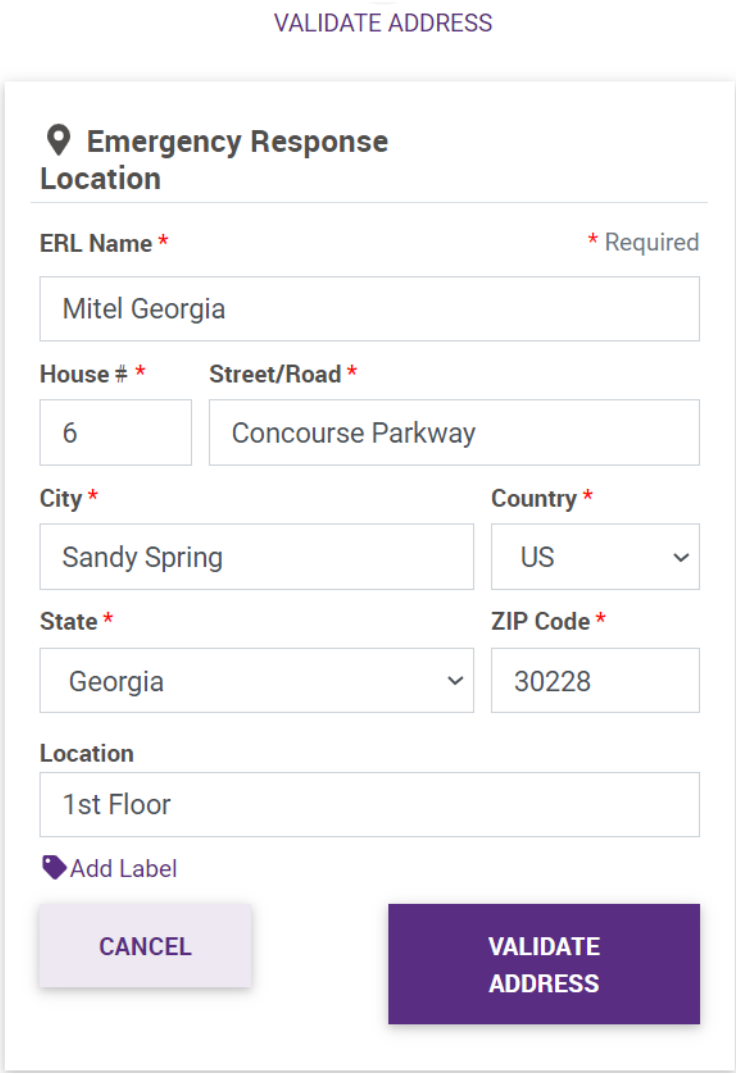
This is the main Intrado Portal for configuration of the customer's emergency solution. To program the MiVO250 solution you will need to:

1. Identify the Account ID, used when setting up the MiVO250 SIP Peer Trunk Group. This Account ID should be set as the Emergency Organization ID in SIP Peer Trunk Group configuration.

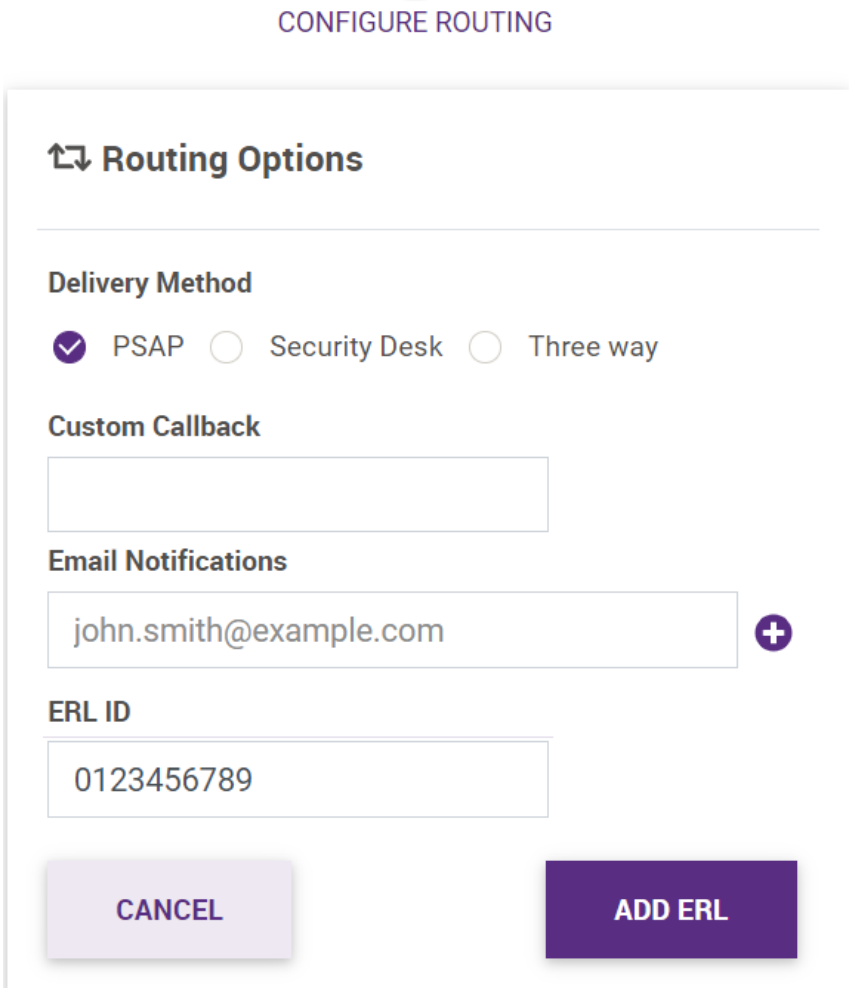


Intrado Portal - Account ID

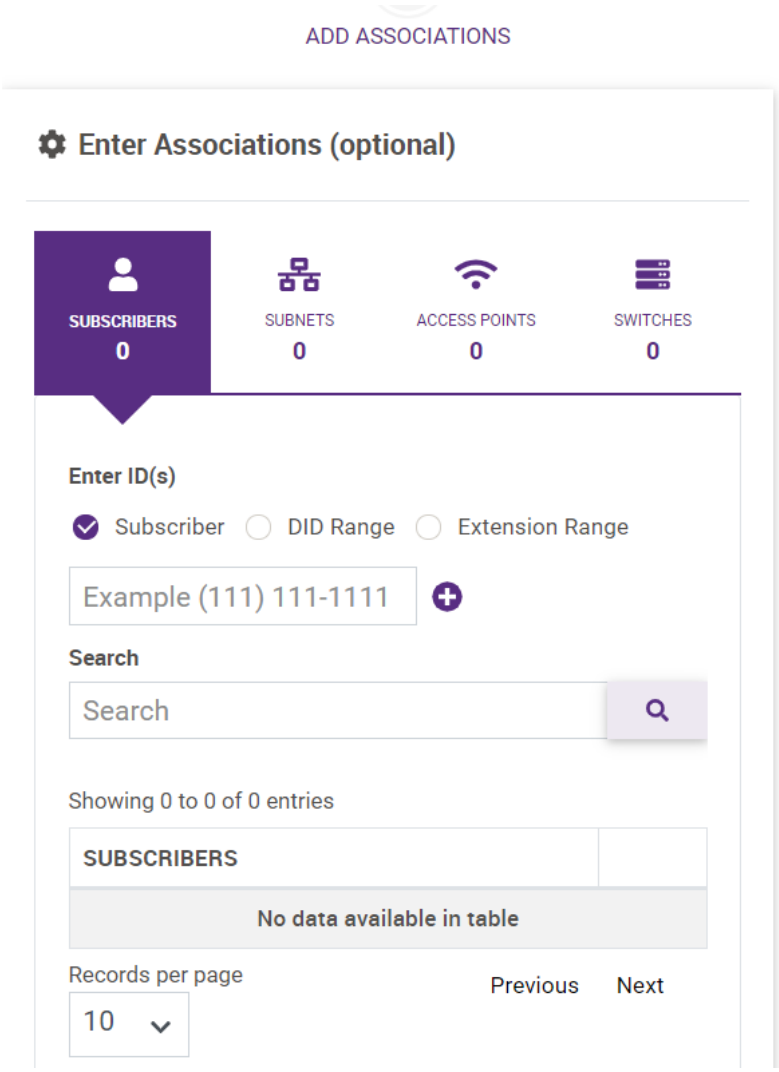
2. Configure ERL Locations (ERLs - Emergency Response Locations)
    - Step 1: *Add an Emergency Response Location* (ERL) to be validated
        - ERL Name - Customer defined label to identify the location
        - House # - Civic Address provided to PSAP
        - Street/Road - Civic Address provided to PSAP
        - City - Civic Address provided to PSAP
        - Country - Civic Address provided to PSAP
        - State/Province - Civic Address provided to PSAP
        - Postal Code - Civic Address provided to PSAP
        - Location - The dispatchable location within the given civic address, provided to PSAP.



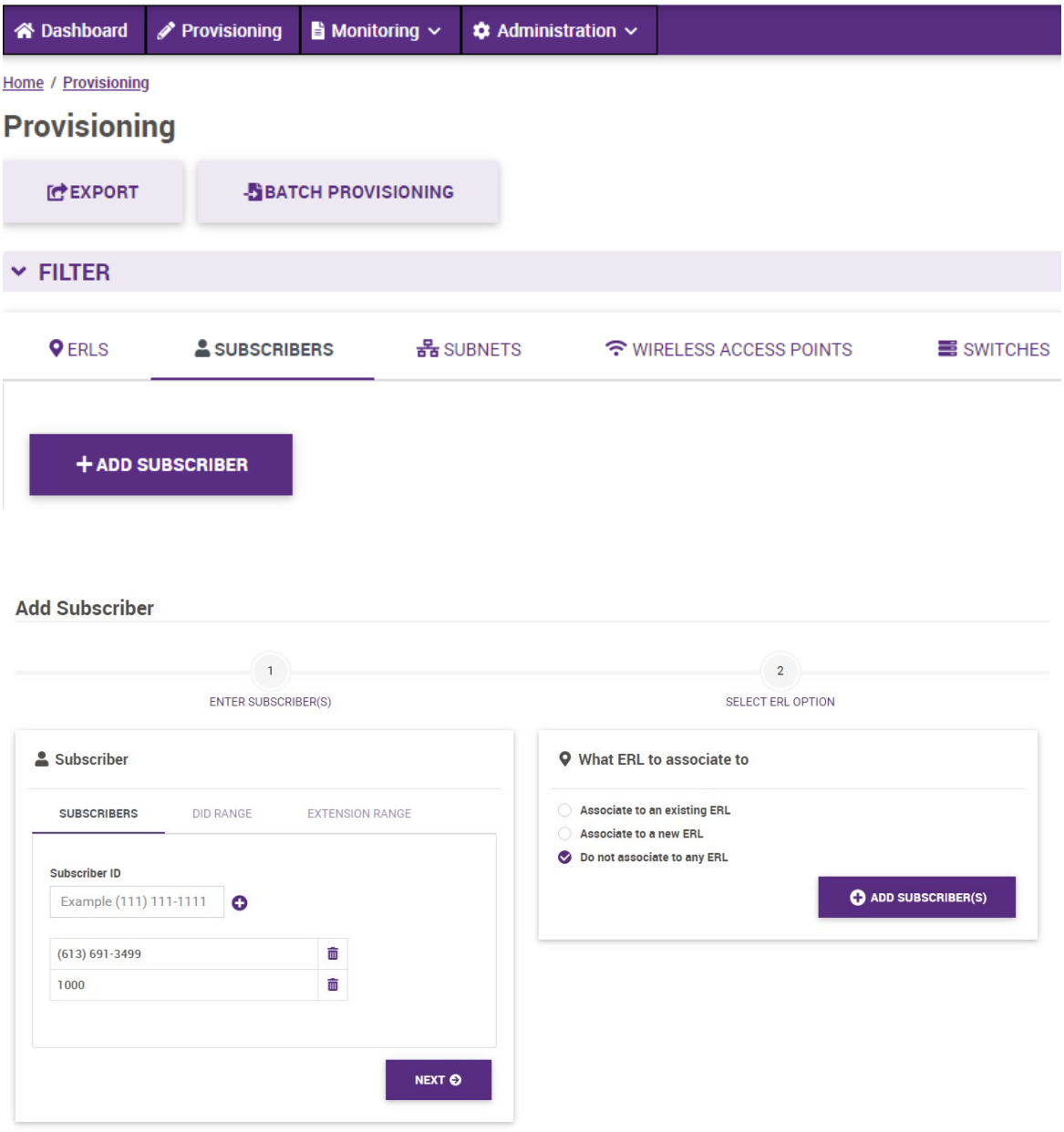
- Step 2: Configure the ERL *Routing Options*
  - Delivery Method - The MiVO250 solution will only support the PSAP delivery method.
  - Custom Callback - If configured, the ERL Custom Callback number will override the callback number sent by the MIVO250. It should be noted this callback is based on the location of the caller as it is tied to the CESID/ERL ID, rather than the caller's callback number.
  - Email Notifications - recommend use the Intrado Account based email notifications instead of ERL specific email notifications (see below).
  - ERL ID - This step is **VERY IMPORTANT**; it should be manually entered and should match the CESID that is associated with the ERL configured in Step 1. This CESID must also be programmed on the MiVO250. The MiVO250 will be sending this CESID for an emergency call in the SIP Invite for Intrado to link with the caller. The caller must match a Subscriber provisioned on Intrado, as provisioned in Step 4.



- Step 3: Skip *Enter Associations(optional)*
  - This step is not required and should be skipped.



3. Step 4: Configure Subscribers. For the MiVO250 solution, this will include all MiVO250 Users and non-user devices that can make 911 calls.
    - Subscriber ID - For the MiVO250 solution, we are highly recommending using Private SIP Trunks and Intrado's Extension BIND feature, which means the Subscriber ID will be the caller's extension provided in the P-Asserted-Identity (PAI) SIP Header. If they are using a Public SIP Trunk, then the P-Assert-Identity (PAI) header may be the device's CPN value.
    - DID Range – Can be used to configure a range of 10 digit Subscribers. This would only be used if they are using a Public SIP Trunk.
    - Extension Range - Can be used to configure a range of non-10 digit Subscribers. This would only be used if they are using a Private SIP Trunk.



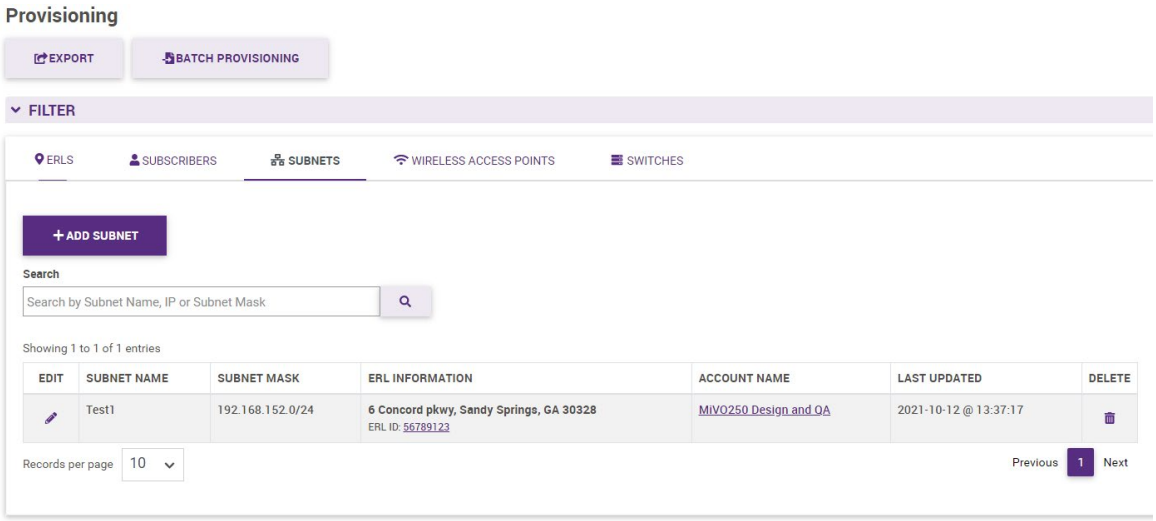
When the Subscriber is created as described above, the *ERL Information* field for that user should be ***Determined at Call Time,*** as seen for Subscriber 56141 and 13901 below.

Showing 1 to 10 of 18 entries

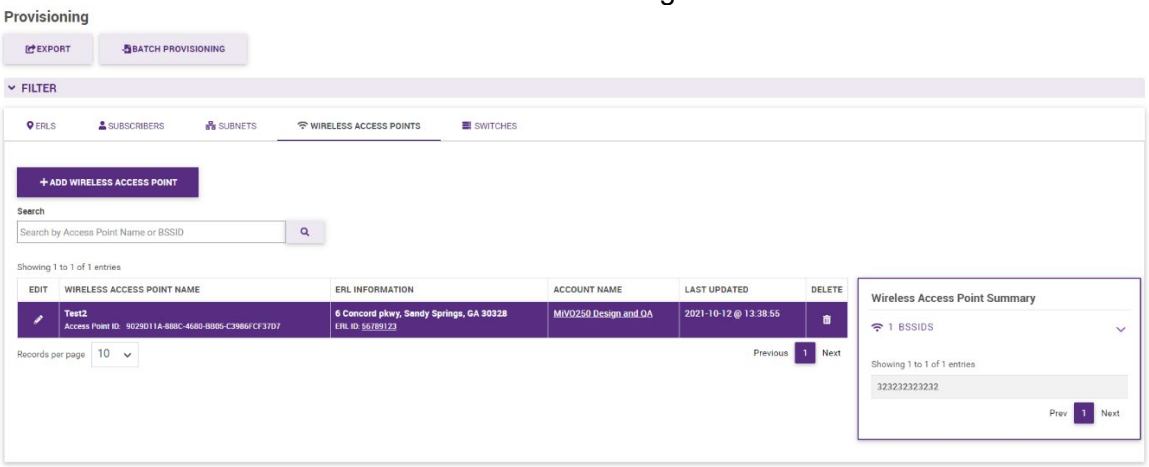
RELOCATE	SUBSCRIBER ID	ERL INFORMATION	ERL NAME	RESPONDER TYPE	ROUTING STATUS	ADDRESS STATUS	ACCOUNT NAME	LAST UPDATED	DELETE
⇄	**14666**	**4000 Innovation Drive, kanata, ON K2K3K1 Third floor** ERL ID: 6E12C562-D1B7-4232-AA9D-9F12D6736551	**dattatraya**	**Response Center**	**Basic**	**Valid**	MiVB Design	**2021-11-22 @ 11:09:48**	🗑
	56141	Determined at call time					MiVB Design	2021-11-16 @ 11:36:49	🗑
	13901	Determined at call time					MiVB Design	2021-11-15 @ 06:37:09	🗑

For Subscriber 14666, this would have initially been ***Determined at Call Time*** as well but has been updated with a location reported by an end user using the 911 Location Application as shown by the that the ***ERL ID*** is an Intrado generated Globally Unique Identifier (GUID).

4. Configure the On-Premise wire map via Provisioning. This is used by On-Premise 911 Location Manager clients (Mitel Phone Manager PC softphone for MiVO250 solution).
    - Subnets - Allows clients to determine their location based on IP Address
    - Wireless Access Points - Allows clients to determine their location based on the MAC Address of the Wireless Access Point.



Intrado Portal - Provisioning Subnets



Intrado Portal - Provisioning Wireless Access Points

5. For 911 Location Manager clients, obtain client installer/guides from Intrado.

Chapter 6 Solution: How the integration works

The RAY BAUM's solution is composed by three main components: MiVO250, devices and NG911 provider.

MiVO250

When a user dials the emergency number 911, the MiVO250 will look for the type of device used to make the call and it will collect the appropriate data. The dispatchable location must be provided at call time for IP endpoints.
The dispatchable locations previously collected/maintained by the System Administrator and given to the PSAP are still collected/maintained by the System Administrator, but it is now the Administrators responsibility to update this information within Intrado if being included in the solution.
If a customer integrates with Intrado, it is not required to obtain a CESID from the local carrier.
Assigning CESID using the Emergency Calling Party Number field can now only used for fixed devices such as Analog and Digital phones, and to a certain extent Teleworker phones.
To meet RAY BAUM's Act requirements, having just a default CESID will most likely will not cover a granular enough location.

The MiVO250 needs to be properly configured by the system administrator to provide the required information.

Devices

The devices are used to initiate an emergency call. The device needs to provide a unique identifier during the call setup to the MiVO250. The identifiers can be a BSSID, MAC, ELIN/CESID or IP address.
MiVO250 system uses a priority order on the Emergency Info:

- CESID from the device (SIP 6xx DECT, 56xx DECT, 69xx SIP and RTX RFP12/14)
- BSSID from the device and BSSID to CESID Mapping (5634 Wi-Fi Phone & Mitel Phone Manager PC without 3rd party application)
- Static CESID (Emergency Calling Party Number of the phone)
- IP to CESID Mapping (on premises MiNET devices,3rd party SIP and 5624 Wi-Fi Phone). Cannot be used for off-premise devices.

The MiVO250 needs to be properly configured by the system administrator to provide the required information.

Non-fixed devices

A non-fixed device is a device that the end user can move from one location to another without assistance.

Collecting data

For non-fixed devices, the MiVO250 internal logic will check for BSSID, CESID, MAC address, IP address. Additional information can be added in MiVO250 database to complement the information received from the device. The additional information needs to be added by the system administrator.
For non-fixed devices, the MiVO250 solution falls into 2 categories:

- Devices that will use Intrado's 911 Location Manager application to update the Intrado's LIS directly and will use the Subscriber ID (DN or CPN) from the MiVO250 to associate the location (currently this is only Mitel Phone Manager PC softphone).
    - MiVO250 Administrators will need to put a process in place to notify their end users on how to install this application as well as instructions on how to configure it during installation.
- Devices that will use CESID, which is then broken down further:
    - SIP Devices that provide a Wi-Fi Base Station MAC Address(BSSID) in the SIP INVITE (PANI Header).
    - SIP Devices that provide an ELIN/CESID in the SIP INVITE (FROM header).
    - Devices that will use MiVO250's static CESID configuration (Emergency Calling Party Number field).
    - Devices that have an associated IP Address Range to CESID will use CESID from the map (if programmed).

  MiVO250 uses the following CESID priority:
    - BSSID – provided by Wi-Fi Base Stations in the SIP INVITE (PANI header). If BSSID is received, CESID will be retrieved from BSSID to CESID map.
    - CESID – provided by SIP DECT, IP DECT, RFP12/14 and 69xx in the SIP INVITE (FROM header).
    - Static CESID (Emergency Calling Party Number field configured).
    - IP Address to CESID map.

In all cases the Subscriber ID is used to determine the emergency callback destination, which will be the caller's DN or CPN/DID..

Fixed devices

Fixed device is a device that cannot be moved to another place in the enterprise without assistance from a professional installer or network manager.

Collecting data

For fixed devices, as no information is provided by the device, the MiVO250 internal logic will check for information in the emergency location database, this information needs to be added in the system by the system administrator.

Sending data to Intrado

After the MiVO250 has collected the information from the device side, it builds the information to be sent in the SIP trunk, including the appropriate SIP headers required by the provider (based on SIP Peer Trunk Group configuration).

After that, the call is sent to the MBG, which will transparently pass through the supported SIP Headers to Intrado.

To conclude the process, Intrado will validate the information received (Location from SIP Invite FROM header and Subscriber ID from P-ASSERTED-IDENTITY header) and will take the appropriate action.

- If information is correct the call is sent directly to the Public Safety Answering Point (PSAP) (Emergency Call Center) with the proper location and callback information.
- If the information is not correct, then the call is redirected to the Emergency Call Relay Center (ECRC) for further triage, note that this call has an extra cost.

Emergency Callback

Previously the CESID was considered a location identifier AND an Emergency Callback Number. For the RAY BAUM'S enabled SIP Trunks, the CESID is just the location identifier and no longer the callback number.

Currently, each extension (phone) on the MiVO250 has his own callback number (Calling Party Number field). For non-emergency outgoing calls, this number is used as a callback number, but the callback number for emergency calls can be different and MiVO250 does not currently support a separate emergency calling party number. So, if the customer has or desires a configuration where different callback numbers must be provided then they must use the Intrado solution and enable their Extension Bind feature as MiVO250 does not currently support a separate emergency callback number.

The Emergency Callback number provided to Intrado is either the Calling Party Number configured on the MiVO250 (Public SIP Trunk) for that phone OR the phone's internal DN (Private SIP Trunk).

Chapter 7 Solution: MiVO250 Location ID definition

The Location ID is a reference/identification used to identify a device or several devices in the MiVO250 that is to be sent to the NG911 provider and will (for the most part) be the CESID assigned to the device. The MiVO250 provides forms for various methods of associating a CESID:

- BSSID to CESID mapping - Allows a MAC Address of a Wireless Access Point (WAP) to be associated with a CESID. This allows the MiVO250 to find the associated MAC address. This option requires manual updating if the Wireless Access Point is moved.
- IP to CESID mapping - Allows a device in a given IP range to be associated with a CESID (by associating the IP range to a zone and assigning a CESID to the zone). This option requires that the IP Address ranges can be sufficiently segmented to provide sufficient granularity to satisfy RAY BAUM'S requirements.
- Phone's Emergency Calling Party Number field - Allows a device to assign a CESID directly.
- CESID Assignment – allows to choose how a CESID will be retrieved.

Chapter 8 Solution: MiVO250 Device RAY BAUM'S Support Summary

There are 3 methods being used to convey location through the MiVO250 network to the Intrado SIP Trunks.

1. CESID, where CESID is configured on:
   a. MiVO250 (e.g., Emergency Calling Party Number field (Static CESID), IP to CESID Mapping, BSSID to CESID Mapping). This is done via Static CESID or IP Range to CESID configuration.
      a. In general, Static CESID method is NOT recommended for non-fixed devices as it does not support automatic move detection required for RAY BAUM's ACT compliance.
   b. a DECT Base station (6xx and 56xx DECT)
2. CESID/BSSID which is provided on a phone and passed through the MiVO250:
   a. SIP 69xx phones
   b. SIP Wi-Fi 5634
   c. Mitel Phone Manager PC softphone
3. Location is provided by Intrado's 911 Location Manager application which is installed on the same device hosting supported softphones, such as Mitel Phone Manager PC softphone and 3rd party SIP softphones. This method is described as "Anonymous" in the MiV0250 configuration.

Table below describes methods that may be used to obtain CESID.

<table>
<tr><td></td><td colspan="4">CESID Provided by Configuration on MiVO250</td><td colspan="2">Location Provided by Endpoint</td></tr>
<tr><td>Device</td><td>Static CESID</td><td>IP to CESID Mapping</td><td>BSSID to CESID Mapping</td><td>Intrado App</td><td>CESID</td><td>BSSID</td></tr>
<tr><td>Analog</td><td rowspan="11">Yes</td><td>No</td><td rowspan="6">No</td><td>No</td><td colspan="2" rowspan="3">No</td></tr>
<tr><td>Digital</td><td>No</td><td>No</td></tr>
<tr><td>52xx/53xx MiNET</td><td>Yes</td><td>No</td></tr>
<tr><td>69xx SIP</td><td>Yes</td><td>No</td><td>Yes</td><td>No</td></tr>
<tr><td>Legacy/3rd Party MiNET</td><td>No</td><td>No</td><td colspan="2">No</td></tr>
<tr><td>Legacy/3rd Party SIP,</td><td rowspan="3">Yes</td><td>Softphone Only</td><td>Device Dependent</td><td>Device Dependent</td></tr>
<tr><td>Mitel Phone Manager PC softphone</td><td>Yes</td><td>Yes</td><td>No</td><td>Yes</td></tr>
<tr><td>SIP DECT 6xx</td><td>No</td><td>No</td><td>Yes</td><td>No</td></tr>
<tr><td>IP DECT 56xx</td><td>No</td><td>No</td><td>Yes</td><td>No</td></tr>
</table>

RTX RFP12/14			No	No	**Yes**	No
SIP Wi-Fi 5624			No	No	No	**No**
SIP Wi-Fi 5634			**Yes**	No	No	**Yes**
MiCollab Client SIP			No	No	No	No

The following table is a list of Supported Devices, and the available options they have for supporting RAY BAUM'S. Details on how to program each option follows later in the document.

Device	On-Premise	Off-Premise (teleworker)
Analog	Static CESID	Not Supported
Digital	Static CESID	Not Supported
52xx/53xx MiNET	Static CESID IP Address Range to CESID	Static CESID
69xx SIP	CESID provided by phone Static CESID IP Address Range to CESID	Static CESID
Legacy/3rd Party SIP	Static CESID IP Address Range to CESID Intrado 911 Location Manager Application	Intrado 911 Location Manager Application Static CESID
Mitel Phone Manager PC softphone	BSSID to CESID (without 3rd party application) Static CESID IP Address Range to CESID Intrado 911 Location Manager Application	Intrado 911 Location Manager Application Static CESID
SIP DECT 6xx	CESID provided by phone Static CESID IP Address Range to CESID	CESID provided by phone Static CESID
IP DECT 56xx	CESID provided by phone Static CESID IP Address Range to CESID	CESID provided by phone Static CESID
RTX RFP12/14	CESID provided by phone Static CESID IP Address Range to CESID	CESID provided by phone Static CESID
SIP Wi-Fi 5624	Static CESID IP Address Range to CESID	Static CESID
SIP Wi-Fi 5634	BSSID to CESID Static CESID IP Address Range to CESID	BSSID to CESID Static CESID
MiCollab Client SIP	Static CESID IP Address Range to CESID Intrado 911 Location Manager Application	Intrado 911 Location Manager Application Static CESID

Chapter 9 Solution: Mitel Applications with RAY BAUM'S Support

The MiVO250 is integrated with different Mitel Applications with RAY BAUM'S support. Supported applications with RAY BAUM'S support.

- MBG – Mitel Border Gateway
- SIP DECT
- IP DECT (Ascom)
- RTX RFP 12/24

Chapter 10 Solution: Mitel Applications without RAY BAUM'S Support

There are some Mitel applications that do not require RAY BAUM'S support, they are:

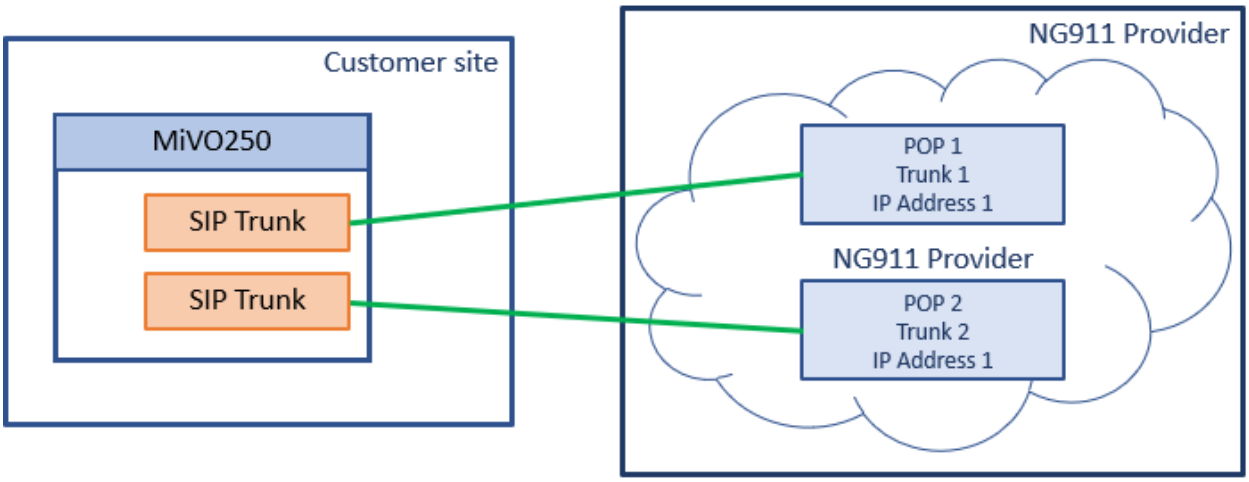
- NPM – NuPoint Unified Messaging

Chapter 11 Solution: Deployment Diagrams

This section covers possible deployment setups between the MiVO250 and the NG911 provider.

MiVO250 without MBG in a Customer Site

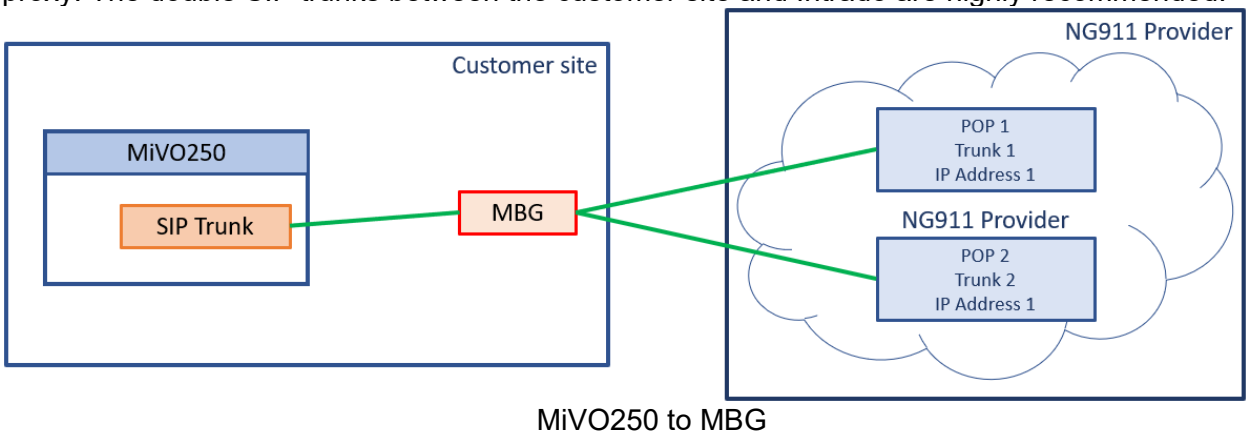
The architecture view below shows the most basic setup between the MiVO250 and Intrado. An emergency route is setup between the MiVO250 and Intrado's SIP trunk. It is recommended to use the MBG to connect with Intrado. The double SIP trunks between the customer site and Intrado are highly recommended.



MiVO250 to Intrado

MiVO250 and MBG in a Customer Site

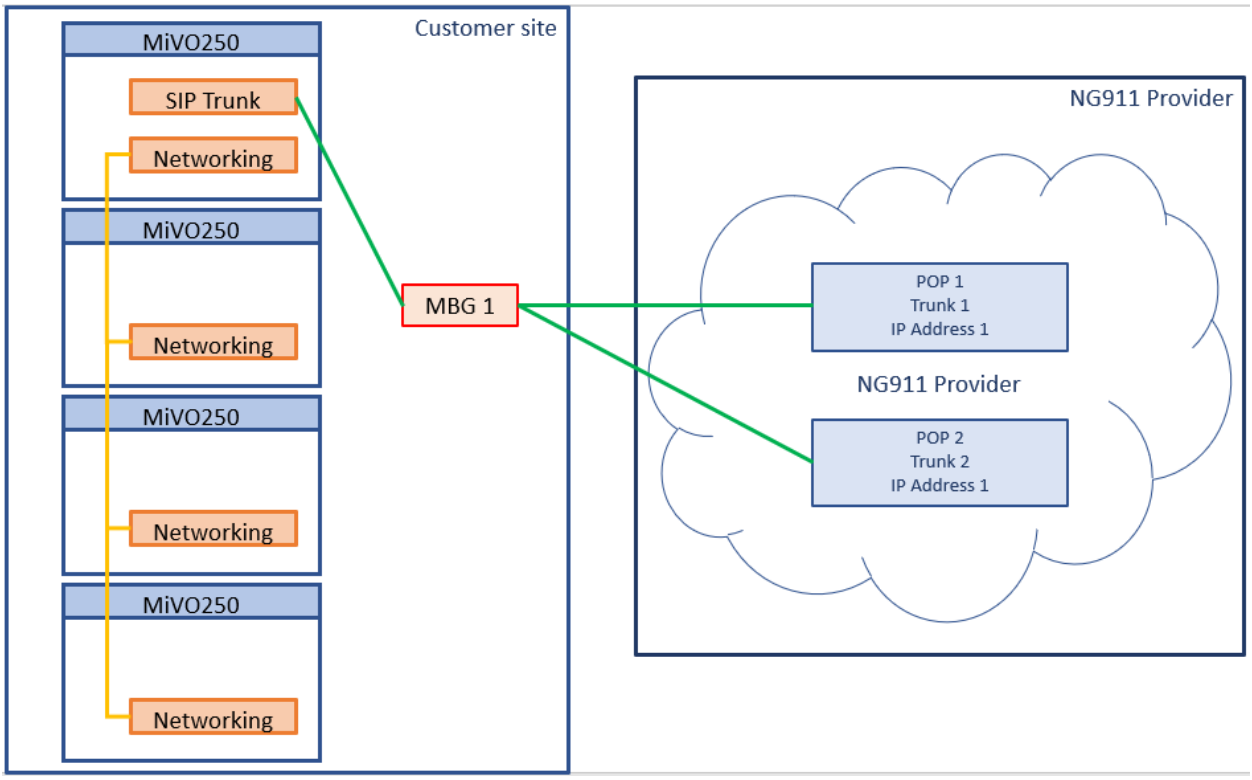
The architecture view below shows setup between the MiVO250 and Intrado. An emergency route is setup between the MiVO250 and Intrado's SIP gateways using a single MBG as an outbound proxy. The double SIP trunks between the customer site and Intrado are highly recommended.



MiVO250 to MBG

Multiple MiVO250s Using a Single MiVO250 as a Trunking Gateway to a single MBG in a customer site

The architecture view below shows a more complicated setup between multiple MiVO250s and a single MBG and Intrado that reduces the SIP Trunks (and thus licenses) required. In this case, multiple MiVO250s are setup with an emergency call route to a designated MiVO250 setup with an emergency route between the gateway MiVO250 and Intrado's SIP gateways using the single MBG as an outbound proxy. The double SIP Trunks between the customer site and Intrado are highly recommended.



Multiple MiVO250 (gateway) to single MBG

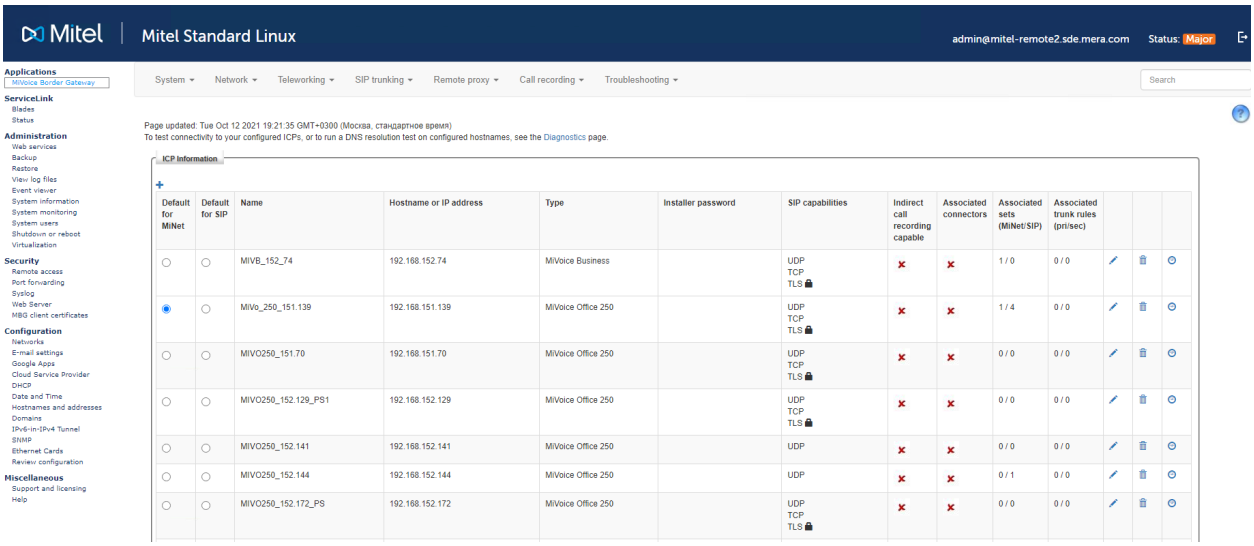
On every MiVO250 system without access to Intrado, a dedicated ARS route to MiVO250 with Intrado should be configured for emergency calls.

Chapter 12 Deployment Guide: MiVO250 SIP Trunking to NG911 using MBG as an outbound Proxy

Configure MBG SIP Options

The SIP Options above can be found under System -> Settings - > SIP options.
Ensure that the Access Profile values are set to Public for the Protocols you plan to support.

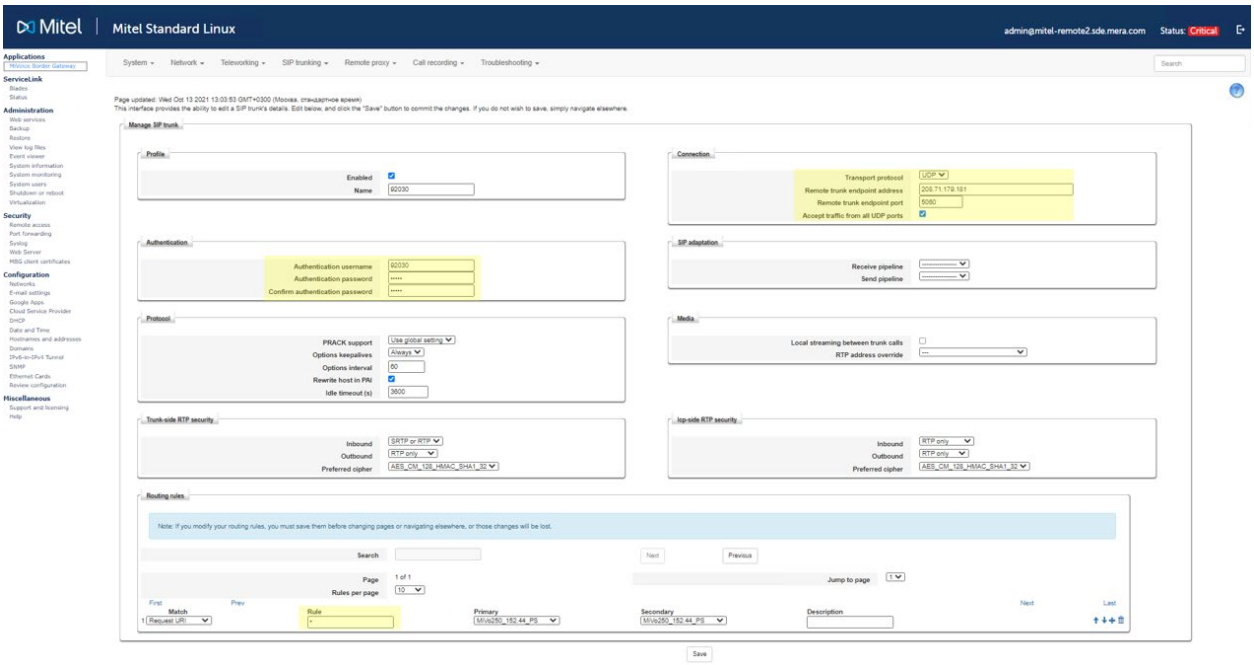
Configure MBG Definition for MiVO250s



MBG Networking ICPs

Note: This doesn't have to be all MiVO250s, as that would require SIP Trunk licenses on each MiVO250. However, it is recommended that at least one of MiVO250s be able to route directly to the MBG(s).
The MBG should set the MiVO250's SIP capabilities as UDP.

Configure MBG SIP Trunking to Intrado



MBG Configuration of an Intrado SIP Trunk

Authentication: Credential information from this section will be used to configure the MiVO250 to MBG trunking.

Connection: Remote trunk endpoint address from this section should be provided by Intrado.

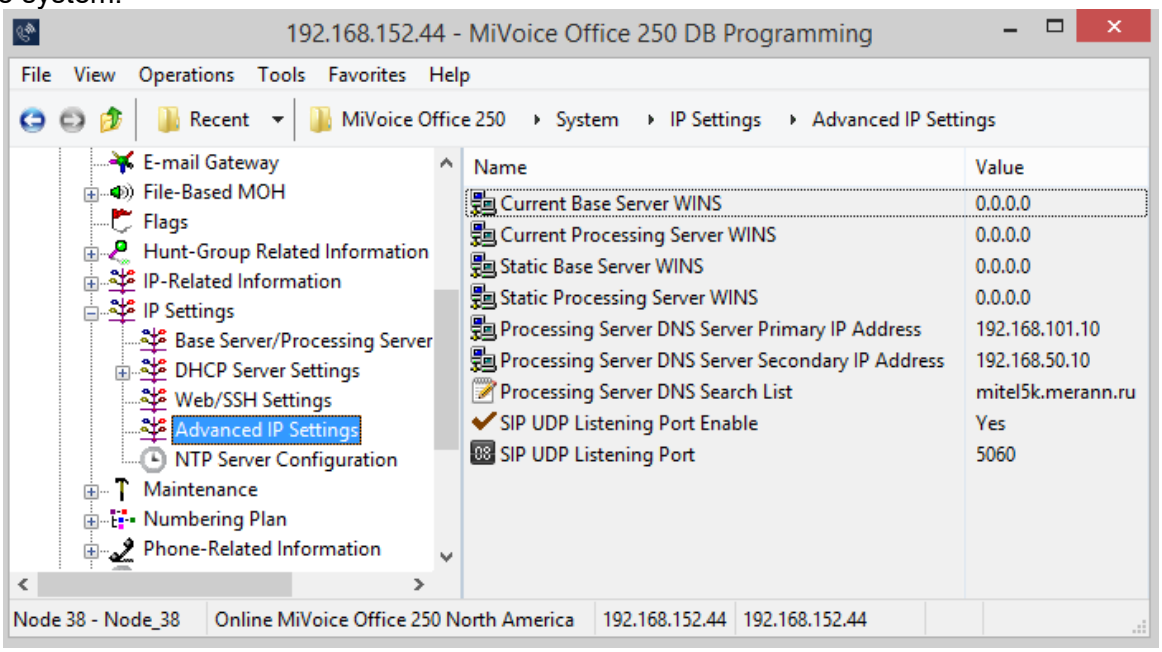
Routing rules: The example rule allows routing of any incoming digits to the selected MiVoice Office 250.

The rest of the settings are optional and could be configured as required.

Note: TLS Support (Port 5061) – both Intrado and MiVO250 do not support TLS.

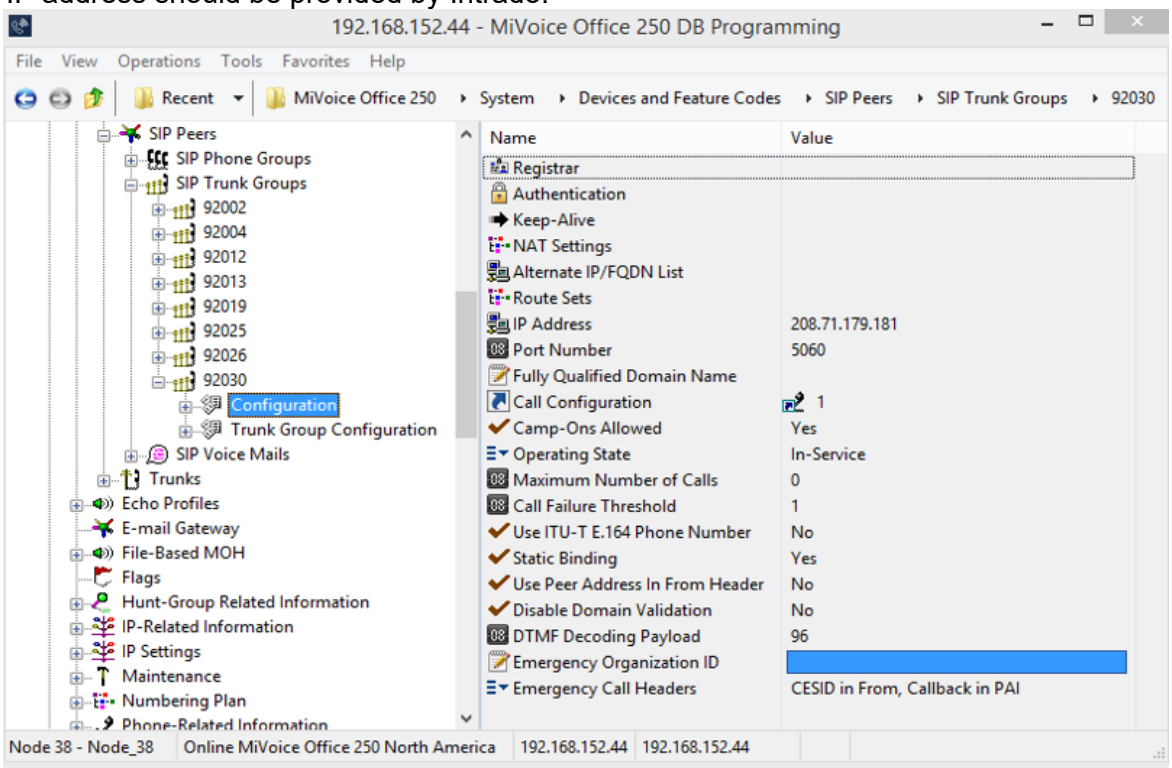
Configure MiVO250 Trunking Gateways to use MBG as an Outbound Proxy to Intrado

Before SIP trunks configuration, make sure that the proper SIP UDP port is configured and enabled on the system.

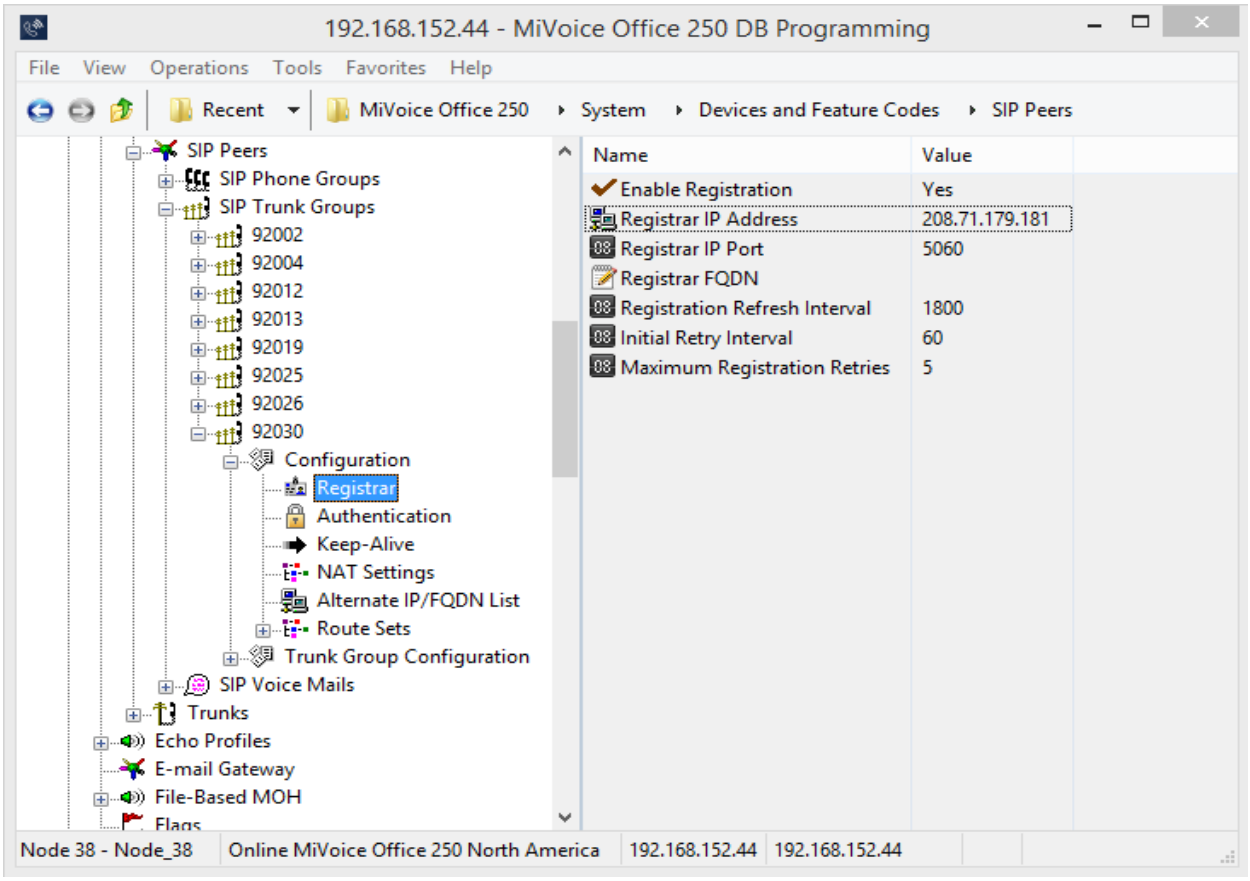


IP Settings – Advanced IP Settings Configuration

Create SIP Peer Trunk Group and configure it according to the pictures below.
Important: Emergency Organization ID should be the same as Account ID configured on Intrado side. IP address should be provided by Intrado.

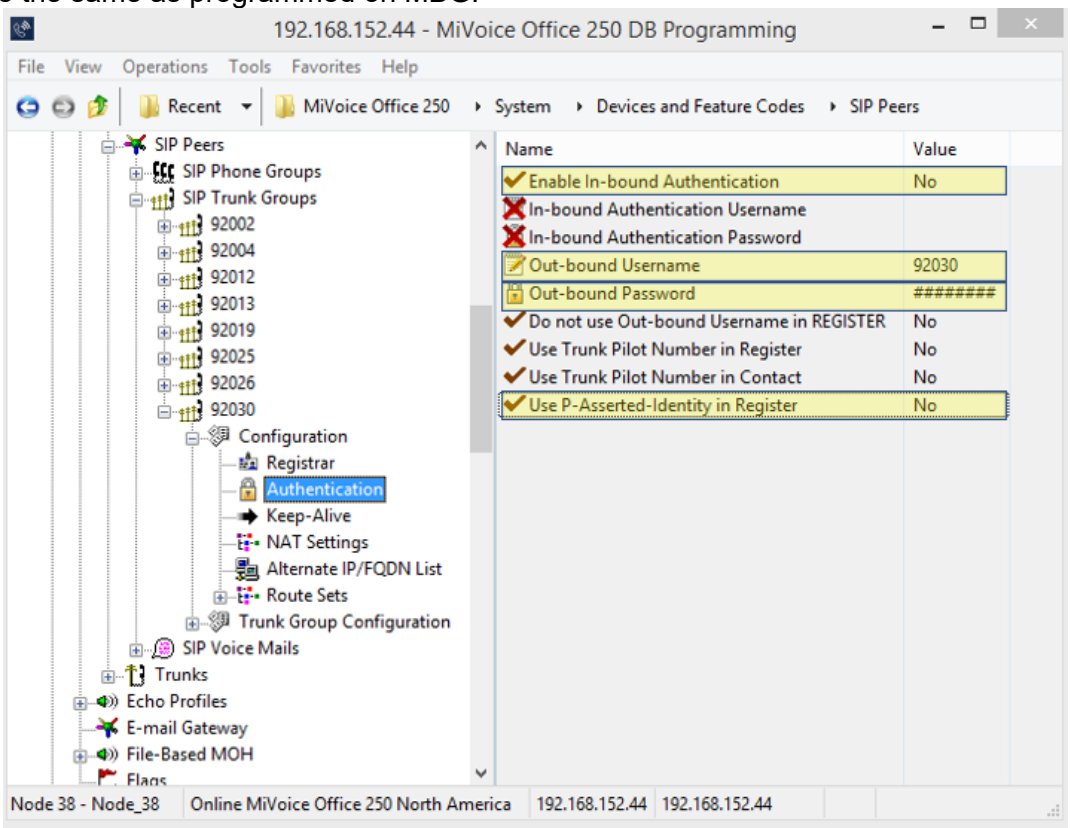


SIP Trunk Group – Configuration



SIP Trunk Group – Register Configuration

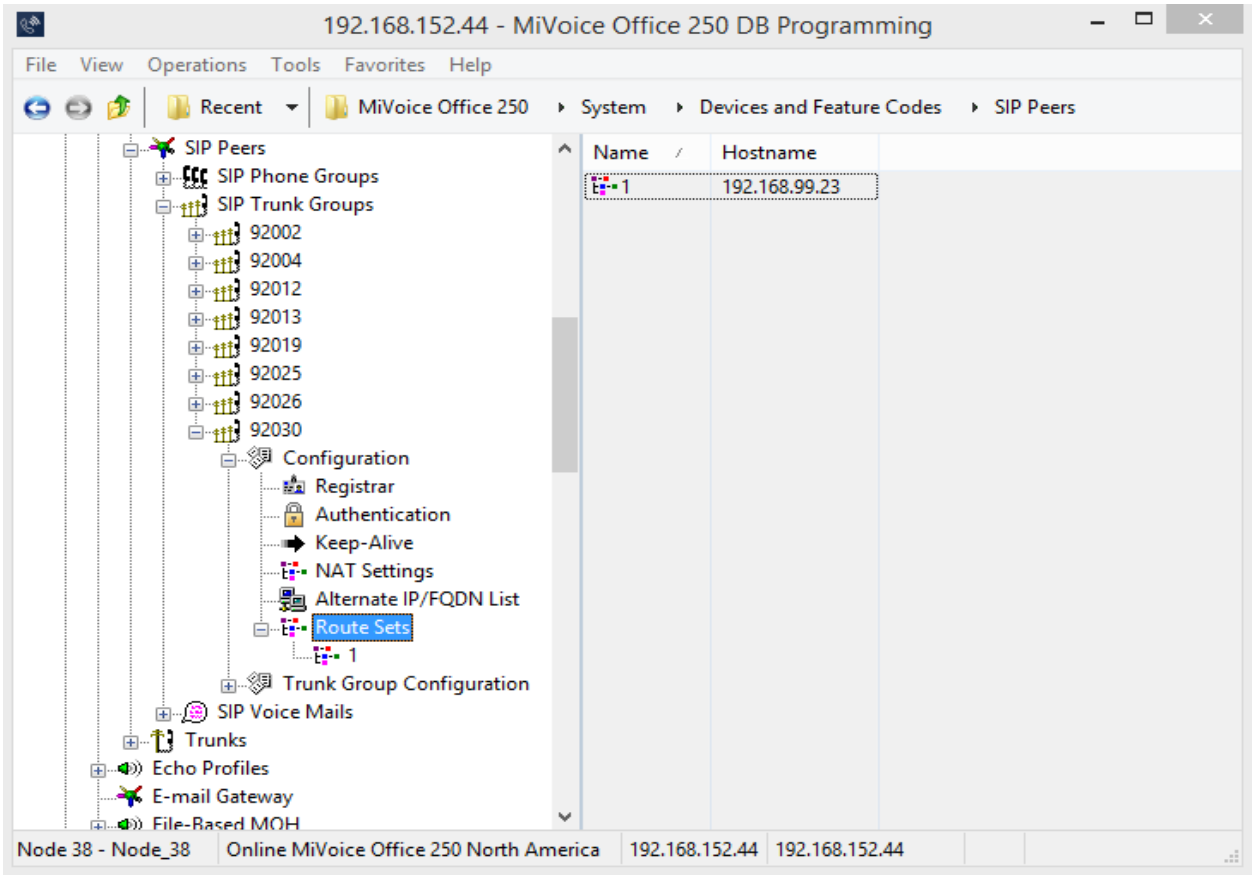
Important: In SIP Trunk Group Authentication Configuration Out-bound Username and Password should be the same as programmed on MBG.



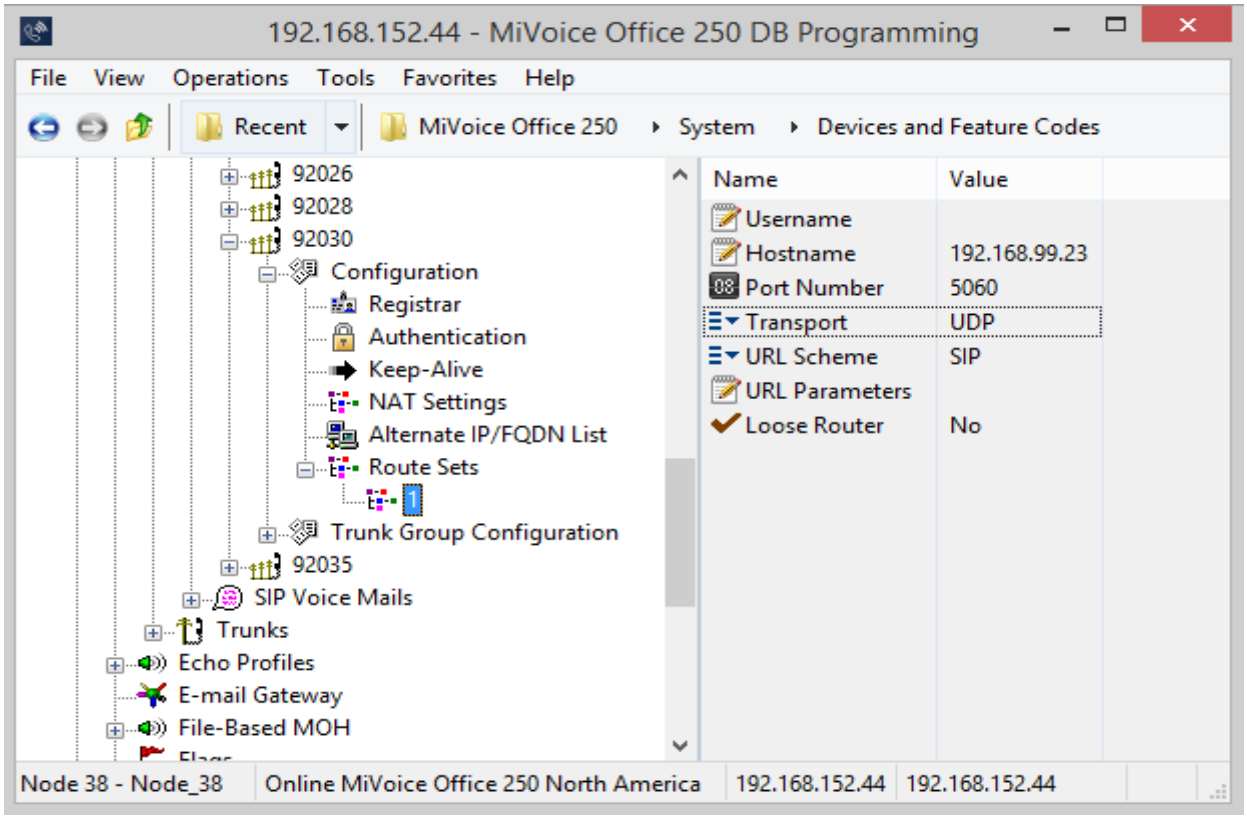
SIP Trunk Group – Authentication Configuration

- **Route Sets:** SIP Route Set is a collection of ordered SIP URLs which represent a list of SIP

Proxy Servers that must be traversed while sending a particular SIP request to the corresponding SIP peer. This field is mainly used for specifying an outbound SIP Proxy Server that must be used to send SIP requests to the SIP peer. This is where you will need to add the IP address of the MBG (MBG Internal LAN IP Address). There are several additional settings inside Route Sets entry (Port Number, Transport, etc.).
Note: Transport field specifies the transport protocol that should be used while sending SIP requests towards the SIP Proxy Server. However, only UDP transport protocol is supported, and this field is read-only.



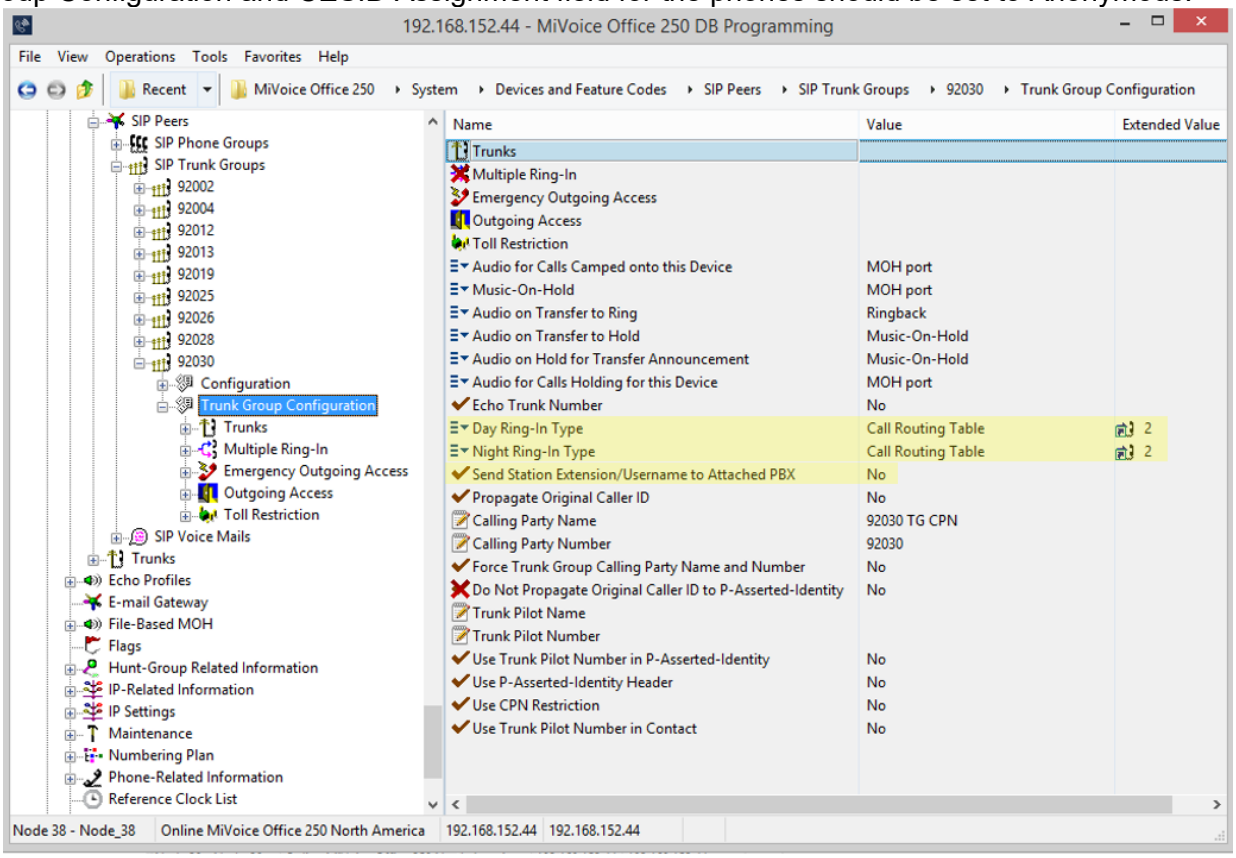
SIP Trunk Group – Route Set Configuration



SIP Trunk Group – Route Sets parameters

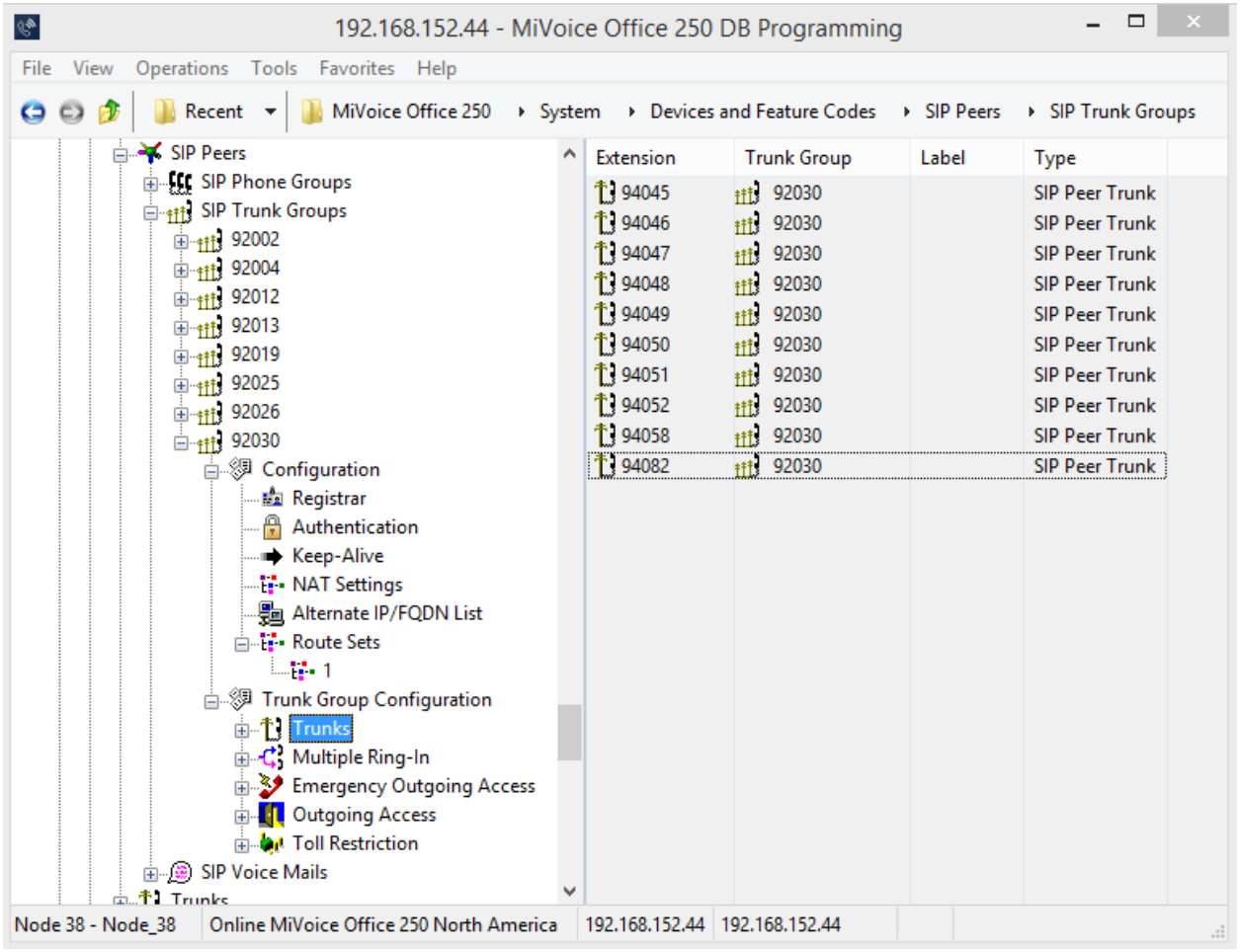
Configure Day and Night Ring-In type and destination.

If the Intrado Extension BIND feature is enabled, then SIP trunks should be configured as Private. In this case "*Send Station Extension/Username to Attached PBX*" flag should be set to Yes in Trunk Group Configuration and CESID Assignment field for the phones should be set to Anonymous.



SIP Trunk Group – Trunk Group Configuration

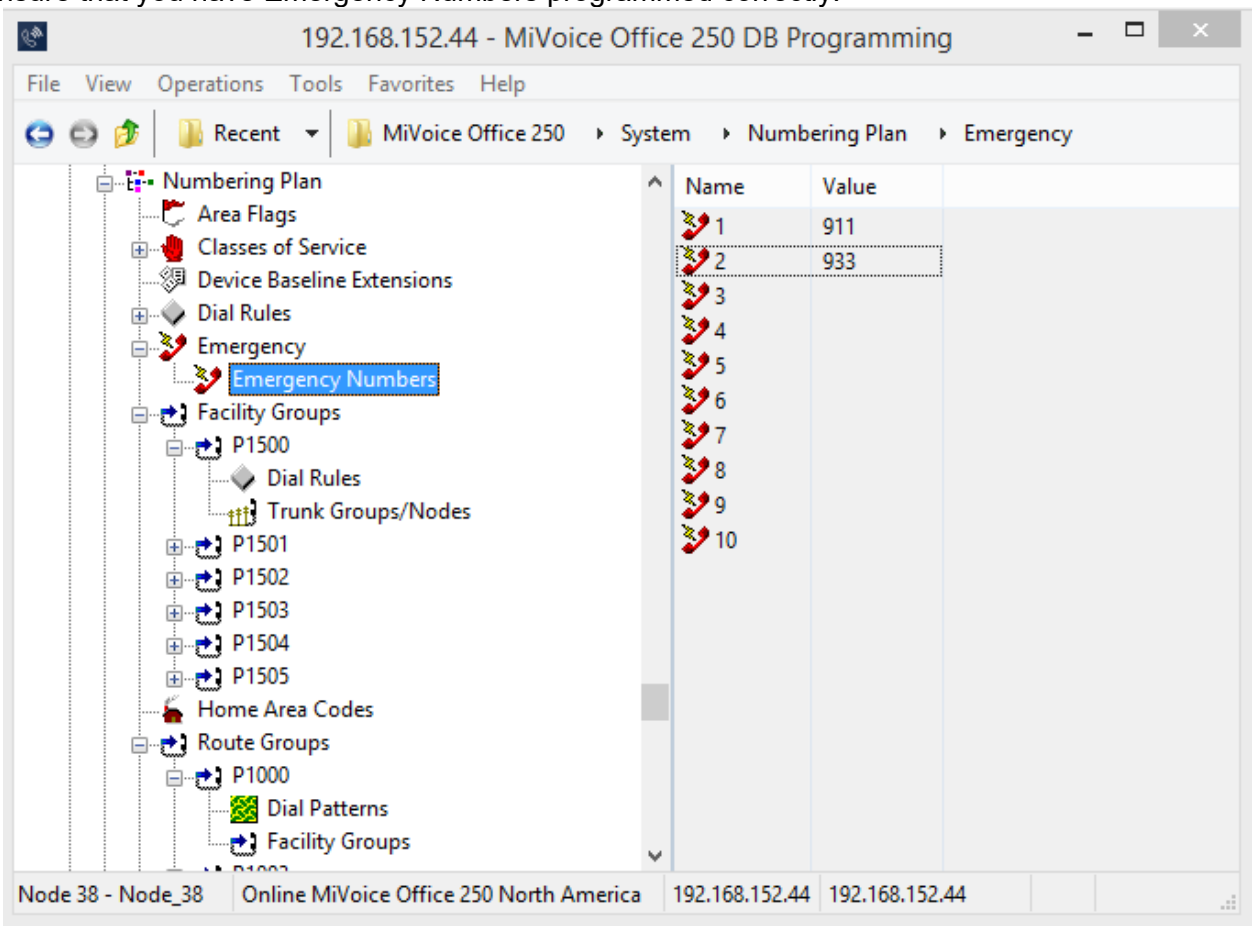
Add trunks to the Trunks folder.



SIP Trunk Group – Trunk Group Configuration

MiVO250 Dialing Plan Configuration for Emergency Calls

Ensure that you have Emergency Numbers programmed correctly.



Emergency Numbers

For ARS calls Route Group 1 must include Facility Group pointed to Intrado.

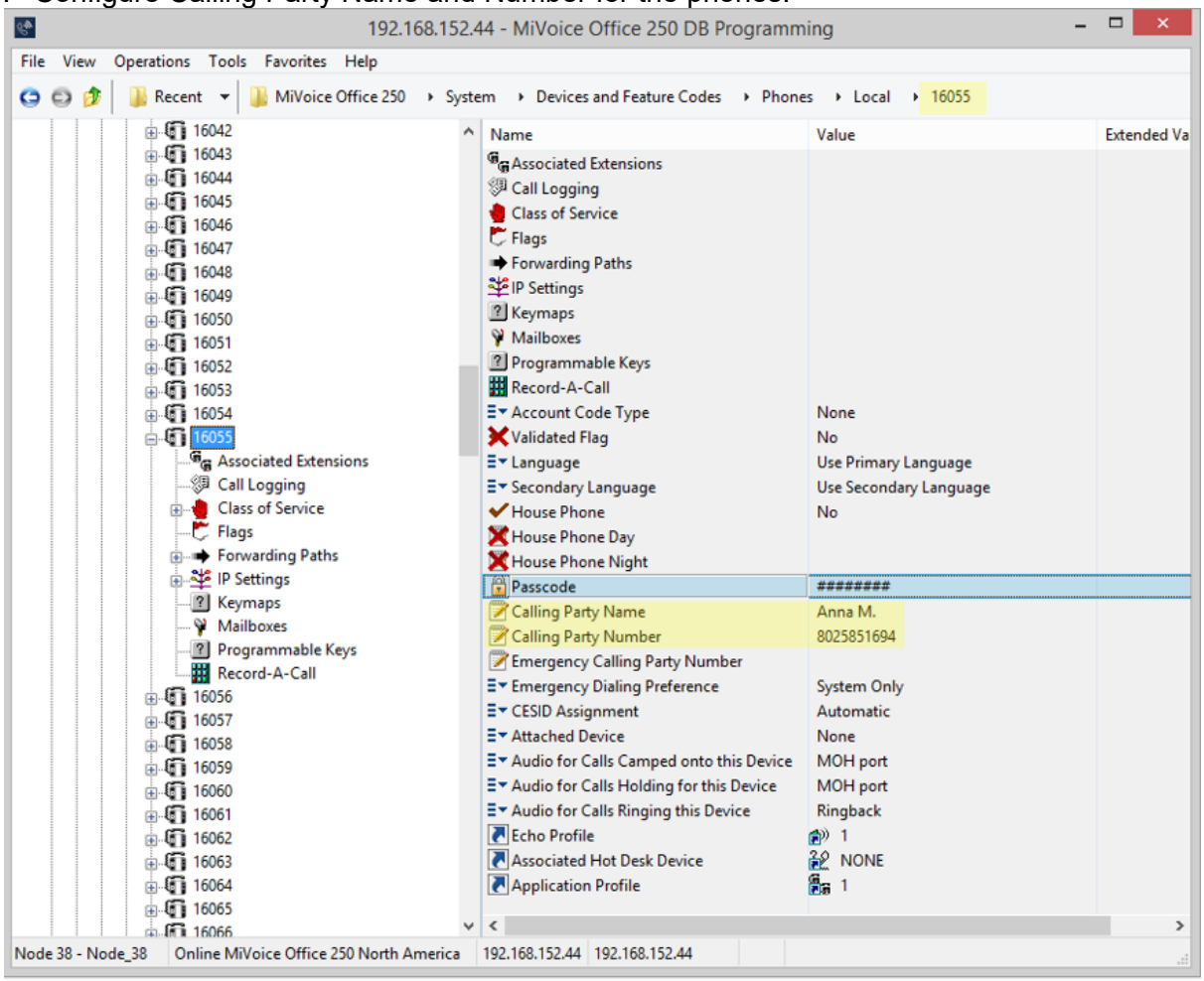
For phones that can make emergency calls, Emergency Extension should have ARS feature code configured in Associated Extensions.

For more details refer to Emergency Calls section in Mitel MiVO 250 Feature and Programming Guide.

Chapter 13 Deployment Guide: Emergency Callbacks

For Emergency Callbacks, the Intrado Extension Bind feature is recommend along with using a private SIP Trunk to Intrado, as this eliminates the need of having to provide Calling Party Number (CPN)/DID programming on each user/device that can make an emergency call.
Otherwise, this section describes how to program CPN/DID to complete the emergency callback.
CPN is used to identify user/device and will be used as the Emergency Callback number.
Note: The same CPN will be used for non-emergency and emergency calls.
The DID number is used by the MiVO250 to route an incoming call based on the Digits Dialed.
For a proper callback to occur the CPN sent to Intrado must be routable back to the MiVO250 that matches the called digits to the DID number and route the call to the programmed destination. It is recommended to have a unique CPN/DID for each User/Device to ensure that the emergency callback is routed back to the device/user that originated the emergency call.
On the MiVO250, program Call Routing Table for SIP Trunk Group:

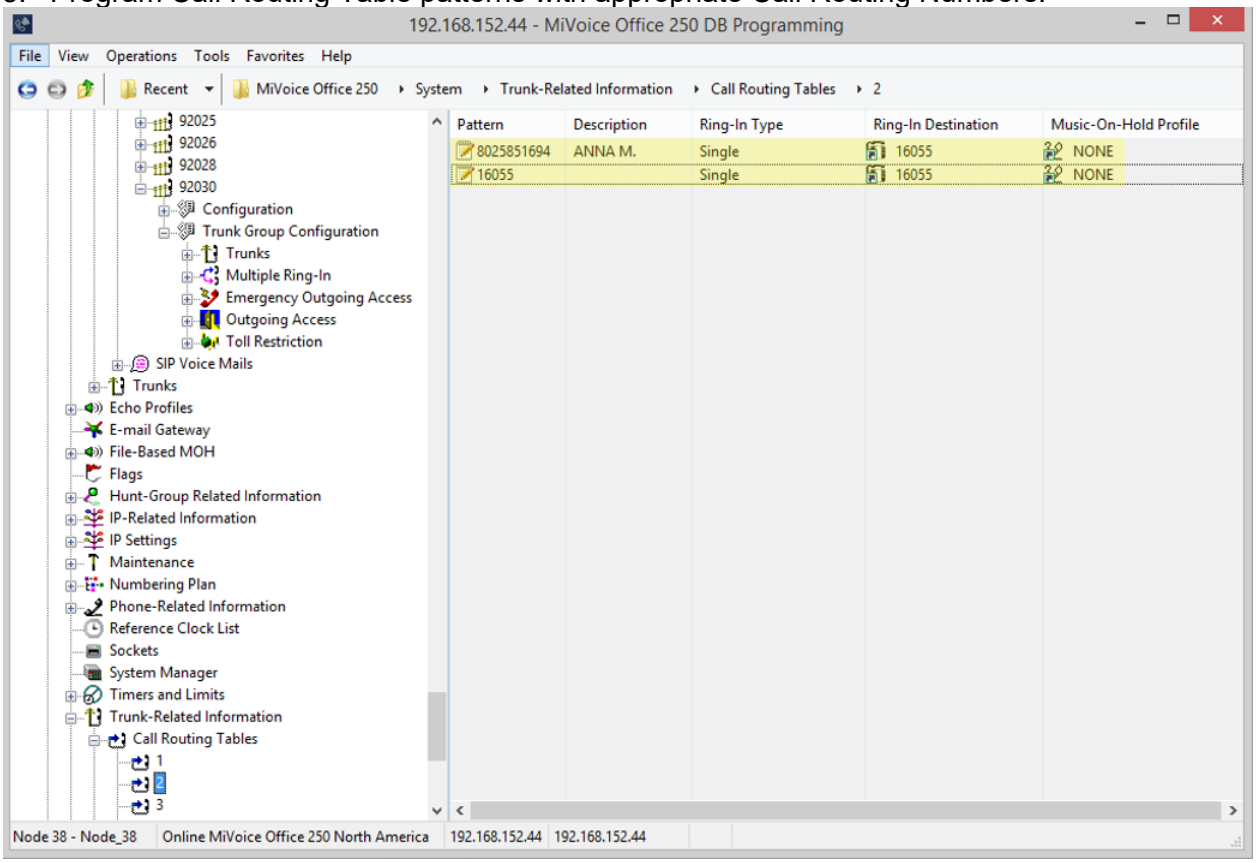
1. Configure Calling Party Name and Number for the phones.



Call Routing Name and Number fields

2. SIP Peer Trunk Group should have Day and Night Ring-In Type set to Call Routing Table.

3. Program Call Routing Table patterns with appropriate Call Routing Numbers.



Call Routing Table Configuration

If the Intrado Extension BIND feature is enabled, internal number should be used as a pattern in the Call Routing table and as Subscriber ID on Intrado side. Otherwise, CPN should be used as a pattern on MIVO250 side and as Subscriber ID on Intrado side.

Chapter 14 Deployment Guide: System Configuration

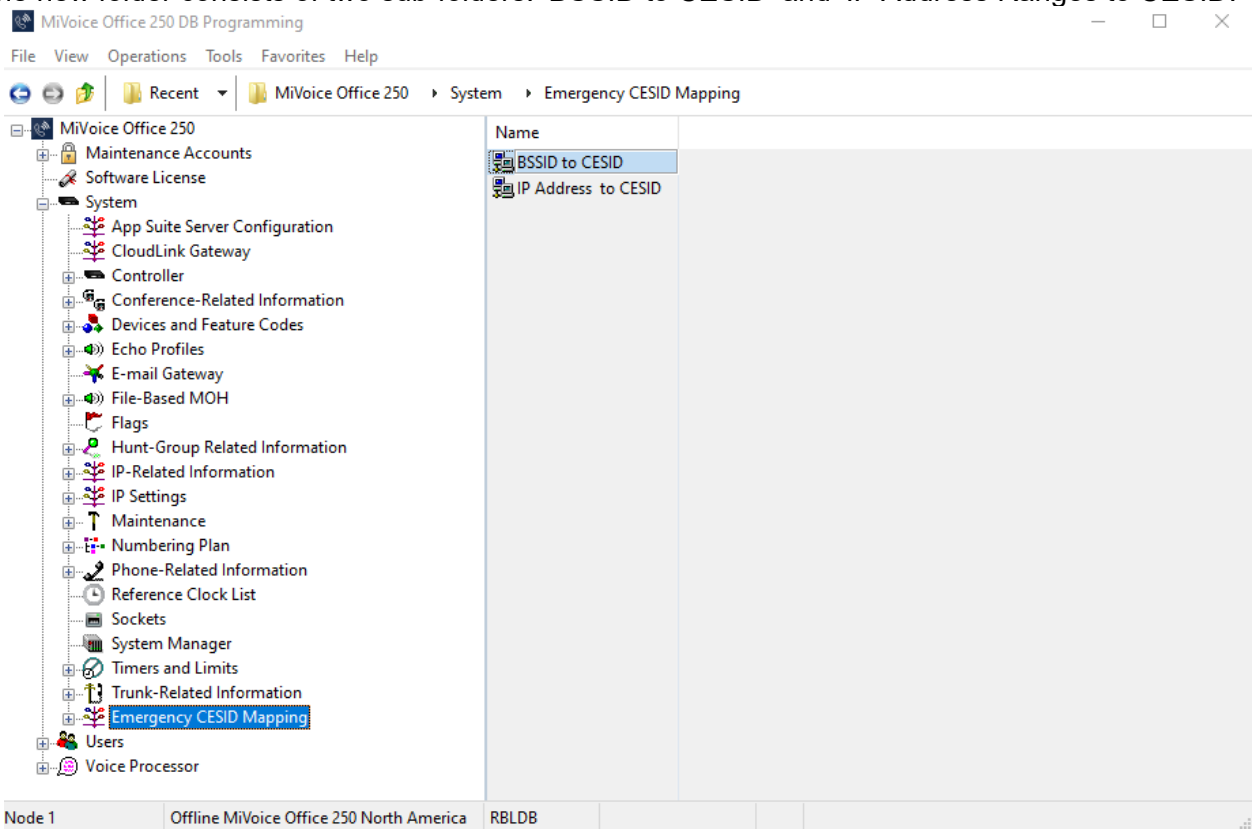
This section covers configuration options for RAY BAUM's support on the MiVO250 system.

Database Programming Configuration

General comment about forms that support CESID Configuration. As previously mentioned, the CESID may no longer be required to be a dialable callback PSTN number in all cases and therefore its value is somewhat arbitrary and can be selected by the administrator. However, depending on the Intrado integration, the length of the CESID may need to meet certain criteria.
The behaviors of the following features are considered common and understood for existing MiVO250 fields and will not be explained in detail unless there is a deviation from the norm.

- Add/Change/Delete buttons
- Print/Import/Export/Data Refresh buttons
- Backup and Restore of a database

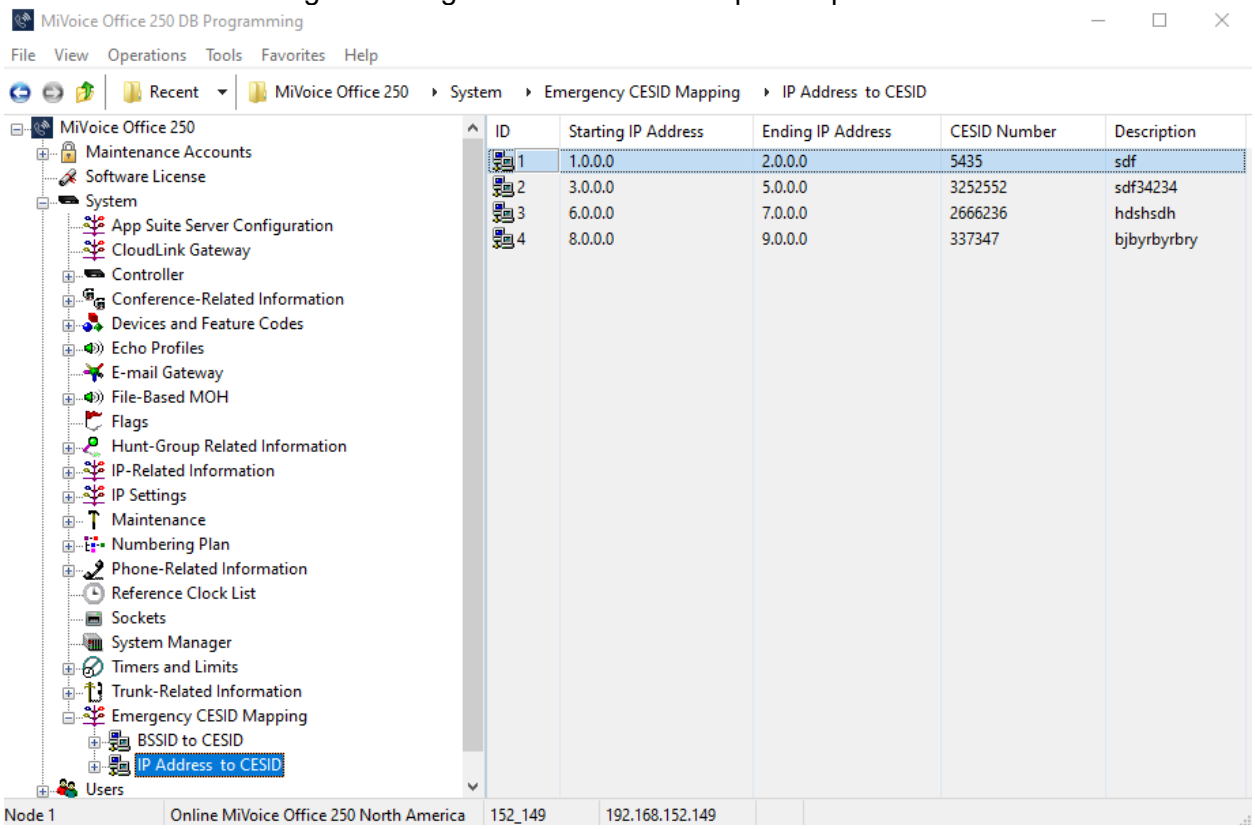
To support RAY BAUM's requirements a new sub-folder called 'Emergency CESID Mapping' is added to the 'System' folder in database programming.
The new folder consists of two sub-folders: 'BSSID to CESID' and 'IP Address Ranges to CESID.'



Emergency CESID Mapping

IP to CESID Mapping

A new table is created in database programming to map CESID for on-premise IP phones (52xx/53xx, SIP).
The table contains IP range or a single IP address that map to a specific CESID number.

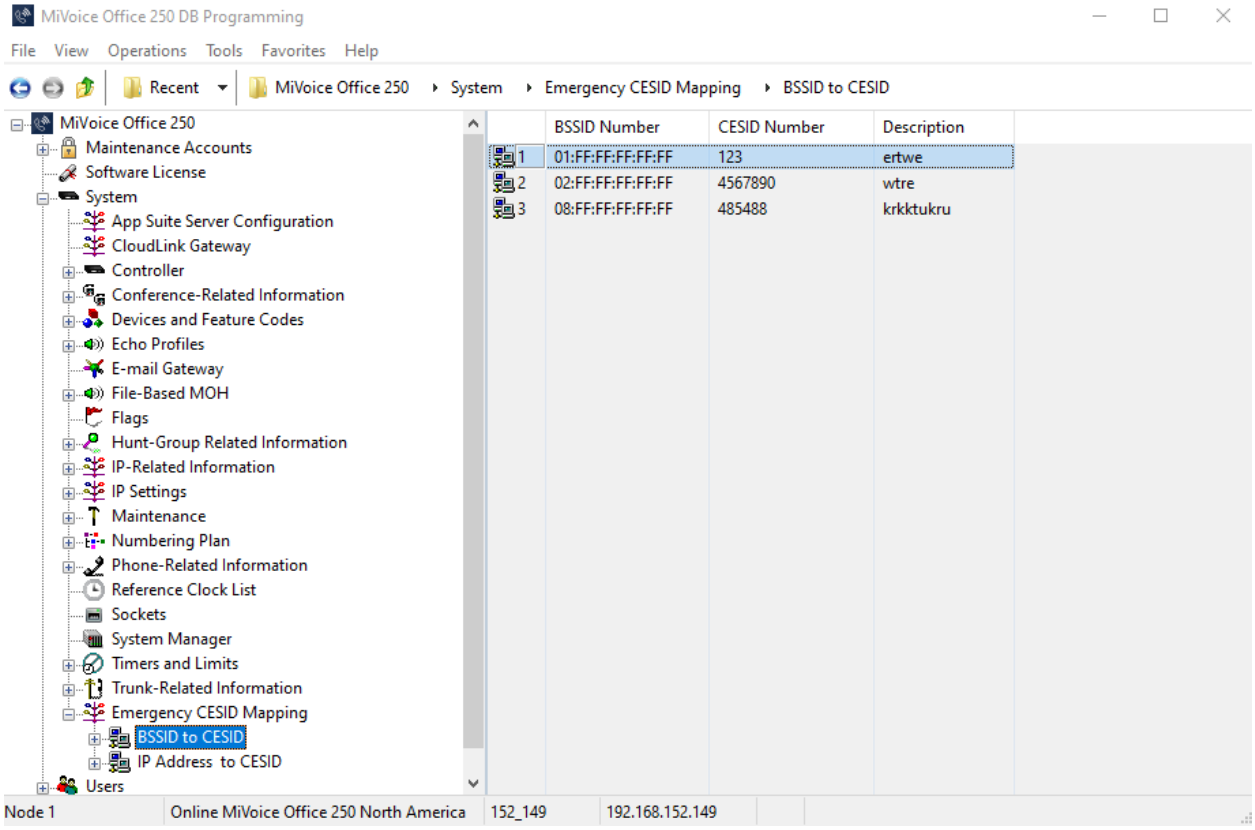


Emergency CESID Mapping – BSSID to CESID

The maximum number of entries is 250 for both type of systems: PS-1 and HX.
IP range consists of starting and ending addresses. IP address field accepts an IP address that should correspond to the IP zone of devices that are associated with a specific CESID number. The addresses can be identical, such configuration represents a single IP address to CESID number.
By default, the CESID Number is empty and must be configured. If IP range is configured, but CESID number is left blank, the system will skip this IP range or a single IP address since there is no information to provide to the Intrado SIP Trunks.
CESID Number is up to 48 symbols where 0-9 are valid. The field must be configured and cannot be blank. By default, the CESID Number is blank.
The Description field is a reference comment field for the administrator to know the location of the access point. The Description field supports up to 20 characters.

BSSID to CESID Mapping

This form is introduced to map CESIDs to on premise Wireless Access Points (WAPs). This form only needs to be configured if the customer has 5634 Wi-Fi devices or Mitel Phone Manager PC softphones deployed.



Emergency CESID Mapping – IP Address to CESID

The maximum number of entries is the same as the IP range table – 250 entries. The restriction is the same for PS-1 and HX systems.

As for the IP range table, if the CESID field is left blank, the lookup process on the system will skip that entry.

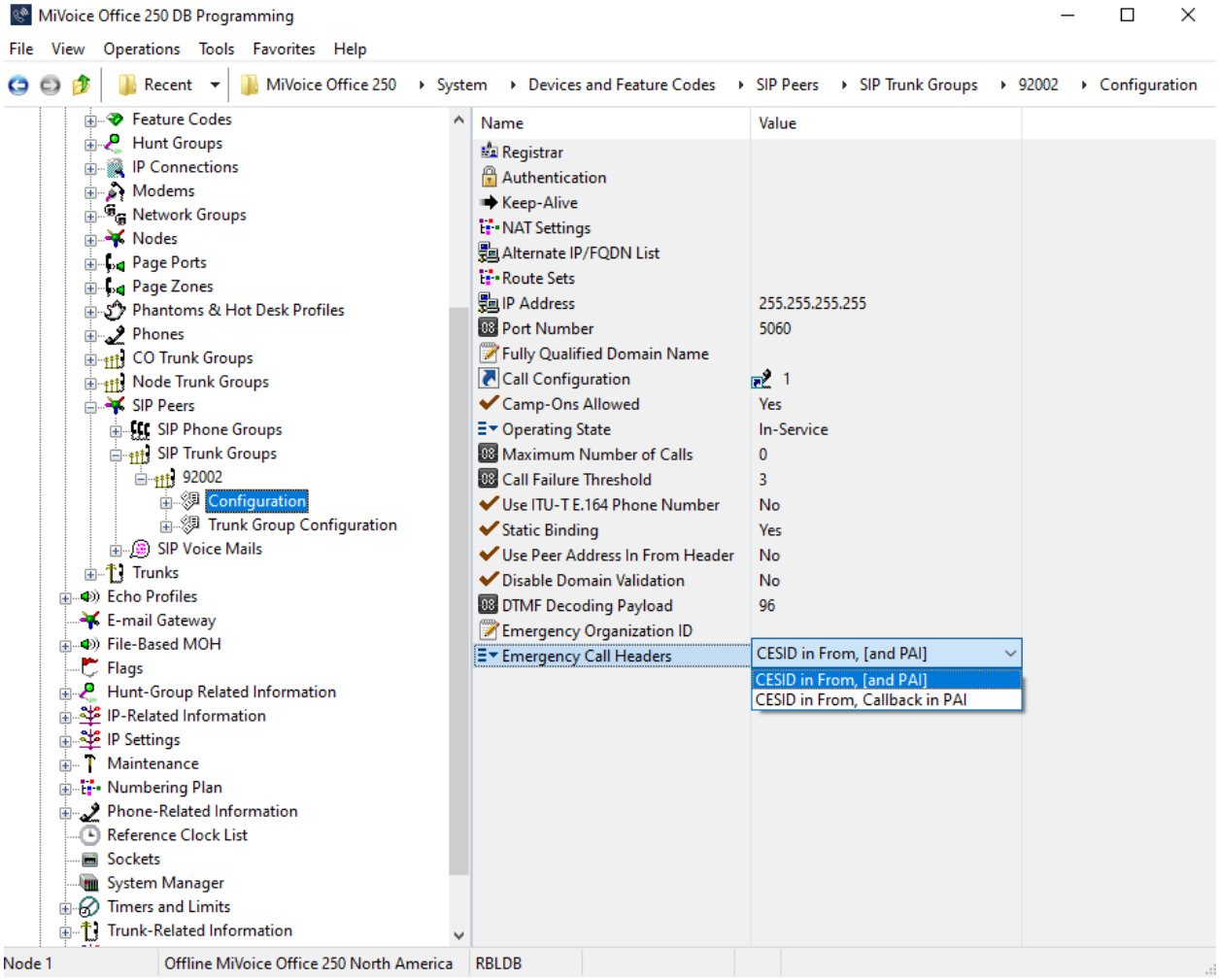
BSSID field accepts a MAC address that should correspond to the BSSID on the Wireless Access Point (WAP).

CESID field is up to 48 symbols, where 0-9 are valid. The field must be configured and cannot be blank. By default, the field is empty.

The Description field is a reference comment field for the administrator to know the location of the access point. The Description field supports up to 20 characters.

SIP Trunk Groups Programming

New fields are added to the 'Configuration' folder of 'SIP Trunk Groups' to control what SIP headers are used when providing the CESID and callback information to Intrado during outgoing emergency calls.



Emergency Call Headers

Emergency Organization ID

The 'Emergency Organization ID' can be configured up to 128 characters. Alphanumeric and special characters are acceptable.

If this option is configured for the SIP Trunk Group, then the provided value will be sent to the 3rd party provider in "E911-Organization-ID" SIP INVITE message header.

Example of E911-Organization-ID: e422cae8-9cdb-4ece-a831-63c5d315c565.

Emergency Call Headers

This option is introduced to configure values of the SIP Invite in case of emergency calls.

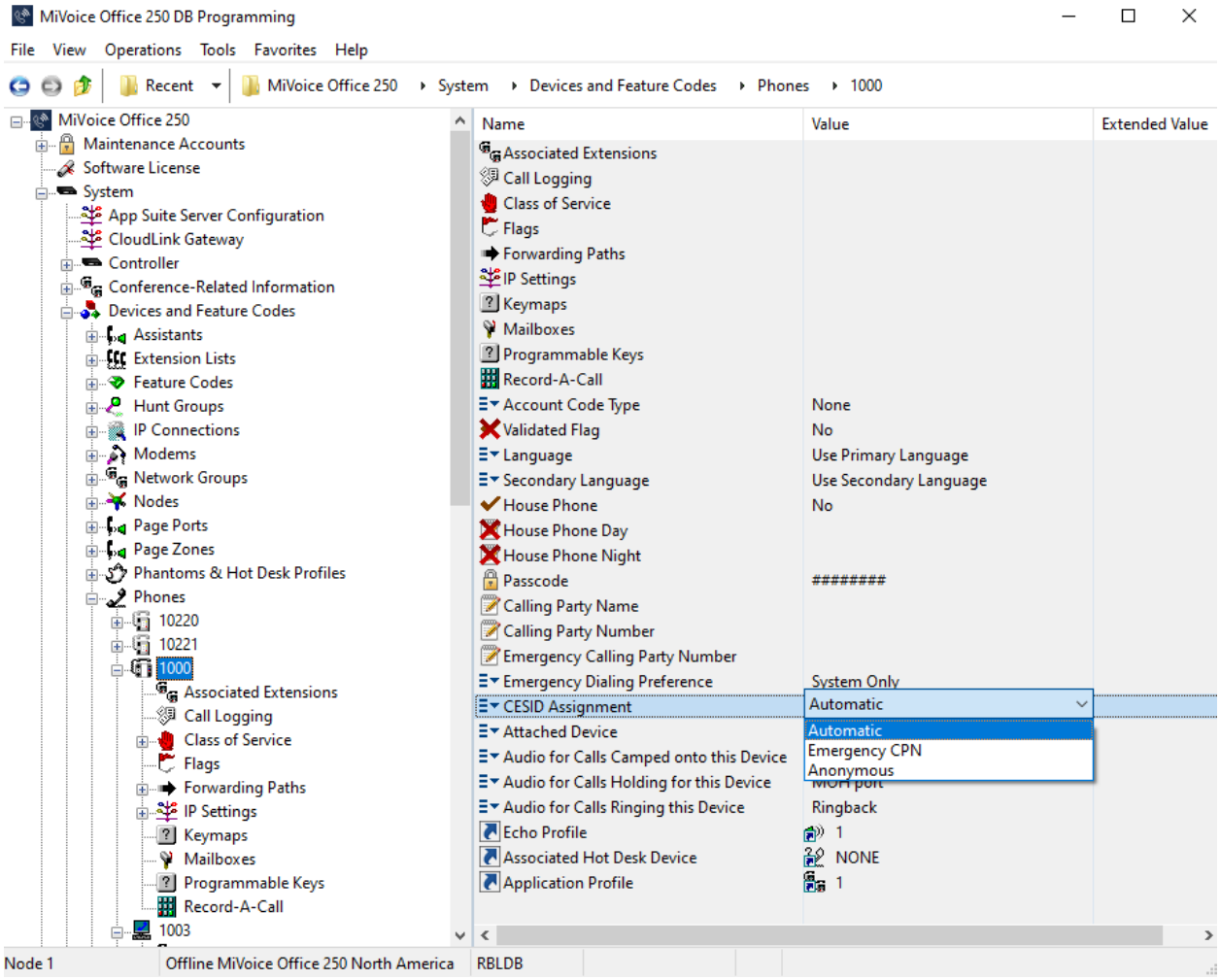
The 2 options are available:

1. CESID in FROM, [and PAI]. This option describes existing system behavior before the Ray Baum support implementation. If this value is selected then CESID (Customer Emergency Services ID) number will be added to FROM, PAI and Contact headers of the SIP Invite message.
2. CESID in FROM, Callback in PAI. This option is used for configuration with Intrado. If this value is selected, CESID information will be added to the FROM header of the SIP Invite message. Callback information will be added to the PAI header of the SIP Invite message.

Note: Ensure the "Use P-Asserted-Identity Header" flag in the SIP Trunk Group Configuration is set to "Yes" if "CESID in FROM, Callback in PAI" option is used for the SIP trunk configuration with the 3rd party provider. Also make sure to define "Calling Party Number" field for all phones. "Calling Party Number" will be provided in the SIP Invite PAI header for callback.

Stations Programming

To specify the lookup method, a new select field **"CESID Assignment"** has been added to Minet and SIP devices.



CESID Assignment

The phone types that support this option are:

- 52xx/53xx IP Phones
- SIP phones
- 69xx/Mitel Phone Manager PC softphones
- MiCollab Client Softphones

The CESID Assignment field is used to determine how and where from CESID (Customer Emergency Services ID) information should be retrieved for emergency calls.
The available values are:

- **Automatic:**

Automatic value represents a new lookup process for a phone on the system. It depends on phone type. The lookup priority is as follows:

- CESID from device (it is available only for SIP 6xx DECT, 56xx DECT and 69xx SIP)
- BSSID from device + BSSID to CESID Mapping (it is available only for 5634 Wi-Fi and

Mitel Phone Manager PC softphones)

NOTE: 5624 Wi-Fi phones do not support BSSID sending. Therefore, it operates as a generic SIP phone.

- Static CESID (Emergency Calling Party Number of the phone)
- IP to CESID Mapping

- **Emergency CPN:**

If the location cannot be identified for a phone or cannot be sent to the system, then “Emergency CPN” (aka Static) option should be used. This option represents the existing behavior on MiVoice Office 250 for emergency calls. When this option is selected, the statically configured CESID is used to identify phone’s location. Existing ‘Emergency Calling Party Number’ field is used to store static CESID on the system.

If this value is chosen, Emergency Calling Party Number field should be filled.

IMPORTANT: It is highly recommended to use this option teleworker phones.

NOTE: Digital and Single Line phones are used on premise only. Therefore, the CESID assignment field is not available for these types of phones. The ‘Emergency Calling Party Number’ field should be configured for Digital and Single Line phones. The configured static CESID is to be used to identify phone location.

- **Anonymous:**

This option is used when the end user uses the 3rd party application, Intrado’s 911 Location Manager, to communicate with the 3rd party provider. In such case, the end user provides location information to the 3rd party provider himself and it is not necessary to provide CESID information from MiVoice Office 250 side. If this option is enabled, the CESID will not be determined and “Anonymous” will be sent to the SIP Trunks in the FROM field of the SIP Invite.

IMPORTANT: If this option is selected then Emergency Call Headers should be configured as “CESID in FROM, Callback in PAI” for Emergency SIP Trunk Group. Otherwise, there will be no PAI header information in SIP Invite message.

The default value is **Automatic**.

IMPORTANT: The ‘Emergency Calling Party Number’ field should not be empty in case of static CESID configuration.

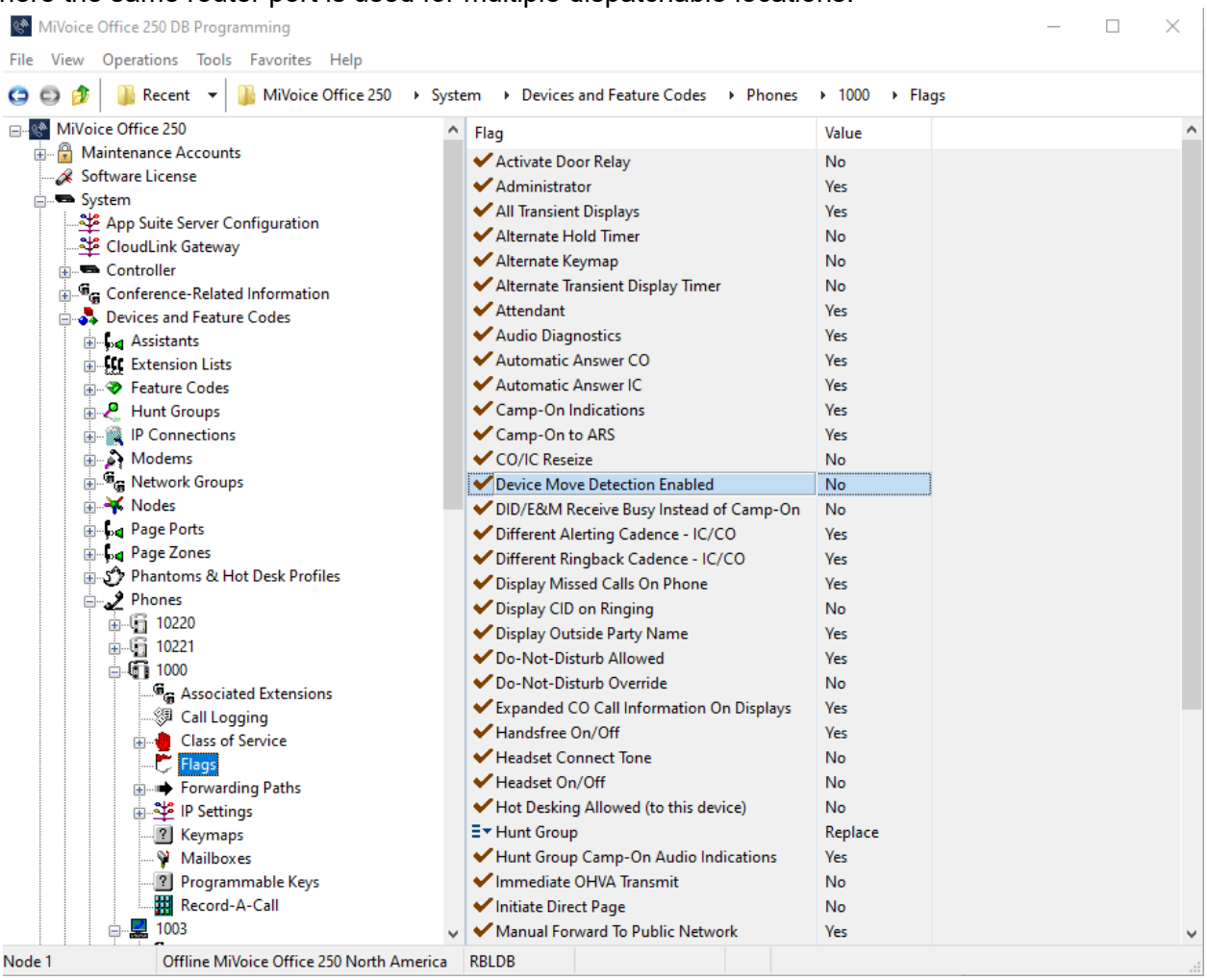
Device Move Detection

For the following MiNET phones, a new "**Device Move Detection Enabled**" flag is added to implement a Device Move Detection feature, where the default value is **No**:

- 5304 IP phone
- 5312 IP Phone
- 5320 IP Phone
- 5320e IP Phone
- 5330e IP Phone
- 5340e IP Phone

Phones that do not support the "**Device Move Detection Enabled**" flag are the 52xx, 5330 non-e, 5340 non-e, and 5360 phones.

The 'Device Move Detection Enabled' flag is set No or Yes. When Yes, and the phone is moved from one location to another, the user of the phone will be notified that a new default gateway device MAC address is learned. The user gets notified in the event of the phone moving to a new network or conversely if the router is changed out for any reason. No information is automatically changed in the system. The phone notifies the user to update the administrator that their location has moved. The feature is most useful for home workers and is not recommended for locations where the same router port is used for multiple dispatchable locations.



"Device Move Detection Enabled" flag

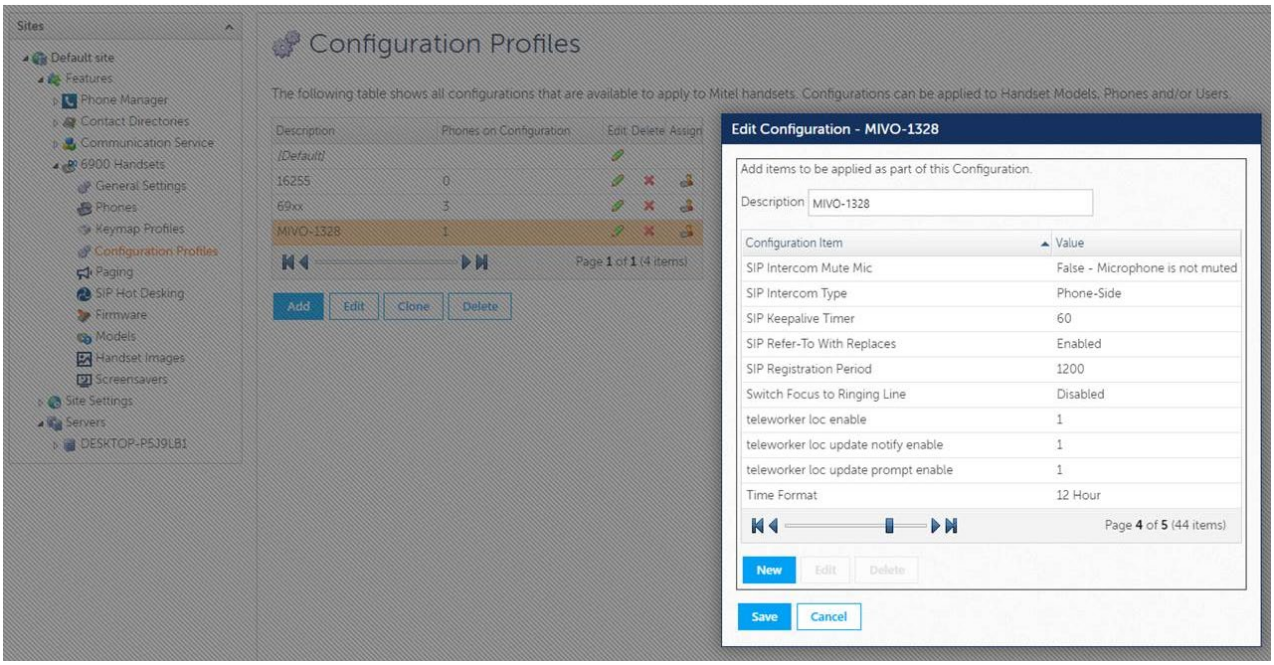
The "Device Move Detection Enabled" flag enables a pop-up notification for the supported phones, as mentioned above, in case of their location change. If location change is confirmed by a user, then a message in the system log will be generated on the MiVoice Office 250 side to warn

Administrators to configure a new Customer Emergency Services ID (CESID) for this phone. This flag should be used for teleworker phones only.
Pop-up notification is enabled for 69xx phones on the phone side using a configuration file (startup.cfg).
There are no configuration changes on MIVO250 system side.

The following parameters should be set in the configuration file for 69xx phones to enable this functionality:

- teleworker loc enable:
  - 1 – this value is used to enable location update feature.
  - 0 – this value is used to disable location update feature.
- teleworker loc update notify enable:
  - 1 – this value is used to send notification to Call Manager if location update prompt was displayed and user has confirmed location change.
  - 0 – in case of this value notification message will not be sent to Call Manager.
- teleworker loc update prompt enable:
  - 1 – this value is used to display UI screen to prompt the user if the location is changed.
  - 0 – in case of this value there will be no UI screen displayed if the location is changed.

Configuration file can be provisioned via TFTP or configuration server.
MiVoice Office Application Suite acts as configuration server in case of MIVO250.
Configuration profile settings on the MiVoice Office Application Suite can be seen in the picture below:



After any changes, the configuration profile should be applied to the 69xx phones.

Model	MAC Address	IP Address	Status	Firmware	Extension (Hot Desk)	Extension Name	Keymap	Configuration
Mitel6930	00:08:5D:5B:AC:A1	192.168.99.23	Online	5.1.0.4040	16260	EXT 16260	*[Default]*	*[Default]*
Mitel6940	00:08:5D:5D:34:06	192.168.151.75	Online (Not licensed)	6.1.0.111	20270	20270 6940	69xx	69xx
Mitel6920	08:00:0F:B2:FB:34	192.168.151.96	Online (Not licensed)	6.1.0.111	16255	EXT 16255	69xx	69xx
Mitel6930	08:00:0F:CA:A4:86	192.168.99.23	Online	6.1.0.111	20275	EXT 20275	*[Default]*	*[Default]*
Mitel6930	08:00:0F:CA:CA:A6	192.168.151.88	Online	6.1.0.111	15010	6930	69xx	69xx
Mitel6970	08:00:0F:D9:03:9B	192.168.152.128	Online	6.1.0.111	19193	EXT 19193	1001	*[Default]*
Mitel6970	08:00:0F:D9:05:57	192.168.152.160	Uninitialised	5.1.1.7031			*[Default]*	*[Default]*
Mitel6970	08:00:0F:D9:05:EF	192.168.151.92	Online	6.1.0.111	16250	EXT 16250	69xx	MIVO-1328

If all three parameters are enabled, there will be two SIP Notify messages sent to the MIVO250 when the location change is detected:

1. First message is sent to display UI prompt for the location change confirmation.
2. The second message is sent when UI prompt is acknowledged by the user.

As soon as the location change is confirmed on 53xx or 69xx phones, the log message will be generated on the MIVO250 side in the cp_system_log file.

Log files: /usr/local/intl/logs/cp/cp_system_log_xxxx-xx-xx_xx-xx-xx.txt.

Message format: “<Extension > <Username> (EXT <extension number>) User acknowledged potential phone location change”.

Chapter 15 Deployment Guides Recommendations

To provide support for the RAY BAUM'S Act requirements MiVO250 has added support to more accurately report on a user's location as per the information in the following tables via usage of a Customer Emergency Service Identification(CESID). Depending on the product that is connecting to the MiVO250 the reader will see the term ELIN used interchangeably with that of CESID. ELIN stands for Emergency Location Identification Number.

Chapter 16 Deployment Guide: Analog/Digital

See the Deployment Guide: System Configuration section for more details on programming each option.

On Premise

Options Available	Programming Steps
Static CESID	Intrado: • Program an ERL with ERL ID matching the CESID configured in Emergency Calling Party Number field. • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk). MiVO250: • In CESID Assignment field select Emergency CPN • Configure Emergency Calling Party Number field Device: • None

Off Premise

Not applicable as digital and analog phones are used on premise only, as fixed devices.

Chapter 17 Deployment Guide: 52xx/53xx MINET

On Premise

Options Available	Programming Steps
Static CESID	Intrado: • Program an ERL with ERL ID matching the CESID configured in Emergency Calling Party Number field. • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk). MiVO250: • In CESID Assignment field select Emergency CPN • Configure Emergency Calling Party Number field • Define the Emergency Callback handling (CPN/DID) Device: • None
IP Address Range to CESID Mapping (RECOMMENDED)	Intrado: • Program an ERL with ERL ID matching CESID from IP Address to CESID map. • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk). MiVO250: • In CESID Assignment field select Automatic • Define IP Address Range to CESID in the IP Address to CESID folder • Define the Emergency Callback handling (CPN/DID) Device: • None

Off Premise

Options Available	Programming Steps
Static CESID	Intrado: • Program an ERL with ERL ID matching the CESID that is corresponding to Emergency CPN field. • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk). MiVO250:

	• In CESID Assignment field select Emergency CPN • Configure Emergency Calling Party Number field • Define the Emergency Callback handling (CPN/DID) Device: • None

Chapter 18 Deployment Guide: 69xx SIP

On Premise

Options Available	Programming Steps
CESID provided by the phone (RECOMMENDED)	Intrado: • Program an ERL with ERL ID matching the CESID provided by device. • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk). MiVO250: • Automatic value must be set for CESID Assignment field. • Define the Emergency Callback handling (CPN/DID) Device: • Enable LLDP ELIN discovery • **NOTE: The number entered must conform to the CESID rules of the MiVO 250, where only digits 0-9 are valid, up to a maximum of 48 digits. Special characters or text is not supported and may result in a failed emergency call.**
Static CESID (NOT RECOMMENDED)	Intrado: • Program an ERL with ERL ID matching the CESID configured in Emergency Calling Party Number field. • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk). MiVO250: • In CESID Assignment field select Emergency CPN • Configure Emergency Calling Party Number field • Define the Emergency Callback handling (CPN/DID) Device: • None
IP Address Range to CESID Mapping	Intrado: • Program an ERL with ERL ID matching CESID from the IP Address to map. • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk). MiVO250: • In CESID Assignment field select Automatic • Define IP Address Range to CESID in the IP Address to CESID folder

	• Define the Emergency Callback handling (CPN/DID) Device: • None

Off Premise

Options Available	Programming Steps
Static CESID	Intrado: • Program an ERL with ERL ID matching the CESID that is corresponding to Emergency CPN field. • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk). MiVO250: • In CESID Assignment field select Emergency CPN • Configure Emergency Calling Party Number field • Define the Emergency Callback handling (CPN/DID) Device: • None

Chapter 19 Deployment Guide: Legacy/3rd Party SIP

Important: Since each Generic SIP Softphone may have different implementations, Mitel will need to certify the solution with each specific Generic SIP Set.

On Premise

Options Available	Programming Steps
Static CESID (NOT RECOMMENDED)	Intrado: • Program an ERL with ERL ID matching the CESID configured in Emergency Calling Party Number field. • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk). MiVO250: • In CESID Assignment field select Emergency CPN • Configure Emergency Calling Party Number field • Define the Emergency Callback handling (CPN/DID) Device: • None
IP Address Range to CESID	Intrado: • Program an ERL with ERL ID matching CESID from IP Address to CESID map. • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk). MiVO250: • In CESID Assignment field select Automatic • Define IP Address Range to CESID in the IP Address to CESID folder • Define the Emergency Callback handling (CPN/DID) Device: • None
911 Location Manager Application	Intrado: • Program the enterprise FQDN. • Program the Network wire map as required. • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk). MiVO250:

	• In CESID Assignment field select Anonymous • SIP trunk should be Private if using Extension Bind • Define the Emergency Callback handling (CPN/DID) Device: • Install the 911 Location Application given the Subscriber ID. • Manage the location via the 911 Location Manager application. **Warning:** This option should only be used where 911 Location Manager application can be installed on same PC/laptop hosting the softphone.

Off Premise

To be meet RAY BAUM's ACT requirement, it is not recommended to deploy these physical devices Off Premise as they do not support automatic move detection like the 69xx devices. If they are deployed Off Premise, it is up to the end user to notify the administrator of any location change. If the device is a softphone, it may be deployed off premise using Intrado's 911 Location Manager.

Options Available	Programming Steps
911 Location Manager Application	Intrado: • Program the enterprise FQDN. • Program the Network wire map as required. • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk). MiVO250: • In CESID Assignment field select Anonymous • SIP trunk should be Private if using Extension Bind • Define the Emergency Callback handling (CPN/DID) Device: • Install the 911 Location Application given the Subscriber ID. • Manage the location via the 911 Location Manager application. **Warning:** This option should only be used where 911 Location Manager application can be installed on same PC/laptop hosting the softphone.

Chapter 20 Mitel Phone Manager PC Softphone

On Premise

Options Available	Programming Steps
BSSID to CESID (RECOMMENDED for wireless devices purely ON PREMISE)	Intrado: • Program an ERL with ERL ID matching CESID from BSSID to CESID map. • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk). MiVO250: • Define BSSID to CESID • Define the Emergency Callback handling (CPN/DID) Device: • None
Static CESID (NOT RECOMMENDED)	Intrado: • Program an ERL with ERL ID matching the CESID configured in Emergency Calling Party Number field. • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk). MiVO250: • In CESID Assignment field select Emergency CPN • Configure Emergency Calling Party Number field • Define the Emergency Callback handling (CPN/DID) Device: • None
IP Address Range to CESID (RECOMMENDED for wired devices purely ON PREMISE)	Intrado: • Program an ERL with ERL ID matching CESID from IP Address to CESID map. • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk). MiVO250: • In CESID Assignment field select Automatic • Define IP Address Range to CESID in the IP Address to CESID folder • Define the Emergency Callback handling (CPN/DID)

	Device: • None
911 Location Manager Application (RECOMMENDED for wireless devices that are ON and OFF PREMISE)	Intrado: • Program the enterprise FQDN. • Program the Network wire map as required. • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk). MiVO250: • In CESID Assignment field select Anonymous • SIP trunk should be Private if using Extension Bind • Define the Emergency Callback handling (CPN/DID) Device: • Install the 911 Location Application given the Subscriber ID. • Manage the location via the 911 Location Manager application. **Warning:** This option should only be used where 911 Location Manager application can be installed on same PC/laptop hosting the softphone.

Off Premise

Options Available	Programming Steps
911 Location Manager Application	Intrado: • Program the enterprise FQDN • Program the Network wire map as required • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk). MiVO250: • In CESID Assignment field select Anonymous • SIP trunk should be Private if using Extension Bind • Define the Emergency Callback handling (CPN/DID) Device: • Install the 911 Location Application given the Subscriber ID. • Manage the location via the 911 Location Manager application. **Warning:** This option should only be used where 911 Location Manager application can be installed on same PC/laptop hosting the softphone.

Chapter 21 Deployment Guide: SIP DECT 6xx

As of SIP-DECT Release 8.3 SP1, SIP-DECT supports providing an Emergency Location Identification Number (ELIN) in the SIP signaling of incoming and outgoing calls. This helps the call server (SIP proxy) to determine the correct public safety answering point (PSAP) depending on where the call was originated.

An ELIN can be set for:

- the system
- a site
- a specific base station

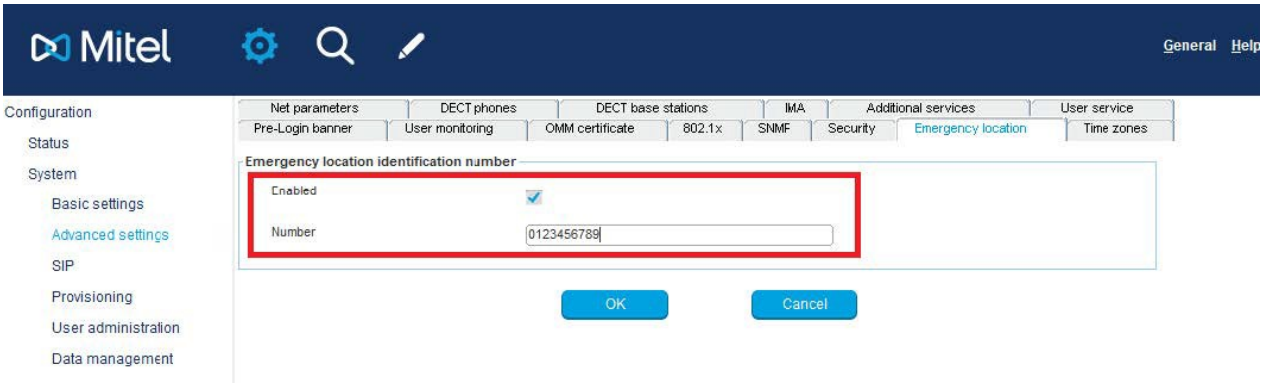
The more specific parameter value is used to help accurate identification.

If ELIN support is enabled, the configured ELIN value is sent in the FROM header field of the SIP invite and the P-Asserted-Identity field of the 200 OK. The ELIN is a string of up to 31 characters. There is no specific limitation on character set. Characters are escaped in the SIP header if necessary.

Examples:

From: "Extension 5115" <sip:5115@example.com;elin=0123456789>;tag=f-5899462600ef0a1c P-Asserted-Identity: <sip:5115@ example.com;elin=0123456789>

The configuration can be done via the OMM web service or via OMP. Only the general activation of this feature and the system-wide emergency location identification number can be set via the OMM configuration files.



NOTE: The number entered in the Emergency location identification number field must conform to the CESID rules on the MiVO 250, where only digits 0-9 are valid, up to a maximum of 48 digits. Special characters or text is not supported and may result in a failed emergency call.

Parameter / Group	System emergency location identification number enabled
Description	The parameter “enabled” of the system emergency location identification number configuration enables the sending of the configured ELIN in the SIP signaling.

Format	Boolean

Range	1 or true (enable)0 or false (disable)
Default value	False
OMP	System/ Advanced settings / Emergency location / Emergency location identification number / Enabled
OMM Web	Advanced: System/ Advanced / Emergency location
MOM Web	N/A
OMM configuration files	<SetELIN enable="1"/>
DECT Phone	N/A
User configuration files	N/A.

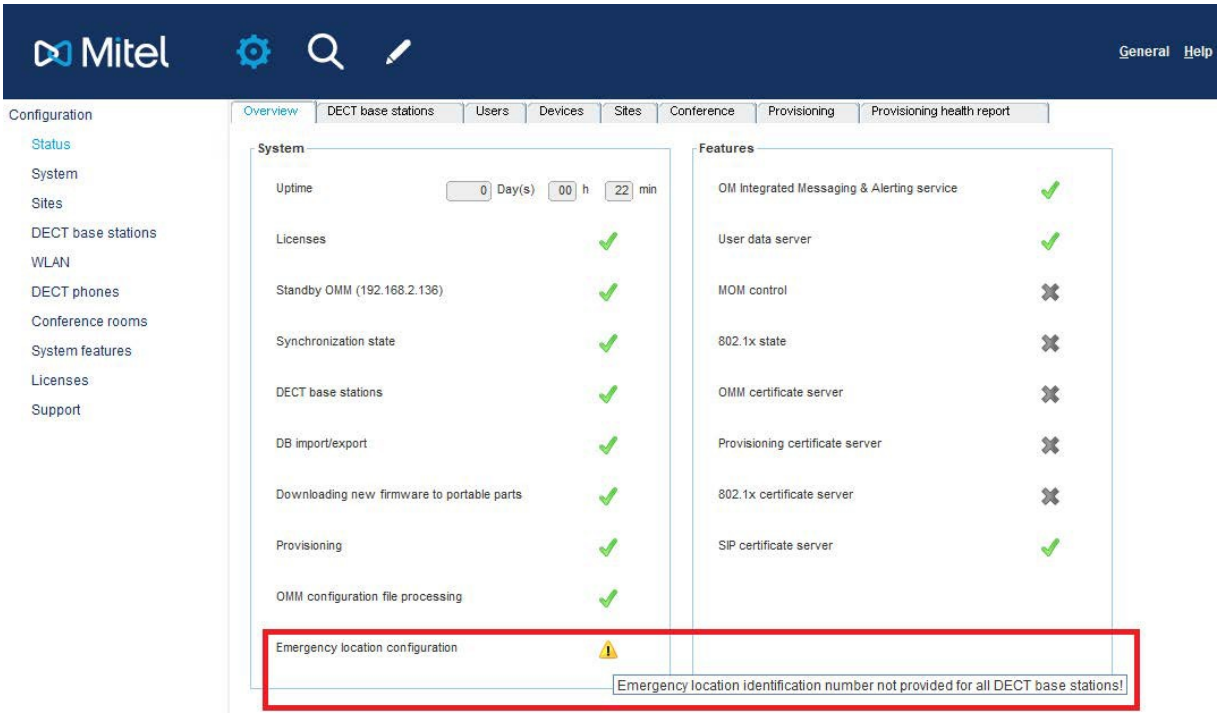
Parameter / Group	System emergency location identification number
Description	The system parameter "Emergency call identification number" provides the system-wide valid emergency call identification number. This value is used when a more specific ELIN set is not available. The parameter can be used for small systems in which the same ELIN must be used for all base stations.
Format	String
Range	Up to 31 characters
Default value	Empty
OMP	System/ Advanced settings / Emergency location / Emergency location identification number / Number
OMM Web	Advanced: System/ Advanced / Emergency location
MOM Web	N/A
OMM configuration files	<SetELIN enable="0123456"/>
DECT Phone	N/A
User configuration files	N/A

Parameter / Group	System emergency location identification number

Description	The system parameter "Emergency call identification number" provides the system-wide valid emergency call identification number. This value is used when a more specific ELIN set is not available. The parameter can be used for small systems in which the same ELIN must be used for all base stations. **NOTE: The number entered must conform to the CESID rules of the MiVO 250, where only digits 0-9 are valid, up to a maximum of 48 digits. Special characters or text is not supported and may result in a failed emergency call.**
Format	String
Range	Up to 31 characters.
Default value	Empty
OMP	Sites/ Emergency location identification number
OMM Web	Sites/ Emergency location identification number
MOM Web	N/A
OMM configuration files	N/A
DECT Phone	N/A
User configuration files	N/A

Parameter / Group	Base station’s emergency location identification number
Description	The base station parameter “Emergency location identification number” provides an emergency location identification number for a specific base station.
Format	String
Range	Up to 31 characters.
Default value	Empty
OMP	DECT base stations/ Emergency location identification number
OMM Web	Base Stations/ Emergency location identification number
MOM Web	N/A
OMM configuration files	N/A
DECT Phone	N/A
User configuration files	N/A

If ELIN support is enabled and at least one RFP has no ELIN assigned, a warning is displayed on the status information page.



On Premise

Options Available	Programming Steps
CESID provided by phone (RECOMMENDED)	Intrado: • Program an ERL with ERL ID matching the CESID provided by device. • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk). MiVO250: • Automatic value must be set for CESID Assignment field. • Define the Emergency Callback handling (CPN/DID) Device: • See **Error! Not a valid result for table.** • **NOTE: The number entered must conform to the CESID rules of the MiVO 250, where only digits 0-9 are valid, up to a maximum of 48 digits. Special characters or text is not supported and may result in a failed emergency call.**
Static CESID (NOT RECOMMENDED)	Intrado: • Program an ERL with ERL ID matching the CESID configured in Emergency Calling Party Number field. • Program a Subscriber to match the DN of the

	user/device. (CPN if available and using a public SIP Trunk). MiVO250: • In CESID Assignment field select Emergency CPN • Configure Emergency Calling Party Number field • Define the Emergency Callback handling (CPN/DID) Device: • None
IP Address Range to CESID	Intrado: • Program an ERL with ERL ID matching CESID from IP Address to CESID map. • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk). MiVO250: • In CESID Assignment field select Automatic • Define IP Address Range to CESID in the IP Address to CESID folder • Define the Emergency Callback handling (CPN/DID) Device: • None

Off Premise

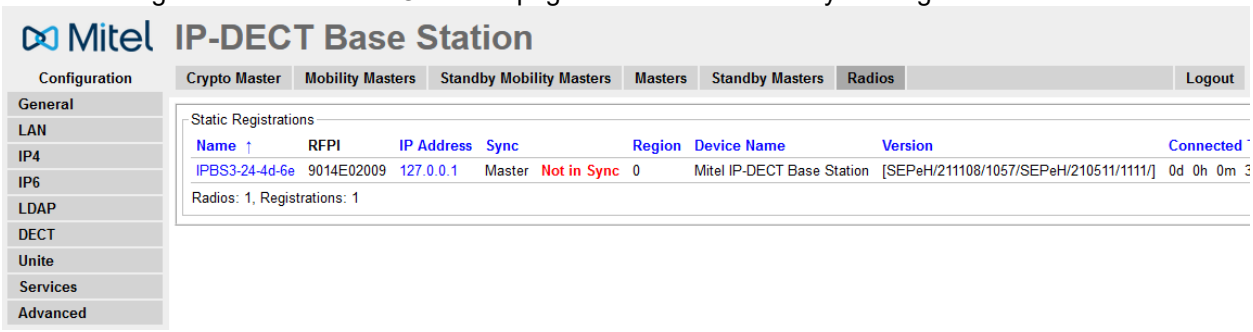
To be meet RAY BAUM's ACT requirement, it is not recommended to deploy these physical devices Off Premise as they do not support automatic move detection like the 69xx devices. If they are deployed Off Premise, it is up to the end user to notify the administrator of any location change.

CESID provided by phone (RECOMMENDED)	Intrado: • Program an ERL with ERL ID matching the CESID provided by device. • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk). MiVO250: • Automatic value must be set for CESID Assignment field. • Define the Emergency Callback handling (CPN/DID) Device: • See **Error! Not a valid result for table.** • **NOTE: The number entered must conform to the CESID rules of the MiVO 250, where only digits 0-9 are valid, up to a maximum of 48 digits. Special characters or text is not supported and may result in a failed emergency call.**

Static CESID (NOT RECOMMENDED)	Intrado: • Program an ERL with ERL ID matching the CESID configured in Emergency Calling Party Number field. • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk). MiVO250: • In CESID Assignment field select Emergency CPN • Configure Emergency Calling Party Number field • Define the Emergency Callback handling (CPN/DID) Device: • None

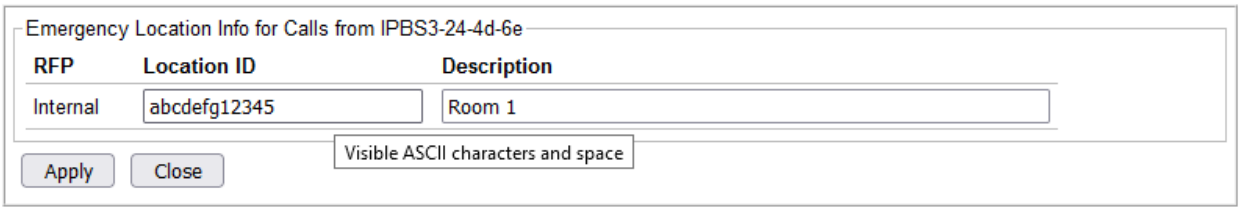
Chapter 22 Deployment Guide: IP DECT 56xx

As of IP-DECT 56xx Release 11.6, IP-DECT supports providing an Emergency Location Identification Number (ELIN) in the SIP signaling of incoming and outgoing calls. This helps the call server (SIP proxy) to determine the correct public-safety answering point (PSAP) depending on where the call originated. The ELIN is configured on the Device Overview page of the base station by clicking on the device name.



Which then opens a pop-up where the Location ID (ELIN tag in SIP Signaling) can be entered, as well as an option description which is only used as notes for a System Administrator.

NOTE: The string entered in the Location ID field must conform to the CESID rules of the MiVO 250, where only digits 0-9 are valid, up to a maximum of 48 digits. Special characters or text is not supported and may result in a failed emergency call.



On Premise

Options Available	Programming Steps
CESID provided by phone (RECOMMENDED)	Intrado: • Program an ERL with ERL ID matching the CESID provided by device. • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk). MiVO250: • Automatic value must be set for CESID Assignment field. • Define the Emergency Callback handling (CPN/DID) Device: • See Deployment Guide: IP DECT 56xx • **NOTE: The number entered must conform to the CESID rules of the MiVO 250, where only digits 0-9 are valid, up to a maximum of 48 digits. Special characters or text is not supported and may result in a failed emergency call.**
Static CESID (NOT RECOMMENDED)	Intrado: • Program an ERL with ERL ID matching the CESID configured in Emergency Calling Party Number field. • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk). MiVO250: • In CESID Assignment field select Emergency CPN • Configure Emergency Calling Party Number field • Define the Emergency Callback handling (CPN/DID) Device: • None
IP Address Range to CESID	Intrado: • Program an ERL with ERL ID matching CESID from IP Address to CESID map. • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk). MiVO250: • In CESID Assignment field select Automatic • Define IP Address Range to CESID in the IP Address to

	CESID folder • Define the Emergency Callback handling (CPN/DID) Device: • None

Off Premise

To be meet RAY BAUM's ACT requirement, it is not recommended to deploy these physical devices Off Premise as they do not support automatic move detection like the 69xx devices. If they are deployed Off Premise, it is up to the end user to notify the administrator of any location change.

Options Available	Programming Steps
CESID provided by phone	Intrado: • Program an ERL with ERL ID matching the CESID provided by device. • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk). MiVO250: • Automatic value must be set for CESID Assignment field. • Define the Emergency Callback handling (CPN/DID) Device: • See Deployment Guide: IP DECT 56xx • **NOTE: The number entered must conform to the CESID rules of the MiVO 250, where only digits 0-9 are valid, up to a maximum of 48 digits. Special characters or text is not supported and may result in a failed emergency call.**
Static CESID	Intrado: • Program an ERL with ERL ID matching the CESID configured in Emergency Calling Party Number field. • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk). MiVO250: • In CESID Assignment field select Emergency CPN • Configure Emergency Calling Party Number field • Define the Emergency Callback handling (CPN/DID) Device: • None

Chapter 23 Deployment Guide: RFP 12/14 Single Cell Solution

This is programmed as a Generic SIP Device on the MiVO250.

On Premise

Options Available	Programming Steps
CESID provided by phone (RECOMMENDED)	Intrado: • Program an ERL with ERL ID matching the CESID provided by device. • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk). MiVO250: • Automatic value must be set for CESID Assignment field. • Define the Emergency Callback handling (CPN/DID) Device: • The ELIN(CESID) must be configured on the Base Station web page called “Emergency Call Configuration”. On the same page, valid emergency numbers can also be configured.  • **NOTE: The number entered must conform to the CESID rules of the MiVO 250, where only digits 0-9 are valid, up to a maximum of 48 digits. Special characters or text is not supported and may result in a failed emergency call.**
Static CESID (NOT RECOMMENDED)	Intrado: • Program an ERL with ERL ID matching the CESID

	configured in Emergency Calling Party Number field. • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk). MiVO250: • In CESID Assignment field select Emergency CPN • Configure Emergency Calling Party Number field • Define the Emergency Callback handling (CPN/DID) Device: • None
IP Address Range to CESID	Intrado: • Program an ERL with ERL ID matching CESID from IP Address to CESID map. • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk). MiVO250: • In CESID Assignment field select Automatic • Define IP Address Range to CESID in the IP Address to CESID folder • Define the Emergency Callback handling (CPN/DID) Device: • None

Off Premise

To be meet RAY BAUM's ACT requirement, it is not recommended to deploy these physical devices Off Premise as they do not support automatic move detection like the 69xx devices. If they are deployed Off Premise, it is up to the end user to notify the administrator of any location change.

Options Available	Programming Steps
CESID provided by phone	Intrado: • Program an ERL with ERL ID matching the CESID provided by device. • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk). MiVO250: • Automatic value must be set for CESID Assignment field. • Define the Emergency Callback handling (CPN/DID) Device: • The ELIN(CESID) must be configured on the Base Station

	web page called “Emergency Call Configuration”. On the same page, valid emergency numbers can also be configured.  • **NOTE: The number entered must conform to the CESID rules of the MiVO 250, where only digits 0-9 are valid, up to a maximum of 48 digits. Special characters or text is not supported and may result in a failed emergency call.**
Static CESID	Intrado: • Program an ERL with ERL ID matching the CESID configured in Emergency Calling Party Number field. • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk). MiVO250: • In CESID Assignment field select Emergency CPN • Configure Emergency Calling Party Number field • Define the Emergency Callback handling (CPN/DID) Device: • None

Chapter 24 Deployment Guide: SIP Wi-Fi 5624

On Premise

Options Available	Programming Steps
Static CESID	Intrado: • Program an ERL with ERL ID matching the CESID configured in Emergency Calling Party Number field. • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk). MiVO250: • In CESID Assignment field select Emergency CPN • Configure Emergency Calling Party Number field • Define the Emergency Callback handling (CPN/DID) Device: • None
IP Address Range to CESID	Intrado: • Program an ERL with ERL ID matching CESID from IP Address to CESID map. • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk). MiVO250: • In CESID Assignment field select Automatic • Define IP Address Range to CESID in the IP Address to CESID folder • Define the Emergency Callback handling (CPN/DID) Device: • None

Off Premise

To be meet RAY BAUM's ACT requirement, it is not recommended to deploy these physical devices Off Premise as they do not support automatic move detection like the 69xx devices. If they are deployed Off Premise, it is up to the end user to notify the administrator of any location change.

Options Available	Programming Steps
Static CESID	Intrado: • Program an ERL with ERL ID matching the CESID configured in Emergency Calling Party Number field. • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk). MiVO250: • In CESID Assignment field select Emergency CPN • Configure Emergency Calling Party Number field • Define the Emergency Callback handling (CPN/DID) Device: • None

Chapter 25 Deployment Guide: SIP Wi-Fi 5634

On Premise

Options Available	Programming Steps
BSSID to CESID (RECOMMENDED)	Intrado: • Program an ERL with ERL ID matching CESID from BSSID to CESID map. • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk). MiVO250: • Define BSSID to CESID • Define the Emergency Callback handling (CPN/DID) Device: • In configuration manual there is a table under chapter "VoIP Protocol" with a table, this is our proposal for the entry for Ray Baum Solution: **Emergency call location method** According to Ray Baum Act, a law requirement in US, the handset must be possible to localize at emergency calls. Different PBX vendors has different solutions to solve this requirement. When set to **None** (default), no solution is selected. When set to **Register with SIP instance-id**, the MAC address is send in SIP REGISTER message according to RFC 5626. When an emergency call is established, the SIP server authenticates the handset through the MAC Address of REGISTER message and forwards it to the system so that the handset's location is clearly identified. **NOTE**: This is a solution that Avaya PBX supports. When set to **Send BSSID in SIP invite**, the BSSID of the access point that handset is connected to at the time the call is established will be send in SIP invite and in SIP invite response 200 OK in PANI (P-Access-Network-Info) header. The BSSID is send in all calls, not only in emergency calls. **NOTE**: This is a solution that MiVoice PBX supports.
Static CESID (NOT RECOMMENDED)	Intrado: • Program an ERL with ERL ID matching the CESID configured in Emergency Calling Party Number field. • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk). MiVO250: • In CESID Assignment field select Emergency CPN • Configure Emergency Calling Party Number field • Define the Emergency Callback handling (CPN/DID) Device: • None

IP Address Range to CESID	Intrado: • Program an ERL with ERL ID matching CESID from IP Address to CESID map. • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk). MiVO250: • In CESID Assignment field select Automatic • Define IP Address Range to CESID in the IP Address to CESID folder • Define the Emergency Callback handling (CPN/DID) Device: • None

Off Premise

To be meet RAY BAUM's ACT requirement, it is not recommended to deploy these physical devices Off Premise as they do not support automatic move detection like the 69xx devices. If they are deployed Off Premise, it is up to the end user to notify the administrator of any location change.

BSSID to CESID	Intrado: • Program an ERL with ERL ID matching CESID from BSSID to CESID map. • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk). MiVO250: • Define BSSID to CESID • Define the Emergency Callback handling (CPN/DID) Device: • In configuration manual there is a table under chapter "VoIP Protocol" with a table, this is our proposal for the entry for Ray Baum Solution: **Emergency call location method** According to Ray Baum Act, a law requirement in US, the handset must be possible to localize at emergency calls. Different PBX vendors has different solutions to solve this requirement. When set to **None** (default), no solution is selected. When set to **Register with SIP instance-id**, the MAC address is send in SIP REGISTER message according to RFC 5626. When an emergency call is established, the SIP server authenticates the handset through the MAC Address of REGISTER message and forwards it to the system so that the handset's location is clearly identified. **NOTE**: This is a solution that Avaya PBX supports. When set to **Send BSSID in SIP invite**, the BSSID of the access point that handset is connected to at the time the call is established will be send in SIP invite and in SIP invite response 200 OK in PANI (P-Access-Network-Info) header. The BSSID is send in all calls, not only in emergency calls. **NOTE**: This is a solution that MiVoice PBX supports.
Static CESID	Intrado: • Program an ERL with ERL ID matching the CESID configured in

	Emergency Calling Party Number field. • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk). MiVO250: • In CESID Assignment field select Emergency CPN • Configure Emergency Calling Party Number field • Define the Emergency Callback handling (CPN/DID) Device: • None

Chapter 26 Deployment Guide: MiCollab Client SIP

On Premise

Options Available	Programming Steps
Static CESID (NOT RECOMMENDED)	Intrado: • Program an ERL with ERL ID matching the CESID configured in Emergency Calling Party Number field. • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk). MiVO250: • In CESID Assignment field select Emergency CPN • Configure Emergency Calling Party Number field • Define the Emergency Callback handling (CPN/DID) Device: • None
IP Address Range to CESID (RECOMMENDED for wired devices purely ON PREMISE)	Intrado: • Program an ERL with ERL ID matching CESID from IP Address to CESID map. • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk). MiVO250: • In CESID Assignment field select Automatic • Define IP Address Range to CESID in the IP Address to CESID folder • Define the Emergency Callback handling (CPN/DID) Device: • None
911 Location Manager Application (RECOMMENDED for wireless devices that are ON and OFF PREMISE)	Intrado: • Program the enterprise FQDN. • Program the Network wire map as required. • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk).

	MiVO250: • In CESID Assignment field select Anonymous • SIP trunk should be Private if using Extension Bind • Define the Emergency Callback handling (CPN/DID) Device: • Install the 911 Location Application given the Subscriber ID. • Manage the location via the 911 Location Manager application.

Off Premise

Options Available	Programming Steps
911 Location Manager Application	Intrado: • Program the enterprise FQDN. • Program the Network wire map as required. • Program a Subscriber to match the DN of the user/device. (CPN if available and using a public SIP Trunk). MiVO250: • Anonymous value must be used for CESID Assignment field. • SIP trunk should be Private. • Define the Emergency Callback handling (CPN/DID) Device: • Install the 911 Location Application given the Subscriber ID. Manage the location via the 911 Location Manager application.

Chapter 27 Testing the Intrado Integration and Reading Call Detail Records(CDR)

As part of on boarding with Intrado, customers will be required to go through a rigorous acceptance test plan on a Demo system before officially going to production.
Intrado offers a couple of ways to test emergency calls in Demo mode.

933 Test Calls

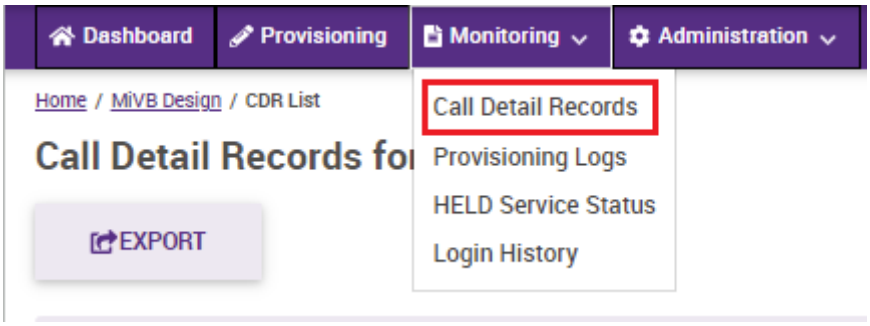
Customers can use the 933 service to confirm both Subscriber and Location (ERL) configuration. To access this service, configure 933 calls to route the Intrado SIP trunks previously described in this guide, along with all the other required endpoint, MiVO250 and Intrado programming.
When the 933 test calls is made, the Intrado IVR will answer and audibly confirm the callers Subscriber ID and current Location (ERL). It will also allow the caller to make a recording to be played back to the caller in the same call to confirm a 2-way audio path.
When the call is complete, a Call Detail Record (CDR) will be generated providing details of the call, more details in the section below.
The Extension Bind (XBind) feature, if enabled, is not applied on these types of test calls.
933 test call support is also available on the Production system.
More information in Call Detail Record section below.

911 Test Calls

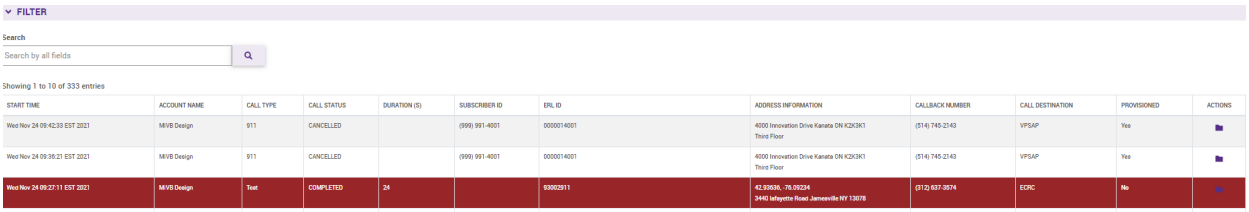
Customers can use the 911 service to confirm emergency callback configuration. These are NOT real 911 calls and will not go out to the PSAP, they are for testing only when in Demo mode. To access this service, configure 911 calls to route to the Intrado SIP trunks previously described in this guide, along with all the other required endpoint, MiVO250, and Intrado programming.
When the 911 test calls is made, Intrado will answer the call and the call should just be cancelled once the caller hears ringback.
When the call is complete, a Call Detail Record (CDR) will be generated providing details of the call, more details in the section below.
The Extension Bind (XBind) feature, if enabled, is not applied on these types of test calls.
More information in Call Detail Record section below.

Call Detail Records(CDR)

After the emergency test calls described above have been completed, what has been sent to Intrado by the MiVO250 can be reviewed in Intrado's Call Detail Records (CDRs). These records can be found below.



Once on this page, you should entries like below



It includes the following information:

- *Start Time* of the call
- *Account Name* the call is associated
- *Call Type*, where *911* is a 911 call and *Test* is a 933 call
- *Call Status* where Completed means the call was answered by Intrado or PSAP which applies to 933 calls only or real answered 911 calls, and Cancelled means the call was not answered, which applies to 911 test calls only or real 911 calls that the caller dropped.
- *Duration* of the call once answered by Intrado or PSAP. Applies to 933 test calls and real 911 calls. It will be blank for Cancelled calls.
- *Subscriber ID* of the caller. This information is sent to Intrado in the PAI header of the SIP Invite by the MiVO250 and needs to match a Subscriber programmed on Intrado. If it does not match a Subscriber, it will still be marked as Completed, but will be highlighted as **RED** and for real 911 calls, will go to the ECRC.
- *ERL ID* of the caller. This will be CESID configured on the MiVO250 for the location the caller is making the emergency call from and will be sent to Intrado in the FROM header of the SIP Invite. If this does not match a programmed ERL ID, it will be marked **RED** and for real 911 calls, will be sent to the ECRC. This will be populated by a GUID generated by Intrado for callers using the E911 Location Manager application.
- *Address Information*. This is the location Intrado has mapped their ERL ID from the CESID provided in the FROM header of the SIP Invite for the MiVO250.
- *Callback Number*. This is the number the caller would be called back on should the emergency call drop. For 933 test calls, this will always be Intrado's main number, 514-745-2143 and should not be used for callback testing purposes. For 911 test calls, this will be blank, however, if email notifications are enabled for the ERL ID, the email notification will contain the callback number. For real 911 calls it will be populated. The callback number presented in this field(and email notification) will be DID/CPN number provided as the *Subscriber ID* if using Public SIP trunks with Intrado. If using Private SIP Trunks with Intrado, where the Extension Bind feature is

enabled, this is the DID number assigned to the *Subscriber ID* received in the emergency call by the Extension Bind feature. For 911 test calls, this number can be called through the PSTN from any phone to confirm the calls reaches Intrado and they map to the correct Subscriber and caller receives a call through the Intrado SIP trunks. The call can be answered to confirm audio path.

- *Call Destination:* Indicates where the call was routed. For successful test calls, this will be VPSAP, Intrado's Virtual PSAP. For real 911 calls, this will be PSAP. For test or real calls marked RED due not finding a match for a Subscriber or location, this will be ECRC.
- *Provisioned:* If Yes, both a Subscriber and Location were found. If No, no Subscriber or Location was found, and the entry will be marked **RED**.
- *Actions.* The folder icon can be selected to provide more details about the call, included details of the SIP Invite headers, as seen below. This information can be useful to further debug any issues.

Account Name	MiVB Design	VIA Header	SIP/2.0/UDP 35.182.122.159:5060;branch=z9hG4bK-524287-1---79bc466972aa9b00;rport
Account ID	ADFF0269-7AC8-4B79-B412-C84E7F17BCFC	Incoming DNIS	<sip:933@208.71.179.181>
Call Received	Wed Dec 1 09:48:06 EST 2021	Incoming FROM	"K.Bass"<sip:93002911@35.182.122.159:5060>;tag=0_3271788122-4044244349
Call Answered	Wed Dec 1 09:48:06 EST 2021	Incoming CONTACT	K.Bass<sip:93002911@35.182.122.159:5060;transport=UDP>
Call Terminated	Wed Dec 1 09:48:34 EST 2021	Incoming PAI	K.Bass<sip:93002911@35.182.122.159:5060;transport=UDP>
Call Duration	28	Incoming E911-USER-INFO	
Call Type	TEST	Incoming E911-Organization-ID	
Call Status	COMPLETED	Incoming Geolocation	
ERL Determination Method	CUSTOMER_LOCATION_ID	Incoming SDP Session Name	
Account mode	DEMO	Call Destination	ECRC
SIP Call ID	3271788087-4044244347X	Callback Number	(312) 637-3574
Info Message			

  - Much of this information was provided in the previous CDR table record and will just highlight some additional fields of note.
    - *Account ID* associated to this emergency call.
    - *ERL Determination Method*. Indicates the lookup algorithm being used by Intrado to match on Subscribers and ERLs. For the MiVO250 solution, this should be *Customer_Location_ID*. If this field shows any other value, contact Intrado to ensure the Location Determination Preference is set to ERL ID in SIP header for the account.
    - *Account Mode.* Indicates if you are using the account in Demo or Production mode.
    - *Incoming DNIS*. Provides details of the SIP Invite TO header indicating the emergency number called.
    - *Incoming FROM*. Provides details of the SIP Invite FROM header indicating the CESID sent from the MIVO250 to Intrado to match an ERL ID. This will be set to ANONYMOUS for calls from devices using the E911 Location Manager or calls in which the MIVO250 cannot find a CESID for.
    - *Incoming PAI.* Provides details of the SIP Invite PAI header indicating the number that will be used to match to an Intrado Subscriber.
    - *Incoming E911-Organization-ID.* This should match the value configured in the *Emergency Organization ID* in SIP Peer Trunk Group and is provided by the E911-Organization-ID header in the SIP Invite.

Chapter 28 Alarms, Events/Notifications and Logs

Existing alarm notifications contained the static CESID number (Emergency Calling Party Number field). Due to new requirements, the configured lookup process obtains the CESID at the call time and therefore alarm notification has been updated and contain the determined CESID.

Chapter 29 Troubleshooting

The intent of this section to help troubleshoot common issues in the solution and is not exhaustive.

Symptom	Troubleshooting Steps
Intrado is not receiving emergency calls	• Capture a wireshark trace to confirm if the SIP Invite is leaving the MiVO250 and MBG (if applicable) • If the SIP Invite is not leaving the MBG (if applicable), review MBG configuration and logs. • If the SIP Invite is not leaving the MiVO250, review MiVO250 configuration and logs. • If after reviewing the programming/logs and the calls are still not leaving the MiVO250/MBG, contact Mitel Product Support. • If the SIP Invite is leaving the MiVO250 and/or MBG, confirm with Intrado that the proper IP addresses are being used by Intrado and the MiVO250/MBG.
Intrado's CDRs for emergency calls are marked RED.	• Review CDR details to see what is being received and confirm the Subscriber in the PAI is provisioned and/or the CESID provided in the FROM is provisioned. • Confirm CDR *ERL Determination Method* is set to *ERL ID in SIP header*. If not, contact Intrado to ensure the Location Determination Preference for the account is set to *ERL ID in SIP header*. • If problems are still observed, contact Intrado Product Support

The Subscriber provided in the emergency call is incorrect.	• Confirm CDR *ERL Determination Method* is set to *ERL ID in SIP header*. If not, contact Intrado to ensure the Location Determination Preference for the account is set to *ERL ID in SIP header*.
	• If ERL Determination Method is correct confirm:
	  ○ *Emergency Call Headers* field in the *Trunk Group Configuration* is set to *CESID in From, Callback in PAI.*
	  ○ If Intrado Subscribers are configured as internal DNs, ensure *Send Station Extension/Username to Attached PBX* is set to Yes in the *Trunk Group Configuration*
	  ○ If Intrado Subscribers are configured as DIDs, ensure *Send Station Extension/Username to Attached PBX* is set to No in the *Trunk Group Configuration*
	  ○ Ensure the *Use P-Asserted-Identity Header* field in set to Yes in the *Trunk Group Configuration* is set to Yes.
	• If problems are still observed, contact Mitel Product Support

The location provided in the emergency call is incorrect.	• Confirm CDR *ERL Determination Method* is set to *ERL ID in SIP header*. If not, contact Intrado to ensure the Location Determination Preference for the account is set to *ERL ID in SIP header*. • If *ERL Determination Method* is correct confirm: ○ *Emergency Call Headers* field in the SIP Trunk Group Configuration is set to *CESID in From, Callback in PAI.* • If the call is made from device for which the MiVO250 provides the CESID, review the Deployment Guide chapter for that device in this document regarding configuration of *IP Address to CESID* form and *CESID Assignment* field. • If the call is made from device that provides the CESID during an emergency call, review the Deployment Guide chapter for that device in this document to ensure configured correctly. • If problems are still observed, contact Mitel Product Support.

Emergency Callbacks are not working	• Confirm CDR *ERL Determination Method* is set to *ERL ID in SIP header*. If not, contact Intrado to ensure the Location Determination Preference for the account is set to *ERL ID in SIP header*. • If Intrado Subscribers are configured as internal DNs, contact Intrado to ensure the Location Determination Preference is set to Extension Bind. • If Location Determination Method is correct confirm: ○ *Emergency Call Headers* field in the *Trunk Group Configuration* is set to *CESID in From, Callback in PAI.* ○ If Intrado Subscribers are configured as internal DNs, ensure *Send Station Extension/Username to Attached PBX* is set to Yes in the *Trunk Group Configuration* ○ If Intrado Subscribers are configured as DIDs, ensure *Send Station Extension/Username to Attached PBX* is set to No in the *Trunk Group Configuration* ○ Ensure the *Use P-Asserted-Identity Header* field in set to Yes in the *Trunk Group Configuration* is set to Yes. • If the Location Determination Method is set to Extension Bind, callbacks will be coming to the MiVO250 through the Intrado SIP trunk and care should be taken to ensure the routing of these inbound calls are handled as these calls will contain the internal DN is the FROM header of the SIP Invite.
Emergency Calls are not routed to the correct Intrado account	• Confirm CDR is displaying the value *Emergency Organization ID* in SIP Peer Trunk Group. If they do not match, contact Intrado Product Support.

Contacting Mitel Product Support

If it is required to contact Mitel Product Support, please be ready to provide the following:

1. Intrado Account Number
2. CDR from Intrado for any failed calls.
3. SIP trunk wireshark traces between the MiVO250 and Intrado, including MBG if applicable.
4. SIP endpoint wireshark traces between a SIP endpoint making an emergency calls and the MiVO250, including MBG if applicable.
5. Software release versions for the MiVO250, MBG (if applicable).
6. Firmware release versions of devices making the emergency calls.

Contacting Intrado Product Support

If it is required to contact Intrado Product Support, please be ready to provide the following:

1. Intrado Account Number
2. Type of Mitel PBX being integrated as Intrado is supporting multiple Mitel PBXs, not just the MiVO250.

Chapter 30 Acronyms, Abbreviations, and Glossary

BSSID - Basic Service Set Identification. MAC address of a Wireless Access Point (WAP) CESID - Caller Emergency Service Identification, equivalent to ELIN.
CESID - Customer Emergency Service Identification. A CESID is sent to a PSAP during an emergency call and is used as a key in the Automatic Location Information (ALI) database to find a location for the caller and it is also the call back number should the emergency call drop and therefore must be a dialable PSTN number. In the Intrado solution, the CESID is only used as a location identifier by Intrado to map to an ERL ID to find a dispatchable Civic Address to send to the PSAP and the callback number is sent separately, not tied to the CESID.
CPN - Calling Party Number – A number to identify the device or user who initiated the call.
DID - Direct Dialing Inwards – Allows an external caller to dial an internal extension without having to go through an attendant or operator.
ECRC -Emergency Call Relay Center(ECRC). This Intrado service will be called if the emergency call they have received from the PBX cannot find the Subscriber or Location of the caller. The ECRC will answer the emergency call and transfer it to the local emergency services.
ELIN - Emergency Location Identification Number also known as CESID. ERS - Emergency Routing Services.
Fixed devices - Fixed device is a device that cannot be moved to another place in the enterprise without assistance from a professional installer or network manager.
GUID - Globally Unique Identifier. It is a 128-bit integer number used to identify resources. Intrado generates GUIDs for ERL ID locations for user's reporting their location through the 911 Location Manager or devices using the HELD protocol, like the MiCollab SIP Softphone.
HELD- HTTP-Enabled Location Delivery. Protocol used for retrieving location information from a server within a network.
LIS - Location Information Server provided by Intrado that allows an organization to enter location information (including civic address, floor/room/suite/apt, and so on) to be used during emergency calls.
LLDP- Link Layer Discovery Protocol – An IEEE standard (801.1AB) that provides a vendor-neutral method for Ethernet network devices such as switches, routers, and wireless LAN access points to advertise and store the information about themselves to other nodes on the network.
LLDP-MED- Link Layer Discovery Protocol-Media Endpoint Discovery MBG – Mitel Border Gateway
MLTS - Multi Line Telephone System. Equivalent to a PBX, but is the nomenclature used in the RAY BAUM's Act.
NG911 – Next Generation 911
Non-fixed devices – A non-fixed device is a device that the end user can move from one endpoint to another without assistance.
PAI header - P-Asserted-Identity header
PANI header - P-Access-Network-Info header PSAP - Public Safety Answering Points
PSAP – Public Safety Answering(or Access) Point. A call center where emergency calls (like police, fire brigade, ambulance) initiated telephony device are terminated.

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