MiVoice MX-ONE

Emergency Services Operational Directions - Kari's Law and Section 506 of RAY BAUM'S Act

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Mitel®

Notice

Trademarks

Contents

Kari's Law and RAY BAUM'S Act

In August 2019, the USA government adopted rules for implementing two federal laws that strengthen emergency calling: Kari's Law and Section 506 of RAY BAUM'S Act.

The Multi-line Telephone Systems (MLTS) – Kari's Law and RAY BAUM'S Act 911 Direct Dialing, Notification, and Dispatchable Location requirements are described in the following link.

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

Frequently Asked Questions (FAQ) about the RAY BAUM'S ACT can be found at the following link: https://www.fcc.gov/files/mltsfaqspdf

RAY BAUM classifies devices into:

1. **Fixed MLTS devices** - The FCC defined a fixed device as a device which cannot be moved by the user without administrative intervention. In Mitel's view, fixed devices include any analog (or digital) phone which is plugged into a traditional telephone jack, through which fixed in-building wiring (for example, within floors, ceilings, walls, and so on) uses an analog telephone adapter device, or similar, to connect to the MLTS.
2. **Non-Fixed MLTS devices** - Non-Fixed devices are devices that the end user can move from one endpoint to another without assistance. Mitel considers the following to be non-fixed devices:
   - Internet Protocol (IP) phones which can connect to the VoIP Services or MLTS through any office Ethernet jack or wireless network,
   - Teleworker enabled IP phones, or
   - Softphones operating on desktop, laptop or mobile devices.

Introduction of MX-ONE Support for Section 506 of RAY BAUM'S Act and Kari´s Law

Mitel's MX-ONE, as a MLTS, implements section 506 of the RAY BAUM'S Act and Kari´s law support in conjunction with the third-party Next Generation 911 (NG911) emergency services.

In this document, section 506 of RAY BAUM'S Act and Kari´s law are referred to as RAY BAUM for simplification.

For the MX-ONE, the following device categories are mentioned:

1. **Fixed MLTS Devices** - TDM devices (Analog Devices, Digital Devices, and Integrated DECT).
2. **Non-Fixed MLTS devices** - IP Devices, SIP Devices, softphones, all teleworkers, and so on.

To provide above full support requirements, the MX-ONE is integrated with two well-known Next Generation 911 (NG911) providers for the USA market at the time of publishing.

The two such NG911 providers are:

1. RedSky
2. Intrado

MX-ONE RAY BAUM – High-level Architecture

The MX-ONE implements RAY BAUM in conjunction with NG911 providers as the MX-ONE 911 solution alone does not meet the legislated requirements for RAY BAUM for all non-fixed devices.

For Kari's Law requirements, the MX-ONE can be preconfigured for the direct dialing of 911 (emergency calls), without having to dial any prefix or access code. The 911 calls are sent via SIP trunk to the NG911 provider, and the NG911 provider will redirect to the appropriate Public Safety Answering Points (PSAPs) based on the Civic Address of the location as identified by the NG911 provider.

NOTE: The MX-ONE solution primarily sends Location identifiers to the NG911 provider during emergency calls. The NG911 provider will look up these Location identifiers to determine the Civic Address which they use in the signaling to the PSAP. The NG911 provider validates the Civic Address when the location is created in their database.

With the RAY BAUM'S Act solution, the Mitel MiVoice Border Gateway (MBG) is used as SBC (Session Border Controller) between the MX-ONE and the third-party NG911 provider in the solution. If a customer has an existing MBG used by SIP trunks, this can be upgraded to release 11.3 or later and used for the connection to the NG911 Emergency Routing Service (ERS). Additionally, the MBG can be used for MiCollab Remote User (Teleworkers). Standard engineering guidelines apply.

NOTE: Mitel is only validating the solution with the MBG, customers utilizing other vendors Session Border Controllers (SBC) will need to work their SBC vendor for verification with NG911 ERS services.

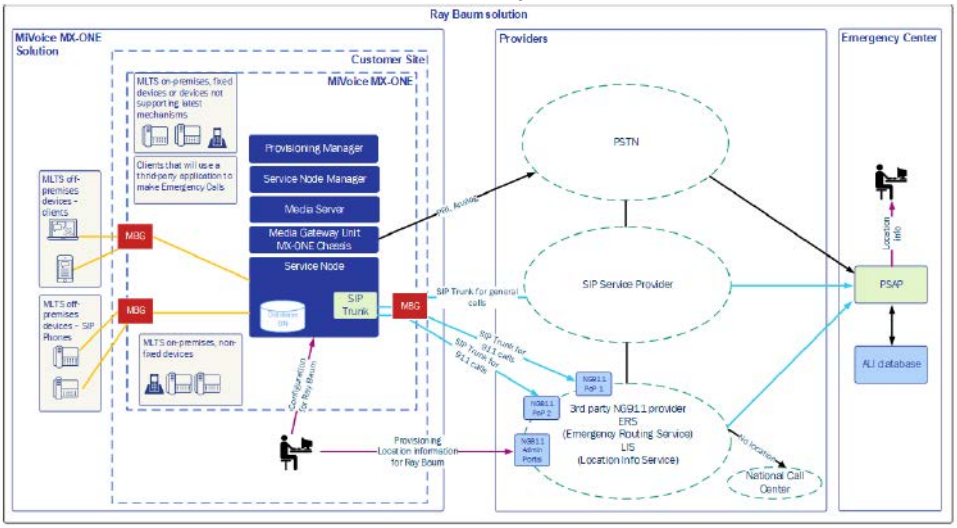
The integration described in this guide requires that the customer has a valid service agreement with an NG911 provider.

NOTE: Mitel does not provide this service agreement directly. To support Kari's law compliant local notifications, the solution will use the NG911 provider's notification application.

NOTE: The MX-ONE notifications (including Mitel Revolution) provide supplementary information and are not sufficient to meet Kari's law on their own when the MX-ONE is used in conjunction with an ERS.

Emergency Callback behavior is dependent on the NG911 provider selected. Some NG911 providers provide a DID service where they use their own DIDs when contacting the PSAP and will route callbacks back to the MX-ONE over the SIP trunk. Other NG911 providers will pass on the callback information from the call-server (or if none is provided, use a fixed callback field in their Location database), which will enable the PSTN to route the call back from the PSAP over the public PSTN to the specified callback number. In this case, the MX-ONE will need to use the existing DID features to route the incoming emergency callback from the public PSTN.

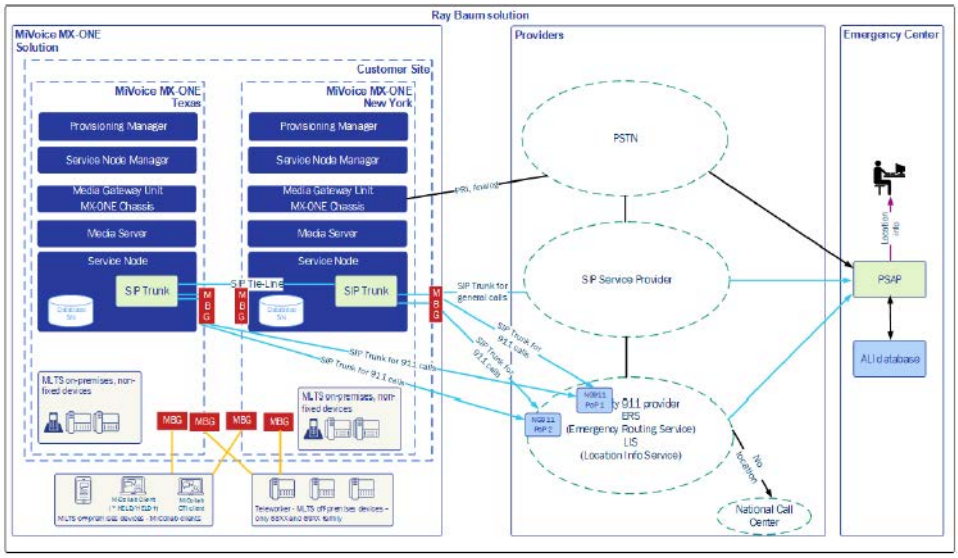
Figure 3.1: A high-level view of the MX-ONE RAY BAUM architecture for a single MX-ONE system



The following figure shows a high-level view of the MX-ONE RAY BAUM architecture for a networked MX-ONE system that uses SIP tie-line.

In this use case, both MX-ONE systems have connections with the NG911 provider to avoid single point of failure. MX-ONE systems can be optionally configured to provide the emergency information (A number (calling party) or Location Identifier (ID)) via tie-line which provides another layer of redundancy for the solution.

Figure 3.2: MX-ONE System Networked Systems - RAY BAUM High-level Architecture



Solution Components

The MX-ONE RAY BAUM solution is composed by the following components:

MX-ONE

The MX-ONE system is composed of the following components:

- The MX-ONE Service Node – Call Server Control
  The call server component that takes care of the signaling is called MX-ONE Service Node which is a Linux based call control software that can either be installed in a private cloud as an instance or reside in a standard Intel based server.
  The MX-ONE Service Node contains an emergency location database among other functions, which are used to store the data used by the emergency solution in MX-ONE, in this case RAY BAUM'S Act data.
- MX-ONE chassis with Media Gateway Unit
  The MX-ONE chassis is used to house TDM boards used by legacy devices.
  - Media Gateway Unit (MGU card) is used as media transcoding. It also contains TDM trunks (E1 or T1 interfaces).
  - Analog board is used to provide analog extensions (Optional).
  - Digital board is used to provide digital extensions (Optional).
  - DECT board is used to provide Integrated DECT extensions (Optional).
- MX-ONE Media Server
  - Media Server is a software-based media gateway used as media transcoding.
- MX-ONE Provisioning Manager
  - Management system used to configure end user information and end points (devices).
- MX-ONE Service Node Manager
  - Management system used to configure system information; for example, number planning, route/trunks.

MiVoice Border Gateway (MBG)

The Mitel MiVoice Border Gateway (MBG) is used as the SBC (Session Border Controller) between MX-ONE and the third-party NG911 provider in the solution.

- Note that the MBG is used as Teleworker for MiCollab clients can be used together with the SIP trunks to connect with NG911. Standard engineering guidelines apply.
  Teleworker support - An additional MBG is required for Remote Users (Teleworkers) - SIP phones (Mitel 6800 and 6900 series).

SIP Trunking to or from NG911

A SIP trunk is setup between MX-ONE and MBG and between MBG and the NG911 provider.

For redundancy purpose, the NG911 providers offers two point of presences (two different locations). It is recommended that two SIP trunks are setup between MBG and NG911 provider. For this case, MX-ONE can have only one SIP trunk towards MBG and the round robin mechanism in the MX-ONE SIP trunk can provide load balancing functions between the SIP trunks. For example, the first call goes to point of presence 1 and the second goes to the point of presence 2.

Another approach is to use two SIP trunks between MX-ONE and MBG and two SIP trunks between MBG and the points of presence (PoP).

Emergency SIP Trunk for Calls from Logged on/Logged off SIP Devices

The Emergency SIP trunk handles the emergency 911 incoming calls from logged on/logged off SIP devices to MX-ONE system according to configured emergency trunk profile.

Any MX-ONE setup restriction for Traffic Connections and A-number presentation will be disabled for the calling SIP device and Geolocation, BSSID, MAC address and ELIN information provided by the device will be forwarded as input data to the emergency location database lookup for location-ID.

Devices

Devices that are normally used in MX-ONE include 6800 and 6900 SIP phones, DECT phones, Wi-Fi phones, analog and digital phones.

Optional Mitel Applications

The following components can be integrated with the MX-ONE RAY BAUM solution.

- InAttend client
- MiCollab clients
  - Desktop PC and MAC
  - Web clients

NG911 Provider

The NG911 service provides civic address validation and notification for the RAY BAUM'S Act compliant solution.

With the NG911 provider system, a web portal is used to setup the information required for the solution to work properly. Much of the information required depends on the provider, but some information is mandatory; for example, the civic address, a valid DID for callback calls (10 digits), valid DID number, an extension number or an alternate identification of the device or the user.

NOTE: A Commercial Agreement with the NG911 Provider is required for this solution.

Requirements for MX-ONE RAY BAUM Integration

Mitel MiVoice MX-ONE Solution Requirements

The following are the minimum MX-ONE requirements for the RAY BAUM solution:

Product	Minimum SW Release	Minimum Requirements/Comments
MX-ONE	7.3 SP3	• SIP trunk licenses For the RAY BAUM solution, minimum two SIP trunk routes are required along with the SIP channel licenses. • One SIP trunk for the connection between MX-ONE and MBG configured using Round Robin functionality reaching the two NG911 POP's (Point of Presence) and another for internal Emergency SIP trunk handling incoming emergency (911) calls to MX-ONE from SIP devices and clients. **NOTE:** that MX-ONE requires the internal Emergency SIP trunk to remove any service that the extension has; for example, a number presentation restriction or traffic connection restrictions for SIP devices/clients. • Devices licenses • Optional licenses Licenses required for encryption (to be used in the SIP trunk between MX-ONE and MBG).

Product	Minimum SW Release	Minimum Requirements/Comments
Mitel MiVoice Border Gateway (MBG)	11.3	Minimum one standalone MBG in the solution with the appropriate SIP Trunk licenses. • MBG licenses • SIP trunk connections to NG911 providers (a minimum of two connections is recommended for redundancy, one for each Point of Presence). Note that encryption can be configured between MBG and the NG911 provider. Verify if the NG911 provider selected offer this option. **NOTE:** If remote users (Teleworkers) using SIP Phones (6800 and 6900 series) are needed as part of the solution, an additional MBGs is required. In MX-ONE solution, a dedicated MBG is always used for the Teleworker SIP Phones. In some cases, if the capacity allows the MBG used by the MiCollab clients, can also be used to the SIP trunks. Standard engineering guidelines apply.
SIP DECT 6xx	8.3 SP1	Device based provisioning of an ELIN/CESID that is to be sent during calls.
IP DECT 56xx (ASCOM)	11.6	Device based provisioning of an ELIN/CESID that is to be sent during calls.
5634 Wireless (ASCOM) WinPDM (Management tool)	3.0.2 3.15.3	Device based provisioning to enable sending of the MAC Address (BSSID) of connected Wireless BaseStation during calls.

Product	Minimum SW Release	Minimum Requirements/Comments
MiCollab	9.4	Geolocation support via HELD the NG911 Provider's Location Information Server.
6800 and 6900 SIP Phones	6.1 or later	Pop-up support (for supporting teleworker devices).
InAttend	2.6 SP3	RAY BAUM emergency private queue.

Description of MX-ONE RAY BAUM Support

Introduction

MX-ONE release 7.3 SP3 implements functions to support emergency services requirements according to the USA law.

The MX-ONE system must be configured properly to support the functionality required by the law.

The functions specific supporting emergency services in the USA are:

- SIP trunk profiles
- The MX-ONE Emergency Location database
- Domain setup
- Integrated DECT setup, (if the customer uses Integrated DECT)

Additionally, the following standard MX-ONE functions are also needed:

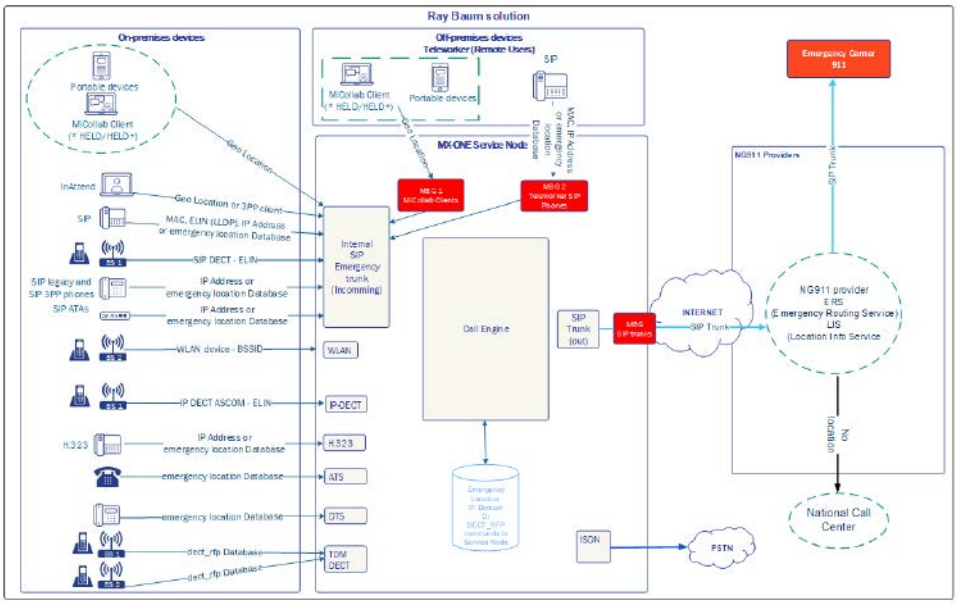
- Number conversion
- Least Cost Routing
- Route setup
- Extension setup

How the Integration Works

When a user dials the emergency number 911, the call engine inside of MX-ONE will look for the type of device use to make the call that collects the appropriate data (A-Number, Geolocation, BSSID, MAC address, ELIN/CESID or an IP address) if available.

After that, MX-ONE system prepares the data (A-Number or Location ID) to be sent via the SIP trunk to the NG911 provider.

Figure 5.1: MX-ONE Service Node Call Engine



The RAY BAUM solution comprises of three main components: devices, MX-ONE, and the NG911 provider.

Following is a description of these components.

1. **Devices**
   The devices are used to initiate an emergency call. Each device needs to provide a unique identifier during the call setup to MX-ONE. The identifiers can be a A-number, Geolocation, BSSID, MAC address, ELIN/CESID or an IP address.
   The devices must be properly configured by the customer system administrator to provide the required information.
2. **MX-ONE**

   The MX-ONE call manager processes the information received from a device and sends it to the NG911 provider via MBG.
   The information that is sent by MX-ONE depends on the NG911 requirements; it can be:
   - A 10-digit number
   - An identifier such as ELIN

     In MX-ONE the Location ID (location identifier) is used to provide the ELIN information to the NG911 provider. The Location ID is defined in MX-ONE via a command.

     NOTE: The MX-ONE RAY BAUM call engine processes the data in the following priority order if multiple input information is provided by the device:
   - **Geolocation**: provided by HELD (HTTP-Enabled Location Delivery) protocol. The devices need to support the HELD protocol.
   - **BSSID**: provided by the 5634 to the MX-ONE the Wi-Fi access point's Basic Service Set Identifier (BSSID) in the SIP INVITE or 200 OK (PANI header).
   - **MAC**: provided by 6700, 6800 and 6900 SIP phones in the INVITE (sip instance) – mainly used in Teleworker mode (6800 and 6900). Note: 6700 is not supported in Teleworker mode.
   - **ELIN/CESID**: provided by SIP DECT, IP DECT in the SIP INVITE or 200 OK (PAI header) and SIP Phones (configuration in the network switch).

     Note that the device or the base station must support ELIN/CESID setup.

- **IP address**
- **Emergency Location database**, `dect_rfp` command (TDM DECT).
- **Emergency Location database**, `emergency_location` command.

MX-ONE must be properly configured by the system administrator (customer or partner) to providethe required information.

3. **NG911 Provider**

   The NG911 provider ERS (Emergency Routing Services) function receives the call setup information from the MX-ONE and verifies with the Location Information Server (LIS) that there is a preconfigured valid civic address associated with the device or user before forwarding the call to the correct Public Safety Answering Point (PSAP).
   The NG911 provider supplies a web portal where the customer system administrator must setup information about the customer on-premises environment. For example, validated civic address of the building and network information for HELD devices, or any information that could specify a dispatchable location.

NOTE: If there is no valid location information, the call is redirected by the Emergency Routing Services (ERS) to their National Contact Center to get a location manually. This process may incur an extra cost per call that will be charged to the end-user.

For additional information about the NG911 setup, see the NG911 vendor's documentation.

Devices

Non-Fixed Devices

The following are non-fixed devices in MX-ONE:

- SIP - Mitel Phones (6800 and 6900 series)
- SIP - Mitel Phones (6700 series)
- SIP - Third-Party (3PP) phones
- SIP DECT
- SIP - ATA (Analog Terminal Adapters - Mitel TA7100 family)
- Integrated DECT (requires a board in the MX-ONE chassis)
- IP DECT - ASCOM
- Wi-Fi phone
- H.323 (IP phones)
- InAttend - client
- Soft client - MiCollab - SIP
- CTI client - MiCollab - controlling SIP device
- WebRTC client

Collecting Data

For non-fixed devices, the MX-ONE logic checks for the Geo-location, BSSID, MAC address, ELIN/CESID, and the IP address provided by the device. For BSSID, MAC address, IP address additional information must be added in the MX-ONE's Emergency Location database to complement the informationreceived from the device. The additional information needs to be added manually in the system by the system admin.

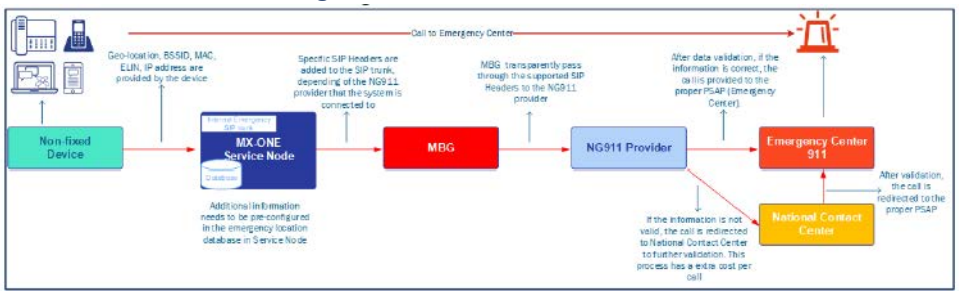
NOTE: For Integrated DECT (legacy TDM DECT), the MX-ONE can be configured to provide the base station location information via the Location ID set up in the dect_rfp command. This information must be added in the MX-ONE system by the system admin.

NOTE: For SIP phones using ELIN/CESID via LLDP_MED protocol, the ELIN/CESID configuration must be done in the LAN switches by the customer system administrator.

NOTE: For SIP DECT and IP DECT, the ELIN/CESID configuration must be done in each base station by the customer system administrator.

NOTE: For Wi-Fi phones, the customer system administrator must use the WinPDM tool to configure the device parameter Emergency call location method to send BSSID in SIP Invite.

Figure 5.2: Non-Fixed Devices Call Flow



Sending Data to the NG911 Provider

After the MX-ONE has collected all information from the device side in the call setup then based upon the MX-ONE SIP trunk configuration, which is different per NG911 provider. It will insert the information needed to be sent in the SIP trunk, including the appropriate SIP headers as required, to the NG911 provider via the MBG.

NOTE: MX-ONE sends HELD devices information transparently to the NG911 provider. However, if the full DID numbers are not available, MX-ONE can add the callback number (configuration is required) to be sent to the NG911 provider.

To conclude the process, the NG911 provider validates the information received and will take the appropriate action. If all data is correct, the call is sent directly to the PSAP (Emergency Center). If not, then the call is redirected to the NG911 vendor's National Call Center for further triage, in which case the end-user may incur an extra charge.

Note that the MX-ONE will always route the call to the ERS whether there is correct location data or not (assuming that the routing is configured correctly).

Fixed Devices (Legacy TDM Devices)

A Fixed device is defined as a device that cannot be moved to another location in the enterprise without assistance from a professional installer or network manager. These are typically TDM devices such as an analog set.

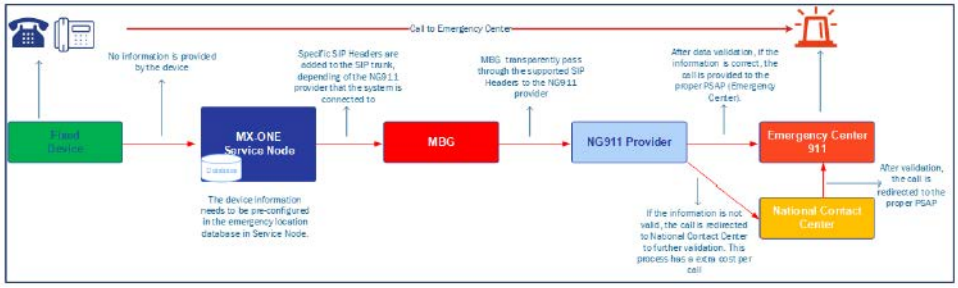
The following are fixed devices in MX-ONE:

- Analog – ATS (it requires a board in the MX-ONE chassis).
- Digital – DTS (it requires a board in the MX-ONE chassis).

Collecting Data

For fixed devices, because no information is provided by the device, the MX-ONE logic checks for information in the Emergency Location database. The information for these devices must be added in the system by the system administrator.

Figure 5.3: Fixed Devices Call Flow



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Note that the MX-ONE will always route the call to the ERS whether there is correct location data or not (assuming that the routing is configured correctly).

MX-ONE Emergency Configuration

SIP Trunk

MX-ONE supports SIP trunk profiles, which are predefined configuration files containing specific setup for SIP trunk providers.

For the USA emergency service solution (RAY BAUM), there are preconfigured profiles for both RedSky and Intrado NG911 providers.

The SIP trunk profile contains the SIP headers needed for each solution. These SIP headers are available in the North America Application System.

Refer to the associated configuration guides for each provider in MX-ONE CPI documentation.

- *MiVoice MX-ONE Emergency Services and RAY BAUM'S Act Integration with RedSky*
- *MiVoice MX-ONE Emergency Services and RAY BAUM'S Act Integration with Intrado*

Emergency Location Database

The MX-ONE Service Node contains an Emergency Location database, which is used to store the data used by the emergency service solution in the MX-ONE.

The data is required as an input and is required by the NG911 provider to identify a device in the MX-ONE side. The data is sent by MX-ONE via SIP trunk headers to the NG911 provider.

The emergency location has the following data structure:

Table	Description	Additional information
(LocationId) Table	Contains information such as Customer ID, Callback Number, and general information.	• The Location ID is a reference or identification used to identify a device in MX-ONE. This reference is then sent as an alternative ID instead of an ELIN/CESID in case a full DID number cannot be sent to the NG911 provider. For example, in a hotel or any enterprisecustomer where the extension does nothave a dialable number. • The Customer ID is required by the NG911 providers to identify the customer associated with that call. • The Callback Number is required by the NG911 providers in case of a full DID (10-digit dialable number) number is not sent. For example, in a hotel or any enterprise customer where the extension does not have a dialable number.
BSSID Table	Contains information that associates Location ID with BSSID (Access Point Information for Wi-Fi phones) or MAC addresses (SIP phone) information.	• The BSSID is required to identify which Wi-Fi Access Point, a wireless device is connected when an emergency call is made. The BSSID is associated with a Location ID. • The MAC address is optionally used to identify which SIP Phone was used when an emergency call is done. The MAC is associated with a Location ID. It is mainly used in Teleworker mode. • It can also be used in conference rooms and corridor phones.

Table	Description	Additional information
DIR Table	It contains information that associates Location ID with a Directory Number (extension).	It can be used for fixed devices and in some specific cases with non-fixed devices, such as H.323 phones, third-party SIP phones or ATA (Analog Terminal Adapters).
LIM Table	It contains information that associates Location ID with a specific Service Node (LIM) or all Service Nodes (LIM).	The LIM table can be used in some customer scenarios, where many devices (SIP, IP, analog or digital) reside in the same physical location (same building floor).
Customer Group Table	It contains information that associates MX-ONE customer groups (multi-tenant/CUST) with NG911 provider Customer ID.	• It is used to associate an MX-ONE customer group (CUST) with the NG 911 Customer Id. It can also contain a callback number to be used by the MX-ONE customer setup. • The customer 0 is the default and all extensions will be assigned to this group if no other customer group is specified. • One entry can be specified by each customer group used by the systems (including customer group 0). Note that using the customer group setup simplifies the MX-ONE configuration, because it does not require that the customer ID parameter is configured for each entry in the Location ID table. Note that if customer ID is defined in bothLocation ID table and Customer Group table, the Location ID table has more priority.

IP Domain

A subnet domain or IP address can be used to identify the SIP phone that was used to make an emergencycall. For example, when SIP phones are located in a floor and they belong to the same IP subnet/domain.

In MX-ONE, the ip_domain command is used to associate a Location ID with a specific IP address or a subnet domain (IP range) for emergency calls.

The customer needs to be considerate of IP Domain usage as it is possible that an IP subnet may refer to more than one dispatchable location as required by the RAY BAUM'S Act and in that scenario, a single IP domain may not be granular enough to meet the legal requirements.

Integrated DECT

When the Integrated DECT devices are used in the customer, the system can be configured to associate a Location ID with a base station. The `dect_rfp` command is used for creating a radio cell reference.

Access Code

Access code setup is required for proper route selection. For example, 911 is the access code for the route to the NG911 emergency service provider. Configuration must allow for 911 to be able to be dialed without a prefix of suffix digit(s).

This setup is required to comply with Kari´s Law.

Number Conversion

Number conversion might be needed if number normalization for creating the proper DDI number (10 digits dialable number) is required.

Least Cost Routing

Least Cost Routing configuration might be needed depending whether 911 is used as an access code or as an LCR code. Also, LCR configuration might be needed to convert “9911”, and so on to 911 and route it to the NG911 provider SIP trunk instead of to the public trunk.

NOTE: The number 933 should also be allowed for testing purposes. Check if NG911 provider offer 933 for testing purposes.

Alternative Routing

In case NG911 provider, by some reason is not reachable via the dedicated SIP Trunk to the NG911 provider. Emergency calls need to be routed to an emergency call center via the public PSTN lines connecting the MX-ONE system to the public network. In MX-ONE, this can be fulfilled by configuring Alternative Routing functionality on the dedicated NG911 SIP trunks. In this case, if the SIP trunks to the NG911 providers are out of service, the system will route emergency calls via PTSN for further triage.

Using the A Number Definition (DID - Direct Inward Dialing) as the LID

A valid telephone number (DID - in USA it is 10 digits), based on the North America Modern Plan (https://en.wikipedia.org/wiki/North_American_Numbering_Plan - Modern Plan) can be used to identify a device.

MX-ONE can send the A number in the “From” header of the SIP INVITE to the NG911 provider. The A number can be used to identify a device and its location if the NG911 provider database is configured for this.

Example:

InAttend client, directory number 220710 has a valid DID 4584220710.

Analog extension, directory number 220711 has a valid DID 4584220711.

Note that this setup is not recommended in a forking extensions scenario because the user can be logged in more than one place using the same extension. For example, a user has a phone logged in on their desk and they login in at another phone in a conference room. When an emergency call is established, the A number will be sent; however, the system does not know if that call was done from the desktop or the conference room. ELIN or MAC addresses can be used to solve this case.

Configure MX-ONE with A number

To setup the full 10 digits (DID) number in MX-ONE number conversion is used.

In MX-ONE, the number conversion setup will convert the extension number 22xxxx to a full 10 digits (DID) number required by the NG911 provider.

The “Numbertype” parameter set as 10 (“Internal directory number when sent to public network”) is used for extensions and the “Numbertype” parameter set as 5 (“Private Unknown”) for calls via the emergency trunk.

For example, configuring the extension numbers 22xxxx to full 10 digits (DID) number in the emergency route 911.

number_conversion_initiate -entry 22 -conversiontype 1 -numbertype 10 -pre 4584 -route 911 -targetdest 911 -newtype 2

number_conversion_initiate -entry 22 -conversiontype 1 -numbertype 5 -pre 4584 -route 911 -targetdest 911 -newtype 2

Configure the Customer ID in MX-ONE

In the customer group setup, the customer 0 is the default. So, associating it with the customer ID will make all extensions in this system will be associated with the customer ID.

emergency_location -i --customer 0 --customer-id 8ae5df2b-93e9-4e4c-bdd0-74316e36eae6

NOTE: The customer ID setup in MX-ONE is to be sent via the SIP trunk header E911-Organization-ID to the NG911 providers.

Configure NG911 Portal with Location IDs

To configure the NG911 portal with the A number, let´s assume that the customer has a building in New York, and it is located in the street: 101 E 79th St, NY 10075, USA, then this civic address must be associated in the NG911 web portal with the A number (10 digits DID) defined in MX-ONE.

NOTE: In this case the A number is used as callback number.

A Number - DID (defined inMX-ONE)	Civic address	AdditionalInformation
4584220710	101 E 79th St, NY 10075, USA	Floor 1
4584220711	101 E 79th St, NY 10075, USA	Floor 2

MX-ONE Location ID Definition

The Location ID is a reference or identification used to identify a device or several devices in MX-ONE and it supports digits and characters. The Location ID is sent to the NG911 provider as an alternative ID instead of an ELIN/CESID or a DID number.

The Location ID states the 'location identity' of a specific physical place. It identifies a building, a campus, a site, a room, suite, or radio cell reference.

The Location ID created in MX-ONE needs to be created in the NG911 web portal and a civic address must be associated with the Location ID.

Location ID versus ELIN

The location ID is an MX-ONE proprietary parameter that can be used in conjunction with BSSID, MAC addresses, IP addresses, and ELINs to create a unique identifier in an enterprise environment. This unique identifier can be then associated with a civic address in the NG911 web portal.

Normally, an ELIN supports 10 digits, and it needs to be bought by the customer. In the other hand, the Location ID in MX-ONE is more flexible; it supports up to 100 characters and it does not require any number purchase.

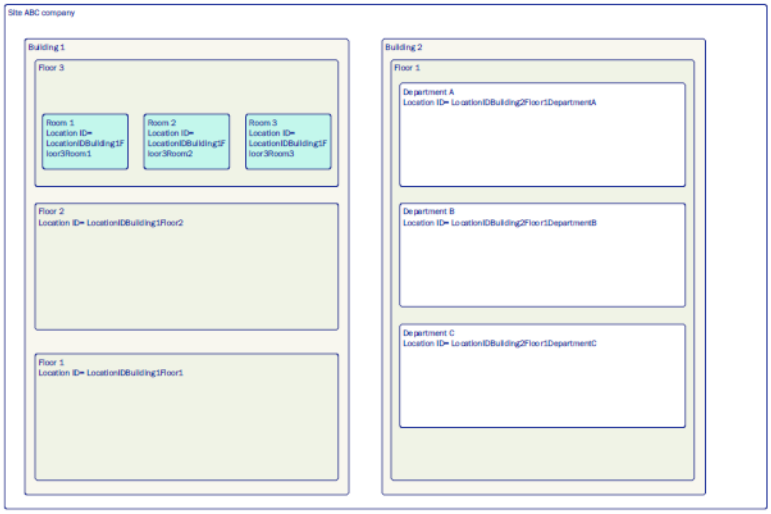
The location ID in MX-ONE can also be associated with a callback number, in case the customer does not have DID numbers to all extensions.

Location ID Example

The Location ID can be set up depending on the granularity required by the customer setup.

The following figure shows some examples of Location IDs supported by the MX-ONE emergency location database.

Figure 5.4: Location ID Example



In this example, the customer has two buildings; the building 1 has three floors and building 2 has only one.

- Building 1 has a Location ID for the floor 1 and floor 2. The third floor contains three rooms, each of them with a Location ID.
  - Floor 1: Location ID= LocationIDBuilding1Floor1
  - Floor 2: Location ID= LocationIDBuilding1Floor2
  - Floor 3:
    - Room 1 - Location ID= LocationIDBuilding1Floor3Room1
    - Room 2 - Location ID= LocationIDBuilding1Floor3Room2
    - Room 3 - Location ID= LocationIDBuilding1Floor3Room3
- Building 2 has a Location ID defined by department, each of them has one.
  - Floor 1:
    - Department A - Location ID= LocationIDBuilding2Floor1DepartmentA
    - Department B - Location ID= LocationIDBuilding2Floor1DepartmentB
    - Department C - Location ID= LocationIDBuilding2Floor1DepartmentC

Configure MX-ONE with Location IDs

The MX-ONE commands `emergency_location -i, ip_domain -i` and `dect_rfp` are used to create the Location ID, they require the parameter --location-id.

Example 1: Add a Location ID to the building 1 floor 1.

```
emergency_location -i --location-id LocationIDBuilding1Floor1
```

Example 2: Add a Location ID to the building 1 floor 3, room 1.

```
emergency_location -i --location-id LocationIDBuilding1Floor3Room1
```

After defining a Location ID in the MX-ONE emergency location database, the Location ID can be associated with MAC addresses, BSSIDs, ELIN/CESID, IP addresses/Subnets, Directory Number, and Service Nodes (LIMs).

Example 1: Add an analog extension number 220713 to Location ID LocationIDBuilding1Floor1.

```
emergency_location -i -d 220713 --location-id LocationIDBuilding1Floor1
```

Example 2: Add a BSSID for the Wi-Fi access point located in the building 1 and floor 3, room 1

```
emergency_location -i --bssid deadbaadbeef --location-id LocationIDBuilding1-
Floor3Room1
```

Example 3: Add a Location ID to the building 1 floor 2 for an IP subnet.

```
emergency_location -i --location-id LocationIDBuilding1Floor2
```

ip_domain -i --domain-name Building1 --ip-net 192.168.200.0/24 --packetization-interval 20 --video-limit 100 --codec-priority-list PCMA,PCMU,G729AB,G729A,G722 --location-id LocationIDBuilding1Floor2

Note that the MX-ONE system administrator is responsible for providing accurate information about the location (civic address) for a device.

Configure the Customer ID in MX-ONE

In the customer group setup, the customer 0 is the default, so associating it with the customer ID will make all extensions in this system that are associated with the customer ID.

```
emergency_location -i --customer 0 --customer-id
8ae5df2b-93e9-4e4c-bdd0-74316e36eabbF
```

Note that the customer ID setup in MX-ONE is be sent via the SIP trunk header E911-Organization-ID to the NG911 providers.

Configure NG911 Portal with Location IDs

After the Location IDs are defined in the MX-ONE, it must be added in the NG911 web portal.

Using the example in the figure 5.4, let´s assume that building 1 is located in the street: 101 E 79th St, NY 10075, USA, then this civic address must be associated in the NG911 web portal with the Location ID defined in MX-ONE.

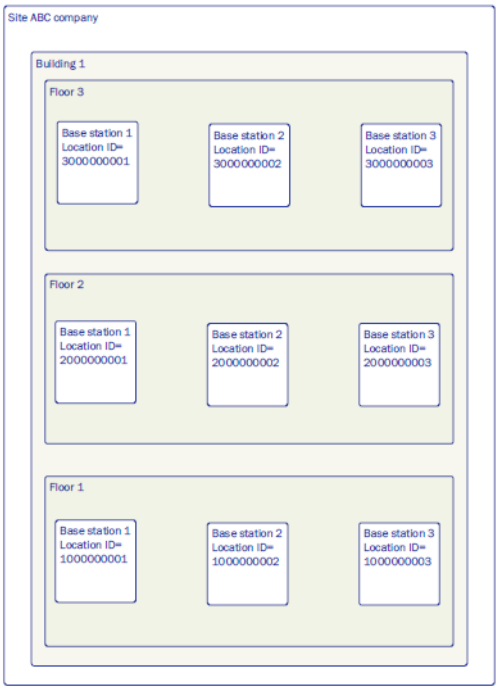
Note that callback numbers can be added in the MX-ONE or in the NG911 portal as preferred by the customer.

Location ID (defined inMX-ONE)	Civic address	AdditionalInformation	Callbacknumber
LocationIDBuilding1Floor1	101 E 79th St, NY 10075,USA	Floor 1	A callback number needs to beadded
LocationIDBuilding1Floor2	101 E 79th St, NY 10075,USA	Floor 2	A callback number needs to beadded
LocationIDBuilding1Floor3Room1	101 E 79th St, NY 10075,USA	Floor 3 room 1	A callback number needs to be added
LocationIDBuilding1Floor3Room2	101 E 79th St, NY 10075,USA	Floor 3 room 2	A callback number needs to beadded
LocationIDBuilding1Floor3Room2	101 E 79th St, NY 10075,USA	Floor 3 room 2	A callback number needs to beadded

Integrated DECT Location ID example

The example in the following figure shows an Integrated DECT setup. The base stations are distributed in three floors in the customer building. There are 9 base stations in total and each base station is associated with a Location ID.

Figure 5.5: Traditional DECT Location ID Example



Building 1:

1. *Floor 1:*
   - Base station 1 - Location ID= 1000000001
   - Base station 2 - Location ID= 1000000002
   - Base station 3 - Location ID= 1000000003
2. *Floor 2:*
   - Base station 1 - Location ID= 2000000001
   - Base station 2 - Location ID= 2000000002
   - Base station 3 - Location ID= 2000000003
3. *Floor 3:*
   - Base station 1 - Location ID= 3000000001
   - Base station 2 - Location ID= 3000000002
   - Base station 3 - Location ID= 3000000003

NOTE: Depending on the floor size, one Location ID might be used to identify the whole floor. In this case, all base stations covering the floor can be given the same Location ID.

For the correct Integrated DECT, IP DECT or SIP DECT area coverage, check the appropriate document in MX-ONE CPI documentation.

Configure MX-ONE with Integrated DECT Location IDs

It is assumed that the DECT system is already setup and in place. The only change required is in the dect_rfp command as shown below:

```
dect_rfp
```

In the `dect_rfp` command the location ID can be initiated.

Example: Add the location-id information on RFP 1 on Common Fixed Part 3.

```
emergency_location -i --location-Id 1000000001
dect_rfp -i --fpi 3 --rpn 1 --location-Id "1000000001"
```

Configure the Customer ID in MX-ONE

In the customer group setup, the customer 0 is the default, so associating it with the customer ID will make that all extensions in this system will be associated with the customer ID.

emergency_location -i --customer 0 --customer-id 8ae5df2b-93e9-4e4c-bdd0-74316e36eae6

Note that the customer ID setup in MX-ONE is be sent via the SIP trunk header E911-Organization-ID to the NG911 providers.

Configure NG911 Portal with Location IDs

After the DECT Location IDs are defined in the MX-ONE, it must be added in the NG911 web portal.

Using the example in the figure 5.5, let´s assume that building 1 is located in the street: E 79th St 101, NY 10075, USA, then this civic address must be associated in the NG911 web portal with the DECT Location ID defined in MX-ONE.

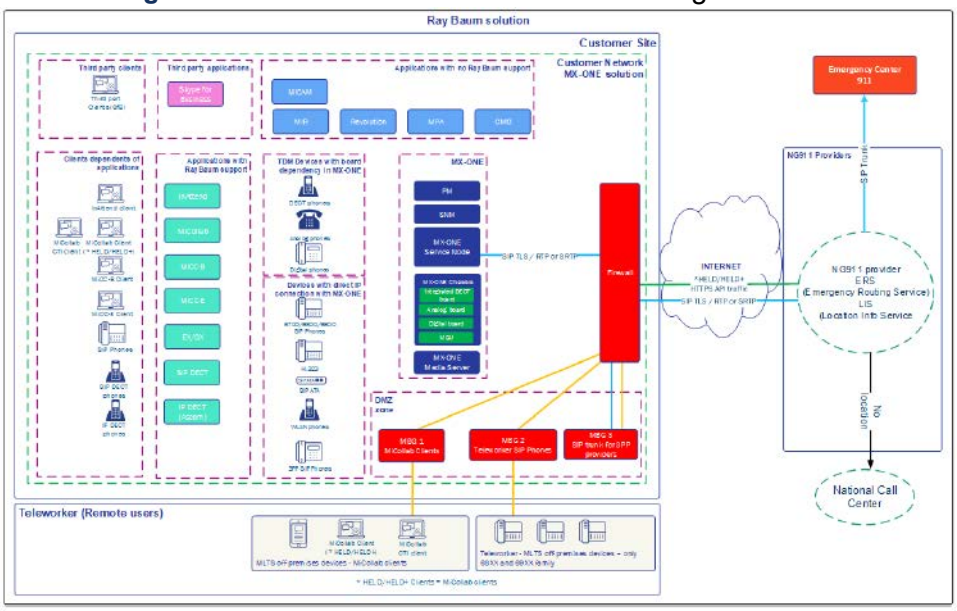
Note Callback numbers can be added in the MX-ONE and in the NG911 portal.

Location ID (defined in MX-ONE)	Civic address	AdditionalInformation	Callbacknumber
1000000001	Floor 1	101 E 79th St, NY 10075, USA	A callback number needs to be added

MX-ONE Solution Architecture High-level – RAY BAUM

The MiVoice MX-ONE solution for RAY BAUM is composed by different devices, Mitel applications and third-party devices or applications.

Figure 6.1: MX-ONE Solution Architecture High-level – RAY BAUM



Each of the devices and applications have certain ways of providing RAY BAUM support. The MX-ONE system supports different implementations to identify an emergency call dependent on the device type.

Devices

The MX-ONE supports different type of devices, for RAY BAUM purposes the MX-ONE system supports non-fixed and fixed devices.

Fixed Devices On-Premises (Legacy TDM Devices)

The following are fixed devices in the MX-ONE:

- Analog – ATS (it requires a board in the MX-ONE chassis).
- Digital – DTS (it requires a board in the MX-ONE chassis).
- CTI client – MiCollab - controlling a TDM device

Non-Fixed Devices On-Premises

The following are non-fixed devices in MX-ONE:

- SIP - Mitel Phones (6800 and 6900 series)

- SIP - Mitel Phones (6700)
- SIP - Third-Party (3PP) phones
- SIP DECT
- SIP - ATA (Analog Terminal Adapters - Mitel TA7100 family)
- Integrated DECT (requires a board in the MX-ONE chassis)
- IP DECT - ASCOM
- Wi-Fi phone
- H.323 (IP phones)
- InAttend - client
- Soft client - MiCollab SIP softphone
- CTI client - MiCollab - controlling SIP device
- WebRTC client

Devices Off-Premises (Remote Users – Teleworker)

- SIP - Mitel Phones (6800 and 6900 series)
- Soft client - MiCollab SIP softphone

NOTE: MiCollab SIP soft phone when installed on a mobile device uses the mobile device native dialer for emergency calls. So, the MX-ONE is not involved in the call setup.

MX-ONE Functions with RAY BAUM Support

The MiVoice MX-ONE supports many functions that might be used to make an emergency 911 call, the supported MX-ONE functions include:

- SIP devices - up 8 terminals
- Parallel Ringing (SDIR) - Single Number Indication
- Auto-registered extension
- SCA - Shared Call Appearance
- EDN - Extra Directory Number
- ADN - Additional Directory Number
- MDN (DTS) - Multiple Directory Numbers
- MNS - Multiple Directory Number and Name Selection (monitoring)
- CSTA cases (all clients)
- Free Seating
- Hotline
- Groups

Mitel Products with RAY BAUM Support

The MX-ONE is integrated with different Mitel Applications with RAY BAUM support.

Supported applications with RAY BAUM support:

- InAttend
- MiCollab
- MBG - MiVoice Border Controller
- MiCC-B - MiContact Center Business for SIP
- MICC-E - MiContact Center Enterprise
- Common Gateway EX - except with SBC Survivability
- Common Gateway GX - except with SBC Survivability
- SIP-DECT
- IP-DECT (ASCOM)

Third-Party Products

Supported third-party applications that do not support RAY BAUM:

- Skype for Business

Devices Emergency Services Setup

Each type of device supported by the MX-ONE has a different way of providing the location to the Emergency Routing Service. There are different methods of configuration for the device depending on the device and deployment scenario. The device configuration must be correct to provide the most accurate and precise location information about a caller's location when making an emergency call.

For non-fixed devices such as SIP desk phones, SIP-DECT devices, IP-DECT and Wi-Fi phones the MX-ONE obtains the information during the call setup. For example, a MAC address is sent in call setup in the SIP phone Teleworker use case. The MAC address is then associated with a Location ID in the MX-ONE Emergency Location database.

Some other device types require preconfiguration, for example:

- The location setup in the MiCollab client.
- The location setup is sent by the MiCollab client to MX-ONE as Geolocation headers in the SIP Invite and then the MX-ONE sends it transparently to the NG911 provider via the MBG.
- The LLDP-MED setup to provide ELIN information via SIP Phones (LLDP-MED requires setup in the LAN switches and in SIP Phones).
- The SIP phones provide the ELIN information to MX-ONE in the SIP Invite "From" header and then the MX-ONE sends it in the appropriate SIP header to the NG911 provider via MBG.
- For fixed devices, the setup must be preconfigured manually in the MX-ONE emergency location database.

Note that MX-ONE can identify any device using a Directory Number setup, regardless of whether it is a fixed or a non-fixed device. However, the Directory Number setup is not recommended for use with non-fixed devices (for example, SIP-DECT, Wi-Fi phones, IP-DECT and Integrated DECT devices) a these devices move around the customer premises and the location to Directory Number may not be accurate.

Non-Fixed Devices (Hardware Devices)

To enable emergency calls from every extension in the system, it is essential that all extensions, independent of Traffic Connect Class, and extension types are configured to allow calling emergency numbers.

Refer to the document MiVoice MX-ONE Emergency Calls, SOS Calls in the MX-ONE CPI documentation for information on how to setup the extension category for emergency calls.

SIP Phones Setup (Mitel 6800 and 6900 Series)

Device Type	Options Available	Programing Steps	Use Case Notes
6800 and 6900	A number in the SIPInvite “From” header	• Device: No configu-ration required. • MX-ONE: Program extension and number conversion. • NG911 Portal: Program a Location (civic address) to match the A number sent by MX-ONE.	Note that this setup is notrecommended in case of forkingextensions, because the user can belogged in more than one place using the same extension. For example, a user has a phone logged on to its desk and can do a login in another phone in a conference room. When an emergency call is established, the A number will be sent; however, the systems do not know if that was done from the desk or the conference room. ELIN or MAC addresses can be used to solve this case.

Device Type	Options Available	Programing Steps	Use Case Notes
6800 and 6900	MAC Address	• Device: The SIP gru parameter must be enabled in the **startup.cfg**. The MAC is provided by the SIPphone 6800 and 6900 family in theSIP invite: *sip_instance=”<urn:uuid …MACaddr>”* • MX-ONE: Program a Location ID to match the MAC address in the emergency location database. **NOTE:** A callback number needs to be configured either in the MX-ONE or NG91 portal. • NG911 Portal: Program a Location (civic address) to match the Location ID defined in MX-ONE.	A MAC address can be used todifferentiate two or more SIP phones,for example in a Teleworker case, whenthe user has a forking extension withtwo SIP phones, one at the office andanother at home.

Device Type	Options Available	Programing Steps	Use Case Notes
6800 and 6900	IP domain and IP address	• Device: The SIP phone shall have a valid IP address. • MX-ONE: Program a Location ID to match the IP domain or IP Address in the ip_domain command. **NOTE:** A callback number needs to be configured either in the MX-ONE or NG911portal. In MX-ONE use the emergency_ location command to addthe callback nuber. • NG911 portal: Program a Location (civic address) to match the Location ID defined in MX-ONE.	The customer needs to be considerate of IP Domain usage as it is possible that an IP subnet may refer to more than one dispatchable location as required by the RAY BAUM'S Act and in that scenario a single IP domain may not be granular enough to meet the legal requirements.

Device Type	Options Available	Programing Steps	Use Case Notes
6800 and 6900	ELIN or CESID	Network switch with ELIN support: Program ELIN to be used for the device. • Device: Enable LLDP ELIN in the phone. • MX-ONE: No configuration is required. However, if a call-back number is needed, program a Location ID to match the ELIN in the emergency location data base. **NOTE:** A callback number needs to be configured either in the MX-ONE or NG911portal. • NG911 Portal: Program a Location (civic address) to match the Location ID defined in MX-ONE.	

Device Type	Options Available	Programing Steps	Use Case Notes
6800 and 6900	DIR	• Device: No specific configuration required. MX-ONE: Program a Location ID to match the DIR in the emergency location database. **NOTE:** A callback number needs to be configured either in the MX-ONE or NG911 portal. • NG911 Portal: Program a Location (civic address) to match the Location ID defined in MX-ONE.	Note that this setup is notrecommended if the customer is usingFree seating (Hot Desking (VDP) orLogon XML). This is because, the Location ID will be associated with the Directory Number and if a user who normally sits in the site 1 in Los Angeles moves to site 2 in New York and registers the SIP phone there via VDP or Logon XML, thelocation will still be associated with LosAngeles. For such cases, MAC addressor IP address setups are better.

Device Type	Options Available	Programing Steps	Use Case Notes
6800 and 6900	LIM	• Device: No configuration required. • MX-ONE: Program a Location ID to match the LIM in the emergency location database. **NOTE:** A callback number needs to be configured either in the MX-ONE or NG911portal. • NG911 Portal: Program a Location (civic address) to match the Location ID defined in MX-ONE.	Note that this setup reduces the amount of configuration needed in MX-ONE. However, it must be compliant with the local laws regarding the square/foot search area that will be done by the Emergency Response Team. The customer needs to be considerate of LIM usage as it is possible that an LIM or LIMs may refer to more than one dispatchable location as required by the RAY BAUM'S Act and in that scenario a single LIM may not be granular enough to meet the legal requirements. Note that this setup is notrecommended if the customer is usingHLR redundancy or Free seating (HotDesking (VDP) or Logon XML). This isbecause, the Location ID will beassociated with the Directory Numberand if a user who normally sits in thesite 1 in Los Angeles moves to site 2 inNew York and registers the SIP phonethere via VDP or Logon XML, thelocation will still be associated with LosAngeles. For such cases, MAC or IPaddress setups are better. **NOTE:** In the HLR case, for example: an MX-ONE system with two Service Nodes. Service Node 1 (LIM 1) is located in the

SIP Phones Setup (Mitel 6700 Series)

Device Type	Options Available	Programing Steps	Use Case Notes
6700	A number in the SIP Invite “From” header	• Device: No configuration required. • MX-ONE: Program extension and number conversion. • NG911 portal: Program a Location (civic address) to match the A number defined in MX-ONE.	Note that this setup is not recommended in case of forking extensions, because the user can be logged in more than one place using the same extension. For example, a user has a phone logged on to its desk and can do a login in another phone in a conference room. When an emergency call is established, the A number will be sent, however, the systems do not know if that was done from the desktop or theconference room. ELIN or MAC addresses can be used to solve this case.

Device Type	Options Available	Programing Steps	Use Case Notes
6700	MAC Address	• Device: The SIP gruu parameter must be enabled in the startup.cfg. The MAC is provided by the6700 SIP phone family inthe SIP invite: *sip_instance="<urn:uuid …MACaddr>"* • MX-ONE: Program a Location ID to match the MAC address in the emergency location database. **NOTE:** A callback number needs to be configured either in the MX-ONE or NG911 portal. • NG911 Portal: Program a Location (civic address) to match the Location ID defined in MX-ONE.	A MAC address can be used to differentiate two or more SIP phones, for example in a Teleworker case, when the user has a forking extension with two SIP phones, one at the office and another at home.

Device Type	Options Available	Programing Steps	Use Case Notes
6700	IP domain or IP Address	• Device: The SIP phone shall have a valid IP address. • MX-ONE: Program a Location ID to match the IP domain or IP Address in the `ip_domain` command. **NOTE:** A callback number needs to be configuredeither in the MX-ONE or NG911 portal. In MX-ONE use the emergency_ location command to add the callback number. • NG911 Portal: Program a Location (civic address) to match the Location ID defined in MX-ONE.	The customer needs to be considerate of IP Domain usage as it is possible that an IP subnet may refer to more than one dispatchable location as required by the RAY BAUM'S Act and in that scenario a single IP domain may not be granular enough to meet the legal requirements.

Device Type	Options Available	Programing Steps	Use Case Notes
6700	DIR	• Device: No configuration required. • MX-ONE: Program a Location ID to match the DIR in the emergency location database. **NOTE:** A callback number needs to be configured either in MX-ONE or NG911 portal. • NG911 Portal: Program a Location (civic address) to match the Location ID defined in MX-ONE.	Note that this setup is not recommended if the customer is using Free seating (Hot Desking (VDP) or Logon XML). This is because, the Location ID will be associatedwith the Directory Number and if a user who normally sits in the site 1 in Los Angeles moves to site 2 in New York and registers the SIP phone there via VDP or Logon XML, the location will still be associated with Los Angeles. For such cases, MAC address or IP address setups are better.

Device Type	Options Available	Programing Steps	Use Case Notes
6700	LIM	• Device: No configuration required. • MX-ONE: Program a Location ID to match the LIM in the emergency location database. **NOTE:** A callback-number needs to be configured either in the MX-ONE or NG911 portal. • NG911 Portal: Program a Location (civic address) to match the Location ID defined in MX-ONE.	Note that this setup reduces the amount of configuration needed in MX-ONE. However, it must be complaint with the local lawsregarding the square/foot search area that will be done by the Emergency Response Team. The customer needs to be considerate of LIM usage as it is possible that an LIM or LIMs may refer to more than one dispatchable location as required by the RAY BAUM'S Act and in that scenario a single LIM may not be granular enough to meet the legal requirements. Note that this setup is not recommended if the customer is using HLR redundancy or Free seating (Hot Desking (VDP) or Logon XML). This is because, the Location ID willbe associated with the Directory Number and if a user who normally sits in the site 1 in Los Angeles moves to site 2 in New York and registers the SIP phone there via VDP or Logon XML, the location will still be associated with Los Angeles. For such cases, MAC or IP address setups are better. **NOTE:** In the HLR case, for example: an MX-ONE system with two Service Nodes. Service Node 1 (LIM 1) is located in the building 1 and Service

SIP-DECT

Device Type	Options Available	Programing Steps Use Case	Notes
SIP DECT	ELIN or CSID Standard calls	• SIP DECT Base Station: The SIP-DECT base stations need to be configured with ELIN/CESID by the customer system administrator. • Device: No configuration required. • MX-ONE: No configuration is required. However, if a callbacknumber is needed, program a Location ID to match the ELIN in the emergency location database. **NOTE:** A callback number needs to be configured either in the MX-ONE or NG911 portal. • NG911 Portal: Program a Location (civic address) to match the ELIN/CESID defined in MX-ONE.	During the call setup, theELIN/CESID of the base station will be sent in the SIP Invite using the “From” header (in all calls, not just Emergency) as shown below: From: “1234567890”<sip:405 @192.168.0.20:50; elin=1234567890>; tag=929293baab

Device Type	Options Available	Programing Steps Use Case	Notes
SIP DECT	ELIN or CSID CTI calls	• SIP DECT Base Station: The SIP-DECT base stations need to be configured with ELIN/CESID by the customer system administrator. • Device: No configuration required. • MX-ONE: No configuration is required. However, if a callback number is needed, program a Location ID to match the ELIN in the emergency location database. **NOTE:** A callback number needs to be configured either in the MX-ONE or NG911 portal. • NG911 Portal: Program a Location (civic address) to match the ELIN/CESID defined in MX-ONE.	For CTI calls, the ELIN/CESID ofthe base station will be sent in the PAI (P-Asserted-Identity) header in the 200 OK, as shown below: P-Asserted-Identity:"1234567890" sip:405@192.168.0.20:506 0; elin=1234567890

IP-DECT (ASCOM)

The IP-DECT base stations need to be set up with ELIN/CESIDs by the customer system administrator.

Device Type	Options Available	Programing Steps Use Case	Notes
IP DECT	ELIN or CSID Standard calls	• IP DECT Base Station: The IP-DECT base stations need to be configured with ELIN/CESID by the customer system administrator. • Device: No configuration required. • MX-ONE: No configuration is required. However, if a callback number is needed, program a Location ID to match the ELIN in the emergency location database. **NOTE:** A callback number needs to be configured either in the MX-ONE or NG911 portal. • NG911 Portal: Program a Location (civic address) to match the ELIN/CESID defined in MX-ONE.	During the call setup, the ELIN/CESID of the base station will be sent in the SIP Invite using the “From” header (in all calls, not just Emergency) as shown below: From: “1234567890”<sip:405@192.168.0.20:50;elin=1234567890>;tag=929293baab

Device Type	Options Available	Programing Steps Use Case	Notes
IP DECT	ELIN or CSID CTI calls	• IP DECT Base Station: The IP-DECT base stations need to be configured with ELIN/CESID by the customer system administrator. • Device: No configuration required. • MX-ONE: No configuration is required. However, if a callback number is needed, program a Location ID to match the ELIN in the emergency location database. **NOTE:** A callback number needs to be configured either in the MX-ONE or NG911 portal. • NG911 Portal: Program a Location (civic address) to match the ELIN/CESID defined in MX-ONE.	For CTI calls, the ELIN/CESID of the base station will be sent in the PAI (P-Asserted-Identity) header in the 200 OK, as shown below: P-Asserted-Identity: "1234567890" sip:405@192.168.0.20:506 0; elin=1234567890

Wi-Fi Phones 5634

The Wi-Fi base stations need to be set up with BSSID by the customer system administrator.

Device Type	OptionAvailable	Programing Steps Use Case	Notes
Wi-Fi Phones 5634	BSSID Standard calls	• Device: Use the WinPDM tool to configure the device parameter Emergency call location method to Send BSSID in SIP Invite. • MX-ONE: Program a Location ID to match the BSSID in the emergency location database. • NG911 Portal: Program a Location (civic address) to match the BSSID defined in MX-ONE. **NOTE:** A callback number needs to be configured either in the MX-ONE or NG911 portal.	During call setup, the BSSID ofthe base station will be sent in the SIP Invite using the “PANI (P-Access-Network-Info) header” in all calls (not just Emergency) as shown below: P-Access-Network-Info : IEEE-802.11;network-provided;i-wlan-node-id ="a1b2c3d4e5f6"

Device Type	OptionAvailable	Programing Steps Use Case	Notes
Wi-Fi Phones 5634	BSSID CTI calls	• Device: Use the WinPDM tool to configure the device parameter Emergency call location method to Send BSSID in SIP Invite. • MX-ONE: Program a Location ID to match the BSSID in the emergency location database. **NOTE:** A callback number needs to be configured either in the MX-ONE or NG911 portal. • NG911 Portal: Program a Location (civic address) to match the BSSID defined in MX-ONE.	For CTI calls the BSSID of thebase station will be sent in thePANI (P-Access-Network-Info)header in the 200 OK, as showbelow: P-Access-Network-Info :IEEE-802.11;network-provided;i-wlan-node-id="a1b2c3d4e5f6"

Integrated DECT (TDM)

Device Type	Options Available	Programing Steps Use Case	Notes
Integrated DECT (TDM)	`dect_rfp`command in MX-ONE	• Device: No configuration required. • MX-ONE: Program an int grated DECT base station to match a Location ID using the command `dect_rfp`. **NOTE:** A callback number needs to be configured either in the MX-ONE or NG911 portal. • NG911 Portal: Program a Location (civic address) to match the Location ID defined in MX-ONE.	In MX-ONE, a base station usedby Integrated DECT can be configured with a Location ID via the dect_rfp command. Each base station needs to be configured with Location ID. Itcan be one unique Location ID per base station, or several base stations can have the same Location ID when covering a defined area (such as a floor or a building).

SIP ATA (Analog Terminal Adapters – Mitel TA7100 Family)

Device Type	Options Available	Programing Steps Use Case	Notes
SIP ATA (AnalogTerminal Adapters – TA7100 family)	A number in the SIPInvite “From” header	• Device: No configu-ration required. • MX-ONE: Program extension and number conversion. • NG911 Portal: Program a Location (civic address) to match the A number defined in MX-ONE.	Note that this setup is notrecommended in case of forkingextensions, because the user can belogged in more than one place using the same extension. For example, a user has a phone logged on in his/her desk and he or she can do a login in another phone in a conference room. When an emergency call is established, the A number will be sent, however, thesystems do not know if that was donefrom the desktop or the conferenceroom. For such cases, IP address setup is better.

Device Type	Options Available	Programing Steps Use Case	Notes
SIP ATA (AnalogTerminal Adapters – TA7100 family)	IP domain or IP Address	• Device: The SIP phone shall have a valid IP address. • MX-ONE: Program a Location ID to match the IP domain or IP Address in the `ip_domain` command. **NOTE:** A callback number needs to be configuredeither in the MX-ONE or NG911 portal. In MX-ONE use the emergency_ location command to add the callback number. • NG911 Portal: Program a Location (civic address) to match the Location ID defined in MX-ONE.	The customer needs to be considerate of IP Domain usage as it is possible that an IP subnet may refer to more than one dispatchable location as required by the RAY BAUM'S Act and in that scenario a single IP domain may not be granular enough to meet the legal requirements.

Device Type	Options Available	Programing Steps Use Case	Notes
SIP ATA (Analog TerminalAdapters – TA7100 family)	DIR	• Device: No configu-ration required. • MX-ONE: Program a Location ID to match the DIR in the emergency location database. **NOTE:** callback number needs to be configuredei-ther in the MX-ONE or NG911 portal. • NG911 Portal: Program a Location (civic address) to match the Location ID defined in MX-ONE.	Note that this setup is notrecommended if the customer is usingFree seating (Hot Desking (VDP) orLogon XML). This is because, theLocation ID will be associated with theDirectory Number and if a user whonormally sits in the site 1 in Los Angelesmoves to site 2 in New York andregisters the SIP phone there via VDPor Logon XML, the location will still beassociated with Los Angeles. For suchcases, IP address setup is better.

Device Type	Options Available	Programing Steps Use Case	Notes
SIP ATA (Analog Terminal Adapters –TA7100 family)	LIM	• Device: No configuration required. • MX-ONE: Program a Location ID to match the LIM in the emergency location database. **NOTE:** A callback number needs to be configuredeither in the MX-ONE or NG911 portal. • NG911 Portal: Program a Location (civic address) to match the Location ID defined in MX-ONE.	Note that this setup reduces the amount of configuration needed in MX-ONE.However, it must be complaint with the local laws regarding the square/foot search area that will be done by the Emergency Response Team. The customer needs to be considerate of LIM usage as it is possible that an LIM or LIMs may refer to more than one dispatchable location as required by the RAY BAUM'S Act and in that scenario a single LIM may not be granular enough to meet the legal requirements. Note that this setup is not recommended if the customer is using HLR redundancy or Free seating (Hot Desking (VDP) or Logon XML). This is because, the Location ID will beassociated with the Directory Numberand if a user who normally sits in thesite 1 in Los Angeles moves to site 2 inNew York and registers the SIP phonethere via VDP or Logon XML, thelocation will still be associated with LosAngeles. For such cases, IP addresssetup is better. **NOTE:** In the HLR case, for example: an MX-ONE system with two Service Nodes. Service Node 1 (LIM 1) is located in the

H.323 (IP-Phones)

Device Type	Options Available	Programing Steps Use Case	Notes
H.323	A numberin the SIP Invite “From” header	• Device: No configu-ration required. • MX-ONE: Program extension and number conversion. • NG911 Portal: Program a Location (civic address) to match the A number sent by MX-ONE.	Note that this setup is notrecommended in case of forkingextensions, because the user can belogged in more than one place using the same extension. For example, a user has a phone logged on in his/her desk and he or she can do a login in another phone in a conference room. When an emergency call is established, the A number will be sent, however, thesystems do not know if that was donefrom the desktop or the conferenceroom. For such cases, IP address setup is better.

Device Type	Options Available	Programing Steps Use Case	Notes
H.323	IP domain or IP Address	• Device: The SIP phone shallhave a valid IP address. • MX-ONE: Program a Location ID to match the IP domain or IP Address in the `ip_domain` command. **NOTE:** A callback number needs to be configured either in the MX-ONE or NG911portal. In MX-ONE use the emergency_ location command to add the callback number. • NG911 portal: Program a Location (civic address) to match the Location ID defined in MX-ONE.	The customer needs to be considerate of IP Domain usage as it is possible that an IP subnet may refer to more than one dispatchable location as required by the RAY BAUM'S Act and in that scenario a single IP domain may not be granular enough to meet the legal requirements.

Device Type	Options Available	Programing Steps Use Case	Notes
H.323	DIR	• Device: No configu-ration required. • MX-ONE: Program a LocationID to match the DIR in the emergencylocation database. **NOTE:** A callback numberneeds to be configured eitherin the MX-ONE or NG911portal. • NG911 Portal: Program a Loca-tion(civic address) to match theLocation ID defined in MX-ONE.	Note that this setup is notrecommended if the customer is usingFree seating (Hot Desking (VDP) orLogon XML). This is because, theLocation ID will be associated with theDirectory Number and if a user whonormally sits in the site 1 in Los Angelesmoves to site 2 in New York andregisters the SIP phone there via VDPor Logon XML, the location will still beassociated with Los Angeles. For suchcases, IP address setup is better.

Device Type	Options Available	Programing Steps Use Case	Notes
H.323	DIR	• Device: No configu-ration required. • MX-ONE: Program a Location ID to match the DIR in the emergency location database. **NOTE:** A callback number needs to be configured either in the MX-ONE or NG911portal. • NG911 Portal: Program a Location (civic address) to match the Location ID defined in MX-ONE.	Note that this setup reduces the amountof configuration needed in MX-ONE.However, it must be complaint with thelocal laws regarding the square/footsearch area that will be done by theEmergency Response Team.The customer needs to be considerateof LIM usage as it is possible that anLIM or LIMs may refer to more than onedispatchable location as required by theRAY BAUM'S Act and in that scenario asingle LIM may not be granular enoughto meet the legal requirements. Note that this setup is notrecommended if the customer is usingHLR redundancy or Free seating (HotDesking (VDP) or Logon XML). This isbecause, the Location ID will beassociated with the Directory Numberand if a user who normally sits in thesite 1 in Los Angeles moves to site 2 inNew York and registers the SIP phonethere via VDP or Logon XML, thelocation will still be associated with LosAngeles. For such cases, IP addresssetup is better. **NOTE:** In the HLR case, for example: an MX-ONE system with two Service Nodes. Service Node 1 (LIM 1) is located in the building 1 and Service

SIP Phones – Third-Party Devices

Device Type	Options Available	Programing Steps Use Case	Notes
SIP phones – Third-Party Devices	A number in the SIPInvite “From” header	• Device: No configuration required. • MX-ONE: Program extension and number conversion. • NG911 Portal: Program a Location (civic address) to match the A number defined in MX-ONE.	Note that this setup is not recommended in case of forking extensions, because the user can be logged in more than one place using the same extension. For example, a user has a phone logged on in his/her desk and he or she can do a login in another phone in a conference room.When an emergency call is established,the A number will be sent, however, thesystems do not know if that was donefrom the desktop or the conference room. For such cases, IP address setup is better.

Device Type	Options Available	Programing Steps Use Case	Notes
SIP phones – Third-Party Devices	IP domain or IP Address	• Device: The SIP phone shall have a valid IP address. • MX-ONE: Program a Location ID to match the IP domain or IP Address in the `ip_domain` command. **NOTE:** A callback-number needs to be configured either in the MX-ONE or NG911portal. In MX-ONE use the emergency_location command to add the callback number. • NG911 Portal: Program a Location (civic address) to match the Location ID defined in MX-ONE.	The customer needs to be considerate of IP Domain usage as it is possible that an IP subnet may refer to more than one dispatchable location as required by the RAY BAUM'S Act and in that scenario a single IP domain may not be granular enough to meet the legal requirements.

Device Type	Options Available	Programing Steps Use Case	Notes
SIP phones – Third-Party Devices	DIR	• Device: No configuration required. • MX-ONE: Program a Location ID to match the DIR in the emergency location database. **NOTE:** A callback-number needs to be configured either in the MX-ONE or NG911portal. • NG911 Portal: Program a Location (civic address) to match the Location ID defined in MX-ONE.	Note that this setup is not recommended if the customer is using Free seating (Hot Desking (VDP) or Logon XML). This is because, the Location ID will be associated with the Directory Number and if a user who normally sits in the site 1 in Los Angeles moves to site 2 in New York and registers the SIP phone there via VDP or Logon XML, the location will stillbe associated with Los Angeles. For such cases, IP address setup is better.

Device Type	Options Available	Programing Steps Use Case	Notes
SIP phones – Third-Party Devices	LIM	• Device: No configuration required. • MX-ONE: Program a Location ID to match the LIM in the emergency location database. **NOTE:** A callback-number needs to be configured either in the MX-ONE or NG911portal. • NG911 Portal: Program a Location (civic address) to match the Location ID defined in MX-ONE.	Note that this setup reduces the amount of configuration needed in MX-ONE. However, it must be complaint with the local laws regarding the square/foot search area that will be done by the Emergency Response Team. The customer needs to be considerate of LIM usage as it is possible that an LIM or LIMs may refer to more than one dispatchable location as required by the RAY BAUM'S Act and in that scenario a single LIM may not be granular enough to meet the legal requirements. Note that this setup is not recommended if the customer is using HLR redundancy or Free seating (Hot Desking (VDP) or Logon XML). This is because, the Location ID will be associated with the Directory Number and if a user who normally sits in the site 1 in Los Angeles moves to site 2 in New York and registers the SIP phone there via VDP or Logon XML, the location will still be associated with Los Angeles. For such cases, IP address setup is better. **NOTE:** In the HLR case, for example: an MX-ONE system with two Service Nodes. Service Node 1 (LIM 1) is located in the

Non-Fixed Devices (Softphones or Clients)

MiCollab (Softphones)

MiCollab uses HELD or HELD+, depending on the third-party provider they are connected to. In this setup the Geolocation and Geolocation Routing Header will be sent from the client with a reference in the SIP invite only. The MX-ONE will transparently pass through the supported SIP headers to the NG911 provider.

For additional information about MiCollab integration with RAY BAUM´s Act and Kari´s law, refer to MiCollab documentation.

MiCollab PC client and Web Client

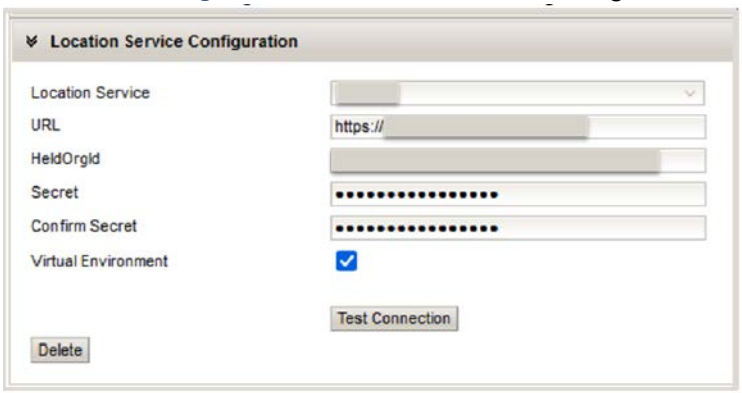
NOTE: MiCollab clients installed on a mobile device with a native Dialer (for example, Apple Phone and Android Phone but not tablets), the native dialer will intercept emergency calls, and will not go through the MX-ONE.

Device Type	Options Available	Programing Steps Use Case	Notes
MiCollab	HELD	• MiCollab Server: Server configuration is required. Additional configuration is required for MiCollab SIP Softphones (see below). • MiCollab Client: – Emergency Location Setup – Update Location • MX-ONE: Program extension and number conversion. • NG911 Portal: Network mapping	The user must set his/herlocation using the EmergencyLocation Setup in MiCollabclients.

MiCollab Server Configuration:

Via the MiCollab Server, configure the Location Service under MiCollab Client Service > Administrator Interface > Enterprise Tab > **Location Service Configuration**.

Figure 7.1: Location Service Configuration



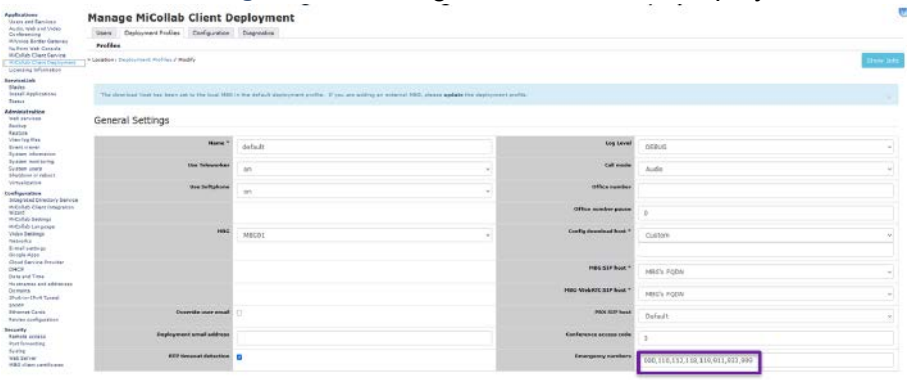
Field	Notes
Location Service	NG911 Provider
URL	NG911 LIS Server URL
HeldOrgId	HELD Organization ID
Secret	HELD+ Secret Key
Confirm Secret	HELD+ Secret Key
Virtual Environment	If the Virtual Environment checkbox is checked, then the clients are virtualized. That means, the Virtual Environment checkbox will enable theadministrator to declare whether their clients are running in a virtual environment or not, that is, VMWARE Horizon, Citrix, or RDS.

Via the MiCollab Server, configure the Emergency Dial Plan under MiCollab Client Deployment > Deployment Profiles > Emergency Numbers.

The emergency number 911 must be added as part of the Emergency Numbers in the dial plan.

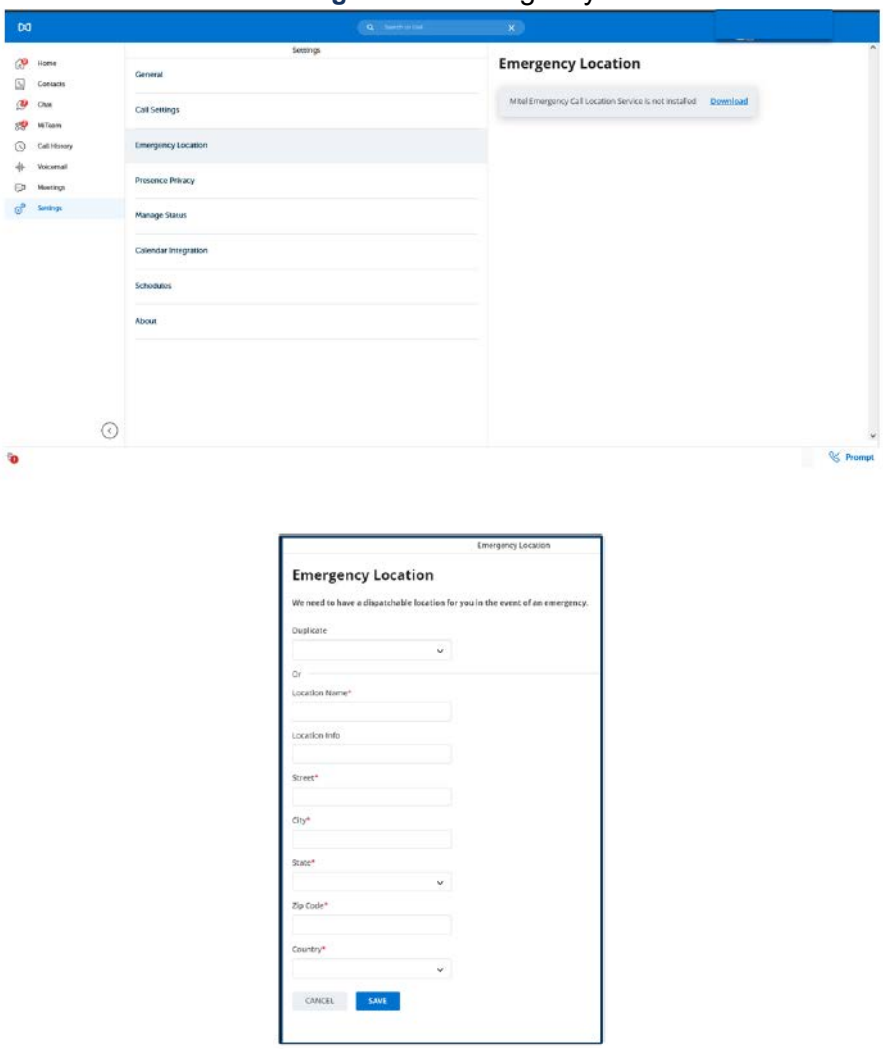
Note that IFT/EFT sites should enable 933 in the emergency number list for testing/integration.

Figure 7.2: Manage MiCollab Client Deployment



Additionally, each MiCollab client will need to install the Mitel Network Helper, and enter or confirm their location in the MiCollab Client.

Figure 7.3: Emergency Location



MiCollab (CTI Clients)

The CTI clients control devices, both non-fixed and fixed. Therefore, the setup must follow the device that the CTI client is controlling.

InAttend Client

The InAttend client needs to be configured as an extension in MX-ONE and preferable it shall have a DID number.

For additional information about InAttend integration with RAY BAUM´s Act and Kari´s law, refer to InAttend documentation.

Device Type	Options Available	Programing Steps Use Case	Notes
InAttend Client	A number in the SIPInvite “From” header	• Device: The RAY BAUM emergency private queue needs to be enabled in InAttend client. • MX-ONE: Program extension and number conversion. • NG911 Portal: Program a Location (civic address) to match the A number sent by MX-ONE.	**NOTE:** For integration with NG911 solutions the vendors client must be installed for Tele-worker. Theclient allows the end user to setup its location.
InAttend Client	DIR (Directory Number) in the Emergency Location Database	• Device: The RAY BAUM emergency private queue needs to be enabled in InAttend client. • MX-ONE: Program a Location ID to match the DIR in the emergency location database. **NOTE:** A callback number needs to be configured either in the MX-ONE or NG911 portal. • NG911 portal: Program a Location (civic address) to match the Location ID defined in MX-ONE.	**NOTE:** For integration with NG911 solutions the vendors client must be installed for Tele-worker. The client allows the end user to setup its location.

Fixed Devices (TDM – Legacy Devices)

To enable emergency calls from every extension in the system, it is essential that all extensions, independent of Traffic Connect Class, and extension types are configured to allow calling emergency numbers.

Refer to the document MiVoice MX-ONE Emergency Calls, SOS Calls in the MX-ONE CPI documentation for information on how to setup the extension category for emergency calls.

ATS – Analog Phone (TDM)

Device Type	Options Available	Programing Steps Use Case	Notes
ATS – Analog Phone (TDM)	DIR (Directory Number) inthe Emergency Location Database	• Device: No configuration required. • MX-ONE: Program a Location ID to match the DIR in the emergency location database. **NOTE:** A callback number needs to be configured either in the MX-ONE or NG911 portal. • NG911 Portal: Program a Location (civic address) to match the Location ID defined in MX-ONE.	

Device Type	Options Available	Programing Steps Use Case	Notes
ATS – Analog Phone (TDM)	LIM	• Device: No configuration required. • MX-ONE: Program a Location ID to match the LIM in the emergency location database. **NOTE:** A callback number needs to be configured either in the MX-ONE or NG911 portal. Alternatively, all Service Nodes can be set up to provide the same Location ID. However, this setup is not recommended. This is because the devices might be spread in a huge area which might make it difficult for the Emergency Response Team to search for devices. • NG911 Portal: Program a Location (civic address) to match the Location ID defined in MX-ONE	In some customer scenarios,where many analog devices are located in the same physical location (same building floor up to x sq/ft), MX-ONE can be set up to use the LIM number that the device is configured with toprovide the Location ID. The customer needs to be considerate of LIM usage as it is possible that an LIM may refer tomore than one dispatchable location as required by the RAY BAUM'S Act and in that scenario a LIM may not be granularenough to meet the legal requirements.

DTS – Digital phone (TDM)

Device Type	Options Available	Programing Steps Use Case	Notes
DTS – Digital Phone (TDM)	DIR (Directory Number) inthe Emergency Location Database	• Device: No configuration required. • MX-ONE: Program a Location ID to match the DIR in the emergency location database. **NOTE:** A callback number needs to be configured either in the MX-ONE or NG911 portal. • NG911 Portal: Program a Location (civic address) to match the Location ID defined in MX-ONE.	

Device Type	Options Available	Programing Steps Use Case	Notes
DTS – Digital Phone (TDM)	LIM	• Device: No configuration required. • MX-ONE: Program a Location ID to match the LIM in the emergency location database. **NOTE:** A callback number needs to be configured either in the MX-ONE or NG911 portal. Alternatively, all Service Nodes can be set up to provide the same Location ID. However, this setup is not recommended. This is because the devices might be spread in a huge area which might make it difficult for the Emergency ResponseTeam to search for devices. • NG911 Portal: Program a Location (civic address) to match the Location ID defined in MX-ONE.	In some customer scenarios,where many analog devices are located in the same physical location (same building floor up to x sq/ft), MX-ONE can be set up to use the LIM number that the device is configured with toprovide the Location ID. The customer needs to be considerate of LIM usage as it is possible that an LIM may refer tomore than one dispatchable location as required by the RAY BAUM'S Act and in that scenario a LIM may not be granularenough to meet the legal requirements.

Alarms, Events or Notifications, and Logs

MX-ONE always triggers an event when an emergency call is made, and it is stored in the messages log (/var/log/messages) in the Service Node where the emergency call to NG911 provider is set up.

MX-ONE can be set up to provide an alarm, an event or notification, in the messages logs and an SNMP trap, if an emergency call is made from the system. For this, the ESNMP program unit must be loaded in the system.

Alarm

When the ESNMP program unit is loaded in the system, a class 1 alarm number 2:11 is generated every time an emergency call is made. The alarm contains an additional text with the following information, if available:

- *Emergency Call From* – it indicates the extension that made the emergency call.
- *To Number* – it indicates the dialed number; for example, 911.
- *Locationid* – it indicates the Location ID associated with the extension, if available.
- *Type* – for example, device.
- *SeqNumber* – sequence number associated with this alarm.
- *Customer ID* – indicates the Customer ID associated with the Next Generation 911 emergency service provider.
- *Device* – it indicates additional information about a device; for example, a BSSID or MAC.

Events/Notifications in MX-ONE

When the ESNMP program unit is loaded to the system, in the messages log in the /var/log directory of the Service Node, two entries will be added; one for the event/notification and another for the alarm described above. The event/notification says, “Call to Emergency number”. The event/notification contains the following information:

- *Number_called* – it indicates the dialed number; for example, 911.
- *Caller* – it indicates the extension that made the emergency call.
- *User* – it indicates the extension or user that made the emergency call.
- *E911-location-ID header* – it indicates the Location ID associated with the extension that was added to the SIP trunk associated with the NG911 emergency service provider, if available.
- *E911-Organization-ID header* – it indicates the Customer ID associated with the Next Generation 911 emergency service provider that was added to the SIP trunk that relates to the NG911 emergency service provider, if available.
- *P-Asserted-Identity (PAI) header* – it indicates the A-Number of the extension that originates the emergency call, if available.

Note the event will be generated in the Service Node (LIM) where the outgoing trunk call to the MBG is set up. Hence, if individual TRUs are initiated in multiple Service Nodes (LIMs) for the route to the MBG, it is necessary to check the /var/log/message file in all those Service Nodes (LIMs) to find the correct one holding the event.

SNMP Trap

An SNMP trap can be sent when an emergency call is dialed if SNMP is configured on the system. The SNMP trap message is described in chapter 6.5 of the MiVoice MX-ONE SNMP Support, Alarm Notification and Emergency Call Events document available in the MX-ONE CPI – Customer Product Information.

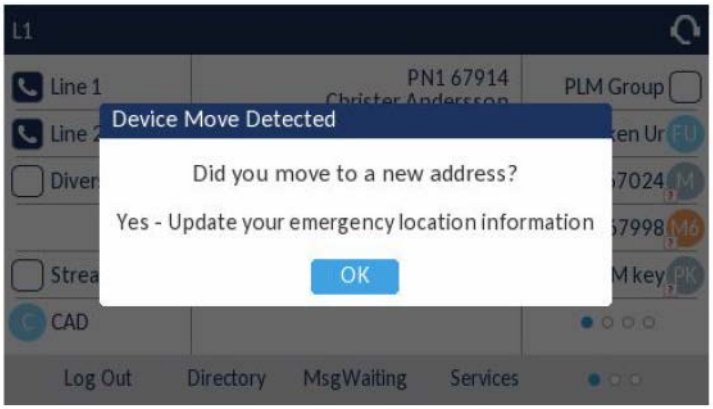
SIP Phones Notification

Mitel 6800 and 6900 SIP phones series requires a minimum of SIP firmware version 6.1 or above to support notification in case the SIP phone is moved from one location to another. When this happens, the SIP phone sends a notification to MX-ONE, and MX-ONE generates an alarm “SIP terminal moved to new location” and MX-ONE adds that notification to the messages log (/var/log/messages).

The SIP SIP Phone notification after the phone was moved from one location to another.

For additional about SIP Phones Notification, refer to SIP Phones documentation.

Figure 8.1: SIP Phones Notification



The below message is added in the MX-ONE /var/log/messages.

2021-09-06T13:46:53.839465+02:00 labmx1-lim1 SIPLP[6849]: HeldNotify received for user: 67914 from host: 192.168.95.107 TermId: sip:08000ff572af@192.168.128.107 heldResponseValid=0,heldResponser= ,locationAvailable=,teleworkerValid=1,UIPrompted=1,UIAcked=1,UIAcked=1,locationAvailable=, End

MX-ONE Integration with NG911 Provider – Deployment Setup

This chapter covers possible deployments set up between MX-ONE and the NG911 provider.

The figures show only one Service Node to simplify the scenario; however, multiple Service Nodes can be deployed in the same manner.

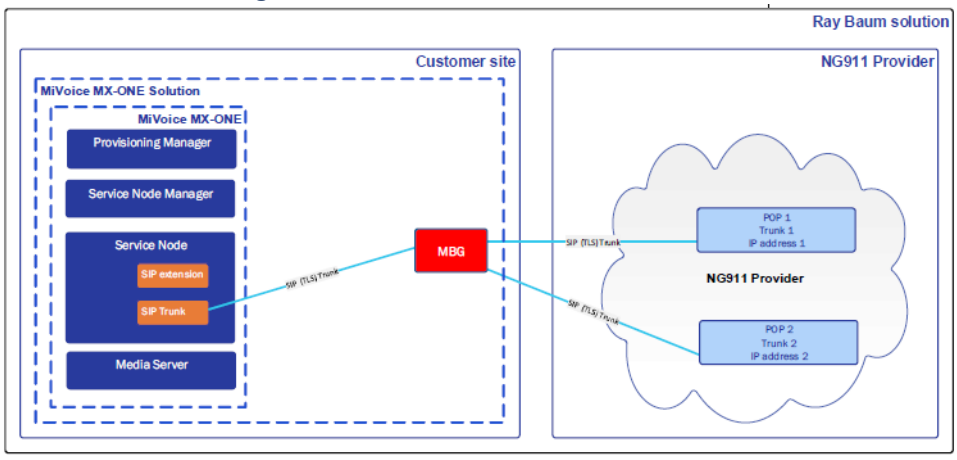
Note that if more than one Service Node (multiple Service Node setup) is used, it is highly recommended that individual TRUs are initiated in multiple Service Nodes for the SIP route to the MBG for increasing the route availability in the MX-ONE system.

MX-ONE and MBG in a Customer Site

The following figure shows the architecture of shows the most basic setup between MX-ONE and the NG911 provider. A SIP trunk is set up between MX-ONE and a single MBG using Round Robin configuration which will load balancing the SIP traffic between the two NG911 PoP's. Each MBG has two SIP trunks towards the NG911 provider gateways for redundancy purpose. Double SIP trunks between the customer site and the NG911 provider are highly recommended.

Refer to MBG documentation for MBG Redundancy SIP trunk configuration.

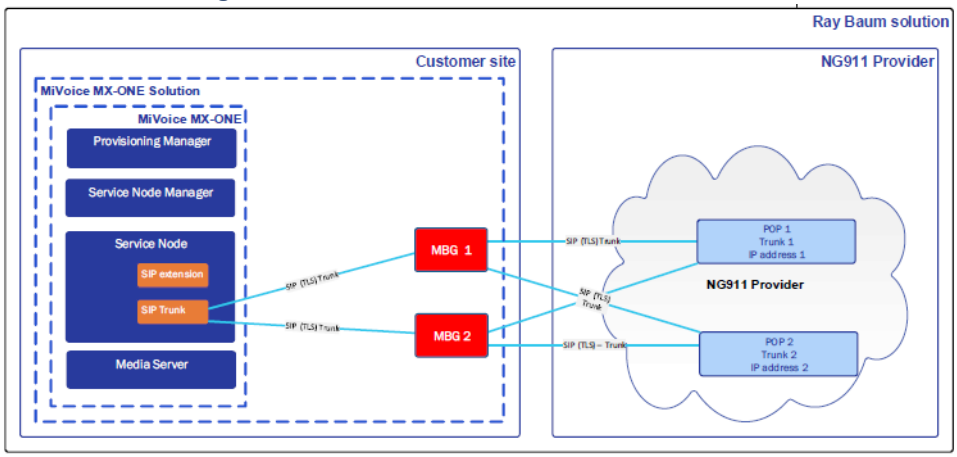
Figure 9.1: MX-ONE and MBG in a Customer Site



MX-ONE and Two MBGs in a Customer Site

The following figure shows the architecture of a redundant setup between MX-ONE and the NG911 provider. SIP trunks are set up between MX-ONE and the two MBGs using Round Robin configuration which will load balancing the SIP traffic between the two NG911 PoP's. Each MBG has two SIP trunks towards the NG911 provider gateways for redundancy purpose. The double SIP trunks between the customer site and the NG911 provider are highly recommended.

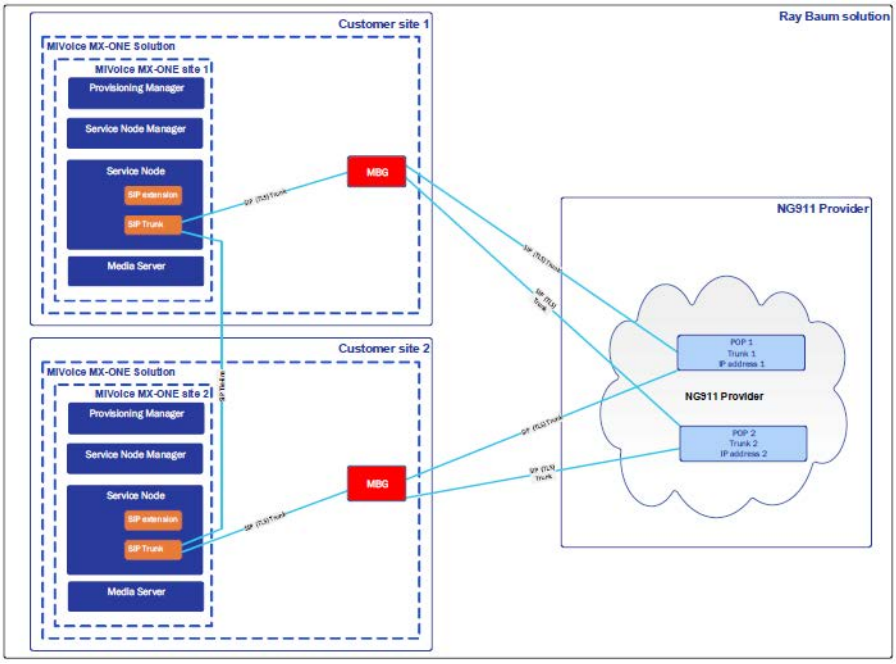
Figure 9.2: MX-ONE and Two MBGs in a Customer Site



MX-ONE and MBG in Each Customer Site

The following figure shows the architecture of a customer setup with two sites using independent MX-ONE systems, which are connected via SIP tie-line with each of the systems having a single MBG. A SIP trunk is set up between MX-ONE and the MBG using Round Robin configuration which will load balancing the SIP traffic between the two NG911 PoP's. Each MBG has two SIP trunks towards the NG911 provider gateways for redundancy purpose. Double SIP trunks between customer sites and the NG911 provider are highly recommended.

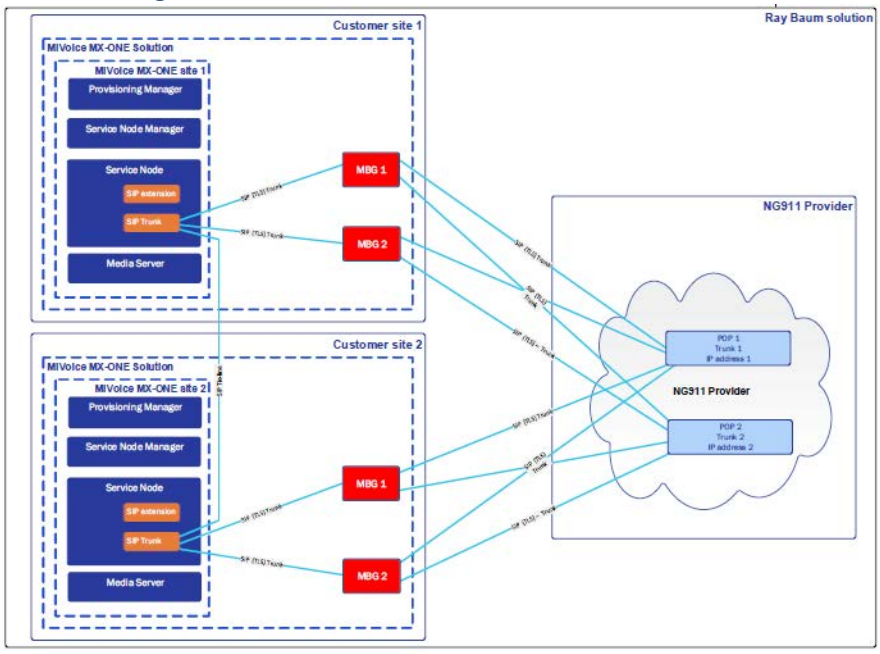
Figure 9.3: MX-ONE and MBG in Each Customer Site



MX-ONE and Two MBGs in Each Customer Site

The following figure shows the architecture of customer setup with two sites using independent MX-ONE systems, which are connected via SIP tie-line with each of the systems having two MBGs. SIP trunks are set up between MX-ONE and the two MBGs using Round Robin configuration which will load balancing the SIP traffic between the two NG911 PoP's. Each MBG has two SIP trunks towards the NG911 provider gateways for redundancy purpose. Double SIP trunks between customer sites and the NG911 provider are highly recommended.

Figure 9.4: MX-ONE and Two MBGs in Each Customer Site



Feature Interactions

Diversions, Group Do Not Disturb, Individual Do Not Disturb and Individual Repeated Distribution (call_list)

After an extension has completed an emergency call (911) to the NG911 provider, all active diversions, group do not disturb, individual do not disturb and individual repeated distribution (call_list) will be disabled for 30 minutes on the extension.

NOTE: this is required in case the Emergency Response Team needs to contact (callback) the user that made the call.

Multi-teant

When the MiVoice MX-ONE system is setup with the Multi-tenant feature active, it is possible to use the emergency location customer group to associate a “Customer ID” to each tenant.

When an extension belonging to a tenant makes an emergency call, MX-ONE will send the associated “Customer ID” in appropriated SIP header to the NG911 provider. The “Customer ID” will be used by the NG911 provider to place the call to the correct tenant.

Note that the Customer ID is provided by the NG911 provider and it is a customer unique identifier. Check if the tenant function is available in the NG911 provider selected by your organization.

Emergency location customer group example

Add customer ID to the customer 5

emergency_location -i --customer 5 --customer-id 7ae5df2b-93e9-4e4c-bdd0-74316e36eae6

Add customer ID to the customer 100

emergency_location -i --customer 100 --customer-id 6ae2df1b-93e9-4e4c-bdd0-74316e53eae9

Customer Numbering Plan

If customer numbering plan is used with Open dialing = NO, then the emergency number needs to be added in the range or as a exception number.

For more information on how to setup customer numbering plan, see the document *MiVoice MX-ONE Customer Group, Operational Directions* document.

Limitations

Mobile Phones

Mobile phones – Mobile phones are not part of the MX-ONE solution with RAY BAUM as they use the native phone function to provide the location services information during an emergency call. This includes the MiCollab SIP Softphone when installed on a mobile device whereby the programming of the system allows for the mobile native dialer to be used for 911 calls.

Teleworker

Only Mitel SIP phones 6800 and 6900 series desk sets and MiCollab SIP Softphone have been validated as Teleworker phones with the MX-ONE. Mitel has not validated other 3rd party devices or soft phones.

Different NG911 Providers in the same MX-ONE System

When the MiVoice MX-ONE system is setup with the Multi-tenant feature active, the MX-ONE does not support different NG911 providers for different tenants within the same system. In other words, the same NG911 provider must be used by all tenants within a multi-tenant system.

Mitel Common Gateways EX and GX - SBC Survivability Mode

The Mitel Common Gateways EX and GX do not offer support for RAY BAUM when working with SBC Survivability. The Common Gateways EX and GX when operating in survivability mode works as an independent PBX and it requires extra capabilities to support RAY BAUM´s Act and Kari´s law, which are not available in the current software release. However, should the Mitel Common Gateways EX Controller be configured with a local MX-ONE Service Node KVM VM running as an SBN (Survivable Branch Node), then the local MX-ONE SN can be configured to support E911 services (RAY BAUM´s Act and Kari´s law) locally in a back-up situation.

Mitel Common Gateways EX and GX - SBC Survivability Mode

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