<u>**AltiGen KB**</u>

Emergency Number Dialing for Remote IP Phones (Application Note)

Introduction This application note is directed to a business with multiple offices/telecommuters that has connected headquarters with remote workers using IP phones over WAN as extensions to the IP-PBX. In these cases, remote dialing of an emergency number (911, for example) can be a problem if the remote worker is not in the same emergency Public Safety Answering Point (PSAP).

For PSTN emergency service, the local exchange carrier (LEC) processes 911 calls by routing them from the central office (CO) to the nearest PSAP. A PSAP operator verifies or obtains the caller's Automatic Location Information (ALI), determines the nature of the emergency and decides which emergency response teams should be notified. The ALI database helps associate a physical location with a telephone number and may include information such as name, phone number, address, nearest cross street, and so on.

In a situation where AltiServ is in a different 911 service area than IP extensions, and the remote IP phone user is making an emergency call, the ALI will be delivered to the wrong 911 center. The local 911 center to which the system trunk is connected will get the emergency call instead of the 911 center near the remote IP extension.

AltiGen software release 5.0A (OE/ACC and ACM) or above provides three solutions for a remote IP extension user dialing an emergency number.

· Using Dialed Digit Translator to translate 911 to a remote 911 center DID number

· Using Dialed Digit Translator to make a 911 call hop-off through a remote FXO gateway.
(MultiTech System's MVP410 is tested and certified with AltiWare's OE/ACC or ACM 5.0 systems. Please see the following application note in the AltiGen Knowledgebase for more information: "Analog Trunk Connectivity for Remote/Branch Office through MultiTech MVP410 Gateway.")

· Making an emergency call on an IP phone through the FXO gateway when the WAN connection fails or AltiServ is shut down for maintenance.

Using Dialed Digit Translator to translate 911 to a remote 911 center DID number

Note: A MultiTech gateway is not required in this case.

Figure 1. Translate IP Extension 911 call to 911 center DID number

Figure 1 shows how AltiServ translates a remote IP extension's 911 call to a 911 center 10-digit DID number and is answered by PSAP agent.

Note: Each local 911 center has an alternate 10-digit DID number. To obtain this DID number for your local area, dial your local 411 directory service and ask for the "911 center DID number."

The following configuration steps show how to set up Dialed Digit Translator to make a 911 DID call for a remote IP extension. It uses this example scenario:, a company has its headquarters' system in San Francisco, CA, and a branch office with IP extension 104 located at Fremont, CA, and its 911 center DID number is 5102520911.

1.   From the AltiWare Administrator main menu, go to System Management à System Configuration à Number Plan.

2.   Enable Dialed Digit Translator and click on Setup.

3.   Select Extension Dialed Digit Translator.

4.   Add a new Extension Group for remote IP extension(s) and assign extensions to this group.

5.   Configure dial number "911" and translate to "Trunk access code + 1 + Area Code + 911 DID number"

Figure 2. Translate 911 to a DID number

Figure 2 shows that when Extension 104 dials 911, the number will be translated to 915102520911. "9" can be either the trunk access code or route access code. If the out call routing access code is used, make sure the out call routing table is properly configured.

Figure 3. Extension Configuration for sending Caller ID to 911 Center

Figure 3 is an example of how to configure an extension to send the caller ID to the 911 center. If PRI or CAMA trunks are used, the E911 CID will be transmitted to the 911 center.

Using Dialed Digit Translator to make a 911 call hop-off through remote FXO gateway

Figure 4. 911 Dialing using Remote Gateway

In Figure 4, the MultiTech gateway and "IP Extension 104" are co-located in the branch office. When a user uses IP Extension 104 to dial an emergency number (for example, 911) the IP extension will send the emergency number digits to AltiServ and AltiServ will use "extension dialed digit translator" to convert "9 1 1" into "IP trunk access code + Location ID for GW + 911" digit stream.

AltiServ system configurations:

In the System Management à VoIP Configuration, IP Dialing Table tab, add a new location (510, for example) and enter the GW IP address.

This is the scenario for this example: a business with headquarters' system in San Francisco and a branch office with an IP extension 104 located in Fremont, CA. The gateway at the branch office has a permanent IP address and is configured in the IP dialing table as Location ID 510. The gateway has four analog trunks connected to its location CO. The following configuration steps show how to set up Dialed Digit Translator to make a 911 call hop-off from the remote gateway.

1.   From the AltiWare Administrator main menu, go to System Management à System Configuration à Number Plan

2.   Enable Dialed Digits Translator and click on Setup.

3.   Select Extension Dialed Digit Translator.

4.   Add a new Extension Group for remote IP extension(s) and assign extension(s) to this group.

5.   Configure dial number "911" and translate to "IP Trunk access code + Location ID + 911"

Figure 5. Translate 911 to hop-off from remote GW

MultiTech MultiVOIP Configurations

For MultiTech settings, refer to the MultiTech MVP 410 manual. The correct firmware version should be 6.07.

For dialing 911 from AltiServ through the MultiTech gateway, the settings are listed as follows:

Go to "phone book/phone book modify/inbound phone book" to add an entry. Use the following settings:

a)   Accept AnyNumber option – enable the checkbox

b)   Remove Prefix field – let default to "Any Number"

c)   Add Prefix field – Leave blank

d)   Channel Number field – set to Hunting

e)   Description field – leave empty

Figure 6. MultiTech GW settings for 911 application

Routing Gateway's Incoming Call to AltiServ over IP

To allow incoming calls from PSTN through the MultiTech gateway FXO port to the AltiServ IP port, the settings are listed as follows:

1.   Go to "phone book/phone book configuration," and remove the Gateway Name (See Figure 7). Otherwise, if this field is not left blank, the caller name is always the Gateway Name, instead of the caller name coming from the CO.

Figure 7. Removing Gateway Name field

 Go to "phone book/out bound phone book" to add a new entry. Use the following settings: Accept AnyNumber – Check the checkbox Destination Pattern field – Set to Any Number Total Digits field – Leave to default Remove Prefix field – Leave empty Add Prefix field – Leave empty IP Address field – Enter AltiServ's IP address Description field – Leave empty

Figure 8. Add New Entry

 Go to "configuration/voice fax/auto call/offhook alert." Set Auto Call/ Offhook Alert field to Auto Call. Then set the Phone Number field to an extension number (3000, for example). Apply the changes to ALL the channels. Go to "configuration/interface/caller ID." Set Caller ID type as BellCore and check the Caller ID check box. Also apply the changes to ALL the channels.

In AltiWare, Extension 3000 can be a physical, virtual, IP, or workgroup extension. To have the call go to AA/IVR, operator, or other destination, set up the extension forwarding in Extension Configuration, Answering tab.

To verify the configuration, make a call to the MultiTech gateway from the PSTN to its FXO port. The gateway should forward the call through VOIP to AltiServ with the number "3000." You should also see the correct caller ID and caller name from AltiAdmin or AltiAgent.

Making an emergency call on an IP phone through the FXO gateway when WAN connection fails or AltiServ is shut down for maintenance

Figure 9. 911 dialing using remote MultiTech IP Gateway when IP phone is not able to connect to server

The AltiGen IP phone LCD displays "BASIC" when the connection with AltiServ is down. This may happen when the WAN connection is down, or when AltiServ is shut down for maintenance. Figure 9 shows the topology for 911 dialing using remote MultiTech IP Gateway. If extension 104 dials 911, the call will be directly routed through the MultiTech gateway to PSTN. Setting up a 911 emergency number and GW on IP phone is given as an example here:

1.   Press * * 7 and go to "SYSTEM à EMERGENCY NUM" and set the number to 911.

 Go to "SYSTEMà EMERGENCY GW" and enter MultiTech gateway's IP address.

To verify the setting, press #26 to change the IP phone to BASIC mode. Dial "911" from the IP phone. The outbound call should be made through the MultiTech Gateway.

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