



## Configuration Guide

# Configuring Enhanced 911 for the NetVanta 7000 Series

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This configuration guide describes enhanced 911 (E911) and its use on the NetVanta 7000 Series voice products. This guide contains information about emergency services and the configuration of E911 features on the NetVanta 7000 Series products through the Web-based graphical user interface (GUI) and ADTRAN Operating System (AOS) command line interface (CLI).

This guide consists of the following sections:

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## Enhanced 911 Overview

During an emergency call from a residential or business location connected to the public switched telephone network (PSTN) via an analog trunk, the local exchange routes the call to a 911 tandem. The emergency location identification number (ELIN), a 10-digit direct inward dialing (DID) number purchased from the local carrier and associated to an emergency response location in an Automatic Location Information (ALI) database, is transmitted during the call using centralized automatic message accounting (CAMA) on primary rate interface (PRI) trunks. The ELIN is used to route the emergency call to the local public safety answering service (PSAP) and retrieve emergency response location information from ALI and Master Street Address Guide (MSAG) databases. If the caller is disconnected from the PSAP operator, the ELIN can also be used to directly call back the emergency caller, bypassing any auto attendant. The call is routed to the nearest PSAP where the caller's ELIN and location information is displayed for the operator to direct an emergency response.

## Enhanced 911 Advantages

The main advantage of E911 over basic 911 service is the ability to store the user's callback number and location information in a database (ALI and MSAG) and automatically send this information to the PSAP when an emergency call is issued from the user's phone. Callers do not need to be aware of their exact location for an accurate emergency response to be made. In contrast, basic 911 service requires the caller to know their location and be able to communicate it to the PSAP operator.

## NetVanta 7000 Series E911

The NetVanta 7000 Series voice products allow administrators to configure a unique 10-digit DID number (emergency caller ID override number) and associate that number with an emergency response location in an ALI database. Individual users can be configured to use these numbers or a geographically proximate group of users can be configured to use the same number. Having multiple users configured to the same DID for emergency calls reduces both overhead by decreasing the number of ELINs that must be purchased from the carrier and administration time by reducing the number of ELINs that must be associated to emergency response locations in the ALI database while still providing adequate E911 coverage.

The NetVanta 7000 Series voice products also allow administrators to configure an emergency call email notification that is sent when an emergency call is made. This email includes when the emergency call was made, who made the call, and the location of the user. The location of the user is configurable through the GUI or CLI, distinct from the emergency response location stored in the ALI. Even if the DID number is associated with the location of a group of users (for example, 5555 Company Drive, Building 2, 4th Floor), this feature allows those configured in the emergency call email notification distribution list to be notified of the exact location of the user so that local help can be rendered immediately and emergency responders can be directed to the caller's exact location.

Both components can readily be tested without dialing an emergency number by adding a nonemergency number to the always permitted dial plan. This feature also allows multiple external numbers to function as emergency numbers in the E911 system.



*ADTRAN strongly recommends that the emergency call configuration be tested using a nonemergency number to verify proper operation.*

## Hardware and Software Requirements and Limitations

To prevent the possibility of unwarranted numbers being treated as emergency calls, dial plan patterns can only be added to the always permitted group through the CLI and are not configurable through the GUI.

Emergency caller ID override is only available on NetVanta 7000 Series voice products running AOS firmware version A4.01 or later.

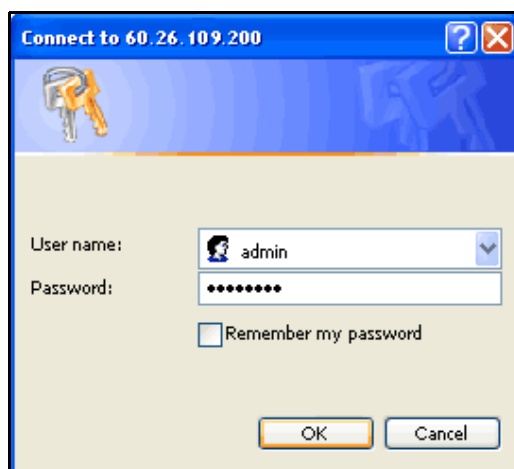
Local emergency response location is only available on NetVanta 7000 Series voice products running AOS firmware version A4.03 or later.

## Configuring Enhanced 911 Features Using the GUI

Most E911 features can be configured using the GUI. Always permitted dial plan patterns (number patterns that are treated as emergency calls by emergency call routing and E911) can only be added using the CLI. Refer to [Adding a Pattern to the Always Permitted Group on page 11](#) for more information on adding a dial pattern to the always permitted group.

To access the GUI, follow these steps:

1. Open a new Web page in your Internet browser.
2. Enter your AOS product's IP address in the Internet browser's address field in the following form:  
**http://<ip address>/admin**. For example:  
**http://60.26.109.200/admin**
3. At the prompt, enter your user name and password and select **OK**.



*The default user name is **admin** and the default password is **password**.*

## Adding Emergency Caller ID Override to a User

The emergency caller ID override feature assigns a unique 10-digit ELIN to outbound emergency calls. The ELIN, which is associated to a description of the phone's location in an ALI database, can be used by the PSAP to locate and send an emergency response to the caller. Individual phones or groups of phones that are in close geographic proximity to each other (for example, a single floor of a building) can be configured to use the same emergency caller ID number. If emergency caller ID override numbers are configured for both the user and the trunk on which the emergency call is sent, the trunk's emergency caller ID override number will be forwarded to the PSAP.



*DID numbers must be purchased from your carrier and individually associated to an emergency response location through the carrier in order to function as ELINs.*

To configure emergency caller ID override, follow these steps:

1. Navigate to **Voice > Stations > User Accounts** and select the check box next to the name of the user whose emergency caller ID number you want to define. Select **Edit** to configure the user's account.

	Last Name	First Name	Extension	Port/Status	Station CoS
<input type="checkbox"/>	Smith	Joe	1212	virtual	No Access
<input checked="" type="checkbox"/>	Spinaker	Victrola	0330	virtual	normal_users
<input type="checkbox"/>	Starkalous	Marc	2003	-\$IP- ?	normal_users
<input type="checkbox"/>	Taylor	John	2004	-\$IP- ?	normal_users

24 users      Manage Columns

2. Select the **User Config** tab to configure the user’s emergency caller ID number. If you would like the user’s caller ID number for emergency calls to be the same as their first DID number, select the **Default** check box next to **Emergency Caller ID Number**. Selecting the Default check box when no DID number is configured for the user will leave the number portion of caller ID blank. If you would like the user’s caller ID number for emergency calls to be a number other than their first DID number, select the **Custom Entry** check box and enter the number in the adjacent field. Select **Apply** to save the user’s emergency caller ID number.

The screenshot shows the 'User Accounts' configuration interface with the 'User Config' tab selected. The 'Emergency Caller ID Number' section has the 'Custom Entry' radio button selected, and the number '2565550330' is entered in the adjacent text field. An arrow points from the text 'To define an emergency caller ID override number, select the Custom Entry check box and enter the number in the adjacent field.' to the 'Custom Entry' radio button. Another arrow points from the text 'Select Apply to save the user's emergency caller ID number.' to the 'Apply' button at the bottom of the form.

## Adding Emergency Caller ID Override to a Trunk

The emergency caller ID override feature assigns a unique 10-digit ELIN to outbound emergency calls. The ELIN, which is associated to a description of the phone's location in an ALI database, can be used by the PSAP to locate and send an emergency response to the caller. Emergency caller ID override can be configured on a trunk so that all emergency calls outbound on the trunk will have the specified caller ID number. If emergency caller ID override numbers are configured for both the user and the trunk on which the emergency call is sent, the trunk's emergency caller ID override number will be forwarded to the PSAP.



*DID numbers must be purchased from your carrier and individually associated to an emergency response location through the carrier in order to function as ELINs.*

1. Navigate to **Voice > Trunks > Trunk Accounts** and select the name of the trunk account for which you want to define an emergency caller ID number.

The screenshot shows the NetVanta 7100 GUI. The left navigation menu includes System, Voice, Trunks, and Applications. The main content area is titled 'Add / Modify / Delete Trunk Accounts' and contains the following sections:

**Add a New Trunk Account**

Trunk Name:

Type:

**Modify/Delete Trunk Account**

Click on a name to edit that trunk's settings.

Trunk Name	ID	Type	Supervision	Role	
<a href="#">NV 7100 PBX 1</a>	T11	SIP	SIP	User	<input type="button" value="Delete"/>
<a href="#">Service Provider</a>	T07	SIP	SIP	User	<input type="button" value="Delete"/>
<a href="#">Feature Grp D</a>	T10	RBS	Feature Group D	User	<input type="button" value="Delete"/>
<a href="#">Local Telco2</a>	T18	Analog	Loop Start	User	<input type="button" value="Delete"/>

- In the **Edit SIP Trunk** section, enter the desired number in the **Emergency Caller ID Override** field. Alternatively, select the **Use Match-Substitution** check box to configure the trunk to substitute an automatic number identification (ANI) substitution number if the out-going caller ID number matches an ANI match template. If the outbound emergency number does not match an ANI match template, the number dialed is passed unchanged. Selecting the **Use Match-Substitute** check box will override any previously configured emergency caller ID number for the trunk.

**Edit SIP Trunk**

Use this screen to modify the SIP Trunk configuration.

**Trunk Account Information**

Trunk ID: T11

Type: SIP

Trunk Name: NV 7100 PBX 1

Reject External:

Max Number Calls: 64

Emergency Caller ID Override: 2565554788 Use Match-Substitution:

Inbound Caller ID Override:

Inbound Caller ID Override Method: Always

SIP Settings | **ANI Substitution** | DNIS Substitution | DNIS:ANI Replacement

**Add New ANI Substitution**

Match Template:  20 characters max.

Substitution:  20 characters max.

Name:  20 characters max.

Add Substitution

**View/Modify ANI Substitution Entries**

ANI Substitution entries are evaluated in the order displayed here. The first template that matches will be used, so make sure you have the templates in the desired order (usually, more specific templates first). HINT: Click on an existing substitution entry to use it as a template for a new entry.

Move	Match	Substitution	Name
There are no configured ANI Substitutions in the system.			

Cancel Apply

## Configuring User Local Emergency Response Location

Internet Protocol (IP) private branch exchange (PBX) phone systems create a unique situation for determining the emergency response location of an emergency caller. IP phone numbers are associated with the phone and not a static physical location, like traditional phones. They can be connected to the Internet anywhere within the company and moved from place to place while maintaining the same number. Therefore, the IP phone's location stored in the ALI database may not reflect the actual physical location of the caller. The NetVanta 7000 Series user local emergency response location feature helps improve this deficiency by storing location information locally. The user's local emergency response location may be readily updated and, when an emergency call is made, sent out to administrators so that both an early response can be made and emergency responders can be accurately directed to the caller, even if the emergency response location stored for the phone in the ALI database is inaccurate.



*ADTRAN strongly recommends that an administrator update the location information in the public ALI database as soon as the local emergency response location information changes.*

The user local emergency response location feature enhances emergency call email alert notification with the location of the caller. This location information is stored in text format as a part of each user's configuration. The local emergency response location of each user is managed only by the administrator, and its setup and maintenance are required for the emergency call email alert notification feature to function properly.

To configure the user's local emergency response location, follow these steps:

1. Navigate to **Voice > Stations > User Accounts** and select the check box next to the name of the user whose emergency response location you want to define. Select **Edit** to configure the user's account.
2. Select the **User Config** tab to configure the user's emergency response location. Enter the user's location using no more than 40 characters in the **Emergency Response Location** field. If your company has multiple buildings or multiple floors, be sure to identify which building and which floor the user is located, as well as their room number. Select **Apply** to save the user's emergency response location.

The screenshot shows the 'User Accounts' configuration page with the 'User Config' tab selected. The 'Emergency Response Location' field is highlighted with a blue border and contains the text 'Building 5, 4th Floor, Room'. An arrow points from the text 'Enter the user's location in the Emergency Response Location field.' to this field. Another arrow points from the text 'Select Apply to save the user's local emergency response location.' to the 'Apply' button at the bottom of the form.

Enter the user's location in the **Emergency Response Location** field.

Select **Apply** to save the user's local emergency response location.

3. Repeat Steps 1 and 2 for each user in the system.



*The local emergency response location configured in this step is only a local value and will not be forwarded to the PSAP if an emergency call is made. Only the 10-digit emergency caller ID number configured in [Adding Emergency Caller ID Override to a User on page 4](#) is forwarded to the PSAP.*



## Configuring Emergency Call Email Alerts Using the GUI

The emergency call email alert feature allows administrators to set up an email distribution list that will automatically be notified of all emergency calls that pass through the local switchboard. Calls considered to be emergency calls are those that are a part of the always permitted group in the system dial plan. By default on all voice products, only 911 is included in this group. The automated email alerts have the subject “7100: Emergency Call to 911” and include the date and time of the call, the number of the call (for example, 911), the name and extension of the user, and the location. Refer to [Adding Emergency Caller ID Override to a User on page 4](#) for more information on configuring the user emergency response location sent in emergency call email alerts.

To configure emergency call email alerts, follow these steps:

1. Navigate to **Voice > System Setup > Email Alerts**, and select the **Enable** check box to enable emergency call email alerts.
2. In the **Description** field, enter a description of the system default emergency call email alerts list. The description can be used to give the emergency email list a name. In the **Sender Email** field, enter the email address that should appear in the sender’s address field of the emergency call email alert.

Select the **Enable** check box.

Enter the sender’s email address in the **Sender Email** field.

Enter the name of the emergency email list in the **Description** field.

Select **Add Recipient** to add a recipient to the emergency call email alert distribution list.

3. Select **Add Recipient** to add a recipient to the emergency call email alert. In the **Email Address** field of the **Add Email Recipient** dialog box that appears, enter the address of the desired recipient of the emergency call email alert. Select **Add** to add the recipient to the distribution list.

4. Repeat Step 3 to add additional recipients to the emergency call email alert distribution list.

## Viewing User Emergency Response Location and Emergency Caller ID Number

The **Emergency Locations** report displays a table containing the last names, first names, extensions, local emergency response locations, and emergency caller ID numbers for all users. For users that do not have a configured local emergency response location or caller ID number, a dash will appear in the respective table field. Navigate to **Voice > Reports > Emergency Location** to access the emergency locations report.

Emergency Locations				
This page displays all of the configured extensions in the system and the Emergency Response Location associated with each user account.				
Last Name	First Name	Ext	Location	ER Override
Taylor	John	2004	2nd floor, Room 211	2565552004
Starkalous	Marc	2003	5th floor, Room 485	2565552003
Smith	Joe	1212	4th floor, room 466	2565551212
Spinaker	Victrola	0330	5th floor, Room 572	2565550330

## Configuring Enhanced 911 Features Using the CLI

E911 features can also be configured through the CLI. Always permitted dial plan patterns (number patterns that are treated as emergency calls by emergency call routing and E911) can only be added using the CLI.

### Accessing the CLI

To access the CLI on your AOS unit, follow these steps:

1. Boot up the unit.
2. Telnet to the unit (**telnet <ip address>**). For example:

**telnet 208.61.209.1.**



*If during the unit's setup process you have changed the default IP address (10.10.10.1), use the configured IP address.*

3. Enter your user name and password at the prompt.



*The AOS default user name is **admin** and the default password is **password**. If your product no longer has the default user name and password, contact your system administrator for the appropriate user name and password.*

4. Enter the Enable mode by entering **enable** at the prompt as follows:

**>enable**

5. Enter your Enable mode password at the prompt.
6. Enter the unit's Global Configuration mode as follows:

**#config terminal**  
(config)#

## Adding a Pattern to the Always Permitted Group

All always permitted calls are considered emergency calls and are handled accordingly by configured E911 features. By default, 9-911 is the only dial plan pattern in the always permitted group on the NetVanta 7000 Series. Additional always permitted dial plan patterns can be defined in the CLI (but not in the GUI) and will be handled exactly like a 911 call by emergency call routing.

A dial plan pattern can be added to the always permitted group using the **voice dial-plan** *<pattern id>* **always-permitted** *<pattern>* command from the Global Configuration mode. Use the **no** form of this command to remove a dial plan pattern from the always permitted group.

The *<pattern id>* parameter specifies the dial pattern identification. The valid range for this parameter is **1** to **255**. The *<pattern>* parameter specifies the dialing pattern. You can enter a complete phone number, or wildcards can be used to define the dialing pattern.

The available wildcards for this command are:

- 0-9** = Match exact digit only.
- X** = Match any single digit (0 to 9).
- N** = Match any digit 2 to 9.
- [123]** = Match any digit contained in the bracketed list.
- \$** = Match any digit.



*Do not use spaces inside the brackets. Commas are implied between numbers in the brackets.*

The special characters ( ) and + are always ignored in the template. The special character - is ignored in the template unless inside brackets. The following are example template entries using wildcards:

1. 555-81XX matches 555-8100 to 555-8199.
2. 555-812[012] matches 555-8120 to 555-8122.
3. NXX-XXXX matches 7 digits local.
4. 1-NXX-NXX-XXXX matches long distance calls in North America.

The following example adds the dial pattern **112** to the **always permitted** group:

```
(config)#voice dial plan 9 always-permitted 112
```

## Adding Emergency Caller ID Override to a User

Use the **caller-id-override emergency-number** *<number>* command from the Voice User Account Configuration mode to configure emergency caller ID numbers through the CLI. Use the **no** form of this command to specify the user's first listed DID number as the caller ID number for emergency calls.

The *<number>* parameter specifies the number that will replace the caller ID number on emergency calls.

The following example specifies that the number **2565554444** will be used as the caller ID number for emergency calls made by voice user **4444**:

```
(config)#voice user 4444
(config-4444)#caller-id-override emergency-number 2565554444
```

## Adding Emergency Caller ID Override to a Trunk

Use the **caller-id-override emergency-outbound** *<number>* command from the Voice Analog Trunk Configuration mode, the Voice ISDN Trunk Configuration mode, the Voice SIP Trunk Configuration Mode, or the Voice T1 Trunk Configuration mode to configure all outbound emergency calls over this trunk to use the specified caller ID number. Use the **no** form of this command to remove the setting.

The *<number>* parameter specifies the number that will replace the caller ID number on emergency calls.

The following example specifies that the number **2565554444** will be used as the caller ID number for emergency calls made over SIP trunk **T01**:

```
(config)#voice trunk t01 type sip
(config-4444)#caller-id-override emergency-outbound 2565554444
```

Use the **caller-id-override emergency-outbound match-substitute** command from the Voice Analog Trunk Configuration mode, the Voice ISDN Trunk Configuration mode, the Voice SIP Trunk Configuration Mode, or the Voice T1 Trunk Configuration mode to configure the trunk to substitute an ANI substitution number if the out-going caller ID number matches an ANI match template. If the outbound emergency number does not match an ANI match template, the number dialed is passed unchanged. Use the **no** form of this command to remove the setting.

The following example specifies that the ANI substitution number will be substituted for the out-going number for emergency calls made over SIP trunk **T01**:

```
(config)#voice trunk t01 type sip
(config-4444)#caller-id-override emergency-outbound match-substitute
```

## Configuring User Emergency Response Location

User emergency response location can also be configured through the CLI. A user's emergency response location is defined using the **location** *<text>* command from the Voice User Account Configuration mode. Use the **no** form of this command to remove the user's emergency response location.

The *<text>* parameter specifies the user's location using no more than 40 characters.

The following example specifies the emergency response location of user **4444**:

```
(config)#voice user 4444
(config-4444)#location 5th floor, room 582
```

## Enabling Emergency Call Email Alerts

Emergency call email alerts can be configured from the Global Configuration mode by following these steps:

### Step 1: Turn Email Logging On

Use the **logging email on** command to enable the AOS email event notification feature.

```
(config)#logging email on
```

### Step 2: Specify the Email Server

Use the **logging email receiver-ip** command to specify the IP address or host name of the email server to use when sending email event notification.

```
(config)#logging email receiver-ip <ip address | hostname>
```

The *<ip address | hostname>* parameter specifies the IP address or host name of the email server to use when sending logged email messages. IP addresses should be expressed in dotted decimal notation (for example, **10.10.10.1**).

### Step 3: Enable Emergency Email Alerts

Use the **voice email-list emergency** command to enable the system default emergency email alerts and enter the emergency email list configuration mode. Use the **no** form of this command to turn off emergency email alerts.

```
(config)#voice email-list emergency
```

### Step 4: Add Addresses to the Emergency Email Distribution List

Use the **address <email address>** command in the emergency email list configuration mode to add an email address to the emergency email distribution list. Use the **no** form of this command to remove an address from the emergency email distribution list.

```
(config-email-emergency)#address <email address>
```

### Step 5: Define the Sender (Optional)

Optionally, you can use the **sender <email address>** command in the emergency email list configuration mode to specify the email address that will appear in the sender's address field of the emergency email. Only one sender address can be defined, and defining an additional sender address will overwrite any existing sender address. Use the **no** form of this command to remove the existing address from the sender field of the emergency email.

```
(config-email-emergency)#sender <email address>
```

## Example Configuration

In this example, email logging is enabled and the **mail.company.com** email server is defined as the server to use for email event notification. Emergency email alerts are enabled and configured to send email alerts to **admin@company.com** and **president@company.com** addresses with **emergency@company.com** in the sender's address field.

```
(config)#logging email on
(config)#logging email receiver-ip mail.company.com
(config)#voice email-list emergency
```

Configuring Existing Email List "emergency".

```
(config-email-emergency)#address admin@company.com
(config-email-emergency)#address president@company.com
(config-email-emergency)#sender emergency@company.com
```

## Viewing User Emergency Response Location and Emergency Caller ID Number

Use the **show voice user location** command from the Enable mode prompt to view a table with all existing voice user's last name, first name, extension, location, and emergency caller ID number.

### #show voice user location

Last Location	First	Extension Emergency CID Number
Smith 4th floor, Room 466	Joe	1212 2565551212
Spinaker 5th floor, Room 572	Victrola	0330 2565550330
Starkalous 5th floor, Room 485	Marc	2003 2565552003
Taylor 2nd floor, Room 211	John	2004 2565552004