Networking Cisco Unity Express

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This chapter describes the procedures for configuring the networking capability on the local Cisco Unity Express voice-mail system and contains the following sections:

Overview of Cisco Unity Express Networking

Cisco Unity Express supports the Voice Profile for Internet Mail (VPIM) version 2 protocol to permit voice-mail message networking between Cisco Unity Express and Cisco Unity voice-mail systems that are not co-located on the same router or server. The voice-mail systems can reside on Cisco Unified CallManager or Cisco Unified CallManager Express call control platforms. Supported networked voice-mail configurations include:

- Cisco Unity Express to Cisco Unity Express

- Cisco Unity Express to Cisco Unity

- Cisco Unity to Cisco Unity Express

Cisco Unity Express must be installed and configured at each remote location.

Cisco Unity 4.0.4 is supported. You must configure VPIM networking on Cisco Unity, including the primary location for Cisco Unity and the delivery locations for remote Cisco Unity Express locations. See the documentation in the "Additional References" section on page 14 for more information.

Types of Remote Addressing

Cisco Unity Express supports the following types of remote addressing:

- Blind addressing
- Spoken name confirmation

Blind Addressing

A subscriber can send a message to another subscriber on a remote location, which must be configured on the local (sender's) system. The sender addresses the message using the location ID of the remote system plus the recipient's extension number at the remote location.

When the message is sent to the remote subscriber, the sender will not hear a confirmation of the recipient's name or extension. This is blind addressing.

Spoken Name Confirmation for Remote Subscribers

Administrators can assign user IDs and extensions in the local Cisco Unity Express directory for subscribers at existing remote locations. Additionally, administrators or other privileged subscribers can record spoken names for these subscribers using the Administration via Telephone (AvT) feature.

If the local system has vCard information enabled, incoming vCard information updates the remote subscriber information on the local system. The vCard information may contain the remote subscriber's first name, last name, and spoken name. This information is stored in the least recently used (LRU) cache.

A sender on the local system can address a message to a remote subscriber using dial-by-name or dial-by-extension. If a spoken name for the recipient is recorded, the sender hears the spoken name as confirmation. If the recipient does not exist in the local directory but is in the LRU cache, the sender hears the LRU cache information as confirmation. If the remote subscriber is not in the directory or the cache, the sender receives the recipient's location ID and extension.

Delivery Notifications

Cisco Unity Express supports the following message delivery notification types:

- Non-delivery receipt (NDR)
- Delayed delivery record (DDR)

Non-Delivery Receipt (NDR)

If the system cannot deliver a message to a remote site after 6 hours, the local sender receives a non-delivery receipt (NDR) indicating the message was not sent or that the message was not delivered to the recipient's mailbox.

This receipt indicates the reason for nondelivery. If nondelivery is due to the recipient's mailbox being full, nonexistent, or disabled, the nondelivery message includes the sender's original message. When the sender plays the NDR, the sender can readdress and resend the original message or delete the message.

Each NDR counts against the sender's mailbox capacity.

Delayed Delivery Record (DDR)

Cisco Unity Express sends a delayed delivery record (DDR) to the local sender's mailbox after 60 minutes of trying to deliver the original message. Unlike the NDR, the DDR does not contain the original message as an attachment and does not count against the sender's mailbox capacity.

The DDR cannot be saved, only deleted.

The system stores only one copy of a DDR for a particular message in the sender's mailbox. The sender must delete the existing DDR in order to receive an updated DDR for the same message.

Configuring Network Locations

Follow this procedure to configure the network locations.

Prerequisites

- Cisco Unity Express must be installed and configured at each remote location.
- Network connectivity between all Cisco Unity Express and Cisco call control system sites must be established.
- Ensure that VPIM networking is configured on Cisco Unity, including the primary location for Cisco Unity and the delivery locations for remote Cisco Unity Express locations.

Required Data for This Procedure

The following information is required to configure networking on Cisco Unity Express:

- Network location ID number—Unique ID number for each location used by the voice-mail sender to send a remote message. The maximum length of the number is 7 digits. Cisco Unity Express supports a maximum of 500 locations.

Note Avoid creating locations with conflicting IDs, such as 100, 1001, and so forth. This may lead to ambiguity while sending messages to these locations and may lead to messages being addressed incorrectly.

- E-mail domain name—E-mail domain name or IP address for the remote voice-mail system. The domain name is attached to the local voice-mail originator's extension when sending a VPIM message. The local system's e-mail domain name must be configured to receive remote voice-mail messages.
- (Optional) Location name—Descriptive name of the network location.
- (Optional) Abbreviated location name—Abbreviated name of the network location. Maximum length of the name is 5 characters.
- (Optional) Voice-mail system telephone number prefix—Phone number prefix that is added to a local voice-mail originator's extension to create a VPIM address. A prefix is required only if an e-mail domain services multiple locations, and extensions between the locations are not unique. The maximum length of the prefix is 15 digits. The default prefix is empty.

- (Optional) Length of the local voice-mail system extensions. The default minimum is 2, the default maximum is 15.

- (Optional) VPIM encoding scheme—Encoding scheme options for translating voice-mail messages at the local Cisco Unity Express system are dynamic, G.711mu-law, or G.726. The default scheme is dynamic.

- (Optional) Voice-mail spoken name capability—Enabling this functionality permits receipt of a voice-mail originator's spoken name, which is played at the beginning of the received voice-mail message.

- (Optional) Broadcast VPIM ID—Used for sending and receiving broadcast messages between network locations. See "Configuring the Broadcast Message VPIM ID for a Network Location" on page 240 for more information.

- Location ID for the local system.

SUMMARY STEPS

1. **config t**

2. **network location id** *number*

3. (Optional) **name** *location-name*

4. (Optional) **abbreviation** *name*

5. **email domain** *domain-name*

6. (Optional) **voicemail phone-prefix** *digit string*

7. (Optional) **voicemail extension-length** *number* [**min** *number* | **max** *number*]

8. (Optional) **voicemail vpim-encoding** {**dynamic** | **G711ulaw** | **G726**}

9. (Optional) **voicemail spoken-name**

10. **end**

11. Repeat Steps 2 through 10 for each remote location.

12. **network local location id** *number*

13. **end**

14. **show network locations**

15. **show network detail location id** *number*

16. **show network detail local**

17. **show network queues**

DETAILED STEPS

	Command or Action	Purpose

Step 1	`config t`
	
	Example:
	`se-10-0-0-0# config t`
		Enters configuration mode.

Step 2	`network location id` *number* **Example:** `se-10-0-0-0(config)# network location id 9`	Enters location configuration mode to allow you to add or modify a location. • *number*—A unique numeric ID assigned to the location. This number is used to identify the location and is entered when a subscriber performs addressing functions in the TUI. The maximum length of the number is 7 digits. Cisco Unity Express supports up to 500 locations on a single system. • To delete a location, use the **no** form of this command.
Step 3	`name` *location-name* **Example:** `se-10-0-0-0(config-location)# name "San Jose"`	(Optional) Descriptive name used to identify the location. Enclose the name in double quotes if spaces are used. • To delete a location name description, use the **no** form of this command.
Step 4	`abbreviation` *name* **Example:** `se-10-0-0-0(config-location)# abbreviation sjcal`	(Optional) Creates an alphanumeric abbreviation for the location that is spoken to a subscriber when the subscriber performs addressing functions in the TUI. You cannot enter more than 5 characters. • To delete an abbreviation, use the **no** form of this command.
Step 5	`email domain` *domain-name* **Example:** `se-10-0-0-0(config-location)# email domain mycompany.com`	Configures the e-mail domain name or IP address for the location. The domain name is added when sending a VPIM message to the remote location (for example, "4843000@mycompany.com"). If you do not configure a domain name or IP address, the Cisco Unity Express system at this location cannot receive network messages. • To remove the e-mail domain name or IP address and disable networking, use the **no** form of this command. ⚠ **Caution** If you remove the e-mail domain for a network location, the system automatically disables networking from the Cisco Unity Express module to that location. If you remove the e-mail domain for the local location, then networking on that Cisco Unity Express module is disabled. To reenable a location, assign it a valid e-mail domain.

Command or Action	Purpose
Step 6	**voicemail phone-prefix** *digit-string* **Example:** se-10-0-0-0(config-location)# voicemail phone-prefix *484*	(Optional) Configures the phone number prefix that is added to an extension to create a VPIM address for a subscriber at the location. A prefix is required only if an e-mail domain services multiple locations and extensions between the locations are not unique. Valid values: 1 to 15 digits. Default value: empty. • To delete a phone prefix, use the **no** form of this command.
Step 7	**voicemail extension-length** {*number* | **min** *number* **max** *number*} **Example:** se-10-0-0-0(config-location)# voicemail extension-length 8 se-10-0-0-0(config-location)# voicemail extension-length min 5 max 9	(Optional) Configures the voice mail extension length for the location. • *number*—Configures the number of digits contained in extensions at the location. • **max** *number*—Sets the minimum number of digits for extensions. Default value: 2. • **min** *number*—Sets the maximum number of digits for extensions. Default value: 15. • To remove the configuration for the number of digits for extensions, use the **no** form of this command.
Step 8	**voicemail vpim-encoding** {**dynamic** | **G711ulaw** | **G726**} **Example:** se-10-0-0-0(config-location)# voicemail vpim-encoding G711ulaw	(Optional) Configures the encoding method used to transfer voice-mail messages to this location. • **dynamic**—Cisco Unity Express negotiates with the location to determine the encoding method • **G711ulaw**—Cisco Unity Express always sends messages as G711 mu-law .wav files. Set this only if the receiving system supports G711 mu-law encoding (such as Cisco Unity). • **G726**—Cisco Unity Express always sends messages as G726 (32K ADPCM). Use for low-bandwidth connections or when the system to which Cisco Unity Express is connecting does not support G711 u-law. • Default value: **dynamic**. • To return to the default value for encoding, use the **no** or **default** form of this command.
Step 9	**voicemail spoken-name** **Example:** se-10-0-0-0(config-location)# voicemail spoken-name	(Optional) Enables sending the spoken name of the voice-mail originator as part of the message. If the spoken name is sent, it is played as the first part of the received message. Default: enabled. • To disable sending the spoken name, use the **no** form of this command.
Step 10	**end** **Example:** se-10-0-0-0(config-location)# end	Exits location configuration mode.

	Command or Action	**Purpose**
Step 11	`network local location id` *number* **Example:** `se-10-0-0-0(config)# network local location id 1`	Enables networking for the local Cisco Unity Express system identified by the location ID number. • To delete the local location, use the **no** form of this command. ⚠ **Caution** If you delete the local network location and then save your configuration, when you reload Cisco Unity Express, the local network location will remain disabled. After Cisco Unity Express restarts, reenter the **network local location id** command to reenable networking at this location.

Step 12	`exit`
	
	Example:
	`se-10-0-0-0(config)# exit`
		Exits configuration mode.

Step 13	`show network locations`
	
	Example:
	`se-10-0-0-0# show network locations`
		(Optional) Displays the location ID, name, abbreviation, and domain name for each configured Cisco Unity Express location.

Step 14	`show network detail location id` *number* **Example:** `se-10-0-0-0# show network detail location id 9`	(Optional) Displays network information for the specified location ID, including the number of messages sent and received.

Step 15	`show network detail local`
	
	Example:
	`se-10-0-0-0# show network detail local`
		(Optional) Displays network information for the local Cisco Unity Express location, including the number of messages sent and received.

Step 16	`show network queues`
	
	Example:
	`se-10-0-0-0# show network queues`
		(Optional) Displays information about messages in the outgoing queue that are to be sent from this Cisco Unity Express system. The queue information contains three displays: one for urgent job queue information, one for normal job queue information, and one for running job information.

Examples

The following examples illustrate the output from the **show network** commands on company Mycompany's call control system in San Jose with remote voice-mail provided by six remote Cisco Unity Express sites.

```
se-10-0-0-0# show network locations

ID         NAME                           ABBREV  DOMAIN
101        'San Jose'                     SJC     sjc.mycompany.com
102        'Dallas/Fort Worth'            DFW     dfw.mycompany.com
201        'Los Angeles'                  LAX     lax.mycompany.com
202        'Canada'                       CAN     can.mycompany.com
```

```
301      'Chicago'                     CHI   chi.mycompany.com
302      'New York'                    NYC   nyc.mycompany.com
401      'Bangalore'                   BAN   bang.mycompany.com

se-10-0-0-0# show network detail location id 102

Name:                         Dallas/Fort Worth
Abbreviation:                 DFW
Email domain:                 dfw.mycompany.com
Minimum extension length:     2
Maximum extension length:     15
Phone prefix:
VPIM encoding:                G726
Send spoken name:             enabled
Sent msg count:               10
Received msg count:           110

se-10-0-0-0# show network detail local

Location Id:                  101
Name:                         San Jose
Abbreviation:                 SJC
Email domain:                 sjc.mycompany.com
Minimum extension length:     2
Maximum extension length:     15
Phone prefix:
VPIM encoding:                dynamic
Send spoken name:             enabled
```

The following example illustrates output from the **show network queues** command. The output includes the following fields:

- ID—Job ID.

- Retry—Number of times that Cisco Unity Express has tried to send this job to the remote location.

- Time—Time when the job will be resent.

```
se-10-0-0-0# show network queues

Running Job Queue
=================

ID    TYPE TIME       RETRY SENDER        RECIPIENT
107   VPIM 06:13:26   20    jennifer      1001@sjc.mycompany.com
106   VPIM 06:28:25   20    jennifer      1001@sjc.mycompany.com

Urgent Job Queue
=================

ID    TYPE TIME       RETRY SENDER        RECIPIENT
123   VPIM 16:33:39   1     andy          9003@lax.mycompany.com

Normal Job Queue
=================

ID    TYPE TIME       RETRY SENDER        RECIPIENT
122   VPIM 16:33:23   1     andy          9001@lax.mycompany.com
124   VPIM 16:34:28   1     andy          9003@lax.mycompany.com
125   VPIM 16:34:57   1     andy          9002@lax.mycompany.com
126   VPIM 16:35:43   1     andy          9004@lax.mycompany.com
```

Disabling a Network Location

Cisco Unity Express supports disabling a location in the Cisco Unity Express network from sending or receiving Cisco Unity Express voice-mail messages. The system does not delete the network location from the Cisco Unity Express database.

To reestablish voice-mail message transmission to and from the network location, use the **enable** command.

> **Note** Deleting the e-mail domain for a network location also disables the location.

SUMMARY STEPS

1. **config t**
2. **network location id** *location-id*
3. **no enable**
4. **y**
5. **end**
6. **exit**

DETAILED STEPS

	Command or Action	Purpose

Step 1	`config t`
	
	Example:
	`se-10-0-0-0# config t`
	`se-10-0-0-0(config)#`
		Enters configuration mode.

Step 2	`network location id` *location-id* **Example:** `se-10-0-0-0(config)# network location id 15`	Enters the location configuration mode for network location *location-id*.

Step 3	`no enable`
	
	Example:
	`se-10-0-0-0(config-location)# no enable`
	`!!!WARNING!!!:Disabling location will disable`
	`networking to/from this location.`
	`Do you wish to continue[n]?:`
		Disables the network location *location-id* from sending or receiving voice-mail messages.

Step 4	Enter **yes** to disable the location.	—

	Command or Action	Purpose

Step 5	**end**
	
	Example:
	`se-10-0-0-0(config-location)# end`
	`se-10-0-0-0(config)#`
		Exits location configuration mode.

Step 6	**exit**
	
	Example:
	`se-10-0-0-0(config)# exit`
	`se-10-0-0-0#`
		Exits configuration mode.

Examples

The following example displays the details for network location 15 with networking disabled:

```
se-10-0-0-0# config t
se-10-0-0-0(config)# network location id 15
se-10-0-0-0(config-location)# no enable
!!!WARNING!!!:Disabling location will disable
networking to/from this location.
Do you wish to continue[n]?:y
se-10-0-0-0(config-location)# end
se-10-0-0-0(config)# exit
se-10-0-0-0#
se-10-0-0-0# show network detail location id 15

Name:                   houston
Abbreviation:           hou
Email domain:           hou.mycompany.com
Minimum extension length: 2
Maximum extension length: 15
Phone prefix:           4
VPIM encoding:          dynamic
Send spoken name:       enabled
Send vCard:             enabled
State:                  disabled
VPIM broadcast ID:      vpim-broadcast
Sent msg count:         1
Received msg count:     1
```

The following example re-establishes voice-mail transmission to and from network location 15.

```
se-10-0-0-0# config t
se-10-0-0-0(config)# network location id 15
se-10-0-0-0(config-location)# enable
se-10-0-0-0(config-location
```

Downloading and Uploading Network Location Spoken Names

Use the Administration via Telephone (AvT) options to record the spoken names. You can download these spoken names from a Cisco Unity Express module to an external server or upload them from an external server to a Cisco Unity Express module.

The following sections describe this feature:

Required Data for This Procedure

- Network location ID
- URL of the file with the recorded spoken name on the server
- Login and password to the server

Downloading the Location Spoken Name

To download the network location spoken name, use the following command in Cisco Unity Express EXEC mode:

network copy spokenname url *url* **location id** *location-id* **loginname** *server-login* **password** *server-password*

where the command arguments are defined as:

url	URL to the spoken name file on the server.
location-id	Network location ID.
server-login	Server login.
server-password	Server password.

The following example uploads the spoken name file rename.wav for location 500:

```
se-10-0-0-0# network copy spokenname url ftp://10.4.51.66/rename.wav location id 500
loginname admin password test
```

Uploading the Location Spoken Name

To upload the network location spoken name, use the following command in Cisco Unity Express EXEC mode:

network copy spokenname location id *location-id* **url** *url* **loginname** *server-login* **password** *server-password*

where the command arguments are defined as:

location-id	Network location ID.
url	URL to the spoken name file on the server.
server-login	Server login.
server-password	Server password.

The following example uploads the spoken name file rename.wav for location 500:

```
se-10-0-0-0# network copy spokenname location id 500 url ftp://10.4.51.66/rename.wav
loginname admin password test
)# end
se-10-0-0-0(config)# exit
```

Adding Remote Subscribers to the Local Directory

Cisco Unity Express permits the addition of remote subscribers to the local voice- mail directory.

The local Cisco Unity Express directory allows inclusion of frequently addressed remote subscribers. This capability allows a local voice-mail sender to address a remote recipient using dial-by-name. Additionally, the system provides the sender with a spoken name confirmation of the remote recipient so that the sender can verify that the name and location are correct.

Regardless of the license level, the CUE-NM-EC supports a maximum of 100 remote subscribers, the CUE-NM supports a maximum of 50 remote subscribers, and the AIM-CUE supports a maximum of 20 remote subscribers.

Use the AvT to record the spoken name for the remote subscribers. If a remote subscriber does not have a spoken name recorded, the system uses the remote extension number and location as confirmation to the local sender.

If the vCard option is configured, the remote subscriber's vCard updates the local system with the remote subscriber's first name, last name, or extension.

The following sections describe this feature:

- Configuring the Local Directory with Remote Subscribers, page 228
- Displaying Remote Subscribers, page 232
- Deleting Remote Subscriber Information, page 233

Configuring the Local Directory with Remote Subscribers

Configuring remote subscribers requires the following procedures:

- Configuring the local system for networking.

    CLI commands exist to configure the local and remote sites in the system. GUI screens are available to configure the location parameters.

- Configuring vCard information on the local system.

    See the chapter "Configuring a Location with vCard Information" on page 236 for that procedure.

- Adding the remote subscriber information to the local directory.

    This section describes this procedure.

- Adding a spoken name and location for the remote subscriber.

    The administrator uses the TUI to record a spoken name for the remote subscriber and a spoken name for the remote location.

    Configuring the remote subscriber can be done in the Cisco Unity Express configuration mode and the EXEC mode. Both modes permit adding the remote subscriber to the local directory but have different capabilities for other subscriber information. Use the **remote username location** command once, in either mode, to associate the remote subscriber with a network location.

Configuration Mode

Use this Cisco Unity Express configuration mode procedure to configure remote subscribers on the local system.

Required Data for This Procedure

The following information is required to configure remote subscribers on the local system:

- Remote username
- Remote subscriber's extension number
- Remote location ID

SUMMARY STEPS

1. **config t**
2. **remote username** *username* **location** *location-id* **create**
3. **remote username** *username* **phonenumber** *extension-number*
4. **exit**

DETAILED STEPS

	Command or Action	Purpose

Step 1	`config t`
	
	Example:
	`se-10-0-0-0# config t`
	`se-10-0-0-0(config)#`
		Enters configuration mode.

Step 2	`remote username` *username* `location` *location-id* `create`
	
	Example:
	`se-10-0-0-0(config)# remote username user1 location sjc create`
		Adds the subscriber with *username* at the location *location-id* to the local directory.
		
		An error message appears if one of the following conditions occurs:
		- A local subscriber, group, or remote subscriber exists with this username.
		- The maximum number of remote subscribers is already configured on the system.
		- *location-id* does not exist.
		- *location-id* is the local location.

	Command or Action	Purpose

Step 3	`remote username` *username* `phonenumber` *extension-number*
	
	Example:
	`se-10-0-0-0(config)# remote username user1`
	`phonenumber 75555`
		Associates the remote subscriber *username* with *extension-number*.
		
		The local system does not verify the remote extension number.
		
		An error message appears if one of the following conditions occurs:
		
		• *username* does not exist.
		
		• The length of *extension-number* does not fall within the maximum and minimum extension lengths for the subscriber's location.

Step 4	`exit`
	
	Example:
	`se-10-0-0-0(config)# exit`
	`se-10-0-0-0#`
		Exits configuration mode.

EXEC Mode

Use this Cisco Unity Express EXEC mode procedure to configure remote subscribers on the local system.

Required Data for This Procedure

The following information is required to configure remote subscribers on the local system:

- Remote username
- Remote location ID
- Remote subscriber's first name, last name, and full name for display purposes

SUMMARY STEPS

1. **remote username** *username* **location** *location-id* **create**
2. **remote username** *username* **fullname display** *display-name*
3. **remote username** *username* **fullname first** *first-name*
4. **remote username** *username* **fullname last** *last-name*

DETAILED STEPS

	Command or Action	Purpose
Step 1	**remote username** *username* **location** *location-id* **create** **Example:** `se-10-0-0-0# remote username user1 location sjc create`	Adds the subscriber with *username* at the location *location-id* to the local directory. An error message appears if one of the following conditions occurs: • A local subscriber, group, or remote subscriber exists with this username. • The maximum number of remote subscribers is already configured on the system. • *location-id* does not exist. • *location-id* is the local location.

Step 2	**remote username** *username* **fullname display** *display-name*
	
	Example:
	`se-10-0-0-0# remote username user1 fullname display`
	`"Al Brown"`
		Associates the remote subscriber *username* with a display name.

Step 3	**remote username** *username* **fullname first** *first-name* **Example:** `se-10-0-0-0# remote username user1 fullname first Al`	Associates the remote subscriber *username* with a first name for display.
Step 4	**remote username** *username* **fullname last** *last-name* **Example:** `se-10-0-0-0# remote username user1 fullname last Brown`	Associates the remote subscriber *username* with a last name for display.

Examples

The following example configures several remote subscribers.

```
se-10-0-0-0# config t
se-10-0-0-0(config)# remote username user2 location sjc create
se-10-0-0-0(config)# remote username user2 phonenumber 84444
se-10-0-0-0(config)# remote username user5 location sjc create
se-10-0-0-0(config)# remote username user5 phonenumber 81111
se-10-0-0-0(config)# remote username user3 location nyc create
se-10-0-0-0(config)# remote username user3 phonenumber 92222
se-10-0-0-0(config)# remote username user4 location nyc create
se-10-0-0-0(config)# remote username user4 phonenumber 93333
se-10-0-0-0(config)# end
se-10-0-0-0# remote username user2 fullname display "User 2"
se-10-0-0-0# remote username user2 fullname first User
se-10-0-0-0# remote username user2 fullname last 2
se-10-0-0-0# remote username user5 fullname display "User 5"
se-10-0-0-0# remote username user5 fullname first User
se-10-0-0-0# remote username user5 fullname last 5
se-10-0-0-0# remote username user3 fullname display "User" 3
se-10-0-0-0# remote username user3 fullname first User
se-10-0-0-0# remote username user3 fullname last 3
se-10-0-0-0# remote username user4 fullname display "User 4"
se-10-0-0-0# remote username user4 fullname first User
se-10-0-0-0# remote username user4 fullname last 4
se-10-0-0-0#
```

Displaying Remote Subscribers

Several commands are available to display remote subscribers.

Displaying All Remote Subscribers

The following command displays all remote subscribers configured on the local system:

show remote users

The output for this command may appear similar to the following:

```
se-10-0-0-0# show remote users

user2
user5
user3
user4
```

Displaying a Specific Remote Subscriber

The following command displays the details for a specific remote subscriber:

show remote user detail username *username*

where *username* is the specific remote subscriber.

The output for this command may appear similar to the following:

```
se-10-0-0-0# show remote user detail username user2
```

```
Full Name: User 2
First Name: User
Last Name: 2
Nick Name:
Extension: 84444
Location Id: sjc
```

Deleting Remote Subscriber Information

Several commands are available to delete remote subscriber information from the local directory.

Deleting an Extension Number

The following configuration mode command deletes a remote subscriber's extension number:

no remote username *username* **phonenumber** *extension-number*

where *username* is the name of the remote subscriber and *extension-number* is the remote subscriber's extension.

The following example deletes extension 75555 from remote subscriber User 2:

```
se-10-0-0-0# config t
se-10-0-0-0(config)# no remote username user2 phonenumber 84444
se-10-0-0-0(config)# end
```

Deleting a Remote Subscriber Entry in Local Directory

The following EXEC mode command deletes the remote subscriber from the local directory:

remote username *username* **delete**

where *username* is the name of the remote subscriber.

The following example deletes the remote subscriber User 2:

```
se-10-0-0-0# remote username user2 delete
```

Deleting a Remote Username

The following EXEC mode commands delete the remote subscriber's name:

no remote username *username* **fullname display** *display-name*

no remote username *username* **fullname first** *first-name*

no remote username *username* **fullname last** *last-name*

where *username* is the name of the remote subscriber, *display-name* is the remote subscriber's display name, *first-name* is the remote subscriber's first name, and *last-name* is the remote subscriber's last name.

The following example deletes the display name from remote subscriber User 2:

```
se-10-0-0-0# no remote username user2 fullname display "User 2"
```

The following example deletes the first name from remote subscriber User 2:

```
se-10-0-0-0# no remote username user2 fullname first User
```

The following example deletes the last name from remote subscriber User 2:

```
se-10-0-0-0# no remote username user2 fullname last 2
```

Downloading and Uploading Remote Subscriber Spoken Names

Use the Administration via Telephone (AvT) options to record the spoken names. You can download these spoken names from the Cisco Unity Express module to an external server or upload the names from an external server to the Cisco Unity Express module.

The following sections describe this feature:

- Required Data for This Procedure, page 234
- Downloading the Remote Subscriber Spoken Name, page 234
- Uploading the Remote Subscriber Spoken Name, page 234

Required Data for This Procedure

- Username
- URL of the file with the recorded spoken name on the server
- Login and password to the server

Downloading the Remote Subscriber Spoken Name

To download the remote subscriber spoken name, use the following command in Cisco Unity Express EXEC mode:

remote copy spokenname url *url* **username** *username* **loginname** *server-login* **password**
   server-password

where the command arguments are defined as:

url	URL to the spoken name file on the server.
username	Remote subscriber ID.
server-login	Server login.
server-password	Server password.

The following example uploads the spoken name file user1.wav for remote subscriber user1:

```
se-10-0-0-0# remote copy spokenname url ftp://10.4.51.66/user1.wav username user1
loginname admin password test
```

Uploading the Remote Subscriber Spoken Name

To upload the network location spoken name, use the following command in Cisco Unity Express EXEC mode:

> **remote copy spokenname username** *username* **url** *url* **loginname** *server-login* **password**
> *server-password*

where the command arguments are defined as:

username	Remote user ID.
url	URL to the spoken name file on the server.
server-login	Server login.
server-password	Server password.

The following example uploads the spoken name file user1.wav for remote subscriber user1:

```
se-10-0-0-0# remote copy spokenname username user1 url ftp://10.4.51.66/user1.wav
loginname admin password test
```

Configuring Caller ID for Incoming Messages

Cisco Unity Express supports caller ID information for incoming voice-mail messages.

When receiving an incoming voice-mail message from an external caller, the system attempts to match the associated caller ID information with an entry in the local directory. If a match is not found and the system is configured to play caller ID information, the system plays the sender's telephone number in the message envelope when the recipient listens to that message. If the system is not configured to play caller ID information, the system plays "Unknown Caller" in the message envelope.

Cisco Unity Express does not verify that the caller ID information is valid. That function is dependent on the central office (CO) and the incoming trunk setup. Additionally, the local system plays caller ID information for Cisco Unified CallManager Express or Cisco Unified CallManager extensions that are not configured in the local Cisco Unity Express directory.

The default caller ID status is disabled. Use the GUI **Defaults > Voice Mail** option or the CLI command described below to enable or disable playing of caller ID information.

✎
Note An external call is any telephone number that is not listed in the Cisco Unity Express subscriber directory. Possible sources of external calls are the local telephone company, an IP telephone, or an H.323 gateway. These sources must be configured to present caller ID information to the Cisco Unity Express system.

The following sections describe this feature:

- Enabling Caller ID on the Local System, page 235
- Disabling Caller ID on the Local System, page 236

Enabling Caller ID on the Local System

Use the following Cisco Unity Express configuration mode command to enable the playing of caller ID information in the message envelope of incoming external calls.

> **voicemail callerid**

The following example illustrates enabling caller ID information on local system:

```
se-10-0-0-0# config t
se-10-0-0-0(config)# voicemail callerid
se-10-0-0-0(config)# exit
```

Disabling Caller ID on the Local System

Use the following Cisco Unity Express configuration mode command to disable the playing of caller ID information in the message envelope of incoming external calls.

> **no voicemail callerid**

The following example illustrates disabling caller ID information on local system:

```
se-10-0-0-0# config t
se-10-0-0-0(config)# no voicemail callerid
se-10-0-0-0(config)# exit
```

Configuring a Location with vCard Information

Cisco Unity Express supports sending and receiving vCard information in voice-mail messages. A remote subscriber's vCard information contains the subscriber's first name, last name, and extension. Cisco Unity Express uses the vCard information from incoming voice profile for Internet mail (VPIM) messages and the recorded spoken name to populate and update a least recent used (LRU) cache with the remote subscriber information. (For more information about configuring the spoken name, see "Adding Remote Subscribers to the Local Directory" on page 228.)

When addressing a message to a remote subscriber, the local sender hears the spoken name as a confirmation of the intended recipient. The LRU cache is a source of the spoken name.

The maximum length of the LRU cache is 100 subscribers on the NM-CUE-EC, 50 subscribers on the NM-CUE, and 20 subscribers on the AIM-CUE.

The following sections describe this feature:

Enabling and Disabling vCard Information

The remote location numeric ID is required to enable the location to receive vCard information.

The system default is to send the vCard information.

SUMMARY STEPS

1. **config t**
2. **network location id** *location-id*
3. **voicemail vcard**
4. **end**
5. **exit**

DETAILED STEPS

	Command or Action	Purpose

Step 1	`config t`
	
	Example:
	`se-10-0-0-0# config t`
	`se-10-0-0-0(config)#`
		Enters configuration mode.

Step 2	`network location id` *location-id* **Example:** `se-10-0-0-0(config)# network location id 15`	Enters the location configuration mode for network location *location-id*.

Step 3	`voicemail vcard`
	
	Example:
	`se-10-0-0-0(config-location)# voicemail vcard`
		Enables the network location *location-id* to receive vCard information.
		
		To disable the receipt of vCard information, use the **no** form of this command.

Step 4	`end`
	
	Example:
	`se-10-0-0-0(config-location)# end`
	`se-10-0-0-0(config)#`
		Exits location configuration mode.

Step 5	`exit`
	
	Example:
	`se-10-0-0-0(config)# exit`
	`se-10-0-0-0#`
		Exits configuration mode.

Examples

The following example enables receipt of vCard information to network locations 23 and nyc:

```
se-10-0-0-0# config t
se-10-0-0-0(config)# network location 23
se-10-0-0-0(config-location)# voicemail vcard
se-10-0-0-0(config-location)# end
se-10-0-0-0(config)# network location nyc
se-10-0-0-0(config-location)# voicemail vcard
se-10-0-0-0(config-location)# end
se-10-0-0-0(config)# exit
```

The following command disables receipt of vCard information to network location nyc:

```
se-10-0-0-0# config t
se-10-0-0-0(config)# network location nyc
se-10-0-0-0(config-location)# no voicemail vcard
se-10-0-0-0(config-location)# end
se-10-0-0-0(config)# exit
```

Displaying vCard Status

Several commands are available to display vCard status.

Displaying vCard Status For a Specific Location

The following Cisco Unity Express EXEC mode command displays details about a specific remote location:

show network detail location id *location-id*

where *location-id* is the remote location number.

The following example displays details about network location 15, which has vCard enabled:

```
se-10-0-0-0# show network detail location id 15

Name:                     houston
Abbreviation:             hou
Email domain:             hou.mycompany.com
Minimum extension length: 2
Maximum extension length: 15
Phone prefix:             4
VPIM encoding:            dynamic
Send spoken name:         enabled
Send vCard:               enabled
State:                    enabled
VPIM broadcast ID:        vpim-broadcast
Sent msg count:           0
Received msg count:       0
```

Displaying vCard Status For the Local System

The following EXEC mode command displays details for the local Cisco Unity Express system:

show network detail local

The following example displays details for the local system with vCard enabled:

```
se-10-0-0-0# show network detail local

Location ID:              10
Name:                     SanJoseCA
Abbreviation:             sjc
Email domain:             sjc.mycompany.com
Minimum extension length: 2
Maximum extension length: 15
Phone prefix:
VPIM encoding:            G726
Send spoken name:         enabled
Send vCard:               enabled
State:                    enabled
VPIM broadcast ID:        vpim-broadcast
```

Configuring the LRU Cache

Cisco Unity Express supports a least recently used (LRU) cache that contains vCard information about remote subscribers. An LRU cache is a database of remote subscribers' first names, last names, and spoken names. These remote subscribers are not configured in the Remote User Directory. The subscribers contained in the cache are referred to as cached users.

Network messages update the contents of the LRU cache. When a local sender addresses a voice-mail message to a remote subscriber, the system accesses this information to send a spoken name confirmation about the remote subscriber to the local sender. Each time a network message arrives from a cached user or each time a local sender sends a voice message to a cached user, the system updates the timestamp of the cached user's entry in the LRU cache.

The maximum capacity of the LRU cache is 100 subscribes on the NM-CUE-EC, 50 subscribers on the NM-CUE, and 20 subscribers on the AIM-CUE. When the LRU cache reaches its maximum capacity, a new entry erases the existing entry with the oldest timestamp. This means that the next time a local sender calls a remote subscriber, the sender will not receive a spoken name confirmation if the remote subscriber is no longer in the LRU cache.

Do one or both of the following to avoid the inconsistent confirmation response:

- To ensure that a sender always receives a spoken name confirmation for a remote subscriber, configure the remote subscriber in to the Remote User Directory.
- Disable the LRU cache.

The LRU cache contents are saved after system reloads.

By default, the LRU cache is enabled on the local system. Use the GUI **Defaults > Voice Mail** option or the CLI commands described below to change the status of the LRU cache.

The following sections describe this feature:

- Enabling and Disabling the LRU Cache, page 239
- Displaying LRU Cache Data, page 240

Enabling and Disabling the LRU Cache

Use the following Cisco Unity Express configuration mode command to enable the LRU cache on the local system:

remote cache enable

The following example illustrates enabling the LRU cache on the local system:

```
se-10-0-0-0# config t
se-10-0-0-0(config)# remote cache enable
se-10-0-0-0(config)# exit
```

Use the following Cisco Unity Express configuration mode command to disable the LRU cache on the local system. Disabling the cache clears all cache entries and prevents storage of new subscriber entries.

no remote cache enable

The following example illustrates disabling the LRU cache on the local system:

```
se-10-0-0-0# config t
se-10-0-0-0(config)# no remote cache enable
se-10-0-0-0(config)# exit
```

Displaying LRU Cache Data

Use the following Cisco Unity Express EXEC mode command to display the local system's LRU cache data:

show remote cache

The system displays the location ID, location name , extension, and last accessed time for each cached user.

```
se-10-0-0-0# show remote cache

Remote user cache is enabled
ID            LOCATION   EXTENSION    LAST ACCESSED TIME
3014001          sjc     5555         Tue Sep 21 10:38:28 PDT 2004
6661005          nyc     1111         Tue Sep 21 14:55:11 PDT 2004
```

Configuring the Broadcast Message VPIM ID for a Network Location

Use the following procedure to configure the VPIM ID for broadcast messages for a network location.

Required Data for This Procedure

- Network location ID
- Network location VPIM ID

SUMMARY STEPS

1. **config t**

2. **network location id** *location-id*

3. **voicemail broadcast vpim-id** *vpim-id*

4. **end**

5. **exit**

DETAILED STEPS

	Command or Action	Purpose

Step 1	`config t`
	
	Example:
	`se-10-0-0-0# config t`
	`se-10-0-0-0(config)#`
		Enters configuration mode.

Step 2	`network location id` *location-id* **Example:** `se-10-0-0-0(config)# network location id 15`	Specifies the network location.
Step 3	`voicemail broadcast vpim-id` *vpim-id* **Example:** `se-10-0-0-0(config-location)# voicemail broadcast vpim-id 159a`	Enters location configuration mode and specifies the VPIM ID for the location. Valid VPIM IDs contain letters, numbers, underscore (_), dash (-), and dot (.). The maximum length is 32 characters.

Step 4	`end`
	
	Example:
	`se-10-0-0-0(config-location)# end`
	`se-10-0-0-0(config)#`
		Exits location configuration mode.

Step 5	`exit`
	
	Example:
	`se-10-0-0-0(config)# exit`
	`se-10-0-0-0#`
		Exits configuration mode.

Examples

The following example sets the VPIM ID to ny-270 for network location 150:

```
se-10-0-0-0# config t
se-10-0-0-0(config)# network location id 150
se-10-0-0-0(config-location)# voicemail broadcast vpim-id ny-270
se-10-0-0-0(config-location)# end
se-10-0-0-0(config)# exit
```

Troubleshooting Commands

To troubleshoot network configuration in Cisco Unity Express, use the following commands in EXEC mode.

SUMMARY STEPS

1. **trace networking smtp** [**all** | **receive** | **send** | **work**]

2. **trace networking vpim** [**all** | **receive** | **send**]

    3. **trace networking sysdb** [**all**]

    4. **trace networking dns** [**all**]

    5. **trace networking database** [**all** | **connection** | **execute** | **garbage** | **largeobject** | **mgmt** | **query** | **results** | **transaction**]

    6. **trace networking jobqueue** [**all** | **job** *number*]

DETAILED STEPS

	Command or Action	Purpose

Step 1	`trace networking smtp [all | receive | send | work]`
	
	Example:
	`se-10-0-0-0# trace networking smtp all`
		Enables tracing for SMTP network functions.
		
		• **all**—Traces every SMTP activity.
		• **receive**—Traces SMTP receiving.
		• **send**—Traces SMTP sending.
		• **work**—Traces when a job is put in to or removed from the SMTP queue.

Step 2	`trace networking vpim [all | receive | send]`
	
	Example:
	`se-10-0-0-0# trace networking vpim all`
		Enables tracing for VPIM network functions.
		
		• **all**—Traces every VPIM activity.
		• **receive**—Traces VPIM receiving.
		• **send**—Traces VPIM sending.

Step 3	`trace networking sysdb [all]`
	
	Example:
	`se-10-0-0-0# trace networking sysdb`
		Enables tracing for sysdb events.
		
		• **all**—Traces every sysdb event.

Step 4	`trace networking dns [all]`
	
	Example:
	`se-10-0-0-0# trace networking dns`
		Enables tracing for DNS activities. Displays DNS lookups that are performed and results that are given when an administrator adds an e-mail domain to a location, and when a domain is verified and resolved using SMTP.
		
		• **all**—Traces every DNS event.

	Command or Action	Purpose
Step 5	**trace networking database** [**all** | **connection** | **execute** | **garbage** | **largeobject** | **mgmt** | **query** | **results** | **transaction**]] **Example:** se-10-0-0-0# trace networking database results	Enables tracing for database functions. The following keywords specify the type of traces: • **all**—Every database event. • **connection**—Database connections. • **execute**—Inserts and updates performed on database. • **garbage**—Garbage collection process. • **largeobject**—Large object reads and writes to the database. • **mgmt**—Database management processes. • **query**—Queries performed on the database. • **results**—Results of queries, inserts, and updates. • **transactions**—Start and end of database transactions.
Step 6	**trace networking jobqueue** [**all** | **job** *number*] **Example:** se-10-0-0-0# trace networking jobqueue job 101	Enables tracing for the job queue. • **all**—Traces all jobs in the queue. • **job** *number*—Traces a specified job in the queue.