Configuring Endpoints for VPIM Networks

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This chapter describes how to configure endpoints for a VPIM network. The chapter contains the following sections:

Cisco UMG is configured entirely using the command-line interface (CLI). You enter some commands in EXEC mode and others in configuration mode, and still others in submodes. The instructions for each of the tasks cover entering the mode to be used.

For instructions on entering and exiting command modes, see the "Entering and Exiting the Command Environment" chapter.

You must configure each messaging gateway in your system. If your endpoints are using Cisco Unity Express Release 3.1 and later versions, you only need to set up autoregistration on one messaging gateway.

With Cisco Unity Express Release 3.0 or earlier versions, Cisco Unity, and Avaya Interchange endpoints, you must manually provision each one on the messaging gateway associated with it. The messaging gateway on which you manually provision an endpoint becomes that endpoint's primary messaging gateway. You can change the configuration of these types of endpoints only from their primary messaging gateway.

Configuring Peer Messaging Gateways

You can configure multiple peer Cisco UMGs. Location IDs for peer messaging gateways must be unique throughout the solution network.

Not only must you configure peers *on* each messaging gateway, you must also configure each peer *as* a messaging gateway. For this, use all the procedures in this chapter.

To delete a peer messaging gateway, see the "Deleting Peer Messaging Gateways" section on page 73.

Note The following commands do not validate the hostname or IP address of the peer messaging gateway.

Prerequisites

The following information is required to configure a peer Cisco UMG:

- A location ID for the peer messaging gateway that is unique throughout the system.
- A hostname.

SUMMARY STEPS

1. **config t**
2. **network messaging-gateway** *location-id* {*hostname* | *ip-address* }
3. **end**
4. **show messaging-gateway** [*location-id]*

DETAILED STEPS

	Command or Action	Purpose
Step 1	**config t** **Example:** umg-1# config t	Enters configuration mode
Step 2	**network messaging-gateway** *location-id* {*hostname* | *ip-address*} **Example:** umg-1(config)# network messaging-gateway 5 sj.mycompany.com	Configures a peer messaging gateway. The hostname can be in the form sj.mycompany.com or it can be an IP address.

	Command or Action	Purpose
Step 3	**end** **Example:** `umg-1(config)# end`	Exits configuration mode.
Step 4	**show messaging-gateway** [*location-id]* **Example:** `umg-1# show messaging-gateway 5`	Displays the location ID and hostname of any peer messaging gateways that have been configured, whether NAT is enabled for any of them, and the location ID of the current configuring messaging gateway. If a location ID other than the current configuring messaging gateway is specified, displays the named details for the specified messaging gateway.

Examples

The following output illustrates the use of these commands.

```
umg-1# config t
Enter configuration commands, one per line.  End with CNTL/Z.
umg-1(config)# network messaging-gateway 5 sj.mycompany.com
umg-1(config)# end
umg-1# show messaging-gateway
LocationID     Hostname                              NAT
-------------------------------------------------------------
5              sj.mycompany.com                      disabled
55             sf.mycompany.com                      disabled
555            ny.mycompany.com                      disabled

Local Gateway ID: 51000
umg-1# show messaging-gateway 5
LocationID:    5
Hostname:      sj.mycompany.com
NAT:           disabled

umg-1#
```

Message Handling

Default Destination

You can set a default destination (‘network default-route’) for undeliverable messages; the destination can be either a messaging gateway or an endpoint.

Notice of Delayed Delivery or Non-delivery

If a message is not delivered within one hour of being sent, by default, Cisco UMG sends a delayed-delivery receipt (DDR) to the message-sender and a non-delivery receipt (NDR) after six hours. These settings are system-wide, they cannot be applied to individual endpoints.

Changing the defaults is optional. If you do not make the settings described in the following procedure, the system uses the defaults.

Prerequisites

The following information is required to configure the default destination for unroutable messages:

- The location ID of the endpoint or the messaging gateway to which unroutable messages are to be sent.

The following information is required to change the DDR and NDR settings:

- Delay in hours to be substituted for the current settings (defaults are DDR: 1 hour, NDR: 6 hours).

SUMMARY STEPS

1. **config t**
2. **network default-route** *location-id*
3. **ddr timeout** *0-24*
4. **ndr timeout** *1-48*
5. **end**
6. **show network default-route**
7. **show ddr timeout**
8. **show ndr timeout**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**config t** **Example:** `umg-1# config t`	Enters configuration mode.
Step 2	**network default-route** *location-id* **Example:** `umg-1(config)# network default-route 987654`	Sets the default destination for undeliverable messages.
Step 3	**ddr timeout** *<0-24>* **Example:** `umg-1(config)# ddr timeout 2`	Sets the amount of time (in hours) before the system generates a DDR. Range: 1-24 hours. Set 0 to disable this feature. Default: 1 hour.
Step 4	**ndr timeout** *<1-48>* **Example:** `umg-1(config)# ndr timeout 12`	Sets the amount of time (in hours) before the system generates an NDR. Range: 1-48 hours. Default: 6 hours.
Step 5	**end** **Example:** `umg-1(config)# end`	Exits configuration mode.

	Command or Action	Purpose
Step 6	**show network default-route** **Example:** `umg-1# show network default-route`	Displays the default destination for messages that Cisco UMG cannot deliver.
Step 7	**show ddr timeout** **Example:** `umg-1# show ddr timeout`	Displays the delay before the system generates a DDR.
Step 8	**show ndr timeout** **Example:** `umg-1# show ndr timeout`	Displays the delay before the system generates an NDR.

Examples

The following example illustrates a default destination for undeliverable messages being set to the device with the location ID 51000, and the DDR and NDR timeouts being set for the system.

```
umg-1# config t
Enter configuration commands, one per line.  End with CNTL/Z.
umg-1(config)# network default-route 51000
umg-1(config)# ddr timeout 2
umg-1(config)# ndr timeout 12
umg-1(config)# end
umg-1# show network default-route
Default route is location 51000.

umg-1# show ddr timeout
Timeout window for DDR messages is 2 hours.

umg-1# show ndr timeout
Timeout window for NDR messages is 12 hours.

umg-1#
```

Configuring Endpoint Autoregistration Support

For endpoints that are to autoregister with Cisco UMG, you must configure registration, connection, and authentication parameters.

You can configure multiple username/password sets on the same messaging gateway.

Note Cisco Unity Express 3.0 and earlier versions do not support autoregistration. You must provision the endpoints manually. See the "Provisioning Endpoints Manually" section on page 74 for more information.

The endpoints themselves must be configured to present the corresponding information in a registration request.

The default registration period expires after 1440 minutes. After that time, any new configurations such as username and password take effect.

For an overview of the relevant Cisco Unity Express configuration, see the "Configuring Cisco Unity Express Endpoints for Autoregistration to Cisco UMG" section on page 67.

In the system logic, autoregistration is implicitly allowed for all endpoints, therefore to prevent autoregistration you must use the **block** command described in this section or in "Blocking Endpoint Registration" on page 76.

To clear the data associated with an autoregistered endpoint, see "Deleting or Clearing Endpoints" on page 75.

Prerequisites

The following information is required to configure endpoint autoregistration parameters on Cisco UMG.

- Username and password for endpoints to present to Cisco UMG at registration
- (Optional) Location IDs for endpoints that you want to prevent from autoregistering
- (Optional) Registration expiration period, in minutes

SUMMARY STEPS

1. **config t**
2. **registration**
3. **username** *username* **password** {**text** | **encrypted**} *password*
4. **expiration** *integer*
5. **block location-id** *location-id*
6. **end**
7. **end**
8. **show run** [**paged** | | [**begin** *word* | **exclude** *word* | **include** *word* | **page**]
9. **write** [**erase** | **memory** | **terminal**]
10. **show start** [**paged** | | [**begin** *word* | **exclude** *word* | **include** *word* | **page**]
11. **show registration** {**block** | **status** | **users** }

DETAILED STEPS

	Command or Action	Purpose
Step 1	**config t** **Example:** umg-1# config t	Enters configuration mode.
Step 2	**registration** **Example:** umg-1(config)# registration	Enters registration configuration mode.

	Command or Action	Purpose
Step 3	**username** *username* **password** {**text** | **encrypted**} *password* **Example:** `umg-1(config-reg)# username bob password text cue31`	Sets username and password.
Step 4	**expiration** *integer* **Example:** `umg-1(config-reg)# expiration 2000`	(Optional) Sets the length of time (in minutes) after which autoregistration expires.
Step 5	**block location-id** *location-id* **Example:** `umg-1(config-reg)# block location-id 29`	Prevents the specified endpoint from autoregistering.
Step 6	**end** **Example:** `umg-1(config-reg)# end`	Exits registration configuration mode.
Step 7	**end** **Example:** `umg-1(config)# end`	Exits configuration mode.
Step 8	**show run** [**paged** | | [**begin** *word* | **exclude** *word* | **include** *word* | **page**] **Example:** `umg-1# show run | inc username`	Displays the running configuration.
Step 9	**write** [**erase** | **memory** | **terminal**] **Example:** `umg-1# write memory`	Writes the running configuration to memory or terminal or • Erases NV memory • Writes to NV memory • Writes to terminal.
Step 10	**show start** [**paged** | | **[begin** *word* | **exclude** *word* | **include** *word* | **page**] **Example:** `umg-1 show start | inc username`	Displays the startup configuration.
Step 11	**show registration** {**block** | **status** | **users**} **Example:** `umg-1# show registration block`	Displays endpoint registration status.

Examples

The following example shows an expiration being set for all autoregistered endpoints. A block is set, then a username and password. Finally, the results of these operations are displayed. Note that the expiration is not displayed, because the **no expiration** command caused the default to be set.

```
umg-1# config t
Enter configuration commands, one per line.  End with CNTL/Z.
umg-1(config)# registration
umg-1(config-reg)# expiration 20000
Currently registered endpoint expiration will be unaffected.
umg-1(config-reg)# block location-id 33
umg-1(config-reg)# username bob password text cue31
umg-1(config-reg)# end
umg-1(config)# end
umg-1 show run | inc username
 username bob password text cue31
umg-1# write memory
umg-1 show start | inc username
 username bob password text cue31
umg-1# show registration block
UMG registration block list :
        location-id 33
se-10-1-12-95# show registration status
Endpoint registration stats :
        Auto-registered : 1
        Offline : 10
        Total number : 11

Auto-registered endpoint :
         Loc. 40000 : cue, registered at 19-Aug-07 17:02:31:212

Offline auto-registered endpoint :
         Loc. 40 : cue, deregistered/unreachable since 17-Aug-07 16:56:45:177
         Loc. 41 : cue, deregistered/unreachable since 17-Aug-07 16:56:45:177
         Loc. 42 : cue, deregistered/unreachable since 17-Aug-07 16:56:32:169
         Loc. 43 : cue, deregistered/unreachable since 17-Aug-07 16:56:45:177
         Loc. 44 : cue, deregistered/unreachable since 17-Aug-07 16:56:45:177
         Loc. 45 : cue, deregistered/unreachable since 17-Aug-07 16:56:45:177
         Loc. 46 : cue, deregistered/unreachable since 17-Aug-07 16:56:45:177
         Loc. 47 : cue, deregistered/unreachable since 17-Aug-07 16:56:45:177
         Loc. 48 : cue, deregistered/unreachable since 17-Aug-07 16:56:45:177
umg-1#
```

Provisioning Endpoints Manually

You must manually provision the following endpoints to Cisco UMG:

- Cisco Unity
- Avaya Interchange
- Endpoints running Cisco Unity Express 3.0 and earlier

The configuring Cisco UMG automatically becomes the primary messaging gateway for the endpoint being provisioned.

It is most efficient if you group your endpoints by type (Cisco Unity, Cisco Unity Express, Avaya Interchange) before provisioning them, because each type has one or two parameters that are different from those required for other types.

Note To provide failover support for Cisco Unity endpoints, you need at least one DNS server (maximum 4) so that you can map the Cisco UMG domain name to two IP addresses on it (them): primary messaging gateway and secondary messaging gateway.

When you configure a domain for an endpoint, Cisco UMG does an MX lookup on the domain provided and uses those host addresses.

If you have multiple endpoints with the same prefix, you must use the **number-only** addendum to the **prefix** command to specify the range of extensions handled by the endpoint you are provisioning. All endpoints sharing a prefix must use this addendum. In other words, you cannot have endpoint 1 with just prefix 1, and endpoint 2 with prefix 1 plus a range of extensions.

After provisioning each endpoint and before leaving the endpoint configuration mode, you must enable the endpoint.

If you try to provision an endpoint with a location ID that is already in use, and if both location ID and endpoint type actually match the existing one, you will re-configure the first one. If the location ID and the type do not match the existing one, the system will warn you, for example, "Invalid endpoint type. The specified type does not match the existing endpoint." If you use a location ID similar to one already in your network, the system will warn you, for example, "Possible conflict with existing location ID(s): 3, 333."

To delete an endpoint, see the "Deleting or Clearing Endpoints" section on page 75.

Note The system does not allow you to change the configurations for an autoregistered endpoint.

Prerequisites

In the following, note that what Cisco UMG refers to as **endpoint** *location-id* is the same as the Cisco Unity Express **network location-id** *number*.

For each endpoint type, you have different parameters to set:

Table 1 Endpoint Types: Cisco Unity Express Release 3.0 or earlier versions

Keyword	Description
broadcast-id *broadcast-id*	(Optional) Endpoint's broadcast ID. This is an alphanumeric string (Range: 1-32) that cannot include spaces.
domain *domain*	Fully qualified name of domain to which endpoint belongs; for example, sj.mycompany.com.
messaging-gateway secondary *location-id*	(Optional) Location ID of secondary messaging-gateway.
hostname *hostname*	Endpoint's hostname or IP address.
prefix *prefix*	Messaging system telephone number prefix—phone number prefix that is added to a subscriber's extension (Range: 1-15 digits).
extension *extension*	Subscribers' extension (Range: 1-15 digits).

Table 2 Endpoint Types: Cisco Unity

Keyword	Description
domain *domain*	Fully qualified name of domain to which endpoint belongs; for example, sj.mycompany.com
hostname *hostname*	Endpoint's hostname or IP address.
messaging-gateway secondary *location-id*	Location-ID of the endpoint's secondary messaging gateway.
prefix *prefix*	Messaging system telephone number prefix that is added to a subscriber's extension (Range: 1-15 digits).
extension *extension*	Subscribers' extension (Range: 1-15 digits).
serial-number *serial-number*	(Optional) Endpoint's serial number.

Table 3 Endpoint Types: Avaya Interchange

Keyword	Description
domain *domain*	Fully qualified name of endpoint's domain; for example, sj.mycompany.com..
hostname *hostname*	Endpoint's hostname or IP address.
prefix *prefix*	Messaging system telephone number prefix—phone number prefix that is added to a subscriber's extension (maximum 15 digits)
extension *extension*	Subscribers' extension (Range: 1-15 digits).

Note Avaya Interchange does not support a secondary messaging gateway.

Note When you use a **show** command to display the domain name, only the truncated name appears; for example, "mycompany".

Note The **default** command available in the endpoint configuration mode serves as an alternative to the **no** command when used in combination with any of the other commands available in that mode; for example, **hostname default**.

SUMMARY STEPS

1. **config t**
2. **endpoint** *location-id* {**unity | interchange | cue**}
3. **hostname** *hostname*
4. (Optional) **messaging-gateway secondary** *location-id*

5. **domain** *domain*
6. Either:
   a. **prefix** *prefix*
   or
   b. **prefix** *prefix* **number-only**
   extension *extension*
   end
7. (Optional) **broadcast-id** *broadcast-id*
8. (Optional) **serial-number** *serial-number*
9. **enable**
10. **end**
11. **end**
12. **show endpoint** {**local** | **network**} [*location-id* | **filter** *filter*]
13. **show mailbox** {*location-id* | **prefix** *prefix*} [*mailbox* | **filter** *filter*]

DETAILED STEPS

	Command or Action	Purpose
Step 1	**config t** **Example:** umg-1# config t	Enters configuration mode.
Step 2	**endpoint** *location-id* {**unity** | **interchange** | **cue**} **Example:** umg-1(config)# endpoint 77777 unity	Enters endpoint configuration mode and identifies the endpoint to be provisioned by location and type.
Step 3	**hostname** *hostname* **Example:** umg-1(config-endpoint)# unity-7	Specifies the endpoint's hostname or IP address.
Step 4	**messaging-gateway secondary** *location-id* **Example:** umg-1(config-endpoint)# messaging-gateway secondary 51000	(Optional) Specifies the endpoint's secondary messaging gateway by means of its location ID. **Note** Avaya Interchange does not support secondary messaging gateways.
Step 5	**domain** *domain* **Example:** umg-1(config-endpoint)# domain sj.mycompany.com	Specifies the endpoint's domain name.

	Command or Action	Purpose

Step 6	**a) prefix** *prefix*
	
	Example:
	`umg-1(config-endpoint)# prefix 231`
	
	b) prefix *prefix* **number-only**
	extension *extension*
	end
	
	Example:
	`umg-1(config-endpoint)# prefix 231 number-only`
	`umg-1(config-endpoint-extension)# extension 777`
	`umg-1(config-endpoint-extension)# end`
		a. Specifies the endpoint's phone number prefix (Range: 1-9 digits).
		b. Specifies the prefix, enters endpoint extension configuration mode, specifies the range of extensions (Range:1-15 digits), and then leaves endpoint extension configuration mode.
		Note If you have multiple endpoints with the same prefix, you must use the **number-only** addendum (keyword) to the **prefix** command to specify the range of extensions handled by the endpoint you are provisioning.

Step 7	**broadcast-id** *broadcast-id* **Example:** `umg-1(config-endpoint)# broadcast-id 222222`	(Optional) Specifies the endpoint's broadcast ID, an alphanumeric string (range: 1-10); cannot include spaces). Avaya Interchange does not support the broadcast messaging function.
Step 8	**serial-number** *serial-number* **Example:** `umg-1(config-endpoint)# serial-number-13`	(Optional) Specifies the endpoint's serial number.
Step 9	**enable** **Example:** `umg-1(config-endpoint)# enable`	Enables the endpoint.
Step 10	**end** **Example:** `umg-1(config-endpoint)# end`	Exits endpoint configuration mode and enters configuration mode.
Step 11	**end** **Example:** `umg-1(config-endpoint)# end`	Exits configuration mode.

	Command or Action	Purpose
Step 12	**show endpoint** (**local** | **network}** [*location-id* | **filter** *filter]* **Example:** umg-1# show endpoint local 77777	Displays a list of local or remote endpoints on the current configuring messaging gateway. If you have many endpoints, you might get this message: "Too many results, please use filter to limit the search result. Only the first 500 endpoints will be displayed." The filter is any part of a location ID. For example, if you had the location IDs 123, 234, and 345 and you used a filter of 23, you would match 123 and 234. If you used a filter of 34, you would match 234 and 345. Regular expressions are not supported.
Step 13	**show mailbox** {*location-id* | **prefix** *prefix*} [*mailbox* | **filter** *filter*] **Example:** umg-1# show mailbox 77777	Displays a list of the mailboxes associated with the specified endpoint.

Examples

The following example is an example of how to manually provision a Cisco Unity endpoint. An endpoint of this type requires a prefix, and because the number-only attribute has been used, it can be safely assumed that at least two of the user's Cisco Unity endpoints are using the same prefix.

```
umg-1# config t
umg-1(config)# endpoint 77777 unity
umg-1(config-endpoint)# messaging-gateway secondary 51000
umg-1(config-endpoint)# domain sj.mycompany.com
umg-1(config-endpoint)# hostname unity-7
umg-1(config-endpoint)# prefix 231 number-only
umg-1(config-endpoint-extension)# extension 777
umg-1(config-endpoint-extension)# end
umg-1(config-endpoint)# serial-number 13
umg-1(config-endpoint)# broadcast-id 222222
umg-1(config-endpoint)# enable
umg-1(config-endpoint)# end
umg-1(config)# end
se-10-1-12-95# show endpoint local 77777
Location Id:           77777
Hostname:              unity-7
Domain:                sj.mycompany.com
Prefix:                231
NAT:                   Enabled
Type:                  Unity
Serial-number:         13
Addressing Mode:       Number-only
Primary Gateway ID:    50000
Secondary Gateway ID:  51000
Status:                Disabled
umg-1#
```

Setting Up NAT Entries

If you have NAT devices in your network, and they are between messaging gateways and/or endpoints, you must configure NAT entries on Cisco UMG for both messaging gateways and endpoints. For a message to reach its destination, Cisco UMG must know the external HTTP IP address and port number and the external VPIM IP address and port number of the NAT device in front of the destination.

Note When multiple messaging gateways are behind the same NAT device, configure the endpoints so that they can talk to messaging gateways on ports other than 80/25, because multiple endpoints may be sharing the same external IP address.
(When Cisco Unity Express registers with Cisco UMG, it has the option to specify the HTTP and SMTP ports to match the external PORT used in your setup. For reference, see the "Configuring Cisco Unity Express Endpoints for Autoregistration to Cisco UMG" section on page 67)

Prerequisites

For each endpoint and peer messaging gateway in your system, the following information is required to set up NAT entries:

- Location ID of the device
- VPIM external IP address and listening port
- HTTP external IP address and listening port

SUMMARY STEPS

1. **config t**
2. **nat location** *location-id*
3. **http external** *ip port*
4. **vpim external** *ip port*
5. **end**
6. **end**
7. **show nat location** *location-id*

DETAILED STEPS

	Command or Action	Purpose
Step 1	**config t** **Example:** umg-1# config t	Enters configuration mode.
Step 2	**nat location** *location-id* **Example:** umg-1(config)# nat location 77777	Enters NAT configuration mode to configure NAT settings for the specified device.

	Command or Action	Purpose
Step 3	**http external** *ip port* **Example:** `umg-1(config-nat)# http external 192.0.2.13 8080`	Configures NAT entry for HTTP protocol, setting external IP address and listening port (default port is 80).
Step 4	**vpim external** *ip port* **Example:** `umg-1(config-nat)# vpim external 192.0.2.13 26`	Configures NAT entry for VPIM protocol, setting external IP address and listening port (default port is 25).
Step 5	**end** **Example:** `umg-1(config-nat)# end`	Exits NAT configuration mode.
Step 6	**end** **Example:** `umg-1(config)# end`	Exits configuration mode.
Step 7	**show nat location** *location-id* **Example:** `umg-1# show nat location 77777`	Lists out configured NAT entries for the device.

Examples

The following example illustrates the the method for configuring NAT:

```
umg-1# config t
umg-1(config)# nat location 77777
umg-1(config-nat)# vpim external 192.0.2.13 26
umg-1(config-nat)# http external 192.0.2.13 8080
umg-1(config-nat)# end
umg-1(config)# end
umg-1# show nat location 77777
Protocol    Ext-IP             Ext-Port
---------------------------------------
HTTP        192.0.2.13         8080
SMTP        192.0.2.13         26

umg-1#
```

Forcing Data Convergence

Data convergence normally takes place automatically, any time an endpoint (including the mailboxes associated with it) or a messaging gateway is added, deleted, or modified. You can also force directory exchange.

Note This operation does not apply to Cisco Unity Express 3.0 and earlier versions.

Cisco UMG can request that one or all endpoints send their full directories, or just updates. The current configuring messaging gateway can request one or all peer messaging gateways to send their full directories or just updates.

The current configuring messaging gateway can also send either its full directory or just an update to all endpoints and messaging gateways in the system or to specified ones.

The following procedure requests a directory from an endpoint, then sends the current configuring Cisco UMG's updated directory to a peer messaging gateway.

Prerequisites

The location IDs of the endpoints and/or messaging gateways with which directories or updates are to be exchanged.

SUMMARY STEPS

1. **directory exchange endpoint request** { **full** [*location-id*] | **update** [*location-id*] }
2. **directory exchange messaging-gateway send** { **full** [*location-id*] | **update** [*location-id*] }
3. **directory exchange messaging-gateway request** { **full** [*location-id*] | **update** [*location-id*] }
4. **show messaging-gateway** [*location-id*]

DETAILED STEPS

	Command or Action	Purpose
Step 1	**directory exchange endpoint request** { **full** [*location-id*] | **update** [*location-id*] } **Example:** `umg-1# directory exchange endpoint request full 42`	Requests an endpoint to send either its full directory or the update information. **Note** This operation does not apply to Cisco Unity Express 3.0 and earlier versions.
Step 2	**directory exchange messaging-gateway send** { **full** [*location-id*] | **update** [*location-id*] } **Example:** `umg-1# directory exchange messaging-gateway send update`	Sends the current configuring messaging gateway's full directory or the update information.

	Command or Action	Purpose
Step 3	**directory exchange messaging-gateway request** { **full** [*location-id*] | **update** [*location-id*] } **Example:** umg-1# directory exchange messaging-gateway request update	Requests directory exchange updates from all peer messaging gateways.
Step 4	**show messaging-gateway** [*location-id*] **Example:** umg-1# show messaging-gateway	Displays the location ID and hostname of any peer messaging gateways that have been configured, whether NAT is enabled for any of them, and the location ID of the current configuring messaging gateway. If a location ID other than the current configuring messaging gateway is specified, the named details for the specified messaging gateway are displayed.

Examples

The following example illustrates requesting a full directory exchange from an endpoint, then sending out the current configuring Cisco UMG's directory update to all peer messaging gateways, and finally checking to make sure all peers were actually online to receive the update.

```
umg-1# directory exchange endpoint request full 42
umg-1# directory exchange messaging-gateway send update
umg-1# show messaging-gateway
LocationID     Hostname                                 NAT
-----------------------------------------------------------
59000          209.165.200.224                          disabled
777776         peer-1.mycompany.com                     enabled

Local Gateway ID: 51000

umg-1#
```

Managing System Distribution Lists

Cisco UMG enables subscribers to send messages to system distribution lists (SDLs) with recipients (list members) on remote endpoints.

To create an SDL, from EXEC mode, enter the list manager mode to lock list management on all peer Cisco UMGs. The purpose of locking is to prevent messaging gateways getting out of sync. When you have finished configuring SDLs, you must publish them to peer messaging gateways. You can publish to all messaging gateways or you can publish to individual messaging gateways.

If you leave list manager mode without publishing SDLs, the system will automatically publish to all peer messaging gateways.

If the system encounters an SDL lock on a peer messaging gateway, it will fail to lock, and will automatically exit list manager mode. In this situation, you can wait until the lock on the peer messaging gateway is released and/or exit by using the **exit** command.

It is possible that messaging gateways' SDLs can get out of sync. If this is the case, you will be warned when you attempt to lock SDLs. The system will tell you that the current configuring Cisco UMG is out of sync with other messaging gateways. In this case, determine which messaging gateway has the latest

SDL information (by using the **show list tracking version** command to look at the SDL version numbers), and publish from there. This will bring the other messaging gateway back into sync with the rest.

When you create an SDL, you must ensure the number you assign to it (which is also the number the authorized sender dials to send a message to the list) does not conflict with other SDL numbers nor with any subscriber's number.

SDLs can have members that are other lists, as well as subscribers. Although you can configure an SDL without an authorized sender, messages must have at least one authorized sender.

To delete an SDL, use the **no list** *number* command in list-manager mode.

Prerequisites

- An unique SDL number. This is the number an authorized sender dials to address a message to the SDL. It is a numeric string of 1-16 digits.
- (Optional) The SDL name is an alphanumeric string. If you use this variable, the name will be validated against the names of existing SDLs.
- The authorized sender is identified by an E.164 format number; the system will accept any authorized sender, even one whose number is not in the subscriber directory.
- SDL members can be subscribers or other lists. Each one is identified by a number. The system will accept any subscriber as a member, even one whose number it does not find in the subscriber directory. However, it will not accept lists that do not exist as members.

SUMMARY STEPS

1. **list-manager**
2. **list** { **number** *number* | **publish** [*location-id*]}
3. **name** *string*
4. **privilege** *number*
5. **member** *number* **type** [*sub* | *list*]
6. **member** *number* **type** [*sub* | *list*]
7. **end**
8. **show list** [*number* | *name*]
9. **list** { **number** *number* | **publish** [*location-id*]}
10. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**list-manager** **Example:** umg-1# list-manager	Enters list manager mode.
Step 2	**list** { **number** *number* | **publish** [*location-id*]} **Example:** umg-1(listmgr)# list number 1111	Publishes lists to other messaging gateways or enters list manager mode and specifies an already existing list or creates a list.
Step 3	**name** *string* **Example:** umg-1(listmgr-edit)# name FirstList	Names a list.
Step 4	**privilege** *number* **Example:** umg-1(listmgr-edit)# privilege 4085550100	Grants a list member permission to send messages to the list.
Step 5	**member** *number* **type** [*sub* | *list*] **Example:** umg-1(listmgr-edit)# member 4085550101 type sub	Specifies a list member and its type.
Step 6	**member** *number* **type** [*sub* | *list*] **Example:** umg-1(listmgr-edit)# member 2222 type list	Specifies a list member and its type.
Step 7	**end** **Example:** umg-1(listmgr-edit)# end	Exits list manager mode.
Step 8	**show list** [*number* | *name*] **Example:** umg-1(listmgr)# show list	Displays all lists.
Step 9	**list** { **number** *number* | **publish** [*location-id*]} **Example:** umg-1(listmgr)# list publish	Publishes lists to other messaging gateways or enters list manager mode and specifies an already existing list or creates a list.
Step 10	**end** **Example:** umg-1(listmgr)# end	Exits list manager mode.

Examples

The first example shows the output when the system fails to lock the SDLs. The second shows the out-of-sync warning, and illustrates list creation and publication.

```
umg-1# list
Locking system distribution lists...Lock manager reports failure [FAILED]
umg-1#


umg-1# list
Locking system distribution lists...[OK]

 **WARNING** This UMG is out of sync and contains old information, user should probably
publish to this UMG from a peer.
  SDL-Version                Last-Updated             List-Of-Remote-Gateways
  -------------------------  ------------------------ -----------------------
  * 50000_20070807033625     Aug 7, 2007 3:36:25 AM   51000
  -------------------------  ------------------------ -----------------------
umg-1(listmgr)# list number 1111
umg-1(listmgr-edit)# name FirstList
umg-1(listmgr-edit)# end
umg-1(listmgr)# list number 2222
umg-1(listmgr-edit)# SecondList
umg-1(listmgr-edit)# end
umg-1(listmgr)# list number 1111
umg-1(listmgr-edit)# privilege 4085550100
This authorized sender [4085550100] will be added.  However this authorized sender does
not exist yet!
umg-1(listmgr-edit)# member 4085550101 type sub
WARNING! The subscriber has been added to the list, but it doesn't exist in the subscriber
directory.

umg-1(listmgr-edit)# member 2222 type list
umg-1(listmgr-edit)# end
umg-1(listmgr)# show list
The version of system distribution list is 50000_20070815050633.

A total of 2 System Distribution List(s) have been found:

Extension      Name
-----------------------------------------------
1111           FirstList
2222           SecondList

umg-1(listmgr)# show list 1111
Extension:         1111
Name:              FirstList
Number of members: 2
Member(s):   4085550101 (subscriber)
             2222 (list)
             # of members: 2

umg-1(listmgr)# list publish
LocationID        Status          Description
-------------------------------------------------------------
51000             Published
59000             Locked(Renewed)


# of network gateways published:        1
# of network gateways failed to publish:1

umg-1(listmgr)# end
```

```
umg-1#
```

Managing System Broadcasts

You can enable a subscriber to send a system broadcast message (SBM) to all subscribers on a specified endpoint, whether local or remote. If you grant to one subscriber the broadcast privilege for all endpoints, that person can reach all subscribers in the system by sending the same message. In Cisco UMG 1.0, this means a single SBM sent to each endpoint in succession, not one SBM sent simultaneously to all endpoints.

When you configure a broadcast VPIM ID on Cisco Unity Express, Cisco UMG automatically picks it up when the endpoint autoregisters.

For endpoints running Cisco Unity Express Release 3.0 or earlier versions, not only must you configure the broadcast VPIM ID on the endpoint itself, you must also configure it on Cisco UMG when you manually provision the endpoint.

Note Avaya Interchange does not support SBMs.

You must create at least one authorized sender (that is, grant a broadcast privilege) for each endpoint; otherwise, no subscriber can send any messages to it.

Assign broadcast location privileges to local endpoints only because Cisco UMG only validates them locally. In other words, the configuring messaging gateway should be the endpoint's primary or secondary messaging gateway.

Prerequisites

- The broadcast VPIM ID for each Cisco Unity Express endpoint (read it off the configured endpoint).
- The telephone number of at least one subscriber who is to be granted the system broadcast privilege for that endpoint. The authorized sender can be associated with any endpoint in the Cisco UMG network.

SUMMARY STEPS

1. **config t**
2. **endpoint** *location-id* {**unity** | **interchange** | **cue**}
3. **broadcast-id** *broadcast-id*
4. **end**
5. **broadcast location** *location-id* **privilege** *number*
6. **end**
7. **show endpoint** {**local** [*location-id*] | **network** [*location-id*] }
8. **show broadcast location** *location-id* **privilege**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**config t** **Example:** `umg-1# config t`	Enters configuration mode.
Step 2	**endpoint** *location-id* {**unity** | **interchange** | **cue** } **Example:** `umg-1(config)# endpoint 11 cue`	Enters endpoint configuration mode and specifies the endpoint to be provisioned, including its type.
Step 3	**broadcast-id** *broadcast-id* **Example:** `umg-1(config-endpoint)# broadcast-id 0100`	Configures the VPIM broadcast ID of the endpoint.
Step 4	**end** **Example:** `umg-1(config-endpoint)# end`	Exits endpoint configuration mode.
Step 5	**broadcast location** *location-id* **privilege** *number* **Example:** `umg-1(config)# broadcast location 11 privilege 4085550101`	Creates an authorized sender for SBMs to the specified endpoint.
Step 6	**end** **Example:** `umg-1(config)# end`	Exits configuration mode.
Step 7	**show endpoint** {**local** [*location-id*] | **network** [*location-id*]} **Example:** `umg-1# show endpoint local 11`	Displays details of the specified endpoint, including and in particular, its broadcast-id.
Step 8	**show broadcast location** *location-id* **privilege** **Example:** `umg-1# show broadcast location 11 privilege`	Displays the authorized sender for this endpoint.

Examples

```
umg-1# config t
umg-1(config)# endpoint 11 cue
umg-1(config-endpoint)# broadcast-id 0100
umg-1(config-endpoint)# end
umg-1(config)# broadcast location 11 privilege 4085550101
umg-1(config)# end
umg-1# show endpoint local 11
Location Id:           11
Hostname:              Wally
Domain:                cuesim1
Prefix:                408555
NAT:                   Disabled
Type:                  CUE
Broadcast VPIM ID:     0100
Primary Gateway ID:    50000
Secondary Gateway ID:
Status:                Auto-Registered-Offline

umg-1# show broadcast location 11 privilege
A total of 1 Authorized Sender(s) have been found for location 11:

4085550101

umg-1#
```

Deleting Peer Messaging Gateways

To delete a peer messaging-gateway, use the **no** form of the **network messaging-gateway** command in Cisco UMG configuration mode.

In the following procedure, the viewing activities are optional.

SUMMARY STEPS

1. (Optional) **show messaging gateway**
2. (Optional) **show messaging gateway** [*location-id*]
3. **config t**
4. **no network messaging-gateway** *location-id*
5. **end**
6. **show messaging gateway [** *location-id* **]**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**show messaging gateway** **Example:** `umg-1# show messaging-gateway`	(Optional) Displays the location ID and hostname of any peer messaging gateways that have been configured, whether NAT is enabled for any of them, and the location ID of the current configuring messaging gateway.
Step 2	**show messaging gateway** [*location-id*] **Example:** `umg-1# show messaging-gateway 5`	(Optional) Displays the location ID and hostname of the specified messaging gateway.
Step 3	**config t** **Example:** `umg-1# config t`	Enters configuration mode.
Step 4	**no network messaging-gateway** *location-id* **Example:** `umg-1(config)# no network messaging-gateway 5`	Clears (deletes) a specified messaging gateway.
Step 5	**end** **Example:** `umg-1(config)# end`	Enters EXEC mode.
Step 6	**show messaging gateway** [*location-id*] **Example:** `umg-1# show messaging-gateway`	Displays the location ID and hostname of any peer messaging gateways that have been configured, whether NAT is enabled for any of them, and the location ID of the current configuring messaging gateway.

Examples

```
umg-1# show messaging-gateway
LocationID     Hostname                              NAT
-------------------------------------------------------------
5              www.mycompany.com                     disabled
51000          192.0.0.10                            disabled
59000          192.0.0.11                            disabled

Local Gateway ID: 50000

umg-1# show messaging-gateway 5
LocationID:    5
Hostname:      www.mycompany.com
NAT:           disabled

umg-1# config t
Enter configuration commands, one per line.  End with CNTL/Z.
umg-1(config)# no network messaging-gateway 5
umg-1(config)# end
umg-1# show messaging-gateway
```

```
LocationID     Hostname                                NAT
-------------------------------------------------------------
51000          192.0.0.10 disabled
59000          192.0.0.11 disabled

Local Gateway ID: 50000

umg-1#
```

Deleting or Clearing Endpoints

To delete a manually provisioned endpoint, use the **no** form of the **endpoint** *location-id* { **cue** | **unity** | **interchange**} command in Cisco UMG configuration mode on the endpoint's primary messaging gateway.

To delete an autoregistered endpoint, use the following procedure on the endpoint's primary messaging gateway.

Although the endpoint will remain online, any messages it attempts to forward will be rejected by the current configuring Cisco UMG. However, the endpoint will be able to reregister after its registration period has expired unless you either block the endpoint or set up autoregistration for it on a different messaging-gateway. In this case, remember also to change the primary messaging gateway configuration on the endpoint itself.

The **clear endpoint** command triggers directory exchange with peer messaging gateways.

Note Cisco UMG does not display more than 250 endpoints without prompting. Use a filter to give you a better overview if you have more than a few endpoints.

SUMMARY STEPS

1. **show endpoint local** [*location-id* | **filter** *filter*]
2. **clear endpoint** *location-id*
3. **show endpoint local** [*location-id* | **filter** *filter*]

DETAILED STEPS

	Command or Action	Purpose
Step 1	**show endpoint local** [*location-id* | **filter** *filter*] **Example:** `umg-1# show endpoint local`	Displays all remote endpoints or details for the specified remote endpoint.

	Command or Action	Purpose
Step 2	**clear endpoint** *location-id* **Example:** `umg-1# clear endpoint 35`	Clears the data on the current configuring gateway for the specified endpoint.
Step 3	**show endpoint local** [*location-id* | **filter** *filter*] **Example:** `umg-1(config)# show endpoint local 35`	Displays all remote endpoints or details for the specified remote endpoint.

Examples

```
umg-1# show endpoint local
A total of 5 local endpoint(s) have been found:

Location    Location          Endpoint     Primary     Secondary
ID          Prefix            Type         Gateway     Gateway
-------------------------------------------------------------------
33          408108            CUE          50000       59000
34          408109            CUE          50000
35          408110            CUE          50000
36          408111            CUE          50000
37          408112            CUE          50000
umg-1# clear endpoint 35
Clear all data associated with endpoint 35 [confirm]
 [OK]
umg-1# show endpoint local
A total of 4 local endpoint(s) have been found:

Location    Location          Endpoint     Primary     Secondary
ID          Prefix            Type         Gateway     Gateway
-------------------------------------------------------------------
33          408108            CUE          50000       59000
34          408109            CUE          50000
36          408111            CUE          50000
37          408112            CUE          50000
umg-1# show endpoint local 35
Local endpoint with location id 35 has not been found.
```

Blocking Endpoint Registration

Endpoints capable of autoregistering with Cisco UMG (only Cisco Unity Express Release 3.1 and later versions) can be prevented from registering.

The system logic implicitly allows autoregistration for all endpoints; therefore, preventing autoregistration must be explicit.

Prerequisites

The following information is required to prevent autoregistration-capable endpoints from registering.

- Location IDs for endpoints that you want to prevent from autoregistering.

SUMMARY STEPS

1. **config t**
2. **registration**
3. **block location-id** *location-id*
4. **end**
5. **end**
6. **show registration block**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**config t** **Example:** `umg-1# config t`	Enters configuration mode.
Step 2	**registration** **Example:** `umg-1(config)# registration`	Enters registration configuration mode.
Step 3	**block location-id** *location-id* **Example:** `umg-1(config-reg)# block location-id 29`	Prevents the specified endpoint from autoregistering.
Step 4	**end** **Example:** `umg-1(config-reg)# end`	Exits registration configuration mode.
Step 5	**end** **Example:** `umg-1(config)# end`	Exits configuration mode.
Step 6	**show registration block** **Example:** `umg-1# show registration block`	Displays all remote endpoints or details for the specified remote endpoint.

Example:

```
umg-1# config t
Enter configuration commands, one per line.  End with CNTL/Z.
umg-1(config)# registration
umg-1(config-reg)# block location-id 34
umg-1(config-reg)# end
umg-1(config)# end
umg-1# show registration block
UMG registration block list :
location-id 34
umg-1#
```

Viewing Network Status

Use these commands to verify the status of peer messaging gateways and endpoints.

Table 4 Network Status Commands

Command	Function
show ddr timeout	Displays lapse of time (in hours) after which the system generates a DDR for a message. Default is one hour.
show endpoint local	Displays a list of all the endpoints associated with the current Cisco UMG.
show endpoint network	Displays a list of all the endpoints associated with peer Cisco UMGs.
show ndr timeout	Displays lapse of time (in hours) after which the system generates an NDR for a message. Default is six hours.
show registration block	Displays a list of endpoints that are prevented from registering.
show registration status	Displays a list of registered endpoints and their status: whether online or not, and so on.
show registration users	Displays the user credentials of the autoregistered endpoints.
show spoken-name	Indicates whether spoken-name has been enabled on the current configuring messaging gateway.
show statistics	Displays statistics relative to endpoints.

Locating and Viewing Individual Mailbox Details

To locate an individual mailbox in your system and view its details (the phone number, extension, and first and last names associated with the mailbox), use the following procedure.

This procedure assumes that you know the subscriber number, and that you do not know whether it is associated with a local or remote endpoint. It also assumes that you use the **show mailbox** command for each of the listed endpoints.

If you have provisioned your endpoints with prefixes, you can more easily identify which of the endpoints is worth searching. However, to find a mailbox, it is not sufficient to know the prefix associated with the mailbox's endpoint (unless each of your prefixes applies only to a single endpoint), you must know which endpoint the mailbox is associated with.

Note The system only displays the first 300 search results. If necessary, the system asks you to use a filter to limit the search results.

SUMMARY STEPS

1. **show endpoint local**
2. **show mailbox** *location-id* **filter** *filter*
3. **show endpoint network** *location-id*
4. **show mailbox** *location-id* **filter** *filter*
5. **show mailbox** *location-id mailbox*

DETAILED STEPS

	Command or Action	Purpose
Step 1	**show endpoint local** **Example:** `umg-1# show endpoint local`	Displays all the endpoints associated with the current Cisco UMG, their location IDs, location prefixes, types, primary messaging gateways, and if applicable, secondary messaging gateways.
Step 2	**show mailbox** *location-id* **filter** *filter* **Example:** `umg-1# show mailbox 300 filter 0100`	Displays all the mailboxes associated with the specified endpoint, filtered by subscriber extension.
Step 3	**Example:** **show endpoint network** *location-id* **Example:** `umg-1# show endpoint network`	Displays all the endpoints associated with peer messaging gateways, their location IDs, their location prefixes, their types, their primary messaging gateways, and if applicable, their secondary messaging gateways.
Step 4	**show mailbox** *location-id* **filter** *filter* **Example:** `umg-1# show mailbox 7 filter 0100`	Displays all the mailboxes associated with the specified endpoint, filtered by subscriber extension.
Step 5	**show mailbox** *location-id mailbox* **Example:** `umg-1# show mailbox 7 4085550100`	Displays the details of the specified mailbox, that is, extension, first name and last name of the subscriber.

Examples

The following example illustrates the output for the **show endpoint local**, **show endpoint network**, and **show mailbox** commands when used in the sequence described previously:

```
se-10-1-12-96# show endpoint local
A total of 8 local endpoint(s) have been found:

Location    Location          Endpoint     Endpoint  Primary     Secondary
ID          Prefix            Type         Status    Gateway     Gateway
-------------------------------------------------------------------------
300         408555            CUE          Offline   51000
365         408555            CUE          Offline   51000
366         408555            CUE          Offline   51000
369         408555            CUE          Offline   51000
370         408555            CUE          Offline   51000
375         408109            CUE          Offline   51000
376         408110            CUE          Offline   51000
379         408111            CUE          Offline   51000

umg-1# show mailbox prefix 408555 filter 0100
No mailbox has been found for prefix 408555(filter='0100').
umg-1# show endpoint network
A total of 259 network endpoint(s) have been found:

Location    Location          Endpoint     Primary     Secondary
ID          Prefix            Type         Gateway     Gateway
-----------------------------------------------------------------
1           408101            CUE          50000
2           408102            CUE          50000
3           408103            CUE          50000
4           408104            CUE          50000
5           408105            CUE          50000
6           408555            CUE          50000
7           408555            CUE          50000
8           408108            CUE          50000
[...]
umg-1# show mailbox prefix 408555 filter 0100
1 mailbox(s) has been found for prefix 408555(filter='0100).
umg-1# show mailbox 7 4085550100
Phone:      4085550100
Extension:  0100
First Name: John
Last Name:  Doe
```