Configuring Cisco Unity Express Endpoints for Autoregistration to Cisco UMG

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This section covers describes how to enable Cisco Unity Express endpoints to autoregister with a Cisco Unified Messaging Gateway VPIM network. The procedures in this section are configured on Cisco Unity Express.

Note Endpoints running Cisco Unity Express Release 3.0 or earlier versions do not support autoregistration. They must be manually configured on Cisco UMG. See the "Manually Registering a Cisco Unity Express Endpoint" section on page 73.

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Overview of the Autoregistration Process

The purpose of autoregistration is for Cisco UMG to automatically "discover" legitimate Cisco Unity Express endpoints.

A messaging gateway discovers whether an endpoint is legitimate by attempting to validate the shared secret information in the autoregistration message sent by the endpoint. Successful validation ensures that messages can only be exchanged between trusted peers.

The autoregistration process starts after the endpoint boots up. An appropriately configured endpoint is enabled to autoregister and it has the following information:

- The location ID and IP address or domain name of its primary (and where applicable, its secondary) messaging gateway
- Registration ID and password that the messaging gateways will be expecting
  - The instructions for configuring this ID and password on Cisco UMG are given in the "Configuring Endpoint Autoregistration Support" section on page 28.
  - The instructions for configuring this ID and password on Cisco Unity Express Release 3.1 and later versions are given below, in the "Configuring Cisco Unity Express Autoregistration with Cisco UMG" section on page 68.

Beginning the process, the endpoint sends registration requests to both the primary Cisco UMG and the secondary messaging gateway, in that order, if a secondary is configured.

Note If autoregistration for the primary messaging gateway fails cue to incorrect configuration, the endpoint does not attempt to proceed with the secondary messaging gateway. However, if connectivity problems prevent the endpoint from contacting the primary messaging gateway, the endpoint does try to reach the secondary messaging gateway.

The registration message contains information about itself, such as its own location ID, broadcast ID, and so on. If the primary messaging gateway encounters configuration problems during registration (for example, a missing location-id), the process will fail, and the endpoint will not try to register with the secondary messaging gateway. If the problems are of a different nature (for example, connectivity problems), the endpoint will go ahead and try to register with the secondary messaging gateway.

When the endpoint autoregisters, the messaging gateway adds the endpoint to a trusted endpoints table and the endpoint is then allowed to send and receive VPIM messages to and from the messaging gateway with which it has registered, as well as to retrieve remote user information.

Automatic directory information exchange takes place a couple of minutes after registration, thereby enabling the messaging gateway to learn about the endpoint's properties.

Note Endpoints using Cisco Unity Express Release 3.0 or earlier versions, Cisco Unity, and Avaya Interchange do not support autoregistration, so they must be individually provisioned from messaging gateways. Instructions for doing this are given in the "Provisioning Endpoints Manually" section on page 31. An endpoint running Cisco Unity Express Release 3.1 and later versions that is not enabled to autoregister will be treated the same as these other types of endpoint.

Configuring Cisco Unity Express Autoregistration with Cisco UMG

Endpoints running Cisco Unity Express 3.1 and later can autoregister with Cisco UMG. This means that when the endpoint comes online (or when you use the **messaging-gateway registration** command), it seeks out its messaging gateway(s), if configured), and registers itself. The alternative is manual provisioning, which entails configuring all relevant details for each endpoint on its messaging gateway. This is the only option available to supported endpoints not running Cisco Unity Express Release 3.1 and later versions.

After an endpoint autoregisters, its messaging gateway exchanges directories with its peers so that the whole system becomes aware that this endpoint is now online. After the endpoint administrator enables autoregistration, any time either the endpoint or the messaging gateway goes offline, the endpoint will re-register automatically as soon as both come back online.

Before enabling autoregistration, the administrator must specify the primary (and optionally the secondary) messaging gateway access information. Using these commands on the endpoint causes the profile(s) for the messaging gateways to be stored in the endpoint's running-config.

Caution You must copy these configurations to the startup-config to make them persistent.

SUMMARY STEPS

1. **config t**
2. **messaging-gateway primary** *location-id* {*umg-ip-addr* | *umg-hostname*}
3. **username** *user* **password** {**text** | **encrypted**} *password*
4. (Optional) **retry-interval** *integer*
5. **end**
6. (Optional) **nat location** *location-id*
7. (Optional) **http external** *ip-addr port-number*
8. (Optional) **vpim external** *ip-addr port-number*
9. **end**
10. (Optional) **messaging-gateway secondary** *location-id* {*umg-ip-addr* | *umg-hostname*}
11. (Optional) **username** *user* **password** {**text** | **encrypted**} *password*
12. (Optional) **retry-interval** *integer*
13. **end**
14. (Optional) **nat location** *location-id*
15. (Optional) **http external** *ip-addr port-number*
16. (Optional) **vpim external** *ip-addr port-number*
17. **end**
18. **messaging-gateway registration**
19. **end**
20. **show messaging-gateway**
21. **write memory**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**config t** **Example:** `se-10-0-0-0# config t`	Enters configuration mode.
Step 2	**messaging-gateway primary** *location-id* {*umg-ip-addr* | *umg-hostname*} **Example:** `se-10-0-0-0(config)# messaging-gateway primary 100 192.0.2.21`	Enters messaging gateway configuration mode and specifies the following information for the primary messaging gateway: • *location-id*--the location-id of the primary messaging gateway • *umg-ip-addr* | *umg-hostname*--the IP address or hostname of the primary messaging gateway Configure the primary messaging gateway before the secondary. If you do not, you will get the error message "Primary messaging gateway needs to be configured first."
Step 3	**username** *user* **password** {**text** | **encrypted**} *password* **Example:** `se-10-0-0-0(config-messaging-gateway)# username cue31 password text herein`	Specifies the username and password required to autoregister with the messaging gateway. Note that the username is not necessarily the same as the endpoint's location ID, because the Cisco UMG administrator can configure a messaging gateway to expect the same username from multiple endpoints.
Step 4	**retry-interval** *integer* **Example:** `se-10-0-0-0(config-messaging-gateway)# retry-interval 2`	(Optional) The retry-interval is the delay in minutes before the endpoint attempts to reregister with the messaging gateway. The default is 5 minutes, range 0 - 65535.
Step 5	**end** **Example:** `se-10-0-0-0(config-messaging-gateway)# end`	Exits messaging-gateway configuration mode and enters configuration mode.
Step 6	**nat location** *location-id* **Example:** `se-10-0-0-0(config)# nat location 77777`	Enters NAT configuration mode.
Step 7	**http external** *ip-addr port-number* **Example:** `umg-1(config-nat)# http external 192.0.2.13 8080`	(Optional) Configures the external IP address and listening port for HTTP requests.
Step 8	**vpim external** *ip-addr port-number* **Example:** `umg-1(config-nat)# vpim external 192.0.2.24 26`	(Optional) Configures the external IP address and listening port for VPIM requests.

	Command or Action	Purpose
Step 9	**end** **Example:** `se-10-0-0-0(config-nat)# end`	Exits NAT configuration mode and enters configuration mode.
Step 10	**messaging-gateway secondary** *location-id* {*umg-ip-addr* | *umg-hostname*} **Example:** `se-10-0-0-0(config)# messaging-gateway secondary 101 192.0.2.21`	(Optional) Enters messaging gateway configuration mode and specifies the following information for the secondary messaging gateway: • *location-id*--the location-id of the secondary messaging gateway • *umg-ip-addr* | *umg-hostname*--the IP address or hostname of the secondary messaging gateway Configure the primary messaging gateway before the secondary. If you do not, you will get the error message "Primary messaging gateway needs to be configured first."
Step 11	**username** *user* **password** {**text** | **encrypted**} *password* **Example:** `se-10-0-0-0(config-messaging-gateway)# username cue32 password text herein`	Specifies the username and password required to autoregister with the messaging gateway. Note that the username is not necessarily the same as the endpoint's location ID, because the Cisco UMG administrator can configure a messaging gateway to expect the same username from multiple endpoints.
Step 12	**retry-interval** *integer* **Example:** `se-10-0-0-0(config-messaging-gateway)# retry-interval 2`	(Optional) The retry-interval is the delay in minutes before the endpoint attempts to reregister with the messaging gateway. The default is 5 minutes, range 0 - 65535.
Step 13	**end** **Example:** `se-10-0-0-0(config-messaging-gateway)# end`	Exits messaging gateway configuration mode.
Step 14	**nat location** *location-id* **Example:** `se-10-0-0-0(config)# nat location 77777`	Enters NAT configuration mode.
Step 15	**http external** *ip-addr port-number* **Example:** `umg-1(config-nat)# http external 192.0.2.13 8080`	(Optional) Configures the external IP address and listening port for HTTP requests.
Step 16	**vpim external** *ip-addr port-number* **Example:** `umg-1(config-nat)# vpim external 192.0.2.24 26`	(Optional) Configures the external IP address and listening port for VPIM requests.

	Command or Action	Purpose
Step 17	**end** **Example:** `se-10-0-0-0(config-nat)# end`	Exits NAT configuration mode and enters configuration mode.
Step 18	**messaging-gateway registration** **Example:** `se-10-0-0-0(config)# messaging-gateway registration`	Causes the endpoint to send a registration message to its primary and, if applicable, to its secondary messaging gateway, unless registration with the primary fails due to a configuration error.
Step 19	**end** **Example:** `se-10-0-0-0(config)# end`	Exits configuration mode and enters EXEC mode.
Step 20	**show messaging-gateway** **Example:** `se-10-0-0-0# show messaging-gateway`	Displays the details associated with the registration with the messaging gateway, successful or otherwise. For more information, see the "Verifying the Registration Status of a Cisco Unity Express Endpoint" section on page 73.
Step 21	**write memory** **Example:** `se-10-0-0-0# write memory`	Copies the running-config to the startup-config.

Example

The following commands on a Cisco Unity Express Release 3.1 and later versions endpoint set it up to autoregister with Cisco UMG, and then enable autoregistration, and finally write the configuration to startup-config:

```
se-10-0-0-0# config t
se-10-0-0-0(config)# messaging-gateway primary 100 192.0.2.0
se-10-0-0-0(config-messaging-gateway)# username cue31 password text herein
se-10-0-0-0(config-messaging-gateway)# retry-interval 2
se-10-0-0-0(config-messaging-gateway)# nat http 192.0.2.22 80
se-10-0-0-0(config-messaging-gateway)# end
se-10-0-0-0(config)# messaging-gateway secondary 101 192.0.2.21
se-10-0-0-0(config-messaging-gateway)# username cue32 password text herein
se-10-0-0-0(config-messaging-gateway)# retry-interval 2
se-10-0-0-0(cconfig-messaging-gateway)# nat vpim 192.0.2.23 9925
se-10-0-0-0(config-messaging-gateway)# end
se-10-0-0-0(config)# messaging-gateway registration
se-10-0-0-0(config)# end
se-10-0-0-0> show messaging-gateway
Messaging gateways :
AutoRegister to gateway(s) : Enabled
Remote directory lookup : Enabled (without TUI prompt)
Primary messaging gateway :
        192.0.2.0
        nat http 192.0.2.22 (80)
        Status : Registered (Wed Sep 19 18:04:45 PDT 2007)
        Reg-expiration : Thu Sep 20 18:04:45 PDT 2007
        Default route : Disabled
        Location-id : 100
```

```
        Reg-id : cue31
        Reg-password : (Not displayed)
        Retry-interval : 2 minute(s)
Secondary messaging gateway :
        192.0.2.21
        nat http 10.1.3.150 (80)
        nat vpim 192.0.2.23 (9925)
        Status : Registered (Wed Sep 19 18:04:45 PDT 2007)
        Reg-expiration : Thu Sep 20 18:04:45 PDT 2007
        Default route : Disabled
        Location-id : 101
        Reg-id : cue32
        Reg-password : (Not displayed)
        Retry-interval : 2 minute(s)
se-10-0-0-0> write memory
```

Manually Registering a Cisco Unity Express Endpoint

If you want to add a Cisco Unity Express endpoint to your Cisco UMG system, and:

- it is running Cisco Unity Express Release 3.0 or earlier versions, or
- you want to avoid autoregistration activity with an endpoint running Cisco Unity Express Release 3.1 and later versions,

you must manually provision it from Cisco UMG.

Configure the endpoint following the instructions in the Cisco Unity Express documentation. For more information, see the "Configuring Network Locations" section of the *Cisco Unity Express VoiceMail and Auto Attendant CLI Administrator Guide*.

Note You must perform the steps only if the endpoint has never undergone initial configuration. If the endpoint is already in operation, you will already have done all this.

Verifying the Registration Status of a Cisco Unity Express Endpoint

You can verify whether the current Cisco Unity Express endpoint is registered with a messaging gateway, and check all the details associated with the registration - successful or otherwise - by using the **show messaging-gateway** command in Cisco Unity Express EXEC mode.

You can see which Cisco UMGs you have configured as its primary and secondary messaging gateways, with their respective port numbers. Indications in the status column show whether or not the endpoint has registered with the messaging gateway successfully.

Table 1 show messaging-gateway Output

AutoRegister to messaging gateway(s)	Enabled / disabled		
Remote directory lookup	Enabled / disabled	with / without TUI prompt	
Primary/secondary messaging gateway	IP address (port number)		
	Status	Registered / Not Registered	If registered, timestamp of initial registration confirmation; if not registered, reason is given as a code (see Table 2).
	Default route	Enabled/ disabled	
	Location-id	location-id of the messaging gateway	
	Reg-id	Registration username the Cisco UMG expects from endpoint.	
	Reg-password	(Not displayed)	Registration password the Cisco UMG expects from endpoint. It is never displayed.
	Retry-interval	Delay in minutes before the endpoint attempts to register again. Default is 5 minutes.	Not displayed if not set.

If the endpoint has registered successfully, you will see the date and time of the initial registration in the status column. You can also check the configuration for a default routing destination for a message to a voicemail address that can be resolved by neither Cisco Unity Express nor Cisco UMG. To illustrate: if you give a phone number that cannot be found in a Cisco Unity Express local search or in a Cisco UMG remote lookup, the message will be forwarded to that default route destination.

If the endpoint has not registered successful, the reason for the failure will be displayed in the status column.

Table 2 show messaging-gateway: Status Codes

Code	Meaning
Registered	
Not registered	Autoregistration is not enabled
Not configured	
Not registered (general error)	Autoregistration failed due to an error other than those specified in this table.
Not registered (connection timeout)	Connection timed out
Not registered (authentication failed)	Authentication failed

Table 2 show messaging-gateway: Status Codes

Code	Meaning
Not registered (link is down)	Link is down
Not registered (location is forbidden)	The Cisco Unity Express endpoint with that location-id has been blocked by Cisco UMG and is thus is not allowed to register (for instructions on how to prevent an endpoint from registering, see the "Configuring Endpoint Autoregistration Support" section on page 28).
Not Registered (duplicated location)	The Cisco Unity Express location ID is not globally unique: there is another entity in the system with the same location-id.
Not Registered (invalid configuration)	General configuration error such as the secondary messaging gateway location ID not being configured on the primary messaging gateway.
Not Registered (manually de-registered)	An intermediate state to indicate manually triggered re-registration, for example, the messaging gateway's access information being updated.

Enabling or Disabling Remote Lookup, With or Without TUI Confirmation

Enabling Remote Directory Lookup Without TUI Prompt

When you enable autoregistration by issuing the **messaging-gateway registration** command on a Cisco Unity Express endpoint, you also enable the endpoint to do remote lookup automatically. This includes a short prompt informing subscribers that the lookup may take some time.

Enabling Remote Directory Lookup With TUI Prompt

Enabling the remote directory lookup feature does not also enable the directory lookup confirmation in the TUI flow feature, in which Cisco Unity Express gives subscribers the option to do remote lookup if there is no local match. To enable TUI directory lookup confirmation, use the config-mode command **messaging-gateway directory lookup tui-prompt**.

Disabling Remote Directory Lookup

To have no remote lookup at all, disable it by issuing the **no messaging-gateway directory lookup** command.

Note Disabling the remote directory lookup feature also disables directory lookup confirmation in the TUI flow, and conversely, enabling directory lookup confirmation in the TUI flow will also enable remote directory lookup.

Viewing Status

To view the status of these features, use the **show messaging-gateway** command, which displays the following output:

Remote directory lookup status:

- No--remote directory lookup is disabled
- Yes--remote directory lookup is enabled
  - Enabled with TUI-prompt--TUI confirmation prompt is enabled
  - Enabled without TUI-prompt--TUI confirmation prompt is disabled.

Viewing Cached and/or Configured Network Locations

To view a list of all cached remote location entries on Cisco Unity Express, use the EXEC-mode **show network locations cached** command.

To list all configured remote location entries on Cisco Unity Express, use the EXEC-mode **show network locations configured** command. This command replaces the old **show network locations** command.

Refreshing Locations

To manually refresh a cached location entry on Cisco Unity Express Release 3.1 and later versions, use the **network location cache refresh** *id* command in EXEC-mode. This command will not generate any response if it is performed successfully. Otherwise, an error message appears.

Setting the Expiration for Cached Locations

To set the expiration time for a cached location on Cisco Unity Express, use the **network location cache expiry** *int* command in config-mode. The *int* value stands for number of days. By default, this value is set to 4. The **no** command will set the value back to its default value. The value is persisted by means of the nvgen method. It is not stored in the database.

Overloading a NAT Device: the Consequences for Endpoints

One endpoint can be configured to get to its primary messaging gateway with complete connectivity if:

- Two Cisco Unity Express endpoints are behind a NAT device that has only one IP address to assign --an overload situation--
- Those endpoints have two different messaging gateways configured as primary messaging gateways,

Note The other endpoint can only do HTTP-related activities (assuming proper configuration) and not the SMTP activities.