



# Setting Up Networking Between Cisco Unity Connection 10.x Servers

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See the following sections:

- [Setting Up a Unity Connection Site, page 2-1](#)
- [Linking Two Unity Connection Sites, page 2-16](#)
- [Notable Behavior in Networked Unity Connection Servers, page 2-24](#)

## Setting Up a Unity Connection Site

This section describes the prerequisites for setting up a Cisco Unity Connection site, and provides a high-level task list of all of the tasks that you need to complete for the setup, and the order in which they should be completed. If you are unfamiliar with Unity Connection site concepts, you should first read the “[Overview of Networking Concepts in Cisco Unity Connection 10.x](#)” chapter and then review the task list and procedures before beginning the setup.

You can link up to ten Unity Connection locations in a single site. If you have more than 10 locations, set up two sites and link them together. (In order to link sites, all servers in each site must be running Unity Connection version 10.x. You cannot link more than two sites together.) For procedures, see the “[Linking Two Unity Connection Sites](#)” section on [page 2-16](#).

## Prerequisites for Setting Up a Unity Connection Site

Before starting the setup, verify that the following prerequisites have been met on each server that joins the site (for clusters, verify these prerequisites for the publisher server):

- The server meets the requirements listed in the “Requirements for Intrasite Networking” section of the *System Requirements for Cisco Unity Connection Release 10.x*, available at [http://www.cisco.com/c/en/us/td/docs/voice\\_ip\\_comm/connection/10x/requirements/10xcucsystreqs.html#pgfId-360416](http://www.cisco.com/c/en/us/td/docs/voice_ip_comm/connection/10x/requirements/10xcucsystreqs.html#pgfId-360416).
- Unity Connection is already installed.
- The servers networked together are directly accessible through TCP/IP port 25 (SMTP), or SMTP messages are routable through an SMTP smart host.
- For Unity Connection clusters, you must have a smart host available to resolve the SMTP domain of the cluster to both the publisher and subscriber servers in order for message traffic to reach the cluster subscriber server in the event that the publisher server is down.

In addition, before setting up a Unity Connection site, you should be familiar with the concepts in the “Dial Plan” section of the “Call Management” chapter of the *System Administration Guide for Cisco Unity Connection Release 10.x*, available at [http://www.cisco.com/c/en/us/td/docs/voice\\_ip\\_comm/connection/10x/administration/guide/10xcucsagx/10xcucsag080.html](http://www.cisco.com/c/en/us/td/docs/voice_ip_comm/connection/10x/administration/guide/10xcucsagx/10xcucsag080.html).

## Task List for Setting Up a Unity Connection Site

Use this task list to set up a networking site between Unity Connection servers or clusters. The cross-references take you to detailed procedures.

If you have a Unity Connection cluster, do the tasks only on the publisher server.

1. Make decisions about your networking deployment approach and gather information needed to configure the site. See the “[Making Deployment Decisions and Gathering Needed Information for Setting Up a Site](#)” section on page 2-4.
2. Check the display name of each server that you are joining to the site, and modify it if it is not unique, or if you want to select a more descriptive name. Also check the SMTP domain of each server that you are joining to the site, and modify it if it is not unique. See the “[Verifying Each Unity Connection Server has a Unique Display Name and SMTP Domain](#)” section on page 2-5.




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**Caution** If the display name of a server matches the display name of another server on the site, the server cannot join the site. Likewise, if the SMTP domain matches the SMTP domain of another server on the site, the server cannot join the site.

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3. Start by linking two Unity Connection servers together to create a site, then link additional servers to any location in the site. See the “[Linking Unity Connection Servers with an Intrasite Link](#)” section on page 2-7.
4. If any servers in the site require a smart host to transmit and receive SMTP messages from other servers (for example, because a firewall separates the servers, or because the servers are part of a Unity Connection cluster), configure the smart host, and configure the applicable locations to route through the host. See the “[Configuring a Smart Host](#)” section on page 2-9.




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**Note** For each Unity Connection cluster that you have added to the site, you must configure all other locations to route to the cluster through a smart host in order for message traffic to reach the cluster subscriber server in the event that the publisher server is down. (You also configure the smart host to resolve the SMTP domain of the cluster to both the publisher and subscriber servers.)

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5. For each cluster that you have added to the network, add the IP address of the subscriber server to the IP address access list on every other location on the network; this ensures that other locations can receive message traffic from the subscriber server if the publisher server is down. See the “[Configuring SMTP Access for Cluster Subscriber Servers](#)” section on page 2-10.
6. Verify that replication is complete among locations. See the “[Checking Replication Status Within a Site](#)” section on page 2-11.
7. Configure search spaces at each location to allow users who are homed at the location to address to users at other locations. See the “[Configuring Search Spaces for Unity Connection Sites](#)” section on page 2-12.

8. Secure the site so that message transmissions are not misdirected. See the “[Securing the Unity Connection Site](#)” section on page 2-13.
9. Optionally, set up cross-server features. See the “[Cross-Server Sign-In, Transfers, and Live Reply in Cisco Unity Connection 10.x](#)” chapter.
10. Test the site. See the “[Testing the Intrasite Setup](#)” section on page 2-13.
11. Optionally, set up a site-wide All Users distribution list. See the “[Creating a Site-Wide All Voicemail Users Distribution List](#)” section on page 2-15.
12. If any servers in the site were previously configured as VPIM locations on other servers in the network, clean up the unused VPIM locations. See the “[Cleaning Up Unused Unity Connection VPIM Locations and Contacts](#)” section on page 2-15.
13. If you have not already done so, set up VPIM Networking to connect the Unity Connection locations to any other VPIM-compatible voice messaging systems. See the “[VPIM Networking in Cisco Unity Connection 10.x](#)” chapter.
14. Optionally, create a mapping of which users are homed on which location. See the “[Mapping Users to Their Home Locations](#)” section on page 2-16.
15. Optionally, if you have a large site that includes locations running Unity Connection 10.x, review the advanced settings available on the System Settings > Advanced > Intrasite Networking page in Cisco Unity Connection Administration in case you need to tune the communications between the Unity Connection Digital Networking Replication Agent services on these locations. For a description of the settings, including how to use them together, see the “Intrasite Links” section of the “Cisco Unity Connection 10.x Networking Settings” chapter of the *Interface Reference Guide for Cisco Unity Connection Administration Release 10.x*, available at [http://www.cisco.com/c/en/us/td/docs/voice\\_ip\\_comm/connection/10x/gui\\_reference/guide/10xcucgrg/10xcucgrg080.html](http://www.cisco.com/c/en/us/td/docs/voice_ip_comm/connection/10x/gui_reference/guide/10xcucgrg/10xcucgrg080.html).

Also note that the **Limit Number of Simultaneous Incoming Connections** and **Limit Number of Simultaneous Outgoing Connections** fields on the System Settings > SMTP Configuration > Server page in Unity Connection Administration affect the replication agent (and also affect intrasite messaging between users as well as other features that use SMTP for message transmission). For information on these settings, see the “SMTP Configuration” section of the “Cisco Unity Connection 10.x System Settings” chapter of the *Interface Reference Guide for Cisco Unity Connection Administration Release 10.x*, available at [http://www.cisco.com/c/en/us/td/docs/voice\\_ip\\_comm/connection/10x/gui\\_reference/guide/10xcucgrg/10xcucgrg100.html#pgfId-1557754](http://www.cisco.com/c/en/us/td/docs/voice_ip_comm/connection/10x/gui_reference/guide/10xcucgrg/10xcucgrg100.html#pgfId-1557754).

## Procedures for Setting Up a Unity Connection Site

See the following sections:

- [Making Deployment Decisions and Gathering Needed Information for Setting Up a Site](#), page 2-4
- [Verifying Each Unity Connection Server has a Unique Display Name and SMTP Domain](#), page 2-5
- [Linking Unity Connection Servers with an Intrasite Link](#), page 2-7
- [Configuring a Smart Host](#), page 2-9
- [Configuring SMTP Access for Cluster Subscriber Servers](#), page 2-10
- [Checking Replication Status Within a Site](#), page 2-11
- [Configuring Search Spaces for Unity Connection Sites](#), page 2-12
- [Securing the Unity Connection Site](#), page 2-13

- [Testing the Intrasite Setup, page 2-13](#)
- [Creating a Site-Wide All Voicemail Users Distribution List, page 2-15](#)
- [Cleaning Up Unused Unity Connection VPIM Locations and Contacts, page 2-15](#)
- [Mapping Users to Their Home Locations, page 2-16](#)

## Making Deployment Decisions and Gathering Needed Information for Setting Up a Site

Before you begin setting up a site, be sure to plan for the following, and gather the applicable information:

- If your network includes voice messaging servers that do not meet the prerequisites for joining a Unity Connection site but support the Voice Profile for Internet Mail (VPIM) protocol (for example, Cisco Business Edition, Unity Connection 2.x servers, Cisco Unity 4.x and 5.x, or other VPIM-compatible systems), use VPIM Networking to connect them.

Follow the given approaches:

- Unless your servers are already configured for VPIM, set up the site first, then set up VPIM Networking.
- Select a single Unity Connection location in the site to handle the configuration of VPIM locations and contacts. This location is referred to as the “bridgehead.” The VPIM location and contact objects are replicated from the bridgehead to all digitally networked Unity Connection locations so that those locations can address VPIM messages; the networked locations then forward the messages to the bridgehead for delivery to the remote voice messaging server. Managing these objects from a single location simplifies maintenance tasks and avoids potential overlaps in contact information that could cause confusion to users when they attempt to address messages.
- If you have already configured VPIM locations on multiple systems that are joining a site, delete duplicate VPIM locations from all but one server before setting up the site. For instructions, see the [“Removing a VPIM Location” section on page 4-15](#).
- If you are migrating a VPIM location to a Unity Connection site (for example, because you used VPIM Networking to connect two or more Unity Connection 2.x servers and have upgraded the servers to Unity Connection 10.x) set up the Unity Connection site first. After the directory is fully replicated and you have tested message exchange between the Unity Connection locations, remove the VPIM locations and VPIM contacts that represent the migrated servers and their users. The task list reminds you when to do this task.
- By default, every Unity Connection location (server or cluster) includes several predefined system distribution lists, which you can modify but not delete. If you have not renamed these lists so that the list names are unique on each location, or if you have added additional lists whose names are identical across locations, during initial replication each location automatically adds the remote server name to the display name of any remote lists whose names overlap with local list names. (The default lists are All Voicemail Users, Undeliverable Messages, and All Voicemail-Enabled Contacts.) This can cause confusion when local users try to address to those remote lists.

To solve this problem, you can use one of the following approaches:

- If you want to maintain separate lists on each location, you can modify the name of each list on its home location so that it is unique (for example “All Voicemail Users on <Location Name>”) and notify your users of the new list names for each server. If you select this approach, you should also modify the recorded name of each list to indicate its source.
- Alternatively, after setting up the site, you can create a master list that includes all users on all networked locations. The task list includes instructions on when and how to do this task.

- If you want to synchronize Unity Connection user data with user data in an LDAP directory, you should configure Unity Connection for integration with the LDAP directory prior to setting up the site, to simplify testing and troubleshooting.
- Make note of the following information about each server that is joining the network:
  - The IP address or fully qualified domain name (FQDN) of the server.
  - The user name and password of a user account that is assigned to the System Administrator role.
  - The dial strings that other servers use to call this server, if cross-server sign-in or transfer is configured on other servers to hand off calls to this server.

## Verifying Each Unity Connection Server has a Unique Display Name and SMTP Domain

Each Unity Connection server that you join to a Unity Connection site must have a unique display name. The display name must be unique both among Unity Connection locations and among VPIM locations. If the display name is not unique, the server cannot join the site. For new Unity Connection installations, the display name is typically the same as the host name of the server; however, if you changed the display name or upgraded the server from Unity Connection 2.x (which uses “Local VMS” as the default display name), you may need to change the display name so that it does not overlap with other locations on the network.



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**Tip** Select a display name for each server that is descriptive and that helps you identify the location when it is listed among all locations in the organization in Cisco Unity Connection Administration.

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Each Unity Connection server that you join to the site must also have a unique SMTP domain, both among Unity Connection locations and among VPIM locations. By default, the SMTP domain is configured during installation to include the hostname of the server, in order to insure that it is unique. However, if the SMTP domains of multiple servers have been modified to the same value, you must change the domains to unique values before joining the servers in a site.

If you are migrating a server from VPIM Networking to intrasite or intersite networking, it is likely that the display name or SMTP domain of the server overlaps with the VPIM location configured for the server. If the domain name overlaps, you need to disrupt messaging to the VPIM location while doing the migration—either by changing the SMTP domain of the VPIM location, or by removing the VPIM location. (To remove the VPIM location, see the [“Removing a VPIM Location”](#) section on page 4-15.)

### To Verify Each Unity Connection Server Has a Unique Display Name and SMTP Domain

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- Step 1** Check the Display Name of the first server:
- a. In Cisco Unity Connection Administration on the first server, expand **Networking** and select **Locations**.
  - b. On the Search Locations page, note the **Display Name** of the local server. Make a list of all **Display Names** that you can consult later.
- Step 2** Check the SMTP domain of the first server:
- a. Expand **System Settings > SMTP Configuration** and select **Server**.
  - b. On the SMTP Server Configuration page, note the **SMTP Domain** of the local server.
- Step 3** Check the **Display Name** and **SMTP Domain Name** of all VPIM locations homed on the local server:
- a. Expand **Networking** and select **VPIM**.

- b. On the Search VPIM Locations page, note the **Display Name** of each VPIM location.
  - c. Select the first VPIM location in the table. On the Edit VPIM Location page, note the **SMTP Domain Name** of the VPIM location.
  - d. Select **Next** and note the **SMTP Domain Name** of the next VPIM location.
  - e. Repeat [Step 3d.](#) for each remaining VPIM location.
- Step 4** Repeat [Step 1](#) through [Step 3](#) on each location that is joined to the site.
- Step 5** If the **Display Name** of a location conflicts with that of another location, or you want to modify a name to be more descriptive, change one of the display names:
- To change the **Display Name** of a Unity Connection location, follow [Step 6](#).
  - To change the **Display Name** of a VPIM location, follow [Step 7](#).
  - If the **Display Names** are all unique, skip to [Step 9](#).
- Step 6** Change the **Display Name** of the Unity Connection location:
- a. On the server for which you want to change the **Display Name**, expand **Networking** and select **Locations**.
  - b. Select the **Display Name** of the local server.
  - c. On the Edit Location page, modify the **Display Name** value, and select **Save**.
- Step 7** To change the Display Name of a VPIM location:
- a. On the server on which the VPIM location is homed, expand **Networking** and select **VPIM**.
  - b. On the Search VPIM Locations page, select the **Display Name** of the location that you want to change.
  - c. On the Edit VPIM Location page, edit the **Display Name** value and select **Save**.
- Step 8** If there are any remaining **Display Name** conflicts, repeat [Step 5](#) as necessary to resolve each conflict.
- Step 9** If the SMTP domain of a server conflicts with that of another location, change one of the domain names:
- To change the SMTP Domain of a Unity Connection location, follow [Step 10](#).
  - To change the SMTP Domain Name of a VPIM location, follow [Step 11](#).
- Step 10** To change the SMTP Domain of a Unity Connection location:
- a. Expand **System Settings > SMTP Configuration**, then select **Server**.
  - b. On the SMTP Server Configuration page, select **Change SMTP Domain**, change the value of the **SMTP Domain** field, and select **Save**.
  - c. Select **OK** to confirm the change.
- Step 11** To change the SMTP Domain Name of a VPIM location:
- a. On the server on which the VPIM location is homed, expand **Networking** and select **VPIM**.
  - b. Select the **Display Name** of the VPIM location for which you want to change the **SMTP Domain Name**.
  - c. On the Edit VPIM Location page, change the value of the **SMTP Domain Name** field, and select **Save**.




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**Caution** Changing the **SMTP Domain Name** of a VPIM location may disrupt messaging with the remote voice messaging system.

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- Step 12** If there are any remaining SMTP domain conflicts, repeat [Step 9](#) as necessary to resolve each conflict.
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## Linking Unity Connection Servers with an Intrasite Link

To create a Unity Connection site, you start by linking two servers together via an intrasite link. Each server becomes a location in the new site. (When a Unity Connection cluster is linked to a site, the cluster counts as one location in the site.)

When you add a Unity Connection server to an existing Unity Connection site of two or more locations, you link the server to a single location in the site; the server that you are adding receives a list of all the other locations in the site, exchanges information with each location, and begins replicating directory information with each location.

This section contains two procedures. You should start by doing the first procedure; if Cisco Unity Connection Administration does not indicate that the servers have successfully been linked in the first procedure, do the second procedure. Then, repeat the process for each additional server that you are adding to the site.

- [To Automatically Join Two Unity Connection Servers, page 2-7](#)
- [To Manually Join Two Unity Connection Servers, page 2-8](#)



### Note

You can use these procedures to join two Unity Connection 10.x servers or to join a Unity Connection 10.x server with a Unity Connection 7.x server. The names of the pages and fields changed between 7.x and 8.x; the 7.x names appear in parenthesis at the end of each step where the terminology differs.

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### To Automatically Join Two Unity Connection Servers

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- Step 1** In Cisco Unity Connection Administration (on either server), expand **Networking > Links** and select **Intrasite Links**. (In Cisco Unity Connection 7.x, expand **Networking**, then select **Unity Connection Locations**.)
- Step 2** Select **Join Site**. (In Unity Connection 7.x, select **Join Unity Connection Network**.)
- Step 3** On the Join Site page, select **Automatically Join the Site**. (In Unity Connection 7.x, on the Join Unity Connection Network page, select **Automatically Join the Network**.)
- Step 4** In the **Remote Location** field, enter the IP address or fully-qualified domain name (FQDN) of the Unity Connection server to connect to in order to create the site.
- Step 5** In the **Remote User Name** field, enter the user name of an administrator at the location specified in the **Remote Location** field. The administrator user account must be assigned the System Administrator role.
- Step 6** In the **Remote Password** field, enter the password for the administrator specified in the **Remote User Name** field.
- Step 7** Select **Auto Join Site**. (In Unity Connection 7.x, select **Auto Join Network**.)
- Step 8** When prompted, select **OK** to confirm. If the status message indicates that you have successfully joined the network and need to activate and start the Unity Connection Digital Networking Replication Agent, continue with [Step 9](#). Otherwise, skip the rest of this procedure and continue with the “[To Manually Join Two Unity Connection Servers](#)” procedure on page 2-8.

- Step 9** On either server, in Cisco Unity Connection Serviceability, select **Tools > Service Management**. (For information on using Cisco Unity Connection Serviceability, see the *Administration Guide for Cisco Unity Connection Serviceability Release 10.x*, at [http://www.cisco.com/en/US/docs/voice\\_ip\\_comm/connection/10x/serv\\_administration/guide/10xcucservagx.html](http://www.cisco.com/en/US/docs/voice_ip_comm/connection/10x/serv_administration/guide/10xcucservagx.html).)
- Step 10** In the **Server** list, select the Unity Connection server, and select **Go**.
- Step 11** Under **Optional Services**, locate the **Connection Digital Networking Replication Agent** and select **Activate**.
- Step 12** Repeat **Step 9** through **Step 11** on the other server.

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### To Manually Join Two Unity Connection Servers

- Step 1** In Cisco Unity Connection Administration (on either server), expand **Networking > Links** and select **Intrasite Links**. This server is referred to as the first server for the remainder of the procedure, and the other server is referred to as the second server. (In Unity Connection 7.x, expand **Networking**, then select **Unity Connection Locations**.)
- Step 2** Select **Join Site**. (In Unity Connection 7.x, select **Join Unity Connection Network**.)
- Step 3** On the Join Site page, select **Manually Join the Site**. (In Unity Connection 7.x, select **Manually Join the Network**.)
- Step 4** Select **Download** and save the first server configuration file to a location on your hard drive, or on media that you can use to copy the file to the second server.
- Step 5** Browse to Unity Connection Administration on the second server.
- Step 6** In Unity Connection Administration on the second server, expand **Networking > Links** and select **Intrasite Links**. (In Unity Connection 7.x, expand **Networking**, then select **Unity Connection Locations**.)
- Step 7** Select **Join Site**. (In Unity Connection 7.x, select **Join Unity Connection Network**.)
- Step 8** On the Join Site page, select **Manually Join the Site**. (In Unity Connection 7.x, select **Manually Join the Network**.)
- Step 9** Select **Download**, and save the second server configuration file to a location on your hard drive, or on media that you can use to copy the file to the second server.
- Step 10** In the **Select the Remote Configuration File to Upload** field, select **Browse** and browse to the copy of the configuration file that you downloaded from the first server in **Step 4**.
- Step 11** Select **Upload**.
- Step 12** In Unity Connection Administration on the first server, in the **Select the Remote Configuration File to Upload** field, select **Browse** and browse to your local copy of the configuration file that you downloaded from the second server in **Step 9**.
- Step 13** Select **Upload**.
- Step 14** On either server, in Cisco Unity Connection Serviceability, select **Tools > Service Management**.
- Step 15** In the **Server** list, select the Unity Connection server, and select **Go**.
- Step 16** Under **Optional Services**, locate the **Unity Connection Digital Networking Replication Agent** and select **Activate**.



**Step 17** Repeat [Step 14](#) through [Step 16](#) on the other server.

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## Configuring a Smart Host

SMTP is used to transmit both directory information and messages between Unity Connection locations in a site.

If any pair of locations in the site cannot transmit and receive SMTP messages directly (for example, because a firewall separates the servers), you must configure these locations to route these messages through an SMTP smart host.

In addition, for each Unity Connection cluster that you add to the site, you must configure all other network locations to route to the cluster through a smart host in order for message traffic to reach the cluster subscriber server in the event that the publisher server is down, and configure the smart host to resolve the SMTP domain of the cluster to the IP addresses of both the publisher and subscriber servers. For example, a network has a single smart host and the following three locations:

- ServerA, which is not a cluster member
- Cluster 1, which is made up of ServerB, a publisher, and ServerC, a subscriber
- Cluster 2, which is made up of ServerD, a publisher, and ServerE, a subscriber

In order to create a Unity Connection site, you would join ServerA, ServerB and ServerD together to form the site. Note the following:

- On ServerA, you would configure the Unity Connection locations for ServerB (which represents cluster 1) and ServerD (which represents cluster 2) to route through the smart host.
- On Server B (the cluster 1 publisher), you would configure the Unity Connection location for ServerD (which represents cluster 2) to route through the smart host.
- On ServerD (the cluster 2 publisher), you would configure the Unity Connection location for ServerB (which represents cluster 1) to route through the smart host.
- On the smart host, you would configure the SMTP domain name of cluster 1 to resolve to the IP addresses of both ServerB and ServerC (for example, using DNS MX records). You would also configure the SMTP domain name of cluster 2 to resolve to both ServerD and ServerE.

Do the following tasks for each server that requires routing to other locations through a smart host:

1. Configure the SMTP smart host to accept messages from the Unity Connection server. If your site includes Unity Connection clusters, also configure the smart host to resolve the SMTP domain of the cluster to the IP addresses of both the publisher and subscriber servers. See the documentation for the SMTP server application that you are using.
2. Configure the Unity Connection server to relay messages to the smart host. See the [“To Configure Unity Connection to Relay Messages to a Smart Host”](#) procedure on page 2-9.
3. Configure the Unity Connection server to route messages to the other Unity Connection locations through the smart host. See the [“To Configure Unity Connection to Route Inter-Location Messages through the Smart Host”](#) procedure on page 2-10.

### To Configure Unity Connection to Relay Messages to a Smart Host

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**Step 1** In Cisco Unity Connection Administration, expand **System Settings > SMTP Configuration** and select **Smart Host**.

- Step 2** In the **Smart Host** field, enter the IP address or fully qualified domain name of the SMTP smart host server. (Enter the fully qualified domain name of the server only if DNS is configured.)
- Step 3** Select **Save**.

#### To Configure Unity Connection to Route Inter-Location Messages through the Smart Host

- Step 1** In Cisco Unity Connection Administration, expand **Networking** and select **Locations**.
- Step 2** Select the name of a location that requires routing through a smart host.
- Step 3** Check the **Route to This Remote Location Through SMTP Smart Host** check box.
- Step 4** Select **Save**.
- Step 5** Repeat [Step 1](#) through [Step 4](#) for each additional location that requires routing through the smart host.

## Configuring SMTP Access for Cluster Subscriber Servers

When you create a site that includes a Unity Connection cluster server pair, you join only the publisher server of the pair to the site. In order for all locations on the network to communicate directly with the cluster subscriber server in the event that it has Primary status, you must configure all network locations (except for the publisher server that is clustered with the subscriber server) to allow SMTP connections from the subscriber server.

Direct SMTP connectivity is needed so that locations can continue to receive user message traffic from the cluster while the publisher server does not have **Primary** status, in cases where routing from the cluster to other locations is not done via a smart host. Direct SMTP connectivity with the subscriber server does not impact directory updates, because directory updates are only replicated from the publisher server.

For example, a network has the following three locations:

- ServerA, which is not a cluster member
- Cluster 1, which is made up of ServerB, a publisher, and ServerC, a subscriber
- Cluster 2, which is made up of ServerD, a publisher, and ServerE, a subscriber

In order to create a site, you would join ServerA, ServerB and ServerD together. For direct SMTP access, the following steps are required:


- On ServerA, you would need to add the IP addresses of both ServerC and ServerE (the two subscriber servers) to the IP address access list so that ServerA can communicate with either subscriber server if it has Primary status.
- On ServerB (the cluster 1 publisher), you would add the IP address of ServerE (the cluster 2 subscriber) to the IP address access list; and on ServerD (the cluster 2 publisher), you would add the IP address of ServerC (the cluster 1 subscriber) to the IP address access list.

Alternatively, you can configure each cluster location to route messages to every other location through a smart host; when you do this, the other Unity Connection locations do not need to accept SMTP connections directly from the cluster subscriber in the event that it has Primary status, because the cluster subscriber establishes the SMTP connection with the smart host rather than directly with every other location. In the example above, the alternate configuration would entail the following:

- On ServerB (the cluster1 publisher), you would configure a smart host, and configure the Unity Connection locations for ServerA and ServerD (the cluster 2 publisher) to route through the smart host.
- On ServerD (the cluster 2 publisher), you would configure a smart host, and configure the Unity Connection locations for ServerA and ServerB (the cluster 1 publisher) to route through the smart host.

For instructions on configuring routing through a smart host, see the “[Configuring a Smart Host](#)” section on page 2-9. Note that when more than one cluster is joined to a single site, you should have already configured each cluster to route messages to other clusters through the smart host; in this case, all you need do in addition is to configure the cluster to route through the smart host to any servers that are not configured as clusters.

#### To Configure Direct SMTP Access for Cluster Subscriber Servers

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- Step 1** On a network location, in Cisco Unity Connection Administration, expand **System Settings > SMTP Configuration** and select **Server**.
- Step 2** On the Edit menu, select **Search IP Address Access List**.
- Step 3** Select **Add New**.
- Step 4** On the New Access IP Address page, enter the IP address of a cluster subscriber server at another location on the network.
-  **Note** Do not enter the IP address of the subscriber server on the publisher server that it is paired with.
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- Step 5** Select **Save**.
- Step 6** On the Access IP Address page, check the **Allow Unity Connection** check box.
- Step 7** Select **Save**.
- Step 8** Repeat [Step 2](#) through [Step 7](#) for each additional subscriber server on the network (other than the subscriber server that is paired with the server you are configuring).
- Step 9** Repeat [Step 1](#) through [Step 8](#) on each network location.
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## Checking Replication Status Within a Site

When initial replication begins among locations, it can take a few minutes to a few hours for data to be fully replicated between all locations, depending on the size of your directory.

The Unity Connection Intrasite Links and Locations pages in Cisco Unity Connection Administration can provide information about the status of replication between locations. Do the following procedure to check replication status in Unity Connection Administration.



#### Tip

On Unity Connection 10.x locations, you can also use the Voice Network Map tool in Cisco Unity Connection Serviceability to check replication status. With the tool, you can quickly locate replication problems in a site, and get information about the status of replication between any two locations in the site. For more details, select **Help > This Page** from within the tool, or see the “Understanding the Voice Network Map Tool” section of the “Using the Voice Network Map Tool in Version 10.x” chapter of the

*Cisco Unified Serviceability Administration Guide Release 10.x at*

[http://www.cisco.com/c/en/us/td/docs/voice\\_ip\\_comm/connection/10x/serv\\_administration/guide/10xucservag/10xucservag060.html#pgfId-1051666](http://www.cisco.com/c/en/us/td/docs/voice_ip_comm/connection/10x/serv_administration/guide/10xucservag/10xucservag060.html#pgfId-1051666).

### To Check Replication Status Within a Site Using Cisco Unity Connection Administration

- Step 1** In Cisco Unity Connection Administration on a server that is joined to the network, expand **Networking > Links** and select **Intrasite Links**. (In Unity Connection 7.x, expand **Networking**, then select **Unity Connection Locations**.)
- Step 2** On the Search Intrasite Links page, in the **Intrasite Links** table, the **Push Directory** column indicates whether a directory push to the remote location from the location you are accessing is in progress. The **Pull Directory** column indicates whether a directory pull from the remote location is in progress.
- For example, if an administrator initiates a Push Directory To request from ServerA to ServerB, the Unity Connection Administration on ServerA shows that a directory push to ServerB is in progress, and the Unity Connection Administration on ServerB shows that a directory pull from ServerA is in progress.



**Caution** Initial replication happens automatically. Do not initiate a directory push or pull while initial replication is in progress.



**Note** Once initial replication is complete, changes are automatically synchronized between locations as they occur, even when the **Push Directory** and **Pull Directory** columns display a status of Idle.

- Step 3** To get more information about the status of replication with a particular remote location, expand **Networking** and select **Locations**, then select the display name of the location. (In Unity Connection 7.x, on the Search Unity Connection Locations page, select the display name of the location.)
- Step 4** On the Edit Location page, the **Last USN Sent**, **Last USN Received**, and **Last USN Acknowledged** fields indicate the sequence numbers of replication messages sent to and from the remote location. If the **Last USN Sent** value is higher than the Last USN Acknowledged value, the remote location is not currently fully synchronized with this location; in this case, the **Last USN Acknowledged** value should continue to increase periodically. (Note that the **Last USN Sent** value may also increase periodically.)

## Configuring Search Spaces for Unity Connection Sites

When you initially set up a site between locations, users who are homed on one location are not able to address messages to users at other locations, because the users on each location are in separate partitions and use search spaces that do not contain the partitions of users on the other locations. After initial replication completes between the locations, you can reconfigure your search spaces to include partitions that are homed on other servers, and you can change the search scope of users, routing rules, call handlers, directory handlers, and VPIM locations to use a search space that is homed on a remote location. (Note that while both partitions and search spaces are replicated between locations, you cannot assign users or other objects to a partition that is homed on another location.)

At a minimum, if you have not made any changes to the default partitions and search spaces on any server, at each location you can add the default partition of each remote Unity Connection location to the search space that local users are using. For example, in a network of three servers named ServerA,

ServerB, and ServerC with no changes to the system defaults, in Cisco Unity Connection Administration on ServerA you would add the “ServerB Partition” and “ServerC Partition” default partitions as members of the “ServerA Search Space” default search space; in Unity Connection Administration on ServerB you would add “ServerA Partition” and “ServerC Partition” to “ServerB Search Space,” and so on.

For instructions on adding partitions to search spaces, see the “Dial Plan” section of the “Call Management” chapter of the *System Administration Guide for Cisco Unity Connection Release 10.x*, available at

[http://www.cisco.com/c/en/us/td/docs/voice\\_ip\\_comm/connection/10x/administration/guide/10xcucsag/10xcucsag080.html](http://www.cisco.com/c/en/us/td/docs/voice_ip_comm/connection/10x/administration/guide/10xcucsag/10xcucsag080.html).

## Securing the Unity Connection Site

No user credentials are transmitted as part of intrasite communications. However, in order to protect the security of SMTP addresses that are contained in the messages, make sure that any smart hosts that are involved in SMTP message transmission between Unity Connection locations are configured to route messages properly, as it may be possible to extract SMTP addresses from the messages. See the documentation for the SMTP server application that you are using for instructions.

## Testing the Intrasite Setup

To test the site configuration, create test user accounts or use existing user accounts on each Unity Connection location. When setting up user accounts in Cisco Unity Connection Administration to be used in the tests, be sure to do the following for each account:

- Record a voice name.
- Record and enable an internal greeting.
- On the User Basics page, for Search Scope, select a search space that includes the partitions of remote users.
- On the User Basics page, check the List in Directory check box.
- On the Playback Message Settings page, check the Before Playing Each Message, Play the Sender's Information check box.
- Optionally, if you plan to enable and test cross-server live reply, ensure that the account belongs to a class of service for which the Users Can Reply to Messages from Other Users by Calling Them check box is checked on the Edit Class of Service > Message Options page. (The check box is not checked by default.)

Do the following tests to confirm that the site is functioning properly:

- [To Verify Messaging Between Users on Different Unity Connection Locations, page 2-14](#)
- [To Verify Call Transfers From the Automated Attendant to Users on Other Unity Connection Locations, page 2-14](#)
- [To Verify Call Transfers from a Directory Handler to Users on Other Unity Connection Locations, page 2-14](#)
- [To Verify Identified User Messaging Between Networked Users \(When Identified User Messaging is Enabled\), page 2-14](#)
- [To Verify Live Reply Between Users on Different Unity Connection Locations, page 2-15](#)

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**To Verify Messaging Between Users on Different Unity Connection Locations**

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- Step 1** Sign in to a Unity Connection location as a user.
- Step 2** Follow the prompts to record and send messages to users who are associated with other Unity Connection locations.
- Step 3** Sign in to the applicable Unity Connection location as the recipient user to verify that the message was received.
- Step 4** Repeat [Step 1](#) through [Step 3](#) in the opposite direction.
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**To Verify Call Transfers From the Automated Attendant to Users on Other Unity Connection Locations**

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- Step 1** From a non-user phone, call a Unity Connection location that has been configured to handle outside callers, and enter the extension of a user who is associated with another Unity Connection location.
- Step 2** Verify that you reach the correct user phone.
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**To Verify Call Transfers from a Directory Handler to Users on Other Unity Connection Locations**

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- Step 1** From a non-user phone, call a Unity Connection location that has been configured to handle outside callers, and transfer to a directory handler.
- Step 2** Verify that you can find a user who is associated with another Unity Connection location in the phone directory, and that the directory handler transfers the call to the correct user phone.
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**To Verify Identified User Messaging Between Networked Users (When Identified User Messaging is Enabled)**

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- Step 1** Verify that Unity Connection plays an internal greeting for users who leave messages, by doing the following sub-steps:
- From a user phone, call a user who is associated with another Unity Connection location, and allow the call to be forwarded to Unity Connection.
  - Verify that the internal greeting plays.
  - Leave a test message.
- Step 2** Verify that users are identified when the recipient listens to a message, by doing the following sub-steps:
- Sign in to the applicable Unity Connection location as the recipient user and listen to the test message that you recorded in [Step 1](#).
  - Verify that the user conversation announces who the message is from by playing the recorded voice name of the sending user.
  - After listening to the message, verify that the user conversation allows you to reply to the message.
-



### To Verify Live Reply Between Users on Different Unity Connection Locations

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- Step 1** From a user phone, call a user who is associated with another Unity Connection location, and allow the call to be forwarded to voicemail.
- Step 2** Leave a message.
- Step 3** Sign in to the applicable Unity Connection location as the recipient user and listen to the test message that you recorded in [Step 2](#).
- Step 4** After listening to the message, verify that the user conversation allows you to live reply to the message by saying “Call sender” or using the applicable key presses for the user conversation type. (To find the key presses for a particular conversation, see the “Cisco Unity Connection Phone Menus and Voice Commands” chapter of the *User Guide for the Cisco Unity Connection Phone Interface*, available at [http://www.cisco.com/c/en/us/td/docs/voice\\_ip\\_comm/connection/10x/user/guide/phone/b\\_10xcucugphone/b\\_10xcucugphone\\_chapter\\_010100.html](http://www.cisco.com/c/en/us/td/docs/voice_ip_comm/connection/10x/user/guide/phone/b_10xcucugphone/b_10xcucugphone_chapter_010100.html).)
- Step 5** Verify that the live reply call is correctly transferred to the phone of the user who left the message.
- 

## Creating a Site-Wide All Voicemail Users Distribution List

If you would like to create a master distribution list that includes all users on all servers in the site, do the following tasks:

1. On each location in the site, rename the All Voicemail Users list with a unique name (for example All Voicemail Users on <Location Name>). For instructions, see the “System Distribution Lists” chapter of the *System Administration Guide for Cisco Unity Connection Release 10.x*, available at [http://www.cisco.com/en/US/docs/voice\\_ip\\_comm/connection/10x/administration/guide/10xcucsa\\_g060.html](http://www.cisco.com/en/US/docs/voice_ip_comm/connection/10x/administration/guide/10xcucsa_g060.html).
2. Create a new All Voicemail Users system distribution list on one location to use as the master list.
3. Add the lists from all locations as members of the master list.
4. Put all lists except the master list in partitions that do not belong to a search space that users use, so that they cannot address to any list except the master. For example, on each location, create a new partition called Hidden DLs on <Location Name> and put the list homed at that location in that partition. (By default, new partitions are not a member of any search space.)

**Tip**

To avoid having users generate large amounts of voice message traffic using reply-all to reply to messages sent to the master list, you should use search spaces to restrict access to the master list to a small subset of users. These users can use a search space that is essentially identical to the search space that other users use, except for the addition of the partition containing the master list.

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## Cleaning Up Unused Unity Connection VPIM Locations and Contacts

After migrating a Unity Connection server from VPIM Networking to being a member of a site, you should delete the VPIM location for the server on any other servers in the site that were previously using VPIM Networking to exchange messages with the server. Likewise, you should delete any VPIM locations on the server that represent other Unity Connection locations in the site. In order to successfully delete the VPIM locations, you must first delete all contacts that are associated with the location.

Note that when you delete the VPIM contacts that represent Unity Connection users, the contacts are removed from distribution lists; consider reviewing and updating distribution list membership on each server to include remote users as applicable. Also consider notifying users that they need to update the membership of any private lists that include contacts on the server being migrated.

For instructions on deleting a VPIM location and the associated VPIM contacts, see the [“Removing a VPIM Location” section on page 4-15](#).

## Mapping Users to Their Home Locations

Each server or cluster handles a distinct group of users. In large organizations, it is possible that more than one server or cluster is in use at the same physical location. In this case, you need to determine which user accounts to create on each of the servers (the “home” server or location for each user), and keep a record of the mapping. This record is needed for the following reasons:

- User phones must forward calls to the system on which the users are homed.
- If user phones have a “Messages” or a speed-dial button that dials the number to access voicemail, the buttons must be configured to call the system on which the users are homed.
- If you do not configure cross-server sign-in, users must dial the pilot number of the server or cluster that they are associated with to check their messages; in this case, you need to tell users the correct number to dial when calling their home server.

To create a record of the mapping, run the Users report on each Unity Connection location. The information in this report includes the user name and primary location. For more information, see the “Reports” section of the “Advanced System Settings” chapter in the *System Administration Guide for Cisco Unity Connection Release 10.x*, available at [http://www.cisco.com/en/US/docs/voice\\_ip\\_comm/connection/10x/administration/guide/10xcucsag170.html](http://www.cisco.com/en/US/docs/voice_ip_comm/connection/10x/administration/guide/10xcucsag170.html).

## Linking Two Unity Connection Sites

Unity Connection 10.x supports linking up to two sites with an intersite link. In order to link sites, all servers in each site must be running Unity Connection version 10.x.

You can link up to 10 Unity Connection servers and/or clusters in a single site, and link two sites together. (Only one intersite link is supported per site.) If either site consists of more than one server or cluster, set up the sites before linking them. For procedures, see the [“Setting Up a Unity Connection Site” section on page 2-1](#).

See the following sections:

- [Prerequisites, page 2-16](#)
- [Task List for Linking Unity Connection Sites, page 2-17](#)
- [Procedures for Linking Unity Connection Sites, page 2-17](#)

## Prerequisites

- If either or both sites consist of more than one server or cluster, set up the sites according to the [“Setting Up a Unity Connection Site” section on page 2-1](#).
- Verify that each server is running Unity Connection version 10.x.

- Check the size of your directory against the limits in the *System Requirements for Cisco Unity Connection*.
- The two locations (one in each site) that act as the gateways between the sites must be able to route directly to each other through TCP/IP port 25 (SMTP), or SMTP messages must be routable through an SMTP smart host. In addition, both gateways must be able to route to each other via HTTP on port 80 or HTTPS on port 443.
- Identify an account that you use to access Cisco Unity Connection Administration. The account must have the Manage Servers privilege. (The System Administrator and Technician roles each have this privilege.)

## Task List for Linking Unity Connection Sites

Use this task list to set up an intersite link between two Unity Connection sites (referred to as an intersite link). The cross-references take you to detailed procedures.

If you have a Unity Connection cluster, do the tasks only on the publisher server.

1. Decide which location in each site is the site gateway and determine how messages are routed between the gateways. See the [“Determining the Site Gateway Locations and SMTP Routing Between Gateways”](#) section on page 2-18.
2. Check the display name of each server in each site, and modify it if it is not unique among all the locations in both sites, or if you want to select a more descriptive name. Also check the SMTP domain of each server, and modify it if it is not unique. For a procedure, see the [“Verifying Each Unity Connection Server has a Unique Display Name and SMTP Domain”](#) section on page 2-5.
3. Create the link. See the [“Creating the Intersite Link”](#) section on page 2-18.
4. Verify that replication is complete between the sites. See the [“Checking the Status of Synchronization Between Unity Connection Sites and Configuring Task Schedules”](#) section on page 2-21.
5. Configure search spaces between sites. See the [“Configuring Search Spaces Between Unity Connection Sites”](#) section on page 2-22.
6. Optionally, if you select to synchronize system distribution lists in either or both directions between the gateways, configure individual distribution lists to allow or prevent replication. See the [“Configuring Individual System Distribution Lists for Synchronization”](#) section on page 2-23.
7. Optionally, set up an organization-wide All Users distribution list. See the [“Creating an Organization-Wide All Voicemail Users Distribution List”](#) section on page 2-23.
8. Optionally, set up cross-server features between the locations. See the [“Cross-Server Sign-In, Transfers, and Live Reply in Cisco Unity Connection 10.x”](#) chapter.
9. For each site, if any servers in the remote site were previously configured as VPIM locations on other servers in the local site, clean up the unused VPIM locations. See the [“Cleaning Up Unused Unity Connection VPIM Locations and Contacts”](#) section on page 2-15.

## Procedures for Linking Unity Connection Sites

See the following sections:

- [Determining the Site Gateway Locations and SMTP Routing Between Gateways](#), page 2-18
- [Creating the Intersite Link](#), page 2-18

- [Checking the Status of Synchronization Between Unity Connection Sites and Configuring Task Schedules, page 2-21](#)
- [Configuring Search Spaces Between Unity Connection Sites, page 2-22](#)
- [Configuring Individual System Distribution Lists for Synchronization, page 2-23](#)
- [Creating an Organization-Wide All Voicemail Users Distribution List, page 2-23](#)

## Determining the Site Gateway Locations and SMTP Routing Between Gateways

To create an intersite link, you select a single location on each site to act as a gateway to the other site. All intersite communications (both for directory synchronization and for message exchange) pass between the two gateways, thereby limiting the connectivity requirements and bandwidth usage to the link between those two locations. In order for directory synchronization and message exchange to occur between the two sites, the gateways you select must have the following connectivity with each other:

- HTTPS (if you select to encrypt the connection) or HTTP connectivity, for directory synchronization.
- SMTP connectivity, for message exchange.

Once you have selected the gateway locations, determine how to route SMTP messages between them. In each direction, you can route messages directly or use an SMTP smart host. Use an SMTP smart host in the following situations:

- The gateways are separated by a firewall that blocks SMTP transmissions.
- Either or both of the gateways are Unity Connection clusters.

When a gateway is a cluster, you must configure the opposite gateway to route to the cluster through a smart host in order for message traffic to reach the cluster subscriber server in the event that the publisher server is down, and configure the smart host to resolve the SMTP domain of the cluster to the IP addresses of both the publisher and subscriber servers. In this case, you should route traffic in both directions through the smart host.

## Creating the Intersite Link

This section contains two procedures:

- If your Unity Connection site gateways route SMTP messages directly with each other, do the [“To Automatically Link Two Unity Connection Site Gateways” procedure on page 2-18](#).



**Note** When you automatically link two gateways, the settings that you select are configured for both gateways. After creating the link, you can change most settings on either gateway. Or, you can use the manual procedure to configure the settings differently on each gateway.

- If your Unity Connection site gateways require a smart host for routing SMTP messages (for example, because they are separated by a firewall, or because either or both gateways are clusters), do the [“To Manually Link Two Unity Connection Site Gateways” procedure on page 2-20](#).

### To Automatically Link Two Unity Connection Site Gateways

- 
- Step 1** In Cisco Unity Connection Administration (on either server), expand **Networking> Links** and select **Intersite Links**.
- Step 2** On the Search Intersite Links page, select **Add**.

- Step 3** On the New Intersite Link page, select **Link to Cisco Unity Connection Site Using Automatic Configuration Exchange Between Servers**.
- Step 4** In the SMTP routing warning message window, select **OK**.
- Step 5** In the **Hostname** field, enter the IP address or fully-qualified domain name (FQDN) of the remote Unity Connection site gateway to link to.
- Step 6** In the **Username** field, enter the user name of an administrator at the location specified in the Hostname field. The administrator account must be assigned to a role that has the Manage Servers privilege. (The System Administrator and Technician roles have this privilege.)
- Step 7** In the **Password** field, enter the password for the administrator specified in the **Username** field.
- Step 8** For **Transfer Protocol** settings, decide whether you want to enable SSL to encrypt directory synchronization traffic between the sites.
- Step 9** For **Synchronization Settings**, check the **Include Distribution Lists When Synchronizing Directory Data** check box to pull information about remote system distribution lists to the local site so that users can address messages to them. (Note that only the list name and other information used in addressing are replicated.)



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**Note** When you enable system distribution list synchronization, you cannot disable it after the link is created except by removing and recreating the intersite link.

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**Note** In order for local system distribution lists to be offered to the remote site for synchronization, they must also be marked to allow synchronization. By default, Unity Connection system distribution lists are marked to allow synchronization, although this setting may have been changed. The task list alerts you when and how to enable lists for synchronization.

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- Step 10** To convert recorded names from this site to a different encoding when synchronizing them with the remote site, check the **Convert Outgoing Recorded Names to** check box, and select the codec to use.



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**Note** If you select a codec at this step, the same codec is configured on both gateways, which means that recorded names are sent in a format that differs from the recording format for at least one of the two gateways. If this is not your intention, do not change the setting now. You can change the setting later on the Edit Intersite Link page on either gateway.

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- Step 11** By default, two tasks that each run on their own schedule for data and recorded name directory synchronization from the remote site are enabled immediately after you create the intersite link. To disable either type of directory synchronization until you manually edit and enable the applicable synchronization task, uncheck the **Enable Task to Synchronize Directory Data After the Join** or **Enable Task to Synchronize Recorded Names After the Join** check boxes.

**Step 12** Select **Link**.

**Step 13** When prompted, select **OK** to confirm.

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### To Manually Link Two Unity Connection Site Gateways

- 
- Step 1** In Cisco Unity Connection Administration (on either site gateway), expand **Networking** > **Links** and select **Intersite Links**. This server is referred to as the first site gateway for the remainder of the procedure, and the other gateway is referred to as the second site gateway.
- Step 2** On the Search Intersite Links page, select **Add**.
- Step 3** On the New Intersite Link page, select **Link to Cisco Unity Site or Cisco Unity Connection Site by Manually Exchanging Configuration Files**.
- Step 4** Select **Download** and save the first site gateway configuration file to a location on your hard drive, or on media that you can use to copy the file to the second site gateway.
- Step 5** Browse to Unity Connection Administration on the second site gateway.
- Step 6** In Unity Connection Administration on the second site gateway, expand **Networking**, expand **Links**, then select **Intersite Links**.
- Step 7** On the Search Intersite Links page, select **Add**.
- Step 8** On the New Intersite Link page, select **Link to Cisco Unity Site or Cisco Unity Connection Site by Manually Exchanging Configuration Files**.
- Step 9** Select **Download**, and save the second site gateway configuration file to a location on your hard drive, or on media that you can use to copy the file to the second site gateway.
- Step 10** In the **Remote Site Configuration File** field, select **Browse** and browse to the copy of the configuration file that you downloaded from the first site gateway in [Step 4](#).
- Step 11** For **Transfer Protocol** settings, decide whether you want to enable SSL to encrypt the data passed between the site gateways when the local reader service synchronizes with the remote gateway (local reader requests and remote feeder responses).
- Step 12** For **Synchronization Settings**, check the **Include Distribution Lists When Synchronizing Directory Data** check box to pull information about remote system distribution lists to the local site so that users can address messages to them. (Note that only the list name and other information used in addressing are replicated.)
- 
-  **Note** When you enable system distribution list synchronization, you cannot disable it after the link is created except by removing and recreating the intersite link.
- 
-  **Note** In order for local system distribution lists to be offered to the remote site for synchronization, they must also be marked to allow synchronization. By default, Unity Connection system distribution lists are marked to allow synchronization, although this setting may have been changed. The task list alerts you when and how to enable lists for synchronization.
- 
- Step 13** To convert recorded names from this site to a different encoding when synchronizing them with the remote site, check the **Convert Outgoing Recorded Names to** check box, and select the codec to use.
- Step 14** By default, two tasks that each run on their own schedule for data and recorded name directory synchronization from the remote site are enabled immediately after you create the intersite link. To disable either type of directory synchronization until you manually edit and enable the applicable synchronization task, uncheck the **Enable Task to Synchronize Directory Data After the Join** or **Enable Task to Synchronize Recorded Names After the Join** check boxes.
- Step 15** For **Intersite Routing**, select the appropriate option:



- **Route to this Remote Site Through**—Enter the specific IP address or fully-qualified domain name of a smart host that can properly route messages sent to addresses at the SMTP domain of the remote site gateway.
- **Route to this Remote Site Through SMTP Smart Host (If One Is Defined)**—Routes outgoing messages to the host defined on the System Settings > SMTP Configuration > Smart Host page. If you select this option, the smart host must be defined, and must be able to properly route messages sent to addresses at the SMTP domain of the remote site gateway. If the smart host is not defined, a non-delivery receipt (NDR) is sent to the message sender.
- **Route to this Remote Site Through the Remote Site Gateway**—Routes outgoing messages directly to the remote site gateway SMTP server. Do not use this option if the remote gateway is a cluster, or if the gateways are separated by a firewall.

Step 16 Select **Link**.

Step 17 In Unity Connection Administration on the first site gateway, in the Select the **Remote Configuration File to Upload** field, select **Browse** and browse to your local copy of the configuration file that you downloaded from the second server in [Step 9](#).

Step 18 Repeat [Step 11](#) through [Step 15](#) on the first site gateway.

Step 19 Select **Link**.

---

## Checking the Status of Synchronization Between Unity Connection Sites and Configuring Task Schedules

When initial synchronization begins between site gateways, it can take a few minutes to a few hours for data to be fully replicated to each gateway, and from there to all locations in the site, depending on the size of your directory.

On each site gateway, there are two tasks which control the schedule on which the Reader polls the remote Feeder for directory data, and the schedule on which it polls for recorded names. By default, the tasks run every 15 minutes. If you unchecked the **Enable Task to Synchronize Directory Data After the Join** or **Enable Task to Synchronize Recorded Names After the Join** check boxes while linking the sites, you must configure the schedule and enable the task before synchronization can begin.

You can use the Edit Intersite Link page and the Task Schedule page in Cisco Unity Connection Administration to determine whether synchronization is progressing successfully or has completed. Do the following procedure to check synchronization status between sites, and to configure schedules for the two synchronization tasks.

### To Check the Status of Synchronization Between Unity Connection Sites and Configure Task Schedules

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- Step 1 In Cisco Unity Connection Administration on a site gateway, expand **Networking > Links** and select **Intersite Links**.
- Step 2 On the Search Intersite Links page, select the **Display Name** of the intersite link.
- Step 3 On the Edit Intersite Link page, check the values of the following fields:
- **Time of Last Synchronization**—Indicates the time stamp of the last time the local reader service attempted to poll the remote site gateway feeder service for directory changes on the remote site, regardless of whether a response was received.

- **Time of Last Error**—Indicates the time stamp of the last time the local reader service encountered an error while attempting to poll the remote site gateway feeder service. If the value of this field is 0, or if the **Time of Last Synchronization** value is later than the **Time of Last Error** value, replication is likely to be progressing without problems.
  - **Object Count**—Indicates the number of objects (users, system distribution lists if applicable, partitions, search spaces and Unity Connection locations) that the local site gateway has synchronized from the remote site.
- Step 4** View the **Remote Site Directory Synchronization Task**, and enable it or change the schedule, if necessary:
- a. From the Edit Intersite Link page, in the Related Links box in the upper right corner of the page, select **Remote Site Directory Synchronization Task** and select **Go**.
  - b. On the Task Schedule page, enable the task if it has not yet been enabled, and modify the schedule so that the task runs at the desired interval or time.
  - c. Select **Save**.
  - d. To view the task execution history, select **Edit > Task Definition Basics**. On this page you can determine whether the task has not started, is in progress, or has completed. If the task has completed you can select either the Time Started or Time Completed to view the detailed task results.
- Step 5** From the Task Definition Basics page, select **Task Definition > Task Definitions** to go to the list of all tasks.
- Step 6** View the **Synchronize Voice Names With Remote Network** task, and enable it or change the schedule, if necessary:
- a. On the Task Definitions page, select **Synchronize Voice Names With Remote Network**.
  - b. Select **Edit > Task Schedules**.
  - c. On the Task Schedule page, enable the task if it has not yet been enabled, and modify the schedule so that the task runs at the desired interval or time.
  - d. Select **Save**.
  - e. To view the task execution history, select **Edit > Task Definition Basics**. On this page you can determine whether the task has not started, is in progress, or has completed. If the task has completed you can select either the **Time Started** or **Time Completed** to view the detailed task results.
- 

## Configuring Search Spaces Between Unity Connection Sites

When you initially set up a link between the sites, users who are homed on a location in one site are not able to address messages to users at locations in the other site, because the users are in separate partitions and use search spaces that do not contain the partitions of users on the locations in the other site. After initial replication completes between the sites, you can reconfigure your search spaces to include partitions that are homed on the remote site, and you can change the search scope of users, routing rules, call handlers, directory handlers, and VPIM locations to use a search space that is homed on a location in the remote site. (Note that while both partitions and search spaces are replicated between locations, you cannot assign users or other objects to a partition that is homed on another location.)

At a minimum, if you have not made any changes to the default partitions and search spaces on any server, at each location you can add the default partition of each remote site location to the search space that local users are using. For example, in an organization where site 1 contains ServerA, ServerB, and ServerC and site 2 contains Server D, with no changes to the system defaults, in Cisco Unity Connection Administration on ServerA, ServerB, and ServerC you would add the “ServerD Partition” default

partition as a member of the “ServerA Search Space,” “ServerB Search Space,” and “ServerC Search Space” default search spaces, respectively; in Unity Connection Administration on ServerD you would add “ServerA Partition,” “ServerB Partition,” and “ServerC Partition” to “ServerD Search Space,” and so on.

For instructions on adding partitions to search spaces, see the “Dial Plan” section of the “Call Management” chapter of the *System Administration Guide for Cisco Unity Connection Release 10.x*, available at [http://www.cisco.com/c/en/us/td/docs/voice\\_ip\\_comm/connection/10x/administration/guide/10xcucsag/10xcucsag080.html](http://www.cisco.com/c/en/us/td/docs/voice_ip_comm/connection/10x/administration/guide/10xcucsag/10xcucsag080.html).

## Configuring Individual System Distribution Lists for Synchronization

If you checked the Include Distribution Lists When Synchronizing Directory Data check box in [Step 9](#) of the “[To Automatically Link Two Unity Connection Site Gateways](#)” procedure on [page 2-18](#) or [Step 12](#) of the “[To Manually Link Two Unity Connection Site Gateways](#)” procedure on [page 2-20](#), information about system distribution lists created on the remote site can be pulled to the local site. However, in order for information about an individual list to be offered to another site, the Replicate to Remote Sites Over Intersite Links check box must be checked on the Edit Distribution List Basics page for a list. By default, **Replicate to Remote Sites Over Intersite Links** is checked, so individual Unity Connection system distribution lists are marked for synchronization by default. However, in order to allow contacts as members of a system distribution list, you must uncheck Replicate to Remote Sites Over Intersite Links, so if you have lists that have been configured to allow contacts as members, they are not offered for replication to the remote site.

To disable synchronization for an individual list, uncheck **Replicate to Remote Sites Over Intersite Links** check box. To enable synchronization for an individual list, remove any contacts that have been added as members and check the **Replicate to Remote Sites Over Intersite Links** check box. To enable or disable synchronization for multiple lists at once, you can use either Bulk Edit or the Bulk Administration Tool.

## Creating an Organization-Wide All Voicemail Users Distribution List

If you would like to create a master distribution list that includes all users on all servers in both sites, do the following tasks:

1. On each location in each site, if you have not done so already, rename the All Voicemail Users list with a unique name (for example All Voicemail Users on <Server Name>). For instructions, see the “Modifying System Distribution Lists in Cisco Unity Connection 10.x” section in the “System Distribution Lists” chapter of the *System Administration Guide for Cisco Unity Connection Release 10.x*, available at [http://www.cisco.com/en/US/docs/voice\\_ip\\_comm/connection/10x/administration/guide/10xcucsag060.html](http://www.cisco.com/en/US/docs/voice_ip_comm/connection/10x/administration/guide/10xcucsag060.html).
2. Select one location in the organization to host the master list. Create a new **All Voicemail Users** system distribution list on one location to use as the master list.
3. Add the lists from all locations in both sites as members of the master list.



### Note

In order to add lists from the remote site, the gateway of the site on which the master list is homed must have the **Include Distribution Lists When Synchronizing Directory Data** check box checked on the Edit Intersite Link page, and the lists from each location in the remote site must have the **Replicate to Remote Sites Over Intersite Links** check box checked on the Edit Distribution List Basics page.

4. Put all lists except the master list in partitions that do not belong to a search space that users use, so that they cannot address to any list except the master. For example, on each location, create a new partition called Hidden DLs on <Server Name> and put the list homed at that location in that partition. (By default, new partitions are not a member of any search space.)

## Notable Behavior in Networked Unity Connection Servers

See the following sections:

- [No Results Found When a Directory Handler Search Scope is Set to a Remote System Distribution List in Intersite Networking, page 2-24](#)
- [Users Receiving Multiple Copies of Message Sent to Multiple Distribution Lists in Intersite Networking, page 2-24](#)
- [Networked Broadcast Messages Not Supported, page 2-24](#)
- [Networked Dispatch Messages Not Supported, page 2-25](#)
- [Manual Resynchronization Runs Both Directory and Voice Name Synchronization Tasks, page 2-25](#)
- [Replication with Unity Connection Clusters, page 2-25](#)
- [Adding Remote Users as Private Distribution List Members, page 2-25](#)

### No Results Found When a Directory Handler Search Scope is Set to a Remote System Distribution List in Intersite Networking

If you set the Search Scope of a directory handler to System Distribution List and select a list that is homed on the remote site, no results are returned when callers reach the handler and attempt a search. This happens because list membership is not replicated across intersite links. (This behavior does not apply to voice-enabled directory handlers, which do not have the option to use a system distribution list as the search scope.)

### Users Receiving Multiple Copies of Message Sent to Multiple Distribution Lists in Intersite Networking

When a message is sent to multiple distribution lists, under some circumstances, when the message traverses an intersite link, users who are members of more than one of the lists may receive multiple copies of the message.

### Networked Broadcast Messages Not Supported

Broadcast messages cannot be sent to multiple locations within a site or between sites.

## Networked Dispatch Messages Not Supported

Dispatch messaging is not supported across locations. Dispatch messages addressed to recipients at other locations within a site are delivered to remote users as regular messages. Dispatch messages addressed to remote site recipients are not delivered. You should configure dispatch messaging only when the message recipient is a system distribution list that does not include users on other networked locations.

## Manual Resynchronization Runs Both Directory and Voice Name Synchronization Tasks

The Resync All button on the Search Intersite Links page starts the Synchronize Directory With Remote Network task. When that task completes, it automatically starts the Synchronize Voice Names With Remote Network task. These tasks normally run independently on separate schedules.

## Replication with Unity Connection Clusters

When you add a Cisco Unity Connection cluster to a site or link two sites, you create the intrasite or intersite link only on the publisher server of the pair. Directory updates made on a cluster subscriber server are replicated only from the cluster publisher server. If all locations in the site (and all intersite gateways, if applicable) are properly configured, voice messages continue to be sent to and from the cluster even when the subscriber server has Primary status or the publisher server is shut down. However, in order to keep the directory current on the publisher server, the publisher server should not remain shut down for an extended period of time.

## Adding Remote Users as Private Distribution List Members

When creating private lists, users can add members from other locations if allowed by their search scope, in which case the same set of users who are reachable when addressing a message or placing a call can also be added as members of a private list. Private lists are not replicated to other locations; when a user addresses a message to a private list, the home location of the user expands the distribution list and addresses messages to each individual recipient on the list.

Consider notifying users in the event that the following members are inadvertently removed from their lists:

- When you delete a Unity Connection location, remote users at that location are removed from all private lists.
- When a VPIM contact becomes a Unity Connection user, the contact is removed from all private lists.

■ Notable Behavior in Networked Unity Connection Servers