



Cross-Server Sign-In, Transfers, and Live Reply in Cisco Unity Connection 10.x

This chapter describes the cross-server sign-in, transfer, and live reply features available between Cisco Unity Connection locations in a site, between Unity Connection locations in different sites linked by an intersite link, and between Cisco Unity and Unity Connection locations in sites linked by an intersite link. The chapter also covers the procedure to configure the cross-server feature.

See the following sections:

- [Overview of Cross-Server Sign-In, Transfer, and Live Reply, page 6-1](#)
- [Cross-Server Sign-In, page 6-3](#)
- [Cross-Server Transfers, page 6-9](#)
- [Cross-Server Live Reply, page 6-16](#)
- [Notable Behavior for Cross-Server Sign-In, Transfers, and Live Reply, page 6-22](#)

Overview of Cross-Server Sign-In, Transfer, and Live Reply

In order to limit replication traffic and keep the directory size manageable, only a subset of user information is replicated from the home location of the user to other networked locations. For this reason, only the home location of the user has information about call transfer settings, greetings, and other specific details for the user. In order for the location to properly handle calls destined for a user on a different location, it must hand off the call to the home location of the user. The purpose of the cross-server feature is to make the user experience in a networked environment almost the same as in a single server environment, as shown in [Table 6-1](#).

Table 6-1 **Cross-Server Features**

Feature	Description
Cross-server sign-in	Cross-server sign-in allows administrators to provide users who are homed on different locations with one phone number that they can call to sign in. When calling from outside the organization, users call the same number, regardless of which is the home server, and are transferred to the applicable home server to sign in.

Table 6-1 *Cross-Server Features*

Feature	Description
Cross-server transfer	Cross-server transfer enables calls from the automated attendant or from a directory handler of one location to be transferred to a user on another location, according to the call transfer and screening settings of the called user.
Cross-server live reply	Cross-server live reply allows users who listen to their messages by phone to reply to a message from a user on another location by transferring to the user (according to the call transfer and screening settings of the called user).

Although the cross-server features are distinct features, they all use the same underlying functionality—an enhanced supervised call transfer:

1. The location on which a sign-in, transfer, or live reply originates puts the caller on hold and calls the receiving location by dialing a phone number designated as the cross-server dial string for the receiving location.
2. When the receiving location answers, the originating location sends a sequence of DTMF tones that identify the call as a handoff request.
3. The receiving location responds with a sequence of DTMF tones, and the originating location hands off the call to the receiving location for processing.

At this point the functionality is the same as if the call had originated on the receiving location.

In this chapter, an originating location is defined as a server (or cluster) that calls other locations. A receiving location is defined as a server (or cluster) that answers a cross-server call.

Cross-server dial strings are not synchronized between locations. Each originating location can be configured with a dial string for each receiving location. Note that if an originating location is configured for multiple phone system integrations, you must select a dial string that all phone system integrations can use to reach the receiving location.

Search Space Considerations for Cross-Server Sign-In, Transfers, and Live Reply

When a user dials the pilot number of a Unity Connection location that is not his or her home server, the answering location processes the call according to its call management plan. A search space is assigned to the call by the first call routing rule that the call matches. At each subsequent processing step, the search scope of the call may change. Unity Connection uses the search space that is assigned to the call at the point that the call reaches the Attempt Sign-In conversation to identify which user is trying to sign in. If a user calls from an extension that is in a partition that is not a member of this search space, the call is not identified as coming from the user. If the extension of the user overlaps with an extension in another partition that also appears in this search space, the call is identified as coming from the first object that Unity Connection finds when searching the partitions in the order in which they appear in the search space. Check the direct routing rules on each Unity Connection location that handles incoming sign-in calls from remote users to determine the search space that is set by the rule or other call management object that sends calls to the Attempt Sign-In conversation. If the partitions that contain remote users are not a part of this search space, cross-server sign-in does not work, even if it is enabled.

Also note that for cross-server calls from one Unity Connection location to another Unity Connection location (either in the same site or in a remote site), a mismatch between the search space that is applied to the call on the originating location and the search space that is applied on the receiving location can cause problems for cross-server sign-ins and cross-server transfers. A match could be made on the search scope on the originating location that cannot be made on a different search scope on the receiving location. For this reason, you should verify that the same search scope is configured on both originating and receiving locations. For example, call routing rules can be used to direct cross-server calls on the receiving location to the appropriate search space based on the cross-server dial string that is used to reach that location.

For cross-server live reply, as with any live reply attempt, a Unity Connection user can only call the sender if the sender is in a partition that is a member of the search space configured for the user.

Cross-Server Sign-In

The cross-server sign-in feature enables users who are calling from outside the organization to call the same number regardless of which server they are homed on, and they are transferred to the applicable home server to sign in. If you do not enable cross-server sign-in, users need to call the phone number of their home server to sign in.

The process for a cross-server sign-in call is as follows:

1. A user calls the server configured for cross-server sign-in. The user is identified by the calling number or is asked to enter his or her ID.
2. The server looks up the caller ID in the database to determine whether the account is homed on the local server or on a networked server.
 - If the user account is homed on the local server, the sign-in proceeds as usual.
 - If the user account is homed on another server, the conversation plays a “One moment please” prompt (if configured to do so), puts the user on hold, and calls the user home server using the same port that the user called in on. Note that if the user is calling from his or her primary or alternate extension, the “One moment please” prompt is typically the first prompt that the user hears.

When the receiving server answers, the originating server sends a sequence of DTMF tones that identifies the call as a cross-server sign-in.

3. The receiving location responds with a sequence of DTMF tones.
4. The originating location hands off the call to the receiving server for processing. The conversation on the receiving server prompts for the user password. At this point, the behavior is as though the user had called the receiving server directly.

The intended use of this feature is limited to users calling in from outside your organization. Although cross-server sign-in transfers internal calls to the home server, doing so for a large number of users increase the load on the servers. Therefore, user phones should always be configured so that the “Messages” or voicemail speed-dial button calls the home server of the user directly. When moving a user account from one server to another, update the phone system configuration for the user accordingly.

In case of a video call, when two Unity Connection locations are linked by an intersite, intrasite link, or HTTPS network, then if a user from one Unity Connection location attempts to sign-in to another Unity Connection location, the call is downgraded to audio.

Prerequisites for Enabling Cross-Server Sign-In

If your Cisco Voicemail Organization includes Cisco Unity servers, all of the networked Cisco Unity servers that you configure as originating locations for cross-server sign-in must be configured to be in the same dialing domain as the Cisco Unity site gateway. The dialing domain is configured on the Network > Primary Location > Profile page in the Cisco Unity Administrator.

Task List for Enabling Cross-Server Sign-In

Whether you are configuring a single Unity Connection site, an organization that contains two Unity Connection sites, or an organization that contains a Unity Connection site and a Cisco Unity site, the same basic set of tasks applies. Use the following task list to enable cross-server sign-in. The cross references take you to detailed procedures.

1. Determine which locations are originating locations and which are the receiving locations for cross-server sign-in. Often a single location is designated as the originating location that all users call into from outside the organization, and all other location are designated as receiving locations; however, this does not have to be the case. A single location also may be both an originating location and a receiving location.
2. For each originating location, make a list of the phone numbers that the location must dial to reach the receiving location servers.



Note You can enter only one dial string for each receiving location. If the originating location is configured for multiple phone system integrations, you need a dial string that all phone system integrations can use to reach the receiving location.

3. Configure each receiving location so that it can handle incoming cross-server handoff requests.
 - If the receiving location is a Cisco Unity Connection server, see the [“Configuring a Unity Connection Receiving Location to Accept Cross-Server Handoff Requests”](#) section on page 6-5.
 - If the receiving location is a Cisco Unity server, see the [“Verifying a Receiving Cisco Unity Location Routes Calls to the Opening Greeting”](#) section on page 6-5.
4. If Cisco Unity Connection locations receive cross-server handoff requests from Cisco Unity servers, configure the Unity Connection locations to allow cross-server DTMF sequences that begin with #. See the [“Configuring a Unity Connection Receiving Location to Allow Cross-Server DTMF Sequences from Cisco Unity Locations”](#) section on page 6-6.
5. For each originating location, enable the cross-server sign-in feature and enter the pilot numbers of the receiving locations from the list that you created in Task 2.
 - If the location is a Cisco Unity Connection server, see the [“Configuring a Unity Connection Originating Location to Perform Cross-Server Sign-In Requests”](#) section on page 6-7.
 - If the location is a Cisco Unity server, see the [“Configuring a Cisco Unity Originating Location to Perform Cross-Server Sign-In Requests”](#) section on page 6-8.
6. Test the cross-server sign-in functionality. See the [“Testing Cross-Server Sign-In”](#) section on page 6-8.

Configuring a Unity Connection Receiving Location to Accept Cross-Server Handoff Requests

By default, each Unity Connection server is configured to ignore cross-server handoff requests. To enable cross-server features, you must configure the receiving location to accept requests and also verify that the location routes incoming cross-server calls to a call handler. Following are the procedures to configure each receiving Unity Connection location to accept handoffs:

- [To Configure a Unity Connection Receiving Location to Accept Cross-Server Handoff Requests, page 6-5](#)
- [To Verify Call Routing Rules are Set to Route Calls to a Call Handler Greeting, page 6-5](#)

To Configure a Unity Connection Receiving Location to Accept Cross-Server Handoff Requests

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- Step 1** In Cisco Unity Connection Administration, on a location that accepts cross-server handoffs for users who are homed on that location (the receiving location), expand **System Settings > Advanced** and select **Conversations**.
- Step 2** Check the **Respond to Cross-Server Handoff Requests** check box.
- Step 3** Repeat the procedure on all remaining Unity Connection receiving locations.
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To Verify Call Routing Rules are Set to Route Calls to a Call Handler Greeting

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- Step 1** In Cisco Unity Connection Administration, on a location that accepts cross-server handoffs, expand **Call Management > Call Routing** and select **Direct Routing Rules**.
- Step 2** Select the display name of the routing rule that applies to incoming cross-server calls from originating locations.
- Step 3** Verify that calls that match the rule are routed to a call handler.
- Step 4** Repeat the procedure on all remaining Unity Connection receiving locations.
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Verifying a Receiving Cisco Unity Location Routes Calls to the Opening Greeting

In order to accept cross-server handoff requests, each Cisco Unity server must be configured to route calls to the Opening Greeting call handler. (This is the default when Cisco Unity is initially installed.)



Note For failover systems, do the procedure on both the primary and secondary servers.

To Verify That Call Routing Rules Are Set to Route Calls to the Opening Greeting

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- Step 1** In the Cisco Unity Administrator, on a location that accepts cross-server sign-in handoffs, expand **Call Routing** and select **Direct Calls**.
- Step 2** Verify that incoming cross-server calls from originating locations are routed to the Opening Greeting. The Default Call Handler routing rule (which cannot be deleted or modified) sends calls to the Opening Greeting. Therefore, if you have not added any routing rules, the server is already set to correctly process cross-server calls.

Step 3 Repeat the procedure on all remaining Cisco Unity receiving locations.

Configuring a Unity Connection Receiving Location to Allow Cross-Server DTMF Sequences from Cisco Unity Locations

The sequence of DTMF tones that an originating Cisco Unity location sends to the receiving location begins with # (pound). By default, the Unity Connection opening greeting and other call handlers are configured to ignore any additional caller input following a # key. In such a configuration, all cross-server handoffs fail.

You have a couple of options for changing the behavior on a Unity Connection receiving location so that cross-server handoffs are performed successfully:

- Change the opening greeting (or other existing call handler that receives the cross-server handoff calls based on your routing rule configuration) to allow additional input following a # key.
- Create a new call handler and direct-call routing rule specifically to handle cross-server calls. The new call handler must allow additional input after the # key. The direct call routing rule should route calls to the new call handler based on criteria that apply to cross-server calls—the calling number of any originating Cisco Unity location, for example, or the cross-server dial string that the originating locations dial to reach the receiving location. (If you do not want other calls to match the routing rule, select criteria that are unique to cross-server calls.)

Do the following procedure on each Unity Connection receiving location to configure the opening greeting or other call handler to allow additional input after the # key, and, optionally, to create a new direct-call routing rule.

To Configure a Unity Connection Receiving Location to Allow Cross-Server DTMF Sequences from Cisco Unity Locations

- Step 1** Sign in to Cisco Unity Connection Administration for a location that accept cross-server sign-in handoffs. Expand **Call Management** and select **System Call Handlers**.
- Step 2** On the Search Call Handlers page, you can do either of the following:
- Select the display name of the opening greeting or other call handler that you want to modify. Skip to [Step 6](#).
 - Select **Add New** to create a new call handler specifically for cross-server calls. See the [Step 3](#).
- Step 3** On the New Call Handler page, enter basic settings, as applicable. (For more information on each field, see [Help > This Page](#)).
- Step 4** To configure the call handler to accept the cross-server DTMF sequence:
- a. In the **Edit** menu, select **Caller Input**.
 - b. On the Caller Input page, select # and uncheck the **Ignore Additional Input** check box.
 - c. Select **Save**.
- Step 5** Create a new Direct Call Routing Rule to send calls from the Cisco Unity servers to the call handler:
- a. Expand **Call Management > Call Routing** and select **Direct Routing Rules**.
 - b. On the Direct Routing Rules page, select **Add New**.
 - c. On the New Direct Rule page, enter the name of the new rule in the **Display Name** field and select **Save**.

- d. On the Edit Direct Rule page, for the **Send Call To** field, select **Call Handler** and the name of the call handler you added in [Step 2](#).
- e. Select **Save**.
- f. Under **Routing Rule Conditions**, select **Add New**.
- g. Configure the routing rule condition to match cross-server calls from Cisco Unity servers. For example, use the **Calling Number** field to match the phone numbers of the Cisco Unity ports that answer user calls.
- h. Select **Save**.
- i. On the Edit menu, select **Edit Direct Routing Rule**.
- j. Repeat [f.](#) through [i.](#) for each additional number or number pattern that you need to match cross-server calls.

Step 6 Repeat the procedure on all remaining Unity Connection receiving locations.

Configuring a Unity Connection Originating Location to Perform Cross-Server Sign-In Requests

By default, a Unity Connection location does not attempt to perform a cross-server sign-in for users homed on any other locations.

To Configure a Unity Connection Originating Location to Perform Cross-Server Sign-In Requests

- Step 1** In Cisco Unity Connection Administration, on a location that handles sign-in calls from remote users (the originating location), expand **Networking** and select **Locations**.
- Step 2** On the Search Locations page, select the **Display Name** of a remote location that accepts cross-server sign-in requests for users homed on this location (or the receiving location).
- Step 3** On the Edit Location page for the receiving location, initiate cross-server features to the receiving location:
 - a. To enable cross-server sign-in to the remote location, check the **Allow Cross-Server Sign-In to this Remote Location** check box.
 - b. Enter the dial string that this location uses to call the receiving location when performing the handoff (for example, the pilot number of the home server).



Note You can enter only one dial string for each receiving location. If the originating location is configured for multiple phone system integrations, enter a dial string that all phone system integrations can use to reach the receiving location.

- Step 4** Repeat [Step 2](#) and [Step 3](#) to configure each receiving location that accepts cross-server sign-in handoffs from this location.



Tip After you have saved the changes on a page, use the **Next** and **Previous** buttons to quickly navigate through each location in the organization.

- Step 5** Repeat the procedure on all remaining Unity Connection originating locations.
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Configuring a Cisco Unity Originating Location to Perform Cross-Server Sign-In Requests

By default, a Cisco Unity originating location do not attempt to perform a cross-server sign-in for users homed on any other locations. Do the following procedure to enable cross-server sign-in on any Cisco Unity originating locations.



Note

If the system is using failover, do the procedure on both the primary and secondary server, because most of the settings on the Network > Dialing Domain Options page are stored in the registry. (Registry settings are not replicated to the secondary server.)

To Configure a Cisco Unity Originating Location to Perform Cross-Server Sign-In Requests

Step 1 In the Cisco Unity Administrator, expand **Network** and select **Dialing Domain Options**.



Note

If the Dialing Domain Options link is unavailable on the system, you must first configure the dialing domain on the Primary Location Settings page in the Cisco Unity Administrator.

Step 2 In the Cross Server Logon section, select the **Subscribers Dial the Same Number to Log On to Cisco Unity** check box.

Step 3 In the **Pilot Numbers for Cross-Server Logon, Transfer, and Live Reply** section, enter the pilot number in the **Dial String** field for each server that is displayed in the table. (Note that the pilot numbers that you enter are stored in the SQL Server database UnityDb on the Cisco Unity server. Therefore, if the system is using failover, the pilot numbers are replicated to the secondary server.)

Step 4 Check the **Play Prompt During Cross-Server Logon, Transfer, and Live Reply so That Callers Know Something Is Happening** check box. Although playing the “One moment please” prompt is optional, you must check the check box because the cross-server process can take several seconds before the receiving server prompts users to enter their passwords.

Step 5 Select **Save**.

Step 6 Repeat the procedure on all remaining Cisco Unity originating locations.

Testing Cross-Server Sign-In

You must test cross-server sign-in before allowing users to use the feature. For failover systems, first test that the primary destination servers answer cross-server calls. Then manually fail over the destination servers to verify that the secondary server answers cross-server calls. If the destination servers are properly configured for failover, the secondary server should answer cross-server calls when the primary server is unavailable.

To Test Cross-Server Sign-In

Step 1 Create a new user account (or use an existing account) on each of the destination servers for testing purposes. Be sure to verify that the user account information has replicated to all of the servers that you are testing. The time that it takes for the user data to replicate depends on your network configuration and replication schedule.

- Step 2** For each user account, call the pilot number for the server configured for cross-server sign-in, and attempt to sign in. Verify that:
- The “One moment please” prompt is played (if configured to do so).
 - You successfully sign in.
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Cross-Server Transfers

A cross-server transfer is a special kind of supervised transfer that passes control of a call from the automated attendant or a directory handler to the home server of the called user.

1. A caller calls a Cisco Unity or Unity Connection server on which an audio text application has been configured.
2. The caller does either of the following:
 - In a call handler (such as the opening greeting), enters the extension of a user on another server.
 - In a directory handler, spells the name of a user on another server.
3. The server that is handling the call puts the caller on hold, and calls the home server of the user.
4. When the receiving server answers, the originating server sends a sequence of DTMF tones that identify the call as a cross-server transfer.
5. The receiving server responds with a sequence of DTMF tones.
6. The originating server hands off the call to the receiving server for processing. At this point, the behavior is as though the caller had directly called the automated attendant or directory handler on the receiving server.
7. In case of a video call, when two Unity Connection locations are linked by an intersite, intrasite link, or HTTPS network, then if a user from one Unity Connection location attempts to cross-server transfer, the call is downgraded to audio with respect to supervise transfer.
8. In case of a video call, when two Unity Connection locations are linked by an intersite, intrasite link, or HTTPS network, then if a user from one Unity Connection location attempts to cross-server transfer, the call gets established video only with respect to release to switch.

When cross-server transfers have been configured, user call transfer, call screening, call holding, and announce features are available.

Prerequisites for Enabling Cross-Server Transfers

If your Cisco voicemail organization includes networked Cisco Unity servers:

- All of the Cisco Unity servers that you configure as originating locations for cross-server transfers must be configured to be in the same dialing domain as the Cisco Unity site gateway. The dialing domain is configured on the Network > Primary Location > Profile page in the Cisco Unity Administrator.
- The addressing, directory handler, and automated attendant search scopes for each Cisco Unity server must be set to the dialing domain or global directory. For details, see the “Setting the Addressing, Directory Handler, and Automated Attendant Search Scopes” section in the “Digital Networking” chapter of the applicable *Networking Guide for Cisco Unity*, available at http://www.cisco.com/en/US/products/sw/voicesw/ps2237/products_feature_guides_list.html.

Task List for Enabling Cross-Server Transfers

Whether you are configuring a single Unity Connection site, an organization that contains two Unity Connection sites, or an organization that contains a Unity Connection site and a Cisco Unity site, the same basic set of tasks applies. Use the following task list to enable cross-server transfers. The cross references take you to detailed procedures.

1. Determine whether each location is an originating location, a receiving location, or both.
2. For each originating location, make a list of the phone numbers the location must dial to reach the receiving location servers.



Note You can enter only one dial string for each receiving location. If the originating location is configured for multiple phone system integrations, you need a dial string that all phone system integrations can use to reach the receiving location.

3. Configure each receiving location so that it can handle incoming cross-server handoff requests.
 - If the receiving location is a Unity Connection server, see the [“Configuring a Unity Connection Receiving Location to Accept Cross-Server Handoff Requests”](#) section on page 6-11.
 - If the receiving location is a Cisco Unity server, see the [“Verifying a Receiving Cisco Unity Location Routes Calls to the Opening Greeting”](#) section on page 6-12.
4. If Unity Connection locations receives cross-server handoff requests from Cisco Unity servers, configure the Unity Connection locations to allow cross-server DTMF sequences that begin with #. See the [“Configuring a Unity Connection Receiving Location to Accept Cross-Server Handoff Requests”](#) section on page 6-5.
5. For each originating location, enable the cross-server transfer feature and enter the pilot numbers of the receiving locations from the list that you created in Task 2.
 - If the location is a Unity Connection server, see the [“Configuring Unity Connection Originating Location to Perform Cross-Server Transfer Requests”](#) section on page 6-14.
 - If the location is a Cisco Unity server, see the [“Configuring a Cisco Unity Originating Location to Perform Cross-Server Transfer Requests”](#) section on page 6-14.
6. Test the cross-server transfer functionality. See the [“Testing Cross-Server Transfer”](#) section on page 6-15.

Configuring Cross-Server Transfers during Call Forward to Cisco Unity Connection

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To Configure Cross-Server Transfers during call forward to Cisco Unity Connection through CLI Commands

Step 1 To view the configuration of cross-server transfers during call forward, execute the following command:

```
run cuc dbquery unitydirdb select fullname,name,parentid,valuebool,value from vw_Configuration where name like 'HandoffForwardRemoteForward'
```

If the command results a configured table entry, it means the feature is configured on Cisco Unity Connection. Otherwise, go to [Step 2](#) to create a configuration entry.

In configured table entry, check the value of “valuebool” parameter. If valuebool is one, it means the feature is enabled for Cisco Unity Connection. Otherwise, go to [Step 3](#) to enable the feature.

Step 2 (Applicable for Unity Connection 10.5(2) SU7 and earlier releases) Create the configuration entry using the following command:

```
run cuc dbquery unitydirdb execute procedure
csp_ConfigurationCreate(pName='HandoffForwardRemoteForward'::lvarchar,
pParentFullName='System.Conversations.CrossBox'::lvarchar, pType=11, pValueBool=0,
pRequiresRestart=1)
```

Step 3 Enable the cross-server transfers during call forward using the following command:

```
run cuc dbquery unitydirdb execute procedure
csp_ConfigurationModify(pName='HandoffForwardRemoteForward'::lvarchar,
pParentFullName='System.Conversations.CrossBox'::lvarchar, pValueBool=1)
```

Step 4 Disable the cross-server transfers during call forward using the following command:

```
run cuc dbquery unitydirdb execute procedure
csp_ConfigurationModify(pName='HandoffForwardRemoteForward'::lvarchar,
pParentFullName='System.Conversations.CrossBox'::lvarchar, pValueBool=0)
```



Note

- In case of a cluster, execute the commands only on publisher server and make sure that database replication is working fine for the cluster.
- Service restart is not required after executing the above commands



Note

With Unity Connection 10.5(2) SU8 and later, you can also enable the cross-server transfers during call forward through Cisco Unity Connection Administration. To enable the feature, navigate **System Setting > Advanced > Conversations** and check the **Cisco Unity Cross-Server Handoff During Call Forward** check box on Conversation Configuration page of Cisco Unity Connection Administration.

Configuring a Unity Connection Receiving Location to Accept Cross-Server Handoff Requests

By default, each Unity Connection server is configured to ignore cross-server handoff requests. To enable cross-server features, you must configure the receiving location to accept requests and also verify that the location routes incoming calls to a call handler. Following are the procedures to configure each receiving Unity Connection location to accept handoffs:

- [To Configure a Unity Connection Receiving Location to Accept Cross-Server Handoff Requests, page 6-11](#)
- [To Verify Call Routing Rules are Set to Route Calls to a Call Handler Greeting, page 6-12](#)

To Configure a Unity Connection Receiving Location to Accept Cross-Server Handoff Requests

Step 1 Sign in to Cisco Unity Connection Administration for a location that accepts cross-server handoffs for users homed on that location (the receiving location). Expand **System Settings > Advanced** and select **Conversations**.

Step 2 Check the **Respond to Cross-Server Handoff Requests** check box.

Step 3 Repeat the procedure on all remaining Unity Connection receiving locations.

To Verify Call Routing Rules are Set to Route Calls to a Call Handler Greeting

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- Step 1** Sign in to Cisco Unity Connection Administration for a location that accepts cross-server handoffs. Expand **Call Management > Call Routing** and select **Direct Routing Rules**.
 - Step 2** Select the display name of the routing rule that applies to incoming cross-server calls from originating locations.
 - Step 3** Verify that calls that match the rule are routed to a call handler.
 - Step 4** Repeat the procedure on all remaining Unity Connection receiving locations.
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Verifying a Receiving Cisco Unity Location Routes Calls to the Opening Greeting

In order to accept cross-server handoff requests, each Cisco Unity server must be configured to route calls to the opening greeting call handler. (This is the default when Cisco Unity is initially installed.) Do the following procedure on each of the receiving Cisco Unity servers to verify that the call routing rules are set properly to accept handoffs.



Note For failover systems, do the procedure on both the primary and secondary servers.

To Verify Call Routing Rules are Set to Route Calls to the Opening Greeting

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- Step 1** Sign in to Cisco Unity Administrator for a location that accepts cross-server transfer handoffs. Expand **Call Routing > Direct Calls**.
 - Step 2** Verify that incoming cross-server calls from originating locations are routed to the Opening Greeting. The Default Call Handler routing rule (which cannot be deleted or modified) sends calls to the Opening Greeting. Therefore, if you have not added any routing rules, the server is already set to correctly process cross-server calls.
 - Step 3** Repeat the procedure on all remaining Cisco Unity receiving locations.
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Configuring a Unity Connection Receiving Location to Allow Cross-Server DTMF Sequences from Cisco Unity Locations

The sequence of DTMF tones that an originating Cisco Unity location sends to the receiving location begins with # (pound). By default, the Unity Connection opening greeting and other call handlers are configured to ignore any additional caller input following a # key. In such a configuration, all cross-server handoffs fail.

You have a couple of options for changing the behavior on a Unity Connection receiving location so that cross-server handoffs are performed successfully:

- Change the opening greeting (or other existing call handler that receives the cross-server handoff calls based on your routing rule configuration) to allow additional input.

- Create a new call handler and direct-call routing rule specifically to handle cross-server calls. The direct call routing rule should route calls to the new call handler based on criteria that apply to cross-server calls—the calling number of any originating Cisco Unity location, for example, or the cross-server dial string that the originating locations dial to reach the receiving location. (If you do not want other calls to match the routing rule, select criteria that are unique to cross-server calls.)

Do the following procedure on each Unity Connection receiving location to configure the opening greeting or other call handler to allow additional input after the # key, and, optionally, to create a new direct-call routing rule.

To Configure a Unity Connection Receiving Location to Allow Cross-Server DTMF Sequences from Cisco Unity Locations

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- Step 1** Sign in to Cisco Unity Connection Administration for a location that accepts cross-server transfer handoffs. Expand **Call Management** and select **System Call Handlers**.
- Step 2** On the Search Call Handlers page, select the display name of the opening greeting or other call handler that you want to modify, or select **Add New** to create a new call handler specifically for cross-server calls.
- Step 3** If you did not create a new call handler in [Step 2](#), skip to [Step 6](#). If you created a new call handler in [Step 2](#), on the New Call Handler page, enter basic settings, as applicable. (For field information, on the Help menu, select **This Page**.)
- Step 4** To configure the call handler to accept the cross-server DTMF sequence, do the following substeps:
- a. On the Edit menu, select **Caller Input**.
 - b. On the Caller Input page, select #.
 - c. Uncheck the **Ignore Additional Input** check box.
 - d. Select **Save**.
- Step 5** If you created a new call handler in [Step 2](#), create a new direct-call routing rule to send calls from the Cisco Unity servers to the call handler for processing:
- a. Expand **Call Management > Call Routing**, then select **Direct Routing Rules**.
 - b. On the Direct Routing Rules page, select **Add New**.
 - c. On the New Direct Rule page, enter the name of the new rule in the Display Name field.
 - d. Select **Save**.
 - e. On the Edit Direct Rule page, for Send Call To, select **Call Handler**, then select the name of the call handler you added in [Step 2](#).
 - f. Select **Save**.
 - g. Under Routing Rule Conditions, select **Add New**.
 - h. Configure the routing rule condition to match cross-server calls from Cisco Unity servers. For example, use the **Calling Number** field to match the phone numbers of the Cisco Unity ports that answer user calls.
 - i. Select **Save**.
 - j. On the Edit menu, select **Edit Direct Routing Rule**.
 - k. Repeat [g.](#) through [j.](#) for each additional number or number pattern that you need to match cross-server calls.

- Step 6** Repeat the procedure on all remaining Unity Connection receiving locations.
-

Configuring Unity Connection Originating Location to Perform Cross-Server Transfer Requests

By default, a Unity Connection location do not attempt to perform a cross-server transfer. Note that when you enable cross-server transfers on Unity Connection, cross-server live reply is automatically enabled. Do the following procedure to enable cross-server transfer and live reply on any Unity Connection originating locations.

To Configure a Unity Connection Originating Location to Perform Cross-Server Transfer and Live Reply Handoff Requests

- Step 1** In Cisco Unity Connection Administration, on a location that transfers calls to remote users (the originating location), expand **Networking** and select **Locations**.
- Step 2** On the Search Locations page, select the **Display Name** of a remote location that accepts cross-server transfer handoffs for users who are homed on this location (the receiving location).
- Step 3** On the Edit Location page for the receiving location, do the following to initiate cross-server features to this receiving location:
- a. To enable cross-server transfer and live reply to the remote location, check the **Allow Cross-Server Transfer to this Remote Location** check box.
 - b. Enter the dial string that this location uses to call the receiving location when performing the handoff (for example, the pilot number of the receiving location).



Note You can enter only one dial string for each receiving location. If the originating location is configured for multiple phone system integrations, enter a dial string that all phone system integrations can use to reach the receiving location.

- Step 4** Repeat [Step 2](#) and [Step 3](#) for each receiving location that accepts cross-server transfer handoffs from this location.



Tip After you have saved the changes on a page, use the **Next** and **Previous** buttons to quickly navigate through each location in the organization.

- Step 5** Repeat the procedure on all remaining Unity Connection originating locations.
-

Configuring a Cisco Unity Originating Location to Perform Cross-Server Transfer Requests

By default, a Cisco Unity originating location do not attempt to perform cross-server transfers to any other locations. Do the following procedure to enable cross-server transfers on any Cisco Unity originating locations.

**Note**

If the system is using failover, do the following procedure on both the primary and secondary server, because most of the settings on the Network > Dialing Domain Options page are stored in the registry. (Registry settings are not replicated to the secondary server.)

To Configure a Cisco Unity Originating Location to Perform Cross-Server Transfer Requests

Step 1 In the Cisco Unity Administrator, go to the **Network > Dialing Domain Options** page.

**Note**

If the Dialing Domain Options link is unavailable on the system, you must configure the dialing domain on the Primary Location Settings page in the Cisco Unity Administrator.

Step 2 Select the **Cross-server Transfer: Pass Control to the Called Subscriber's Cisco Unity Server** check box. (Selecting **Release Calls to the Phone System** disables cross-server transfers originating from this server. Instead of handing off calls to the home server of the user, Cisco Unity attempts a release transfer to the Cross-Server Transfer Extension configured for the user. This fails if a Unity Connection user does not have a Cross-Server Transfer Extension configured.)

Step 3 In the **Pilot Numbers for Cross-Server Logon, Transfer, and Live Reply** section, enter the pilot number in the **Dial String** field for each server displayed in the table. (Note that the pilot numbers that you enter are stored in the SQL Server database UnityDb on the Cisco Unity server. Therefore, if the system is using failover, the pilot numbers are replicated to the secondary server.)

Step 4 Select the **Play Prompt During Cross-Server Logon, Transfer, and Live Reply so That Callers Know Something Is Happening** check box. Although playing the “One moment please” prompt is optional, you should check the check box because the cross-server process can take several seconds before the caller is transferred.

Step 5 Select **Save**.

Step 6 Repeat the procedure on all remaining Cisco Unity originating locations.

Testing Cross-Server Transfer

You should test the cross-server transfers before allowing callers to use the feature. For failover systems, first test that the primary destination servers answer cross-server calls. Then manually fail over the destination servers to verify that the secondary server answers cross-server calls. If the destination servers are properly configured for failover, the secondary server should answer cross-server calls when the primary server is unavailable.

To Test Cross-Server Transfer

Step 1 Create a new user account (or use an existing account) on each of the destination servers for testing purposes. Be sure to verify that the user account information has replicated to all of the servers that you are testing. The time that it takes for the user data to replicate depends on your network configuration and replication schedule.

Step 2 For each user account, call the pilot number for the server configured for cross-server transfer, and enter the user extension at the opening greeting. Verify that:

- The “One moment please” prompt is played (if configured to do so).

- The call is transferred to the user phone or the greeting, according to the call transfer settings of the called user.
-

Cross-Server Live Reply

Live reply, when enabled, allows a user who is listening to messages by phone to reply to a message from another user by transferring to the user. Note that whether users have access to live reply is controlled by the class of service.

When cross-server live reply is enabled:

1. After listening to a message from a user on another networked location, the message recipient selects to call the user who left the message.

Note that if identified subscriber messaging (ISM) is disabled on the location that recorded the message, the cross-server live reply option is only available for messages that are sent by users who sign in and address and send the message from their mailboxes.

2. The originating location puts the user on hold and looks up the extension in the database to determine whether the user who is being replied to is on the same server or is on another networked location. If the user is on the same server, processing proceeds as usual.

However, if the user who is being replied to is on another location, the originating location calls the applicable receiving location.

3. When the receiving location answers, the originating location sends a sequence of DTMF tones that identify the call as a cross-server live reply.
4. The receiving location responds with a sequence of DTMF tones.
5. The originating location hands off the call to the receiving location for processing.

Prerequisites: Enabling Cross-Server Live Reply

- If your Cisco Voicemail Organization includes networked Cisco Unity servers:
 - All of the Cisco Unity servers that you configure as originating locations for cross-server live reply must be configured to be in the same dialing domain as the Cisco Unity site gateway. The dialing domain is configured on the Network > Primary Location > Profile page in the Cisco Unity Administrator.
 - Users must belong to a class of service for which live reply between users is enabled. For Cisco Unity users, live reply between users is enabled on the Subscribers > Class of Service > Messages page in the Cisco Unity Administrator, by checking the **Subscribers Can Reply to Messages from Other Subscribers by Calling Them** check box.
 - For cross-server live reply to be available to messages that were sent when the sender called the recipient from a recognized phone number and was forwarded to Cisco Unity, identified subscriber messaging must be set up between networked Cisco Unity servers and extended to include Unity Connection Networking subscribers. For instructions, see the [“Extending Cisco Unity Identified Subscriber Messaging to Include Unity Connection Networking Subscribers”](#) section on page 3-17.

- Users must belong to a class of service for which live reply between users is enabled. For Cisco Unity Connection users, live reply between users is enabled on the Class of Service > Edit Class of Service page in Cisco Unity Connection Administration, by selecting the **Users Can Reply to Messages from Other Users by Calling Them** check box.

Task List for Enabling Cross-Server Live Reply

**Note**

In Unity Connection, cross-server live reply is automatically supported (for users whose class of service allows it) when cross-server transfer is enabled. If you have previously configured a Unity Connection location as an originating or receiving location for cross-server transfers, the location also originates or receives cross-server live reply requests.

Use the following task list to enable cross-server live reply between Cisco Unity and Unity Connection sites, or to enable cross-server transfers and live reply between Unity Connection locations (either in a single site or between two Unity Connection sites). The cross references take you to detailed procedures.

1. Determine whether each location is an originating location, a receiving location, or both.
2. For each originating location, make a list of the phone numbers the location must dial to reach the receiving location servers.

**Note**

You can enter only one dial string for each receiving location. If the originating location is configured for multiple phone system integrations, you need a dial string that all phone system integrations can use to reach the receiving location.

3. Configure each receiving location so that it can handle incoming cross-server handoff requests.
 - If the receiving location is a Cisco Unity Connection server, see the [“Configuring a Unity Connection Receiving Location to Allow Cross-Server DTMF Sequences from Cisco Unity Locations”](#) section on page 6-6.
 - If the receiving location is a Cisco Unity server, see the [“Verifying That a Receiving Cisco Unity Location Routes Calls to the Opening Greeting”](#) section on page 6-18.
4. If Unity Connection locations receive cross-server handoff requests from Cisco Unity servers, configure the Unity Connection locations to allow cross-server DTMF sequences that begin with #. See the [“Configuring a Unity Connection Originating Location to Perform Cross-Server Sign-In Requests”](#) section on page 6-7.
5. For each originating location, enable the applicable cross-server features and enter the pilot numbers of the receiving locations from the list that you created in Task 2.
 - If the location is a Cisco Unity Connection server, see the [“Configuring a Cisco Unity Originating Location to Perform Cross-Server Sign-In Requests”](#) section on page 6-8.
 - If the location is a Cisco Unity server, see the [“Configuring a Cisco Unity Originating Location to Perform Cross-Server Live Reply Requests”](#) section on page 6-21.
6. Test the cross-server live reply functionality. See the [“Testing Cross-Server Sign-In”](#) section on page 6-8.

Procedures: Enabling Cross-Server Live Reply

Configuring a Unity Connection Receiving Location to Accept Cross-Server Handoff Requests

By default, each Unity Connection server is configured to ignore cross-server handoff requests. To enable cross-server features, you must configure the receiving location to accept requests and also verify that the location routes incoming calls to a call handler. See the following sections:

- [To Configure a Unity Connection Receiving Location to Accept Cross-Server Handoff Requests, page 6-18](#)
- [To Verify Call Routing Rules are Set to Route Calls to a Call Handler Greeting, page 6-18](#)

To Configure a Unity Connection Receiving Location to Accept Cross-Server Handoff Requests

-
- Step 1** In Cisco Unity Connection Administration, on a location that accepts cross-server handoffs for users who are homed on that location (the receiving location), expand **System Settings > Advanced** and select **Conversations**.
- Step 2** Check the **Respond to Cross-Server Handoff Requests** check box.
- Step 3** Repeat the procedure on all remaining Unity Connection receiving locations.
-

To Verify Call Routing Rules are Set to Route Calls to a Call Handler Greeting

-
- Step 1** In Cisco Unity Connection Administration, on a location that accepts cross-server handoffs, expand **Call Management > Call Routing** and select **Direct Routing Rules**.
- Step 2** Select the display name of the routing rule that applies to incoming cross-server calls from originating locations.
- Step 3** Verify that calls that match the rule are routed to a call handler.
- Step 4** Repeat the procedure on all remaining Unity Connection receiving locations.
-

Verifying That a Receiving Cisco Unity Location Routes Calls to the Opening Greeting

In order to accept cross-server handoff requests, each Cisco Unity server must be configured to route calls to the Opening Greeting call handler. (This is the default when Cisco Unity is initially installed.) Do the following procedure on each of the receiving Cisco Unity servers to verify that the call routing rules are set properly to accept handoffs.



Note

For failover systems, do the procedure on both the primary and secondary servers.

To Verify That Call Routing Rules Are Set to Route Calls to the Opening Greeting

-
- Step 1** In the Cisco Unity Administrator, on a location that accepts cross-server live reply handoffs, go to the **Call Routing > Direct Calls** page.
- Step 2** Verify that incoming cross-server calls from originating locations are routed to the Opening Greeting.

The Default Call Handler routing rule (which cannot be deleted or modified) sends calls to the Opening Greeting. Therefore, if you have not added any routing rules, the server is already set to correctly process cross-server calls.

Step 3 Repeat the procedure on all remaining Cisco Unity receiving locations.

Configuring a Unity Connection Receiving Location to Allow Cross-Server DTMF Sequences from Cisco Unity Locations

The sequence of DTMF tones that an originating Cisco Unity location sends to the receiving location begins with # (pound) and includes a second tone that distinguishes the type of handoff (sign-in, transfer, or live reply). By default, the Unity Connection opening greeting and other call handlers are configured to ignore any additional caller input following a # key. In such a configuration, all cross-server handoffs fail.

You have a couple of options for changing the behavior on a Unity Connection receiving location so that cross-server handoffs are performed successfully:

- Change the opening greeting (or other existing call handler that receive the cross-server handoff calls based on your routing rule configuration) to allow additional input.
- Create a new call handler and direct-call routing rule specifically to handle cross-server calls. The direct call routing rule should route calls to the new call handler based on criteria that apply to cross-server calls—the calling number of any originating Cisco Unity location, for example, or the cross-server dial string that the originating locations dial to reach the receiving location. (If you do not want other calls to match the routing rule, select criteria that are unique to cross-server calls.)

Do the following procedure on each Unity Connection receiving location to configure the opening greeting or other call handler to allow additional input after the # key, and, optionally, to create a new direct-call routing rule.

To Configure a Unity Connection Receiving Location to Allow Cross-Server DTMF Sequences from Cisco Unity Locations

- Step 1** In Cisco Unity Connection Administration, on a location that accepts cross-server sign-in handoffs, expand **Call Management** and select **System Call Handlers**.
- Step 2** On the Search Call Handlers page, select the display name of the opening greeting or other call handler that you want to modify, or select **Add New** to create a new call handler specifically for cross-server calls.
- Step 3** If you did not create a new call handler in [Step 2](#), skip to [Step 6](#). If you created a new call handler in [Step 2](#), on the New Call Handler page, enter basic settings, as applicable. (For field information, on the Help menu, select **This Page**.)
- Step 4** To configure the call handler to accept the cross-server DTMF sequence, do the following substeps:
- a. In the **Edit** menu, select **Caller Input**.
 - b. On the Caller Input page, select #.
 - c. Uncheck the **Ignore Additional Input** check box and select **Save**.
- Step 5** If you created a new call handler in [Step 2](#), create a new direct-call routing rule to send calls from the Cisco Unity servers to the call handler for processing:
- a. Expand **Call Management > Call Routing** and select **Direct Routing Rules**.

- b. On the Direct Routing Rules page, select **Add New**.
- c. On the New Direct Rule page, enter the name of the new rule in the **Display Name** field.
- d. Select **Save**.
- e. On the Edit Direct Rule page, for **Send Call To**, select **Call Handler**, then select the name of the call handler you added in [Step 2](#).
- f. Select **Save**.
- g. Under Routing Rule Conditions, select **Add New**.
- h. Configure the routing rule condition to match cross-server calls from Cisco Unity servers. For example, use the **Calling Number** field to match the phone numbers of the Cisco Unity ports that answer user calls and select **Save**.
- i. On the Edit menu, select **Edit Direct Routing Rule**.
- j. Repeat [g.](#) through [i.](#) for each additional number or number pattern that you need to match cross-server calls.

Step 6 Repeat the procedure on all remaining Unity Connection receiving locations.

Configuring a Unity Connection Originating Location to Perform Cross-Server Live Reply and Transfer Requests

By default, a Unity Connection location do not attempt to perform a cross-server live reply. Note that when you enable cross-server live reply on Unity Connection, cross-server transfer is automatically enabled. Do the following procedure to enable cross-server transfer and live reply in on any Unity Connection originating locations.

To Configure a Cisco Unity Connection Originating Location to Perform Cross-Server Live Reply and Transfer Handoff Requests

- Step 1** In Cisco Unity Connection Administration, on a location that transfers calls to remote users (the originating location), expand **Networking** and select **Locations**.
- Step 2** On the Search Locations page, select the **Display Name** of a remote location that accepts cross-server live reply and transfer handoffs for users who are homed on this location (the receiving location).
- Step 3** On the Edit Location page for the receiving location, do the following to initiate cross-server features to this receiving location:
 - a. To enable cross-server transfer and live reply to the remote location, check the **Allow Cross-Server Transfer to this Remote Location** check box.
 - b. Enter the dial string that this location uses to call the receiving location when performing the handoff (for example, the pilot number of the receiving location).



Note You can enter only one dial string for each receiving location. If the originating location is configured for multiple phone system integrations, enter a dial string that all phone system integrations can use to reach the receiving location.

- Step 4** Repeat [Step 2](#) and [Step 3](#) for each receiving location that accepts cross-server transfer handoffs from this location.



Tip After you have saved the changes on a page, use the **Next** and **Previous** buttons to quickly navigate through each location in the organization.

Step 5 Repeat the procedure on all remaining Unity Connection originating locations.

Configuring a Cisco Unity Originating Location to Perform Cross-Server Live Reply Requests

By default, a Cisco Unity originating location do not attempt to perform a cross-server live reply to any other locations. Do the following procedure to enable cross-server live reply on any Cisco Unity originating locations.



Note If the system is using failover, do the following procedure on both the primary and secondary server, because most of the settings on the Network > Dialing Domain Options page are stored in the registry. (Registry settings are not replicated to the secondary server.)

To Configure a Cisco Unity Originating Location to Perform Cross-Server Live Reply Requests

Step 1 In the Cisco Unity Administrator, expand **Network** and select **Dialing Domain Options** page.



Note If the Dialing Domain Options link is unavailable on the system, you must configure the dialing domain on the Primary Location Settings page in the Cisco Unity Administrator.

Step 2 In the Live Reply section, select the **Subscribers with Class of Service Rights Can Reply to Messages from Subscribers Homed on Other Cisco Unity Servers by Calling Them** check box, then select **Cross-Server Live Reply: Pass Control to the Called Subscriber's Cisco Unity Server**. (Selecting Release Calls to the Phone System disables cross-server transfers originating from this server. Instead of handing off calls to the home server of the user, Cisco Unity attempts a release transfer to the Cross-Server Transfer Extension configured for the user. This fails if a Unity Connection user does not have a Cross-Server Transfer Extension configured.)

Step 3 In the **Pilot Numbers for Cross-Server Logon, Transfer, and Live Reply** section, enter the pilot number in the **Dial String** field for each server displayed in the table. (Note that the pilot numbers that you enter are stored in the SQL Server database UnityDb on the Cisco Unity server. Therefore, if the system is using failover, the pilot numbers are replicated to the secondary server.)

Step 4 Select the **Play Prompt During Cross-Server Logon, Transfer, and Live Reply so That Callers Know Something Is Happening** check box. Although playing the “One moment please” prompt is optional, you should check the check box because the cross-server process can take several seconds before the caller is transferred.

Step 5 Select **Save**.

Step 6 Repeat the procedure on all remaining Unity Connection originating locations.

Testing Cross-Server Live Reply

You should test the cross-server live reply before allowing callers to use the feature.

For failover systems, first test that the primary destination servers answer cross-server calls. Then manually fail over the destination servers to verify that the secondary server answers cross-server calls. If the destination servers are properly configured for failover, the secondary server should answer cross-server calls when the primary server is unavailable.

To Test Cross-Server Live Reply

-
- Step 1** Create a new user account (or use an existing account) on each location for testing purposes. Verify that users belong to a class of service in which live reply is enabled. Also verify that the user account information has replicated to all of the servers that you are testing. The time that it takes for the user data to replicate depends on your network configuration and replication schedule.
- Step 2** Sign in as a user on an originating location and send a message to the test users on other locations.
- Step 3** For each user that receives the test message, sign in, listen to the message, and select to call the sender. Verify that:
- The “One moment please” prompt is played (if configured to do so).
 - The call is transferred to the user phone or the greeting, according to the call transfer settings of the called user.
-

Notable Behavior for Cross-Server Sign-In, Transfers, and Live Reply

This section provides information about notable expected behavior associated with cross server sign-in, transfers and live reply.

See the following sections:

- [Cross-Server Sign-In Not Providing User Workstation Client Sign-In Access, page 6-22](#)
- [Users Prompted for a Password During Cross-Server Sign-In Between Unity Connection and Cisco Unity, page 6-23](#)
- [Factors Causing Delays During Cross-Server Handoff, page 6-23](#)
- [Increased Port Usage with Cross-Server Features, page 6-23](#)
- [Transfer Overrides on Cross-Server Transfers, page 6-24](#)
- [Using Cross-Server Features with Display Original Calling Number on Transfer Parameter, page 6-24](#)

Cross-Server Sign-In Not Providing User Workstation Client Sign-In Access

Users must access their home server (or cluster) when using client applications such as the Cisco Personal Communications Assistant (Cisco PCA) and IMAP clients. The phone interface is the only client that provides cross-server sign-in capability.

Users Prompted for a Password During Cross-Server Sign-In Between Unity Connection and Cisco Unity

When a Unity Connection user calls a Cisco Unity location from a known extension and is transferred to the home location using cross-server sign-in, the receiving Unity Connection location can identify the user but does not recognize that the user is calling from a known extension. For this reason, the user is always prompted for a password, regardless of whether the **Skip Password When Calling From a Known Extension** setting is selected on the System Settings > Advanced > Conversation page in Cisco Unity Connection Administration.

Likewise, when a Cisco Unity user calls a Unity Connection location from a known extension and is transferred to the home location using cross-server sign-in, the user is always prompted for a password, regardless of whether **Prompt for Phone Password is set to Only When User Calls from an Unknown Extension** (on the Phone Password page for the user).

Factors Causing Delays During Cross-Server Handoff

The following factors can contribute significantly to delays in cross-server call handoff:

- Longer user extensions. A four-digit extension does not take as long to dial during the handoff as a ten-digit extension.
- Longer dialing strings to reach the receiving location. A four-digit dialing string does not take as long to dial as a ten-digit dialing string.
- Multiple elements (such as PIMG/TIMG units, voice gateways, TDM trunks, and PSTN interfaces) in the call path between the originating location and the receiving location. More elements in the call path require more processing time for handing off cross-server calls.

In your environment, these factors can create delays that may cause the cross-server features to be unusable or unfeasible for callers. You must test your cross-server configuration on a representative call path in your environment to determine whether the delays that callers experience are acceptable.

Increased Port Usage with Cross-Server Features

The cross-server features require the use of ports on both the originating and receiving locations. Depending on how busy your servers are, you may need to add more ports or an additional server before enabling these features. You may also need to adjust how ports are configured. For example, you may need to enable more ports to accept incoming calls.

After enabling the cross-server features, you should monitor activity on the servers closely until you are confident that the servers can handle the increased load. For Cisco Unity Connection servers, you can use the Port Activity report in Cisco Unity Connection Serviceability to monitor port usage. For Cisco Unity servers, you can use the Port Usage Analyzer for this task. The Port Usage Analyzer is available in the Report Tools section of Tools Depot. See Port Usage Analyzer Help for detailed instructions. Be sure to also monitor the Windows Event Viewer on any originating and receiving Cisco Unity servers for event log messages related to problems with ports.

Transfer Overrides on Cross-Server Transfers

When a caller enters an extension in the automated attendant followed by the digits “#2,” the caller is routed directly to the greeting for the extension entered without a transfer being attempted. This is known as the transfer override digit sequence.

Unity Connection automatically supports the transfer override sequence between networked locations. For Cisco Unity servers, by default the transfer override digit sequence is ignored when the user who is associated with the extension preceding the “#2” is homed on another server in the dialing domain. If you want to enable the transfer override digit sequence for users who are homed on other locations in the dialing domain, including Unity Connection locations, do the following procedure on each Cisco Unity server that originates the cross-server transfer requests.

To Enable Transfer Override on Cross-Server Transfers from a Cisco Unity Location

-
- Step 1** On the Cisco Unity server desktop, double-click the **Cisco Unity Tools Depot** icon.
 - Step 2** In the left pane, under **Administrative Tools**, double-click **Advanced Settings Tool**.
 - Step 3** In the **Unity Settings** pane, select **Networking—Allow Transfer Override on Cross-Server Transfer Handoff**.
 - Step 4** In the **New Value** list, select **1**, and then select **Set**.
 - Step 5** When prompted, select **OK**.

You do not need to restart the Cisco Unity software or server when you make a change.



Note For Cisco Unity failover, registry changes on one Cisco Unity server must be made manually on the other Cisco Unity server, because registry changes are not replicated.

Using Cross-Server Features with Display Original Calling Number on Transfer Parameter

When Cisco Unity Connection (and/or Cisco Unity) is integrated with Cisco Unified Communications Manager, the Display Original Calling Number on Transfer from Cisco Unity service parameter in Cisco Unified CM can interfere with the cross-server handoff, because the receiving location does not recognize that the incoming cross-server handoff call is from another location.

Do the following tasks so that cross-server handoffs complete properly between locations when this service parameter is set in Cisco Unified CM. In the task list, you create a special directory number for each receiving location that is used only during cross-server handoffs, so that the receiving location recognizes the call as a handoff.

Task List for Configuring a Cross-Server Directory Number for Cross-Server Features

1. In Cisco Unified Communications Manager Administration, create a new directory number (for example, on a CTI route point) for each location that receives cross-server sign-in, transfer, or live reply calls. Configure the new directory number to always forward calls to the pilot number for the

location. See the “Directory Number Configuration” chapter of the applicable *Cisco Unified Communications Manager Administration Guide* for your release of Cisco Unified CM, at http://www.cisco.com/en/US/products/sw/voicesw/ps556/prod_maintenance_guides_list.html.

2. Configure each receiving location with a forwarded call routing rule that sends calls in which the forwarding station equals the location’s new cross-server directory number to the Opening Greeting call handler. See the “Adding Forwarded Call Routing Rules to Destination Locations for Cross-Server Calls” section on page 6-25.
3. Update each originating location to dial the cross-server directory number of the receiving location during cross-server calls, rather than the pilot number. See the “Configuring the Cross-Server Directory Number as the Dial String on Originating Locations” section on page 6-26.

Adding Forwarded Call Routing Rules to Destination Locations for Cross-Server Calls

This section contains two procedures. Do either or both of the procedures, depending on whether you have Cisco Unity Connection and/or Cisco Unity receiving locations:

- [To Add a Forwarded Call Routing Rule to Cisco Unity Connection Receiving Locations, page 6-25](#)
- [To Add a Forwarded Call Routing Rule to Cisco Unity Receiving Locations, page 6-26](#)

To Add a Forwarded Call Routing Rule to Cisco Unity Connection Receiving Locations

-
- Step 1** In Cisco Unity Connection Administration on any one of the Unity Connection receiving locations, create the new forwarded routing rule:
- a. Expand **Call Management > Call Routing** and select **Forwarded Routing Rules**.
 - b. On the Forwarded Routing Rules page, select **Add New**.
 - c. On the New Forwarded Rule page, enter the name of the new rule in the **Display Name** field and select **Save**.
 - d. On the Edit Forwarded Routing Rule page, for Send Call To, select **Call Handler**. From the call handler drop-down list, select **Opening Greeting** and select **Save**.
 - e. On the Edit Forwarded Routing Rule page, under **Routing Rule Conditions**, select **Add New**.
 - f. On the New Forwarded Routing Rule Condition page, select **Forwarding Station**. From the forwarding station drop-down list, select **Equals**. In the text box, enter the new cross-server directory number for this location.
 - g. Select **Save**.
- Step 2** Return to the Forwarded Routing Rules page by selecting **Forwarded Routing Rules > Forwarded Routing Rules**, or by navigating to **Call Management > Call Routing > Forwarded Routing Rules**.
- Step 3** Check the order of forwarded routing rules on the page. If the new routing rule that you created in [Step 1](#) is not at the top of the table (in order of descending precedence) do the following substeps to move the new routing rule to the top of the forwarded routing rules table:
- a. On the Forwarded Routing Rules page, select **Change Order**.
 - b. On the Edit Forwarded Routing Rule Order page, select the **Display Name** of the new routing rule that you created in [Step 1](#).
 - c. Select the up arrow icon below the table to move the rule to the top position. (You may need to select the icon multiple times.)
 - d. Select **Save**.

Step 4 Repeat the procedure for each remaining Unity Connection receiving location.

To Add a Forwarded Call Routing Rule to Cisco Unity Receiving Locations

- Step 1** In the Cisco Unity Administrator on any one of the Cisco Unity receiving locations, create the new forwarded routing rule:
- Navigate to **Call Management > Call Routing**.
 - Select **Forwarded Calls**.
 - Select the **Add** icon.
 - In the **Add a Call Routing Rule** dialog box, enter the name of the new rule in the **Name** field.
 - Select **Add**.
 - In the **Forwarding Station** field, enter the new cross-server directory number for this location.
 - In the Send Call To field, select **Call Handler**. Then, select **Select Call Handler**.
 - In the **Call Handler Selection** box, select the **Opening Greeting** call handler.
 - Select **Save**.
- Step 2** Check the order of forwarded routing rules on the page. If the new routing rule that you created in [Step 1](#) is not at the top of the table (in order of descending precedence) do the following substeps to move the new routing rule to the top of the forwarded routing rules table:
- Select **Change Rule Order**.
 - On the Forwarded Calls Rules Reorganization page, select the **Display Name** of the new routing rule that you created in [Step 1](#).
 - Select **Up** to move the rule to the top position and select **Close**.
- Step 3** Select the **Save** icon.
- Step 4** Repeat the procedure for each remaining Cisco Unity receiving location.
-

Configuring the Cross-Server Directory Number as the Dial String on Originating Locations

Follow either of the given procedures depending whether you have Unity Connection and/or Cisco Unity originating locations:

- [To Configure the Cross-Server Directory Number as the Dial String on Unity Connection Originating Locations, page 6-26](#)
- [To Configure the Cross-Server Directory Number as the Dial String on Cisco Unity Originating Locations, page 6-27](#)

To Configure the Cross-Server Directory Number as the Dial String on Unity Connection Originating Locations

- Step 1** In Cisco Unity Connection Administration, on any one of the Unity Connection locations that originate cross-server calls, expand **Networking** and select **Locations**.
- Step 2** On the Search Locations page, select the **Display Name** of a receiving location.

- Step 3** On the Edit Location page for the receiving location, change the dial string that this location uses to call the receiving location to the new cross-server directory number of the receiving location. Select **Save**.
- Step 4** Repeat [Step 2](#) and [Step 3](#) to configure each receiving location that accepts cross-server handoffs from this location.



Tip After you have saved the changes on a page, use the **Next** and **Previous** buttons to quickly navigate through each location in the organization.

- Step 5** Repeat the procedure on all remaining Unity Connection originating locations.
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To Configure the Cross-Server Directory Number as the Dial String on Cisco Unity Originating Locations

- Step 1** In the Cisco Unity Administrator, expand **Network** and select **Dialing Domain Options**.
- Step 2** In the **Pilot Numbers for Cross-Server Logon, Transfer, and Live Reply** section, enter the new cross-server directory number in the **Dial String** field for each server that is displayed in the table.



Note The numbers that you enter are stored in the SQL Server database UnityDb on the Cisco Unity server. Therefore, if the system is using failover, the numbers are replicated to the secondary server.)

- Step 3** Select **Save** and repeat the procedure on all remaining Cisco Unity originating locations.
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■ Notable Behavior for Cross-Server Sign-In, Transfers, and Live Reply