



CHAPTER 6

Single Inbox in Cisco Unity Connection 9.x

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About Single Inbox for Cisco Unity Connection 9.x

Single inbox, one of the unified messaging features in Cisco Unity Connection, synchronizes voice messages in Connection and Exchange mailboxes. When a user is enabled for single inbox, all Connection voice messages that are sent to the user, including those sent from Cisco Unity Connection ViewMail for Microsoft Outlook, are first stored in Connection and are immediately replicated to the user's Exchange mailbox. In addition, status changes (for example, from unread to read), changes to the subject line, and changes to the priority are replicated from Connection to Exchange and vice versa, as applicable. For a detailed explanation of single inbox functionality, see the "Synchronizing Voice Messages in Connection and Exchange Mailboxes in Cisco Unity Connection (Single Inbox)" section of the ["Configuring Cisco Unity Connection and Microsoft Exchange for Unified Messaging"](#) chapter in the *Unified Messaging Guide for Cisco Unity Connection Release at* http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/unified_messaging/guide/9xcucumgx.html.

For information on configuring single inbox, see the “[Configuring Cisco Unity Connection 9.x and Microsoft Exchange for Unified Messaging](#)” chapter in the *Unified Messaging Guide for Cisco Unity Connection Release* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/unified_messaging/guide/9xcucumgx.html.

For Connection system requirements for single inbox, see the “Unified Messaging Requirements: Synchronizing Connection and Exchange Mailboxes (Single Inbox)” section of *System Requirements for Cisco Unity Connection Release 9.x* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/requirements/9xcucsysreqs.html.

You can configure Connection to synchronize voice messages between Connection mailboxes and the corresponding Office 365 mailboxes. When single inbox is enabled for a user, all voice messages, including those sent from Cisco ViewMail for Microsoft Outlook, are first stored in Connection and are immediately replicated to the Office 365 mailbox for the recipient. Voice messages appear in the Outlook inbox for the user alongside email and faxes, and also appear in the Connection mailbox for the user.

For information on configuring single inbox, see the “[Configuring Cisco Unity Connection 9.x and Microsoft Office 365 for Unified Messaging](#)” chapter in the *Unified Messaging Guide for Cisco Unity Connection Release 9.x* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/unified_messaging/guide/9xcucumgx.html:

The synchronization of voice messages in Connection and Exchange Mailboxes (single inbox) supports both the IPv4 and IPv6 addresses. However, the IPv6 address works only when Connection platform is configured in Dual (IPv4/IPv6) mode. For more information on Configuring IPv6 settings, see Adding or Changing the IPv6 Addresses of Cisco Unity Connection chapter of *Reconfiguration and Upgrade Guide for Cisco Unity Connection* guide at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/upgrade/guide/9xcucrug051.html.

**Note**

Single Inbox over IPv6 is supported only for Exchange 2007, Exchange 2010, and Exchange 2013.

Unified Messaging Services and Unified Messaging Accounts for Cisco Unity Connection 9.x

When you configure unified messaging, including single inbox, you add one or more unified messaging services on each Connection server. Each unified messaging service specifies:

- Which Exchange servers you want to access
- Which unified messaging features you want to enable

When you add unified messaging services, consider the following:

- Settings for unified messaging services allow you either to configure Connection to communicate with a specific Exchange server, or configure Connection to search for Exchange servers. If you have more than a few Exchange servers, we recommend that you use the option to search for Exchange servers. If you configure Connection to communicate with specific Exchange servers, you must do the following:
 - Add another unified messaging service whenever you add another Exchange server.
 - Change Connection user settings whenever you move Exchange mailboxes from one Exchange server to another.

- There is no hard limit on the number of unified messaging services that you can create, but maintenance becomes time-consuming when you create more than a couple of dozen.
- To enable unified messaging features for Connection users, you add one or more unified messaging accounts for each user. For each unified messaging account, you specify a unified messaging service, which determines which unified messaging features the user can use.
- If you do not want all users to have access to all unified messaging features, you can create multiple unified messaging services that enable different features or different combinations of features. For example, you might configure one unified messaging service that enables text to speech (TTS), another that enables access to Exchange calendars and contacts, and a third that enables single inbox. With this design, if you want a user to have access to all three features, you would create three unified messaging accounts for the user, one for each of the three unified messaging services.

You cannot create two unified messaging accounts that enable the same feature for the same user. For example, suppose you add two unified messaging services:

- One enables TTS and access to Exchange calendars and contacts.
- The other enables TTS and single inbox.

If you create two unified messaging accounts for the user with the goal of giving the user access to all three features, you must disable TTS in one of the unified messaging accounts.

How Exchange Email Addresses Are Associated with Connection Users in Connection 9.x

Cisco Unity Connection figures out who the sender and recipient are for Connection voice messages that are sent by using ViewMail for Outlook by doing the following:

- When you install Cisco Unity Connection ViewMail for Microsoft Outlook version 8.5 or later, you specify the Connection server on which the user's Connection mailbox is stored. ViewMail for Outlook always sends new voice messages, forwards, and replies to that Connection server.
- When you configure single inbox for a user, you specify:
 - The user's Exchange email address. This is how Connection knows which Exchange mailbox to synchronize with. You can choose to have Connection automatically create an SMTP proxy address for the user by using the Corporate Email Address field in Connection Administration.
 - An SMTP proxy address for the user, which is typically the user's Exchange email address. When the user sends a voice message by using ViewMail for Outlook, the From address is the sender's Exchange email address, and the To address is the recipient's Exchange email address. Connection uses the SMTP proxy address to associate the From address with the Connection user who sent the message and the To address with the Connection user who is the intended recipient.

Integrating Connection with Active Directory can simplify populating Connection user data with Exchange email addresses. For more information, see the [“Active Directory Considerations for Single Inbox in Cisco Unity Connection 9.x”](#) section on page 6-13.

Deploying Single Inbox for Cisco Unity Connection 9.x

How you deploy Connection depends on the Connection configuration. See the applicable section:

- [Deploying Single Inbox for One Connection Server, page 6-4](#)

- [Deploying Single Inbox for a Connection Cluster](#), page 6-4
- [Deploying Single Inbox for a Connection Intrasite Network](#), page 6-4
- [Deploying Single Inbox During Gradual Migrations from Cisco Unity](#), page 6-4

Deploying Single Inbox for One Connection Server

In a deployment that includes one Connection server, the server connects with one or a few Exchange servers. For example, you can configure a Connection server to access mailboxes on an Exchange 2003 server and on an Exchange 2007, Exchange 2010, or Exchange 2013 server.

Deploying Single Inbox for a Connection Cluster

You deploy a Connection cluster much the same way you deploy a Connection server. Configuration data is replicated between the two servers in the cluster, so you can change configuration settings on either server. Note that the Connection Mailbox Sync service, which is required for single inbox to function, runs only on the active server and is considered a critical service. If you stop this service, the active server fails over to the secondary server, and the Connection Mailbox Sync service starts running on the new acting primary server.

If there are IP restrictions on the network, such as a firewall, consider the connectivity of both Connection servers to the Exchange servers.

Deploying Single Inbox for a Connection Intrasite Network

Unified messaging services are not replicated among Connection servers in an intrasite network, so they must be configured separately on each server in the network.

Deploying Single Inbox During Gradual Migrations from Cisco Unity

The *Reconfiguration and Upgrade Guide for Cisco Unity Connection Release 9.x* includes two chapters on migrating from Cisco Unity to Connection, one for flash cutovers and the other for gradual migrations. We discourage gradual migrations in general because the process is complex and time consuming. We further discourage migrating messages during a gradual migration because users who are being migrated will encounter some behaviors that are confusing and atypical of Connection. For more information, see the “About the Behavior of Mailbox Synchronization If You Migrate Messages” section in the “[Migrating from Cisco Unity to Cisco Unity Connection 9.x by Gradually Moving Data](#)” chapter of the *Reconfiguration and Upgrade Guide for Cisco Unity Connection Release 9.x* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/upgrade/guide/9xcucrugx.html.

How Single Inbox Affects Scalability in Cisco Unity Connection 9.x

Single inbox does not affect the number of user accounts that can be homed on a Connection server.

Allowing Connection or Exchange mailboxes larger than 2 GB can affect Connection and Exchange performance.

Network Considerations for Single Inbox in Cisco Unity Connection 9.x

See the following sections:

- [Firewalls](#), page 6-5
- [Bandwidth](#), page 6-5
- [Latency](#), page 6-5
- [Load Balancing](#), page 6-8

Firewalls

If a Connection server is separated by a firewall from Exchange servers, you must open the applicable ports in the firewall. If a Connection cluster is configured, you must open the same ports in the firewall for both Connection servers. For more information, see the “[IP Communications Required by Cisco Unity Connection 9.x](#)” chapter of the *Security Guide for Cisco Unity Connection Release 9.x* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/security/guide/9xcucsecx.html.

You can specify a proxy server to route the traffic between Connection and Microsoft Office 365.

For more information, see the “[Configuring Cisco Unity Connection 9.x and Microsoft Office 365 for Unified Messaging](#)” chapter in the *Unified Messaging Guide for Cisco Unity Connection Release 9.x* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/unified_messaging/guide/9xcucumgx.html.

Bandwidth

For bandwidth requirements for single inbox, see the “[Unified Messaging Requirements: Synchronizing Connection and Exchange Mailboxes \(Single Inbox\)](#)” section of *System Requirements for Cisco Unity Connection Release 9.x* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/requirements/9xcucsysreqs.html.

Latency

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Latency is closely intertwined with the number of connections (also known as synchronization threads or threads) that Connection uses to synchronize Connection and Exchange mailboxes. In a low-latency environment, fewer connections are required; conversely, in a high-latency environment, more connections are required to keep up with the number of operations that need to be synchronized to Exchange.

If you do not have enough connections, users will experience delays in synchronizing messages and in synchronizing message changes between Connection and Exchange (for example, turning message waiting indicators off when the last voice message has been heard). However, configuring more connections is not necessarily better. In a low-latency environment, a busy Connection server with a large number of connections to Exchange may significantly increase the processor load on the Exchange servers.

**Note**

For better user experience, it is recommended that round trip latency between Connection and Office 365 server should not be more than 250 ms.

See the following sections for recommendations on calculating the number of connections needed:

- [Calculating the Number of Connections for One Connection Server, page 6-6](#)
- [Calculating the Number of Connections for a Connection Cluster, page 6-7](#)
- [Calculating the Number of Connections for a Connection Server That Is Synchronizing with an Exchange CAS Array, page 6-7](#)
- [Increasing the Number of Connections, page 6-7](#)

Calculating the Number of Connections for One Connection Server

If you have one Connection server with 2,000 or fewer users, and if round-trip latency between the Connection and Exchange or Office 365 servers is 80 milliseconds or less, do not change the number of connections unless you encounter synchronization delays. The default setting of four connections will be sufficient in most environments to ensure good single-inbox synchronization performance.

If you have one Connection server with more than 2,000 users or more than 80 milliseconds of round-trip latency, use this formula to calculate the number of connections:

$$\text{Number of connections} = (\text{Number of Connection single-inbox users} * (\text{latency in milliseconds} + 15)) / 50,000$$

If you have more than one Exchange or Office 365 CAS server, the number of Connection single-inbox users is the largest number of single-inbox users who are assigned to one CAS server or CAS array. For example, suppose your Connection server has 4,000 users and they are all single-inbox users. You have three Exchange or Office 365 CAS servers, with 2,000 users on one CAS server and 1,000 users on each of the other two CAS servers. For this calculation, the number of Connection single-inbox users is 2,000.

**Note**

The maximum number of connections is 64. Never reduce the number of connections to fewer than four.

For example, if your Connection server has 2,000 users and 10 milliseconds of latency, and all of the mailboxes are homed on one Exchange or Office 365 server, you would not change the number of connections:

$$\text{Number of connections} = (2,000 * (10 + 15)) / 50,000 = 50,000 / 50,000 = 1 \text{ connection}$$

(no change to the default value of four connections)

If your Connection server has 2,000 single-inbox users and 100 milliseconds of latency, and all of the mailboxes are homed on one Exchange or Office 365 server, you would increase the number of connections to 5:

$$\text{Number of connections} = (2,000 * (100 + 15)) / 50,000 = 230,000 / 50,000 = 4.6 \text{ connections}$$

**Note**

This formula is based on conservative assumptions about user activity, and about Connection and Exchange or Office 365 performance, but the assumptions may not be true in all environments. For example, if you are experiencing single-inbox synchronization delays after setting the number of connections to the calculated value, and if the Exchange servers have available CPU, you may want to increase the number of connections beyond the calculated value.

Calculating the Number of Connections for a Connection Cluster

If both Connection servers in a cluster are in the same location, so they have the same latency when synchronizing with Exchange or Office 365, you can calculate the number of connections the same way you do for one Connection server.

If one server in a cluster is collocated with the Exchange or Office 365 servers and the other is in a remote location:

- Install the publisher server in the location with the Exchange or Office 365 servers. The publisher server should always be the primary server unless the server is offline for maintenance or is unavailable for some other reason.
- Calculate the number of connections for the publisher server, meaning the Connection server with lower latency. If you calculate for the server with higher latency, during peak usage, synchronization may increase the processor load on the Exchange or Office 365 CAS servers to unacceptable levels.

When the remote server becomes the active server, for example, because you are upgrading Connection, you may encounter significant synchronization delays. When you calculate the number of connections for the Connection server that is collocated with Exchange, you are optimizing for the server with lower latency. This number of connections may not be able to keep up with the number of operations that need to be synchronized to Exchange or Office 365. We recommend that maintenance operations that require activating the subscriber server be performed during non-business hours and that you limit the amount of time that the subscriber server is the active server.

Calculating the Number of Connections for a Connection Server That Is Synchronizing with an Exchange CAS Array

Connection is most likely to require a large number of connections with Exchange or Office 365 when connecting with a large CAS array. For example, when the Connection server has 12,000 single-inbox users and the latency is 10 milliseconds, you would increase the number of connections to six:

$$\text{Number of connections} = (12,000 * (10 + 15)) / 50,000 = 300,000 / 50,000 = 6 \text{ connections}$$

If your Exchange environment includes both a large CAS array and one or more Exchange or Office 365 servers that are not in the array, and if the calculated number of connections for the CAS array differs significantly from the number of connections for the individual Exchange or Office 365 servers, you may want to consider adding a Connection server that is dedicated to the separate Exchange or Office 365 servers. Setting the number of connections to the lower value—for the standalone Exchange or Office 365 servers—will mean synchronization delays for the CAS array, while setting the number of connections to the higher value—for the CAS array—will mean a higher processor load on the standalone Exchange or Office 365 servers.

Increasing the Number of Connections

If you have more than 2000 users on a Connection server or more than 80 milliseconds of latency, you can increase the number of connections from the default value of four. Note the following:

- The maximum number of connections is 64.
- Never decrease the number of connections to fewer than four.
- After you change the number of connections, you must restart the Connection Mailbox Sync service in Cisco Unity Connection Serviceability for the change to take effect.
- As Connection is optimized in future versions, the optimum number of the connections for a specific environment may change.

- If you have more than one Connection server synchronizing with the same Exchange server or CAS array, you may increase the processor load on the Exchange CAS servers to unacceptable levels.

To increase the number of connections that Connection uses for synchronizing with each Exchange server, run the following CLI command (when a Connection cluster is configured, you can run the command on either server):

```
run cuc dbquery unitydirdb EXECUTE PROCEDURE csp_ConfigurationModifyLong
(pFullName='System.Messaging.MbxSynch.MbxSynchThreadCountPerUMServer',
pValue=<value>)
```

where <value> is the number of connections that you want Connection to use.

To determine the current number of connections that Connection is configured to use, run the following CLI command:

```
run cuc dbquery unitydirdb select fullname, value from vw_configuration where fullname =
'System.Messaging.MbxSynch.MbxSynchThreadCountPerUMServer'
```

Load Balancing

By default, the Connection Mailbox Sync service uses four threads (four HTTP or HTTPS connections) for each CAS server or CAS array that Connection is configured to synchronize with. Note the following:

- The threads are torn down and recreated every 60 seconds.
- All of the requests come from the same IP address. Configure the load balancer to distribute load from the same IP address to multiple servers in the CAS array.
- Connection does not maintain session cookies between requests.
- If the load balancer for the existing CAS array does not produce the desired result with the load profile that the Connection Mailbox Sync service puts on it, you can set up a dedicated CAS server or CAS array to handle the Connection load.



Note

Cisco Unity Connection is not responsible for troubleshooting the load balancer issues as it is an external third party software. For further assistance, please contact the Load Balancer support team.

Microsoft Exchange Considerations for Single Inbox in Cisco Unity Connection 9.x

See the following sections:

- [How the Unified Messaging Services Account Accesses Exchange Mailboxes](#), page 6-9
- [Deploying Exchange Servers](#), page 6-9
- [Mailbox-Size Quotas and Message Aging in Connection](#), page 6-9
- [Coordinating Mailbox-Size Quotas and Message Aging Settings in Connection and Exchange](#), page 6-10
- [Moving Exchange Mailboxes](#), page 6-11
- [Exchange Clustering](#), page 6-11
- [How Single Inbox Affects Exchange Performance](#), page 6-11

- [The Exchange Autodiscover Service](#), page 6-11
- [Exchange Server 2010 and Exchange Server 2013](#), page 6-11
- [Exchange Server 2007](#), page 6-12
- [Exchange Server 2003](#), page 6-12

How the Unified Messaging Services Account Accesses Exchange Mailboxes

Single inbox and the other unified messaging features require that you create an Active Directory account (called the unified messaging services account throughout the Connection documentation) and grant the account the rights necessary for Connection to perform operations on behalf of users. No user credentials are stored in the Connection database; this is a change from Connection 8.0, for which TTS access to Exchange email and access to Exchange calendars and contacts required that you enter each user's Active Directory alias and password.

Using the unified messaging services account to access Exchange mailboxes simplifies administration. However, you must secure the account to prevent unauthorized access to Exchange mailboxes.

The operations that the account performs and the permissions that the account requires are documented in the “Creating the Unified Messaging Services Account in Active Directory and Granting Permissions for Cisco Unity Connection 9.x” section of the “[Configuring Cisco Unity Connection 9.x and Microsoft Exchange for Unified Messaging](#)” chapter in the *Unified Messaging Guide for Cisco Unity Connection Release 9.x* at

http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/unified_messaging/guide/9xcucumgx.html.

Deploying Exchange Servers

We tested single inbox with Exchange by using standard Exchange deployment practices, which are thoroughly documented on the Microsoft website. If you are not following Microsoft deployment guidelines for Active Directory and Exchange, we recommend that you enable single inbox gradually, for small groups of users, and closely monitor Active Directory and Exchange performance as you add more single-inbox users.

Mailbox-Size Quotas and Message Aging in Connection

By default, when a user deletes a voice message in Connection, the message is sent to the Connection deleted items folder and synchronized with the Outlook Deleted Items folder. When the message is deleted from the Connection deleted items folder (the user can do this manually, or you can configure message aging to do it automatically), it is also deleted from the Outlook Deleted Items folder.

If you are adding the single-inbox feature to an existing system, and if you have configured Connection to permanently delete messages without saving them in the deleted items folder, messages that users delete by using the Web Inbox or by using the Connection phone interface are still permanently deleted. However, messages that users delete by using Outlook are only moved to the deleted items folder in

Connection, not permanently deleted. This is true regardless of which Outlook folder the message is in when the user deletes it. (Even when a user deletes a voice message from the Outlook Deleted Items folder, the message is only moved to the deleted items folder in Connection.)

We recommend that you do one or both of the following to prevent the hard disk on the Connection server from filling up with deleted messages:

- Configure mailbox-size quotas, so that Connection prompts users to delete messages when their mailboxes approach a specified size.
- Configure message aging to permanently delete messages in the Connection deleted items folder.



Caution

Mailbox-size quotas alone are only practical for controlling the size of mailboxes for users who regularly check Connection voice messages by using the telephone user interface. Web Inbox and ViewMail for Outlook do not inform users that their mailbox has reached its quota. If users check messages primarily or exclusively by using Web Inbox or ViewMail for Outlook, configure message aging as well so that old messages are automatically deleted.

For more information on mailbox-size quotas and message aging, see the “[Controlling the Size of Mailboxes in Cisco Unity Connection 9.x](#)” chapter in the *System Administration Guide for Cisco Unity Connection Release 9.x* at

http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/administration/guide/9xcucsagx.html.

Coordinating Mailbox-Size Quotas and Message Aging Settings in Connection and Exchange

You can configure mailbox-size quotas and message aging in Exchange just as you can in Connection. When you are configuring single inbox, confirm that the mailbox-size quotas and message aging in the two applications do not conflict. For example, suppose that you configure Connection to delete voice messages that are more than 14 days old, and you configure Exchange to delete messages that are more than 30 days old. A user who returns from a three-week vacation will find emails in the Outlook Inbox for the entire period but will find voice messages only for the last two weeks.

When you configure Connection single inbox, you will need to increase the mailbox-size quotas for the corresponding Exchange mailboxes. We recommend that you increase the quota for Exchange mailboxes by the size of the quota for Connection mailboxes.



Note

By default, Connection allows outside callers to leave voice messages regardless of the mailbox-size quota for recipient mailboxes. You can change this setting when you configure system-wide quota settings.

Exchange can be configured to tombstone or retain messages that have been permanently deleted; when single inbox is configured, this includes Connection voice messages in Exchange mailboxes. Ensure that this is the desired outcome for voice messages based on your enterprise policies.

Moving Exchange Mailboxes

If you configure unified messaging services to access specific Exchange servers, Connection can only detect mailbox moves between Exchange servers for some versions of Exchange. In configurations in which Connection cannot detect mailbox moves, when you move Exchange mailboxes between Exchange servers, you need to add new unified messaging accounts for the affected users and delete the old unified messaging accounts.

For the affected versions of Exchange, if you frequently move mailboxes between Exchange servers for load balancing, we recommend that you configure unified messaging services to search for Exchange servers. This allows Connection to automatically detect the new location of mailboxes that have been moved.

For information on which versions of Exchange are affected, see the “Moving Microsoft Exchange Mailboxes for Connection 9.x Users Who Are Configured for Unified Messaging” chapter of the *Unified Messaging Guide for Cisco Unity Connection Release 9.x* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/unified_messaging/guide/9xcucumgx.html.

Exchange Clustering

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Connection supports using single inbox with Exchange 2010 or Exchange 2013 Database Availability Groups (DAG) for high availability if the DAGs are deployed according to Microsoft recommendations. Connection also supports connecting to a CAS array for high availability.

Exchange 2007 and Exchange 2003 clustering has not yet been tested. When testing is complete and clustering support has been determined, the “Unified Messaging Requirements: Synchronizing Connection and Exchange Mailboxes (Single Inbox)” section of *System Requirements for Cisco Unity Connection Release 9.x* will be updated with that information. The document is available at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/requirements/9xcucsysreqs.html.

How Single Inbox Affects Exchange Performance

Single inbox has a minor effect on Exchange performance in direct relationship to the number of users. For more information, see the white paper at http://www.cisco.com/en/US/prod/collateral/voicesw/ps6789/ps5745/ps6509/solution_overview_c22-713352.html.

The Exchange Autodiscover Service

If you configure unified messaging services to search for Exchange servers, do not disable the Exchange autodiscover service, or Connection will not be able to find Exchange servers, and unified messaging features will not work. (The autodiscover service is enabled by default.)

Exchange Server 2010 and Exchange Server 2013

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For information on Exchange Server 2010 and 2013 (available Connection 9.1(2) release onwards) requirements when single inbox is configured, see the “Unified Messaging Requirements: Synchronizing Connection and Exchange Mailboxes (Single Inbox)” section of *System Requirements for Cisco Unity Connection Release 9.x* will be updated with that information. The document is available at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/requirements/9xcucsysreqs.html.

When you are using Exchange 2010 or Exchange 2013, you need to:

- Assign the application impersonation management role to the unified messaging services accounts.
- Configure EWS limits for the unified messaging users (Exchange 2013 and Later).
- Configure EWS limits for the unified messaging users (Exchange 2010 SP2 RU4 and Later).
- Configure EWS limits for the unified messaging services accounts (Exchange 2010 SP2 RU3 and Earlier Releases).

The procedures are documented in the “Configuring Cisco Unity Connection 9.x and Microsoft Exchange for Unified Messaging” chapter in the *Unified Messaging Guide for Cisco Unity Connection Release 9.x* at

http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/unified_messaging/guide/9xcucumgx.html.

Exchange Server 2007

When Exchange 2007 is supported:

- The “Unified Messaging Requirements: Synchronizing Connection and Exchange Mailboxes (Single Inbox)” section of *System Requirements for Cisco Unity Connection Release 9.x* will be updated with that information. The document is available at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/requirements/9xcucsysreqs.html.
- Connection will support the single-inbox feature when Exchange mailboxes are homed on any combination of Exchange 2013, 2010, and 2007 or Exchange 2010, 2007, and 2003 servers.

When you are using Exchange 2007, you need to:

- Grant impersonation, may impersonate, and receive-as rights to the unified messaging services accounts.
- Grant unified messaging services accounts the permission to sign in locally.

The procedures are documented in the “Configuring Cisco Unity Connection 9.x and Microsoft Exchange for Unified Messaging” chapter in the *Unified Messaging Guide for Cisco Unity Connection Release 9.x* at

http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/unified_messaging/guide/9xcucumgx.html.

Exchange Server 2003

When Exchange 2003 is supported:

- The “Unified Messaging Requirements: Synchronizing Connection and Exchange Mailboxes (Single Inbox)” section of *System Requirements for Cisco Unity Connection Release 9.x* will be updated with that information. The document is available at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/requirements/9xcucsysreqs.html.

- Connection will support the single-inbox feature when Exchange mailboxes are homed on any combination of Exchange 2010, 2007, and 2003 servers.

When you are using Exchange 2003, you need to:

- Grant the unified messaging services accounts send as, receive as, and administer information store permissions.
- Enable the WebDav service.

The procedures are documented in the “[Configuring Cisco Unity Connection 9.x and Microsoft Exchange for Unified Messaging](#)” chapter in the *Unified Messaging Guide for Cisco Unity Connection Release 9.x* at

http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/unified_messaging/guide/9xcucumgx.html.

Active Directory Considerations for Single Inbox in Cisco Unity Connection 9.x

Note the following Active Directory considerations:

- Connection does not require that you extend the Active Directory schema for single inbox.
- If the Active Directory forest includes more than ten domain controllers, and if you have configured Connection to search for Exchange servers, we recommend that you deploy sites in Microsoft Sites and Services and that you follow Microsoft guidelines for geospatially separating domain controllers and global catalog servers.
- A Connection server can access Exchange servers in more than one forest. You must create one or more unified messaging services for each forest.
- You can configure an LDAP integration with Active Directory for data synchronization and for authentication, although it is not required for single inbox or for any of the other unified messaging features.

If you have already configured an LDAP integration, you are not required to change the LDAP integration to use single inbox. However, if you synchronized the Cisco Unified Communications Manager Mail ID field with the LDAP sAMAccountName instead of with the LDAP mail field, you may want to change the LDAP integration. During the integration process, this causes values in the LDAP mail field to appear in the Corporate Email Address field in Connection.

Unified messaging requires that you enter the Exchange email address for each Connection user. On the Unified Messaging Account page, each user can be configured to use either of the following values:

- The Corporate Email Address specified on the User Basics page
- The email address specified on the Unified Messaging Account page

Automatically populating the Corporate Email Address field with the value of the LDAP mail field is easier than populating the email address field on the Unified Messaging Account page by using Connection Administration or the Bulk Administration Tool. With a value in the Corporate Email Address field, you can also easily add an SMTP proxy address, which is required for single inbox; see the “[How Exchange Email Addresses Are Associated with Connection Users in Connection 9.x](#)” section on page 6-3.

For more design guidance on integrating Connection with Active Directory, see the “[LDAP Directory Integration with Cisco Unity Connection 9.x](#)” section on page 9-1.

For information on how to change LDAP directory configurations, see the “[Integrating Cisco Unity Connection 9.x with an LDAP Directory](#)” chapter of the *System Administration Guide for Cisco Unity Connection Release 9.x* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/administration/guide/9xcucsagx.html.

Using Secure Messaging When Single Inbox Is Configured in Cisco Unity Connection 9.x

If you do not want Connection voice messages stored in Exchange or archived for discoverability or compliance reasons but you still want single-inbox functionality, you can configure secure messaging. Enabling secure messaging for selected users or for all users on a Connection server prevents the recorded part of voice messages from being synchronized into the Exchange mailboxes for those users. Instead, Connection sends a decoy message that tells users they have a voice message. If Cisco Unity Connection ViewMail for Microsoft Outlook version 8.5 is installed, the message is streamed directly from Connection. If ViewMail for Outlook is not installed, the decoy message contains only an explanation of secure messages.

Client Access to Connection Voice Messages in Exchange Mailboxes for Connection 9.x

You can use the following client applications to access Connection voice messages in Exchange mailboxes:

- [Cisco Unity Connection ViewMail for Microsoft Outlook, page 6-14](#)
- [Connection Web Inbox, page 6-15](#)
- [Blackberry and Other Mobile Applications, page 6-16](#)
- [IMAP Email Clients and Other Email Clients, page 6-16](#)

Cisco Unity Connection ViewMail for Microsoft Outlook

Revised June 18, 2013

When single inbox is configured, users will have the best experience when they are using Microsoft Outlook for their email application and when Cisco Unity Connection ViewMail for Microsoft Outlook version 8.5 or later is installed. ViewMail for Outlook is an add-in that allows voice messages to be heard and composed from within Microsoft Outlook 2013, 2010, 2007, or 2003.

Versions of ViewMail for Outlook prior to 8.5 are not able to access voice messages that are synchronized into Exchange by the single inbox feature.

You can simplify the deployment of ViewMail for Outlook by using mass-deployment technologies that use MSI packages. For information on customizing ViewMail for Outlook–specific settings, see the “Customizing ViewMail for Outlook Setup” section in the *Release Notes for Cisco Unity Connection ViewMail for Microsoft Outlook Release 8.5(3)* or later at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/vmo/release/notes/853cucvmorn.html.

When you enable single inbox (SIB) using unified messaging service, a new Voice Outbox folder appears under the Outbox folder in Outlook. Connection creates this folder in Exchange and uses it to deliver voice messages to Connection; this allows Connection and ViewMail for Outlook to monitor a separate folder for delivery of voice messages.

**Note**

When you move an email message from any Outlook folder to the Voicemail Outbox folder, the email message is moved to the Deleted Items folder. The user may retrieve that deleted email message from the Deleted Items folder.

For more information about ViewMail for Outlook, see:

- *Quick Start Guide for Cisco ViewMail for Microsoft Outlook (Release 8.5 and Later)* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/vmo/quick_start/guide/85xcucqsgvmo.html.
- *Release Notes for Cisco Unity Connection ViewMail for Microsoft Outlook Release 8.5(3)* or later at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/vmo/release/notes/853cucvmorn.html.

Connection Web Inbox

The Connection Web Inbox is a web application that allows users to hear and compose Connection voice messages from any computer or device that has internet access to Connection. Note the following:

- Web Inbox can be embedded into other applications as a gadget.
- For playback, Web Inbox uses HTML 5 for audio playback when .wav playback is available. Otherwise, it uses QuickTime.
- For recording on a computer, Web Inbox uses a small Flash component. Users can also upload messages that were previously recorded.
- TRaP, or playback from a telephone integrated with a telephony integration can be used for playback or recording.
- New message notifications or events come through via Connection.
- When the Web Inbox session is idle for longer than the 30 minutes, Connection disconnects the session. The session timeout settings are not reconfigurable.
- Web Inbox is hosted in the Tomcat application on Connection.

**Note**

Web Inbox supports both the IPv4 and IPv6 addresses. However, the IPv6 address works only when Connection platform is configured in Dual (IPv4/IPv6) mode. For more information on Configuring IPv6 settings, see *Adding or Changing the IPv6 Addresses of Cisco Unity Connection* chapter of *Reconfiguration and Upgrade Guide for Cisco Unity Connection* guide at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/upgrade/guide/9xcucrugx.html.

For more information on Web Inbox, see *Quick Start Guide for the Cisco Unity Connection Web Inbox* at

http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/quick_start/guide/b_9xcucqsginbox.html.

Blackberry and Other Mobile Applications

Note the following about using mobile clients to access Connection voice messages:

- Mobile clients such as Blackberry devices are supported with single inbox.
- Clients that use Active Sync technology and can playback encoded .wav files are supported with single inbox. The encoding will need to be known, because some codecs are not supported across all mobile devices.
- Cisco Mobility applications can be used to check voice mail directly in Connection as in previous releases. However, these applications currently are not supported with single inbox.
- Mobile users can only compose voice messages if they have a Cisco Mobility application or if they call into the Connection server.

IMAP Email Clients and Other Email Clients

If users use IMAP email clients or other email clients to access Connection voice messages that have been synchronize to Exchange by the single-inbox feature, note the following:

- Connection voice messages appear in the inbox as emails with .wav file attachments.
- To compose voice messages, users must either call into Connection or use a recording device and an application that can produce .wav files.
- Replies to voice messages are not synchronized into the recipient's Exchange mailbox.

Restoring Exchange Mailboxes When Single Inbox Is Configured

If you need to restore one or more Exchange mailboxes, you must disable single inbox for the Connection users whose mailboxes are being restored.



Caution

If you do not disable single inbox for Connection users whose Exchange mailboxes are being restored, Connection will not resynchronize voice messages that were received between the time that the backup from which you are restoring was created and the time that the restore is complete.

For more information, see the “[Restoring Microsoft Exchange Mailboxes in Cisco Unity Connection When Single Inbox Is Enabled](#)” chapter in the *Unified Messaging Guide for Cisco Unity Connection Release* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/unified_messaging/guide/9xcucumgx.html.