



Message Waiting Indicators (MWIs)

This chapter describes message waiting indicators (MWIs), how they function in Cisco Unity, and methods for troubleshooting them.

How MWIs Function

An MWI is a lamp, flashing LCD panel, or special dial tone on subscriber phones that lets subscribers know a voice message is waiting. The type of indicator depends on the phone system and the phones that subscribers use.

MWIs are not the same as message notification, which is the feature that notifies a subscriber of new voice messages by calling a phone or pager, or by sending an e-mail message.

When MWIs Turn On and Off

There are two principal events that cause Cisco Unity to activate and deactivate MWIs:

- When a caller leaves a message for a subscriber, Cisco Unity notifies the phone system to activate the MWI on the phone for that subscriber.
- When the subscriber listens to the message, Cisco Unity notifies the phone system to deactivate the MWI on the phone.

There are three additional events that cause Cisco Unity to activate and deactivate MWIs:

- When the subscriber saves a listened-to message as a new message, Cisco Unity notifies the phone system to activate the MWI on the phone for that subscriber.
- When a subscriber deletes a new message without listening to it or moves it to another folder, Cisco Unity notifies the phone system to deactivate the MWI on the phone.
- When MWIs are manually resynchronized—for example, by clicking **Resynchronize Now** on the **Properties** tab in the Cisco Unity Telephony Integration Manager (UTIM)—Cisco Unity queries the Data Object Hierarchy (DOH) to determine the status of MWIs on all phones and resets all MWIs.

However, an MWI remains activated under the following conditions when a subscriber listens to a new message:

- More messages are waiting to be heard. When all new messages are listened to, the MWI will be turned off.
- A new message arrives while the subscriber is listening to the original message. When all new messages are listened to, the MWI will be turned off.
- The subscriber listens on the phone to only part of the message and time stamp, then either hangs up or skips to the next message before hearing the entire message and time stamp.

- The server with the message store is offline and the message is stored in the Unity Messaging Repository (UMR).
- (Unified Messaging only) In the Inbox, the subscriber marks a listened-to message as unread.
- (Unified Messaging only) The subscriber uses the Inbox in offline mode to listen to messages.

In certain situations, MWIs are not activated:

- (Unified Messaging only) E-mail messages arrive. Cisco Unity monitors only voice messages.
- Fax messages arrive. Cisco Unity monitors only voice messages.
- (Unified Messaging only) Return receipts arrive. Cisco Unity monitors only voice messages.
- (Unified Messaging only) An Inbox rule automatically moves voice messages to another folder. Cisco Unity monitors only the Inbox.
- The server with the message store is offline and the message is stored in the UMR.
- (If a message store outage has occurred) After the offline message store has come back online, the messages that were stored in the UMR during the outage are moved to the message store, but MWIs will not be activated until you manually refresh them.

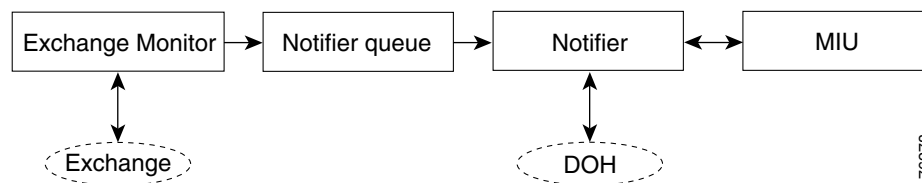
What Causes MWIs To Turn On and Off

The phone system is set up with one code or extension to turn MWIs on and a second code or extension to turn MWIs off. Cisco Unity sends the code or dials the extension to turn the MWI on and off for a subscriber.

You enter these codes or extensions in Cisco Unity in the Cisco Unity Telephony Integration Manager (UTIM)—click Programs > Cisco Unity > Unity Telephony Integration Manager.

Four Cisco Unity components (Exchange Monitor, Notifier queue, Notifier, and Media Interface Unit or Miu) work together to turn MWIs on and off. [Figure 7-1](#) shows how these components interact.

Figure 7-1 Components That Turn MWIs On and Off



When a new message arrives in a subscriber Inbox, these components work together in the following sequence to activate the MWI on the phone of the subscriber:

1. The Exchange Monitor receives MAPI notification from the Exchange server each time a change occurs in the Inbox of each subscriber (when new voice messages arrive). When this happens, the Exchange Monitor sends an MWI activation message to the Notifier queue.
2. The Notifier queue adds the MWI activation message as an MWI activation request (with the activation code or extension) to send to the phone system.
3. The Notifier queries the Data Object Hierarchy (DOH) to determine the status of the MWI on the phone of the subscriber.

If the DOH responds that the MWI is turned off, the Notifier sends the MWI activation request in the Notifier queue to the phone system.

If the DOH responds that the MWI is turned on, the Notifier discards the MWI activation request.

4. The Miu—which includes the integration—enables Cisco Unity to communicate successfully with the phone system. The phone system receives the request and activates the MWI on the phone of the subscriber.
5. The phone system sends the new status of the MWI (activated) to the Notifier, which then sends the status to the DOH where Cisco Unity records the MWI status.

When there are no more new messages in the subscriber Inbox (all new messages have been listened to, deleted, or marked as read), the same four Cisco Unity components work together in the following sequence to deactivate the MWI on the phone of the subscriber:

1. The Exchange Monitor receives MAPI notification from the Exchange server each time a change occurs in the Inbox of each subscriber (all voice messages are listened to, deleted, or marked as read). When this happens, the Exchange Monitor sends an MWI deactivation message to the Notifier queue.
2. The Notifier queue adds the MWI deactivation message as an MWI deactivation request (with the deactivation code or extension) to send to the phone system.
3. The Notifier queries the DOH to determine the status of the MWI on the phone of the subscriber.
If the DOH responds that the MWI is turned on, the Notifier sends the MWI deactivation request in the Notifier queue to the phone system.
If the DOH responds that the MWI is turned off, the Notifier discards the MWI deactivation request.
4. The Miu—which includes the integration—enables Cisco Unity to communicate successfully with the phone system. The phone system receives the request and deactivates the MWI on the phone of the subscriber.
5. The phone system sends the new status of the MWI (deactivated) to the Notifier, which then sends the status to the DOH where Cisco Unity records the MWI status.

What Causes MWIs to Behave Differently Than Expected

The following conditions cause MWIs to behave differently than expected:

- (Unified Messaging only) An Inbox rule automatically moves voice messages to another folder. Cisco Unity monitors only the Inbox, so the MWI is not activated.
- The DOH, which records the status of the MWI for each subscriber, received an indication that an activation or deactivation request had not succeeded when in fact it had. Consequently, the Notifier may discard subsequent MWI requests.
- There are an inadequate number of voice messaging ports on the Cisco Unity server resulting in the ports not being immediately available to dial out for activating and deactivating MWIs.
- An inadequate number of voice messaging ports on the Cisco Unity server are set to Dialout MWI, resulting in the ports being too busy to dial out immediately to activate and deactivate MWIs.
- No voice messaging ports on the Cisco Unity server are enabled to dial out.
- (Multiple Cisco CallManager clusters) There are no voice messaging ports on the Cisco Unity server dedicated to activating and deactivating MWIs. There should be one port dedicated to each cluster.
- (Cisco CallManager) In the UTIM, the MWI On Extension and MWI Off Extension fields on the MWI tab do not have the extensions that the phone system requires.
- (Circuit-switched phone systems) In UTIM, the MWI On Code and MWI Off Code fields on the MWI tab do not have the code that the phone system requires.
- The codes or extensions are switched (for example, the code that activates MWIs is entered in the MWI Off Code field).

- (Cisco CallManager) The extensions that activate and deactivate MWIs are not in the same calling search space that contains the phones and voice mail ports.
- The subscriber may not have the correct phone system assignment set on the Subscribers > Subscribers > Profile page.
- MWIs are not enabled for the subscriber on the Subscribers > Subscribers > Messages page.
- The wrong extension for the subscriber is entered in the Extension field on the Subscribers > Subscribers > Messages page.
- The primary Exchange server is shut down or is off line.
- The phone system is programmed to send calls to a voice messaging port on the Cisco Unity server that sets MWIs but does not answer calls.
- (Cisco CallManager) A route plan (or dial plan) overlaps with an MWI extension number, so while the phone system waits for additional digits, Cisco Unity abandons the MWI request and the DOH records that the request failed. The phone system then successfully completes the MWI request.
- (Serial integrations) A faulty RS-232 serial cable passes data from the phone system to Cisco Unity but not from Cisco Unity to the phone system. The result is that Cisco Unity sends MWI requests to the phone system, but the phone system does not receive them.

Troubleshooting MWIs When They Do Not Turn On or Off

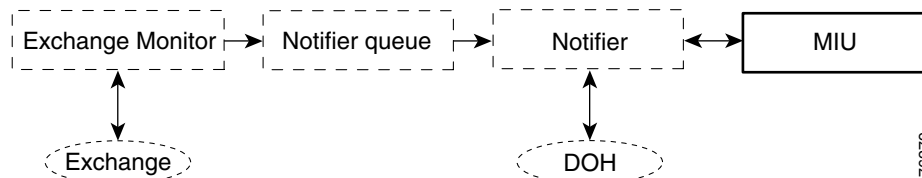
To troubleshoot MWIs when they do not turn on or off, do the procedures for the following components in the order given:

- [Miu Component, page 7-4](#)
 - [Resolving Cisco CallManager Integration Problems, page 7-6](#)
 - [Subscriber Phone System Assignment Is Incorrect, page 7-7](#)
- [Notifier and Notifier Queue Components, page 7-7](#)
- [Exchange Monitor Component, page 7-9](#)

Miu Component

This section describes troubleshooting the Miu component, which includes the integration. Many MWI problems can be resolved by troubleshooting this component. In addition, if MWI requests reach the Miu, the components that handle MWIs before the Miu probably are processing MWIs correctly. [Figure 7-2](#) shows the focus.

Figure 7-2 Miu Component in the Troubleshooting Process



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Do the following procedures in the order given.

To Verify Phone System and Port Settings in UTIM

- Step 1** On the Windows Start menu of the Cisco Unity server, click **Programs > Cisco Unity > Unity Telephony Integration Manager**. UTIM appears.
- Step 2** In the left pane, click the applicable integration.
- Step 3** In the right pane, click the **MWI** tab.
- Step 4** Confirm that the codes or extensions to activate and deactivate MWIs are correct:
- (Circuit-switched phone systems) In UTIM, the values for the **MWI On Code** and **MWI Off Code** fields match the codes the phone system uses.
 - (Cisco CallManager) In UTIM, the values in the **MWI On Extension** and **MWI Off Extension** fields match the extensions the phone system uses.
- Step 5** If you changed any settings, click **Save**.
- Step 6** Click the **Ports** tab.
- Step 7** Confirm that the correct port ranges have been assigned to the applicable phone system.
- Step 8** If you changed any settings, click **Save**.
- Step 9** Confirm the settings on the remaining tabs.
- Step 10** Exit UTIM. If prompted, restart the Cisco Unity services.
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To Confirm That MWIs Are Enabled for the Subscriber


- Step 1** In the Cisco Unity Administrator, go to the **Subscribers > Subscribers > Messages** page for the subscriber.
- Step 2** Confirm that the **Use MWI for Message Notification** check box is checked.
- Step 3** Confirm that the **MWI Extension** field is set to X (indicating the primary extension assigned to a subscriber) or to the extension number on which MWIs will be set for the subscriber.
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To Confirm That the Miu Allows Cisco Unity and the Phone System to Communicate

- Step 1** In the Cisco Unity Administrator, go to the **Subscribers > Subscribers > Message Notification** page for the subscriber.
- Step 2** Set up message notification for urgent messages for the subscriber.
- Step 3** Send an urgent message to the subscriber. If message notification of the urgent message arrives, the problem with MWIs is probably caused by the integration. Continue with the following “[To Troubleshoot Miu Problems](#)” procedure.
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To Troubleshoot Miu Problems

- Step 1** In the Cisco Unity Administrator, go to the **Subscribers > Subscriber > Messages** page.

- Step 2** Confirm that the Use MWI for Message Notification check box is checked and that the Extension field is either **X** (which causes Cisco Unity to use the MWI on the subscriber extension) or the actual subscriber extension.
- Step 3** Browse to the \Commsserver\TechTools\ directory and double-click **StatusMonitor.exe**.
- Step 4** In the Status Monitor window, confirm that the Display check box is checked, and click **Start All Monitors**.
- Step 5** Go to the **Subscribers > Subscriber > Messages** page, and click **Resynchronize MWIs**. In the Status Monitor window, the following message should appear:
“Dialing” (MWI) 'X'
- Step 6** If the message appears, the MWIs are resynchronized and function correctly. Skip the rest of this procedure.
If the message does not appear, on the Windows Start menu, click **Programs > Cisco Unity > Unity Diagnostic Tool**.
- Step 7** On the Cisco Unity Diagnostic Viewer screen, click the **Configure Micro Traces** icon.
- Step 8** Set the following diagnostic traces:
- MiuGeneral—0–4, 12, 16
 - MiuIO—11, 14
 - MiuMethods—10, 12, 14, 18
 - (Circuit-switched phone systems) MiuMethods—20, 22
 - MiuIntegration—12
- Step 9** On the Cisco Unity Diagnostic Viewer screen, click **Start New Log Files**.
- Step 10** Leave a message for a subscriber.
- Step 11** Review the diagnostic logs to determine the cause of the problems.
-  **Note** The command SetMWI is the one that is used by the Miu to set the MWI on a phone.
- Step 12** On the Cisco Unity Diagnostic Viewer screen, click the **Disable All Traces** icon.
- Step 13** In the Disable All Traces Wizard screen, check the **Disable All Traces** check box, and click **Finish**.

Resolving Cisco CallManager Integration Problems

Consider the following issues if Cisco CallManager is integrated with Cisco Unity:

- The unique extensions for turning MWIs on and off may not have been entered in the Cisco CallManager server, or the Cisco CallManager server has not been restarted to enable these values. For instructions on setting these extensions, refer to the applicable Cisco CallManager integration guide.
- A Cisco CallManager route plan may include the unique extensions for turning MWIs on and off. For example, a route plan could send all numbers starting with 9 to a gateway, while the extension that turns MWIs on is 99991. Revise the route plan so it does not include the MWI extensions or alter the extensions. For instructions on setting up route plans, refer to the applicable *Cisco CallManager Administration Guide* at http://www.cisco.com/univercd/cc/td/doc/product/voice/c_callmg/index.htm.

- The unique extensions for turning MWIs on and off may not have been entered in the MWI On Extension and MWI Off Extension fields in UTIM, or Cisco Unity may not have been restarted to enable these values. Enter the applicable values in UTIM. For instructions on setting these values in UTIM, refer to the applicable Cisco CallManager integration guide.
- The IP phone may not be in the same calling search space and partition as the Cisco Unity voice messaging ports. From a phone, dial the extension that turns on MWIs. If you hear the reorder tone, the extension for turning MWIs on is not assigned the correct calling search space and partition in Cisco CallManager. If you do not hear the reorder tone but the MWI is not activated or deactivated, a route plan may be causing the problem.
- The unique extensions for turning MWIs on and off in Cisco CallManager may not be identical to the values entered in the MWI On Extension and MWI Off Extension fields in UTIM. Confirm the values and restart the Cisco CallManager servers and Cisco Unity server. For instructions on setting these values, refer to the applicable Cisco CallManager integration guide.
- If the site has a publisher (primary) and subscriber (secondary) Cisco CallManager server, the unique extensions for turning MWIs on and off may not have been set on the subscriber Cisco CallManager server, or the subscriber CallManager server may not have been restarted to enable these values. On the subscriber Cisco CallManager server, set the extensions for turning MWIs on and off, and restart the Cisco Unity server. For instructions on setting these extensions, refer to the applicable Cisco CallManager integration guide.
- If Cisco Unity integrates with multiple Cisco CallManager clusters, you need to dedicate at least one voice messaging port to set MWIs for each cluster. For example, in a two-cluster environment, there must be at least two ports dedicated to setting MWIs, one sending MWI requests for the first cluster and another sending MWI requests to the second cluster. Confirm that at least one voice messaging port is dedicated to each cluster and that the port is set to Dialout MWI. For instructions on configuring ports, refer to the applicable Cisco CallManager integration guide.

The Cisco CallManager integration guides are available at

http://www.cisco.com/en/US/products/sw/voicesw/ps2237/prod_configuration_guides_list.html.

Subscriber Phone System Assignment Is Incorrect

If the subscriber is assigned to the wrong phone system, do the following procedure.

To Confirm the Subscriber Phone System Assignment (Dual Phone System or Former Dual Phone System Integration)

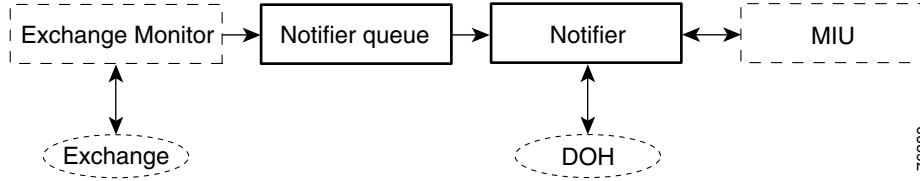
-
- Step 1** In the Cisco Unity Administrator, go to the **Subscribers > Subscribers > Profile** page.
 - Step 2** In the Subscriber Information section, confirm that the correct phone system has been selected for the subscriber. Correct if necessary.
 - Step 3** If you made a change, click **Save**, then shut down and restart Cisco Unity.
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Notifier and Notifier Queue Components

If the Miu component does not receive MWI requests, the problem lies earlier in the MWI process. This section describes troubleshooting the Notifier and Notifier queue components.

If MWI requests reach the Notifier queue and the Notifier components, the Exchange Monitor component is probably processing MWIs correctly. [Figure 7-3](#) shows the focus.

Figure 7-3 Notifier and Notifier Queue Components in the Troubleshooting Process



Do the following procedures in the order given.

To Confirm That the Notifier Makes MWI Requests

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- Step 1** On the Cisco Unity Diagnostic Viewer screen, click the **Disable All Traces** icon.
- Step 2** In the Disable All Traces Wizard screen, check the **Disable All Traces** check box, and click **Finish**.
- Step 3** On the Cisco Unity Diagnostic Viewer screen, click the **Configure Micro Traces** icon.
- Step 4** Check the check boxes for Notifier—12 and 20.
- Step 5** On the Cisco Unity Diagnostic Viewer screen, click **Start New Log Files**.
- Step 6** Leave a message for a subscriber.
- Step 7** To view the log files, click **Processes > AvCsMgr**, and then click the **Current** log file.
- Step 8** The selected log file is formatted and appears in the right pane.
- Step 9** Check the log for the following:
- A Notifier—12 entry with the correct subscriber and extension listed to confirm that the MWI request is made with the correct information.
 - The entry contains the text “Queued MWI task for mailuser.”
- Step 10** If the Notifier thinks the MWI is already activated, the Notifier does not make the MWI request. In the Cisco Unity Administrator, go to the **Subscribers > Subscribers > Messages** page for the subscriber. Then click **Resynchronize MWIs**.
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To Confirm That MWI Requests Are Successful

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- Step 1** In the log from the preceding procedure, locate a Notifier—12 entry.
- Step 2** If the entry has the text “Completed MWI task for mailuser,” the MWI request was successful. If not, depending on the content of the entry, do one of the following:
- If the entry has the text “Received: Task” or “Continues Task,” the MWI request was not successful. Check the diagnostic log for any problem with the voice messaging ports. See the procedure [To Troubleshoot Port Problems, page 7-9](#).
 - If the diagnostic log indicates the MWI request was successful, but the MWI is not activated, set diagnostic traces for Notifier—12, MiuIntegration—12, and MiuMethods—20, 21, and review the logs.
- Step 3** On the Cisco Unity Diagnostic Viewer screen, click the **Disable All Traces** icon.
- Step 4** In the Disable All Traces Wizard screen, check the **Disable All Traces** check box, and click **Finish**.
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Do the following procedure as needed.

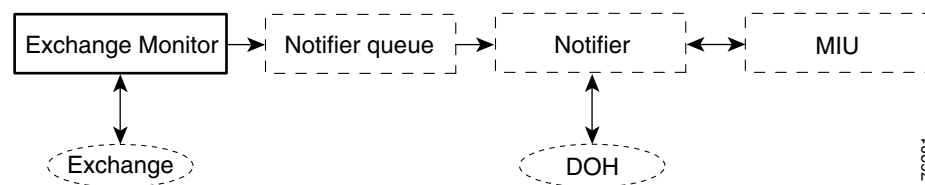
To Troubleshoot Port Problems

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- Step 1** In the Cisco Unity Administrator, go to the **System >Ports** page, and confirm that some ports are set to **Dialout MWI**.
- For dual phone system integrations, make sure that each phone system has some of its ports set to **Dialout MWI**.
- Step 2** On the Cisco Unity Diagnostic Viewer screen, click the **Disable All Traces** icon.
- Step 3** In the Disable All Traces Wizard screen, check the **Disable All Traces** check box, and click **Finish**.
- Step 4** On the Cisco Unity Diagnostic Viewer screen, click the **Configure Micro Traces** icon.
- Step 5** Set the following diagnostic traces:
- Notifier—20
 - Arbiter—13
 - ResourceManager—12
- Step 6** On the Cisco Unity Diagnostic Viewer screen, click **Start New Log Files**.
- Step 7** Leave a message for a subscriber.
- Step 8** Review the diagnostic logs to determine the cause of the problems.
- Step 9** On the Cisco Unity Diagnostic Viewer screen, click the **Disable All Traces** icon.
- Step 10** In the Disable All Traces Wizard screen, check the **Disable All Traces** check box, and click **Finish**.
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Exchange Monitor Component

If the Notifier queue and the Notifier do not receive MWI requests, the problem lies earlier with the Exchange Monitor. This section describes troubleshooting the Exchange Monitor component. [Figure 7-4](#) shows the focus.

Figure 7-4 Exchange Monitor Component in the Troubleshooting Process



Do the following procedures.

To Confirm That the Exchange Monitor Detects New Messages

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- Step 1** On the Cisco Unity Diagnostic Viewer screen, click the **Configure Micro Traces** icon.
- Step 2** Check the check boxes for the following traces:
- ExchangeMonitor—13

- Notifier—21
- Step 3** On the Cisco Unity Diagnostic Viewer screen, click **Start New Log Files**.
- Step 4** Leave a message for a subscriber.
- Step 5** To view the log files, click **Processes > AvCsMgr**, and then click the **Current** log file.
- Step 6** The selected log file is formatted and appears in the right pane.
- Step 7** Check the log for the following:
- An ExchangeMonitor—13 entry with TABLE_ROW_ADDED or TABLE_ROW_MODIFIED to confirm that the Exchange Monitor detected the new message.
 - A Notifier—21 entry (soon after the ExchangeMonitor entry) with “NotifyQ popped,” “Action=2,” and the subscriber name. This entry confirms the MWI message was added to the Notifier queue.
- Step 8** If these entries appear, but the MWI is not activated, skip to [Step 9](#).
If these entries do not appear, on the Cisco Unity Diagnostic Viewer screen, click the **Disable All Traces** icon.
- Step 9** In the Disable All Traces Wizard screen, check the **Disable All Traces** check box, and click **Finish**.
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To Troubleshoot Advanced Exchange Monitor Problems

- Step 1** On the Windows Start menu, click **Programs > Cisco Unity > Unity Diagnostic Tool**.
- Step 2** On the Cisco Unity Diagnostic Viewer screen, click the **Configure Micro Traces** icon.
- Step 3** Check the check boxes for the following traces:
- Notifier—12, 20, 21, 22, 24
 - AlCommon—10
 - DalEx—10
 - DOH—10
 - SaINT—10
- Step 4** On the Cisco Unity Diagnostic Viewer screen, click **Start New Log Files**.
- Step 5** Leave a message for a subscriber.
- Step 6** To view the log files, click **Processes > AvCsMgr**, and then click the **Current** log file.
- Step 7** The selected log file is formatted and appears in the right pane.
- Step 8** Review the diagnostic logs to determine the cause of the problem.
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To Troubleshoot MWIs That Work for Some Subscribers but Not Others

- Step 1** Check the Exchange properties to determine whether the site created its own Cisco Unity profile. If so, check the RPC limit set in the profile. To find the settings, locate the following registry key:
- For Exchange 2000 or Exchange 2003:
HKU\.Default\Software\Microsoft\Windows NT\Current Version\Windows Messaging\Profiles\Unity System Profile\12dbb0c8aa05101a9bb000aa002fc45a

- For Exchange 5.5:
HKCU\Software\Microsoft\Windows NT\Current Version\Windows Messaging\Profiles\Unity System Profile\13dbb0c8aa05101a9bb000aa002fc45a

**Caution**

Changing the wrong registry key or entering an incorrect value can cause the server to malfunction. Before you edit the registry, confirm that you know how to restore it if a problem occurs. (Refer to the “Restoring” topics in Registry Editor Help.) Note that for a Cisco Unity failover system, registry changes on one Cisco Unity server must be made manually on the other Cisco Unity server, because registry changes are not replicated. If you have any questions about changing registry key settings, contact Cisco TAC.

- Step 2** Confirm that the value 00036604 is set to 06 00 00 00. The fourth bit of the first byte must be set to 05 through 07 or 0C through 0F.
- Otherwise, the site has an RPC limit, which prevents an MWI from being updated.

Troubleshooting MWIs When They Are Delayed Turning On and Off

There are several possible reasons that MWIs may be delayed turning on and off. These reasons include:

- [Restarting the Cisco Unity Server Causes MWI Delay, page 7-11](#)
- [Cisco Unity Primary Exchange Server Is Down or Is Disconnected, page 7-11](#)
- [Ports Are Too Busy to Turn MWIs On and Off Promptly, page 7-12](#)
- [Not Enough Ports Are Set for MWIs, page 7-12](#)
- [Calls Are Sent to Cisco Unity Ports That Set MWIs but Do Not Answer Calls, page 7-13](#)
- [MWI Turns On and Off Slowly After Adding Subscribers \(Exchange 5.5\), page 7-13](#)
- [MWI Turns On and Off Slowly After the AppleTalk Protocol Is Uninstalled on the Exchange Server, page 7-14](#)

Restarting the Cisco Unity Server Causes MWI Delay

Restarting the Cisco Unity server may result in delayed MWIs until MAPI logon to all subscriber mailboxes has been completed. (MAPI logon is necessary for monitoring each subscriber mailbox for voice messages.) Depending on the size of the subscriber database, it could take several hours to complete the MAPI logon.

Cisco Unity Primary Exchange Server Is Down or Is Disconnected

Messages recorded while the primary Exchange server is down or disconnected are stored in the Unity Messaging Repository (UMR) until the server is brought back up. Because MWIs are not lit until a message is actually delivered to a subscriber, the delay experienced between the time a message is recorded and its delivery and the lighting of the MWI is entirely dependant on the amount of time that the primary Exchange server was down or disconnected.

Ports Are Too Busy to Turn MWIs On and Off Promptly

When the ports that turn MWIs on and off are also set to perform other operations, they may be too busy to turn MWIs on and off promptly. You can improve MWI performance by taking the following actions:

- Dedicate a number of ports exclusively to turning MWIs on and off.
- Make sure that the entry point of the Cisco Unity hunt group for ports is not a port that also handles MWIs.
- Use the last ports assigned to a phone system to turn MWIs on and off.
- For systems that handle a large volume of calls, install additional ports.

To Review Port Configuration for Message Waiting Indication (Non-Serial Integrations Only)

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- Step 1** In the Cisco Unity Administrator, go to the **System > Ports** page.
- Step 2** Review the existing port configuration and determine if one or more ports can be set only to **Dialout MWI**.
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Not Enough Ports Are Set for MWIs

When Cisco Unity takes a lot of messages, the ports assigned to turn MWIs on and off may not always be able to dial out promptly. A single port set to dial out only for Message Waiting Indication with an IP phone system integration can change approximately 240 to 360 MWIs per hour, depending on the phone system. An analog integration can take up to seven seconds per MWI change.

If the percentage of ports used does not exceed 40 percent usage during peak periods, then the number of message waiting indication ports is adequate. If the percentage of ports used exceeds 40 percent usage during peak periods, review the existing port configuration and determine if one or more additional ports can be set only to Dialout MWI.

To Determine Whether the Number of Message Waiting Indication Ports Is Adequate

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- Step 1** On the Cisco Unity server desktop, double-click the **Cisco Unity Tools Depot** icon.
- Step 2** In the left pane, under Reporting Tools, double-click **Port Usage Analyzer**.
- Step 3** Run the Port Availability report. You may also find the Port Time Use report helpful.
- Step 4** If the percentage of ports used exceeds 40 percent usage during peak periods, go to the **System > Ports** page in the Cisco Unity Administrator, then continue with [Step 5](#).
- If the percentage of ports used does not exceed 40 percent usage during peak periods, the number of message waiting indication ports is adequate.
- Step 5** Review the existing port configuration and determine if one or more additional ports can be set only to **Dialout MWI**.
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Calls Are Sent to Cisco Unity Ports That Set MWIs but Do Not Answer Calls

If the phone system is programmed to send calls to a port on Cisco Unity that is configured to set MWIs and not to answer calls, MWIs may be delayed.

To Confirm That Calls Are Being Sent to the Correct Cisco Unity Ports

- Step 1** In the Cisco Unity Administrator, go to the **System > Ports** page.
 - Step 2** Note which ports are designated to answer calls.
 - Step 3** In the phone system programming, confirm that calls are only being sent to ports designated to answer calls.
 - Step 4** If you make a change to the phone system programming, shut down and restart the Cisco Unity server to clear any hung ports.
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MWI Turns On and Off Slowly After Adding Subscribers (Exchange 5.5)

If MWIs are slow to turn on and if the system connects to an Exchange 5.5 server, the cause is often the creation or moving of approximately 100 subscribers. When the new subscribers are created or imported, Cisco Unity creates a primary call handler on the Cisco Unity server. However, Exchange 5.5 needs to allocate additional threads to service MWIs for the new subscribers. The solution is to run Exchange 5.5 Optimizer, which allocates additional threads in Exchange.

If there are other Exchange servers in the site, you do not need to run the Exchange Optimizer on the other Exchange servers.

To Run Exchange 5.5 Optimizer

- Step 1** Shut down the Cisco Unity server, if it is running.
 - Step 2** On the Windows Start menu, click **Programs > Microsoft Exchange > Microsoft Exchange Optimizer**.
 - Step 3** Follow the on-screen instructions. If the Exchange Optimizer recommends that you move files, you can safely choose not to do so.
 - Step 4** If the Exchange 5.5 Optimizer displays an error message saying that a service could not be shut down, do the following:
 - Exit the **Exchange Optimizer**.
 - Right-click the **Cisco Unity** icon in the status area of the taskbar, and click **Exit**.
 - Start the **Exchange Optimizer**, and follow the on-screen instructions.
 - Step 5** When the Exchange Optimizer is finished, restart the Cisco Unity server.
-


MWI Turns On and Off Slowly After the AppleTalk Protocol Is Uninstalled on the Exchange Server

When you install and then uninstall the AppleTalk protocol on the Exchange server on which Cisco Unity subscribers are homed, a value remains in the Winsock file that prevents Exchange from registering for push notifications. Consequently, all MAPI clients use a polling mechanism that is less reliable than a push notification.

This problem occurs in all versions of Cisco Unity that connect to Exchange version 5.5 SP4, Exchange 2000, or Exchange 2003.

Do the following procedure.

To Change the Registry to Enable Exchange to Push Notifications

-
- Step 1** On the Cisco Unity server, click **Start > Run**.
- Step 2** In the Open field, enter **Regedit** and press **Enter**. The Registry Editor appears.
-  **Caution** Changing the wrong registry key or entering an incorrect value can cause the server to malfunction. Before you edit the registry, confirm that you know how to restore it if a problem occurs. (Refer to the “Restoring” topics in Registry Editor Help.) Note that for a Cisco Unity failover system, registry changes on one Cisco Unity server must be made manually on the other Cisco Unity server, because registry changes are not replicated. If you have any questions about changing registry key settings, contact Cisco TAC.
-
- Step 3** If you do not have a current backup of the registry, click **Registry > Export Registry File**, and save the registry settings to a file.
- Step 4** Expand the key
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Winsock\Parameters
and delete **AppleTalk**.
- Step 5** Expand the key
HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Exchange\Exchange Provider\
Rpc_Svr_Binding_Order
and delete **ncacn_at** if it is present.
- Step 6** Expand the key
HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Rpc\ClientProtocols
and delete **ncacn_at_dsp**.
- Step 7** Close the Registry Editor.
- Step 8** For the settings to take effect, exit and restart the Cisco Unity software.
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Troubleshooting MWIs When They Sometimes Do Not Turn Off

There is one possible reason for MWIs not turning off as expected.

MWIs Have Lost Synchronization

MWIs may lose synchronization if, for example, the phone system is off-line when an MWI status changes.

Do the following procedure.

To Resynchronize MWIs

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- Step 1** On the Windows Start menu on the Cisco Unity server, click **Programs > Cisco Unity > Manage Integrations**. UTIM appears.
 - Step 2** For the integration node, click the **Properties** tab.
 - Step 3** In the MWI Synchronization section, click **Resynchronize Now**.
 - Step 4** If applicable, check the Resynchronize At check box, and choose the time that you want the system to resynchronize the MWIs. We recommend choosing a time outside of regular business hours because of the Cisco Unity resources needed for resynchronization.
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Additional References

More information about setting up MWIs can be found in the following documents:

- Cisco Unity integration guides for various phone systems available at http://www.cisco.com/en/US/products/sw/voicesw/ps2237/prod_configuration_guides_list.html.
- *Cisco Unity System Administration Guide* at http://www.cisco.com/univercd/cc/td/doc/product/voice/c_unity/unity40/sag/sag403/ex/index.htm.
- *Cisco Unity Release Notes* at http://www.cisco.com/univercd/cc/td/doc/product/voice/c_unity/unity40/relnote/cu403rn.htm.

