



CHAPTER 5

Setting Up a Serial (SMDI, MCI, or MD-110) TIMG Integration with Cisco Unity Connection

For detailed instructions for setting up a serial (SMDI, MCI, or MD-110) TIMG integration with Cisco Unity Connection, see the following sections in this chapter:

- [Task List to Create a Serial \(SMDI, MCI, or MD-110\) TIMG Integration, page 5-1](#)
- [Requirements, page 5-2](#)
- [Programming the Phone System for a Serial TIMG Integration with Cisco Unity Connection, page 5-3](#)
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Task List to Create a Serial (SMDI, MCI, or MD-110) TIMG Integration

Before doing the following tasks to integrate Cisco Unity Connection with the phone system by using the T1 media gateway (TIMG), confirm that the Cisco Unity Connection server is ready for the integration by completing the applicable tasks in the *Cisco Unity Connection Installation Guide*.

1. Review the system and equipment requirements to confirm that all phone system and Cisco Unity Connection server requirements have been met. See the [“Requirements” section on page 5-2](#).
2. Plan how the voice messaging ports will be used by Cisco Unity Connection. See [Chapter 2, “Planning How the Voice Messaging Ports Will Be Used by Cisco Unity Connection.”](#)
3. Program the phone system and extensions. See the [“Programming the Phone System for a Serial TIMG Integration with Cisco Unity Connection” section on page 5-3](#).
4. Set up the TIMG units. See the [“Setting Up the TIMG Units” section on page 5-4](#).
5. Create the integration. See the [“Creating an Integration with the Phone System” section on page 5-14](#).
6. Test the integration. See [Chapter 6, “Testing the Integration.”](#)
7. If this integration is a second or subsequent integration, add the applicable new user templates for the new phone system. See [Chapter 7, “Adding New User Template for Multiple Integrations.”](#)

Requirements

The serial (SMDI, MCI, or MD-110) TIMG integration supports configurations of the following components:

Phone System

- A phone system that supports the SMDI, MCI, or MD-110 serial protocols.
- T1 digital trunk interface card.
- The firmware must be configured to support T1 line-side signaling.
- T1 CAS connections to the TIMG units by using the FXS/FSO or E&M protocol.
- One or more TIMG units (media gateways).
- The serial data port on the phone system connected to the serial port on the master TIMG unit with an RS-232 serial cable (which is available from Cisco).

Specifications for the serial cable are in *Connecting PBX-IP Media Gateway (PIMG) to the Serial Port of a PBX* at <http://www.dialogic.com/support/helpweb/mg/tn117.htm>.

We recommend that the serial cable have the following construction:

- A maximum of 50 feet (15.24 m) in length
- 24 AWG stranded conductors
- Low capacitance—for example, no more than 12 pF/ft (39.4 pF/m) between conductors
- At least 65 percent braided shield over aluminized polymer sleeve around conductors
- UL-recognized overall cable jacket insulation with low dielectric constant
- Braided shield fully terminated to and enclosed by a metal connector backshell
- Gold-plated connector contacts
- The voice messaging ports in the phone system connected by T1 digital lines (DS1 or “dry T1” digital lines only) to the ports on the TIMG units.



Caution T1 (or “wet T1”) connections to the PSTN must be through an MTU, CSU, or other device that provides line isolation. Otherwise, the TIMG units may be damaged.

- The TIMG units connected to the same LAN or WAN that Cisco Unity Connection is connected to.
- If the TIMG units connect to a WAN, the requirements for the WAN network connections are:
 - For G.729a codec formatting, a minimum of 32.76 Kbps guaranteed bandwidth for each voice messaging port.
 - For G.711 codec formatting, a minimum of 91.56 Kbps guaranteed bandwidth for each voice messaging port.
 - No network devices that implement network address translation (NAT).
 - A maximum 200 ms one-way network latency.
- The phone system ready for the integration, as described in the documentation for the phone system.

Cisco Unity Connection Server

- Cisco Unity Connection installed and ready for the integration, as described in the applicable *Cisco Unity Connection Installation Guide* at http://www.cisco.com/en/US/products/sw/voicesw/ps2237/prod_installation_guides_list.html.
- A license that enables the applicable number of voice messaging ports.

Centralized Voice Messaging

Cisco Unity Connection supports centralized voice messaging through the phone system, which supports various inter-phone system networking protocols including proprietary protocols such as Avaya DCS, Nortel MCDN, or Siemens CorNet, and standards-based protocols such as QSIG or DPNSS. Note that centralized voice messaging is a function of the phone system and its inter-phone system networking, not voice mail. Connection will support centralized voice messaging as long as the phone system and its inter-phone system networking are properly configured. For details, see the “Centralized Voice Messaging” section in the “Integrating Cisco Unity Connection with the Phone System” chapter of the *Cisco Unity Design Guide Release 7.x* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/7x/design/guide/7xcucdg.html.

Programming the Phone System for a Serial TIMG Integration with Cisco Unity Connection

If you use programming options other than those supplied in the following procedure, the performance of the integration may be affected.

**Caution**

In programming the phone system, do not send calls to voice messaging ports in Cisco Unity Connection that cannot answer calls (voice messaging ports that are not set to Answer Calls). For example, if a voice messaging port is set only to Perform Message Notification, do not send calls to it.

Instruct the phone system technician to set up the phone system in the manner as directed in the following procedure.

To Program the Phone System for a Serial Integration with Cisco Unity Connection

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- Step 1** Program the analog lines connecting to the voice messaging ports on the TIMG units as a multiline hunt group.
- Make sure that the phone system sends calls only to Cisco Unity Connection voice ports that are set to Answer Calls. Calls sent to a voice port not set to Answer Calls cannot be answered by Cisco Unity Connection and may cause other problems.
- Step 2** Enable hookflash transfer capability on each analog line that connects to the voice messaging ports on the TIMG units.
- Step 3** Enable caller ID (via SMDI, MCI, or MD-110) on each subscriber extension.
- Step 4** For each subscriber extension, set the call forwarding options to the following:
- Unrestricted source
 - Forward when the extension is not answered

- Forward when the extension is busy

Setting Up the TIMG Units

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Do the following procedures to set up the analog TIMG units (media gateways) that are connected to the phone system.

These procedures require that the following tasks have already been completed:

- The phone system is connected to the TIMG units by using T1 digital lines and the applicable RS-232 serial cable.
- The TIMG units are connected to a power source.
- The TIMG units are ready to be connected to the LAN or WAN.



Caution Because TIMG units have the same default IP address, you must set them up one at a time. Otherwise, you will experience IP address conflicts.

Fields that are not mentioned in the following procedures must keep their default values. For the default values of all fields, see the manufacturer documentation for the TIMG units.

To Download the TIMG Firmware Update Files for TIMG Units

- Step 1** On a Windows workstation with a high-speed Internet connection that will have access to the TIMG units, go to the Voice and Unified Communications Downloads page at <http://tools.cisco.com/support/downloads/pub/Redirect.x?mdfid=278875240>.



Note To access the software download page, you must be logged on to Cisco.com as a registered user.

This procedure describes the steps when using Internet Explorer as your web browser. If you are using a different web browser, the steps may differ.

- Step 2** In the tree control on the Downloads page, expand **Unified Communications Applications > Voice Mail and Unified Messaging > Cisco Unity**, and click **Cisco Unity Telephony Integration**.
- Step 3** On the Log In page, enter your user name and password, then click **Log In**.
- Step 4** On the Select a Release page, under Latest Releases, click the most recent release.
- Step 5** In the right column, click the version of the firmware for your TIMG units.
- Step 6** On the Download Image page, click **Download**.
- Step 7** On the Supporting Document(s) page, click **Agree**.
- Step 8** In the File Download dialog box, click **Save**.
- Step 9** In the Save As dialog box, browse to the Windows workstation that will have access the TIMG units, browse to a directory where you want to save the file, and click **Save**.
- Step 10** In the Download Complete dialog box, click **Open**. The window for extracting the TIMG firmware update files appears.

- Step 11** Click **Extract**.
- Step 12** In the Extract dialog box, browse to the directory where you want the extracted files, and click **Extract**.
- Step 13** Close the window for the extracting application.

To Set Up the TIMG Units (Firmware Version 6.x)

- Step 1** On the Windows workstation, add a temporary route to enable access to the TIMG units.
- On the Windows Start menu, click **Run**.
 - Enter **cmd**, and press **Enter**. The Command Prompt window appears.
 - At the command prompt, enter **route add 10.12.13.74 <IP Address of Workstation>**, and press **Enter**.

For example, if the IP address of the workstation is 198.1.3.25, enter “route add 10.12.13.74<space>198.1.3.25” in the Command Prompt window.
 - Close the Command Prompt window.
- Step 2** Connect a TIMG unit to the network.
- Step 3** In the web browser, go to **http://10.12.13.74**.
- Step 4** To log in, enter the following case-sensitive settings.

Table 5-1 Login Settings

Field	Setting
Username	Enter admin .
Password	Enter IpodAdmin .

- Step 5** Click **OK**.
- Step 6** On the System menu, click **Upgrade**.
- Step 7** On the Upgrade page, under Browse for Upgrade File, click **Browse**.
- Step 8** In the Choose File dialog box, browse to the directory on the Windows workstation that has the extracted TIMG firmware update files.
- Step 9** Click **T1E1_<xx>.app** (where <xx> is multiple digits), and click **Open**.
- Step 10** On the Upgrade page, click **Install File**.
- Step 11** After the file is installed, a message prompting you to restart the TIMG unit appears. Click **Cancel**.



Caution Do not restart the TIMG unit until you are instructed to do so later in this procedure, even if the file installation fails. Restarting the TIMG unit at this step may prevent the TIMG unit from functioning correctly.

- Step 12** Repeat [Step 6](#) through [Step 11](#) for the file T1E1_<xx>.fsh.
- Step 13** On the System menu, click **Upgrade**.
- Step 14** On the Upgrade page, under Browse for Upgrade File, click **Browse**.
- Step 15** In the Choose File dialog box, browse to file T1E1_<xx>.msd.

- Step 16** Click **T1E1_<xx>.msd**, and click **Open**.
- Step 17** On the Upgrade page, click **Install File**.
- Step 18** After the file is installed, a message prompting you to restart the TIMG unit appears. Click **OK**.
- Step 19** In the web browser, go to **http://10.12.13.74**.
- Step 20** To log in, enter the following case-sensitive settings.

Table 5-2 Login Settings

Field	Setting
Username	Enter admin .
Password	Enter IpodAdmin .

- Step 21** Click **OK**.
- Step 22** On the Configure menu, click **Password**.
- Step 23** On the Change Password page, enter the following settings.

Table 5-3 Change Password Page Settings

Field	Setting
Old Password	Enter IpodAdmin . (This setting is case sensitive.)
New Password	Enter your new password. (This setting is case sensitive.)
Confirm Password	Enter your new password. (This setting is case sensitive.)

- Step 24** Click **Change**.
- Step 25** On the Configuration menu, click **Mgmt Protocols**.
- Step 26** On the Management Protocols page, enter the following settings.

Table 5-4 Management Protocols Page Settings

Field	Settings
E-mail Alarms Enabled	Click No .
SNMP Traps Enabled	Click No .
HTTP Server Enabled	Click Yes .
HTTPs Server Enabled	Click No .

- Step 27** Click **Submit**.
- Step 28** On the Configuration menu, click **Routing Table**.
- Step 29** On the Routing Table page, under Router Configuration, click **VoIP Host Groups**.
- Step 30** Under VoIP Host Groups, enter the following settings for the first VoIP Host Group.

Table 5-5 First VoIP Host Group Settings

Field	Settings
Name	Accept the default or enter another descriptive name of the VoIP host group.
Load-Balanced	(Cisco Unity Connection without a cluster) Click False . (Cisco Unity Connection with a cluster configured) Click False .
Fault-Tolerant	(Cisco Unity Connection without a cluster) Click False . (Cisco Unity Connection with a cluster configured) Click True .

Step 31 For Cisco Unity Connection without a cluster, under Host List, enter the host name or IP address of the Cisco Unity Connection server and the server port in the format <host name or IP address>:5060.

For Cisco Unity Connection with a cluster configured, under Host List, enter the host name or IP address of the subscriber Cisco Unity Connection server (the second Cisco Unity Connection server that you installed) and the server port in the format <host name or IP address>:5060.

Step 32 For Cisco Unity Connection without a cluster, continue to [Step 34](#). For Cisco Unity Connection with a cluster configured, under Host List, click **Add Host**.

Step 33 In the second field, enter the host name or IP address of the publisher Cisco Unity Connection server (the first Cisco Unity Connection server that you installed) and the server port in the format <host name or IP address>:5060.



Caution Do not add a third host under Host List or a second host group under VoIP Host Groups. Otherwise, the Cisco Unity Connection cluster may not function correctly.

Step 34 Click **Submit**.

Step 35 On the Configuration menu, click **TDM > T1/E1**.

Step 36 On the T1/E1 Configuration page, enter the following settings.

Table 5-6 T1/E1 Configuration Page Settings

Field	Settings
Line Settings	
Line Mode	Click T1 .
Signaling Mode	Click CAS .
Interface Mode	Click Terminal .
T1 Line	
Line Encoding	Enter the setting that matches the phone system programming.
Framing	Enter the setting that matches the phone system programming.
Selects Transmit Pulse Waveform	Enter the setting that matches the phone system programming.
T1 CAS Protocol	
T1 CAS Protocol	Enter the setting that matches the phone system programming.
Flash Hook	Enter the setting that matches the phone system programming.

Table 5-6 T1/E1 Configuration Page Settings (continued)

Field	Settings
Consult Call Dialtone Drop Code	Enter the setting that matches the phone system programming.
Consult Call Proceeding Drop Code	Enter the setting that matches the phone system programming.
Consult Call Busy Drop Code	Enter the setting that matches the phone system programming.
Consult Call Error Drop Code	Enter the setting that matches the phone system programming.
Consult Call Connected Drop Code	Enter the setting that matches the phone system programming.
Consult Call Disconnected Drop Code	Enter the setting that matches the phone system programming.
MWI confirmation Tone	Click No .
CPID Type	Click TypeII_CPID .
Initial Wait for Inband CPID	Enter 100 .
Inband CPID Complete Timeout	Enter 300 .
Failover Settings	
Enable Failover	Click No .

Step 37 Click **Submit**.

Step 38 On the Configuration menu, click **TDM > General**.

Step 39 On the TDM General Settings page, enter the following settings.

Table 5-7 TDM General Settings Page Settings

Field	Settings
PCM Coding	Click uLaw .
Minimum Call Party Delay (ms)	Enter 500 .
Maximum Call Party Delay (ms)	Enter 2000 .
Dial Digit on Time (ms)	Enter 100 .
Dial Inter-Digit Time (ms)	Enter 100 .
Dial Pause Time (ms)	Enter 2000 .
Turn MWI On FAC	Leave this field blank.
Turn MWI Off FAC	Leave this field blank.
Outbound Call Connect Timeout (ms)	Enter 10000 .

Table 5-7 TDM General Settings Page Settings (continued)

Field	Settings
Wait for Ringback/Connect on Blind Transfer	Click Yes .
Hunt Group Extension	Enter the pilot number of the Cisco Unity Connection voice messaging ports.

Step 40 Click **Submit**.

Step 41 On the Configuration menu, click **TDM > Port Enable**.

Step 42 On the TDM Port Enabling page, click **No** for the ports that you want to disable on the TIMG unit.

Step 43 Confirm that **Yes** is selected for all other ports on the TIMG unit.

Step 44 Click **Submit**.

Step 45 On the Configuration menu, click **VoIP > General**.

Step 46 On the VoIP General Settings page, enter the following settings.

Table 5-8 VoIP General Settings Page Settings

Field	Setting
User-Agent	
Host and Domain Name	Enter the domain name of the TIMG unit.
Transport Type	Click UDP .
Call as Domain Name	Click No .
SIPS URI Scheme Enabled	Click No .
Invite Expiration (sec)	Enter 120 .
Server	
DNS Server Address	Enter the IP Address of the Domain Name Server that the TIMG unit will use.
Registration Server Address	Leave this field blank.
Registration Server Port	Enter 5060 .
Registration Expiration (sec)	Enter 3600 .
TCP/UDP	
UDP/TCP Transports Enabled	Click Yes .
TCP/UDP Server Port	Enter 5060 .
Proxy	

Table 5-8 VoIP General Settings Page Settings (continued)

Field	Setting
Primary Proxy Server Address	Leave this field blank.
Primary Proxy Server Port	Not applicable. Leave the default setting.
Backup Proxy Server Address	Not applicable. Leave the default setting.
Backup Proxy Server Port	Not applicable. Leave the default setting.
Proxy Query Interval	Enter 10 .
Timing	
T1 Time	Enter 500 .
T2 Time	Enter 4000 .
T4 Time	Enter 5000 .
Monitoring	
Monitor Call Connections	Click No .

Step 47 Click **Submit**.



Step 48 On the Configuration menu, click **VoIP > Media**.

Step 49 On the VoIP Media Settings page, enter the following settings.

Table 5-9 VoIP Media Settings Page Settings

Field	Settings
Audio	
Audio Compression	Click the preferred codec for audio compression: <ul style="list-style-type: none"> • G.711u—The TIMG unit will use only the G.711 mu-law codec. • G.729AB—The TIMG unit will prefer the G.729 codec but can also use the G.711 mu-law codec.
RTP Digit Relay Mode	Click RFC2833 .
Signaling Digit Relay Mode	Click Off .
Voice Activity Detection	Click On .

Table 5-9 VoIP Media Settings Page Settings (continued)

Field	Settings
Frame Size	<p>Click the applicable setting:</p> <ul style="list-style-type: none"> • G.711—20 • G.729AB—10 <p> Caution Failure to use the correct setting will result in recorded messages containing nothing but silence.</p>
Frames Per Packet	<p>Click the applicable setting:</p> <ul style="list-style-type: none"> • G.711—1 • G.729AB—2 <p> Caution Failure to use the correct setting will result in recorded messages containing nothing but silence.</p>

Step 50 Click **Submit**.

Step 51 On the Configuration menu, click **VoIP > QOS**.

Step 52 On the VoIP QOS Configuration page, enter the following settings.

Table 5-10 VoIP QOS Configurative Page Settings

Field	Settings
Call Control QOS Byte	Enter 104 (equivalent to DSCP AF31).
RTP QOS Byte	Enter 184 (equivalent to DSCP EF).

Step 53 Click **Submit**.

Step 54 On the Configuration menu, click **Serial > General**.

Step 55 On the Serial Port, COM 1 page, enter the following settings.

Table 5-11 Serial Port, COM 1 Page Settings

Field	Settings
Serial Port Baud Rate	Click the setting that is configured on the phone system. The default setting is 9600.
Serial Port Parity	Click the setting that is configured on the phone system. The default setting is None.

Table 5-11 Serial Port, COM 1 Page Settings (continued)

Field	Settings
Serial Port Data Bits	Click the setting that is configured on the phone system. The default setting is 8.
Serial Port Stop Bits	Click the setting that is configured on the phone system. The default setting is 1.

Step 56 Click **Submit**.

Step 57 On the Configuration menu, click **Serial > Switch Protocol**.

Step 58 On the Switch Protocol page, enter the following settings.

Table 5-12 Switch Protocol Page Settings

Field	Settings
Serial Port, COM 1	
Serial Mode (Master/Slave)	Click the applicable setting: <ul style="list-style-type: none"> • Master—Click this setting when this TIMG unit is connected to the data link serial cable from the phone system. There can be only one master TIMG unit in a phone system integration. • Slave—Click this setting when this TIMG unit is not connected to the data link serial cable from the phone system. There can be multiple slave TIMG units in a phone system integration.
Serial Interface Protocol	Click the serial protocol that your phone system uses: <ul style="list-style-type: none"> • SMDI • MCI • MD110
MCI Message Extension Length	<i>(For MCI protocol only)</i> Click the applicable number of extension digits.
MCI Message Type	<i>(For MCI protocol only)</i> Click the applicable message type.
Cpid Length	Click the applicable setting. Typically, the settings are 7 or 10.
Cpid Padding String	Enter the applicable string or leave this field blank. Typically, the setting is one of the following: <ul style="list-style-type: none"> • A string of zeros, where the number of zeros matches the setting of the Cpid Len field. • A prefix that is provided by the Centrex service.
Voice Mail Port Length	If the setting of the Serial Interface Protocol field is MD-110, enter 2 . Otherwise, accept the default of 7 .
System Number	Enter the applicable setting. Typically, the setting is 1.
MWI Response Timeout (ms)	Enter 2000 .

Table 5-12 Switch Protocol Page Settings (continued)

Field	Settings
IP Address of Serial Server	If the TIMG unit is the master, leave this field blank. If the TIMG unit is a slave, enter the IP address of the master TIMG unit (the TIMG unit that is connected to the data link serial cable from the phone system).
Serial Cpid Expiration (ms)	Enter 5000 .
Logical Extension Number	
<port number>	If the setting of the Serial Interface Protocol field is MCI or MD-110, enter the extension number for each port on the TIMG unit. If the setting of the Serial Interface Protocol field is SMDI, enter the logical port number. Typically, the setting is 1 for port 1, 2 for port 2, and so on beginning with the master TIMG unit and continuing through each of the slave TIMG units.

Step 59 Click **Submit**.

Step 60 On the Configuration menu, click **IP**.

Step 61 On the IP Settings, LAN1 page, enter the following settings.

Table 5-13 IP Settings, LAN1 Page Settings

Field	Settings
Client IP Address	Enter the new IP address that you want to use for the TIMG unit. (This is the IP address that you will enter in Cisco Unity Connection Administration when you create the integration.)
Client Subnet Mask	Enter the new subnet mask, if the subnet mask is different from the default IP address.
Default Network Gateway Address	Enter the IP address of the default network gateway router that the TIMG units will use.
BOOTP Enabled	If you are using DHCP, click Yes . If you are not using DHCP, click No .

Step 62 Click **Submit**.

Step 63 On the Configuration menu, click **Tone Detection**.

Step 64 On the Tone Detection page, under Call Progress Tone - Learn, in the Learn Tone Event field, click **Busy** and do the following substeps to verify that the tone is correct.

- a. From a available phone, call a second phone.
- b. Answer the second phone when it rings, and leave both handsets off so that both phones are busy.
- c. From a third phone, dial one of the busy phones.
- d. Confirm that you hear a busy tone.
- e. Hang up the third phone but leave the handsets for the other two phones off.

- Step 65** Under Call Progress Tone - Learn, in the Dial String field, enter the extension that you dialed in [Step 64c](#). from the third phone.
- Step 66** Click **Learn**.
- Step 67** On the Tone Detection page, under Call Progress Tone - Learn, in the Learn field, click **Error** and do the following substeps to verify that the tone is correct.
- From an available phone, dial an extension that does not exist.
 - Confirm that you hear the reorder or error tone.
 - Hang up the phone.
- Step 68** Under Call Progress Tone - Learn, in the Dial String field, enter the extension that you dialed in [Step 67a](#).
- Step 69** Click **Learn**.
- Step 70** On the Tone Detection page, under Call Progress Tone - Learn, in the Learn field, click **Ringback** and do the following substeps to verify that the tone is correct.
- From an available phone, dial an extension that does exist.
 - Confirm that you hear the ringback tone.
 - Hang up the phone.
- Step 71** Under Call Progress Tone - Learn, in the Dial String field, enter the extension that you dialed in [Step 70a](#).
- Step 72** Click **Learn**.
- Step 73** Click **Submit**.
- Step 74** Hang up the phones that you used in [Step 64](#).
- Step 75** On the System menu, click **Restart**.
- Step 76** On the Restart page, click **Restart Unit Now**.
- Step 77** Repeat [Step 2](#) through [Step 76](#) on all remaining TIMG units.
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Creating an Integration with the Phone System


After ensuring that the phone system, the TIMG units, and the Cisco Unity Connection server are ready for the integration, do the following procedures to set up the integration and to enter the port settings.

To Create an Integration

- Step 1** Log on to Cisco Unity Connection Administration.
- Step 2** In Cisco Unity Connection Administration, expand **Telephony Integrations**, then click **Phone System**.
- Step 3** On the Search Phone Systems page, under Display Name, click the name of the default phone system.
- Step 4** On the Phone System Basics page, in the Phone System Name field, enter the descriptive name that you want for the phone system.
- Step 5** If you want to use this phone system for TRaP connections (when users record and playback through the phone in Cisco Unity Connection web applications), check the Default TRAP Switch check box. If you want to use another phone system for TRaP connections, uncheck this check box.
- Step 6** Click **Save**.

- Step 7** On the Phone System Basics page, in the Related Links drop-down box, click **Add Port Group** and click **Go**.
- Step 8** On the New Port Group page, enter the applicable settings and click **Save**.

Table 5-14 Settings for the New Port Group Page

Field	Setting
Phone System	Click the name of the phone system that you entered in Step 4 .
Create From	Click Port Group Template and click SIP to DMG/PIMG/TIMG in the drop-down box.
Display Name	Enter a descriptive name for the port group. You can accept the default name or enter the name that you want.
SIP Security Profile	Click 5060 .
SIP Transport Protocol	Click the SIP transport protocol that Cisco Unity Connection will use.
IP Address or Host Name	Enter the IP address of the TIMG unit that you are integrating with Cisco Unity Connection.
Port	Enter the SIP port of the TIMG unit that Cisco Unity Connection will connect to. We recommend that you use the default setting.
	 <p>Caution This name must match the setting in the TCP/UDP Server Port field on the Configuration > VoIP > General page of the TIMG unit. Otherwise, the integration will not function correctly.</p>

- Step 9** On the Port Group Basics page, under Message Waiting Indicator Settings, uncheck the **Enable Message Waiting Indicators** check box. and click **Save**.
- Step 10** In the Related Links drop-down box, click **Add Ports** and click **Go**.
- Step 11** On the New Port page, enter the following settings and click **Save**.

Table 5-15 Settings for the New Ports Page

Field	Considerations
Enabled	Check this check box.
Number of Ports	Enter the number of voice messaging ports that you want to create in this port group. Note For a Cisco Unity Connection cluster, the Cisco Unity Connection server must have the number of voice messaging ports that are set up on the phone system for the TIMG integration so that this Cisco Unity Connection server can handle all voice messaging traffic for the Cisco Unity Connection cluster if one of the servers stops functioning. For example, if the phone system is set up with 16 voice messaging ports, this Cisco Unity Connection server must have 16 voice messaging ports.
Phone System	Click the name of the phone system that you entered in Step 4 .
Port Group	Click the name of the port group that you added in Step 8 .

Step 12 On the Search Ports page, click the display name of the first voice messaging port that you created for this phone system integration.



Note By default, the display names for the voice messaging ports are composed of the port group display name followed by incrementing numbers.

Step 13 On the Port Basics page, set the voice messaging port settings as applicable. The fields in the following table are the ones that you can change.

Table 5-16 Settings for the Voice Messaging Ports

Field	Considerations
Enabled	Check this check box to enable the port. The port is enabled during normal operation. Uncheck this check box to disable the port. When the port is disabled, calls to the port get a ringing tone but are not answered. Typically, the port is disabled only by the installer during testing.
Extension	Enter the extension for the port as assigned on the phone system.
Answer Calls	Check this check box to designate the port for answering calls. These calls can be incoming calls from unidentified callers or from users.
Perform Message Notification	Check this check box to designate the port for notifying users of messages. Assign Perform Message Notification to the least busy ports.
Send MWI Requests	Uncheck this check box. Otherwise, the integration may not function correctly.
Allow TRAP Connections	Check this check box so that users can use the port for recording and playback through the phone in Cisco Unity Connection web applications. Assign Allow TRAP Connections to the least busy ports.
Outgoing Hunt Order	Enter the priority order in which Cisco Unity Connection will use the ports when dialing out (for example, if the Perform Message Notification, Send MWI Requests, or Allow TRAP Connections check box is checked). The highest numbers are used first. However, when multiple ports have the same Outgoing Hunt Order number, Cisco Unity Connection will use the port that has been idle the longest.

Step 14 Click **Save**.

Step 15 Click **Next**.

Step 16 Repeat [Step 13](#) through [Step 15](#) for all remaining voice messaging ports for the phone system.

Step 17 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then click **Phone System**.

Step 18 On the Search Phone Systems page, under Display Name, click the name of the phone system that you entered in [Step 4](#).

Step 19 Repeat [Step 7](#) through [Step 18](#) for each remaining TIMG unit that will be integrated with Cisco Unity Connection.



Note Each TIMG unit is connected to one port group with the applicable voice messaging ports. For example, a system that uses two TIMG units requires two port groups, one port group for each TIMG unit.


Step 20 To create a port group for MWIs, do the following substeps.

**Note**

All MWI requests are handled by the master TIMG unit and sent to the phone system over the RS-232 serial cable (without using voice messaging ports). So the following substeps create a separate port group without voice messaging ports and enable the port group for MWIs that are “not port specific” (they do not use ports).

- a. In Cisco Unity Connection Administration, expand **Telephony Integrations**, then click **Port Group**.
- b. On the Search Port Groups page, click **Add New**.
- c. On the New Port Group page, enter the applicable settings and click **Save**.

Table 5-17 Settings for the New Port Group Page (MWIs)

Field	Setting
Phone System	Click the name of the phone system that you entered in Step 4 .
Create From	Click Port Group Template and click SIP to DMG/PIMG/TIMG in the drop-down box.
Display Name	Enter a MWI Port Group or another descriptive name for the port group.
SIP Security Profile	Click 5060 .
SIP Transport Protocol	Click the SIP transport protocol that Cisco Unity Connection will use.
IP Address or Host Name	Enter the IP address of the master TIMG unit.
Port	Enter the SIP port of the master TIMG unit
	 <p>Caution This name must match the setting in the TCP/UDP Server Port field on the Configure > SIP page of the TIMG unit. Otherwise, the integration will not function correctly.</p>

- d. On the Port Basics page, on the Edit menu, click **Advanced Settings**.
 - e. On the Edit Advanced Settings page, under SIP MWI Requests, click **Not Port Specific**. and click **Save**.
 - f. On the Edit menu, click **Port Group Basics**.
 - g. Under Port Group, click **Reset**.
 - h. Under Message Waiting Indicator Settings, confirm that the **Enable Message Waiting Indicators** check box is checked and click **Save**.
- Step 21** If another phone system integration exists, in Cisco Unity Connection Administration, expand **Telephony Integrations**, then click **Trunk**. Otherwise, skip to [Step 25](#).
- Step 22** On the Search Phone System Trunks page, on the Phone System Trunk menu, click **New Phone System Trunk**.
- Step 23** On the New Phone System Trunk page, enter the following settings for the phone system trunk and click **Save**.

Table 5-18 Settings for the Phone System Trunk

Field	Setting
From Phone System	Enter the display name of the phone system that you are creating a trunk for.
To Phone System	Enter the display name of the previously existing phone system that the trunk will connect to.
Trunk Access Code	Enter the extra digits that Cisco Unity Connection must dial to transfer calls through the gateway to extensions on the previously existing phone system.

- Step 24** Repeat [Step 22](#) and [Step 23](#) for all remaining phone system trunks that you want to create.
- Step 25** In the Related Links drop-down list, click **Check Telephony Configuration** and click **Go** to confirm the phone system integration settings.
- If the test is not successful, the Task Execution Results displays one or more messages with troubleshooting steps. After correcting the problems, test the connection again.
- Step 26** In the Task Execution Results window, click **Close**.
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