Setting Up an Avaya Definity G3 Digital PIMG Integration with Cisco Unity Connection

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Task List for Avaya Definity G3 Integration

Before doing the following tasks to integrate Unity Connection with the Avaya Definity G3 phone system using PIMG units (media gateways), confirm that the Unity Connection server is ready for the integration after completing the server installation, following the tasks in the "Installing Cisco Unity Connection" chapter of the Install, Upgrade, and Maintenance Guide for Cisco Unity Connection, Release 12.x, available at https://www.cisco.com/c/en/us/td/docs/voice_ip_comm/connection/12x/install_upgrade/guide/b_12xcuciumg.html.

1. Review the system and equipment requirements to confirm that all phone system and Unity Connection server requirements have been met. See the Requirements section.

2. Plan how the voice messaging ports are used by Cisco Unity Connection. See the "Planning the Usage of Voice Messaging Ports" chapter.

3. Program the Avaya Definity G3 phone system and extensions. See the Programming Avaya Definity G3 Phone System for Integration section.

4. Set up the PIMG units. See the Setting Up the Digital PIMG Units section.

5. Create the integration. See the Configuring Unity Connection for Integration with the Avaya Definity G3 Phone System section.

6. Test the integration. See the "Testing the Integration" chapter.

7. If this integration is a second or subsequent integration, add the applicable new user templates for the new phone system. See the "Adding New User Templates for Multiple Integrations" chapter.

Requirements

This integration supports configurations of the following components:

Phone System

- Avaya Definity G3 phone system. The voice messaging ports that connect to the PIMG units must be compatible with the 7434ND, 8434, 8434D, or 8434DX digital phones.

  You must use 2-wire line cards for these voice messaging ports. Otherwise, the voice messaging ports cannot be compatible with the 7434ND, 8434, 8434D, or 8434DX digital phones.

- Software version 4 or later.

- One or more of the applicable PIMG units. For details, see the Introduction chapter.

- The voice messaging ports in the phone system connected by digital lines to the ports on the PIMG units.

To simplify troubleshooting, you should connect the voice messaging ports on the phone system to the ports on the PIMG units in a planned manner. For example, connect the first phone system voice messaging port to the first port on the first PIMG unit, connect the second phone system voice messaging port to the second port on the first PIMG unit, and so on. Alternatively, if you have multiple PIMG units, you can reduce answer times in the event of a PIMG unit failure by connecting the phone system ports to the PIMG units in a round-robin fashion. For example, connect the first phone system voice messaging port to the first port on the first PIMG unit, connect the second phone system voice messaging port to the first port on the second PIMG unit, and so on.

- The PIMG units connected to the same LAN or WAN that Unity Connection is connected to.

- If the PIMG 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.

Unity Connection Server

- Unity Connection installed following the tasks in the "Installing Cisco Unity Connection" chapter of the Install, Upgrade, and Maintenance Guide for Cisco Unity Connection, Release 12.x, available at https://www.cisco.com/c/en/us/td/docs/voice_ip_comm/connection/12x/install_upgrade/guide/b_12xcuciumg.html.

- A license that enables the applicable number of voice messaging ports.

Programming Avaya Definity G3 Phone System for Integration

The following programming instructions are provided as an example only. The specific programming for your phone system may vary depending on its configuration.

⚠️

Caution   In programming the phone system, do not send calls to voice messaging ports in 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 Send MWI Requests, do not send calls to it.

Programming the Avaya Definity G3 Phone System

Step 1   Create a coverage path which contains the PIMG unit hunt group number as the coverage point.

Step 2   Assign the coverage path that you created in Step 1 to the user stations that must forward to the voice messaging ports on the PIMG units when calls are not answered or when the user station is busy, based on one of the Unity Connection call transfer types shown in Table 1: Call Transfer Types.

Table 1: Call Transfer Types

Transfer Type	Usage
Release transfer (blind transfer)	Program the user station to forward calls to the pilot number when: • The extension is busy. • The call is not answered.
Supervised transfer	Program the user station to forward calls to the pilot number only when the call is not answered (on the phone system, the number of rings before forwarding must be more than the number of rings to supervise the call). Confirm that call forwarding is disabled when the extension is busy.

Step 3   Use the Add Station <extension number> command (for example, Add Station 2999) to assign an extension number for each voice messaging port, which is a digital line that connects to the PIMG unit. Set the voice messaging port options (Table 2: Voice Messaging Port Options for All Lines) and button assignments (Table 3: Button Assignments for All Lines), and press **Enter**.

Note   You should distribute the voice messaging ports among multiple phone system line cards so that call processing can continue even if a line card becomes inactive.

Table 2: Voice Messaging Port Options for All Lines

Option	Setting
Extension	Enter the extension number of the digital line.

Option	Setting
Type	Enter **7434ND** You can also use the following settings. However, you must include the extension with each subscriber name when programming the phone system (for example, "3001 Jane Doe"). Otherwise, the integration cannot function correctly. • **8434** • **8434D** • **8434DX** **Note** If the setting that you want is not available, contact the phone system manufacturer.
LWC Reception	Enter **msa**.
LWC Activation?	Enter **y**.
Restrict Last Appearance?	Enter **y**.
Display Module	Enter **y**.

Table 3: Button Assignments for All Lines

Button Assignment	Setting
1	Enter **call-appr**.
2	Enter **call-appr**.
9	Enter **lwc-store**.
10	Enter **lwc-cancel**.

Step 4   Use the Add Hunt <hunt group number> command (for example, Add Hunt 1) to assign a the voice messaging ports to a hunt group. Set the following options.

Table 4: Hunt Group Options

Option	Setting
Group Number	Enter the hunt group number.
Group Extension	Enter the pilot number for the hunt group.
Group Type	Enter **ucd**.
Group Name	Enter the display name for the hunt group.
Queue?	Enter **N**.

Step 5   Enter the group member assignments for the voice messaging ports that answer calls and press **Enter**.

If you plan to set the voice messaging ports to either answer calls or to dial out (for example, to set MWIs), make sure that you include in the hunt group only the voice messaging ports are set to answer calls.

For smaller systems, include in the hunt group all voice messaging ports when the ports are set to both answer calls and dial out (for example, to set MWIs).

Setting Up the Digital PIMG Units

Do the following procedures to set up the digital PIMG units that are connected to the Avaya Definity G3 phone system.

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

- The phone system is connected to the PIMG units using digital lines.

- The PIMG units are ready to be connected to the LAN or WAN.

- The PIMG units are connected to a power source.

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 PIMG units.

Downloading the PIMG Firmware Update Files for Digital PIMG Units

http://software.cisco.com/download/navigator.html?mdfid=280082558&i=rm.

Note   To access the software download page, you must be signed in 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.

1. In the tree control on the Downloads Home page, expand Unified Communications> **Unified Communications Applications** > **Messaging** > **Cisco Unity** and select **Cisco Unity Telephony Integration**.

2. On the Log In page, enter your username and password, then select **Log In**.

3. On the Select a Release page, under Latest Releases, select the most recent release.

4. In the right column, select the version of the firmware for digital PIMG units.

5. On the Download Image page, select **Download**.

6. On the Supporting Document(s) page, select **Agree**.

7. In the File Download dialog box, select **Save**.

8. In the Save As dialog box, browse to the Windows workstation that have access the PIMG units, browse to a directory where you want to save the file, and select **Save**.

9. In the Download Complete dialog box, select **Open**. The window for extracting the PIMG firmware update files appears and select **Extract**.

10. In the Extract dialog box, browse to the directory where you want the extracted files and select **Extract**.

11. Close the window for the extracting application.

On a Windows workstation that have access to the PIMG units, go to the following link:

Setting Up the Digital PIMG Units (Firmware Version 6.x)

Step 1   On the Windows workstation, add a temporary route to enable access to the PIMG units.

   a) On the Windows Start menu, select **Run**.
   b) Enter **cmd**, and press **Enter**. The Command Prompt window appears.
   c) 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.

   d) Close the Command Prompt window.

Step 2   Connect a PIMG unit to the network.

Step 3   In the web browser, go to **http://10.12.13.74**.

Step 4   To sign in, enter the following case-sensitive settings.

Table 5: Sign-in Settings

Field	Setting
Username	Enter **admin**.
Password	Enter **IpodAdmin**.

Step 5   Select **OK**.

Step 6   On the System menu, select **Upgrade**.

Step 7   On the Upgrade page, select **Browse**.

Step 8   In the Choose File dialog box, browse to the directory on the Windows workstation that has the extracted PIMG firmware update files.

Step 9   Select **Ami<xx** > **.app** (where <xx> is multiple digits), and select **Open**.

Step 10   On the Upgrade page, select **Install File**.

Step 11   After the file is installed, a message prompting you to restart the PIMG unit appears. Select **Cancel**.

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

Step 12   Repeat Step 6 through Step 11 for each of the following files:

- Ami_<xx>.fsh

- Run<xx>FskEcho.dsp

- iNim<xx>.ibt

- iNim<xx>.ilc

- iNim<xx>.iap

Step 13   On the Configuration menu, select **Import/Export**.

Step 14   On the Import/Export page, select **Browse**.

Step 15   In the Choose File dialog box, browse to the file DNI_Cfg_Lucent.ini.

Step 16   Select **DNI_Cfg_Lucent.ini**, and select **Open**.

Step 17   On the Import/Export page, select **Import File**.

Step 18   After the file is imported, a message prompting you to restart the PIMG unit appears. Select **OK**.

Step 19   In the web browser, go to **http://10.12.13.74**.

Step 20   To sign in, enter the following case-sensitive settings.

Table 6: Sign-in Settings

Field	Setting
Username	Enter **admin**.
Password	Enter **IpodAdmin**.

Step 21   Select **OK**.

Step 22   Do the following substeps to configure an RTP port range of 16384 to 32767.

You must set the RTP port range for the PIMG units if your system uses an RTP port range of 16384 to 32767. Otherwise, Unity Connection cannot answer calls and callers hear ringing or silence.

Note The default RTP port range for PIMG units is 49000 to 50000. Some Unity Connection configurations require a different RTP port range.

a) On the Configuration menu, select **Import/Export**.

b) On the Import/Export page, under Export Settings, select **Export All Settings**.

c) In the File Download dialog box, select **Save**.

d) In the Save As dialog box, browse to the Windows workstation that has access to the PIMG units, browse to a directory where you want to save the file, and select **Save**.

e) In the Download Complete dialog box, select **Open**. Notepad opens the file Config.ini that you saved.

f)

g)

h) Locate the line with the following parameter:

```
gwRTPStartPort
```

i) Change the value of the parameter to **16384** so that the line reads as follows:

```
gwRTPStartPort = 16384
```

j) Locate the line with the following parameter:

```
gwRTPEndPort
```

k) Change the value of the parameter to **32767** so that the line reads as follows:

```
gwRTPEndPort = 32767
```

l) Save the file, and exit Notepad.

m) On the Configuration menu of the PIMG unit, select **Import/Export**.

n) On the Import/Export page, under Browse for Import File, select **Browse**.

o) In the Choose File dialog box, browse to the file Config.ini that you saved.

p) Select **Config.ini**, and select **Open**.

q) On the Import/Export page, select **Import File**.

r) When prompted to restart the PIMG unit, select **OK**.

s) When the PIMG unit has restarted, in the web browser, go to **http://10.12.13.74**.

t) To sign in, enter the following case-sensitive settings.

Table 7: Sign-in Settings

Field	Setting
Username	Enter **admin**.
Password	Enter **IpodAdmin**.

u) Select **OK**.

Step 23 On the System menu, select **Password**.

Step 24 On the Change Password page, enter the following settings.

Table 8: 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 25   Select **Change**.

Step 26   On the Configuration menu, select **Routing Table**.

Step 27   On the Routing Table page, under Router Configuration, select **VoIP Host Groups**.

Step 28   Under VoIP Host Groups, enter the following settings for the first VoIP Host Group.

Table 9: First VoIP Host Group Settings

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

Step 29   For Unity Connection without a cluster, under Host List, enter the host name or IP address of the Unity Connection server and the server port in the format <host name or IP address>:5060.

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

Step 30   For Unity Connection without a cluster, continue to Step 32. For Unity Connection with a cluster configured, select **Add Host**.

Step 31   In the second field, enter the host name or IP address of the publisher server (the first Unity Connection server that you installed) and the server port in the format <host name or IP address>:5060.

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

Step 32   Select **Submit**.

Step 33   Under Router Configuration, select **TDM Trunk Groups**.

Step 34   Under TDM Trunk Groups, select **Add Trunk Group**.

Step 35   Under TDM Trunk Groups, enter the following settings for the first TDM trunk group.

Table 10: First TDM Trunk Group Settings (Inbound Calls)

Field	Settings
Name	Enter **Inbound_PBX_Calls** or another unique name. This TDM trunk group handles all incoming calls from the phone system.
Selection Direction	Select **Ascending**.
Selection Mode	Select **Linear**.
Port/Channel Content	Enter the numbers of the PIMG ports that handle inbound calls. For example, enter "*" for all PIMG ports, or enter "1-6" for the first six PIMG ports.

Step 36   Under TDM Trunk Groups, select **Add Trunk Group**.

Step 37   Enter the following settings for the second TDM trunk group.

Table 11: Second TDM Trunk Group Settings (MWIs)

Field	Settings
Name	Enter **MWIs** or another unique name. This TDM trunk group handles outbound MWI calls (where applicable).
Selection Direction	Select **Ascending**.
Selection Mode	Select **Cyclic**.
Port/Channel Content	Enter the numbers of the PIMG ports that dial out MWIs. For example, enter "*" for all PIMG ports, or enter "7,8" for the last two PIMG ports.

Step 38   Under TDM Trunk Groups, select **Add Trunk Group**.

Step 39   Enter the following settings for the third TDM trunk group.

Table 12: Third TDM Trunk Group Settings (Outbound Calls)

Field	Settings
Name	Enter **Outbound_PBX_Calls** or another unique name. This TDM trunk group handles all outbound calls from Unity Connection.
Selection Direction	Select **Descending**.
Selection Mode	Select **Linear**.

Field	Settings
Port/Channel Content	Enter ***** for all channels in all ports. Enter the numbers of the PIMG ports that handle outbound (dialout) calls. For example, enter "*" for all PIMG ports, or enter "7,8" for the last two PIMG ports.

Step 40   Select **Submit**.

Step 41   Under Router Configuration, select **Inbound VoIP Rules**.

Step 42   Under Inbound VoIP Rules, uncheck the **Enabled** check box for the default rule.

Step 43   Select **Add Rule**.

Step 44   Under Inbound VoIP Rules, enter the following settings for the first new inbound VoIP rule.

Table 13: First New Inbound VoIP Rule Settings (MWIs)

Field	Settings
Enable	Check this check box.
Rule Label	Enter **MWI_Calls** or another name. This inbound VoIP rule handles all MWI calls from Unity Connection.
Request Type	Select **Message**.
Originating VoIP Host Address	Enter *****.

Step 45   Under Inbound VoIP Request Matching, enter the following settings.

The rule that you created in Step 44 must be selected. Otherwise, any changes you make apply to another inbound VoIP rule.

Table 14: Inbound VoIP Request Matching Settings

Field	Settings
Calling Number	Enter *****.
Calling Name	Enter *****.
Called Number	Enter *****.
Called Name	Enter *****.
Redirect Number	Enter *****.
Redirect Name	Enter *****.

Step 46   Under Outbound Routes, enter the following settings.

The rule that you created in Step 44 must be selected. Otherwise, any changes you make apply to another rule.

Table 15: Outbound Routes Settings

Field	Settings
Device Selection	
Outbound Destination	Select **TDM**.
Trunk Group	Select the name of the TDM trunk group that you created for MWIs in Step 37. For example, select "MWIs."
CPID Manipulation	
Calling Number	Enter **S**.
Calling Name	Enter **S**.
Called Number	Enter **D**.
Called Name	Enter **D**.
Redirect Number	Enter **R**.
Redirect Name	Enter **R**.
Select Primary/Alternate Route	
Primary	Select **Primary**.

Step 47   Under Inbound VoIP Rules, select **Add Rule**.

Step 48   Under Inbound VoIP Rules, enter the following settings for the second new inbound VoIP rule.

Table 16: Second New Inbound VoIP Rule Settings (Outbound Calls)

Field	Settings
Enable	Check this check box.
Rule Label	Enter **Outbound_UC_Calls** or another name. This inbound VoIP rule handles all outbound calls from Unity Connection.
Request Type	Select **Call**.
Originating VoIP Host Address	Enter *****.

Step 49   Under Inbound VoIP Request Matching, enter the following settings.

The rule that you created in Step 48 must be selected. Otherwise, any changes you make apply to another rule.

Table 17: Inbound VoIP Request Matching Settings

Field	Settings
Calling Number	Enter **.
Calling Name	Enter **.
Called Number	Enter **.
Called Name	Enter **.
Redirect Number	Enter **.
Redirect Name	Enter **.

Step 50   Under Outbound Routes, enter the following settings.

The rule that you created in Step 48 must be selected. Otherwise, any changes you make apply to another rule.

Table 18: Outbound Routes Settings

Field	Settings
Device Selection	
Outbound Destination	Select **TDM**.
Trunk Group	Select the name of the TDM trunk group that you created for outbound calls in Step 39. For example, select "Outbound_PBX_Calls."
CPID Manipulation	
Calling Number	Enter **S**.
Calling Name	Enter **S**.
Called Number	Enter **D**.
Called Name	Enter **D**.
Redirect Number	Enter **R**.
Redirect Name	Enter **R**.
Select Primary/Alternate Route	
Primary	Select **Primary**.

Step 51   Select **Submit**.

Step 52   Under Router Configuration, select **Inbound TDM Rules**.

Step 53   Under Inbound TDM Rules, enter the following settings for the first inbound TDM rule.

Table 19: First Inbound TDM Rule Settings

Field	Settings
Enable	Check this check box.
Rule Label	Enter **Inbound_Rule_1** or another name. This inbound TDM rule handles all incoming calls from the phone system.
Request Type	Select **Call**.
Trunk Group	Select the name of the TDM trunk group that you created for incoming calls from the phone system in Step 35. For example, select "Inbound_PBX_Calls."

Step 54   Under Inbound TDM Request Matching, enter the following settings.

The rule that you created in Step 53 must be selected. Otherwise, any changes you make apply to another rule.

Table 20: Inbound TDM Request Matching Settings

Field	Settings
Calling Number	Enter the applicable matching rule used. For example, enter "*" for all.
Calling Name	Enter the applicable matching rule used. For example, enter "*" for all.
Called Number	Enter the applicable matching rule used. For example, enter "*" for all.
Called Name	Enter the applicable matching rule used. For example, enter "*" for all.
Redirect Number	Enter the applicable matching rule used. For example, enter "*" for all.
Redirect Name	Enter the applicable matching rule used. For example, enter "*" for all.

Step 55   Under Outbound Routes, enter the following settings.

The rule that you created in Step 53 must be selected. Otherwise, any changes you make apply to another rule.

Table 21: Outbound Routes Settings

Field	Settings
Device Selection	
Outbound Destination	Select **VoIP**.

Field	Settings
Host Group	Select the name of the VoIP host group that you created for Unity Connection in Step 28.
CPID Manipulation	
Calling Number	Enter S.
Calling Name	Enter S.
Called Number	Enter D.
Called Name	Enter D.
Redirect Number	Enter R.
Redirect Name	Enter R.
Select Primary/Alternate Route	
Primary	Select **Primary**.

Step 56   If you want to create more Inbound TDM rules, under Inbound TDM Rules, select **Add Rule**. Otherwise, continue to Step 58.

Step 57   Repeat Step 53 through Step 56 for all remaining inbound TDM rules that you want to create.

Step 58   Select **Submit**.

Step 59   On the Configuration menu, select **TDM** > **Digital**.

Step 60   On the Digital Telephony page, in the Telephony Switch Type field, select Lucent.

Step 61   Select **Submit**.

Step 62   On the Configuration menu, select **TDM** > **General**.

Step 63   On the TDM General Settings page, enter the following settings.

Table 22: TDM General Settings Page Settings

Field	Settings
PCM Coding	Select **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.

Field	Settings
Outbound Call Connect Timeout (ms)	Enter **10000**.
Wait for Ringback/Connect on Blind Transfer	Select **Yes**.
Hunt Group Extension	Enter the pilot number of the Unity Connection voice messaging ports.
Disconnect on Fax Cleardown Tone	Select **No**.

Step 64   Select **Submit**.

Step 65   On the Configuration menu, select **TDM** > **Port Enable**.

Step 66   On the TDM Port Enabling page, select **No** for the ports that you want to disable on the PIMG unit.

Step 67   Confirm that **Yes** is selected for all other ports on the PIMG unit.

Step 68   Select **Submit**.

Step 69   On the Configuration menu, select **VoIP** > **General**.

Step 70   On the VoIP General Settings page, enter the following settings.

Table 23: VoIP General Settings Page Settings

Field	Setting
User-Agent	
Host and Domain Name	Enter the host and domain name of the PIMG unit.
Transport Type	Select **UDP**.
Call as Domain Name	Select **No**.
SIPS URI Scheme Enabled	Select **No**.
Invite Expiration (sec)	Enter **120**.
Server	
DNS Server Address	Enter the IP Address of the Domain Name Server that the PIMG unit uses.
DNS Translation of Phone Numbers	Select **No**.
Registration Server Address	Leave this field blank.
Registration Server Port	Enter **5060**.
Registration Expiration (sec)	Enter **3600**.
TCP/UDP	
UDP/TCP Transports Enabled	Select **Yes**.
TCP/UDP Server Port	Enter **5060**.

Field	Setting
TCP Inactivity Timer (sec)	Enter **30**.
TLS	
TLS Transport Enabled	Select **No**.
TLS Server Port	Enter **5061**.
SSL TLS Protocol	Select **SSLv3 TLSv1**.
Mutual TLS Authentication Required	Select **Yes**.
TLS Inactivity Timer (sec)	Enter **30**.
Verify TLS Peer Certificate Date	Select **Yes**.
Verify TLS Peer Certificate Trust	Select **Yes**.
Proxy	
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 (ms)	Enter **400**.
T2 Time (ms)	Enter **3000**.
T4 Time (ms)	Enter **5000**.
Monitoring	
Monitor Call Connections	Select **No**.
Call Monitor Interval (sec)	
Monitor VoIP Hosts	
VoIP Host Monitor Interval (sec)	

Step 71   Select **Submit**.

Step 72   On the Configuration menu, select **VoIP** > **Media**.

Step 73   On the VoIP Media Settings page, enter the following settings.

Table 24: VoIP Media Settings Page Settings

Field	Settings
Audio	
Audio Compression	Select the preferred codec for audio compression.
RTP Digit Relay Mode	Select **RFC2833**.
RTP Fax/Modem Tone Relay Mode	Select **RFC2833**.
RTP Source IP Address Validation	Select **Off**.
RTP Source UDP Port Validation	Select **Off**.
Signaling Digit Relay Mode	Select **Off**.
Voice Activity Detection	Select **Off**.
RFC 3960 Early Media Support	Select **On Demand**.
Frame Size	Select the applicable setting: • G.711—**20** • G.729AB—**10** Failure to use the correct setting results in recorded messages containing nothing but silence.
Frames Per Packet	Select the applicable setting: • G.711—**1** • G.729AB—**2** Failure to use the correct setting results in recorded messages containing nothing but silence.
Fax	
Fax IP-Transport Mode	
SRTP	
SRTP Preference	Select **RTP Only**.
MKI on Transmit Stream	Select **Yes**.
Key Derivation Enable	Select **Yes**.
Key Derivation Rate	Enter **16**.
Anti-replay Window Size Hint	Enter **64**.
Cipher Mode	Select **AES_Counter_Mode**.

Field	Settings
Authentication Type	Select **SHA1**.
Authentication Tag Length	Select **SHA1_80_bit**.

Step 74   Select **Submit**.

Step 75   On the Configuration menu, select **VoIP** > **QOS**.

Step 76   On the VoIP QOS Configuration page, enter the following settings.

Table 25: VoIP QOS Configurative Page Settings

Field	Settings
Call Control QOS Byte	Enter **104**.
RTP QOS Byte	Enter **184**.

Step 77   Select **Submit**.

Step 78   On the Configuration menu, select **IP**.

Step 79   On the IP Settings page, enter the following settings.

Table 26: IP Settings Page Settings

Field	Settings
Client IP Address	Enter the new IP address you want to use for the PIMG unit. (This is the IP address that you 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 PIMG units use.
BOOTP Enabled	Select **No**.
SNTP Server IP Address	

Step 80   Select **Submit**.

Step 81   On the Configuration menu, select **Tone Detection**.

Step 82   On the Tone Detection page, under Call Progress Tone - Learn, in the Learn Tone Event field, select **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 83 Under Call Progress Tone - Learn, in the Dial String field, enter the extension that you dialed in Step 82c. from the third phone.

Step 84 Select **Learn**.

Step 85 On the Tone Detection page, under Call Progress Tone - Learn, in the Learn field, select **Error** and do the following substeps to verify that the tone is correct.

    a) From an available phone, dial an extension that does not exist.

    b) Confirm that you hear the reorder or error tone.

    c) Hang up the phone.

Step 86 Under Call Progress Tone - Learn, in the Dial String field, enter the extension that you dialed in Step 85a.

Step 87 Select **Learn**.

Step 88 On the Tone Detection page, under Call Progress Tone - Learn, in the Learn field, select **Ringback** and do the following substeps to verify that the tone is correct.

    a) From an available phone, dial an extension that does exist

    b) Confirm that you hear the ringback tone.

    c) Hang up the phone.

Step 89 Under Call Progress Tone - Learn, in the Dial String field, enter the extension that you dialed in Step 88a.

Step 90 Select **Learn**.

Step 91 Select **Submit**.

Step 92 Hang up the phones that you used in Step 82.

Step 93 On the System menu, select **Restart**.

Step 94 On the Restart page, select **Restart Unit Now**.

Step 95 Repeat Step 2 through Step 94 on all remaining PIMG units.

Configuring Unity Connection for Integration with the Avaya Definity G3 Phone System

After ensuring that the Avaya Definity G3 phone system, the PIMG units, and Unity Connection are ready for the integration, do the following procedure to set up the integration and to enter the port settings.

Creating an Integration

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Phone System**.

Step 2 On the Search Phone Systems page, under Display Name, select the name of the default phone system.

Step 3 On the Phone System Basics page, in the Phone System Name field, enter the descriptive name that you want for the phone system.

Step 4 If you want to use this phone system as the default for TRaP connections so that administrators and users without voicemail boxes can record and playback through the phone in Unity Connection web applications, check the **Default TRAP Switch** check box. If you want to use another phone system as the default for TRaP connections, uncheck this check box.

Step 5 Under Message Waiting Indicator Settings, select**Use Same Port for Enabling and Disabling MWIs**.

Step 6   Select **Save**.

Step 7   On the Phone System Basics page, in the Related Links drop-down box, select **Add Port Group** and select **Go**.

Step 8   On the New Port Group page, enter the applicable settings and select **Save**.

Table 27: Settings for the New Port Group Page

Field	Setting
Phone System	Select the name of the phone system that you entered in Step 3.
Create From	Select **Port Group Template** and select **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	Select **5060**.
SIP Transport Protocol	Select the SIP transport protocol that Unity Connection uses.
IP Address or Host Name	Enter the IP address of the PIMG unit that you are integrating with Unity Connection.
Port	Enter the SIP port of the PIMG unit that Unity Connection connects to. We recommend that you use the default setting. This name must match the setting in the TCP/UDP Server Port field on the Configuration > VoIP > General page of the PIMG unit. Otherwise, the integration cannot function correctly.

Step 9   On the Port Group Basics page, under Message Waiting Indicator Settings, uncheck the **Enable Message Waiting Indicators** check box and select **Save**.

Step 10   In the Related Links drop-down box, select **Add Ports** and select **Go**.

Step 11   On the New Port page, enter the following settings and select **Save**.

Table 28: Settings for the New Port Page

Field	Considerations
Enabled	Check this check box.

Field	Considerations
Number of Ports	Enter **8**. (If you want to use fewer than eight voice messaging ports, enter the number of voice messaging ports that you want to use on this PIMG unit.) **Note** For a Unity Connection cluster, the server must have the number of voice messaging ports that are set up on the phone system for the PIMG integration so that this server can handle all voice messaging traffic for the cluster if one of the servers stops functioning. For example, if the phone system is set up with 16 voice messaging ports, this server must have 16 voice messaging ports.
Phone System	Select the name of the phone system that you entered in **Step 3**.
Port Group	Select the name of the port group that you added in **Step 8**.

Step 12 On the Search Ports page, select 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 29: 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.

Field	Considerations
Send MWI Requests	(Serial integrations only) Uncheck this check box. Otherwise, the integration may not function correctly. (Digital and analog integrations only) Check this check box to designate the port for turning MWIs on and off. Assign Send MWI Requests to the least busy ports
Allow TRAP Connections	Check this check box so that users can use the port for recording and playback through the phone in Unity Connection web applications. Assign Allow TRAP Connections to the least busy ports.
Outgoing Hunt Order	Enter the priority order in which Unity Connection uses 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, Unity Connection uses the port that has been idle the longest.

Step 14   Select **Save**.

Step 15   Select **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 select **Phone System**.

Step 18   On the Search Phone Systems page, under Display Name, select the name of the phone system that you entered in Step 3.

Step 19   Repeat Step 7 through Step 18 for each remaining PIMG unit integrated with Unity Connection.

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

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

> **Note**   All MWI requests are handled by the master PIMG 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 Integration** then select **Port Group** .

b) On the Search Port Groups page, select **Add New**.

c) On the New Port Group page, enter the applicable settings and select **Save**.

Table 30: Settings for the New Port Group Page (MWIs)

Field	Setting
Phone System	Select the name of the phone system that you entered in Step 3.
Create From	Select Port Group Template and select **SIP to DMG/PIMG/TIMG** SIP to in the drop-down box.

Field	Setting
Display Name	Enter a **MWI Port Group** or another descriptive name for the port group.
SIP Security Profile	Select **5060**.
SIP Transport Protocol	Select the SIP transport protocol that Unity Connection uses.
IPv4 Address or Host Name	Enter the IP address of the master PIMG unit.
IPv6 Address or Host Name	Do not enter a value in this field. IPv6 is not supported for PIMG integrations.
IP Address or Host Name	Enter the IP address of the master PIMG unit.
Port	Enter the SIP port of the master PIMG unit. **Caution** This name must match the setting in the TCP/UDP Server Port field on the Configuration > VoIP > General page of the PIMG unit. Otherwise, the integration cannot function correctly.

d) On the Port Group Basics page, on the Edit menu, select **Advanced Settings**.

e) On the Edit Advanced Settings page, under SIP MWI Requests, select **Not Port Specific** then select **Save**.

f) On the Edit menu, select **Port Group Basics**.

g) Under Port Group, select **Reset**.

h) Under Message Waiting Indicator Settings, confirm that the **Enable Message Waiting Indicator** check box is checked and select **Save**.

Step 21 If another phone system integration exists, in Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Trunk**. Otherwise, skip to Step 25.

Step 22 On the Search Phone System Trunks page, on the Phone System Trunk menu, select **New Phone System Trunk**.

Step 23 On the New Phone System Trunk page, enter the following settings for the phone system trunk and select **Save**.

Table 31: 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 connects to.
Trunk Access Code	Enter the extra digits that 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, select **Check Telephony Configuration** and select **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, select **Close**.