



ALTIGEN
COMMUNICATIONS

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MAX Communication Server Release 7.0

Polycom IP Phone Configuration Guide



Intended audience:
AltiGen Authorized Partners

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1 Introduction

This document provides configuration details for the Polycom IP phone and lists the limitations of using the Polycom IP phone with AltiGen's MaxCS 7.0 system. This document applies only to MaxCS 7.0 or later.

2 Prerequisites

- MAXCS 7.0
- Polycom IP phone models 6000, 7000, IP 321, IP 331, IP 335, IP 560, IP 650
- Firmware version:
 - BootRom: 4.2.1
 - SIP Application 3.2.7
- An AltiGen third-party SIP Device license for each Polycom IP phone

Warning! Do not update the Boot Rom or SIP application firmware to newer versions than listed above, because newer versions may not be able to downgrade to the versions listed above. The configuration provided in this document may not be compatible with newer versions of the firmware or Boot Rom. If you already have a Polycom phone with a firmware newer than SIP Application 3.3.3 or Boot Rom newer than Boot Rom 4.3.1, we may not be able to support the Polycom phone.

Note: NAT traversal for a Polycom IP phone to a remote site behind NAT is supported.

3 Configure the Extension to Accept a 3rd party SIP Phone

1. Log into MaxAdministrator.
2. Choose **PBX > Extension Configuration > General**.
3. Create an extension and set the following parameters:
 - a) Enable IP extension
 - b) Dynamic IP Address

Note: Do **not** configure Static IP address for 3rd party SIP device. This may cause SIP registration failure.

 - c) Enable 3rd Party Sip Device



IP Extension

Enable IP Extension Connect Voice Stream to Server

Dynamic IP Address Static IP Address

Logon IP Address: 0 . 0 . 0 . 0

Home Media Server ID: [Dropdown]

Enable 3rd Party SIP Device

SIP Registration Password: [Masked]

Enable Fallback to Mobile Extension

Mobile Extension Channel: 01:000 [Dropdown]

4. Choose **PBX > Extension Configuration > Answering**.
5. In the **Call Waiting** section, select **Enable Multiple Call Waiting**. (Single Call Waiting does not work with 3rd-party phones.)

Call Waiting

Enable Single Call Waiting

Enable Multiple Call Waiting

Enable Live Call Handling

6. Choose **PBX > AltiGen IP Phone Configuration**.
7. Select the extension number to which the Polycom IP phone will connect.
8. Check **Enable SIP Telephony Service** in the 3rd Party SIP Device panel. This will enable the extension to use SIP Hold, Transfer, and Conference.

3rd Party SIP Device

Enable SIP Telephony Service

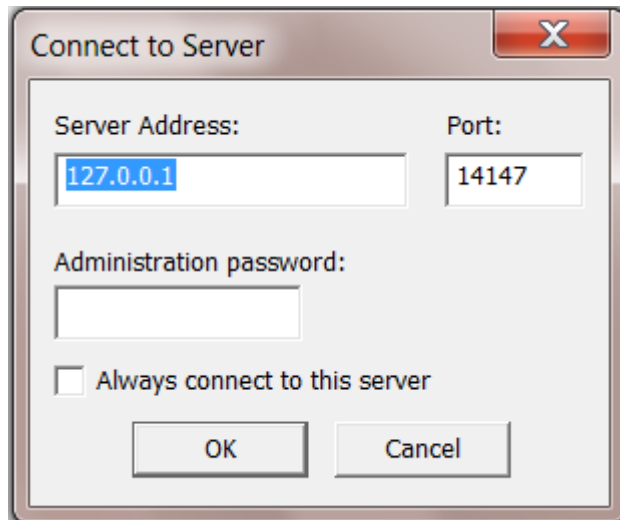
4 Set Up FTP Server to Load Configuration Files to Polycom Phone

In this guide, the open-source FTP server *FileZilla* is used to demonstrate how to load configuration files to the Polycom IP phone. If you are using a different FTP server, the configuration procedure will be similar.

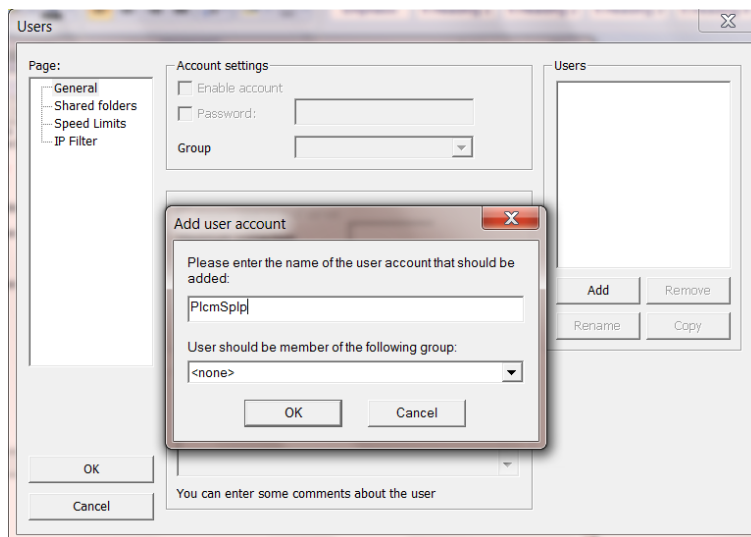
Note: Stop other FTP servers when using FileZilla as a configuration server for Polycom IP phones.

1. Download FileZilla FTP Server from <http://filezilla-project.org/download.php?type=server>.
2. Set up the FTP user and home directory.
 - a) Start FileZilla Server from the **Start** menu and connect to server.

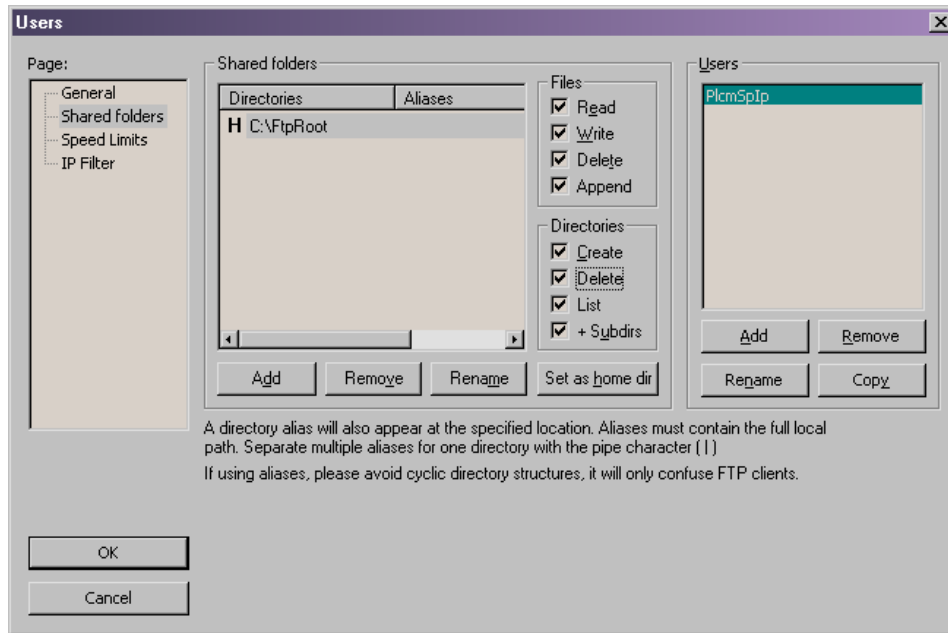
Note: The Administration password is blank by default.



- b) From the **Edit** menu, select **Users**.
- c) In the **General** page, add an FTP user “PlcmSplp” and set its password as “PlcmSplp” – these are Polycom IP phone factory defaults. The password is case-sensitive.



- d) Click the **Shared folders** page and add the directory you want to use as the FTP root, for example “C:\FtpRoot”, then click the **Set as home dir** button to make it the home directory.
- e) Check (select) all of the privileges in the Files and the Directories sections and click **OK**.



5 Download Firmware and the Default Configuration Files

1. Download and extract the firmware and default configuration files.
 - a) Go to the sites listed below to download the BootROM 4.2.1 and SIP Application 3.2.7 files.
 - b) Extract them to the top level of the FTP root directory you just configured.

Note: If you need to upgrade or downgrade to one of these supported versions, contact Polycom for instructions.

BootROM 4.2.1:

http://downloads.polycom.com/voice/voip/sp_ss_bootrom/spip_ssip_BootROM_4_2_1_release_sig.zip

SIP Application 3.2.7:

http://downloads.polycom.com/voice/voip/sp_ss_sip/SoundPoint_IP_SIP_3_2_7_release_sig_split.zip

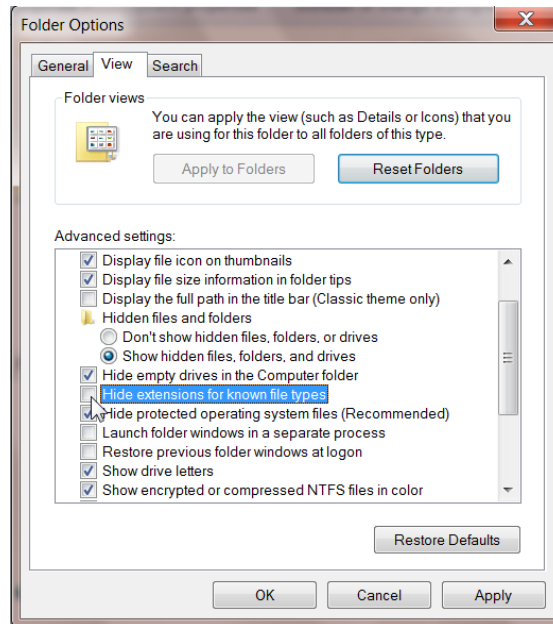
Note: Make sure that the sip.cfg and phone1.cfg files are in the FTP root directory.

2. Allow viewing of .cfg files in Windows.

Configuration files are in XML format and can be opened in Notepad or any other text editor.

To be able to view and save the “.cfg” file extension properly, configure Windows to display all file extensions:

- a) Go to **My Computer > Tools > Folder Options > View Tab**; and uncheck **Hide extensions for known file types**.



6 Prepare the Configuration Files

This section discusses the procedure to create new configuration files that contain only the parameter settings appropriate for an Altigen installation.

There are two ways to configure Polycom IP phones:

- By using a configuration file
- By using the browser interface

When deploying multiple Polycom IP phones, the configuration file approach is recommended. It is faster and more accurate.

When setting up the Polycom IP phones for the first time, you will do the following steps (details for each step are provided in the next few sections):

- Create a SIP configuration file that contains only the parameters specific to Altigen deployment. For example, **altigen.cfg**.
- Create a local phone file for each phone, containing only the parameters that you want to change. For example, **201.cfg**.



- Create a master configuration for the phone with a specific Ethernet MAC address. For example, **0004f2000607.cfg**.
- Add the altigen.cfg and 201.cfg files to the CONFIG_FILES list in the master configuration file in the appropriate order.

6.1 Create the altigen.cfg Configuration File

The altigen.cfg file defines several important parameters for all Polycom IP phone models connecting to the AltiGen system.

To create a new altigen.cfg file, copy the following configuration lines and save them as "altigen.cfg."

```
<?xml version="1.0" standalone="yes"?>
<!-- Altigen specific configuration parameters -->
<sip>
  <voIpProt>
    <SIP>
      <conference voIpProt.SIP.conference.address="conf"/>
      <alertInfo
        voIpProt.SIP.alertInfo.1.value="info=alert-autoanswer"
        voIpProt.SIP.alertInfo.1.class="3"
        voIpProt.SIP.alertInfo.2.value="auto-answer"
        voIpProt.SIP.alertInfo.2.class="3" />

      <altigenport reg.1.server.1.port="10060"
voIpProt.SIP.outboundProxy.port="10060"
        voIpProt.SIP.local.port="10060"/>
      <altigen2833 tone.dtmf.rfc2833Payload="101"/>

    </SIP>
  </voIpProt>

  <TCP_IP>
    <SNTP tcpIpApp.snntp.daylightSavings.enable="1"
tcpIpApp.snntp.gmtOffset="-28800" tcpIpApp.snntp.address="time.nist.gov" />
  </TCP_IP>

  <dialplan dialplan.removeEndOfDial=="0">
    <digitmap dialplan.digitmap="0|##|#[1-3]x|#[5-9]x|#41xx|#4[2-9]|[1-
7]xx|9[2-9]xxxxxx|91xxxxxxxxxx|xxx.T" />
  </dialplan>
  <call call.lastCallReturnString="#69" />
  <tones>
    <DTMF tone.dtmf.onTime="120" tone.dtmf.offTime="120" />
  </tones>

  <sound_effects>
    <patterns>
      <MISCELLANEOUS>
```




```
                <MESSAGE_WAITING se.pat.misc.1.name="message waiting"
se.pat.misc.1.inst.1.type="silence" se.pat.misc.1.inst.1.value="1"
se.pat.misc.1.inst.2.type="silence" se.pat.misc.1.inst.2.value="2"
se.pat.misc.1.inst.3.type="silence" se.pat.misc.1.inst.3.value="1"/>
                </MISCELLANEOUS>
                </patterns>
        </sound_effects>
</sip>
```

- The <SNTP> part defines the time server. The default value is “time.nist.gov”. This can be changed to any SNTP-compliant time server if needed.
- “tcpIpApp.snntp.gmtOffset” is the offset in seconds of the local time zone from GMT, -28800 = -8 * 3600, so the time zone here is GMT-8 US Pacific time. You can change it to your local time zone.
 - Eastern Time = -18000
 - Central Time = -21600
 - Mountain Time = -25200
 - Pacific Time = -28800
- The “tcpIpApp.snntp.daylightSavings.enable” option enables daylight saving time. It is **enabled** in this configuration. If you don’t use daylight saving time, change the value to “0”.
- **digitmap** dialplan.digitmap="0|##|[1-3]x|[5-9]x|#41xx|#4[2-9]| [1-7]xx|9[2-9]xxxxxx|91xxxxxxxxxx|xxx.T"
 - **0** means user can dial 0 to ring operator extension or WG defined in the AltiGen server.
 - **##** means accepting ## to access voice mail.
 - **[1-3]x** means accepting feature code #1x, #2x, and #3x.
 - **[5-9]x** means accepting feature code #5x, #6x, #7x, #8x, and #9x.
 - **#41xx** means accepting system call park with two-digit ID.
 - **#4[2-9]** means accepting other feature codes starting with #4
 - **[1-7]xx** means your extension length is 3-digit with a prefix starting with 1 to 7. (This means extension 123 is a valid extension number, but 823 or 923 are not valid extension numbers). If your extension digit length is 4, then change **[1-7]xx** to **[1-7]xxx**
 - **9[2-9]xxxxxx** means dialing trunk access code 9 plus 7-digit local call. If your local call is 10-digit dialing, you need to change this to **9[2-9]xxxxxxxx**
 - **91xxxxxxxxxx** means dialing trunk access code 9 plus 11-digit long distance number except.



- **xxx.T** forces a call to be sent immediately if 3 or more digits are dialed and the “dial” softkey is pressed.

Note: If a dialed number is not defined in this dial plan, the user needs to wait for time out or press the softkey **Send** to initiate dialing.

- **MESSAGE_WAITING** line will silence the beep tone when there is a voice mail. If you’d like to hear the beep notification of WMI, delete the whole **<sound_effects>** paragraph.

6.2 Create the Extension-Specific Configuration Files

For each extension that uses a Polycom IP phone, create an extension-specific configuration file that defines the user name, extension number, and password.

The filename format is “xxx.cfg” where the xxx is the extension number, for example 201.cfg.

All ext.cfg files should be saved to the FTP root directory.

To create a new “ext.cfg” file, you can copy the following configuration lines and save this text as a new “ext.cfg” file:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<!-- Extension Registration Configuration File -->
<phone1>
  <reg reg.1.displayName="Ext_Name" reg.1.address="201" reg.1.label="201"
reg.1.auth.userId="201" reg.1.auth.password="1212"
reg.1.server.1.address="10.100.2.127" reg.1.server.1.expires="90" />
  <msg msg.bypassInstantMessage="1" msg.mwi.1.callBackMode="contact"
msg.mwi.1.callBack="##@10.100.2.127"
msg.mwi.1.subscribe="201@10.100.2.127" />
</phone1>
```

When creating ext.cfg file for each extension, change the following parameters.

1. Change reg.1.displayName="Ext_Name" to the extension’s user name. reg.1.displayName is the SIP display name used in SIP from header.
2. Change 201 in reg.1.address="201" reg.1.label="201" reg.1.auth.userId="201" to the real extension number. reg.1.lable can be any string that will be displayed on the LCD next to the softkey on a Polycom phone. If the string is too long it will be truncated on the LCD of a Polycom phone.
3. Change 1212 in reg.1.auth.password="1212" to the real extension password.
4. Change the server addresses in reg.1.server.1.address="10.100.2.127" to the real MAXCS server address.



5. Change the message waiting indicator settings:
 - Change the server IP address in `msg.mwi.1.callBack="##@10.100.2.127"`
 - Change the extension number and server IP address in `msg.mwi.1.subscribe="201@10.100.2.127"`
6. If you have more than 100 Polycom IP phones, change the SIP registration expire time to 600 in `reg.1.server.1.expires="90"`. This will reduce the load on the MAXCS server.

6.3 Create Phone-Specific Configuration File – MAC_Address.cfg

Check the phone's Ethernet MAC address. You can find it on the back of the phone.

Create a configuration file with the MAC address as its file name, [MAC_address].cfg. For example, 0004f214ab37.cfg.

Copy the following configuration lines and save the text to the FTP root directory.

```
<?xml version="1.0" standalone="yes"?>
<!-- Default Master SIP Configuration File-->
<!-- Edit and rename this file to <Ethernet-address>.cfg for each phone.-->
<!-- $RCSfile: 000000000000.cfg,v $ $Revision: 1.18 $ -->
<APPLICATION APP_FILE_PATH="sip.ld" CONFIG_FILES="201.cfg, altigen.cfg,
phone1.cfg, sip.cfg" MISC_FILES="" LOG_FILE_DIRECTORY=""
OVERRIDES_DIRECTORY="" CONTACTS_DIRECTORY="" LICENSE_DIRECTORY="">
<APPLICATION_SPIP300 APP_FILE_PATH_SPIP300="sip_212.ld"
CONFIG_FILES_SPIP300="phone1_212.cfg, sip_212.cfg"/>
<APPLICATION_SPIP500 APP_FILE_PATH_SPIP500="sip_212.ld"
CONFIG_FILES_SPIP500="phone1_212.cfg, sip_212.cfg"/>
</APPLICATION>
```

When creating the MAC_Address.cfg file for each phone, you need to change the following parameter.

- Change "201.cfg" in line 5 to the file name of [extension number].cfg you created on page 10 in the section *Create the Extension-Specific Configuration Files*.

7 Configure FTP Server IP Address for Each Phone

7.1 Configure the FTP Server IP Address Manually

1. While powering up the Polycom IP phone, you will see three options: **Start**, **Setup**, and **About**.
2. Select **Setup**, enter default password "456" to enter the setup menu.

- Under **Menu > Setting > Advanced > Admin Settings > Network Configuration > Server Menu**, set **Server Type** to FTP, and **Server Address** to the IP address of the FTP Server.

Close all of the menus and go back to the boot screen. Select **Start** to reboot the phone. The phone will start downloading the firmware (if newer firmware exists) and configuration files you created in section 4.

7.2 Configure the FTP Server IP Address by Using DHCP Option 160 (Auto Discovery)

You can use the Auto Discovery feature in the Polycom IP phone to set the FTP server address. Although this approach will save you a lot of time when deploying many IP phones, it requires you to set up option setting in a DHCP server.

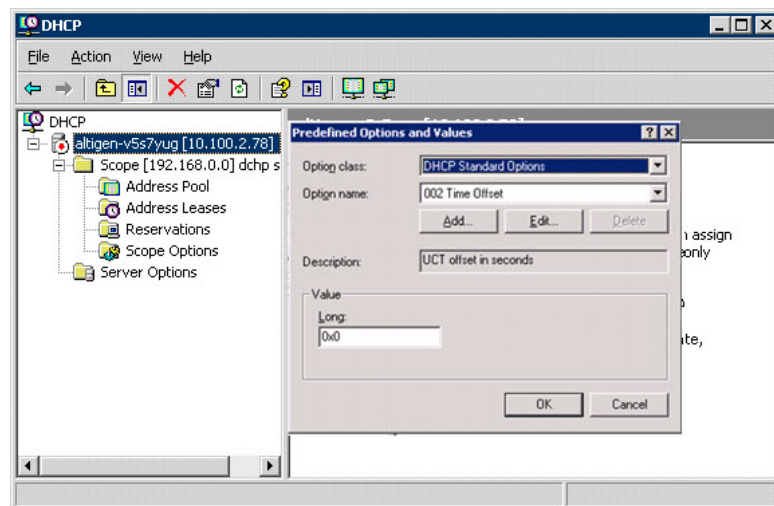
The Polycom IP phones factory default DHCP option is 160 and DHCP option is an IP address string. To set up Auto Discovery, you will need to configure the FTP server IP address as a “STRING” in the DHCP server option 160.

Warning: For the Polycom IP6000 conference phone, the default is DHCP option 66 and the DHCP option is an IP address. It is recommended that you manually configure the FTP server IP address for the IP6000 conference phone.

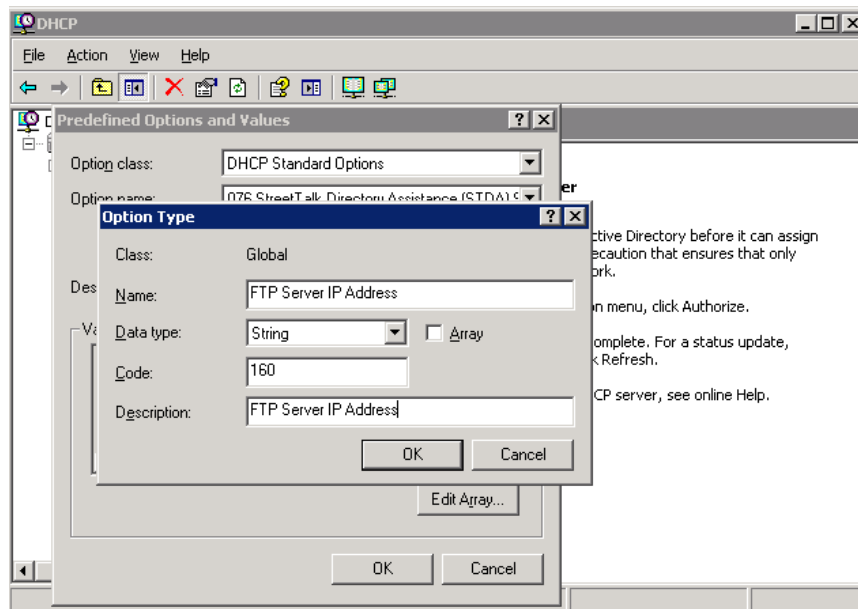
7.3 Example: Configuring DHCP Option 160

This example uses Microsoft Windows DHCP Server to set up DHCP Option 160 for deploying Polycom IP phones.

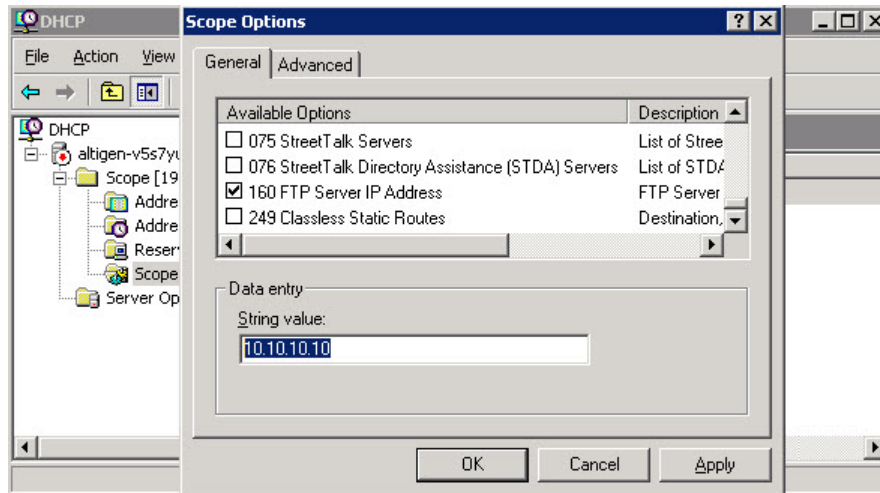
- Right-click the server and select **Set Predefined Options**.



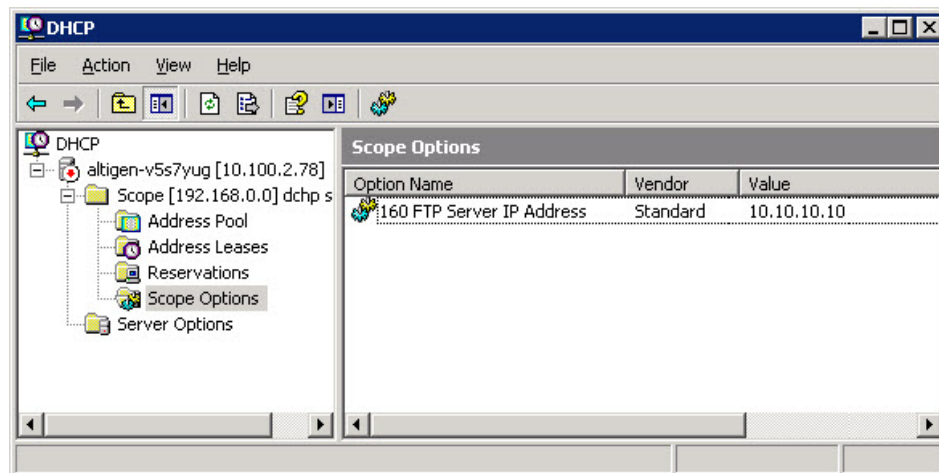
2. Click **Add**. The Option Type dialog box opens.
3. Enter the following parameters:
 - Name as **FTP Server IP Address**
 - Data Type as **String**
 - Code as **160**
 - Description as **FTP Server IP Address**.



4. Click **OK** twice in order to complete the creation of Option 160. The DHCP Scope you created is listed in the "Scope Options."
5. Right-click **Scope Options**, select **Configure Option**, and check 160 FTP Server IP Address in the available option list.



6. Enter the IP address of FTP server in the String Value field. Click **Apply** and **OK** to see the option 160 in the Scope Options window.



7. Right-click the **Scope** and select **Activate** in order to activate the Scope.

Note: If the DHCP option 160 is already being used for another purpose, change the default setting on the phone to a different DHCP option. Choose Menu > **Setting** > **Advanced** > **Admin Settings** > **Network Configuration** > **DHCP Menu**, change the **Boot Server** to “Custom” and **Boot Opt** to a number that is not configured on your DHCP server.

8 Set the Codec Profile to DTMF Delivery

1. In Enterprise Manager, click the **Codec** button.
2. In the Codec list, choose the *Default* codec profile
3. Set the **DTMF Delivery** setting to **RFC 2833**.

4. Set **SIP Early Media** to **Disable**.

G.711 RTP Packet Length (ms)	20
G.729 RTP Packet Length (ms)	20
DTMF Delivery	RFC 2833
SIP Early Media	Disable
SIP Transport	UDP

5. After you change the default codec setting, if MaxCS has SIP trunk connections to a SIP gateway, then make sure they have a dedicated codec profile. On the IP Codec tab, assign the profile in the IP Device Range section.

Information	IP Networks	IP Dialing Table	IP Codec	Number Plan
Inter Gateway Codec: G711 Only				
IP Device Range				
From	To	Codec		
10.40.0.81	10.40.0.81	polycorn		Local
10.40.1.11	10.40.1.11	bandwidth		Local
216.115.20.41	216.115.20.41	vonage		NA
192.168.0.0	192.168.255.255	G711 Only		NA
172.16.0.0	172.31.255.255	G711 Only		NA
10.0.0.0	10.255.255.255	G711 Only		Local

6. Review the IP Dialing Table's codec setting. If necessary, create a dedicated Codec Profile:

Information	IP Networks	IP Dialing Table	IP Codec	Number Plan			
ID	Type	Name	Address	Ext Len	Dial Scheme	Protocol	Codec
00	Local	10.40.1.43	10.40.1.43	none	Overlapping(ATGN)	SIP	Default
01	Local	10.40.1.99	10.40.1.99	none	Enblock	SIP	lync
02	Local	salesman	10.20.0.50	none	Enblock	SIP	G711 ...
03	Local	heavy	10.20.0.60	none	Overlapping(ATGN)	SIP	G711 ...

9 Troubleshooting: Reset configuration to Factory Default

If the Polycom IP phone you try to deploy has been configured before and you are not able to reconfigure it to work with Altigen's system, you need to reset both the Local Config and Device Setting configurations to the factory default.



1. To reset the Local Config, go to **Settings > Advanced** and enter the default password 456. Then select **Admin Setting > Reset > Reset Local Config > Yes**. The phone will restart.
2. To reset the Device Settings, press the **Menu** key on the phone to display the phone menu, select **Settings > Advanced** and enter the default password 456. Then select **Admin Settings > Reset to Defaults > Reset Device Setting > Yes** to reset.



10 Limitations

10.1 Advanced Phone Features Not Supported in Polycom IP phones

Feature	Description
Password synchronization	AltiGen's extension VM password and Polycom IP phone SIP registration password, stored in the phone, are not synchronized. User needs to manually set the SIP registration password in the Polycom IP phone after changing the extension VM password.
Display extension DND/FWD status	Polycom IP phone cannot display DND and FWD (Forward) status when user enables DND or FWD using feature code or through client application.
Display Activity (Presence)	Activity status is an AltiGen proprietary feature. Polycom IP phone is not able to display this information.
Extension override by another IP phone or IPTalk	While a Polycom IP phone is registered to the MAXCS server, another IP phone or IPTalk cannot register to the same extension number to override the phone.
IP Paging	Polycom IP phone cannot accept IP paging call.

10.2 Limitations When Using Polycom IP Phones with MaxCS 7.0

Feature	Description
Call handling	You are not able to Unhold, Transfer, or Conference another party from MaxCommunicator/MaxAgent when Hold, Transfer, or Conference is initiated from a 3 rd party IP phone. You must complete the operation from that phone. Likewise, you cannot Hold a call from the client application and try to Unhold the call from the 3 rd party IP phone.
Cannot return PSTN call from IP phone call log	Polycom IP phone cannot insert the trunk access code to the call back number.
Cannot enter Account Code (Flash#32)	Not supported because Polycom IP phone does not support FLASH key.
System and Station Call Park (Flash#31 and Flash#41)	Not supported because Polycom IP phone does not support FLASH key.
Concurrent use of extension number	When you associate an extension number with a 3 rd party phone, you cannot concurrently use the extension number with another 3 rd party IP phone, AltiGen IP phone, mobile extension or IPTalk without powering down the active third-party phone.

11 AltiGen Technical Support

AltiGen provides technical support to Authorized AltiGen Partners and distributors only. End user customers, please contact your Authorized AltiGen Partner for technical support.

Authorized AltiGen Partners and distributors may contact AltiGen technical support by the following methods:



- You may request technical support on AltiGen's Partner web site, at <https://partner.altigen.com>. Open a case on this site. A Technical Support representative will respond within one business day.
- Call 888-ALTIGEN, option 5, or 408-597-9000, option 5, and follow the prompts. Your call will be answered by one of AltiGen's Technical Support Representatives or routed to the Technical Support Message Center if no one is available to answer your call.

Technical support hours are 5:00 a.m. to 5:00 p.m., PT, Monday through Friday, except holidays.

If all representatives are busy, your call will be returned in the order it was received, within four hours under normal circumstances. Outside AltiGen business hours, only urgent calls will be returned on the same day (within one hour). Non-urgent calls will be returned on the next business day.

Please be ready to supply the following information:

- Partner ID
- AltiGen Certified Engineer ID
- Product serial number
- AltiWare or MAXCS version number
- Number and types of boards in the system
- Server model
- The telephone number where you can be reached