Polycom® UC Software in a Microsoft® Lync® Server Environment

Contents

Conventions Used in Polycom Guides

Polycom guides contains graphical elements and a few typographic conventions. Familiarizing yourself with these elements and conventions will help you successfully perform tasks.

Information Elements

Polycom guides may include any of the following icons to alert you to important information.

Icons Used in Polycom Guides

Name	Icon	Description
Note		The Note icon highlights information of interest or important information needed to be successful in accomplishing a procedure or to understand a concept.
User Tip		The User Tip icon highlights techniques, shortcuts, or productivity related tips for users.
Administrator Tip		The Administrator Tip icon highlights techniques, shortcuts, or productivity related tips.
Caution		The Caution icon highlights information you need to know to avoid a hazard that could potentially impact device performance, application functionality, or successful feature configuration.
Warning		The Warning icon highlights an action you must perform (or avoid) to prevent issues that may cause you to lose information or your configuration setup, and/or affect phone or network performance.
Web Info		The Web Info icon highlights supplementary information available online such as documents or downloads on support.polycom.com or other locations.
Timesaver		The Timesaver icon highlights a faster or alternative method for accomplishing a method or operation.
Power Tip		The Power Tip icon highlights faster, alternative procedures for advanced administrators already familiar with the techniques being discussed.
Troubleshooting		The Troubleshooting icon highlights information that may help you solve a relevant problem or to refer you to other relevant troubleshooting resources.
Settings		The Settings icon highlights settings you may need to choose for a specific behavior, to enable a specific feature, or to access customization options.

Typographic Conventions

A few typographic conventions, listed next, are used in Polycom guides to distinguish types of in-text information.

Typographic Conventions

Convention	Description
Bold	Highlights interface items such as menus, menu selections, window and dialog names, soft keys, file names, and directory names when they are involved in a procedure or user action. Also used to highlight text to be entered or typed.
Italics	Used to emphasize text, to show example values or inputs (in this form: *<example>*), and to show titles of reference documents available from the Polycom Support Web site and other reference sites.
Blue Text	Used for cross references to other sections within this document and for hyperlinks to external sites and documents.
Courier	Used for code fragments and parameter names.

Get Started

Polycom® phones offer a best-in-class communications experience with an extensive list of features. This guide shows you how to deploy Polycom phones and Unified Communications (UC) software with Microsoft® Lync Server. Registering Polycom phones with Lync Server enables you to communicate with enterprise-grade high-definition (HD) voice and video using familiar Microsoft solutions.

Settings: Polycom Phones Support One Registered Line with Lync Server

Currently, Polycom phones deployed with Microsoft Lync Server support one registered line.

UC Software Lync-Qualified Phones

As of UC Software 5.3, Polycom offers devices with an Open SIP or a Lync base profile (a Lync SKU). Polycom devices shipped with a Lync base profile include Lync-qualified UC Software with a feature license included and enable you to start up the phone and register with Lync Server with default settings.

UC Software Device Compatibility

Polycom UC Software 5.4.0 supports the following devices with Lync Server:

- Polycom® VVX® 201, 300, 310, 400, 410, 500, and 600 business media phones
- Polycom® SoundStructure® VoIP Interface

For devices supported by previous UC Software for Microsoft Lync Deployments, refer to Polycom UC Software for Microsoft Lync Deployments.

Web Info: Registering SoundStructure VoIP Interface with Lync Server

If you are registering SoundStructure VoIP Interface with Lync Server, see Deploying *Polycom® SoundStructure® VoIP Interface for Use with Microsoft® Lync™ Server*.

If you are using Polycom UC Software for the first time, this deployment guide shows you how to get UC Software and how to provision your phones with the software. If you are updating the UC Software version your phones are using, refer to the section Update Polycom UC Software.

Available Phone Features

Features available on Polycom phones vary by software release and phone model.

- Phone features available on all Polycom phones registered to Lync Server are listed in the table Features Supported on All Polycom Phone Registered with Lync Server. These features are available with all UC Software versions.

- Phone features available on Polycom phones using UC Software 5.0.1 are listed in the table Features Available with UC Software 5.0.1.

- Polycom phones using UC Software 5.1.1 support features available with UC Software 4.1.x, 5.0.1, and features listed in the table Features Available with UC Software 5.1.1.

- Polycom UC Software 5.3 adds the features listed in the table Features Available with UC Software 5.3.

Settings: Access to Web Configuration Utility Disabled by Default

Access to the Web Configuration Utility is disabled by default as a security precaution on Polycom phones using UC Software 5.1.1 and later. To enable access to the Web Configuration Utility, refer to the section Enable Access to the Web Configuration Utility.

Web Info: Understanding New and Enhanced Features

For details on using Lync-enabled features with UC Software prior to UC Software 5.2, see *Feature Profile 84538: Using Polycom VVX Phones with Microsoft Lync.*

Features Supported on All Polycom Phones Registered with Lync Server

Feature	Function
Auto root certificate fetch	Available using DHCP option 43
PIN Authentication	Support for Lync authentication available on all Lync-enabled Polycom phones
H.323 video	
Narrowband audio	G.711
Call transfer, hold, mute	Flexible user phone functions
Full-duplex echo cancellation (FDX)	
Wideband audio	G.722-1
Media encryption	SRTP, SSRTP
Direct SIP registration to Lync Server	Microsoft SIP, TLS for SIP Signaling, SRTP, SSRTP
Peer-to-peer audio calling	Initiate and receive two-party calls
Enterprise voice	

Feature	Function
Message Waiting Indicator (MWI)	Illumination of MWI lamp indicates new messages
Voice mail retrieval	One-touch call to voice mail attendant
Presence publication	Indicates the status of your contacts
Presence state control	Choose from a menu of presence states
Calls logs	Local call history for missed, received, and outgoing calls; nonvolatile for all platforms except VxWorks phones
Log access	Local phone access to diagnostic logging
Device updates	Centralized phone updates from an out-of-band server
VLAN assignment	LLDP-MED VLAN assignment
Device sign-in	Out-of-the-box user sign-in and sign-out
Remote worker scenarios	Edge Server registration for off-location users
Firewall traversal	A/V Edge Server support using the ICE, STUN, and TURN protocols
Federation	Connect people across organizations and domains
Provisioning	Support for in-band provisioning from Lync Server
Monitoring	Device Inventory Reports
Reporting	
Call admission control	Support for in-band bandwidth policy
Media bypass	Bypass the Lync mediation server to send media directly to a PSTN gateway
Dial plans	Support for Lync Server Regex normalization patterns passed via an in-band provisioning to the endpoint; limited to regular expression support; option for server-side normalization
Call forwarding to contacts	Forward calls to another contact
Call forwarding to voicemail	Forward calls directly to voicemail
Response Groups	
Team-Call	
Delegates	
Private Lines	Alternate call-forwarding identity for a Lync user's secondary DID
Branch Office Survivability	Maintain SBA/SBS registration during WAN outage, automatic recovery
E911	Supports in-band provisioning information for Emergency 911

Feature	Function
Location Services	Extended Link Layer Discovery Protocol (LLDP)-MED location-based information support
Contacts List	Display Lync contacts and their current presence status
Contact Groups	Display and expand groups in the Lync user's contact list
Web Ticket Authentication	Used to gain access to a web service; support for web tickets obtained using NTLM, PIN, or a client certificate used as authentication credentials Lync Authentication: NTLM SIP Registration: TLS-DSK User Sign In: NTLM Credentials, PIN authentication NTLMv2 Authentication
Client Certificate Provisioning	Automatic provisioning using a web ticket
TCP Media	RTP Media and ICE negotiation supported over TCP when UDP is unavailable

Features Available with UC Software 5.0.1

Feature	Function
Enhanced Presence	Updated status icons and more control over status states
Web Configuration Utility Security Update	By default Polycom phones registered with Lync Server cannot access the Web Configuration Utility; access must be enabled by an administrator
Better Together over Ethernet (BToE)	Connect your computer to your phone and use your computer to control calls on your phone and PC Lync client
Lync Boss Admin	Assign administrative delegates to answer, hold, and transfer calls; set distinct ringtones; and make calls on behalf of boss lines
Lync Automatic Software Update	Receive Polycom software updates automatically when registered with Lync Server
Call Park	Place a call on a separate call orbit where anyone can retrieve the call
Address Book Service (ABS)	Access and search a complete corporate directory

Features Available with UC Software 5.1.1

Feature	Function
Contact Card	View detailed contact information for each Lync contact and make direct calls from the Contact Card

Feature	Function
Auto root certificate retrieval	Uses Lightweight Directory Access Protocol (LDAP) Domain Name System (DNS) query
Data Center Resiliency	Ensures basic call functions during a shutdown or outage.
Security update - Web Configuration Utility disabled	When the phone's Base Profile is set to Lync, the Web Configuration Utility is disabled by default. You have the option to enable access.
PIN Authentication	Support for Lync authentication available on VVX phones and SoundStructure VoIP Interface

Features Available with UC Software 5.3.0

Feature	Function
Audio Playback with BTOE	Manage call audio on your phone and computer
Centralized Conference Control Protocol (CCCP)	Manage conference calls
Lync Exchange Integration	Lync directory search, Outlook contact search, visual voicemail, call log synchronization between phone, Lync client, and Outlook
Lync Boss-Admin	Monitor or resume calls after transferring
Extended Link Layer Discovery Protocol (LLDP)	Support for LLDP, including fast start count
International Dialing Prefix	Use + to identify international calls
Music on Hold	Enable music for calls on hold; phone users can turn on or off
User-controlled software update	User control over when to accept software updates

Features Available with UC Software 5.4.0

Feature	Function
Microsoft® Skype for Business Online and Microsoft® Exchange Online	Provides online registration, services, and applications

Before You Begin

As of UC Software 5.3.0, Polycom phones ordered with the Lync SKU are shipped with Lync-qualified software that enables you to start up the phone and register with Lync Server with default settings.

If you are provisioning your phones, Polycom strongly recommends using centralized provisioning when deploying multiple phones. Centralized provisioning requires you to set up a provisioning, or boot server, and use Polycom UC configuration files in XML format with an XML editor such as XML Notepad to view and edit Polycom configuration files. Centralized provisioning enables you to:

● Configure multiple devices automatically

● Receive automated software updates

● Receive automatic log files

● Add, remove, or manage features and settings to multiple phones simultaneously

● Create phone groups and modify features and settings for each phone group

If you require additional information on centralized provisioning and setting up a provisioning server, see the Polycom UC Software Administrator's Guide for the UC Software version you are using at Polycom UC Software Support Center.

● Polycom releases UC Software 5.x.x in two file formats:

  ➢ **Cabinet (CAB) file** As of September 2013, Polycom offers UC Software in CAB file format. This Microsoft Windows archive file format, recommended by Microsoft for customer premises equipment (CPE), safely compresses data and embeds digital certificates. UC Software in CAB file format is available from the Polycom UC Support Center and enables you to receive automatic software updates from Lync Server.

  ➢ **sip.ld** Polycom offers all UC Software as a combined file for all phone models or as a split file for specific phone models.

● As of UC Software 5.3, Polycom offers devices with an Open SIP or a Lync base profile (a Lync SKU). Polycom devices shipped with a Lync base profile include Lync-qualified UC Software 5.3.0 with a feature license included at no further cost. To operate phones running UC Software versions prior to 5.3.0 with Lync Server, you must purchase a Lync Feature License from a Polycom reseller or Polycom sales representative. For information about the license, log in to Licensing & Product Registration. You can use Polycom phones in a Lync environment for trial purposes, without purchasing a license, for a maximum of 30 days.

● When you update the phones to UC Software 5.1.0, a message on the phone screen prompts you to change the default password (default 456). Polycom strongly recommends that administrators change the default password.

● To view phone provisioning information, use the multikey shortcut by simultaneously pressing 1-4-7 to display:

  ➢ Phone IP address

  ➢ Phone MAC address

  ➢ VLAN ID

  ➢ Boot server type (FTP, TFTP, HTTP, HTTPS)

  ➢ Boot Server Address

Frequently Asked Questions

Refer to the frequently asked questions (FAQs) to help answer questions you may have about deploying Polycom phones with Lync Server before you begin.

Q: **What is the Base Profile?**

A: The Base Profile is a provisioning option available on Lync-enabled Polycom devices that simplifies the process of registering your devices with Lync Server. The Base Profile displays in the phone's menu system and has two options: Generic and Lync. By default, the Base Profile is set to Generic. When set to Lync, the Base Profile automates registration with a default set of configuration parameters and settings; you cannot modify or customize the Base Profile or feature settings. You can provision a single phone at a time with the Base Profile. For this reason, Polycom recommends using the Base Profile as a provisioning method for deployments of fewer than 20 devices requiring only default Lync settings.

Q: **What is the best way to provision my Polycom device with Lync Server?**

A: This deployment guide outlines a number of ways to provision your Polycom phones for use with Lync Server. Although the phone's Base Profile to Lync is the fastest provisioning method, you can provision only one phone at a time, and you must modify feature settings one phone at a time. Unless you are provisioning fewer than 20 phones, Polycom strongly recommends using the two centralized provisioning methods outlined in this guide.

Q: **What are CAB files?**

A: You can choose to download UC Software in CAB file format. CAB file format is a Microsoft Windows archive file that supports lossless data compression and embedded digital certificates that maintain archive integrity. Polycom offers UC Software in CAB file format so that you can deploy UC Software from Lync Server and enable the automatic software update feature.

Get Help

For more information about installing, configuring, and administering Polycom products, refer to Documents and Downloads at Polycom Support and Voice Support.

The Polycom Community

The Polycom Community gives you access to the latest developer and support information. Participate in discussion forums to share ideas and solve problems with your colleagues. To register with the Polycom Community, simply create a Polycom online account. When logged in, you can access Polycom support personnel and participate in developer and support forums to find the latest information on hardware, software, and partner solutions topics.

Deploy Polycom Phones with Microsoft Lync Server

Polycom provides several methods to register your Polycom phones with Lync Server. Regardless of the method you choose, you must complete three major tasks to register your phones correctly with Lync Server.

Settings: Lync SKU

As of UC Software 5.3.0, Polycom phones ordered with the Lync SKU are shipped with Lync-qualified software that enables you to start up the phone and register with Lync Server with default settings. If you are using Polycom phones shipped with Lync-qualified UC Software and want to keep default settings with no change, complete Task 1: Set Up the Network only. If you want to customize default settings, complete all three tasks.

Task 1: Set Up the Network

To set up a network to connect your Polycom devices to Lync Server you must complete four steps.

To set up your network:

1 Set up or verify Domain Name System (DNS) service (SRV) records to allow the devices to discover Lync Server automatically. For information on creating and verifying DNS SRV records, see Required DNS Records for Automatic Client Sign-In on Microsoft TechNet.

2 Obtain a root certificate authority (CA) security certificate using one of the following three ways:

➢ Polycom devices running UC Software 5.3.0 or later that you are registering with Lync Server 2010 or 2013 automatically fetch the root certificate using a Lightweight Directory Access Protocol (LDAP) Domain Name System (DNS) query. Phones you register with Lync server are enabled with this feature by default and no additional configuration is required.

➢ When provisioning phones from within an enterprise, you can use Dynamic Host Configuration Protocol (DHCP) Option 43 to download a private CA root security certificate used by Lync Server. The security certificate is required to support secure HTTPS and TLS. In conjunction with DHCP Option 43, ensure that your devices can access Lync Server Certificate Provisioning Web service over HTTP (TCP 80) and HTTPS (TCP 443).

Note: DHCP Option 43 displays the PIN Authentication menu to users

If you configure DHCP Option 43, the phone displays the PIN Authentication menu to users.

➢ Use an STS URI (Lync certificate server URL) or Option 43 override. Used for overriding Option 43 parameter for older DHCP system with a limited field length.

You can also set up PIN Authentication in a test environment without the need to fully deploy Lync DHCP, and verify that your DHCP server is set up correctly.

For more information on configuring DHCP Option 43, refer to Set Up DHCP for Devices on Microsoft TechNet.

➢ If you need to install a security certificate manually on your Microsoft Edge Server, the signing CA that issued this certificate must be listed on the Polycom Trusted Certificate Authority List in the *Polycom UC Software 4.1.0 Administrator's Guide*. You must use Base64 format. For instructions on manually installing a certificate, see Manually Install a Certificate.

3 (Optional) If you are using a provisioning, or boot server configure DHCP Option 66, if available. If not available, set DHCP options using one of the following methods:

➢ If you are using a Polycom phone with a Lync SKU, use Option 161 with the address (URL or IP address) of the provisioning server. You can set the provisioning server address or URL through the device menu.

➢ If you are using a Polycom phone with an Open SIP SKU, use Option 160 with the address (URL or IP address) of the provisioning server. You can set the provisioning server address or URL through the device menu or refer to the section Set the Base Profile Using the Web Configuration Utility.

4 Ensure that you set up each user with a Lync account and credentials that can be used on the phone to sign in. Also set up PIN Authentication if you are using any of the following devices in your deployment: VVX 300, 310, 400, 410, 500, 600, or SoundStructure VoIP Interface.

Web Info: Setting up the network

If you need more detailed information about setting up a network for Polycom devices, see Set Up Your Device Network in the *Polycom UC Software Administrator's Guide*.

Task 2: Set Up Polycom UC Software

The latest UC Software is available at Latest Polycom UC Software Release. All UC Software versions are available on the Polycom UC Software Support Center.

If you are setting up your own provisioning server or want to customize feature settings, Polycom provides template configuration files you can use to provision your Polycom phones for use with Lync Server. You can find the Lync configuration files in your UC Software download, or you can use the template configuration files in the PartnerConfig > Microsoft directory of the UC Software download.

The Polycom template configuration files are flexible, and you can customize them in several ways. You can keep the parameters in the template configuration files separate from your other files, combine them as a single configuration file, or copy and paste the parameters to any other configuration file you are currently using to provision your phone.

To set up Polycom UC Software:

1 Set up a provisioning server on your computer and create a root directory to hold all of the required UC Software, configuration files, and subdirectories. Name the directory to identify it as containing the Polycom UC Software release.

To set up your own provisioning server, you need an XML editor, such as XML Notepad, installed on your computer. Your provisioning, or boot server must support one of the FTP, FTPS, TFTP, HTTP, or HTTPS protocols, FTP being the most common. FileZilla Server is a free FTP solution.

2 Decide if you are provisioning your phones from Lync Server, or using your own provisioning server.

Deploying UC Software in CAB file format from Lync Server provisions the phones and enables default feature functionality, including the automatic software update feature. However, if you want to change or customize default functionality of the phone features, you need to set up and edit Polycom UC Software configuration files on your own provisioning server and send the custom settings to the phones.

➢ To use Lync Server to push software to the phones, complete the steps in the section Deploy UC Software from Lync Server.

➢ To use your own provisioning server to push software to the phones, complete the steps in the section Deploy UC Software From a Provisioning Server. You can deploy UC Software from your provisioning server using the split or combined files in XML format.

♦ The split files enable you to choose UC Software for specific phone models; these files are smaller in size with faster update times, and they reduce internal network traffic during reboots and updates.

♦ The combined files are larger and contain software files for all Polycom phone models. All configuration files are saved in compressed ZIP file format and you must unzip (extract) the files before use.

Caution: Provision phones from one server only

Do not provision phones with UC Software from both Lync Server and your own provisioning server. This places the phones in a reboot cycle.

3 Download, save, and extract UC Software to the root directory you created. You can obtain all UC Software from the Polycom UC Software Support Center. Polycom provides Lync-specific template configuration files in the PartnerConfig > Microsoft directory of the UC Software download.

➢ If you are deploying UC Software from Lync Server, download the CAB file version of Polycom UC Software.

➢ If you are deploying phones from your own provisioning server, download the split or combined version of Polycom UC Software in XML format.

Once the UC Software directory is extracted, you can open the folder in your root directory, as shown next.
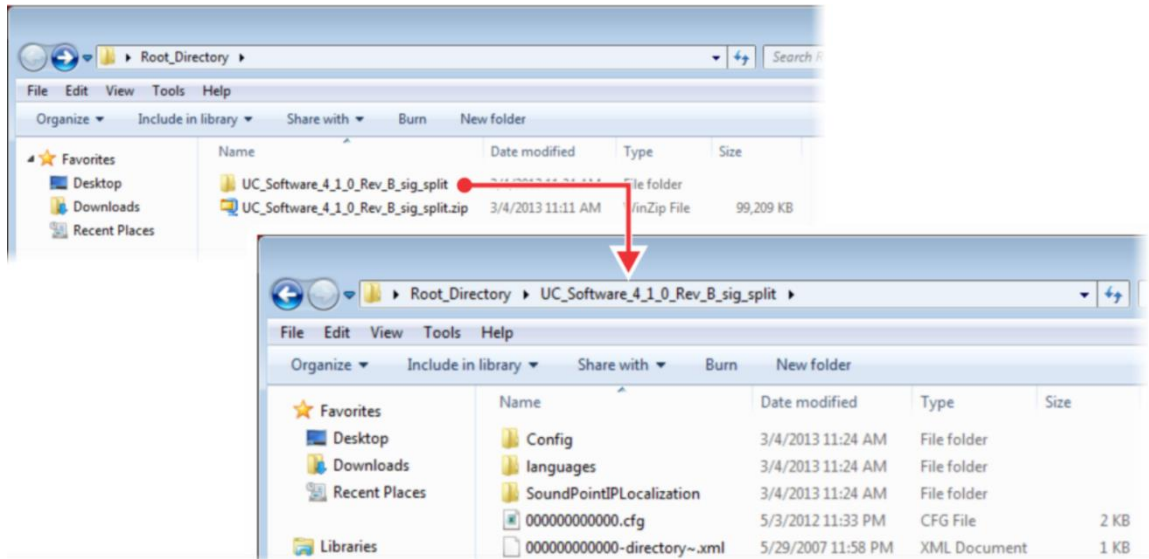
4 Configure a Call Park Orbit Policy. You must configure a call park orbit policy to enable the call park feature. See Configuring Call Park on the Microsoft Lync web site.

5 (Optional) To use Better Together over Ethernet (BToE) feature, download the BToE application and enable BToE.

With the Microsoft Lync BToE feature on Polycom VVX business media phones, you can control phone activity from your computer using your Lync client. Use the BToE feature to place, answer, and host audio and video calls from your Polycom phone and your Lync client on your computer. To use BToE, you must download and install the Polycom BToE Connector application.

See the latest *Polycom VVX Business Media Phones – User Guide* on Polycom Latest UC Software Release for complete instructions on setting up BToE and BToE functions.

Task 3: Provision the Phones

Polycom provides five manual per-phone provisioning methods and two centralized provisioning methods. The method labeled `device.set` is an advanced method for users familiar with Polycom configuration files and uses centralized provisioning to set the Base Profile for multiple phones. For complete information on provisioning with Polycom UC Software, see the *Polycom UC Software Administrator Guide* on Latest Polycom UC Software Release.

Note: Web Configuration Utility is disabled

If you are using Polycom UC Software 5.1.1 or later, the Web Configuration Utility is disabled by default and you cannot register phones with the Web Configuration Utility. If you want to use a phone's Web Configuration Utility after the phone is registered with Lync Server, see the section Enable Access to the Web Configuration Utility.

Power Tip: Setting the Base Profile using centralized provisioning

Polycom provides an advanced way to set the Base Profile of multiple phones using the centralized provisioning method. Polycom recommends this method only for administrators familiar with Polycom provisioning and configuration files. Go directly to the section Set the Base Profile with device.set Parameters.

Manual Provisioning Methods

Polycom provides five per-phone manual methods you can use to register Polycom devices with Lync Server. All manual provisioning methods set the Base Profile of a phone to Lync. The Base Profile is a feature on each Polycom phone that, when set to Lync, automatically provisions the phone with the default parameters required to register with Lync Server. For details on all of the Lync parameters and values, see the table Default Lync Base Profile Parameter Values.

You can set the Base Profile directly from the phone and you can choose to set it during phone boot up or after phone boot up. The section Set the Base Profile Using the Web Configuration Utility shows you how to set the Base Profile using the Polycom Web Configuration Utility, a Web interface application that is particularly helpful when you are working remotely.

You can set the Base Profile of a phone to Lync in the following ways:

- **MKC during startup**   Set the Base Profile to Lync using an MKC method during phone startup. This is the fastest manual provisioning method.
- **Boot Setup menu**   Set the Base Profile to Lync during startup using the phone boot Setup menu.
- **Idle screen MKC**   Set the Base Profile to Lync from the phone idle screen using an MKC method.
- **Phone menu**   Set the Base Profile to Lync from the idle screen using the phone's menu system.
- **Web Configuration Utility**   Use the Polycom Web Configuration Utility to set the Base Profile from a web browser. Not available when using Polycom UC Software 5.1.1.

Note: Use configuration files or set the base profile to Lync - not both

When you use configuration files to provision the phones with Lync Server 2013, the phone Base Profile stays set to Generic. You do not need to set the Base Profile feature on the phones to Lync when provisioning with configuration files.

Set the Base Profile During Startup

You can set the Base Profile of a phone to Lync during the phone startup cycle in two ways: by using an MKC method during startup or from the phone boot Setup menu. The MKC during startup is the fastest manual provisioning method.

If your phones are not brand new and directly from the manufacturer, ensure that you reset the phones to factory default settings, as shown in Reset the Phone to Factory Default Settings.

To set the Base Profile to Lync using MKC during startup:

1   Power on the phone or restart it after you have reset the phone to factory default settings.

2   A few seconds into the device's startup cycle, the phone displays the message 'Starting Application', press Cancel to interrupt and a Cancel soft key. Press the **Cancel** soft key.

3   When the phone displays three soft keys—Start, Setup, and About—press and hold the following key combinations on the phone keypad for about 3 seconds to enter the MKC for the phone model:

  ➢   For SoundPoint IP 550, 560, and 650, press **5**, **7**, **8**, *****

  ➢   For VVX 300, 310, 400, 410, 500, 600, 1500, press **1**, **4**, **9**

  ➢   For SoundPoint IP 321, 331, 335, and 450; SoundStation 5000; and SoundStation Duo conference phones, press **1**, **2**, **4**, **5**

4   Press and hold the MKC keys to cause the Base Profile Password menu to display. Enter the password (default 456) to change the Base Profile and press **Ok**.

   The **Base Profile** menu displays.

5   Press the **Edit** soft key, use the keypad keys to set the Base Profile to **Lync**, and press **Ok > Exit.**

6   Highlight **Save & Reboot** and press the **Select** soft key.

   The phone reboots and displays the Lync Server Sign In screen. You can now Sign in or Out of Lync.

To set the Base Profile to Lync from the phone boot Setup menu:

1   Power on the phone or restart after you have reset the phone to factory default settings.

2   A few seconds into the device power-up cycle, the phone displays the message 'Starting Application, press Cancel to interrupt' and a Cancel soft key. Press the **Cancel** soft key.

3   When the phone displays three soft keys—Start, Setup, and About—press the **Setup** soft key, enter the password (default 456), and press **Ok**.

   The phone displays a diagram of keypad keys you can use to navigate the Setup menu. You will need to use these keys in the next few steps.

4   Press the **Setup** soft key and the Setup menu displays.

5   Using the keypad keys, scroll down, highlight **Base Profile**, and select the **Edit** soft key.

6   Using the keypad keys, set the Base Profile to **Lync**, and press **Ok > Exit.**

7   Highlight **Save & Reboot** and press the **Select** soft key.

   The phone reboots and displays the Lync Server Sign In screen. You can now Sign In or Out of Lync.

Set the Base Profile from the Idle Screen

This section shows you two ways to set the Base Profile to Lync using the phone menu system when the phone is in idle screen mode, and how to sign in and register a line with Lync Server.

To set the Base Profile to Lync using the MKC method:

1   Press the phone's **Home/Menu** key.

2   From the idle screen, press and hold the following key combinations on the phone keypad for about 3 seconds. MKC keys vary by phone.

  ➢   For SoundPoint IP 550, 560, and 650, press **5**, **7**, **8**, *****

- ➢ For VVX 300, 310, 400, 410, 500, and 600, press **1**, **4**, **9**
- ➢ For SoundPoint IP 321, 331, 335, and 450; SoundStation 5000; and SoundStation Duo conference phones, press **1**, **2**, **4**, **5**

3　Press and hold the MKC keys to cause the Base Profile screen to display. Enter the password (default 456) and press **Enter**.

4　In the **Base Profile** menu, select **Lync**.
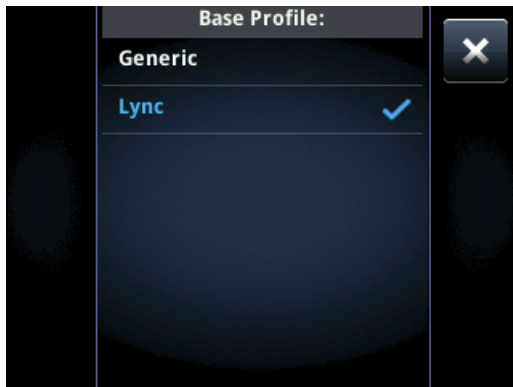
The phone automatically restarts and displays the Lync Server Sign In screen.

Troubleshooting: Phone does not restart

If the phone does not restart, choose **Settings > Basic > Restart**, or power the phone off and then on.

If your phone supports PIN authentication, you will be prompted for authentication. Otherwise, you will be prompted for Lync sign-in credentials. You can display the Lync Sign In screen by going to **Menu > Features > Microsoft Lync > Login Credentials**.

To set the Base Profile to Lync using the phone menu system:

1　Press the **Home/Menu** key.

2　From the idle screen, choose **Settings > Advanced > Administration Settings > Network Configuration**, and set **Base Profile** to **Lync**.
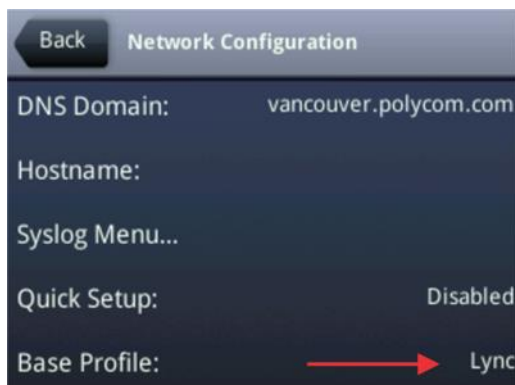
3 Select **Back > Save Configuration**. The phone automatically restarts and displays the Lync Server Sign In screen. You can now Sign In or Out of Lync.

Set the Base Profile Using the Web Configuration Utility

As part of a security update in UC Software 5.1.1, phone access to the Web Configuration Utility is disabled by default when the phone registers with Lync Server. You can use the Web Configuration Utility to manually set a phone's Base Profile to Lync. After the phone registers with Lync Server, the phone will not have access to the Web Configuration Utility until you enable access. See Enable Access to the Web Configuration Utility for instructions. You cannot configure sign-in credentials using the Polycom Web Configuration Utility. You will need to obtain the IP address of each phone.

To set the Base Profile to Lync using the Web Configuration Utility:

1 Provide power to your phones and allow the phones to complete the power-up process.

2 Obtain the IP address of each phone in your deployment by pressing the **Menu/Home** key and choosing **Settings > Status > Platform > Phone**. The IP address displays in the **IP:** field.

Enter the phone's IP address in the address bar of a web browser and press **Enter** on your PC keyboard. The Web Configuration Utility login screen displays, as shown next.
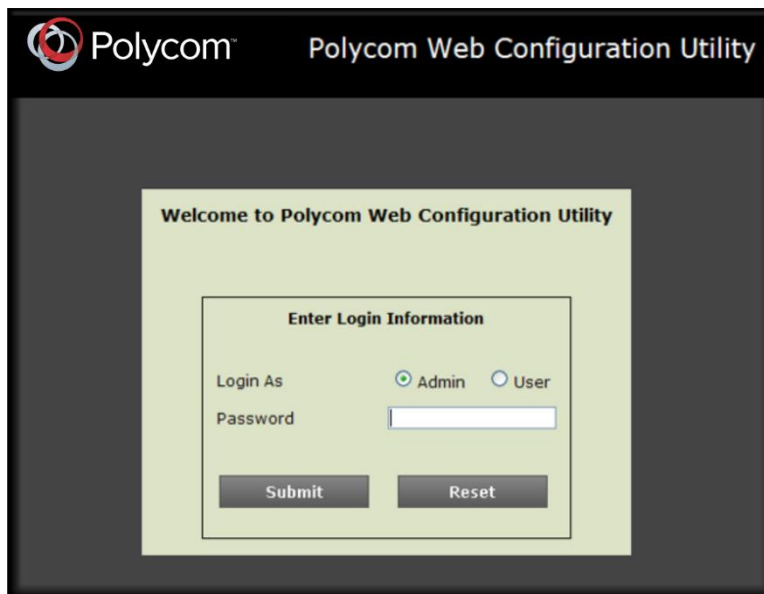
3 Choose **Admin** to log in as an administrator, and then enter the administrator password (default 456) and click **Submit**. .

4 In the **Home** page, navigate to the **Simple Setup** menu, shown next.
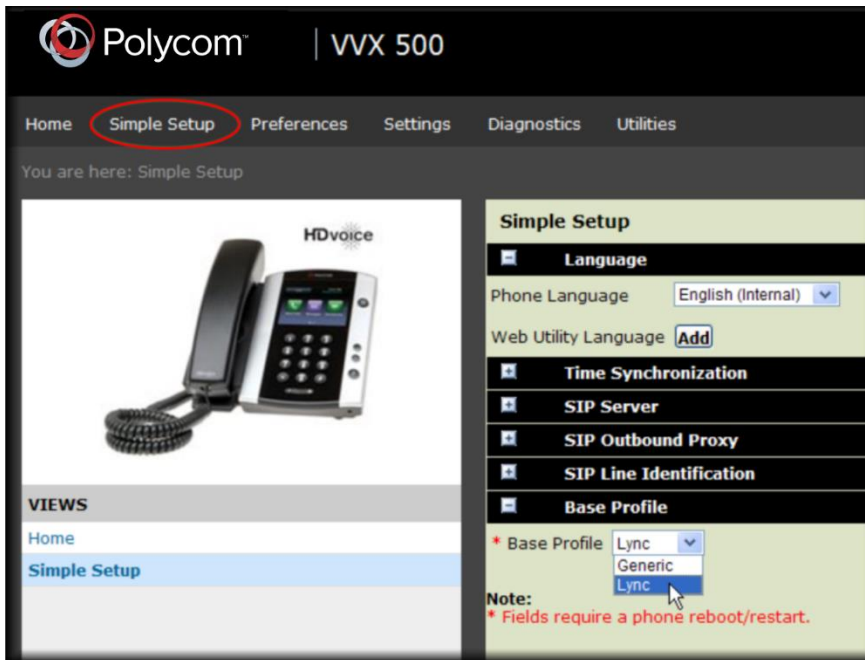
5 From the **Base Profile** drop-down, choose **Lync**, and click **Save** at the bottom of the page.

6 In the confirmation dialog, choose **Yes**. The phone automatically restarts.

You can now Sign In or Out of Lync.

Troubleshooting: Rebooting the phone

If the phone does not restart, you can manually restart by powering off/on the phone. You can also manually reboot the phone:
1 Go to **Menu/Home key > Settings > Advanced**.
2 Enter the password (default 456).
3 Press **Enter**.
4 Choose **Reboot Phone**.
When the phone completes the reboot cycle, the Lync Server Sign In screen displays.

Centralized Provisioning Methods

Polycom provides two centralized provisioning methods that register your phones with Lync Server:

* **Use Lync Server**   Provision multiple phones with UC Software from Lync Server and apply default feature settings only.

* **Set up a provisioning server**   Set up your own provisioning server and customize feature settings.

For information on setting up a provisioning server for Polycom products, see the section *Set Up the Provisioning Server* in the *Polycom UC Software Administrator Guide* on Latest Polycom UC Software Release. After you have set up a provisioning server, you can use Polycom template configuration files to

provide default settings to all your devices. Polycom provides Lync-specific template configuration files in the PartnerConfig > Microsoft directory of the UC Software download. If you require further instruction on using Polycom configuration files effectively, see *Configuration Methods* in the *Polycom UC Software Administrator Guide* on Latest Polycom UC Software Release.

Polycom strongly recommends using a provisioning server when provisioning multiple phones to:

- Configure multiple devices automatically
- Facilitate automated software updates
- Receive automatic log files
- Add, remove, or manage features and settings to multiple phones simultaneously
- Create phone groups and modify features and settings for each phone group

> **Caution: Do not use an Existing Lync deployment**
>
> Using an existing Lync server to deploy your provisioning server can affect performance of your Lync deployment. Misconfiguration or nonstandard deployment of the Microsoft Internet Information Services (IIS) web server may affect your ability to obtain accurate Microsoft support.

Use Centralized Provisioning

Provision multiple phones with Polycom UC Software in two ways:

Polycom makes available the following centralized provisioning methods:

- **Deploy UC Software from Lync Server**   Download UC Software in CAB file format and place the software on Lync Server. Default feature settings are applied to all your phones.
- **Deploy UC Software from your provisioning server**   This method requires that you set up your own provisioning server. Setting up your own provisioning server enables you to customize feature settings using the template configuration files included in the UC Software download. With this method, users can sign in with their credentials from the phone's interface.

If you are deploying UC Software from Lync Server and customizing features using Polycom configuration files, delete the default `sip.ld` value from the `APP_FILE_PATH` field in your master configuration file, as shown in the figure Delete sip.ld. Deleting the `sip.ld` value ensures that you do not deploy UC Software from Lync Server and your own provisioning server, which send your phones into a reboot cycle.

Delete sip.ld
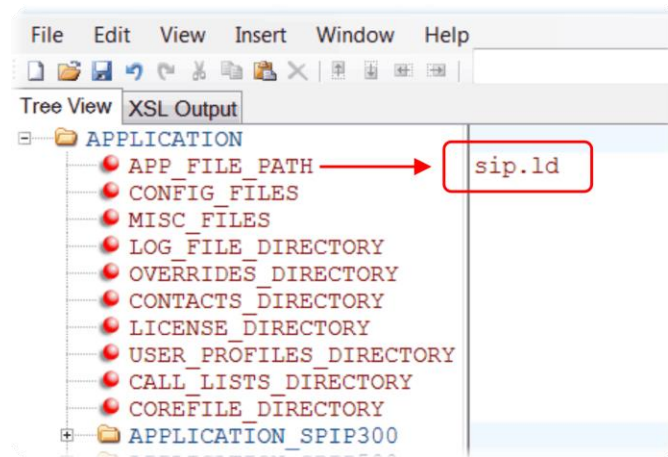
Deploy UC Software from Lync Server

If you downloaded UC Software files in CAB format, complete the following procedure to deploy UC Software from Lync Server.

To deploy UC Software from Lync Server:

1   Download and save UC Software in CAB file format to your computer. You can obtain all UC Software from the Polycom UC Software Support Center.

2   Go to Lync Server and copy the CAB file to a C: drive directory.

3   Use the Lync Server Management Shell to go to a particular directory.

4   In the Lync Server Management Shell, run the following import command:

```
Import-CsDeviceUpdate -Identity service:1-WebServices-1 -FileName
UCUpdates.cab.
```
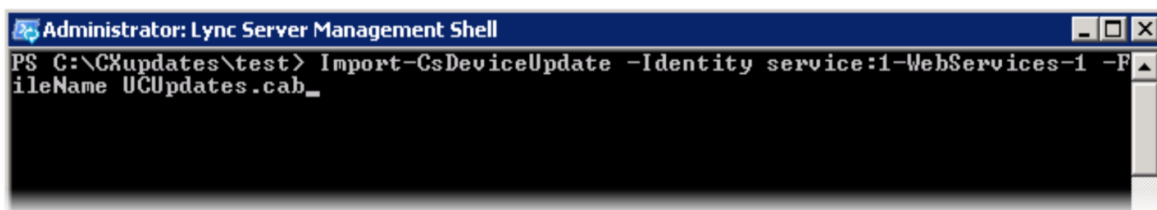

5   In the Lync Control Panel, go to **Clients > Device Updates** to view UC Software versions available on Lync Server.
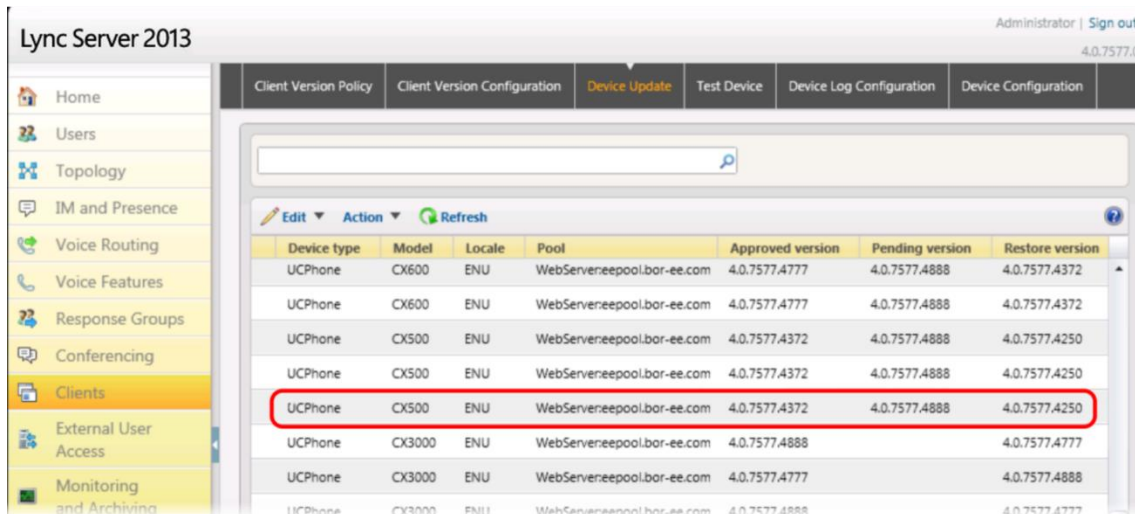
6 Go to **Clients > Action > Approve** to approve the UC Software.
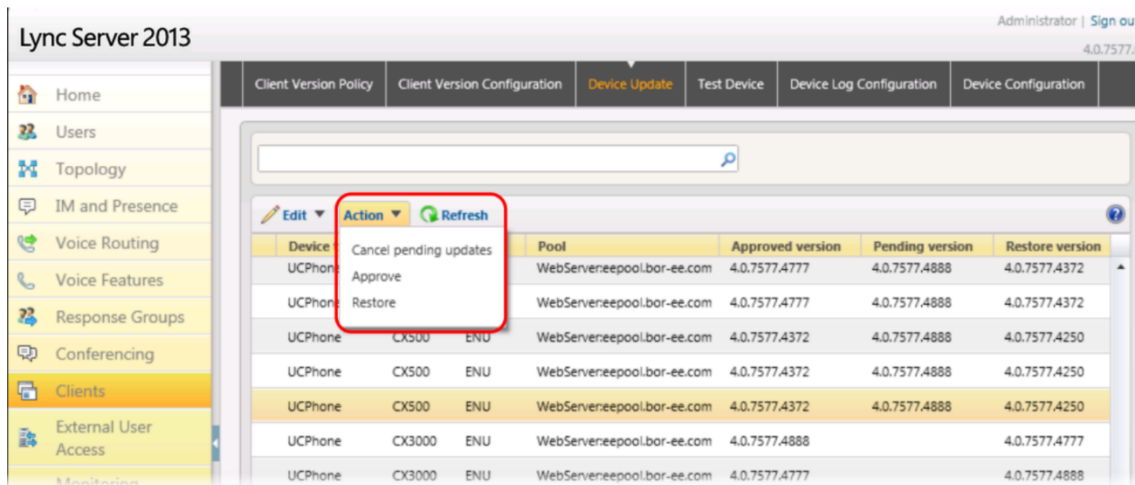
You have successfully configured UC Software on Lync Server.

Deploy UC Software From a Provisioning Server

If you downloaded the combined or split UC Software files, complete the following procedure to deploy UC Software from your provisioning server. Setting up your own provisioning server enables you to customize feature settings using the template configuration files included in the UC Software download.

Power Tip: Advanced provisioning

For information on using Polycom configuration files, see the UC Software Administrator Guide at Polycom UC Software Support Center.

To deploy UC Software from your own provisioning server:

1 Locate the following three Lync configuration files in your UC Software download in the folder **PartnerConfig > Microsoft**:

   ➢ **lyncSharedExample.cfg**   This file contains all of the parameters for settings that are shared by all the phones in your deployment.

   ➢ **lyncSharedLCExample.cfg**   This is a per-phone file. Use this file to display the Sign In screen and enable users to enter sign-in credentials on the phone. Because users enter their credentials on the device, this is a secure way to provision with Lync Server.

   ➢ **000000000000.cfg**   This is the master configuration file. In the **CONFIG_FILES** field, enter the names of all the configuration files containing settings you want to apply to the phones.

2 Place these configuration files in your root provisioning directory, create a copy of each file, and rename them keeping the suffix *.cfg*. Using edited copies of the template files ensures that you have unedited template files containing the default values.

3 If you are manually installing a root CA security certificate, go to step 4. If not, go to step 5.

4 Open your renamed file `lyncSharedExample.cfg` – this example uses `lyncCommon.cfg`. If you are manually configuring a root CA certificate, configure the following two parameters:

   ➢ Enter the root CA certificate, in Base64 format, in `sec.TLS.customCaCert.1`.

   ➢ Set the application profile in `sec.TLS.profileSelection.SIP`.
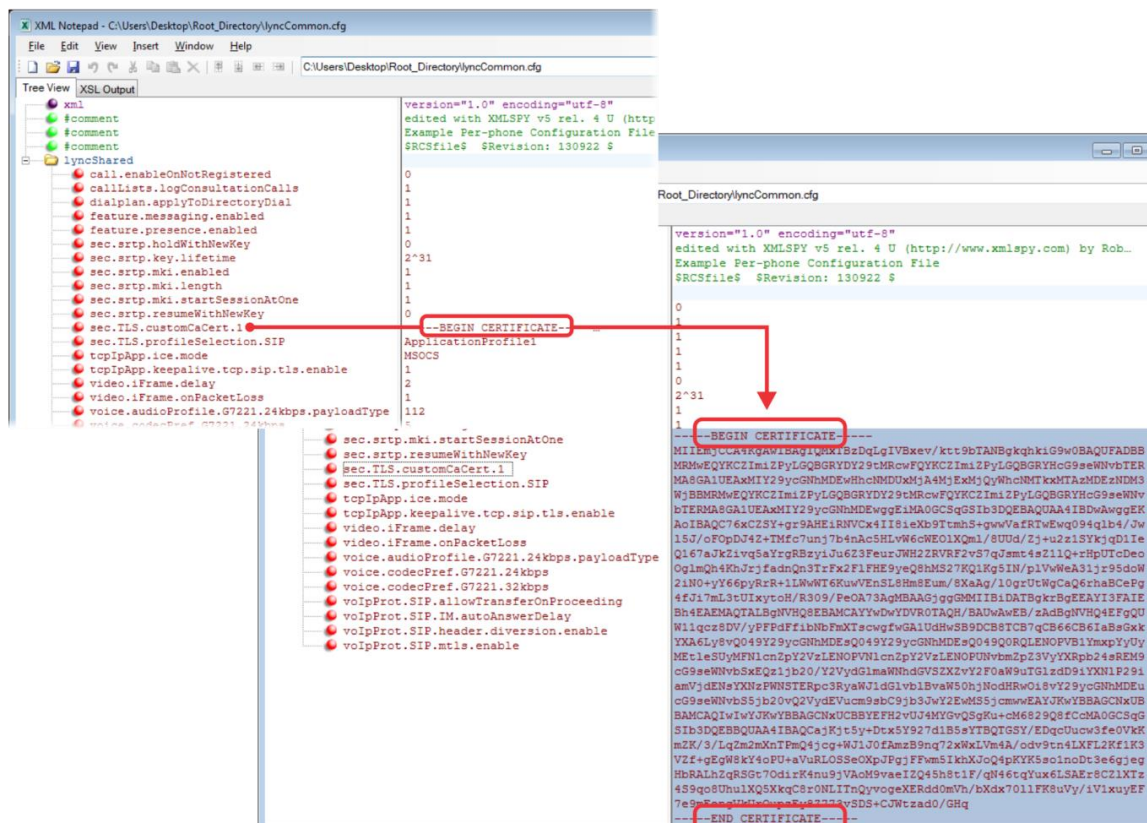
5 Open the master configuration file 000000000000.cfg. In the **CONFIG_FILES** field, enter the name(s) of your two Lync configuration files and save.

Configuration files you enter in the CONFIG_FILES field are read left to right. If you have configured the same setting in two configuration files, the setting listed first (left) is applied. Ensure that you do not have the same parameter in more than one configuration file.

Power Tip: Efficient mass provisioning

Polycom configuration files are flexible, and you can customize your phone deployment in a number of ways. For tips, see the UC Software Administrator Guide for your UC Software release at Polycom UC Software Support Center.

The following example shows `lyncCommon.cfg` and `lyncSignIn.cfg`. You must list the names of every file you want to apply to your phones in the CONFIG_FILES field of the master configuration file, separated by a comma, as shown next.
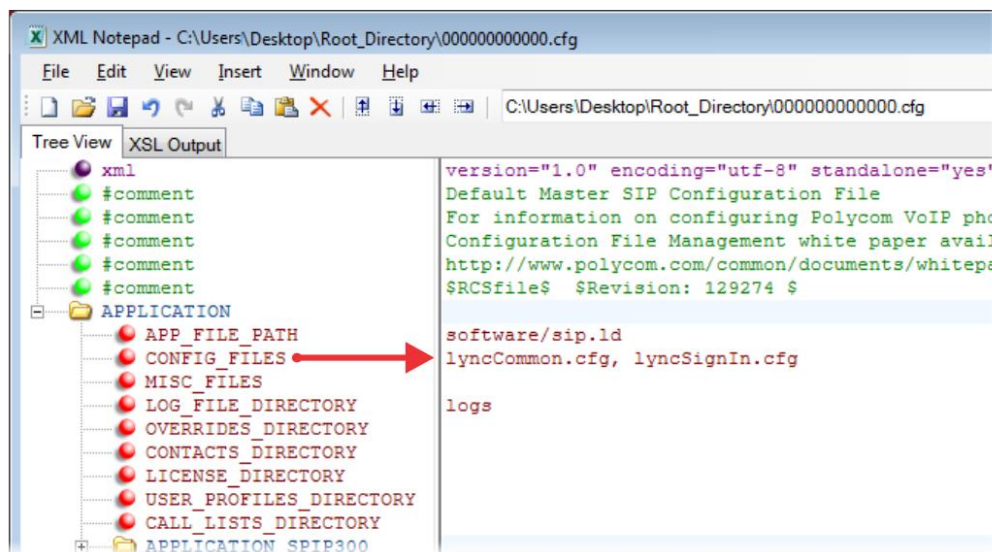
Settings: Configuring files in different directories

You can store your two Lync configuration files and the master configuration file in different directories; however, you must specify the file location path of the two Lync files in the CONFIG_FILES field of the master configuration file, for example:

- directory/lyncCommon.cfg
- directory/lyncSigIn.cfg

6 Power on your phones. Your phones display the Lync Sign In screen and users can Sign In or Out of Lync from the phone.
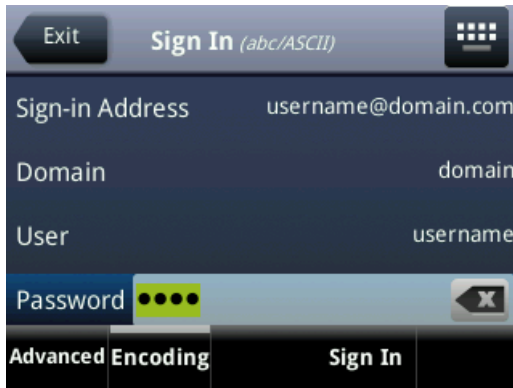
Settings: How line key labels are applied

Lync Server assigns the line label to the line key on your phone in the following order:
 1 Extension
 2 Full TelURI
 3 User part of the SIP URI

Settings: Disabling Autodiscover

If you do not want to use the Microsoft Autodiscover service, use the following parameters to disable the feature and manually set the Lync server address and SIP signaling port using:

- Disable Autodiscover: `reg.1.serverAutoDiscovery=0`

- Server: `reg.1.server.1.address=<server_address>`

- Port: `reg.1.server.1.port=<port_number>`

Set the Base Profile with device.set Parameters

Use a provisioning server and configuration files to set the Base Profile of multiple phones to Lync. This is a power provisioning method for administrators familiar with centralized provisioning and configuration files.

This section shows you how to provision devices for use with Lync Server using parameters in the `device.cfg` template configuration file included in your UC Software download. For information on these parameters, see the table   Polycom recommends using this method only if you are familiar with centralized provisioning and Polycom configuration files.

To set the Base Profile using device.set parameters:

 1 Locate the `device.cfg` template configuration file.

 2 Place the `device.cfg` file on your provisioning server.

3 Locate and change the values of the three parameters to the values shown in the following illustration:
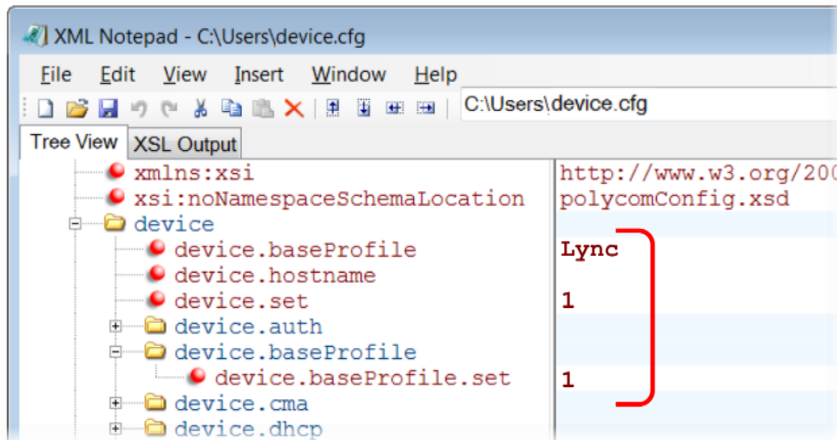
4 Rename and save the file.

5 Power on the phones.

6 Once boot-up is complete, remove `device.set` from the template configuration file and save the file without `device.set`.

7 Verify that the device Base Profile is set to Lync. Press **Home/Menu** and go to **Settings > Advanced**.

8 Enter the password (default 456) and press **Enter**.

9 Go to **Administration Settings > Network Configuration**, and scroll to **Base Profile**. Make sure the **Base Profile** field is set to **Lync**, as shown next on the VVX 500.
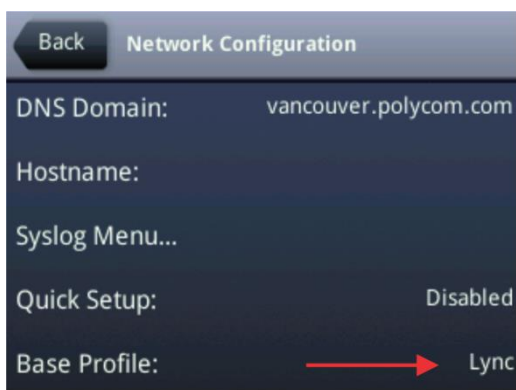
10 You can now Sign In or Out of Lync.

Configure Polycom Phones for Lync Server

This reference section details a number of features and functions available on Polycom phones registered with Lync Server.

Microsoft® Skype for Business Online and Microsoft® Exchange Online

Microsoft Skype for Business Online and Microsoft Exchange Online provides applications and services including email and social networking though Lync Server, Exchange Server, SharePoint, Yammer, MS Office web applications, and Microsoft Office software. For UC Software 5.4.0, Polycom offers Skype for Business and Exchange Online for the VVX 201, 300/310, 400/410, 500, and 600 business media phones.

When using Microsoft Skype for Business Online and Microsoft Exchange Online, note the following:

● You must use TLS-DSK to authenticate Polycom phones

● Polycom phones support use of ZTP staging for software upgrades

Configure Skype for Business and Exchange Online

Parameter Function	parameter
If 1, the phone displays the PIN Authentication menu. If 0, and DHCP Option 43 is not used, the phone does not display the PIN Auth menu and the PIN Auth menu in the Web Configuration Utility is not available.	dhcp.option43.override.stsUri
Disable this parameter to user Polycom phones with the Skype for Business Online and Exchange Online.	use.polycom.userAgent

Sign In or Out of Lync

Polycom provides three ways to sign in or out of the phone:

● **Login Credentials**   Use this to sign in with user credentials on the Lync Sign In screen.

● **PIN Authentication**   Use this to sign in after a phone restart or reboot. As of UC Software 5.1.1, this sign in method is available on the SoundStructure VoIP Interface.

● **BToE Sign In**   If you decide to use the BToE feature in your deployment, you can use this method to sign in to the phone from your computer.

Note: Web Configuration Utility and login credentials

You cannot configure login credentials using the Polycom Web Configuration Utility.

Login Credentials

After you set the phone Base Profile to Lync, you can sign in or out of the phone using your log in credentials.

To sign in/out of Lync Server from the phone:

1 After the phone reboots, exit the PIN authentication screen that displays on the phone. If you enabled more than one authentication method on the phones, the following screen displays to allow users to choose a sign-in method.

2 Navigate to the following location on the phone to display the Lync Sign In screen: Press **Home**/**Menu** and go to **Settings > Features > Microsoft Lync > Sign In/Sign Out**.

3 Enter your sign-in credentials in the following formats:

- ➢ **Sign In Address**   This is your Lync SIP URI address, not the user name for the Active Directory account. For example, *username@domain*.com.
- ➢ **Domain**   By default, use the NetBIOS domain name.
- ➢ **User**   Enter a user name.
- ➢ **Password**   Enter a password.
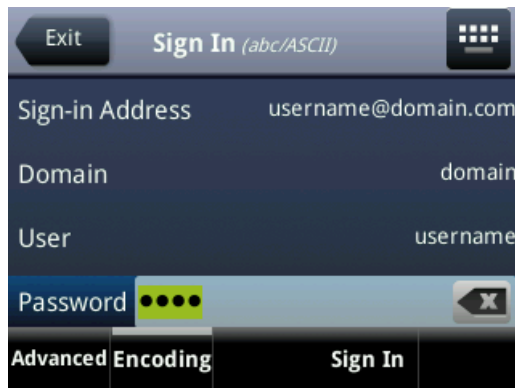
4 Select **Sign In**.

You can begin using Lync features directly from the phone. The following illustration shows line extension 2334 on the VVX 500 successfully registered to Lync Server.
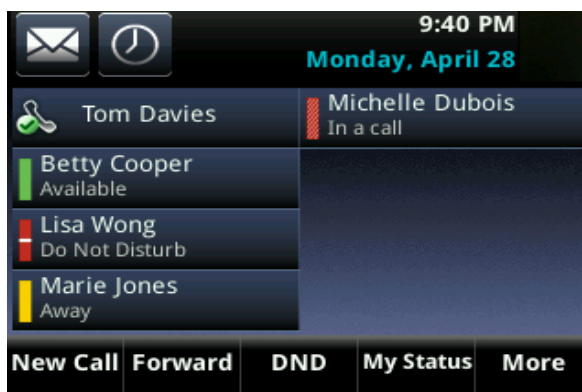
Settings: How Lync Server sets the line label

Lync Server assigns the line label to the line key on your phone in the following order:
  1 Extension
  2 Full TelURI
  3 User part of the SIP URI

PIN Authentication

You can sign in to Lync Server using PIN authentication. To use PIN authentication, you must enable the Web Configuration Utility, which is disabled by default. See the section Enable Access to the Web Configuration Utility. After you enable the Web Configuration Utility, you can enable or disable PIN authentication using `reg.1.auth.usePinCredentials` and associated parameters listed in Understand Lync Configuration Files. Polycom UC Software 5.1.1 introduces PIN authentication for SoundStructure VoIP Interface registered with Microsoft Lync server.

> **Note: DHCP Option 43 displays the PIN Authentication menu to users**
>
> If you configure DHCP Option 43, the phone displays the PIN Authentication menu to users.

To sign in using PIN authentication:

1 Set the phone's **Base Profile** to **Lync**.

   The phone reboots and displays a PIN Authentication screen.
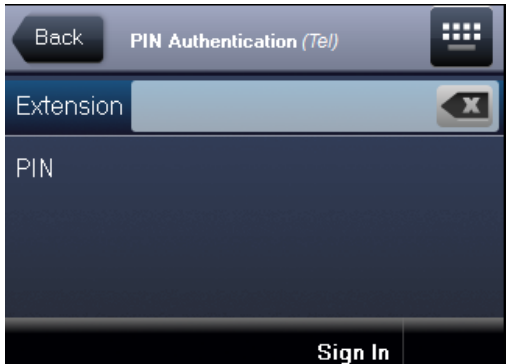
2 Enter the phone's extension and your PIN, and press **Sign In**. Press the **Exit** soft key to sign out and return to the idle screen.

BToE Sign In

You can use this sign-in method when using the Better Together over Ethernet (BToE) feature. The BToE feature enables you to place, answer, and hold audio and video calls from your Polycom VVX phone and your Lync client on your computer. This method is available after you download the BToE connector application and pair your computer and phone. For instructions, see the *Polycom VVX Business Media Phones - User Guide* at Latest Polycom UC Software Release.

To use the BToE feature and sign in:

1 Download and install the Polycom BToE Connector application to your computer. The application is available through Polycom Support, at Latest Polycom UC Software Release.

2 Enable BToE and pair the device with your computer. For detailed instructions on enabling BToE, see the *Polycom VVX Business Media Phones - User Guide* at Latest Polycom UC Software Release.

3 After you enable the BToE feature and pair you phone and computer, set the phone's **Base Profile** to **Lync**. After the phone reboots, exit the PIN authentication screen that displays on the phone.

4 On the Lync client on your computer, enter your user credentials and sign in.

   Now you can manage calls on your phone using the Lync client.

Enable the Exchange Calendar

UC Software 5.3.0 supports exchange autodiscover, or you can enable the parameter `feature.EWSAutodiscover.enabled` in configuration files or the Web Configuration Utility. When using a UC Software release prior to 5.3.0, you can enable the exchange calendar two ways. If you are using centralized provisioning, you can include parameters to your configuration files. Or you can enable the exchange calendar on a per-phone basis using the Web Configuration Utility after you enable access to the Web Configuration Utility.

Settings: Accessing Exchange integration

If you are entering your sign-in credentials to the configuration file for your Lync registration and you want Exchange integration to work, phone users also need to enter credentials to the phone Sign In screen.

To enable the exchange calendar from a provisioning server:

1 Add the following two parameters to one of your configuration files:

➢ `feature.exchangeCalendar.enabled`=1

➢ `exchange.server.url`=https://<example URL>

These parameters are not included in the template configuration files. You must enter the parameters manually to one of your existing configuration files.

To enable the exchange calendar on a per-phone basis:

1 Ensure that you enable access to the Web Configuration Utility.

2 Enter the IP address of your phone in the address bar of a web browser. You can find the phone's IP address by going to **Menu/Home > Settings > Basic > Platform > Phone**. The IP address displays in the IP field labeled.

The Web Configuration Utility login screen displays, shown next.
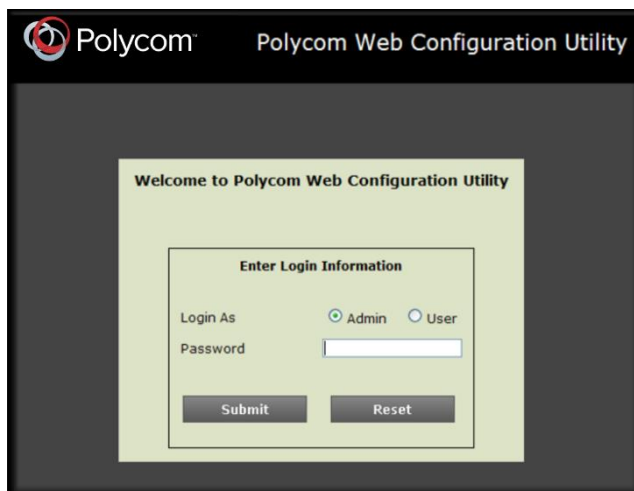
3 Choose **Admin**, enter the **Password** (default 456), and click **Submit**.

4 In the **Home** page, navigate to **Settings > Applications > Exchange Applications**, and expand **Exchange Applications**, as shown next.
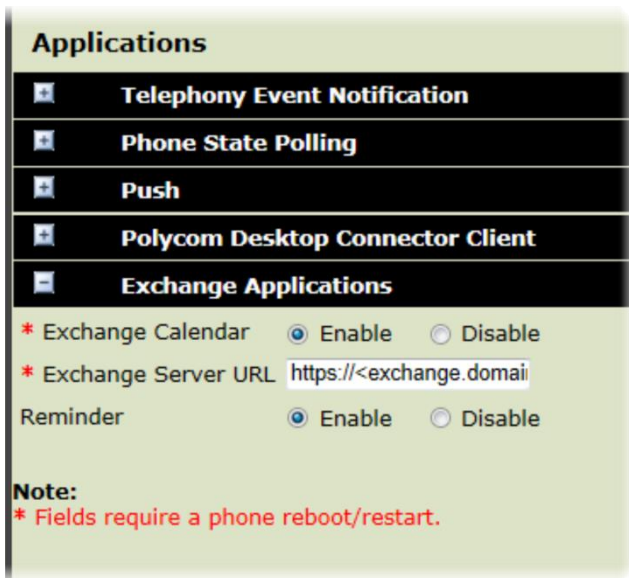
5 Enable the **Exchange Calendar**.

6 Enter the exchange web services URL. For example, https://exchange.domain.com/EWS/Exchange.asmx.

7 At the bottom of the browser page, click **Save**.

8 When the confirmation dialog displays, click **Yes**.

Your Exchange Calendar is successfully configured and the Calendar icon displays on your phone screen, as shown next on the VVX 500.

Configure Lync Enhanced Presence

The Lync presence feature enables you to monitor the status of remote contacts from your phone. By adding contacts to your Buddy List, you can monitor changes in the status of remote contacts in real time or you can monitor them as Favorites on the VVX phone and expansion module. The table Configure the

Lync Presence Feature lists the parameters you can configure. Other phone contacts can block you from monitoring their phones.

> **Note: VVX Paper Display Expansion Modules do not Support Lync.**
>
> The VVX Expansion Modules with paper displays do not support Lync registrations, and you cannot configure paper display expansion modules with Lync features. You can only configure VVX Color expansion modules to work with Lync.

For more information about the Lync presence feature, see *Feature Profile 84538: Using Polycom VVX Business Media Phones with Microsoft Lync Server 2013*.

Configure the Lync Presence Feature

Central Provisioning Server	template > parameter
Specify the line/registration number used to send SUBSCRIBE for presence	**features.cfg** > pres.reg
Turn on or off the MyStatus and Buddies soft keys on the Home screen	**features.cfg** > pres.idleSoftkeys
Turn the presence feature on or off	**lyncSharedExample.cfg** > feature.presence.enabled

Presence Parameters

Parameter	Permitted Values	Default
pres.reg	**1 to 34**	**1**
The valid line/registration number that is used for presence. This registration sends a SUBSCIRBE for presence. If the value is not a valid registration, this parameter is ignored.		
pres.idleSoftkeys	**0 or 1**	**1**
If 0, the **MyStat** and **Buddies** presence idle soft keys do not display. If 1, the soft keys display.		
feature.presence.enabled	**0 or 1**	**1**
Enable the presence feature to manage your buddy list and display the status of your contacts.		

Example Presence Configuration

In the following illustration, the presence feature is enabled in `feature.presence.enabled`. The My Status and Contacts soft keys display on the phone's home screen when you enable the `pres.idleSoftkeys` parameter. The `pres.reg` parameter uses the address of phone line 1 for the presence feature.
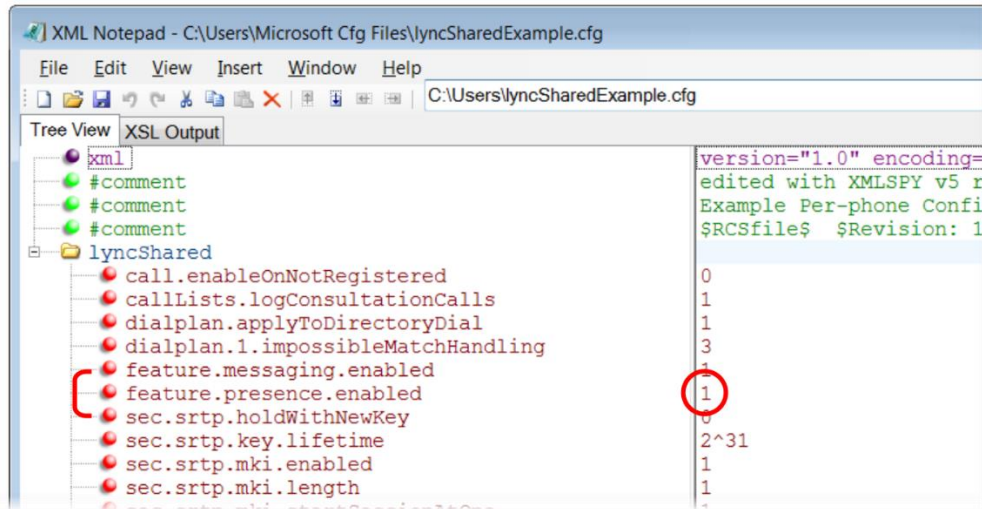
This configuration enables the presence feature and displays the My Status and Contacts soft keys on the phone. When you press the Contacts soft key, contacts you have entered to your Contacts list display.

Contacts Soft Key
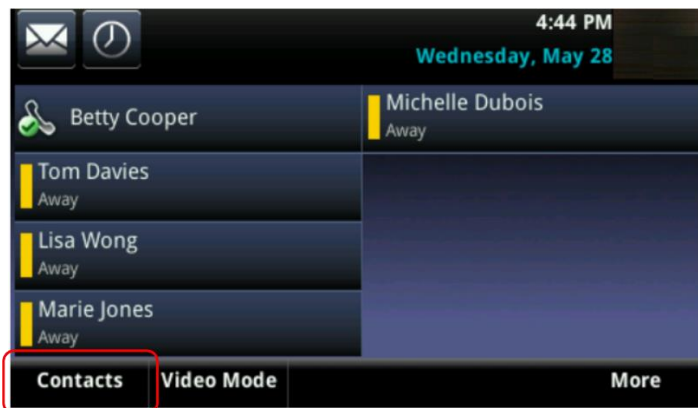
The figure Lync Presence Contacts illustrates the display of your contacts on the color expansion module.

Lync Presence Contacts

Maria Torres	Heather Brakett
Betty Cooper	James Hollands
Tom Davies	Tiffany George
Brandi Castine	Jennifer Hurst
George Stewart	Lawrence Garnett
Sara Bell	Donald Thomas
Shawn Woods	Morgan Clark
Katherine Emery	Rachel Jones
Don Blue	Toree Roy
Teresa Sharp	Jamie Peterson
William Shaffer	Floyd Watkins
Tony Davis	Lisa Wong
Lee Daniels	Stacy Travis
Caleb Morrow	April Brown

The table Lync Presence Icons shows the Lync presence icons that display on the VVX 400, 410, 500, and 600 phones and expansion module running UC Software 5.1.1.

Lync Presence Icons

Icons	Description
	Available
	Busy, In a Call, In a Meeting, In a Conference Call
	Away, Be Right Back, Inactive, Off Work
	Do Not Disturb, Presenting, In Presentation
	Offline

Icons	Description
	Unknown
	Blocked

Centralized Conference Control Protocol (CCCP)

CCCP is enabled by default when the phone Base Profile is set to 'Lync'. If you want to configure this parameter, locate the following parameter in the configuration file templates indicated. CCCP enables you to initiate conference calls with your Lync contacts from your phone, manage conference participants, enable announcements, and lock a conference. You can manage a maximum of 24 Lync conference calls at a time on your phone. However, you can have only one active conference call in progress on your phone.

Configure CCCP

Parameter Function	template > parameter
Enable or disable CCCP.	**lyncSharedLCExample.cfg >** feature.cccp.enabled **lyncSharedExample.cfg >** feature.cccp.enabled

Lync Exchange Integration

Lync Exchange Integration is available for Lync Server 2010 and 2013. This feature enables set up of visual voicemail, call log synchronization, Outlook contact search, and Microsoft Lync Address Book Service (ABS) adaptive search. Each of these features is enabled by default on Polycom phones registered with Lync Server.

Note the following enhancements for this release:

- Verify which Exchange Server services are not working on each phone by going to **Status > Diagnostics > Warnings** on the phone.

- View the status of each service in the Web Configuration Utility.

- The phone receives voicemails from Lync Server and messages play on the phone. You cannot download voicemail messages to the phone.

Set up requirements:

- Connect phone to the Exchange Server. There are two ways to set up Lync Exchange Integration.

  ➢ Method one: By default this is enabled. Install and run the autodiscovery service on the Lync Server to get an exchange server URL automatically.

➢ Method two: Optional. Configure the Exchange Server URL. Using this method, the URL takes precedence over the default autodiscovery service.

● Visual voicemail. On the server, enable unified messaging and enable messages to play on the phone for each user. If you disable `feature.exchangeVoiceMail.enabled`, the Message Center and Lync Voice mail menus display the message. Lync Server only plays voicemail and you cannot download voicemails or play locally on the phone.

● Call log synchronization: On the server, enable the option to save calls logs to each user's conversation history in Outlook.

● ABS adaptive search. On the server, enable the ABS service. There are three possible configurations.

➢ Outlook and ABS are both enabled by default. When both are enabled, the phone displays the Lync Directory.

➢ If you disable Outlook and enable only ABS, the phone displays the Lync Directory.

➢ If you enable Outlook and disable ABS, the Outlook Contact Search displays in Directories.

Web Info: Configuring Lync Server

- For help with Lync Server 2010, refer to: Configure Exchange Services for the Autodiscover Service
- For help with Lync Server 2013, refer to: Configuring Unified Messaging on Microsoft Exchange Server to work with Lync Server 2013

Configure Lync Exchange Integration

Parameter Function	parameter
The phone discovers the exchange server URL automatically.	feature.EWSAutodiscover.enabled
Enables all exchange server services.	feature.exchangeCalendar.enabled
Set meeting reminders as audio and visual, audio only, or silent.	exchange.meeting.reminderType
Synchronizes the user call logs from the server.	feature.exchangeCallLog.enabled
Enables Outlook contacts to display in the Outlook search menu or the ABS search.	feature.exchangeContacts.enabled
Phone displays the list of voicemails available on the exchange server.	feature.exchangeVoiceMail.enabled
Enable or disable Lync address book search.	feature.lync.abs.enabled
Set the maximum number of contact search results.	feature.lync.abs.maxResult
Displays the Address Book icon on the main menu and the Lync Directory search option.	up.oneTouchDirectory
Phone displays the visual voicemail menu.	up.oneTouchVoiceMail

Set the connection parameters for the Microsoft Exchange application to configure the Calendaring feature using parameters in the next table. This feature is supported only on VVX 300, 310, 400, 410, 500, 600 and 1500 business media phones.

Microsoft Exchange Parameters

Parameter	Permitted Values	Default
exchange.meeting.alert.followOfficeHours	**0 or 1**	**1**
If enabled, audible alerts occur during business hours. If disable, audible alerts occur at all times.		
exchange.meeting.alert.tonePattern	**Any tone specified by se.pat.*, see section Customize Audio Sound Effects in the UC Software 5.3.0 Administrator Guide**	**positiveConfirm**
Set the tone pattern of the reminder alerts.		
exchange.meeting.alert.toneVolume	**0 - 17**	**10**
Set the volume level of reminder alert tones.		
exchange.meeting.phonePattern	**String**	**Null**
The pattern used to identify phone numbers in meeting descriptions, where "x" denotes any digit and "|" separates alternative patterns (for example, xxx-xxx-xxxx|604.xxx.xxxx).		
exchange.meeting.reminderEnabled	**0 or 1**	**1**
If 0, meeting reminders are disabled. If 1, they are enabled.		
exchange.meeting.reminderInterval	**60 – 900 seconds**	**300 seconds**
Set the interval at which phones display reminder messages.		
exchange.meeting.reminderType	**0, 1, 2**	**2**
Customize the calendar reminder and tone. If 2, reminder is always audible and visual. If 1, the first reminder is audible and visual reminders are silent. If 0, all reminders are silent.		
exchange.server.url[1]	**String**	**Null**
The Microsoft Exchange server address.		
feature.exchangeCalendar.enabled[1]	**0 or 1**	**0**
For the VVX 300, 310, 400, 410, 500, 600 and 1500 phones. If 0, the calendaring feature is disabled. If 1, the feature is enabled.		
feature.exchangeCallLog.enabled		**1**
feature.exchangeContacts.enabled		**1**

Parameter	Permitted Values	Default
feature.EWSAutodiscover.enabled	0 or 1	1
If 1, Exchange autodiscovery is enabled and the phone automatically discovers the Exchange server using the email address or SIP URI information. If 0, Exchange autodiscovery is disabled on the phone and you must manually configure the Exchange server address.		
feature.exchangeVoiceMail.enabled		1
feature.lync.abs.enabled	0 or 1	1
Set to 1 to enable comprehensive contact search in the Lync Server address book service. Set to 0 to disable comprehensive contact search in the Lync Server address book service.		
feature.lync.abs.maxResult	5 to 50	20
The value for this parameter defines the maximum number of contacts to display in a Lync Server address book service contact search.		
up.oneTouchDirectory		1
up.oneTouchVoiceMail[1]	0 or 1	0
If 1, the phone dials voicemail services directly (if available on the call server) without displaying the voicemail summary. If 0, the phone displays a summary page with message counts. The user must press the Connect soft key to dial the voicemail server.		

[1] Change causes phone to restart or reboot.

Update Polycom UC Software

You can update the phones to Polycom UC Software manually on a per-phone basis. Or, if you are using VVX phones running UC Software 5.x.x, you can use the automatic software update feature to update your phone's software. Before you use the automatic software update feature, reset the phone as shown in Update UC Software Automatically.

Web Info: Getting Polycom UC Software

All UC Software versions are available directly from the Polycom Voice Support web site.

- For the latest UC Software versions, see Latest Polycom UC Software Release.
- For all UC Software versions, see Polycom UC Software Support Center.

Update UC Software Manually

This update procedure applies to phones running UC Software 4.1.x or UC Software 5.x.x.

To update UC Software manually:

1   Download and unzip UC Software to a directory on your provisioning server.

2   On the phone, go to **Home > Settings > Advanced**, enter the password (default 456)

3   Go to **Network Configuration > Provisioning Server > DHCP Menu > Boot Server**.

4   In the **Boot Server** menu, choose **Static** if you are testing or provisioning a few phones, or choose **Option 66** if you are provisioning in a large environment and want phones to use a boot server defined in DHCP. If you choose Option 66, skip step 5 and go to step 6.

5   Go back to **Provisioning Server** and do the following:

   ➢   Choose a server type in the **Server Type** field.

   ➢   Enter the Server Address, for example, http://s*erver.domain.com*/41X or ftp://*ftp.domain.com*/41X.

   ➢   Enter your server user name and server password, if required.

6   Press **Back** until you are prompted to save your settings. Choose **Save configuration** to save your settings and the phone reboots.

7   Confirm that the phone is running a Lync-enabled Polycom UC Software version.

   ➢   On the VVX 1500 Business Media phone, choose **Home > Status > Platform > Application > Main**. The UC Software version displays beside Version.

   ➢   On the VVX 500 Business Media phone, choose **Menu > Settings > Status > Platform > Application > Main**. The UC Software version displays beside Version.

> **Note: Updating your phone software**
>
> You can use the Web Configuration Utility to update your Polycom UC Software. For details on how to update the phone software using the Web Configuration Utility, see Feature Profile 67993: Using the Software Upgrade Option in the Web Configuration Utility.

Update UC Software Automatically

When you register VVX phones running UC Software 5.x.x with Lync Server, by default the phones poll Lync Server for software updates and automatically download updated software. This automatic software update feature is available on all devices using UC Software 5.0.0 and later registered with Lync Server. As of UC Software 5.3, when you use automatic software updates, the phone notifies users of the software and prompts users to choose when to update the software. The user options are detailed in the *Polycom VVX Business Media Phones - User Guide* on Polycom UC Software Support Center.

You must enable automatic software updates using parameters listed in the table Automatic Software Update Parameters. If you are registering phones to Lync Server manually by setting the phone's Base Profile to Lync, these parameters are automatically enabled with the default values. If you want to change the default behavior of any of these parameters, you must enter the parameters in the configuration files on your provisioning server. These parameters are not included in the sample configuration files Polycom provides in the PartnerConfig > Microsoft directory of the UC Software download.

Automatic Software Update Parameters

Parameter	Permitted Values	Default
device.prov.lyncDeviceUpdateEnabled.set	**0, 1**	**0**
Set to 1 to enable use of `Device.prov.lyncDeviceUpdateEnabled`.		
device.prov.lyncDeviceUpdateEnabled	**0, 1**	**0**
Set to 1 to enable the automatic software update feature. Changing the value of this parameter reboots the phone. This parameter is set to 0 when the phone's Base Profile is set to Generic and 1 when the phone's Base Profile is set to Lync.		
lync.deviceUpdate.userInactivityTimeout	**Min=300 seconds Max=1800 seconds**	**900 seconds (15 minutes)**
The value of this parameter sets the user inactivity timeout period after which the phone's software is automatically updated.		
lync.deviceUpdate.popUpSK.enabled	**0, 1**	**0**
Use this parameter to enable or disable the Information popup that indicates when a software update is available for automatic update.		
lync.deviceUpdate.serverPollInterval	**min=1800 seconds max=28800 seconds**	**7200 seconds**
Sets the time interval in seconds that the phone sends a software update request to Lync Server.		

By default, when a software update is available, an Information pop-up displays on your phone. The Information pop-up provides three options.

- Press **Reboot** to restart the phone and automatically update the phone's software.
- Press **Cancel** to cancel the automatic software update. When you press Cancel, a **DevUpdt** soft key displays on the phone's home screen. Press **Dev Updt** at any time to update your phone's software.
- Press **Details** to view information about current and available software, as shown next.

When the phone is inactive for a long period of time, the phone automatically reboots and updates the phone's software.

Reset the Phone to Factory Default Settings

If the device has already been in use, you can reset your device to factory default settings. Before resetting a device, verify that you do not need to keep parameters such as a provisioning server address or credentials.

Polycom devices store settings in up to three locations that correspond to three ways you can apply settings:

- In configuration files stored on the provisioning server
- In a per-device file uploaded to the provisioning server when settings are made using the Web Configuration Utility
- Locally on the phone's memory system

Settings: Restore settings all three sources

Ensure that you restore default settings from all three configuration sources. Settings that you do not reset to factory defaults may override any new settings you apply.

Restore default settings from each source. You can perform all three resets directly from the phone.

To reset local phone settings:

1 On your phone, go to **Settings > Advanced**.

2 Enter the password (default 456).

3 Go to **Administration Settings > Reset to Defaults > Reset Local Configuration**. At the prompt 'Are you sure?', tap **Yes**.

To reset web settings:

1 On your phone, go to **Settings > Advanced**.

2 Enter the password (default 456).

3   Go to **Administration Settings > Reset to Defaults > Reset Web Configuration**. At the prompt 'Are you sure?', tap **Yes**.

      The phone may reboot, depending on the parameters set using the Web Configuration Utility.

To reset the phone to factory default settings:

1   On your phone, go to **Settings > Advanced**.

2   Enter the password (default 456), and press **Enter**.

3   Go to **Administration Settings > Reset to Defaults**, and select **Reset to Factory**. At the prompt 'Are you sure?', tap **Yes**. The phone reboots to factory default settings.

Change the Default Password

As of UC Software 5.1.0, when you set the Base Profile to Lync or update your phones to UC Software 5.x.x or later, the phones display a message prompting you to change the default administrator password (456). Polycom strongly recommends that administrators change the default password. This password is not the Lync user Sign In password. The default administrator password enables administrators to access advanced settings menu on the phone menu and to log in to a phone's Web Configuration Utility as an administrator.

You can change the default password using any of the following methods:

- The popup prompt when phone firsts registers
- Phone menu system
- Web Configuration Utility
- `reg.1.auth.password` in the template configuration file `lyncPerPhoneExample.cfg`

Enable Access to the Web Configuration Utility

Polycom UC Software 5.1.1 introduces a security enhancement for VVX phones and expansion modules and the SoundStructure VoIP Interface registered with Microsoft Lync Server 2013. As of UC Software 5.1.1, access to the Web Configuration Utility for phones registered with Lync Server is disabled by default. Administrators must enable access to a phone's Web Configuration Utility from the phone menu system or using configuration parameters.

On the SoundStructure VoIP Interface, you must enable the Web Configuration Utility using configuration files on a provisioning server before you set the Base Profile to Lync. If you do not enable the Web Configuration Utility before setting the Base Profile to Lync, the Web Configuration Utility will not be available and you will need to reset the SoundStructure VoIP Interface to factory default settings.

If you set the Base Profile of a phone to Lync or use the centralized provisioning method to enter user credentials to the configuration files, the phone displays a screen prompting an administrator to change the default Admin password (456). Polycom strongly recommends that administrators change the default password. This password is not the Lync Sign In password. The password you enter here is the same password administrators use to access the advanced settings on the phone menu and to log in to a phone's Web Configuration Utility as an administrator.

After you successfully access the phone, you can enable access to the Web Configuration Utility from the phone menu system or using the parameters listed in the table Enable Web Configuration Utility. After

you successfully enable the Web Configuration Utility for the SoundStructure VoIP Interface, you can use the Web Configuration Utility to change the administrator password.

Enable Access to the Web Configuration Utility From the Phone's Menu

When the phone's Base Profile is set to Lync, you can enable access to a phone's Web Configuration Utility form the phone's menu system.

To enable access to the Web Configuration Utility from the phone:

  1 On the phone's menu system, navigate to **Settings > Advanced** > Enter the password (default 456) and **Enter > Administration Settings > Web Server Configuration**.

   Web Server and Web Config Mode display.

  2 Set **Web Server** to **Enabled**.

  3 Set **Web Config Mode** to HTTP Only, HTTPS Only, or HTTP/HTTPS.

Enable the Web Configuration Utility Using Configuration Files

The security update for Microsoft Lync Server with Polycom UC Software 5.1.1 includes a new device parameter and a corresponding `device.set` parameter. Polycom recommends using `<device/>` parameters only if you are familiar with the centralized provisioning method and with Polycom UC Software. The parameter values listed in the table Enable Web Configuration Utility have two default states: a generic default value for UC Software 5.1.1 and a different value when the phone is registered with Lync Server. The table Generic and Lync Defaults lists default values for both states.

Enable Web Configuration Utility

Central Provisioning Server	template > parameter
Enable or disable access to the HTTP server and Web Configuration Utility.	**lyncSharedExample.cfg**, **lyncSharedLCExample.cfg >** httpd.enabled
Enable or disable access to the Web Configuration Utility	**lyncSharedExample.cfg**, **lyncSharedLCExample.cfg >** httpd.cfg.enabled
Choose whether or not the server uses a secure tunnel to access the Web Configuration Utility.	**lyncSharedExample.cfg**, **lyncSharedLCExample.cfg >** httpd.cfg.secureTunnelEnabled
Choose whether or not the server requires a secure tunnel to communicate with the Web Configuration Utility.	**lyncSharedExample.cfg**, **lyncSharedLCExample.cfg >** httpd.cfg.secureTunnelRequired
Use or do not use the corresponding device.xxx parameter.	**device.cfg, site.cfg >** device.sec.coreDumpEncryption.enabled.set

Encrypt or bypass encryption of the core dump.

device.cfg, site.cfg >
device.sec.coreDumpEncryption.enabled

Local Phone User Interface

You can enable access to the Web Configuration Utility on the phone menu system by navigating to **Settings > Advanced > Administration Settings > Web Server Configuration.**

The table Generic and Lync Defaults lists the default values for both states.

Generic and Lync Defaults

Parameter	UC Software 5.1.1 Value	Lync default Value	Permissible Values
device.sec.coreDumpEncryption.enabled.set	**0**		**0 or 1**
device.sec.coreDumpEncryption.enabled	**0**		**0 or 1**
httpd.enabled	**1**	**0**	**0 - Web server disabled** **1 - Web server enabled**
If 0, the HTTP server and access to the Web Configuration Utility is disabled. If 1, the server and access to the Web Configuration Utility is enabled.			
httpd.cfg.enabled	**1**	**0**	**0 - Web UI/service disabled** **1 - Web UI/service enabled/running**
If 0, the Web Configuration Utility is disabled. If 1, the Web Configuration Utility is enabled.			
httpd.cfg.secureTunnelEnabled	**1**	**1**	**0 - HTTPS service disabled** **1 - HTTPS service enabled**
If 0, the web server does not use a secure tunnel. If 1, the web server connects through a secure tunnel.			
httpd.cfg.secureTunnelRequired	**0**	**1**	**0 - HTTP service enabled** **1 - HTTP service disabled**
If 1, only the phone's HTTPS web server is accessible and requires a secure tunnel. If 0, the phone's HTTP web server is also accessible through a secure tunnel. If this parameter is enabled and `httpd.cfg.secureTunnelEnabled` is enabled, then non-secure HTTP service is disabled.			

Example Lync 2013 Security Update Configuration

This section provides an example configuration for the Microsoft security update for Microsoft Lync 2013. When registered with Lync Server, the phone's Web Configuration Utility is disabled. This example configuration illustrates how to enable access to a phone's Web Configuration Utility when phones are registered with Lync Serve 2013.

By default, a pop-up message displays on phones registered with Lync Server 2013. This message prompts administrators to change the default password use to access the phone's Web Configuration Utility as an administrator.

After you change the default password, enable access to the Web Configuration Utility using the parameters shown in the following figure.

Enabling access to the Web Configuration Utility using configuration files
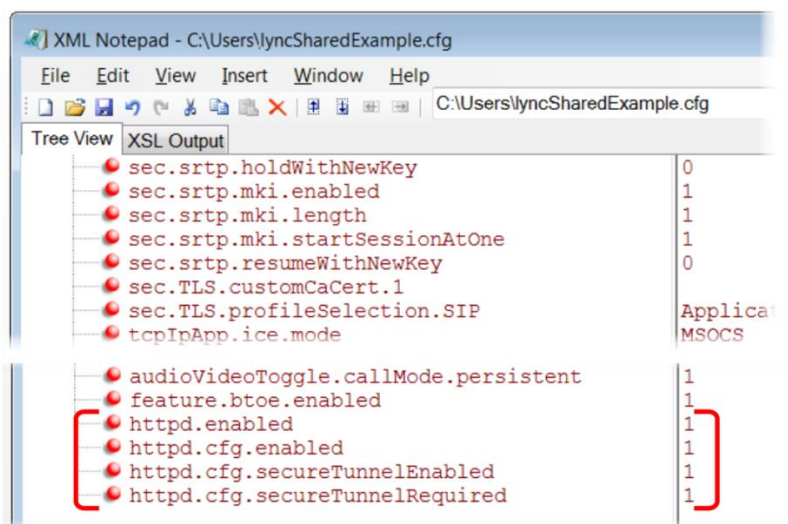
You can also enable access to the Web Configuration Utility on VVX phones on the phone menu system.

To enable access to the Web Utility from the VVX phone menu:

1 On the phone menu system, go to **Settings > Advanced > Administration Settings** and enter the password.

2 Go to **Web Server Configuration** and set **Web Server** to **Enabled**.

3 Set **Web Config** Mode to **HTTP/HTTPS**.
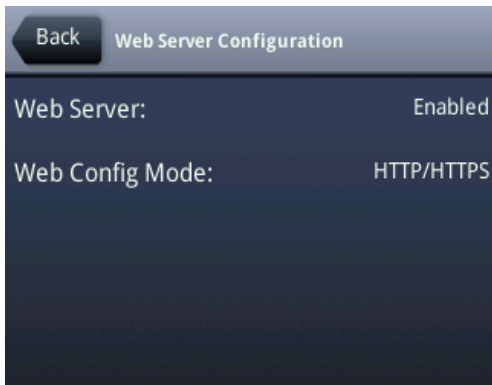
4 Press **Back** and save your changes.

Configure Lync Boss-Admin for Lync Server 2010

Lync users can assign delegates to share a line so that both can place, answer, hold, transfer calls, and set ringtones on the delegate line. This section shows you how to enable the safe transfer feature and soft key on the phones and how to configure Lync Boss-Admin for Lync Server 2010. See the latest *Polycom VVX Business Media Phones - User Guide* on Polycom Latest UC Software Release for information about this feature.

Configure Safe Transfer for Lync Boss-Admin

To enable the safe transfer feature and display the Safe Transfer soft key, you must enable `feature.lyncSafeTransfer.enabled`. A safe transfer transfers a call to another party and during the transfer allows you to continue monitoring the call with the option to resume. If the call is answered by the other party, you are disconnected from the call.

Configure Safe Transfer

Parameter Function	parameter
Enable or disable the safe transfer feature and display of the Safe Transfer soft key.	feature.lyncSafeTransfer.enabled

Safe Transfer Parameters

Parameter	Permitted Values	Default
feature.lyncSafeTransfer.enabled	**0 or 1**	**0**
Enable or disable the safe transfer feature and display of the Safe Transfer soft key.		

Configure Lync Boss-Admin for Lync Server 2010

You configure the Lync Boss-Admin feature from the Lync client application on a computer. For instructions, see the latest *Polycom VVX Business Media Phones – User Guide* on Latest Polycom UC Software Release. However, if you are using Lync Server 2010, an administrator must complete the following procedure.

To configure shared call appearance for Lync Server 2010:

    1 Add the following SQL write operation command to a row in a static SQL database table:

```
osql –E –S se.fabrikam.com\RTC –Q "use rtc;exec RtcRegisterCategoryDef
N'dialogInfo'"
```

> You need to substitute the path to the RTC presence backend, shown as *<se.fabrikam.com>* in this example.

> The SQL server operation is sent to the presence backend and must be run in every pool you need to enable.

    2 Run the command.

    3 Run the following command to verify that the category is registered

```
osql –E –S se.fabrikam.com\RTC –Q "use rtc;select * from CategoryDef"
```

> You need to substitute the path to the RTC presence backend, shown as *<se.fabrikam.com>* in this example.

Support Extended Link Layer Discovery Protocol (LLDP)

The Link Layer Discovery Protocol (LLDP) is used by network devices to advertise their identity, capabilities, and neighbors on an IEEE 802 local area network, principally wired Ethernet. LLDP is enabled by default.

Media Endpoint Discover (MED) capabilities include:

- Network policy discover
- Endpoint location identification discovery
- Extender power discovery required for endpoint

LLDP Fast Start Count

Fast start count enables a device to initially advertise itself over the network at a fast rate for a limited time when an LLDP-MED endpoint has been newly detected or connected to the network.

Configure LLDP

Parameter Function	parameter
Configure the fast-start LLDP packets that the phone sends when booting up or when the network comes up.	device.net.lldpFastStartCount

LLDP Parameters

Parameter	Permitted Values	Default
device.net.lldpFastStartCount	3 - 10	5

Configure the fast-start LLDP packets that the phone sends when booting up or when the network comes up.

If fast-start packet count is configured > 10 the, the value resets to 10. If the fast-start packet count is < 3, the value resets to 3. If you configure an invalid value—for example, a negative value, string, or character—the value resets to default 5.

International Dialing Prefix

Enter a '+' symbol before you dial an international phone numbers to identify to the switch that the phone number you are dialing is international.

Configure International Dialing Prefix

Parameter	Permitted Values	Default
call.internationalDialing.enabled	0 or 1	1

Enable or disable the key tap timer that converts a double tap of the asterisk "*" symbol to the "+" symbol to indicate an international call. By default, this parameter is enabled so that a quick double tap of "*" converts immediately to "+". To enter a double asterisk "**", tap "*" once and wait for the key tap timer to expire to enter a second "*".

When you disable this parameter, you cannot dial"+" and you must enter the international exit code of the country you are calling from to make international calls.

This parameter applies to all numeric dial pads on the phone, including for example, the contact directory.

Changes you make to this parameter cause a restart or reboot.

call.internationalPrefix.key	0 or 1	0

The phone supports international call prefix (+) with both '0' and '*'. If 0, set the international prefix with *. If 1, set the international prefix with 0.

Music on Hold

You can enable or disable the music on hold (MoH) feature using configuration files. Music on hold enables music to play when users place a call on hold. If you place multiple calls on hold, only the first call placed on hold hears the music. By default MoH is enabled on the phone when registered with Lync Server. When MoH is enabled, you can turn on or off the music the phone plays when an active call is placed on hold.

You specify on the provisioning server which file the phone plays when you place an active call on hold. The phone downloads the file you place on the server and stores the file on its internal flash drive. Or you

can upload a music file to the phone using the phone's Web Configuration Utility at **Preferences > Additional Preferences > Music On Hold**.

The default MoH file size is 540 KB and the maximum file size is 600 KB. You can use the parameter `res.quotas.tone` to increase the maximum MoH file size to 1024 KB. The phone supports the following **.wav** audio file formats:

- mono G.711 (8 bits/sample, 8-khz sample rate)
- mono L16/16000 (16 bits/sample, 16-kHz sample rate)
- mono L16/48000 (16 bits/sample, 48-kHz sample rate)

Configure Music on Hold

Parameter Function	parameter
Enable or disable the music on hold feature. By default, this feature is disabled.	feature.moh.enabled
Specify the file the music file you want the phone to play when an active call is placed on hold.	feature.moh.filename
Specify the payload for RTP packets when music on hold is playing.	feature.moh.payload
Set the maximum sample tone file size.	res.quotas.tone

Music on Hold Parameters

Parameter	Permitted Values	Default
feature.moh.enabled	**0 or 1**	**0**
Music on hold enables VVX phone users to stream music when they place a caller on hold. If 0, music on hold is disabled. If 1, music on hold is enabled and you must specify a music file in `feature.moh.filename`.		
feature.moh.filename	**String, maximum of 256 characters**	**Null**
Specify the file the music file you want the phone to play when users place an active call on hold.		
feature.moh.payload	**20, 40, 60, 80**	**80**
xx Specify the payload for RTP packets when music on hold is playing. For best phone performance, set to 80. In PSTN calls using a media gateway that does not support a payload value of 80, set to 20.		
res.quotas.tone	**600 – 1024 KB**	**1024 KB**
Set the maximum sample tone file size.		

In the event that the music file fails to play, the following messages display on the phone screen.

MoH Error Messages

Failure scenario	Error Message
Phone fails to download the MoH file because the current file was active	'Download failed' 'Current MoH is Active'
MoH file download failed	'Download Failed'
MoH file size is zero	'Download Failed'
MoH file size exceeds the maximum size of 500KB	'File size exceeded 500KB'
An incorrect .wav file format is specified	'Unsupported .wav file format'
A network failure occurs while the phone downloads the MoH file	'Download failed' 'Network is down'

Available Dial Plans

Polycom does not support all regular expression digit maps. The following tables list supported and unsupported dial plans with Lync Server. The tables are followed by examples of supported and unsupported dial plans.

Polycom phones do support Lync External Access Prefix functionality.

Supported Digit Maps

No.	element	Meaning	Example	Explanation of example
1	^	Match at beginning of string	^123	Match the digits 123 at the beginning of the string
2	()	Captures the matched subexpression	(456)	Capture what is between the parentheses into a numbered variable, starting at 1 which can be accessed as $n, for example, $1
3		Specifies zero or more matches	\d(*)	

No.	element	Meaning	Example	Explanation of example
4	+	Specifies one or more matches	\d(+)	
5	?	Specifies zero or one matches	\d(+)	
6	{n}	Specifies exactly n matches	\d {4}	Match 4 digits
7	Vertical Bar (Pipe)	Matches any one of the terms separated by the (vertical bar) character when all characters are surrounded by brackets or square brackets	(1|2|3) or [1|2|3]	Match either 1, 2, or 3.
8	\d	Matches any decimal digit	^\d	Match any decimal digit (at the beginning of a string)
9	$	The match must occur at the end of the string	^(123)$	Match exactly digits 123 (and not 1234)

Unsupported Digit Maps

Number	Element	Meaning	Example	Explanation of Example
1	{,m}	Specifies at most m matches	\d {,6}	Match at most 6 digits
2	{n,}	Specifies at least n matches	\d {3,}	Match at least 3 digits (with no limit to number of digits matched)
3	{n,m}	Specifies at least n, but no more than m, matches	\d {3,6}	Match at least 3 digits but no more than 6 digits
4	$	The match must end at '$'	^(123$\|125$)	Match either the string 123 or the string 125

Examples of supported dial plans include the following:

- Support for multiple combination of braces (): ^91(727|813)([2-9]\d{6})$@+9$1$2@0

- Support for 'ext': ^64(\d{2})$@+86411845933$1;ext=64$1@0

Examples of not supported dial plans include the following:

- Braces within the braces with pipes: ^56(12(3|4))((4|5)6)@+1$2$1@0

- Non-sequential $ values in translation patters: ^1(45)(89)@+123$2$1@0

Manually Install a Certificate

If you need to set up a remote worker, you must manually enter a certificate to the phone. You can add the certificate using two parameters included in the `lyncSharedExample.cfg` and `lyncSharedLCExample.cfg` files. You also have the option to create your own XML configuration file and upload it to a phone using the Web Configuration Utility after you enable access to the Web Configuration Utility. You can manually install certificates on a per-phone basis only. You must use Base64 format.

To install a certificate using configuration files:

1 Locate the `lyncSharedExample.cfg` and `lyncSharedLCExample.cfg` configuration files in the **PartnerConfig > Microsoft** directory of the UC Software download.

2 Place the configuration file in a location in your Lync directory.

3 Enter the certificate and application profile to the following two parameters:

   ➤ `sec.TLS.customCaCert.1=<enter the certificate>`

   ➤ `sec.TLS.profileSelection.SIP=<ApplicationProfile1>`
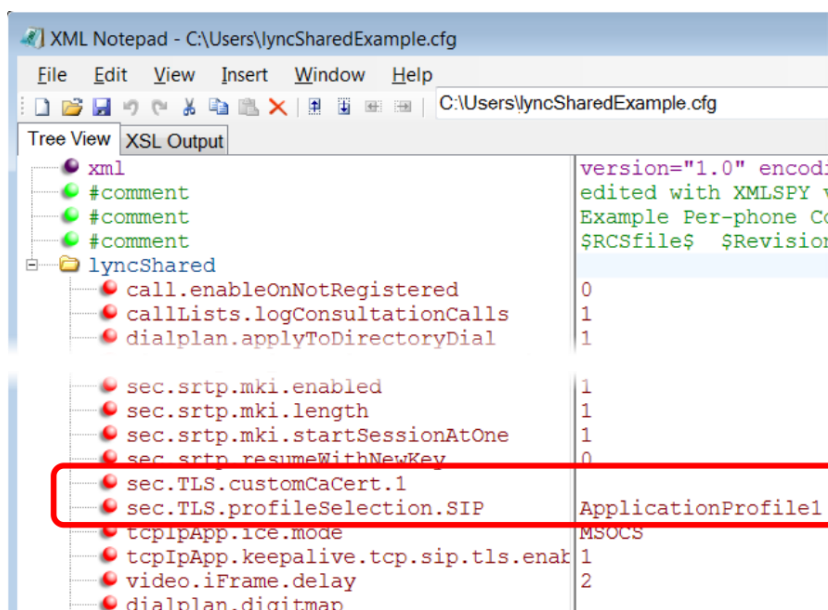
You can also enter the certificate by doing one of the following:

> ➢ Add the two parameters in an XML file you create with an XML editor.

> ➢ Add the two parameters to an existing configuration file you are using.

4 Enter the root CA certificate, in Base64 format, in `sec.TLS.customCaCert.1` and set the application profile in `sec.TLS.profileSelection.SIP`.
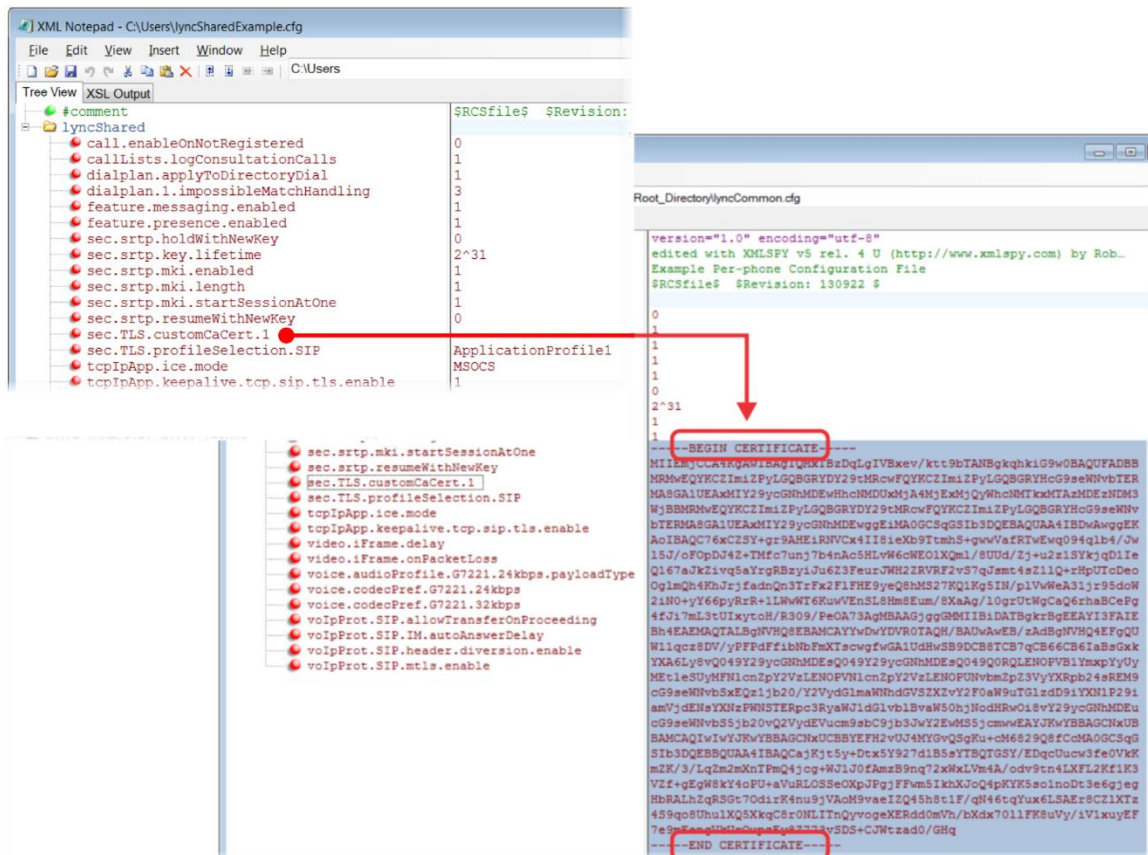
You have successfully installed a security certificate.

You can also use the Web Configuration Utility to install a certificate manually after you enable access to the Web Configuration Utility.

To install a certificate using the Web Configuration Utility:

1 In the address bar of a web browser, enter the phone IP address. You can find the IP address by going to **Menu > Settings > Basic > Platform > Phone > IP**.

The Web Configuration Utility login screen displays.
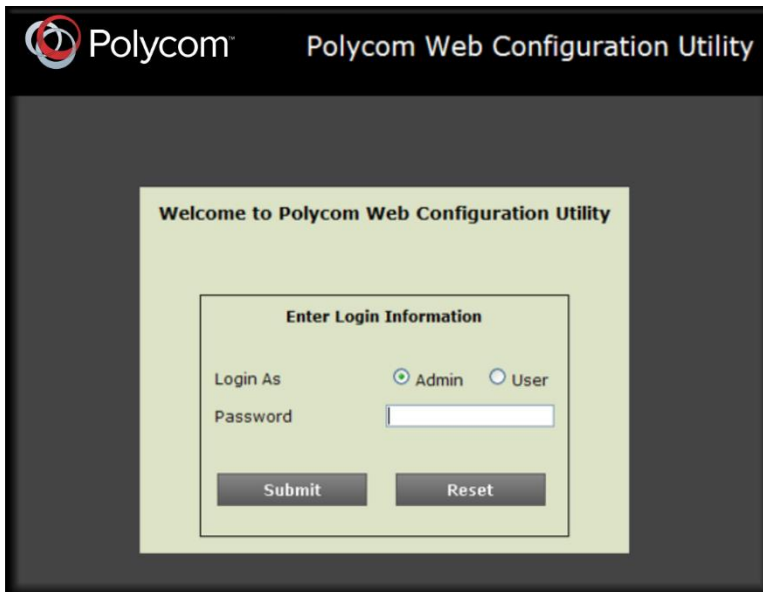
2 Choose **Admin**, enter the password (default 456), and click **Submit**.

3 In the **Home** page, navigate to **Utilities > Import & Export Configuration**, as shown next.
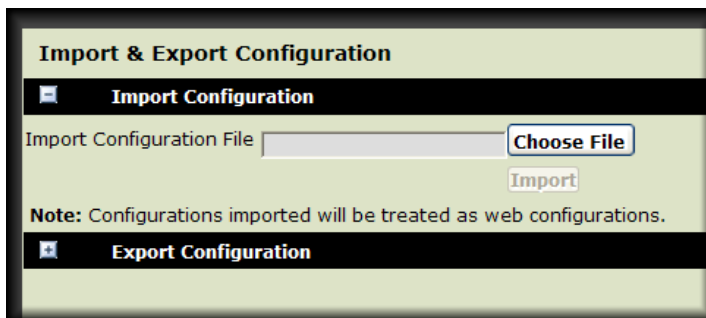
4 Under **Import Configuration**, click **Choose File**.

5 In the dialog, choose the XML configuration file you created and click **Import**.

The XML configuration file is successfully loaded to the phone.

6 To verify that the file is loaded, go to **Menu > Settings > Status > Platform > Configuration**.

Data Center Resiliency

Data Center Resiliency ensures that minimum basic call functions remain available in the event of a server shutdown or Wide area network (WAN) outage. This features is available on VVX business media phones 300/310, 400/410, 500, 600, 1500, and the SoundStructure VoIP Interface using Polycom UC Software 5.1.1. Phones you register with Lync server are enabled with this feature by default and no additional configuration is required.

In the event of an unplanned server shutdown or outage, phone behavior changes to the following:

- The phone displays a scrolling banner message 'Limited functionality due to outage'.

- Your presence status displays as 'Unknown'.

- The presence status of your contacts displays as 'Unknown'.

- You cannot change your presence status.

- You cannot add or add or delete MS Lync contacts.

- Phones in the locked state display a message on the Sign In menu 'Limited functionality due to outage'.

- You can access current Call Forwarding settings in read-only mode.

Use Lync Configuration Files

The following tables detail the configuration files, parameters, and values you can use to provision your Polycom phones with Lync Server. Polycom provides the following template configuration files:

- Default Lync Base Profile Parameters

- Lync Shared LC Example Parameters

- Lync Shared Example Parameters

- Lync Per Phone Example

- Lync device.set Parameters

Base Profile

The next table describes the parameters and values in the Lync Base Profile.

Default Lync Base Profile Parameter Values

Parameter	Permitted Values	Default
audioVideoToggle.callMode.persistent	**0 or 1**	**1**
bossLine.x.AdminUri	**string**	**NULL**
Specify the URI of a Boss contact you set a ring type for using `bossLine.x.RingType.`		
bossLine.x.RingType	**default, ringer1 to ringer24**	**ringer2**
Specify a ring type for a Boss contact.		
call.DefaultTransferType	**Consultative or Blind**	**Blind**
If set to 'Blind', the transfer type is set to 'Blind Transfer'. If set to 'Consultative, then transfer type is set to Consultative transfer'.		

Parameter	Permitted Values	Default
call.enableOnNotRegistered	**0 or 1**	**0**

If 1, users can make calls when the phone is not registered. If 0, calls are not permitted without registration. Note: Setting this parameter to 1 enables you to use VVX 1500 phones to make calls using the H.323 protocol even though an H.323 gatekeeper is not configured.

callLists.collapseDuplicates		**0**

callLists.logConsultationCalls	**0 or 1**	**1**

If 1, all consultation calls are logged. (Calls made to a third party—while the original party is on hold—when settings up a conference call are called consultation calls.) If 0, consultation calls are not logged.

dhcp.option43.override.stsUri	**string**	**NULL**

Use this parameter if you want to override DHCP Option 43. Enter an STS URI to override Option 43. If NULL and you do not configure Option 43, the PIN Authentication menu does not display on the phone and PIN Authentication is not available in the Web Configuration Utility.

dialplan.applyToDirectoryDial	**0 or 1**	**1**

If 0, the dial plan is not applied to numbers dialed from the directory or speed dial list. If 1, the dial plan is applied to numbers dialed from the directory or speed dial, including auto-call contact numbers.

dialplan.digitmap		

The digit map used for the dial plan. The string is limited to 2560 bytes and 100 segments of 64 bytes; a comma is also allowed; a comma will turn dial tone back on;'+' is allowed as a valid digit; extension letter 'R' is used as defined above. This parameter enables the phone to automatically initiate calls to numbers that match a digit map pattern.

dialplan.userDial.timeOut		**4**

dialplan.1.applyToForward	**0 or 1**	**1**

If 0, the dial plan does not apply to forwarded calls. If 1, the dial plan applies to forwarded calls.

dialplan.1.conflictMatchHandling		**1**

dialplan.1.digitmap		**x.T**

Parameter	Permitted Values	Default
dialplan.1.digitmap.timeOut[1]	**string of positive integers separated by |**	**3 | 3 | 3 | 3 | 3 | 3**

Specify a timeout in seconds for each segment of digit map. After you press a key, the phone will wait this many seconds before matching the digits to a dial plan and dialing the call. Note: If there are more digit maps than timeout values, the default value of 3 will be used. If there are more timeout values than digit maps, the extra timeout values are ignored.

Parameter	Permitted Values	Default
dialplan.1.impossibleMatchHandling[1]	**0, 1 or 2**	**0**

This parameter applies to digits you enter in dial mode, the dial mode when you pick up the handset, headset, or press the New Call key. The phone is not in dial mode when you are hot dialing, contact dialing, or call list dialing. If set to 0, the digits entered up to and including the point an impossible match occurred are sent to the server immediately. If set to 1, give reorder tone. If set to 2, allow user to accumulate digits and dispatch call manually with the Send soft key.

If a call orbit number begins with # or *, you need to set this parameter to 2 to retrieve the call using off-hook dialing.

Parameter	Permitted Values	Default
dialplan.1.lyncDigitmap.timeOut	**0 to 99 seconds**	**4 seconds**

Use this parameter for lines registered with Lync Server. Specify a timeout in seconds for each segment of a digit map. After you press a key, the phone will wait this many seconds before matching the digits to a dial plan and dialing the call. Note: If there are more digit maps than timeout values, the default value of 3 will be used. If there are more timeout values than digit maps, the extra timeout values are ignored. Note also that if you configure a value outside of the permitted range, the default value of three seconds is used. Changes to the value of this parameter cause the phone to restart.

Parameter	Permitted Values	Default
feature.audioVideoToggle.enabled		**1**

Parameter	Permitted Values	Default
feature.btoe.enabled	**0 or 1**	**1**

If 1, BToE is enabled on the phone and the phone can pair with a computer. If 0, BToE is disabled on the phone and cannot pair with a computer.

Parameter	Permitted Values	Default
feature.exchangeCalendar.enabled	**0 or 1**	**1**

If 1, the Exchange calendar feature is enabled on the phone and users can view meeting notifications on the phone. If 0, Exchange calendar is disabled.

Parameter	Permitted Values	Default
feature.EWSAutodiscover.enabled	**0 or 1**	**1**

If 1, Exchange autodiscovery is enabled and the phone automatically discovers the Exchange server using the email address or SIP URI information. If 0, Exchange autodiscovery is disabled on the phone and you must manually configure the Exchange server address.

Parameter	Permitted Values	Default
feature.exchangeCallLog.enabled	**0 or 1**	**1**

If 1, the Exchange call log feature is enabled and the user call log history of Missed, Received, and outgoing calls can be retrieved on the phone. If 0, the Exchange call log feature is disabled and the user call logs history cannot be retrieved from the Exchange server. You must also enable the parameter `feature.exchangeCalendar.enabled` to use the Exchange call log feature.

Parameter	Permitted Values	Default
feature.exchangeContacts.enabled	**0 or 1**	**1**

If 1, the Exchange call log feature is enabled and the user call log history of Missed, Received, and outgoing calls can be retrieved on the phone. If 0, the Exchange call log feature is disabled and the user call logs history cannot be retrieved from the Exchange server. You must also enable the parameter `feature.exchangeCallLog.enabled` to use the Exchange call log feature.

Parameter	Permitted Values	Default
feature.exchangeVoiceMail.enabled	**0 or 1**	**1**

If 1, the Exchange voicemail feature is enabled and users can retrieve voicemails stored on the Exchange server from the phone. If 0, the Exchange voicemail feature is disabled and users cannot retrieve voicemails from Exchange Server on the phone. You must also enable `feature.exchangeCalendar.enabled` to use the Exchange contact feature.

Parameter	Permitted Values	Default
feature.lync.abs.enabled	**0 or 1**	**1**

If 1, users can search for contacts on the phone's global address book for contact. If 0, the global address book search is disabled on the phone.

Parameter	Permitted Values	Default
feature.LyncCCCP.enabled	**0 or 1**	**1**

If 1, use of CCCP is enabled. If 0, use of CCCP is disabled. This parameter is enabled by default when you set the phone's Base Profile to Lync.

Parameter	Permitted Values	Default
feature.LyncCCCPDominantSpeakerDetection.enabled		**0**

Parameter	Permitted Values	Default
feature.LyncCCCP2010AudioWorkaround.enabled		**1**

Parameter	Permitted Values	Default
feature.lyncSafeTransfer.enabled		**1**

Parameter	Permitted Values	Default
feature.moh.enabled	**0 or 1**	**1**

If 1, enable the music on hold feature. If 0, disable the music on hold feature.

Parameter	Permitted Values	Default
feature.presence.enabled	**0 or 1**	**1**

Enable the presence feature to manage your buddy list and display the status of your contacts.

Parameter	Permitted Values	Default
httpd.cfg.enabled	**0 or 1**	**0**

If 0, the Web Configuration Utility is disabled. If 1, the Web Configuration Utility is enabled.

Parameter	Permitted Values	Default
httpd.cfg.secureTunnelRequired	**0 or 1**	**1**

If 1, only the phone's HTTPS web server is accessible and requires a secure tunnel. If 0, the phone's HTTP web server is also accessible through a secure tunnel. If this parameter is enabled and `httpd.cfg.secureTunnelEnabled` is enabled, then non-secure HTTP service is disabled.

Parameter	Permitted Values	Default
httpd.enabled	**0 or 1**	**0**

If 0, the HTTP server is disabled and the Web Configuration Utility is not accessible. If 1, HTTP the server is enabled and the Web Configuration Utility is accessible.

Parameter	Permitted Values	Default
locInfo.source	**LLDP or MS_E911_LIS or CONFIG**	**MS_E911_LIS**

This parameter specifies the phone's source location information which you can use to locate a phone in environments that have multiple sources of location information.

- When set to LLDP, location information sent from the network switch is used as the current location.
- When set to MS_E911_LIS, location information sent from Lync Server is used as the current location.
- When set to CONFIG, you can manually configure location information as the current location.
- If location information is not available from a specified default or configured source, the fallback priority is as follows:
  - ➤ Generic profile: LLDP > CONFIG > MS_E911_LIS
  - ➤ Lync profile : MS_E911_LIS > CONFIG > LLDP

Parameter	Permitted Values	Default
reg.1.applyServerDigitMapLocally	**0 or 1**	**0**

When set to 1, dialplan normalization rules are downloaded from the Lync Server and processed on the phone. If 0, dialplan rules are processed by Lync Server.

Parameter	Permitted Values	Default
reg.1.auth.useLoginCredentials	**0 or 1**	**1**

Enables the Sign In screen on the phone.

Parameter	Permitted Values	Default
reg.1.auth.usePinCredentials	**0 or 1**	**1**

Enable or disable the PIN authentication sign in method. This is disabled by default and enabled when the phone Base Profile is set to Lync.

Parameter	Permitted Values	Default
reg.1.offerFullCodecListUponResume	**0 or 1**	**0**

If 1, the phone determines the correct audio codec to use when resuming a held call. If 0,

reg.1.serverFeatureControl.signalingMethod	**string**	**serviceMsForwardContact**

Controls the method used to perform call forwarding requests to the server.

reg.1.server.1.registerRetry.baseTimeOut	**10 to 120**	**10**

The base time period to wait before a registration retry. Used in conjunction with `reg.x.server.y.registerRetry.maxTimeOut` to determine how long to wait. The algorithm is defined in RFC 5626.

reg.1.server.1.registerRetry.maxTimeout	**60 to 1800**	**180 seconds**

Sets the maximum period of time in seconds that the phone tries to register.

reg.1.server.1.specialInterop		**lync2010**

Identifies the SIP signaling as Microsoft Lync Server and enables Lync Server features. This parameter supports Lync Server 2010 and 2013.

reg.1.server.1.transport	**TLS**	**TLS**

The transport method the phone uses to communicate with the SIP server.

reg.1.useteluriAsLineLabel		**0**

roaming_buddies.reg	**0 or 1**	**1**

Set the line index number for the registered line you want to enable Presence and Instant Messaging.

sec.srtp.holdWithNewKey	**0 or 1**	**0**

If 0, a new key is not provided when holding a call. If 1, a new key is provided when holding a call.

sec.srtp.key.lifetime	**0, positive integer minimum 1024 or power of 2 notation**	**2^{31}**

The lifetime of the master key used for the cryptographic parameter in SDP. The value specified is the number of SRTP packets. If 0, the master key lifetime is not set. If set to a valid value (at least 1024, or a power such as 2^{10}), the master key lifetime is set. When the lifetime is set, a re-invite with a new key will be sent when the number or SRTP packets sent for an outgoing call exceeds half the value of the master key lifetime. Note: Setting this parameter to a non-zero value may affect the performance of the phone.

Parameter	Permitted Values	Default
sec.srtp.mki.enabled	**0 or 1**	**1**

The master key identifier (MKI) is an optional parameter for the cryptographic parameter in the SDP that uniquely identifies the SRTP stream within an SRTP session. MKI is expressed as a pair of decimal numbers in the form `|mki:mki_length|`, where `mki` is the MKI value and `mki_length` its length in bytes. If 1, a 4-byte MKI parameter is sent within the SDP message of the SIP INVITE / 200 OK. If 0, the MKI parameter is not sent.

sec.srtp.mki.length	**1 to 4**	**1**

The length of the master key identifier (MKI), in bytes. Microsoft Lync offers 1-byte MKIs.

sec.srtp.mki.startSessionAtOne	**0 or 1**	**1**

If set to 1, use an MKI value of 1 at the start of an SDP session. If set to 0, the MKI value increments for each new crypto key.

sec.srtp.resumeWithNewKey	**0 or 1**	**0**

If 0, a key is not provided when resuming a call. If 1, a key is provided when resuming a call.

sec.TLS.profileSelection.SIP		**ApplicationProfile1**

Set the TLS application profile used to store the CA certificate.

softkey.feature.MeetNow		**1**

softkey.feature.simplifiedSignIn		**1**

If 0, the **SignIn** soft key is not displayed. If 1 and `voIpProt.server.x.specialInterop` is `lync2010`, the **SignIn** soft key is displayed.

tcpIpApp.ice.mode		**MSOCS**

Specifies that ICE and TURN work with Microsoft Lync Server.

tcpIpApp.keepalive.tcp.sip.tls.enable		**1**

Set to 1 to enable keepalive packets and keep the TLS profile from timing out.

tcpIpApp.port.rtp.mediaPortRangeEnd	**Default, 1024 to 65485**	**2269**

Choose the maximum supported end range of audio ports.

Parameter	Permitted Values	Default
tcpIpApp.port.rtp.videoPortRangeEnd	**Default, 1024 to 65535**	**2319**

Choose the maximum supported end range of video ports.

Parameter	Permitted Values	Default
tcpIpApp.sntp.address	**Valid hostname or IP address.**	**time.windows.com**

Specifies the address of an SNTP server.

Parameter	Permitted Values	Default
up.numOfDisplayColumns		**2**

Parameter	Permitted Values	Default
up.oneTouchDirectory		**1**

Parameter	Permitted Values	Default
up.oneTouchVoiceMail	**0 or 1**	**Base profile:** **Generic=0** **Lync=1**

If 1, the phone dials voicemail services directly (if available on the call server) without displaying the voicemail summary. If 0, the phone displays a summary page with message counts. The user must press the Connect soft key to dial the voicemail server.

Parameter	Permitted Values	Default
up.SLA.ringType	**default, ringer1 to ringer24**	**ringer2**

Specify a ring type for an SLA line.

Parameter	Permitted Values	Default
use.polycom.userAgent	**0 or 1**	**1**

Disable this parameter to use Polycom phones with Microsoft Skype for Business Online and Exchange Online.

Parameter	Permitted Values	Default
video.iFrame.delay		**2**

When nonzero, an extra I-frame is transmitted after video starts. The amount of delay from the start of video until the I-frame is sent is configurable up to 10 seconds. Use a value of 2 seconds if you are using this parameter in a Microsoft Lync environment.

Parameter	Permitted Values	Default
video.iFrame.onPacketLoss	**0 to 10 seconds**	**1**

If 1, an I-frame is transmitted to the far end when a received RTCP report indicates that video RTP packet loss has occurred.

Parameter	Permitted Values	Default
voice.audioProfile.G7221.24kbps.payloadType		**112**
The payload type for the G.722.1 24kbps codec.		
voice.codecPref.G7221.24kbps	**0 to 27**	**5**
The priority of the G.722.1 24kbps codec. If 0 or Null, the codec is disabled. A value of 1 is the highest priority.		
voice.codecPref.G7221.32kbps	**0 to 27**	**0**
The priority of the G.722.1 32kbps codec. If 0 or Null, the codec is disabled. A value of 1 is the highest priority.		
voIpProt.SIP.IM.autoAnswerDelay	**0 to 40**	**40**
The time interval from receipt of the instant message invitation to automatically accepting the invitation.		
voIpProt.SIP.allowTransferOnProceeding	**0 to 2 seconds**	**0**
If set to 1, a transfer can be completed during the proceeding state of a consultation call. If set to 0, a transfer is not allowed during the proceeding state of a consultation call.		
voIpProt.SIP.serverFeatureControl.cf	**0 or 1**	**1**
If set to 1, server-based call forwarding is enabled. The call server has control of call forwarding. If set to 0, server-based call forwarding is not enabled.		
voIpProt.SIP.serverFeatureControl.dnd	**0 or 1**	**1**
If set to 1, server-based DND is enabled. The call server has control of DND. If set to 0, server-based DND is not enabled.		
voIpProt.SIP.serverFeatureControl.localProcessing.cf	**0 or 1**	**0**
If set to 0 and `voIpProt.SIP.serverFeatureControl.cf` is set to 1, the phone will not perform local Call Forward behavior. If set to 1, the phone performs local Call Forward behavior on all calls received.		
voIpProt.SIP.serverFeatureControl.localProcessing.dnd	**0 or 1**	**0**
If set to 0 and `voIpProt.SIP.serverFeatureControl.dnd` is set to 1, the phone does not perform local DND call behavior. If set to 1, the phone performs local DND call behavior on all calls received.		

Parameter	Permitted Values	Default
voIpProt.SIP.serverFeatureControl.signalingMethod	**subscribeAsFeatureEvent (or) inviteFACSubscribePresence (or) serviceMsForwardContact**	**serviceMsForwardContact**
Specify the method the phone uses to perform call-forwarding requests to the server.		
voIpProt.SIP.server.1.transport	**UDPOnly (or) TCPpreferred (or) DNSnaptr (or) TCPOnly (or) TLS**	**TLS**
Specify the transport method the phone uses to communicate with the SIP server.		
voIpProt.SIP.useSendonlyHold		**1**
voIpProt.SIP.header.diversion.enable	**0 or 1**	**1**
If set to 1, the diversion header is displayed if received. If set to 0, the diversion header is not displayed.		
voIpProt.SIP.mtls.enable	**0 or 1**	**0**
If 0, Mutual TLS is disabled. If 1, Mutual TLS is enabled. Used in conjunction with Microsoft Lync 2010.		

Lync Shared LC Example

The next table lists parameters and values in the `lyncSharedLCExample.cfg` template.

Lync Shared LC Example Parameters

Parameter	Permitted Values	Default
audioVideoToggle.callMode.persistent	**0 or 1**	**1**
call.enableOnNotRegistered	**0 or 1**	**0**
If 1, users can make calls when the phone is not registered. If 0, calls are not permitted without registration. Note: Setting this parameter to 1 enables you to use VVX 1500 phones to make calls using the H.323 protocol even though an H.323 gatekeeper is not configured.		

Parameter	Permitted Values	Default
callLists.logConsultationCalls	**0 or 1**	**1**
If 1, all consultation calls are logged. (Calls made to a third party—while the original party is on hold—when settings up a conference call are called consultation calls.) If 0, consultation calls are not logged.		
device.set	**0 or 1**	**1**
A global parameter that allows you to install software and change device parameters.		
device.prov.lyncDeviceUpdateEnabled	**0 or 1**	**1**
If 1, the Lync device update is enabled on the phone and the phone receives software updates from the server. If 0, the Lync device update is disabled and the phone does not receive software updates from the server.		
dialplan.applyToDirectoryDial	**0 or 1**	**1**
If 0, the dial plan is not applied to numbers dialed from the directory or speed dial list. If 1, the dial plan is applied to numbers dialed from the directory or speed dial, including auto-call contact numbers.		
dialplan.1.applyToForward	**0 or 1**	**1**
If 0, the dial plan does not apply to forwarded calls. If 1, the dial plan applies to forwarded calls.		
feature.audioVideoToggle.enabled	**0 or 1**	**1**
If 0, the audio/video toggle feature is disabled. If 1, the feature is enabled.		
feature.btoe.enabled	**0 or 1**	**1**
If 0, the Better Together over Ethernet feature is disabled. If 1, the feature is enabled.		
feature.cccp.enabled	**0 or 1**	**1**
Enable or disable use of CCCP. When the phone's Base Profile is set to Lync, this parameter is enabled by default.		
feature.lyncbtoe.autosignin.signoff.enabled	**0 or 1**	**0**
feature.messaging.enabled	**0 or 1**	**1**
If 0, the instant messaging feature is disabled. If 1, the feature is enabled.		
feature.presence.enabled	**0 or 1**	**1**
Enable the presence feature to manage your buddy list and display the status of your contacts.		

Parameter	Permitted Values	Default
httpd.enabled	**0 - Web server disabled** **1 - Web server enabled**	**0**

If 0, the HTTP server and access to the Web Configuration Utility is disabled. If 1, the server and access to the Web Configuration Utility is enabled.

Parameter	Permitted Values	Default
httpd.cfg.enabled	**0 - Web UI/service disabled** **1 - Web UI/service enabled/running**	**0**

If 0, the Web Configuration Utility is disabled. If 1, the Web Configuration Utility is enabled.

Parameter	Permitted Values	Default
httpd.cfg.secureTunnelEnabled	**0 - HTTPS service disabled** **1 - HTTPS service enabled**	**1**

If 0, the Web does not use a secure tunnel. If 1, the server connects through a secure tunnel.

Parameter	Permitted Values	Default
httpd.cfg.secureTunnelRequired	**0 - HTTP service enabled** **1 - HTTP service disabled**	**1**

If 1, only the phone's HTTPS web server is accessible and requires a secure tunnel. If 0, the phone's HTTP web server is also accessible through a secure tunnel. If this parameter is enabled and `httpd.cfg.secureTunnelEnabled` is enabled, then non-secure HTTP service is disabled.

Parameter	Permitted Values	Default
reg.1.applyServerDigitMapLocally	**0 or 1**	**1**

When set to 1, dialplan normalization rules are downloaded from the Lync Server and processed on the phone. If 0, dialplan rules are processed by Lync Server.

Parameter	Permitted Values	Default
reg.1.auth.useLoginCredentials	**0 or 1**	**1**

Enables the Sign In screen on the phone.

Parameter	Permitted Values	Default
reg.1.auth.usePinCredentials	**0 or 1**	**0**

Enable or disable the PIN authentication sign in method. This is disabled by default and enabled when the phone Base Profile is set to Lync.

Parameter	Permitted Values	Default
reg.1.serverFeatureControl.cf	**0 or 1**	**1**
If 0, server-based call forwarding is not enabled for this line. If 1, server based call forwarding is enabled for this line.		
reg.1.serverFeatureControl.localProcessing.cf	**0 or 1**	**0**
If set to 0 and `reg.1.serverFeatureControl.cf` is set to 1, the phone does not perform local Call Forward behavior. If set to 1, the phone performs local Call Forward behavior on all calls received.		
reg.1.serverFeatureControl.dnd	**0 or 1**	**1**
If 0, server-based do-not-disturb (DND) is not enabled. If 1, server-based DND is enabled and the call server has control of DND. This parameter overrides `voIpProt.SIP.serverFeatureControl.dnd`.		
reg.1.serverFeatureControl.localProcessing.dnd		**0**
If 0 and `reg.x.serverFeatureControl.cf` is set to 1, the phone will not perform local Call Forward behavior. If set to 1, the phone will perform local Call Forward behavior on all calls received. This parameter overrides `voIpProt.SIP.serverFeatureControl.localProcessing.cf`.		
reg.1.serverFeatureControl.signalingMethod		**serviceMsForwardContact**
Controls the method used to perform call forwarding requests to the server.		
reg.1.server.1.registerRetry.baseTimeOut	**10 to 120**	**10**
The base time period to wait before a registration retry. Used in conjunction with `reg.x.server.y.registerRetry.maxTimeOut` to determine how long to wait. The algorithm is defined in RFC 5626.		
reg.1.server.1.registerRetry.maxTimeout	**60 to 1800**	**180 seconds**
Sets the maximum period of time in seconds that the phone tries to register.		
reg.1.server.1.specialInterop		**lync2010**
Identifies the SIP signaling as Microsoft Lync Server 2010 and enables Lync Server features. This parameter supports Lync Server 2010 and 2013.		
reg.1.server.1.transport	**TLS**	**TLS**
The transport method the phone uses to communicate with the SIP server.		
reg.1.useteluriAsLineLabel	**0 or 1**	**0**
If 1, the line key label displays the Lync account user name. If 0, the line key label displays the Lync TelURI, or line address.		

Parameter	Permitted Values	Default
roaming_buddies.reg	**0 or 1**	**1**

Set the line index number for the registered line you want to enable Presence and Instant Messaging.

sec.srtp.holdWithNewKey	**0 or 1**	**0**

If 0, a new key is not provided when holding a call. If 1, a new key is provided when holding a call.

sec.srtp.key.lifetime	**0, positive integer minimum 1024 or power of 2 notation**	**2^{31}**

The lifetime of the master key used for the cryptographic parameter in SDP. The value specified is the number of SRTP packets. If 0, the master key lifetime is not set. If set to a valid value (at least 1024, or a power such as 2^{10}), the master key lifetime is set. When the lifetime is set, a re-invite with a new key will be sent when the number or SRTP packets sent for an outgoing call exceeds half the value of the master key lifetime. Note: Setting this parameter to a nonzero value may affect the performance of the phone.

sec.srtp.mki.enabled	**0 or 1**	**1**

The master key identifier (MKI) is an optional parameter for the cryptographic parameter in the SDP that uniquely identifies the SRTP stream within an SRTP session. MKI is expressed as a pair of decimal numbers in the form `|mki:mki_length|`, where `mki` is the MKI value and `mki_length` its length in bytes. If 1, a 4-byte MKI parameter is sent within the SDP message of the SIP INVITE / 200 OK. If 0, the MKI parameter is not sent.

sec.srtp.mki.length	**1 to 4**	**1**

The length of the master key identifier (MKI), in bytes. Microsoft Lync offers 1-byte MKIs.

sec.srtp.mki.startSessionAtOne	**0 or 1**	**1**

If set to 1, use an MKI value of 1 at the start of an SDP session. If set to 0, the MKI value increments for each new crypto key.

sec.srtp.resumeWithNewKey	**0 or 1**	**0**

If 0, a key is not provided when resuming a call. If 1, a key is provided when resuming a call.

sec.TLS.customCaCert.1		

The custom certificate for TLS Application Profile.

sec.TLS.profileSelection.SIP		**ApplicationProfile1**

Enter the TLS platform profile or TLS application profile.

Parameter	Permitted Values	Default
softkey.feature.simplifiedSignIn	**0 or 1**	**1**
If 0, the **SignIn** soft key is not displayed. If 1 and `voIpProt.server.x.specialInterop` is `lync2010`, the **SignIn** soft key is displayed.		
tcpIpApp.ice.mode	**0 or 1**	**MSOCS**
Specifies that ICE and TURN work with Microsoft Lync Server.		
tcpIpApp.keepalive.tcp.sip.tls.enable	**0 or 1**	**1**
Set to 1 to enable keepalive packets and keep the TLS profile from timing out.		
video.iFrame.delay		**2**
When non-zero, an extra I-frame is transmitted after video starts. The amount of delay from the start of video until the I-frame is sent is configurable up to 10 seconds. Use a value of 2 seconds if you are using this parameter in a Microsoft Lync environment.		
video.iFrame.onPacketLoss	**0 to 10 seconds**	**1**
If 1, an I-frame is transmitted to the far end when a received RTCP report indicates that video RTP packet loss has occurred.		
voice.audioProfile.G7221.24kbps.payloadType		**112**
The payload type for the G.722.1 24kbps codec.		
voice.codecPref.G7221.24kbps	**0 to 27**	**5**
The priority of the G.722.1 24kbps codec. If 0 or Null, the codec is disabled. A value of 1 is the highest priority.		
voice.codecPref.G7221.32kbps	**0 to 27**	**0**
The priority of the G.722.1 32kbps codec. If 0 or Null, the codec is disabled. A value of 1 is the highest priority.		
voIpProt.SIP.allowTransferOnProceeding	**0 to 2 seconds**	**0**
If set to 1, a transfer can be completed during the proceeding state of a consultation call. If set to 0, a transfer is not allowed during the proceeding state of a consultation call.		
voIpProt.SIP.IM.autoAnswerDelay	**0 to 40**	**40**
The time interval from receipt of the instant message invitation to accepting the invitation automatically.		

Parameter	Permitted Values	Default
volpProt.SIP.header.diversion.enable	**0 or 1**	**1**
If set to 1, the diversion header is displayed if received. If set to 0, the diversion header is not displayed.		
volpProt.SIP.mtls.enable	**0 or 1**	**0**
If 0, Mutual TLS is disabled. If 1, Mutual TLS is enabled.		

Lync Shared Example

The next table describes parameters and values in the `lyncSharedExample.cfg` template.

Lync Shared Example Parameters

Parameter	Permitted Values	Default
audioVideoToggle.callMode.persistent	**0 or 1**	**1**
call.enableOnNotRegistered	**0 or 1**	**0**
If 1, users can make calls when the phone is not registered. If 0, calls are not permitted without registration. Note: Setting this parameter to 1 enables you to use VVX 1500 phones to make calls using the H.323 protocol even though an H.323 gatekeeper is not configured.		
callLists.logConsultationCalls	**0 or 1**	**1**
If 1, all consultation calls are logged. (Calls made to a third party—while the original party is on hold—when settings up a conference call are called consultation calls.) If 0, consultation calls are not logged.		
device.set	**0 or 1**	**1**
A global parameter that allows you to install software and change device parameters.		
device.prov.lyncDeviceUpdateEnabled.set	**0 or 1**	**1**
device.prov.lyncDeviceUpdateEnabled	**0 or 1**	**1**

Parameter	Permitted Values	Default
dialplan.applyToDirectoryDial	**0 or 1**	**1**

If 0, the dial plan is not applied to numbers dialed from the directory or speed dial list. If 1, the dial plan is applied to numbers dialed from the directory or speed dial, including auto-call contact numbers.

dialplan.digitmap		

The digit map used for the dial plan. The string is limited to 2560 bytes and 100 segments of 64 bytes; a comma is also allowed; a comma will turn dial tone back on;'+' is allowed as a valid digit; extension letter 'R' is used as defined above. This parameter enables the phone to automatically initiate calls to numbers that match a digit map pattern.

dialplan.1.impossibleMatchHandling		**3**

This parameter applies to digits you enter in dial mode, the dial mode when you pick up the handset, headset, or press the New Call key. The phone is not in dial mode when you are hot dialing, contact dialing, or call list dialing. If set to 0, the digits entered up to and including the point an impossible match occurred are sent to the server immediately. If set to 1, give reorder tone. If set to 2, allow user to accumulate digits and dispatch call manually with the **Send** soft key.

If a call orbit number begins with '#' or '*', you need to set this parameter to 2 to retrieve the call using off-hook dialing.

Parameter	Permitted Values	Default
feature.audioVideoToggle.enabled	**0 or 1**	**1**

If 0, the audio/video toggle feature is disabled. If 1, the feature is enabled.

feature.btoe.enabled	**0 or 1**	**1**

If 0, the Better Together over Ethernet feature is disabled. If 1, the feature is enabled.

feature.cccp.enabled	**0 or 1**	**1**

Enable or disable use of CCCP. When the phone's Base Profile is set to Lync, this parameter is enabled by default.

feature.lyncbtoe.autosignin.signoff.enabled	**0 or 1**	**0**

feature.presence.enabled	**0 or 1**	**1**

Enable the presence feature to manage your buddy list and display the status of your contacts.

httpd.enabled	**0 - Web server disabled** **1 - Web server enabled**	**0**

If 0, the HTTP server and access to the Web Configuration Utility is disabled. If 1, the server and access to the Web Configuration Utility is enabled.

Parameter	Permitted Values	Default
httpd.cfg.enabled	**0 - Web UI/service disabled** **1 - Web UI/service enabled/running**	**0**

If 0, the Web Configuration Utility is disabled. If 1, the Web Configuration Utility is enabled.

Parameter	Permitted Values	Default
httpd.cfg.secureTunnelEnabled	**0 - HTTPS service disabled** **1 - HTTPS service enabled**	**1**

If 0, the Web does not use a secure tunnel. If 1, the server connects through a secure tunnel.

Parameter	Permitted Values	Default
httpd.cfg.secureTunnelRequired	**0 - HTTP service enabled** **1 - HTTP service disabled**	**1**

If 1, only the phone's HTTPS web server is accessible and requires a secure tunnel. If 0, the phone's HTTP web server is also accessible through a secure tunnel. If this parameter is enabled and `httpd.cfg.secureTunnelEnabled` is enabled, then non-secure HTTP service is disabled.

Parameter	Permitted Values	Default
reg.1.offerFullCodecListUponResume	**0 or 1**	**0**

Parameter	Permitted Values	Default
sec.srtp.holdWithNewKey	**0 or 1**	**0**

If 0, a new key is not provided when holding a call. If 1, a new key is provided when holding a call.

Parameter	Permitted Values	Default
sec.srtp.key.lifetime	**0, positive integer minimum 1024 or power of 2 notation**	**2^{31}**

The lifetime of the master key used for the cryptographic parameter in SDP. The value specified is the number of SRTP packets. If 0, the master key lifetime is not set. If set to a valid value (at least 1024, or a power such as 2^{10}), the master key lifetime is set. When the lifetime is set, a re-invite with a new key will be sent when the number or SRTP packets sent for an outgoing call exceeds half the value of the master key lifetime. Note: Setting this parameter to a non-zero value may affect the performance of the phone.

Parameter	Permitted Values	Default
sec.srtp.mki.enabled	**0 or 1**	**1**

The master key identifier (MKI) is an optional parameter for the cryptographic parameter in the SDP that uniquely identifies the SRTP stream within an SRTP session. MKI is expressed as a pair of decimal numbers in the form `|mki:mki_length|`, where `mki` is the MKI value and `mki_length` its length in bytes. If 1, a 4-byte MKI parameter is sent within the SDP message of the SIP INVITE / 200 OK. If 0, the MKI parameter is not sent.

Parameter	Permitted Values	Default
sec.srtp.mki.length	**1 to 4**	**1**

The length of the master key identifier (MKI), in bytes. Microsoft Lync offers 1-byte MKIs.

sec.srtp.mki.startSessionAtOne	**0 or 1**	**1**

If set to 1, use an MKI value of 1 at the start of an SDP session. If set to 0, the MKI value will increment for each new crypto key.

sec.srtp.resumeWithNewKey	**0 or 1**	**0**

If 0, a key is not provided when resuming a call. If 1, a key is provided when resuming a call.

sec.TLS.customCaCert.1		

The custom certificate for TLS Application Profile

sec.TLS.profileSelection.SIP		**ApplicationProfile1**

Set the TLS application profile used to store the CA certificate.

tcpIpApp.ice.mode		**MSOCS**

Specifies that ICE and TURN work with Microsoft Lync Server.

tcpIpApp.keepalive.tcp.sip.tls.enable	**0 or 1**	**1**

Set to 1 to enable keepalive packets and keep the TLS profile from timing out.

video.iFrame.delay		**2**

When non-zero, an extra I-frame is transmitted after video starts. The amount of delay from the start of video until the I-frame is sent is configurable up to 10 seconds. Use a value of 2 seconds if you are using this parameter in a Microsoft Lync environment.

video.iFrame.onPacketLoss	**0 to 10 seconds**	**1**

If 1, an I-frame is transmitted to the far end when a received RTCP report indicates that video RTP packet loss has occurred.

voice.audioProfile.G7221.24kbps.payloadType		**112**

The payload type for the G.722.1 24kbps codec.

voice.codecPref.G7221.24kbps	**0 to 27**	**5**

The priority of the G.722.1 24kbps codec. If 0 or Null, the codec is disabled. A value of 1 is the highest priority.

Parameter	Permitted Values	Default
voice.codecPref.G7221.32kbps	**0 to 27**	**0**
The priority of the G.722.1 32kbps codec. If 0 or Null, the codec is disabled. A value of 1 is the highest priority.		
voIpProt.SIP.allowTransferOnProceeding	**0 to 2 seconds**	**0**
If set to 1, a transfer can be completed during the proceeding state of a consultation call. If set to 0, a transfer is not allowed during the proceeding state of a consultation call.		
voIpProt.SIP.IM.autoAnswerDelay	**0 to 40**	**40**
The time interval from receipt of the instant message invitation to automatically accepting the invitation.		
voIpProt.SIP.header.diversion.enable	**0 or 1**	**1**
If set to 1, the diversion header is displayed if received. If set to 0, the diversion header is not displayed.		
voIpProt.SIP.mtls.enable	**0 or 1**	**0**
If 0, Mutual TLS is disabled. If 1, Mutual TLS is enabled.		

Lync Per Phone Example

The following table lists parameters in the template file `lyncPerPhoneExample.cfg`.

Lync Per Phone Example

Parameter	Permitted Values	Default
device.set	**0 or 1**	**1**
A global parameter that allows you to install software and change device parameters.		
device.prov.lyncDeviceUpdateEnabled.set	**0 or 1**	**1**
device.prov.lyncDeviceUpdateEnabled	**0 or 1**	**1**
dialplan.1.applyToForward	**0 or 1**	**1**
If 0, the dial plan does not apply to forwarded calls. If 1, the dial plan applies to forwarded calls.		

Parameter	Permitted Values	Default
httpd.enabled	**0 - Web server disabled** **1 - Web server enabled**	**0**

If 0, the HTTP server and access to the Web Configuration Utility is disabled. If 1, the server and access to the Web Configuration Utility is enabled.

httpd.cfg.enabled	**0 - Web UI/service disabled** **1 - Web UI/service enabled/running**	**0**

If 0, the Web Configuration Utility is disabled. If 1, the Web Configuration Utility is enabled.

httpd.cfg.secureTunnelEnabled	**0 - HTTPS service disabled** **1 - HTTPS service enabled**	**1**

If 0, the Web does not use a secure tunnel. If 1, the server connects through a secure tunnel.

httpd.cfg.secureTunnelRequired	**0 - HTTP service enabled** **1 - HTTP service disabled**	**1**

If 1, only the phone's HTTPS web server is accessible and requires a secure tunnel. If 0, the phone's HTTP web server is also accessible through a secure tunnel. If this parameter is enabled and `httpd.cfg.secureTunnelEnabled` is enabled, then non-secure HTTP service is disabled.

reg.1.address		**user1@example.com**

Specify the line registration.

reg.1.applyServerDigitMapLocally		**0**

When set to 1, dialplan normalization rules are downloaded from the Lync Server and processed on the phone. If 0, dialplan rules are processed by Lync Server.

reg.1.auth.domain		**example.com**

The domain of the authorization server that is used to check the user names and passwords.

Parameter	Permitted Values	Default

reg.1.auth.password

The user Sign In password for authentication challenges for this registration. Login credentials you enter to the configuration file override Active Directory login credentials and disable use of PIN authentication on the phone interface at Settings > Authentication.

reg.1.auth.userId   **user1**

User ID to be used for authentication challenges for this registration. If the User ID is non-Null, it will override the user parameter entered into the Authentication submenu on the Settings menu of the phone. Login credentials you enter to the configuration file override Active Directory login credentials and disable use of PIN authentication on the phone interface at Settings > Authentication.

reg.1.auth.usePinCredentials   **0**

Enable or disable the PIN authentication sign in method. This is disabled by default and enabled when the phone Base Profile is set to Lync.

reg.1.auth.loginCredentialType   **usernameAndPassword**

reg.1.server.1.registerRetry.baseTimeout   **10**

The base time period to wait before a registration retry. Used in conjunction with `reg.x.server.y.registerRetry.maxTimeOut` to determine how long to wait. The algorithm is defined in RFC 5626.

reg.1.server.1.registerRetry.maxTimeout   **180**

Sets the maximum period of time in seconds that the phone tries to register.

reg.1.server.1.specialInterop   **lync2010**

Identifies the SIP signaling as Microsoft Lync Server and enables Lync Server features. This parameter supports Lync Server 2010 and 2013.

reg.1.server.1.transport   **TLS**

The transport method the phone uses to communicate with the SIP server.

reg.1.serverFeatureControl.cf   **1**

If 0, server-based call forwarding is not enabled for this line. If 1, server based call forwarding is enabled for this line.

Parameter	Permitted Values	Default
reg.1.serverFeatureControl.dnd		**1**

If 0, server-based do-not-disturb (DND) is not enabled. If 1, server-based DND is enabled and the call server has control of DND. This parameter overrides `voIpProt.SIP.serverFeatureControl.dnd`.

reg.1.serverFeatureControl.localProcessing.cf		**0**

If set to 0 and `reg.1.serverFeatureControl.cf` is set to 1, the phone does not perform local Call Forward behavior. If set to 1, the phone performs local Call Forward behavior on all calls received.

reg.1.serverFeatureControl.localProcessing.dnd		**0**

If 0 and `reg.x.serverFeatureControl.cf` is set to 1, the phone will not perform local Call Forward behavior. If set to 1, the phone will perform local Call Forward behavior on all calls received. This parameter overrides `voIpProt.SIP.serverFeatureControl.localProcessing.cf`.

reg.1.serverFeatureControl.signalingMethod		**serviceMsForwardContact**

Controls the method used to perform call forwarding requests to the server.

reg.1.offerFullCodecListUponResume		**0**

reg.1.useteluriAsLineLabel	**0 or 1**	**1**

Change the line key label from Lync extension number to account user name. When disabled, the line key displays the Lync extension number. When enabled, the line key displays the Lync account's user name.

roaming_buddies.reg		**1**

Set the line index number for the registered line you want to enable Presence and Instant Messaging.

softkey.feature.simplifiedSignIn		**1**

If 0, the **SignIn** soft key is not displayed. If 1 and `voIpProt.server.x.specialInterop` is `lync2010`, the **SignIn** soft key is displayed.

Lync device.set

The following table lists parameters in the template file `device.set`.

Lync device.set Parameters

Parameter=Default Value	Parameter-Required Value
device.set[1]=0	**device.set=1**
A global parameter that you enable to make changes to <device> parameters. Use this parameter to change only <device> parameter values. Once you have made your changes, remove this parameter from the configuration file.	
device.set.baseProfile.set[1]=0	**device.set.baseProfile.set=1**
This parameter enables you to make changes to the Base Profile of your devices. Set this parameter to 1 to enable changes to the Base Profile.	
device.set.baseProfile[1]=Null	**device.set.baseProfile=Lync**
This parameter sets the value for the device Base Profile. Set this parameter to Lync.	

[1] Change causes phone to restart or reboot.

In-Band Provisioning

When you are signed in to Lync on your phone, the Lync Server automatically retrieves provisioning parameters you need to operate Lync features. You can view the in-band provisioning parameters from your phone or using the Web Configuration Utility. This section shows you how to view in-band provisioning parameters and provides a description of the parameters.

For details of the in-band provisioning parameters, go to In-Band Provisioning Parameters.

To view in-band provisioning parameters:

1 On your phone, go to **Menu > Settings > Advanced**, enter the password (default 456), and press **Enter**.

2 Go to **Administration Settings > Upload Configuration**.

3 Scroll down and select **SIP**.

4 Press the **Upload** soft key.

   The phone uploads MAC-upload-CallServer.cfg to your boot server. Open this file to view the in-band provisioning parameters.

You can also use the Polycom Web Configuration Utility to view in-band provisioning parameters after you enable access to the Web Configuration Utility.
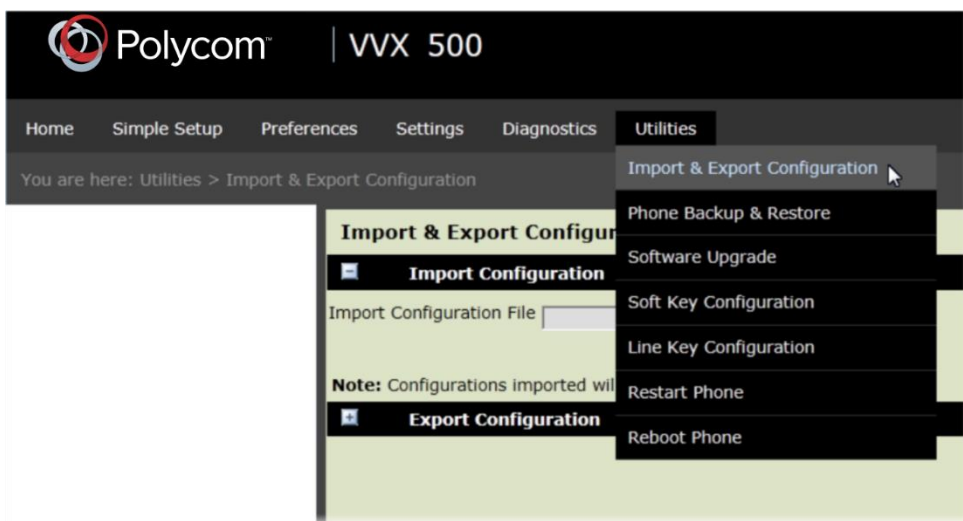
To view in-band provisioning parameters using the Web Configuration Utility:

1 Obtain the IP address of the phone by pressing the **Menu/Home** key and going to **Settings > Status > Platform > Phone**. The IP address displays in the IP field

2 In the address bar of a web browser, enter the phone's IP address and press **Enter** on your keyboard.

   The Web Configuration Utility login screen displays, shown next.
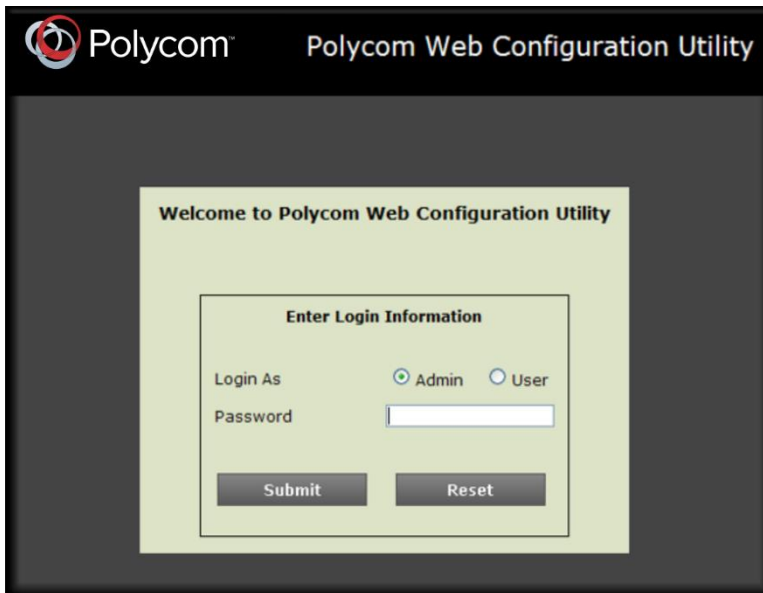
3 Choose **Admin**, enter the **Password** (default 456), and click **Submit**.

4 From the **Home** page, navigate to **Utilities > Import & Export Configuration**, shown next.

5 Under **Export Configuration**, click the **Export Configuration File** drop-down menu, choose **Lync**, and click **Export**, as shown next.
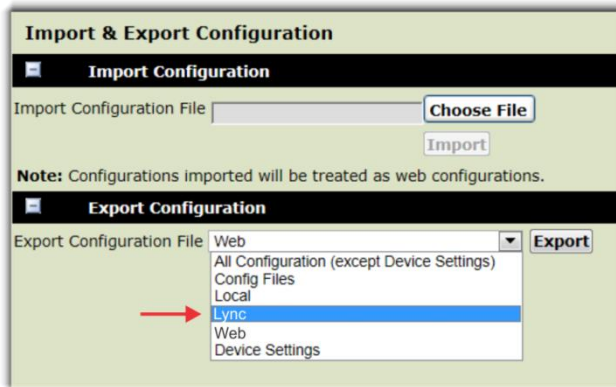
6 Save the XML file to your computer.

In-Band Provisioning Parameters

Parameter	Permitted Values	Default
dialplan.1.e911dialmask		**112;100**
dialplan.1.e911dialstring		**911**
dialplan.1.originaldigitmap		**This value depends on how the Lync Server is configured.**
dialplan.routing.emergency.1.value		**911**
msg.mwi.1.callBack		**This value depends on how the Lync Server is configured.**
The contact to call when retrieving messages for this registration if `msg.mwi.x.callBackMode` is set to contact.		
msg.mwi.1.callBackMode	contact	contact
The message retrieval mode and notification for registration x. The value *contact* indicates that a call is placed to the contact specified by `msg.mwi.x.callback`.		
reg.1.ice.turn.callAdmissionControl.enabled		**1**

Parameter	Permitted Values	Default
reg.1.lisdisclaimer		**This value depends on how the Lync Server is configured.**
reg.x.srtp.enable		**1**
When set to 1, SRTP for incoming SIP calls is enabled for a given line x. When set to 0, SRTP offered SIP calls are declined.		
reg.1.srtp.offer		**1**
If 1, the registration includes a secure media stream description along with the usual non-secure media description in the SDP of a SIP INVITE. This parameter applies to the registration initiating (offering) a phone call. If 0, no secure media stream is included in SDP of a SIP invite.		
reg.1.srtp.require	**0 or 1**	**1**
If 0, secure media streams are not required. If 1, the registration is only allowed to use secure media streams. Any offered SIP INVITEs must include a secure media description in the SDP or the call will be rejected. For outgoing calls, only a secure media stream description is included in the SDP of the SIP INVITE, meaning that the non-secure media description is not included. If this parameter set to 1, `reg.x.srtp.offer` will also be set to 1, regardless of the value in the configuration file.		
tcpIpApp.ice.turn.callAdmissionControl.enabled		**1**
tcpIpApp.ice.username		**This value depends on how the Lync Server is configured. This unique value is created for each registration and changes every eight minutes.**
tcpIpApp.ice.password		**This value depends on how the Lync Server is configured.**
tcpIpApp.ice.turn.server		**This value depends on how the Lync Server is configured.**
tcpIpApp.ice.turn.tcpPort		**443**

Parameter	Permitted Values	Default
tcpIpApp.ice.turn.udpPort		**3478**

Troubleshoot Issues

Use the following section as a guide to resolving issues, problems, or common difficulties you may encounter while using Lync-enabled Polycom UC Software with Microsoft Lync Server.

The phone fails to register.

The most common issue with a failure to register is basic connectivity to the phone. You can check basic connectivity in a number of ways:

- Obtain the host IP by looking at the phone registration status, configuration file, DNS, and Lync Computer Client Configuration Information Screen.
- Make sure the phone can communicate with the server by performing a diagnostic ping.
- From a computer connected on the same network as the phone, perform a telnet to the Lync server SIP TCP port 5061 or 443.
- Check for a DNS issue.
- Check if Lync Services is temporarily out of service, for example, a firewall or routing problem with the network.

Check that the phone is reading the configuration files. On the phone, go to **Status** > **Platform** > **Configuration**. The phone displays the current configuration and files. If the phone is not reading the correct configuration files, redo the provisioning procedures. If the phone is reading the configuration files, go to the next troubleshooting tip.

If the phone still cannot register, check autodiscover:

- Ensure the SRV Record exist and points to a valid A record.
- Ensure that the A record points to a valid host IP.
- Use the shell command `dnsCacheShow` to display a cached DNS entry. If an entry has a negative cache, the phone is trying to perform a lookup and is failing to resolve.

If you get a TLS error, you may have an untrusted, corrupted, or expired certificate. Check if a root CA is installed on the phone by going to **Settings** > **Advanced** > **Administration Settings** > **TLS Security > Custom CA Certificate**. If you need to troubleshoot TLS, use `log.level.change.tls=0` and `log.level.change.sip=0` to log for TLS problems.

Check for invalid user credentials. Use `log.level.change.tls=0,` `log.level.change.sip=0,` and `log.level.change.dns=0` to troubleshoot authentication failures.

Log into a computer Lync client with a user's credentials and ensure that the user account logs in. Use a simple password for testing purposes.

I cannot sign in; I'm getting a sign in failure message

PIN authentication can fail for several reasons, most commonly an invalid extension or invalid PIN.

When PIN authentication fails, a warning message displays:
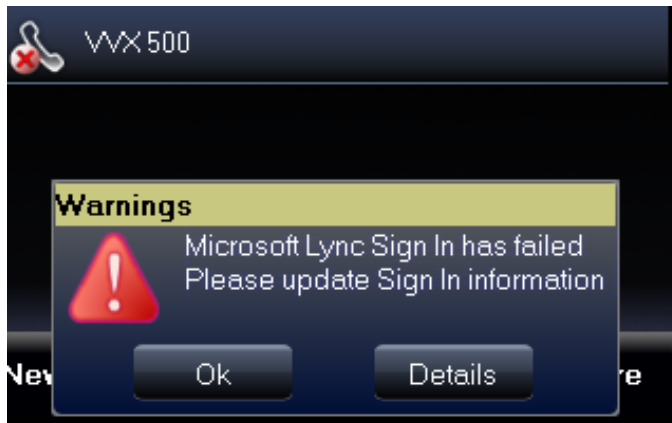
Press Ok to open the PIN Authentication screen to sign in again. Any one of the following messages might display:

● **Lync Sign In has failed Contact System Administrator**   This message indicates that something is wrong with the network. When you receive this message, speak to your administrator.

● **Lync Sign In has failed Invalid login credentials**   This message indicates that the user credentials you entered are incorrect. Try entering your credentials again and if sign in still fails, speak to your administrator.

● **Lync Sign In has failed Please update Sign In Information**   This message is rarely expected, and indicates a problem with the generation of certificate signing request (CSR) publishing the certificate.