DEPLOYMENT GUIDE

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

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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.
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.

If you are using Polycom UC Software 5.1.x, you can register the following Polycom devices with Lync Server 2010 or 2013:

- Polycom VVX® 300, 310, 400, 410, 500, and 600
- Polycom SoundStructure® VoIP Interface

If you are using Polycom UC Software 5.0.1, you can register the following Polycom devices with Lync Server 2010 or 2013:

- Polycom VVX 300, 310, 400, 410, 500, 600, and 1500

If you are using UC software 4.1.x, you can register the following phones with Lync Server 2010 or 2013:

- Polycom SoundPoint® IP 321, 331, 335, 450, 550, 560, and 650
- Polycom SoundStation® 5000 and SoundStation Duo
- Polycom VVX 300, 310, 400, 410, 500, and 600 business media phones
- Polycom SoundStructure VoIP Interface

You can use the following phones with Lync 2010 or 2013:

- Polycom CX5500 (which uses software version 1.1.0)
- Polycom CX300 R2 (which uses a 1.3.1 software version)

Web Info: Registering SoundStructure card with Lync Server

If you are registering Polycom SoundStructure card 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, see the section Update Polycom UC Software in this guide.

For an up-to-date list of Polycom UC Software versions available for your Polycom phone models, see the following documents:

- *Polycom UC Software Release Matrix for VVX Phones*

- *Polycom UC Software Release Matrix for SoundPoint IP and SoundStation IP Phones*

Available Phone Features

Features available on Polycom phones vary with the software version 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 when 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.

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. To enable access to the Web Configuration Utility, see Enable Access to the Web Configuration Utility.

Web Info: Understanding New and Enhanced Features

For details on using Lync-enabled features with UC software, 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

Feature	*Function*
Peer-to-peer audio calling	Initiate and receive two-party calls
Enterprise voice	
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

Feature	*Function*
Branch Office Survivability	Maintain SBA/SBS registration during WAN outage, automatic recovery
E911	Supports in-band provisioning information for Emergency 911
Location Services	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
Shared Line Appearance (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
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

Before You Begin

Read the following points carefully before you begin registering your phones with Lync Server:

- If you want to configure features or change the default feature functions, get familiar with the centralized provisioning method and Polycom configuration files. Centralized provisioning requires you to set up a provisioning server, or boot server, and use Polycom UC configuration files in XML format. Use an XML editor such as XML Notepad to view and edit Polycom configuration files.

  For more information on centralized provisioning and Polycom configuration files, see the following sections in this guide:

  - Centralized Provisioning
  - Understand Provisioning Methods

  If you require additional information on centralized provisioning and setting up a provisioning server, see the section Setting Up the Provisioning Server in the Polycom UC Software Administrator's Guide for the UC software version you are using:

  - *Polycom UC Software 4.1.0 Administrator's Guide*
  - *Polycom UC Software 5.1.0 Administrator's Guide*

- 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.

- You must purchase a Lync Feature License from a Polycom reseller or Polycom sales representative to use Polycom VVX products in a Microsoft Lync environment. Log in to Licensing & Product Registration for more information. 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.

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. Note that 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 and Support Resources

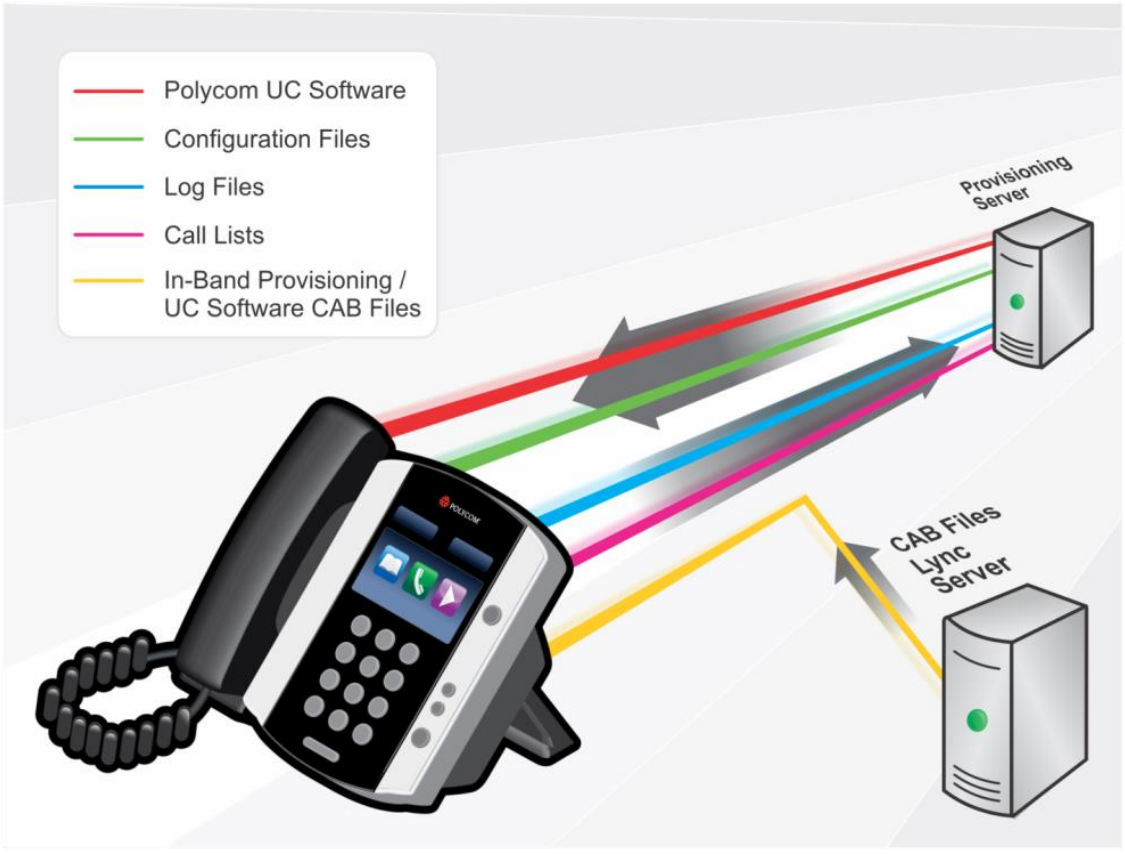
This partner solution guide includes a Get Help section you can use to find links to Polycom product and support sites and partner sites. You can also find information about The Polycom Community, which provides access to discussion forums you can use to discuss hardware, software, and partner solution topics. The Polycom Community includes access to Polycom support personnel, as well as user-generated hardware, software, and partner solutions topics. To register with the Polycom Community, you need to create a Polycom online account. You can view top blog posts and participate in threads on any number of recent topics.

Deploy Polycom Phones with Microsoft Lync Server

Polycom provides you 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. This section details each of these major tasks.

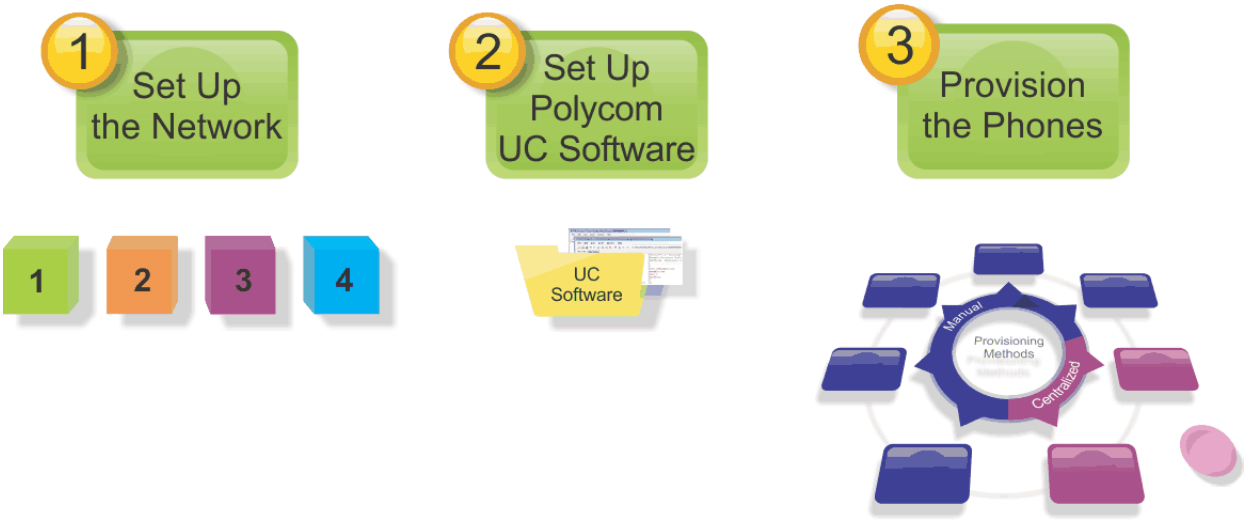
Although you can register your Polycom phones with Lync Server in several ways, Polycom recommends that you use centralized provisioning which requires you to provision your Polycom phones and UC software from a provisioning server. Centralized provisioning enables you to deploy multiple phones securely and efficiently. The next figure illustrates how your Polycom phones interoperate with your provisioning server and Lync server in an optimal deployment scenario.

How the phone interoperates with provisioning and Lync Server



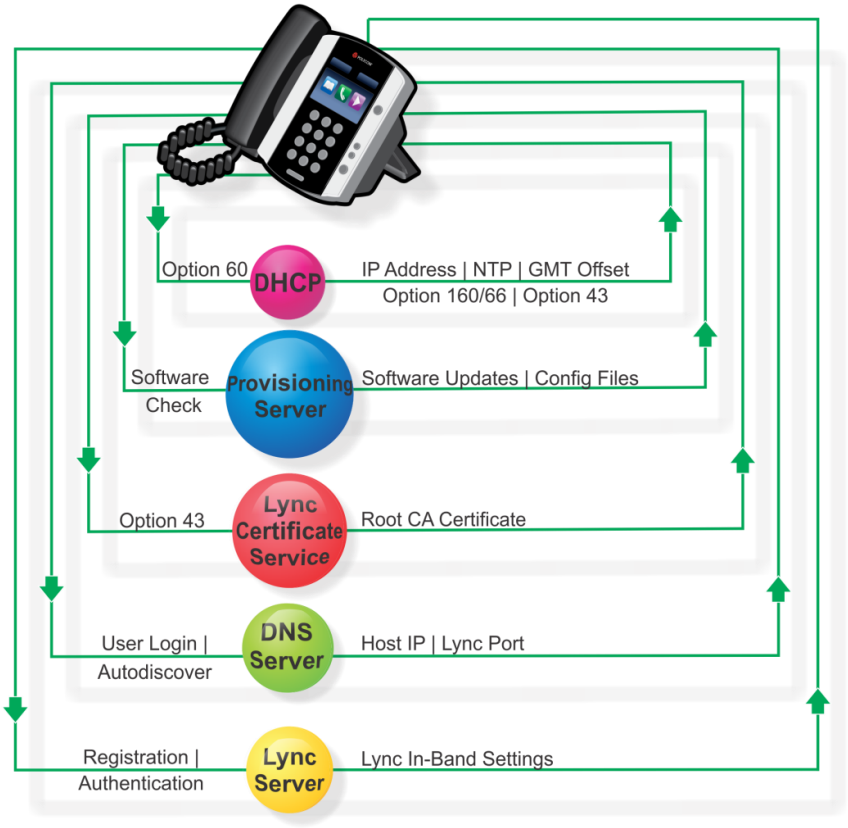
This optimal deployment scenario requires you to complete three major tasks in sequence, as shown in the following figure.

Three major deployment tasks



Once you have successfully completed the deployment tasks, the phones perform a boot-up sequence, as shown next.

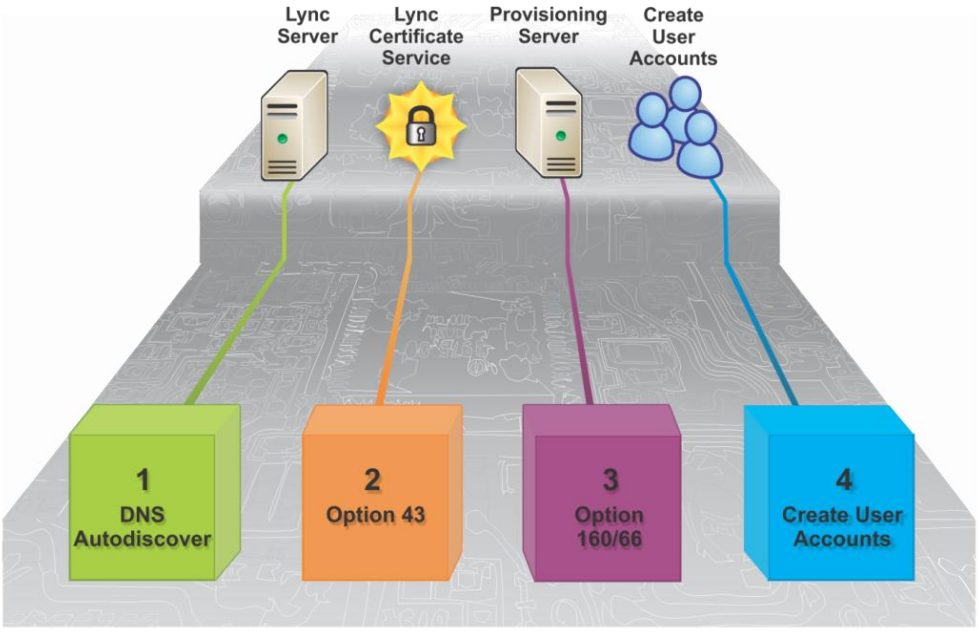
Phone boot-up sequence



Task 1: Set Up the Network

Setting up a network to connect your Polycom devices to Lync Server involves four steps, as shown in the following figure.

Four steps to setting up your network



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 in one of the following two ways:
   - VVX phones 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).

     For information on configuring DHCP Option 43, see 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 centralized provisioning requiring a provisioning or boot server, configure DHCP Option 66, or, if unavailable, 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 see 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 phones in your deployment: VVX 300, 310, 400, 410, 500, 600, or SoundStructure.

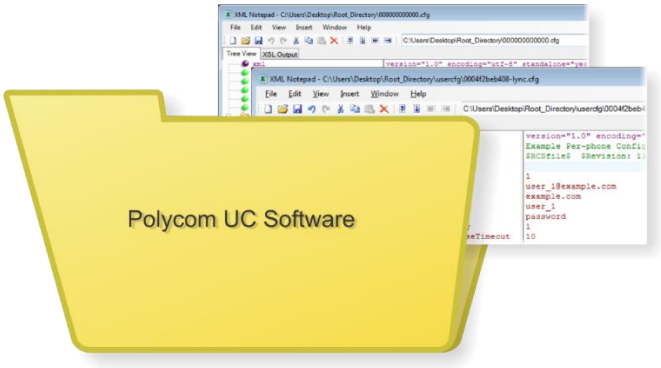
   Once you have successfully set up your network, download Polycom UC Software.

Web Info: Setting up the network

If you need more detailed information on 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

In this step, you download and set up Polycom UC Software. The latest UC software is available at Latest Polycom UC Software Release. Note that all UC software versions are available on the Polycom UC Software Support Center.



Polycom provides UC software 5.x.x in a combined or split file format, or in CAB file format. To deploy UC software from Lync Server, download the CAB file version of Polycom UC Software. Or, if you are deploying phones from your own provisioning server, use the split or combined version of Polycom UC Software in XML format.

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, TFTP, HTTP, or HTTPS protocols, FTP being the most common. FileZilla Server is a free FTP solution.

Deploying UC software in CAB file format from Lync Server provisions the phones and enables default feature functionality, including the automatic software update feature. Note that if you want to change or

customize default functionality of the phone features, you need to edit Polycom configuration files on your own provisioning server and send the custom settings to the phones. In this case, you can distribute software to the phones from Lync Server and custom feature settings from configuration files on your own provisioning server.

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.

Set up Polycom UC Software in three steps:

1. Download the UC software.
2. Configure a Call Park Orbit Policy.
3. (Optional) To use Better Together over Ethernet (BToE) feature, download the BToE application and enable BToE.

Download Polycom UC Software

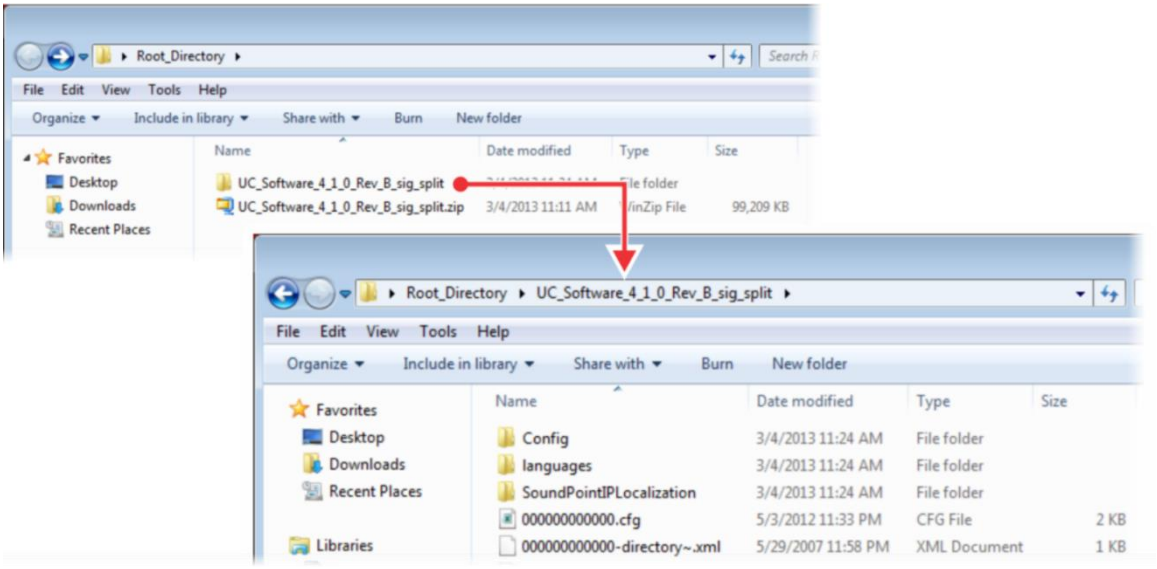
If you are using your own provisioning server to distribute UC software to your phones, download the UC software in XML format according to the procedure in this section. To use Lync Server to push software to the phones, see Deploy UC Software from Lync Server.

You can use Lync Server to distribute software to the phones and configure feature settings that you send to phones using configuration files on your own provisioning server. Do not distribute software to your phones using both your own provisioning server and Lync Server.

To download UC software in XML format:

1. Create a root directory on your computer 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.
2. Download and save your UC software release to the root directory you created. You can obtain all UC software from the Polycom UC Software Support Center. Polycom UC Software is distributed in ZIP file format. You can download the split file version or the combined version.
   - 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.
3. Extract the ZIP file in your root directory.

Once the UC software directory is extracted, you can open the folder in your root directory, as shown next.



(Optional) Download 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 *Connecting Polycom VVX Phones with Better Together over Ethernet* 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.

Settings: 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.

Understand Manual Provisioning Methods

As shown in the figure Provisioning methods for use with Lync Server, 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.

Power Tip: Setting the Base Profile using centralized provisioning

Polycom does provide a 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 Set the Base Profile with device.set Parameters.

Understand Centralized Provisioning Methods

As shown in the figure Provisioning methods for use with Lync Server, Polycom provides two centralized provisioning methods that register your phones with Lync Server: via a Lync Server or a provisioning server.

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, TFTP, HTTP, or HTTPS protocols, FTP being the most common. FileZilla Server is a free FTP solution.

Polycom strongly recommends using a provisioning server when provisioning multiple phones to enable you to do the following:

- 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.

For more information on setting up a provisioning server for Polycom products, see the section Set Up the Provisioning Server in the *Polycom UC Software 5.1.1 Administrator's Guide*.

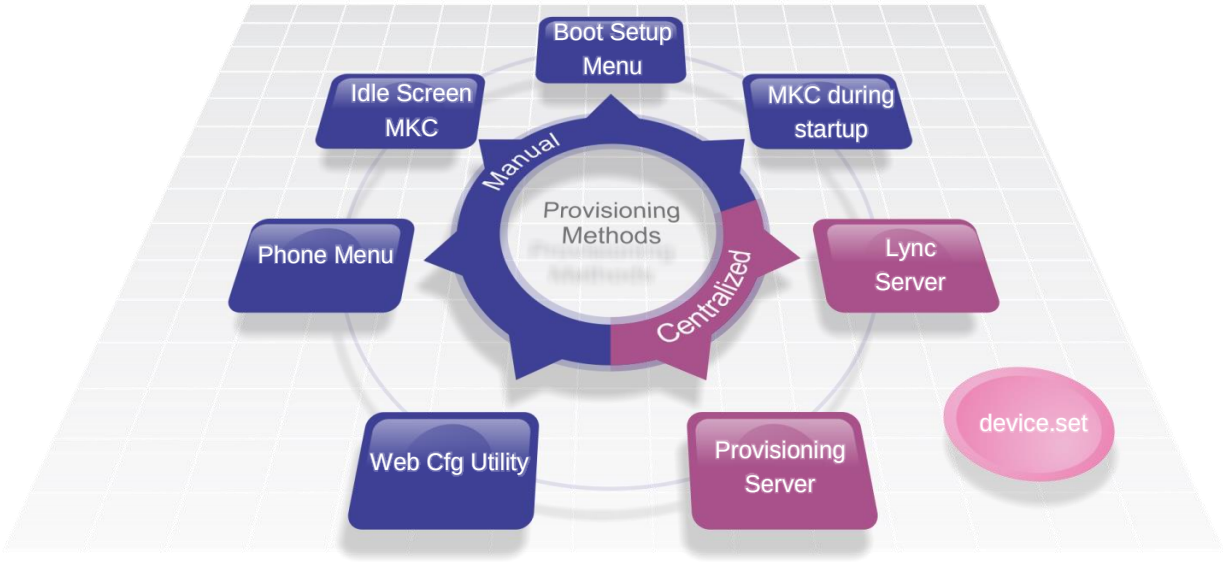
For information comparing manual and centralized provisioning methods, see Understand Provisioning Methods.

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.

The following figure illustrates the five manual provisioning methods, two centralized provisioning methods, and `device.set`. Click a provisioning method to go directly to a provisioning procedure. Note that if you are using Polycom UC Software 5.1.1, the Web Configuration Utility is disabled by default and you cannot register phones with the Web Configuration Utility. If you want to use the Web Configuration Utility after the phone is registered with Lync Server, see Enable Access to the Web Configuration Utility.

Provisioning methods for use with Lync Server



The following sections summarize the provisioning choices shown in the figure.

Provision Phones Manually

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 a multikey combo 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 a multikey combo.
- **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 a multikey combo (MKC) during startup or from the phone boot Setup menu. Note that 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 multikey combo 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 multikey combo shortcut:

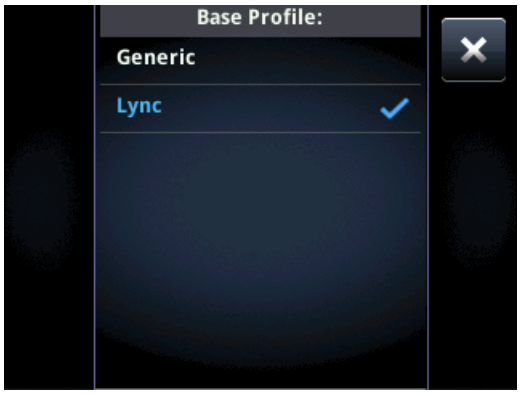
1 Press the phone's **Home/Menu** key.

2 From the idle screen, press and hold the following key combinations on the phone keypad for about 3 seconds. These 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 Password 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.

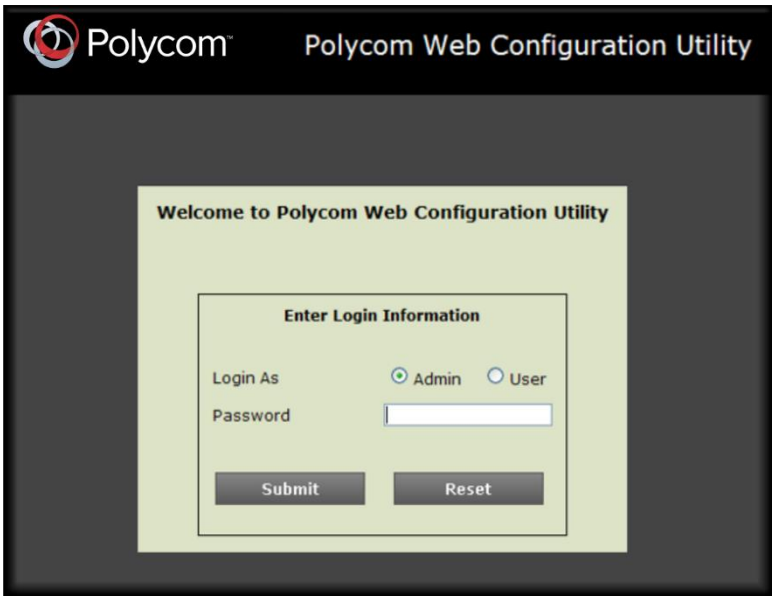
Set the Base Profile Using the Web Configuration Utility

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. Note that 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

Provision multiple phones with Polycom UC Software in two ways:

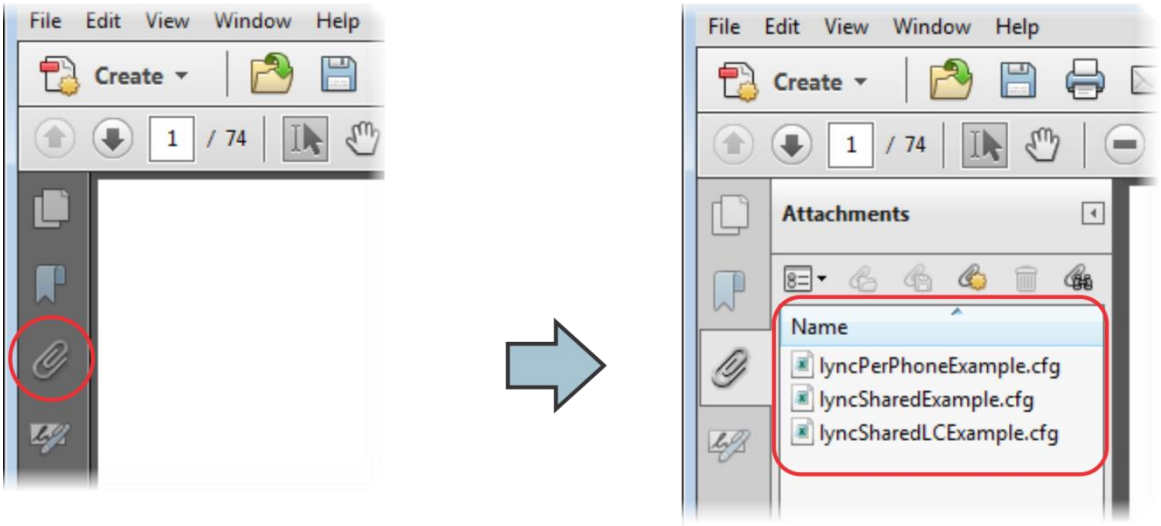
- **Use Lync Server** Provision multiple phones with UC software from Lync Server and apply default feature settings.
- **Set up a provisioning server** Set up your own provisioning server and customize feature settings.

You can also use Lync Server to distribute UC software to the phones and configure custom feature settings that you send to phones using configuration files on your own provisioning server.

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 are attached to this deployment guide.

To view the template configuration files attached to this deployment guide, click the Attachments icon at the top left of the PDF viewing pane, as shown in the figure Locate Attached Configuration Files. After you open the Attachments pane, you can drag and drop the files to a location in your root directory.

Locate attached configuration files



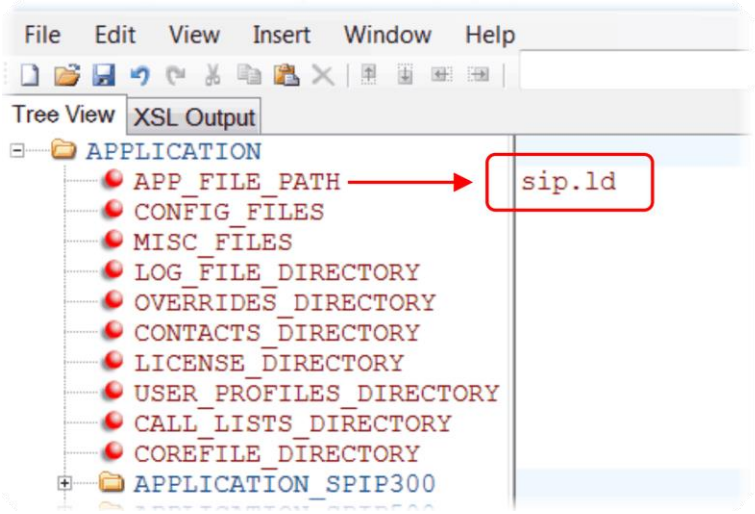
The Polycom template configuration files are flexible, and you can customize them in several ways. You can keep the parameters in the template configuration files separate from your other files, combine them as a single configuration file, or copy and paste the parameters to any other configuration file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

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

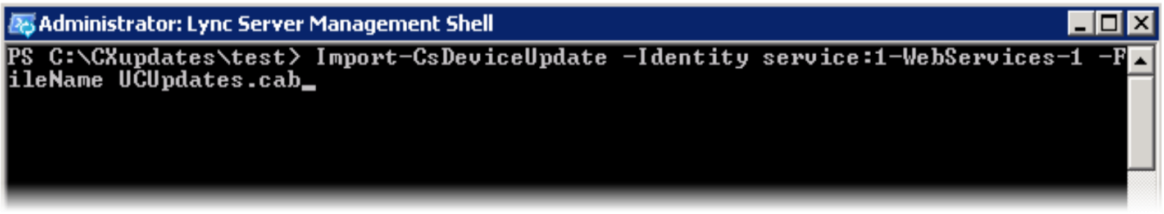
If you downloaded UC software files in CAB format, use the following procedure to deploy UC software from Lync Server.

To deploy UC software from Lync Server:

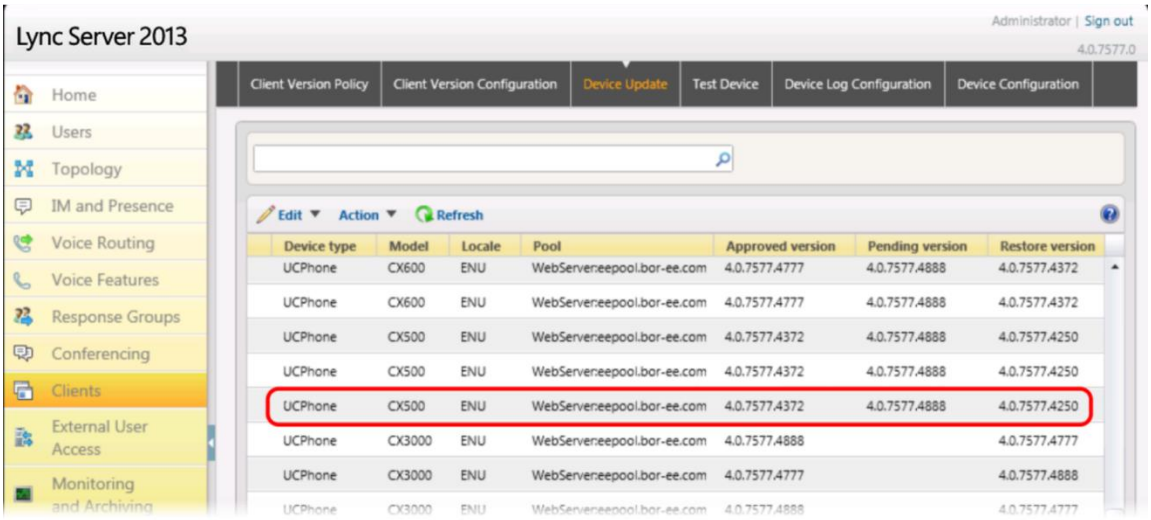
1. Download and save UC software in CAB file format to your computer. You can obtain all UC software from the Polycom UC Software Support Center.
2. Go to Lync Server and copy the CAB file to a C: drive directory.
3. Use the Lync Server Management Shell to go to a particular directory.

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

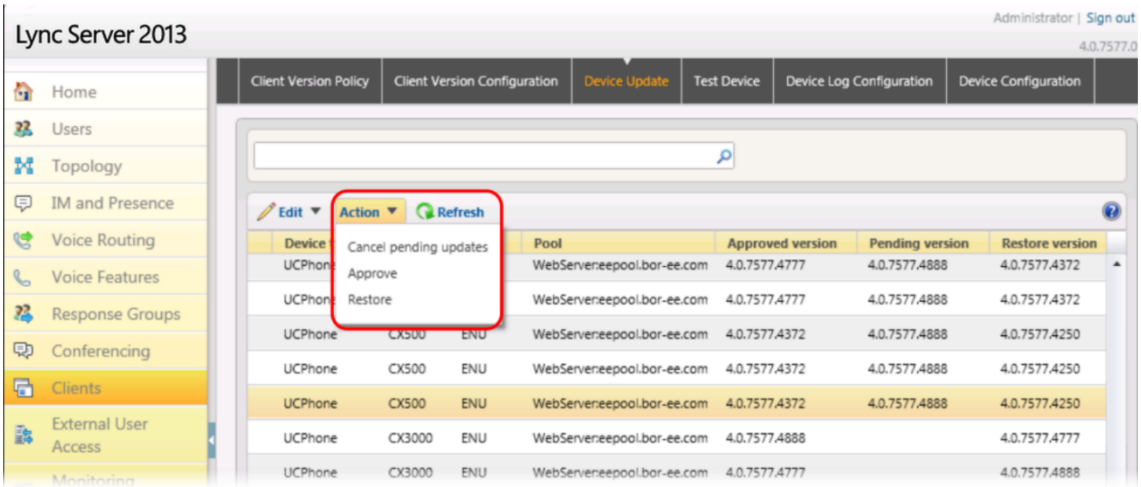
`Import-CsDeviceUpdate -Identity service:1-WebServices-1 -FileName UCUpdates.cab`.



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

The next procedure shows you how to provision phones with UC software using 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.

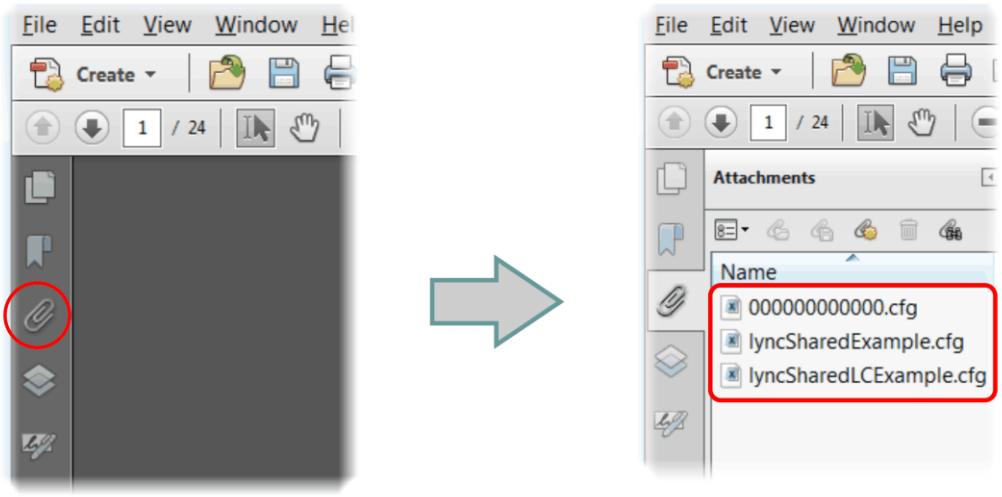
If you downloaded UC software in XML file format, use the following procedure to deploy UC software form your own provisioning server.

Power Tip: Advanced provisioning

For information on advanced and efficient use of Polycom configuration files, with examples, see *Best Practices 35361: Provisioning with the Master Configuration File*.

To deploy UC software from your own provisioning server:

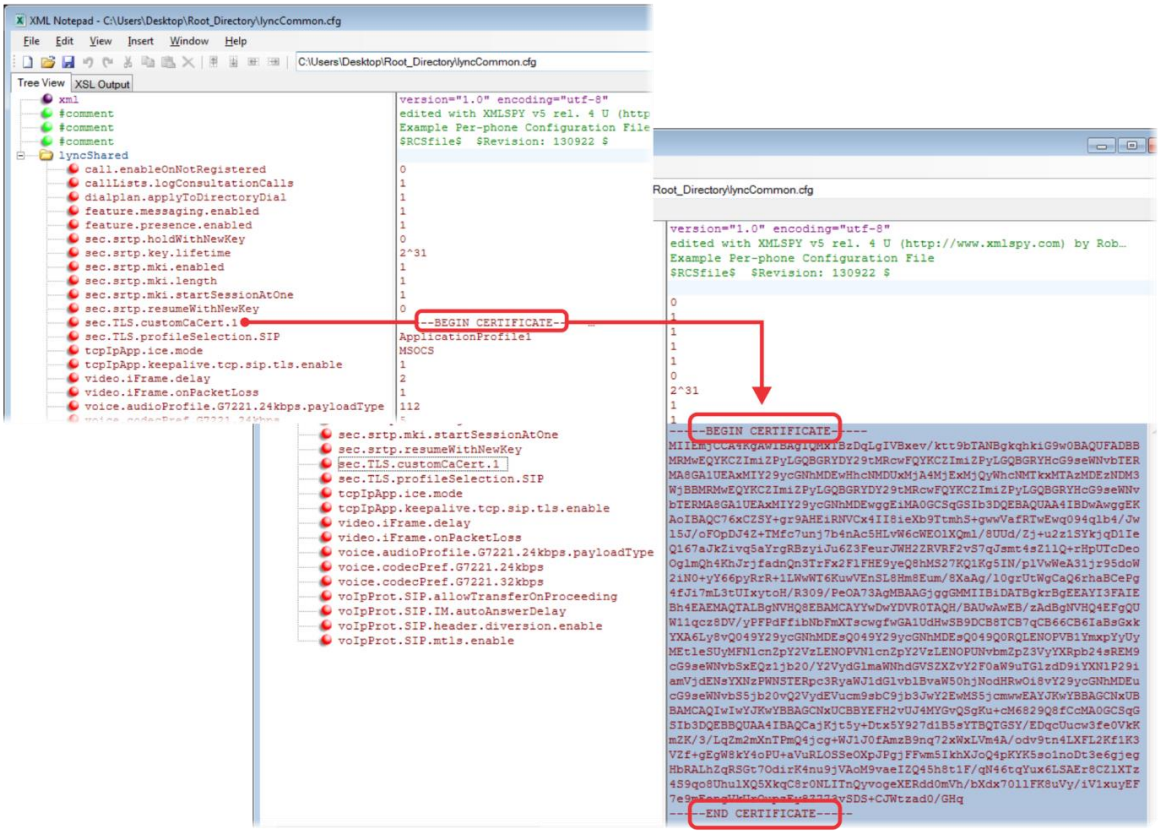
1. Locate the following three Lync configuration files in your UC software download in the folder **PartnerConfig > Microsoft**, or find the files attached to this deployment guide:
   - **lyncSharedExample.cfg** This file contains all of the parameters for settings that are shared by all the phones 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`.



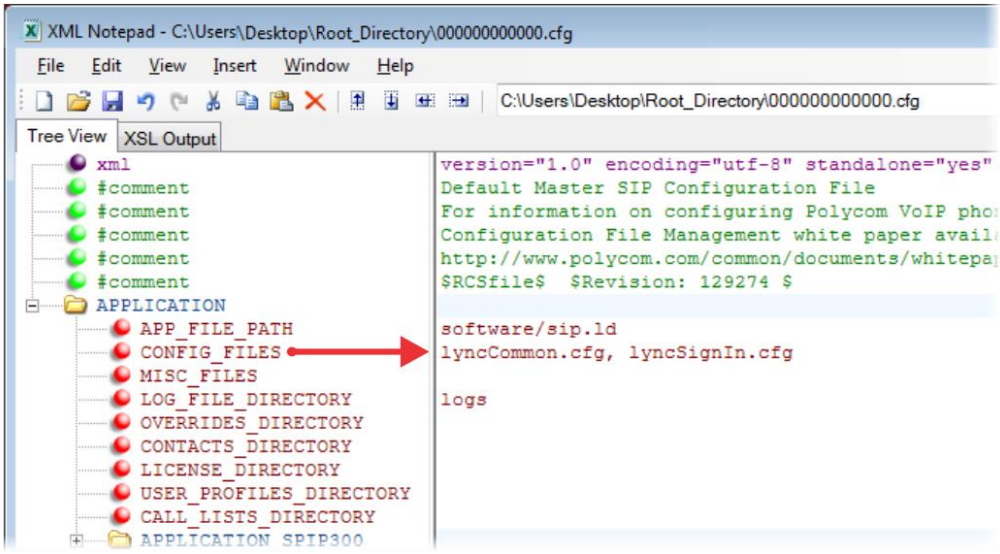
5 Open the master configuration file 000000000000.cfg. In the **CONFIG_FILES** field, enter the name(s) of your two Lync configuration files and save.

Note that 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 on efficient mass provisioning, see *UC Software Provisioning Best Practices* and *Provisioning with the Master Configuration File*.

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.

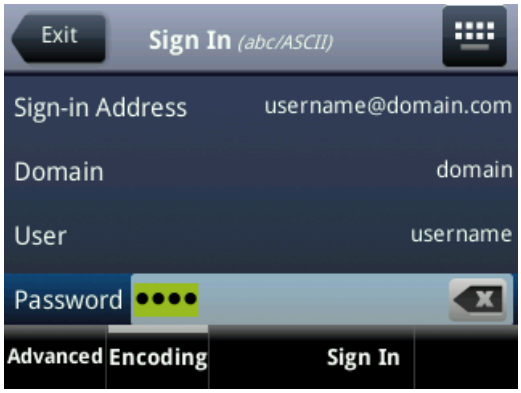


Settings: Configuring files in different directories

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>`

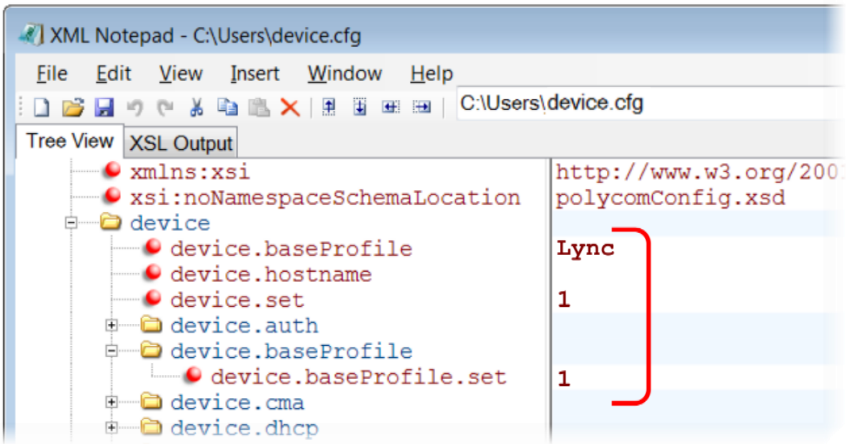
Set the Base Profile with device.set Parameters

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 `device.set` parameters located in the `device.cfg` template configuration file included in your UC Software download. 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.

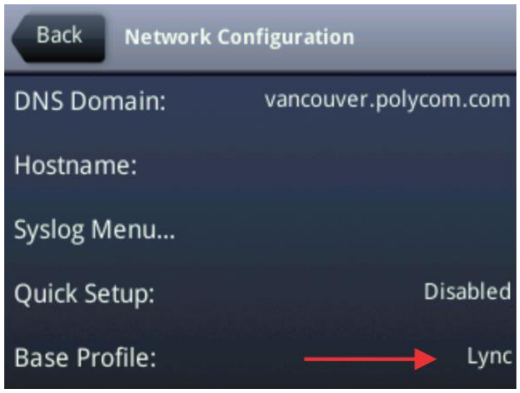
5 Power on the phones.

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.

Use Polycom Phones with Lync Server

This reference section details a number of features available on Polycom phones registered with Lync Server, as well as functions you can perform on your Polycom phone registered with Lync Server:

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 Polycom® SoundStructure® card.
- **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.

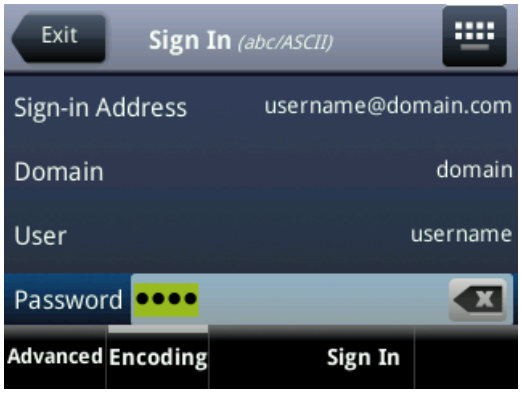
Login Credentials

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.
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

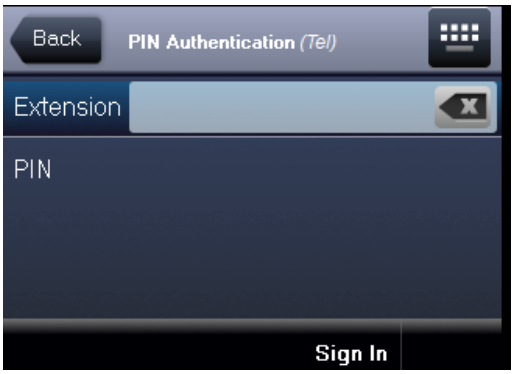
You can sign in to Lync Server using PIN authentication. To use PIN authentication, you must enable the Web Configuration Utility, which is disabled by default. See the section Enable Access to the Web Configuration Utility. After you enable the Web Configuration Utility, you can enable or disable PIN

authentication using `reg.1.auth.usePinCredentials` and associated parameters listed in Understand Lync Configuration Files. Polycom UC software 5.0.1G introduces PIN authentication for Polycom® SoundStructure® card registered with Microsoft Lync server.

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. Note that this method is available after you download the BToE connector application and pair your computer and phone.

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 *Connecting Polycom VVX Business Media Phones with Better Together over Ethernet*.
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

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:

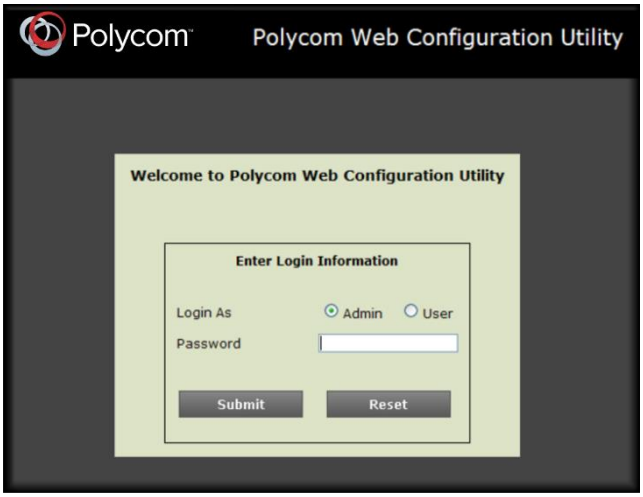
1. Add the following two parameters to one of your configuration files:
   - `feature.exchangeCalendar.enabled`=1
   - `exchange.server.url`=https://<example URL>

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

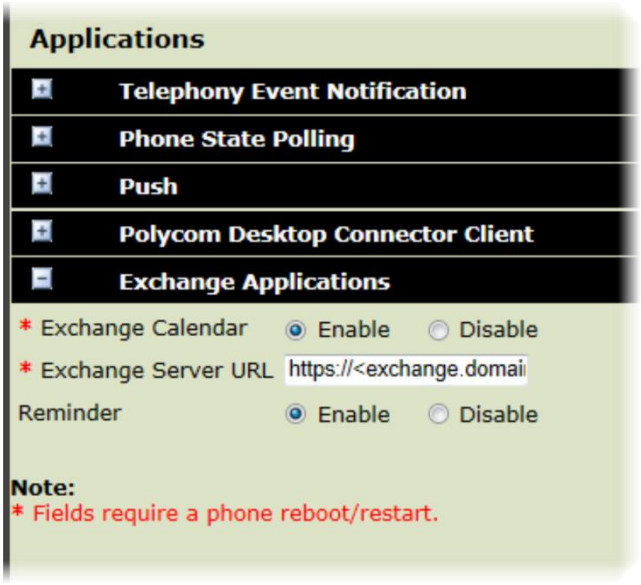
To enable the exchange calendar on a per-phone basis:

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.

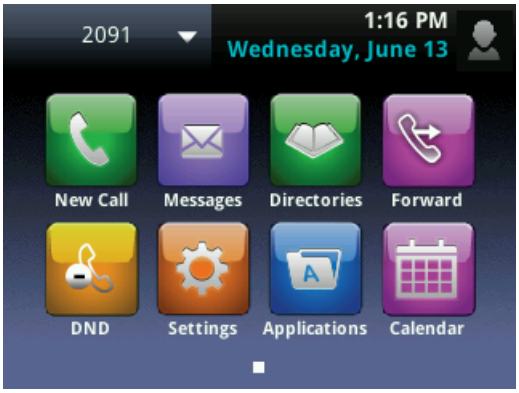


3. Choose **Admin**, enter the **Password** (default 456), and click **Submit**.
4. In the **Home** page, navigate to **Settings > Applications > Exchange Applications**, and expand **Exchange Applications**, as shown next.



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. Note that 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.

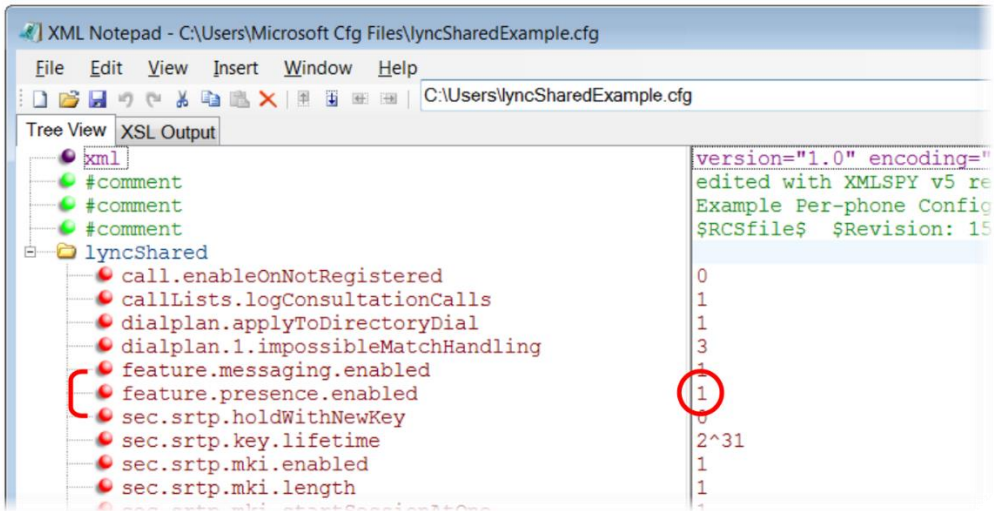
For more information about the Lync presence feature, see *Feature Profile 84538: Using Polycom VVX Business Media Phones with Microsoft Lync Server 2013*.

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
Local Phone User Interface	
You can edit the directory contents. The *Buddy Watch* and *Buddy Block* fields control the buddy behavior of contacts.	

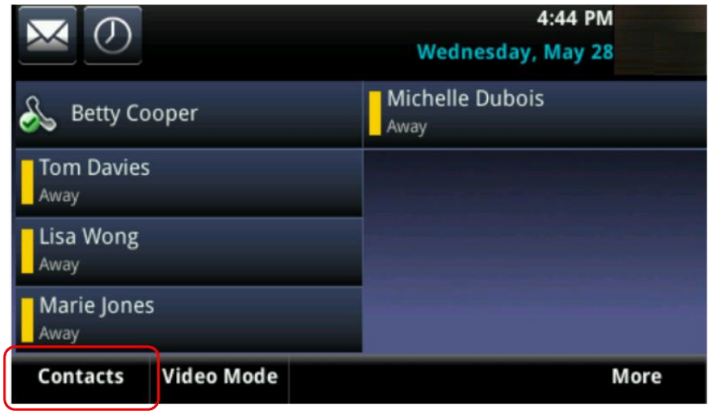
Example Presence Configuration

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.



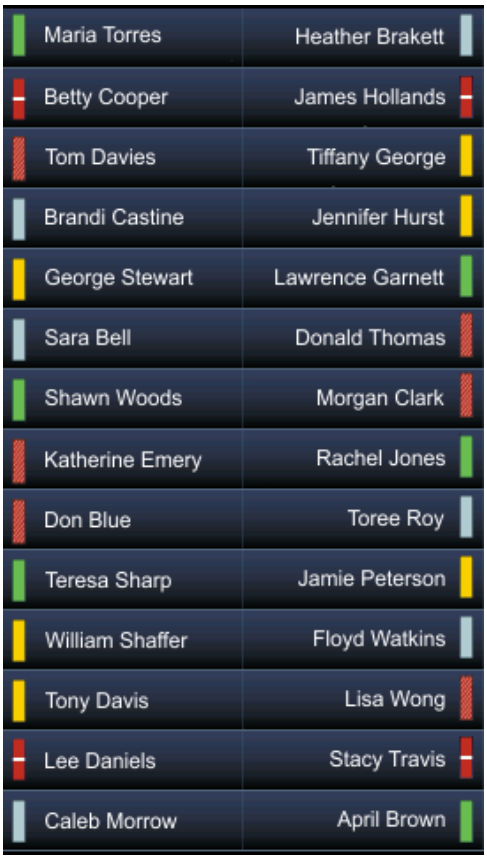
This configuration enables the presence feature and displays the My Status and Contacts soft keys on the phone. When you press the Contacts soft key, contacts you have entered to your Contacts list display.

Contacts Soft Key



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

Lync Presence Contacts



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
	Unknown
	Blocked

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 5.0.0, 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://*server.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 cfg** 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

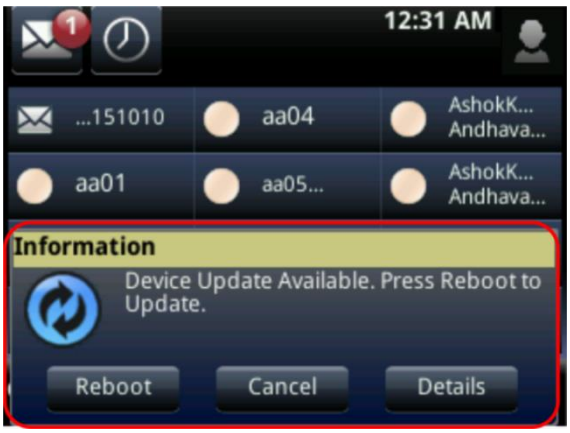
When you register VVX phones running UC software 5.x.x with Lync Server, by default the phones poll Lync Server for software updates and automatically download updated software. This automatic software update feature is available on all devices using UC software 5.0.0 and later registered with Lync Server.

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 attached to this guide.

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. Note that 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.

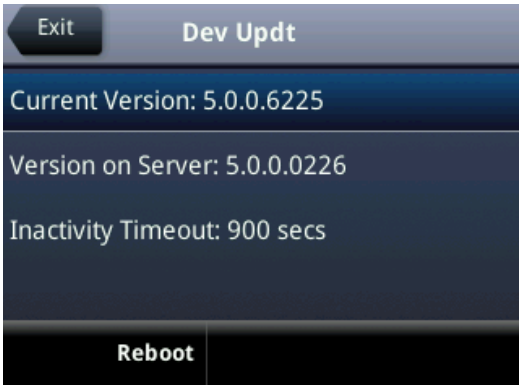


The Information pop-up provides three options.

- 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.



Note that 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**.

   Note that 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.

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 card 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.

If you set the Base Profile of a phone to Lync or use the centralized provisioning method and you 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. Note that 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.

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. Note that 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 >** device.sec.coreDumpEncryption.enabled.set
Encrypt or bypass encryption of the core dump.	**device.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*
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 does not use a secure tunnel. If 1, the server connects through a secure tunnel.			
httpd.cfg.secureTunnelRequired	**0**	**1**	**0 - HTTP service enabled** **1 - HTTP service disabled**
If 0, communications to the Web server do not require a secure tunnel. If 1, communications do require a secure tunnel. If this parameter is enabled and `httpd.cfg.secureTunnelEnabled` is enabled, then non-secure HTTP service is disabled.			

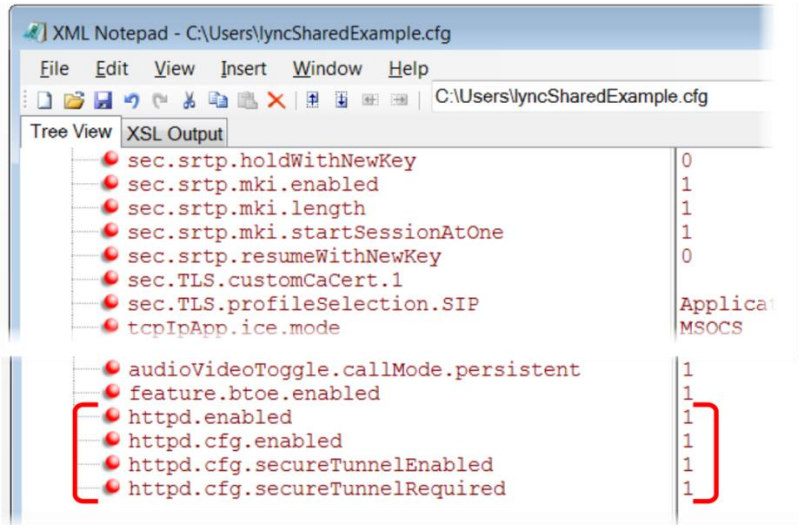
Example Lync 2013 Security Update Configuration

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

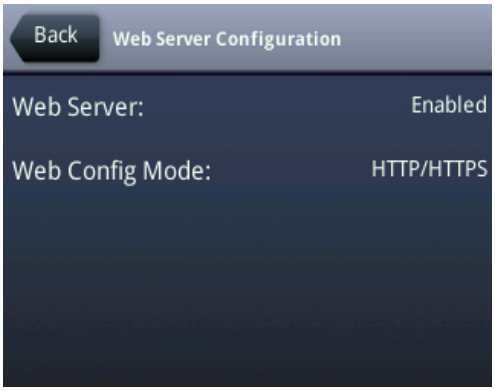


You can also enable access to the Web Configuration Utility on VVX phones on the phone menu system.

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.

Understand 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.

Note that 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(*)	
4	+	Specifies one or more matches	\d(+)	
5	?	Specifies zero or one matches	\d(+)	
6	{n}	Specifies exactly n	\d {4}	Match 4 digits

No.	*element*	*Meaning*	*Example*	*Explanation of example*
		matches		
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

Understand Provisioning Methods

Once your Polycom phones are provisioned with a Lync-enabled release of Polycom UC Software and you have reset the phones to factory default settings, you can manually set the Base Profile to Lync directly from the phone in one of five ways. Or you can use centralized provisioning, which requires you to set up a provisioning or boot server and use Polycom configuration files in XML format. All of the configuration files you need are attached to this deployment guide.

Manual Provisioning

If you do not want to use a provisioning server, you can register your phone by setting the phone's Base Profile to Lync during the phone's initial boot cycle or from the phone's menu system after the boot cycle is complete. This method enables you to provision one phone at a time. In addition, you will not be able to enable extensive diagnostic logging that the phone writes to the provisioning server, contact directory files, or phone user interface language files, all of which are available only with centralized provisioning. To see all manual provisioning methods, see Provision Phones Manually.

Web Configuration Utility

You can use the Web Configuration Utility to register a phone with Lync Server. This method does not require a provisioning server and registers a single phone at a time. The Web Configuration Utility stores a limited number of log files in the Diagnostics menu that can be useful for troubleshooting.

To register a phone using the Web Configuration Utility:

1. On your phone, go to **Simple Setup > Base Profile**.
2. Set the Base Profile to **Lync**.

Centralized Provisioning

You can register Polycom phones to the Lync Server using a provisioning server supporting FTP, TFTP, HTTP, or HTTPS. Polycom recommends using a provisioning server when deploying multiple phones. Use of a provisioning server enables you to store configuration files in a single location on a server, which simplifies maintenance of feature settings and updates for multiple phones. In addition, by using a provisioning server, you can choose one of several languages on the phone interface, and the phone is set up to send diagnostic and other information to files stored on the server, including log files, a contact directory, and individual call lists.

Note that you must use a provisioning server to update your Polycom UC Software. Deploying phones with a provisioning server requires use of Polycom configuration template files in XML format.

Use Lync Configuration Files

Once you have set up a provisioning server, you can use Polycom template configuration files to provide default settings to all your devices. Polycom has created several Lync-specific template configuration files which are attached to this deployment guide. If you require further instruction on using Polycom configuration files effectively, see Configuration Methods in the *Polycom UC Software Administrator's Guide*.

Set the Base Profile with device.set Parameters

Polycom provides a template configuration file containing three `device.set` parameters you can use to set the Base Profile of multiple Polycom devices automatically to Lync. Polycom recommends using this method only if you are an experienced administrator and are familiar with Polycom UC Software centralized provisioning method and configuration files.

The `device.cfg` template configuration file in your UC Software download contains the three `device.set` parameters and their default values.

To begin provisioning using this method, go to Set the Base Profile with <device.set> Parameters. The table Lync <device.set> Parameters describes the `device.set` parameters and indicates the default values and required values you need to 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.	

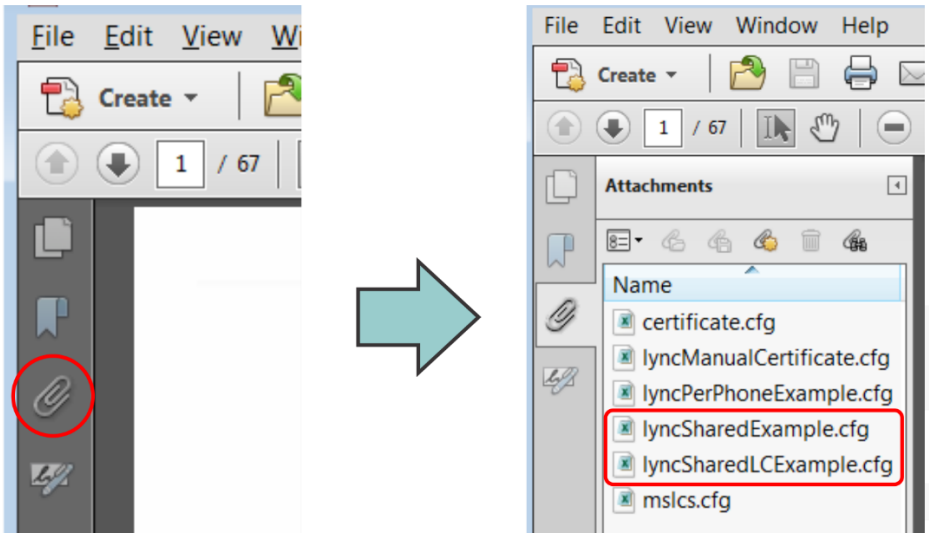
[1] Change causes phone to restart or reboot.

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:

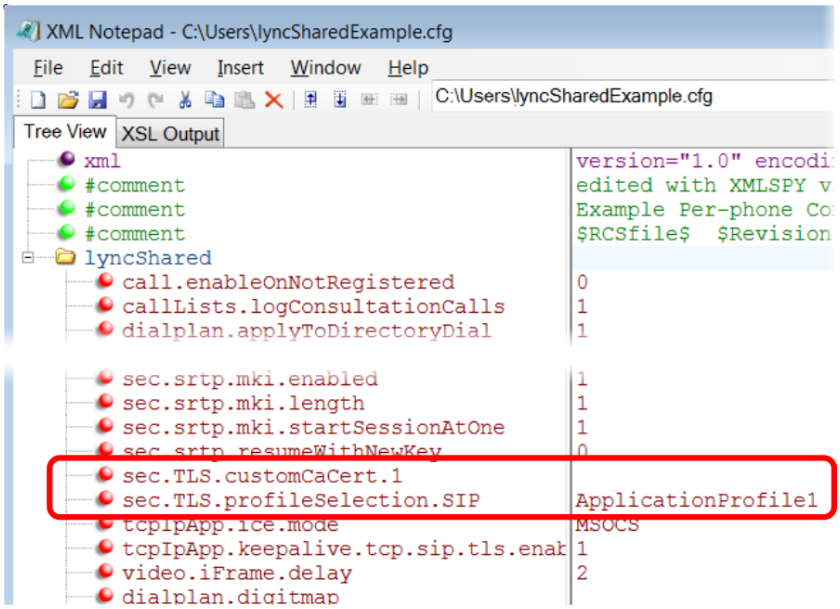
1. Locate the `lyncSharedExample.cfg` and `lyncSharedLCExample.cfg` configuration file attached to this guide.



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

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

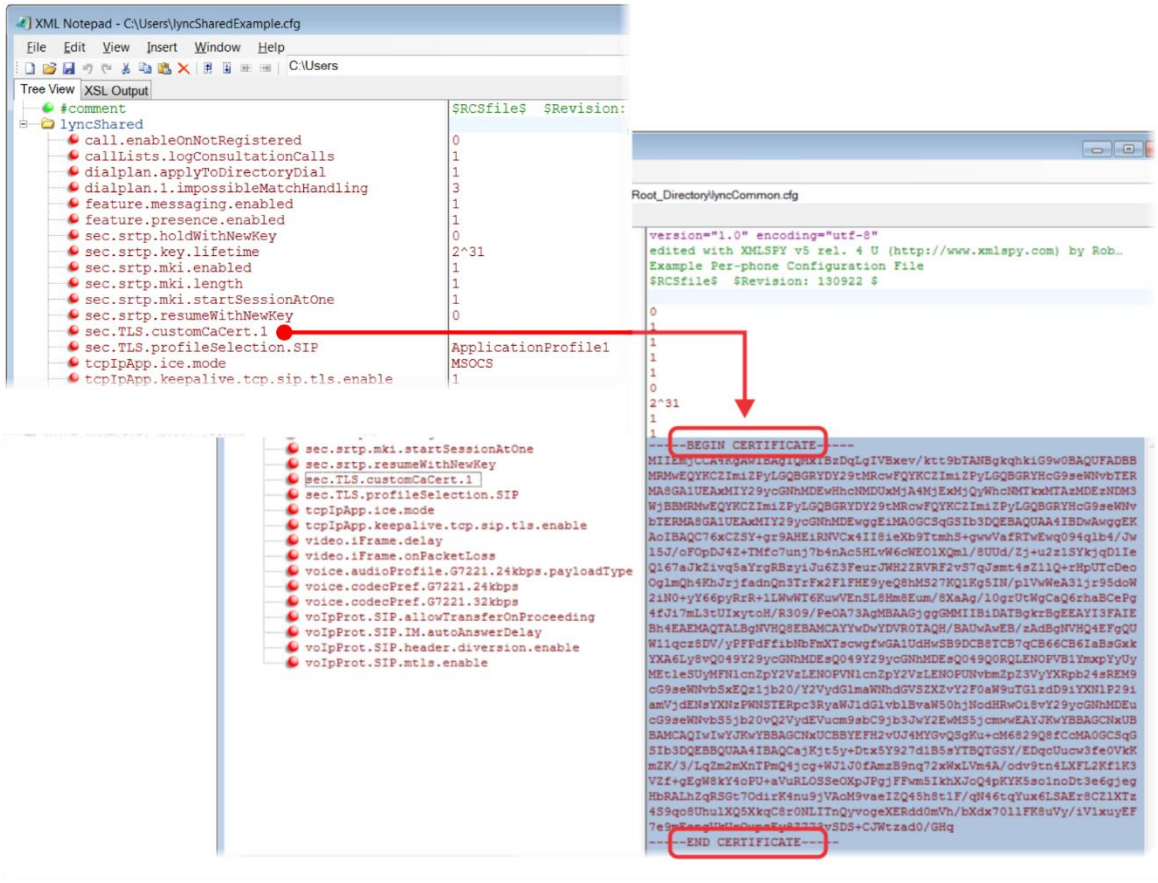
- `sec.TLS.customCaCert.1=<enter the certificate>`
- `sec.TLS.profileSelection.SIP=<ApplicationProfile1>`



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`.



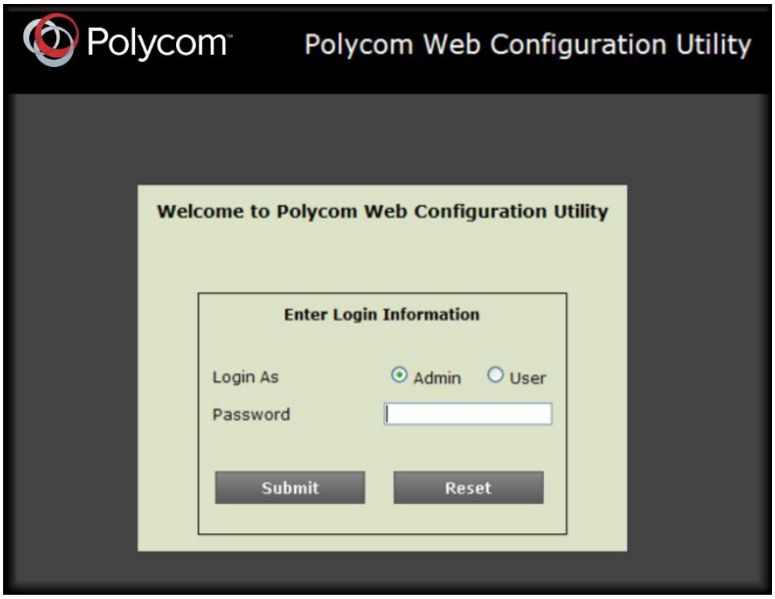
You have successfully installed a security certificate.

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

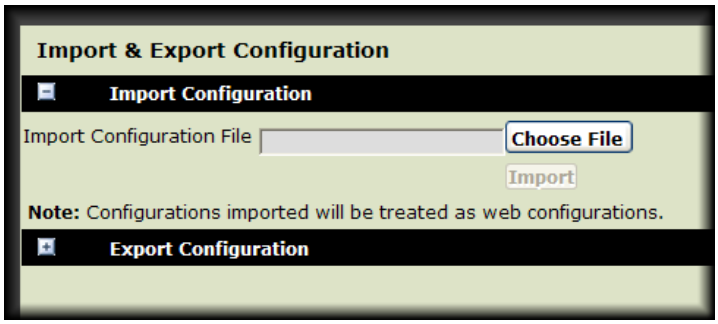
To install a certificate using the Web Configuration Utility:

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**.

Understand 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 card 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.

Understand 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 Parameter Values
- Lync Shared LC Example Parameters
- Lync Shared Example Parameters
- Lync Per Phone Example

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

Default Lync Base Profile Parameter Values

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.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.		
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.		

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.		
dialplan.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. Note that if a call orbit number begins with # or *, you need to set this parameter to 2 to retrieve the call using off-hook dialing.		
dialplan.1.lyncDigitmap.timeOut	**0 to 99 seconds**	**3 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.		
feature.presence.enabled	**0 or 1**	**1**
Enable the presence feature to manage your buddy list and display the status of your contacts.		
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.		
reg.1.auth.useLoginCredentials	**0 or 1**	**1**
Enables the Sign In screen on the phone.		
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.		
reg.1.serverFeatureControl.signalingMethod	**string**	**serviceMsForwardContact**
Controls the method used to perform call forwarding requests to the server.		

Parameter	*Permitted Values*	*Default*
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. Note that 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.		
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.		
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.		

Parameter	*Permitted Values*	*Default*
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.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.		
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.		
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.		

Parameter	*Permitted Values*	*Default*
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.		
voIpProt.SIP.serverFeatureControl.signalingMethod		**serviceMsForwardContact**
voIpProt.SIP.server.1.transport		**TLS**
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.		

The table Lync Shared LC Example Parameters describes parameters and values in the `lyncSharedLCExample.cfg` template.

Lync Shared LC Example Parameters

Parameter	*Permitted Values*	*Default*
audioVideoToggle.callMode.persistent		**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		**1**
device.prov.lyncDeviceUpdateEnabled		**1**
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.		

Parameter	*Permitted Values*	*Default*
feature.btoe.enabled	**0 or 1**	**1**
If 0, the Better Together over Ethernet feature is disabled. If 1, the feature is enabled.		
feature.lyncbtoe.autosignin.signoff.enabled		**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.		
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 0, communications to the Web server do not require a secure tunnel. If 1, communications do require a secure tunnel. If this parameter is enabled and `httpd.cfg.secureTunnelEnabled` is enabled, then nonsecure 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.		
reg.1.auth.useLoginCredentials	**0 or 1**	**1**
Enables the Sign In screen on the phone.		
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.		
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.		

Parameter	*Permitted Values*	*Default*
reg.1.server.1.specialInterop		**lync2010**
Identifies the SIP signaling as Microsoft Lync Server 2010 and enables Lync Server features. Note that 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 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.		

Parameter	*Permitted Values*	*Default*
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.		
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.		
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.		

Parameter	*Permitted Values*	*Default*
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.		
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.		

The table Lync Shared Example Parameters describes parameters and values in the `lyncSharedExample.cfg` template.

Lync Shared Example Parameters

Parameter	*Permitted Values*	*Default*
audioVideoToggle.callMode.persistent		**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.		

Parameter	*Permitted Values*	*Default*
device.prov.lyncDeviceUpdateEnabled.set		**1**
device.prov.lyncDeviceUpdateEnabled		**1**
dialplan.applyToDirectoryDial		**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. Note that if a call orbit number begins with '**#**' or '*', you need to set this parameter to 2 to retrieve the call using off-hook dialing.		
feature.audioVideoToggle.enabled		**1**
If 0, the audio/video toggle feature is disabled. If 1, the feature is enabled.		
feature.btoe.enabled		**1**
If 0, the Better Together over Ethernet feature is disabled. If 1, the feature is enabled.		
feature.lyncbtoe.autosignin.signoff.enabled		**0**
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.		
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 0, communications to the Web server do not require a secure tunnel. If 1, communications do require a secure tunnel. If this parameter is enabled and `httpd.cfg.secureTunnelEnabled` is enabled, then nonsecure HTTP service is disabled.		
reg.1.offerFullCodecListUponResume		**0**
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 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		**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.		

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.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.		

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

Lync Per Phone Example

Parameter	*Permitted Values*	*Default*
device.set		**1**
A global parameter that allows you to install software and change device parameters.		
device.prov.lyncDeviceUpdateEnabled.set		**1**
device.prov.lyncDeviceUpdateEnabled		**1**

Parameter	*Permitted Values*	*Default*
dialplan.1.applyToForward		**1**
If 0, the dial plan does not apply to forwarded calls. If 1, the dial plan applies to forwarded calls.		
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 0, communications to the Web server do not require a secure tunnel. If 1, communications do require a secure tunnel. If this parameter is enabled and `httpd.cfg.secureTunnelEnabled` is enabled, then nonsecure HTTP service is disabled.		
reg.1.address		**user1@example.com**
Specify the line registration.		
reg.1.applyServerDigitMapLocally		**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.		
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 password to be used for authentication challenges for this registration. If the password is non-Null, it will override the password entered into the Authentication submenu on the Settings menu of the phone.		
reg.1.auth.userId 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.		**user1**
reg.1.auth.usePinCredentials 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.		**0**
reg.1.auth.loginCredentialType		**usernameAndPassword**
reg.1.server.1.registerRetry.baseTimeout 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.		**10**
reg.1.server.1.registerRetry.maxTimeout Sets the maximum period of time in seconds that the phone tries to register.		**180**
reg.1.server.1.specialInterop Identifies the SIP signaling as Microsoft Lync Server and enables Lync Server features. Note that this parameter supports Lync Server 2010 and 2013.		**lync2010**
reg.1.server.1.transport The transport method the phone uses to communicate with the SIP server.		**TLS**
reg.1.serverFeatureControl.cf If 0, server-based call forwarding is not enabled for this line. If 1, server based call forwarding is enabled for this line.		**1**
reg.1.serverFeatureControl.dnd 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`.		**1**

Parameter	*Permitted Values*	*Default*
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**
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.		

Understand 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.

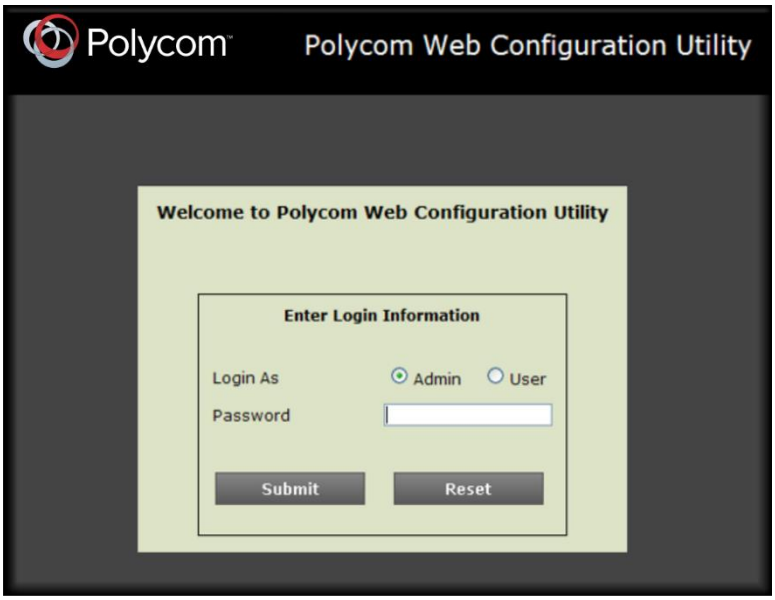
You can also use the Polycom Web Configuration Utility to view in-band provisioning parameters after you enable access to the Web Configuration Utility.

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

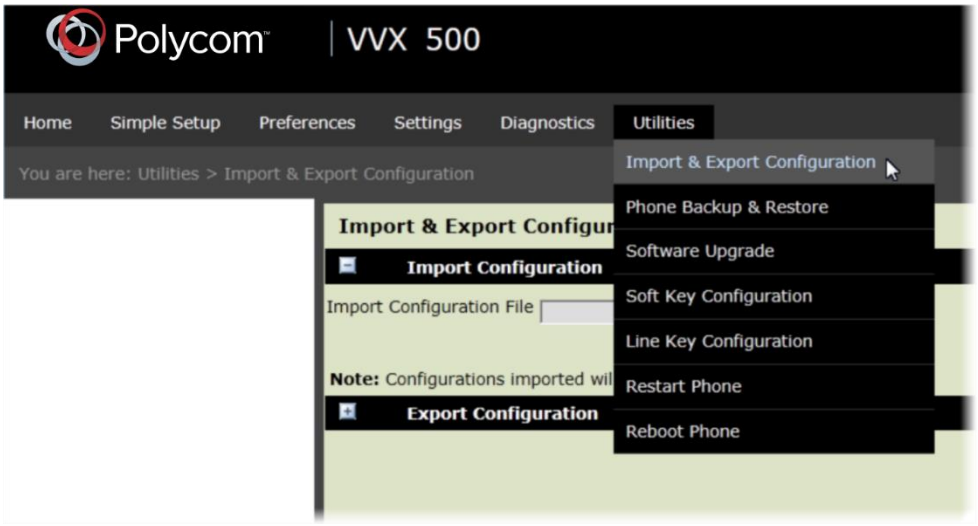
2 In the address bar of a web browser, enter the phone's IP address and press **Enter** on your keyboard.

The Web Configuration Utility login screen displays, shown next.

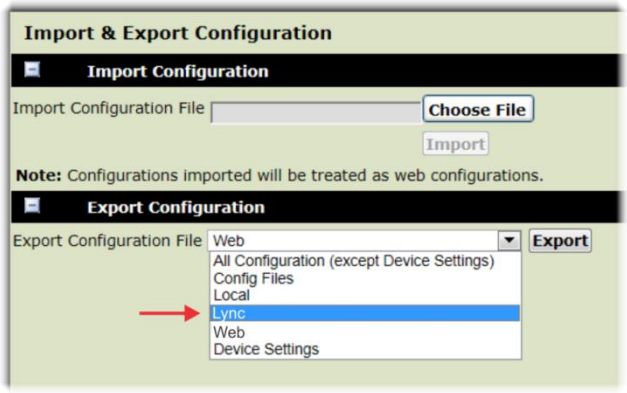


3 Choose **Admin**, enter the **Password** (default 456), and click **Submit**.

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**

Parameter	*Permitted Values*	*Default*
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**
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.		

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

Get Help

This section provides a list of Polycom documents referred to in this guide as well as partner resources you can use.

Polycom and Partner Resources

For a full account of Polycom UC Software 4.1.x, see the *Polycom UC Software 4.1.0 Administrator's Guide.*

For a full account of Polycom UC Software 5.1.1, see the *Polycom UC Software 5.0.1 Administrator's Guide.*

For detailed instructions on using Lync phone features, see *Using Polycom® VVX® Business Media Phones with Microsoft® Lync™ Server 2013*.

For more information about installing, configuring, and managing Polycom products, refer to the *Polycom Voice Support* web site.

For more information on Polycom-Microsoft solutions, see Polycom Solutions - Microsoft.

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.

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.

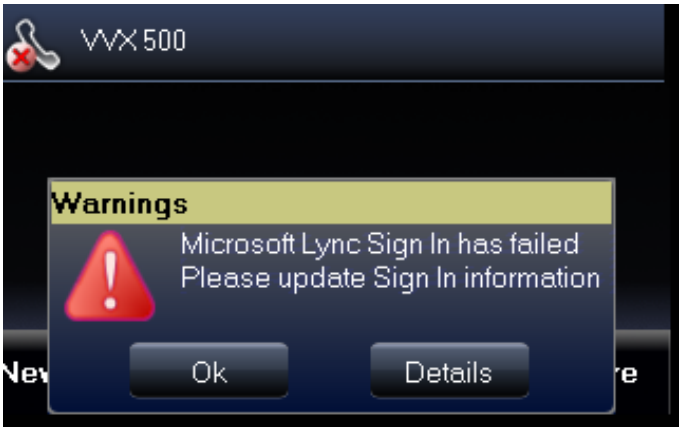
Check for invalid user credentials. Use `log.level.change.tls=0, log.level.change.sip=0`, and `log.level.change.dns=0` to troubleshoot authentication failures.

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.