Polycom® UC Software with Microsoft® Lync®
Server and Skype for Business

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Contents

Conventions Used in Polycom Guides

Polycom guides contain 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.
Important		Important highlights information of interest or important information needed to be successful in accomplishing a procedure or to understand a concept.
Web Info		The Web Info icon highlights supplementary information available online such as documents or downloads on support.polycom.com or other locations.

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.

Before You Begin

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 and Skype for Business. Registering Polycom phones with Lync Server and Skype for Business enables you to communicate with enterprise-grade high-definition (HD) voice and video using familiar Microsoft solutions.

Settings: Polycom phones support one registered line

Currently, Polycom phones deployed with Microsoft Lync Server and Skype for Business support one registered line.

UC Software Device Compatibility

Polycom UC Software 5.4.1 supports the following devices with Lync Server and Skype for Business:

- Polycom® VVX® 201 business media phones
- Polycom 300, 301, 310, 311 business media phones
- Polycom 400, 401, 410, 411 business media phones
- Polycom 500 and 501 business media phones
- Polycom 600 and 601 business media phones
- Polycom® SoundStructure® VoIP Interface (as an audio-only device). If you are using previous versions of UC Software to register SoundStructure VoIP Interface with Lync Server, see Polycom SoundStructure VoIP Interface for Use with Microsoft Lync Server.
- In Microsoft environments, UC Software 5.4.x and 5.4.x do not support VVX 1500 business media phones, and UC Software 5.2.x supports VVX 1500 as an audio-only device.

Web Info: Registering RealPresence Trio Solution with Lync Server

To register RealPresence Trio solution with Microsoft Lync Server, see *RealPresence Trio for Lync Server – Deployment Guide* on RealPresence Trio on Polycom Support.

Microsoft Compatibility

Polycom VVX phones and SoundStructure VoIP interface support Lync Server 2013 and Skype for Business. Note that Microsoft now supports multiple clients:

- Lync 2013 / Skype for Business 2015 (v15.x)
- Skype for Business 2016 (v16.x)

Microsoft-Qualified Phones

As of UC Software 5.3, Polycom offers devices with an Open SIP or a Lync base profile (a Lync SKU). Polycom devices shipped with a Lync base profile. As of UC Software 5.4.0A, Polycom offers devices already configured for use with Skype for Business on-premise deployments or Skype for Business Online. These devices include Lync-qualified UC Software with a feature license included and enable you to start up the phone and register with default settings.

Feature Licenses

Polycom devices purchased and shipped with a Lync Server or Skype for Business SKU include a feature license. If you do not purchase devices with a configured Lync Server or Skype for Business SKU, you must purchase a feature license from a Polycom reseller or Polycom sales representative. For information about the license, log in to Licensing & Product Registration. You can use Polycom phones in a Lync environment for trial purposes, without purchasing a license, for a maximum of 30 days.

UC Software File Formats

Polycom releases UC Software 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 Polycom UC Software for Microsoft Deployments and enables you to receive automatic software updates from Lync Server and Skype for Business 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.

Available Phone Features

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

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

- For a list of features supported by Polycom with Skype for Business Online, refer to the table Polycom Support for Skype for Business Online.

- For features introduced at a specific UC Software version, see the release notes for that UC Software version at Polycom UC Software Support Center.

Settings: Access to web configuration utility disabled by default

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

Web Info: Understanding features in previous UC Software releases

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

Features Supported on All Polycom Phones Registered with Lync Server or Skype for Business

Feature	Function
Auto root certificate fetch	Available using DHCP option 43
PIN Authentication	Support for Lync authentication available on all Lync-enabled Polycom phones. This sign-in method is not currently available for Skype for Business online deployments.
Narrowband audio	G.711
Call transfer, hold, mute	Flexible user phone functions
Full-duplex echo cancellation (FDX)	
Wideband audio	G.722-1
Media encryption	SRTP, SSRTP
Direct SIP registration to Lync Server	Microsoft SIP, TLS for SIP Signaling, SRTP, SSRTP
Peer-to-peer audio calling	Initiate and receive two-party calls
Enterprise voice	
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

Feature	Function
Federation	Connect people across organizations and domains
Provisioning	Support for in-band provisioning from Lync Server
Monitoring	Device Inventory Reports
Reporting	
Call admission control	Support for in-band bandwidth policy
Media bypass	Bypass the Lync mediation server to send media directly to a PSTN gateway
Dial plans	Support for Lync Server Regex normalization patterns passed via an in-band provisioning to the endpoint; limited to regular expression support; option for server-side normalization
Call forwarding to contacts	Forward calls to another contact
Call forwarding to voicemail	Forward calls directly to voicemail
Response Groups	
Team-Call	
Delegates	
Private Lines	Alternate call-forwarding identity for a Lync user's secondary DID
Branch Office Survivability	Maintain SBA/SBS registration during WAN outage, automatic recovery
E911	Supports in-band provisioning information for Emergency 911
Location Services	Extended Link Layer Discovery Protocol (LLDP)-MED location-based information support
Contacts List	Display Lync contacts and their current presence status
Contact Groups	Display and expand groups in the Lync user's contact list
Web Ticket Authentication	Used to gain access to a web service; support for web tickets obtained using NTLM, PIN, or a client certificate used as authentication credentials Lync Authentication: NTLM SIP Registration: TLS-DSK User Sign In: NTLM Credentials, PIN authentication NTLMv2 Authentication
Client Certificate Provisioning	Automatic provisioning using a web ticket
TCP Media	RTP Media and ICE negotiation supported over TCP when UDP is unavailable

The following table indicates Polycom support for Skype for Business Online features.

Polycom Support for Skype for Business Online

Skype for Business Online Feature	Polycom with Skype for Business On-Premise	Polycom with Skype for Business Online
Resiliency - Branch Office	✓	✗
Resiliency - Data Center Outage	✓	✗
Device Update	✓	✓
In-band Provisioning	✓	✓
PIN Authentication	✓	✗
Call Handling	✓	✓
Call Forward	✓	✓
Call Transfer	✓	✓
Conference Calls	✓	✓
Local Call Logs	✓	✓
Exchange Call Logs	✓	✓
Federated Calls	✓	✓
Simultaneous Ring	✓	✓
Attendant Console	✓	✗
Cross Pool	✓	✗
Dual Tone Multi Frequency	✓	✓
Emergency 911	✓	✓
Call Admission Control	✓	✓
Media Bypass	✓	✗
Monitoring (Device Inventory)	✓	✓
Delegates	✓	✓
Team Call	✓	✓
Private Line	✓	✗
Response Groups	✓	✗
Message Waiting Indicator	✓	✓
Call Park	✓	✗

Skype for Business Online Feature	Polycom with Skype for Business On-Premise	Polycom with Skype for Business Online
Exchange Contact Integration	✓	✓
Exchange Calendar	✓	✓
Extended Presence	✓	✓
Visual Voicemail	✓	✓
Boss-Admin	✓	✓

* Note that Skype for Business Cumulative Update 1 (CU1) is required to use this feature in Skype for Business on–premise deployments.

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. 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. Because you can provision only a single phone at a time with the Base Profile, Polycom recommends using the Base Profile for deployments of fewer than 20 devices requiring only default Lync settings.

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 or Skype for Business Server and enable the automatic software update feature.

Get Help

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

The Polycom Community

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

personnel and participate in developer and support forums to find the latest information on hardware, software, and partner solutions topics.

Deploy Polycom Phones with Microsoft Lync Server or Skype for Business Server

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

Settings: Lync SKU

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

Task 1: Set Up the Network

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

To set up your network:

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

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

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

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

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

If you configure DHCP Option 43 in on-premise Skype for Business deployments, the phone displays the PIN Authentication menu to users. The PIN Auth menu does not display and is not available for Skype for Business Online.

> ➢ Use an STS URI (Lync certificate server URL) or Option 43 override. Used for overriding Option 43 parameter for older DHCP system with a limited field length.
>
>   You can also set up PIN Authentication in a test environment without the need to fully deploy Lync DHCP and to verify that your DHCP server is set up correctly. For more information on configuring DHCP Option 43, refer to Set Up DHCP for Devices on Microsoft TechNet.
>
> ➢ If you need to install a security certificate manually on your Microsoft Edge Server, the signing CA that issued this certificate must be listed on the Polycom Trusted Certificate Authority List in the *Polycom UC Software 4.1.0 Administrator's Guide*. You must use Base64 format. For instructions on manually installing a certificate, see Manually Install a Certificate.

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

> ➢ If you are using a Polycom phone with a Lync SKU, use Option 161 with the address (URL or IP address) of the provisioning server. You can set the provisioning server address or URL through the device menu.
>
> ➢ If you are using a Polycom phone with an Open SIP SKU, use Option 160 with the address (URL or IP address) of the provisioning server. You can set the provisioning server address or URL through the device menu or refer to the section Set the Base Profile Using the Web Configuration Utility.

4 Ensure that you set up each user with a Lync account and credentials that can be used on the phone to sign in. Also set up PIN Authentication type if you are using any of the following devices in your deployment: VVX 201, 300, 301, 310, 311, 400, 401, 410, 411, 500, 501, 600, 601 or SoundStructure VoIP Interface.

Web Info: Setting up the network

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

Task 2: Set Up Polycom UC Software

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

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

To set up Polycom UC Software:

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

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

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

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

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

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

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

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

Caution: Provision phones from one server only

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

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

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

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

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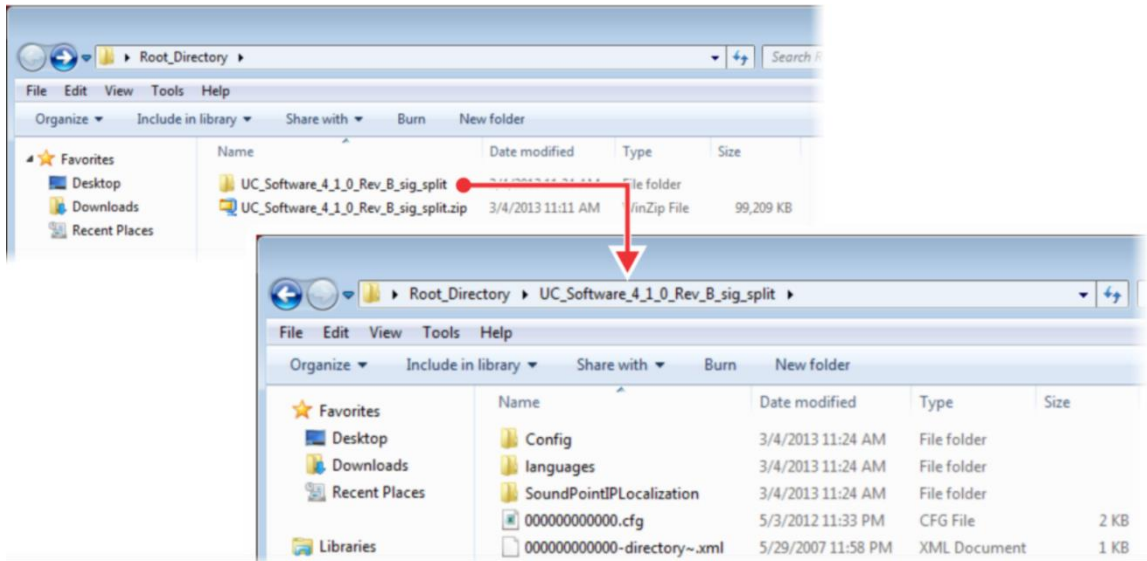
4 Configure a Call Park Orbit Policy. You must configure a call park orbit policy to enable the call park feature. See Configuring Call Park on the Microsoft Lync web site.

5 (Optional) To use the BToE feature, download the BToE application and enable BToE.

With the Microsoft Lync BToE feature on Polycom VVX business media phones, you can control calls from your phone or computer using your Lync client, and launch the Web Configuration Utility directly from the BToE application. To use BToE, you must:

a Download and install the Polycom BToE Connector application

b Pair the phone and BToE application

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

Task 3: Provision the Phones

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

Note: Web Configuration Utility is disabled

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

Power Tip: Setting the Base Profile using centralized provisioning

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

Manual Provisioning Methods

Polycom provides five per-phone manual methods you can use to register Polycom devices with Lync Server or Skype for Business. 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 work with Lync Server and Skype for Business. For details on all of the default parameters and values, see the table Default Lync Base Profile Parameter Values.

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

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

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

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

Set the Base Profile During Startup

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

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

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

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

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

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

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

  ➢ 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 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 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.

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

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

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

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

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

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

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

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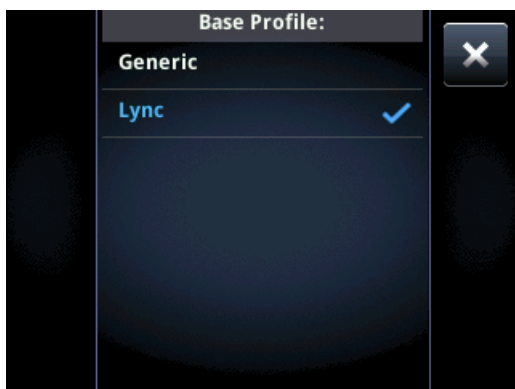
The phone automatically restarts and displays the Sign In screen.

> **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**.
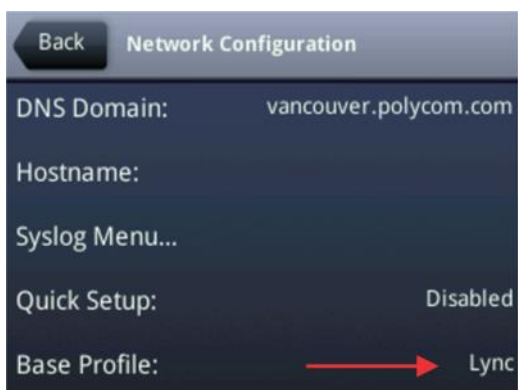
3 Select **Back > Save Configuration**. The phone automatically restarts and displays the Sign In screen. You can now Sign In or Out of Lync.

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 or Skype for Business Server. You can use the Web Configuration Utility to manually set a phone's Base Profile to Lync. After the phone registers, the phone will not have access to the Web Configuration Utility until you enable access. See Enable Access to the Web Configuration Utility for instructions. You cannot configure sign-in credentials using the Polycom Web Configuration Utility. You will need to obtain the IP address of each phone.

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

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

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

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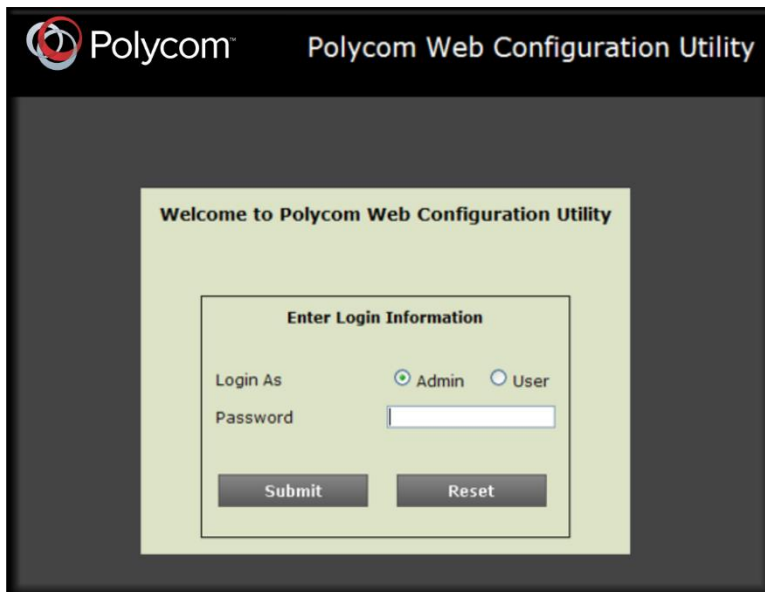
3 Choose **Admin** to log in as an administrator, and then enter the administrator password (default 456) and click **Submit**. .

4 In the **Home** page, navigate to the **Simple Setup** menu.

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.

If the phone does not restart, you can manually restart by powering off/on the phone or manually rebooting the phone.

To 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 Sign In screen displays.

Centralized Provisioning Methods

Polycom provides two centralized provisioning methods that register your phones:

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

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

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

● Configure multiple devices automatically

● Facilitate automated software updates

● Receive automatic log files

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

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

After you set up a provisioning server, you can provide default settings to all your devices using Microsoft-specific template configuration files in the PartnerConfig > Microsoft directory of the UC Software download. If you require further help setting up a provisioning server or using Polycom configuration files effectively, see the *Polycom UC Software Administrator Guide* on Latest Polycom UC Software Release.

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

Use Centralized Provisioning

Use one of the following methods to centrally deploy multiple devices:

● **0ffice 365 Manageability**   As of UC Software 5.4.0A, you can switch between an on-premise and online deployment without interrupting service. In online deployments, several Microsoft features are available that you do not need to configure. Refer to the table Polycom with Skype for Business Online Feature Support.

● **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 or Skype for Business 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 a Microsoft Server and your own provisioning server, which sends your phones into a reboot cycle.

Delete sip.ld
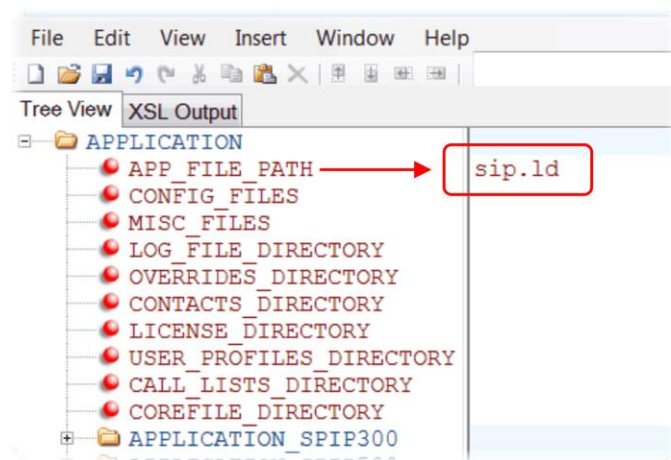
Polycom with Skype for Business Online and Microsoft® Exchange Online

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

For a list of supported in-band parameters for Polycom with Skype for Business Online, refer to Support for Skype for Business Online Features.When using Skype for Business Online and Microsoft Exchange Online, note the following:

- You must use TLS-DSK to authenticate Polycom phones
- Polycom phones support use of ZTP staging for software upgrades

You can configure and manage VVX business media phones from the Office 365 online interface without the need for a separate provisioning server. After you set up phones, the first time users log in to a phone, users are prompted by a menu to set the time zone.

To set up online manageability:

1 Install and open the Skype for Business Online, Windows PowerShell Module.

2 Type the command `Import-Module SkypeOnlineConnector`.

3 Connect to the Skype for Business tenancy using the command

   `$session=New-CsOnlineSession –Credential $cred`

4 When the PowerShell credential request dialog displays, enter your Skype for Business user name and password.

5 Import the session with the command

```
Import-PSSession $session -Verbose -AllowClobber
```

6 Set policies with the command `CsIPPhonePolicies`.

The following table lists the Polycom UC Software parameter names that correspond to the Skype for Business parameters you can configure.

UC Software Parameter Name	Skype for Business Parameter Name
dialplan.userDial.timeOut	UserDialTimeoutMS
feature.btoe.enabled	EnableBetterTogetherOverEthernet
feature.exchangeCalendar.enabled	EnableExchangeCalendaring
device.prov.lyncDeviceUpdateEnabled device.prov.lyncDeviceUpdateEnabled.set	EnableDeviceUpdate
One of: • voice.volume.persist.handsfree • voice.volume.persist.headset • voice.volume.persist.bluetooth.headset • voice.volume.persist.usbHeadset • voice.volume.persist.handset	VoiceVolumePersistMode
powerSaving.enable	EnablePowerSaveMode
powerSaving.idleTimeout.officeHours	PowerSaveDuringOfficeHoursTimeoutMS
powerSaving.idleTimeout.offHours	PowerSavePostOfficeHoursTimeoutMS
up.screenCapture.enabled	AllowScreenCapture
up.oneTouchVoiceMail	EnableOneTouchVoicemail
device.prov.user device.prov.user.set	LocalProvisioningServerUser
device.prov.serverType device.prov.serverType.set	LocalProvisioningServerType
device.prov.password device.prov.password.set	LocalProvisioningServerpassword
device.prov.serverName device.prov.serverName.set	LocalProvisioningServerAddress

Deploy UC Software from Lync Server

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

To deploy UC Software from Lync Server:

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

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

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

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

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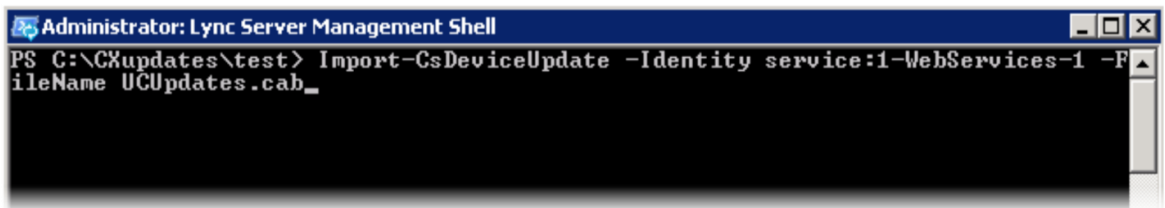

5   In the Lync Control Panel, go to **Clients > Device Updates** to view UC Software versions available on Lync Server.
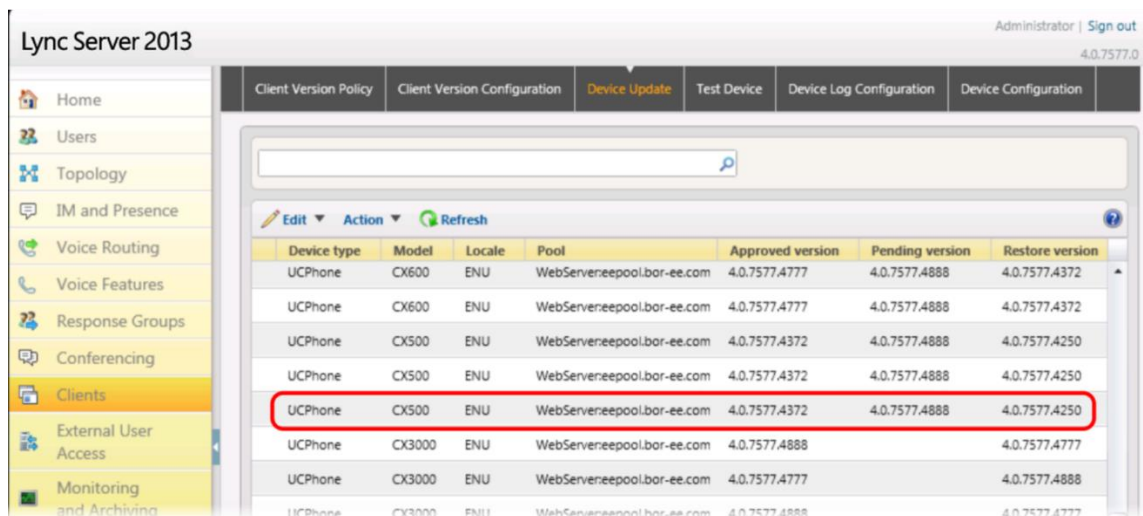
6 Go to **Clients > Action > Approve** to approve the UC Software.
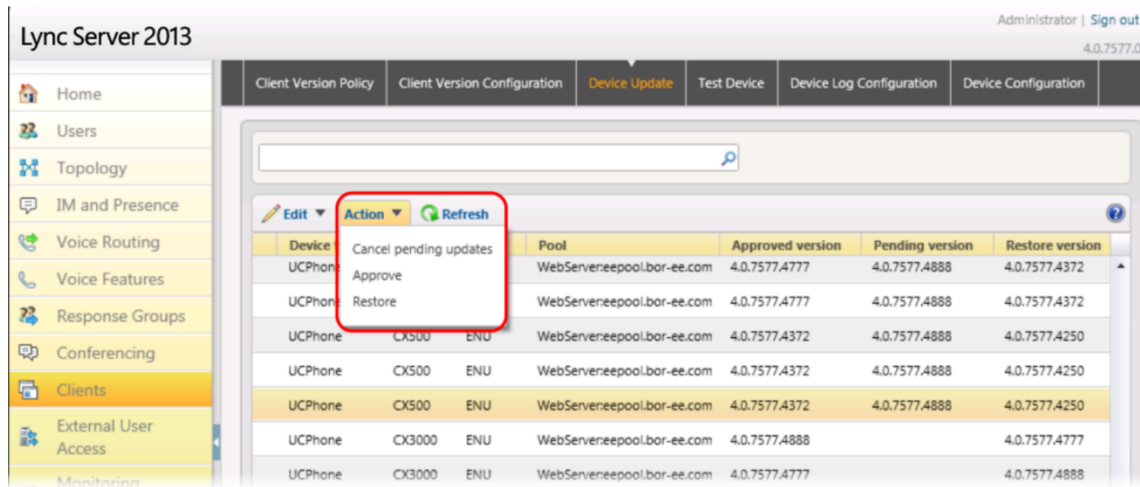
You have successfully configured UC Software on Lync Server.

Deploy UC Software from a Provisioning Server

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

Power Tip: Advanced provisioning

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

To deploy UC Software from your own provisioning server:

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

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

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

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

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

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

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

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

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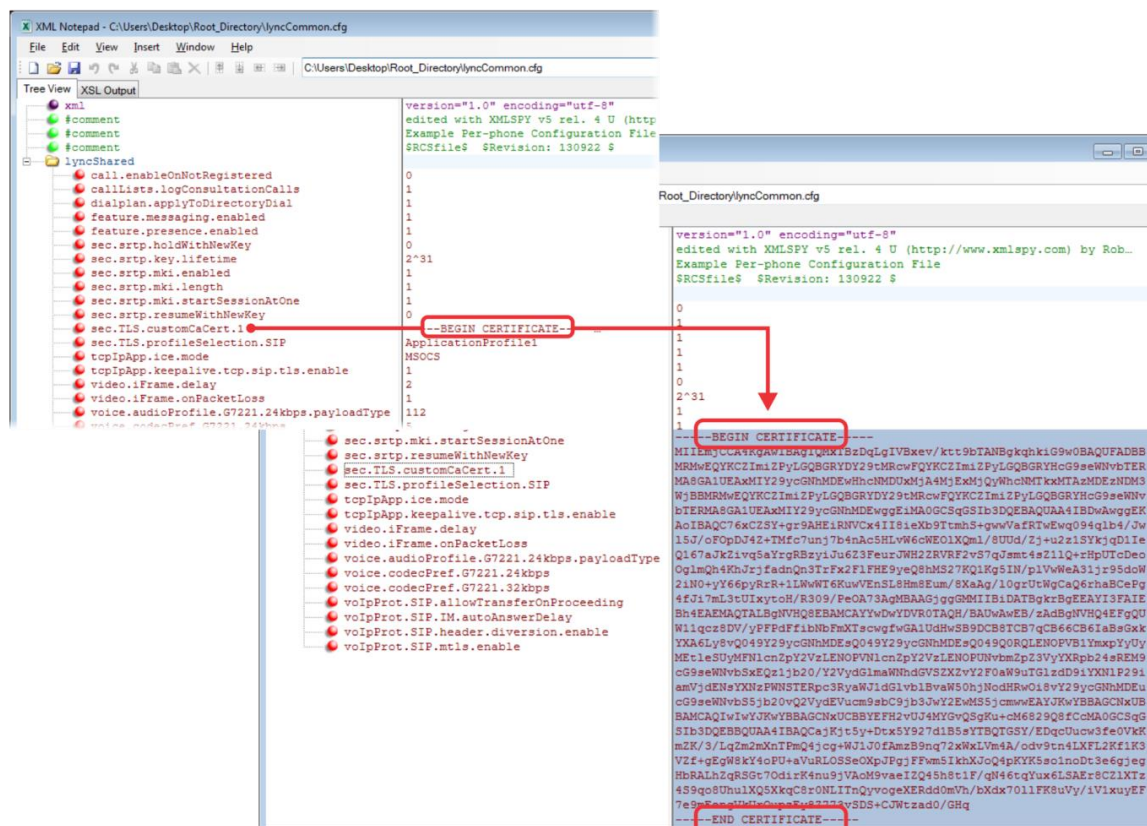
5 Open the master configuration file 000000000000.cfg. In the **CONFIG_FILES** field, enter the name(s) of your two Lync configuration files and save.

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

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>`

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.
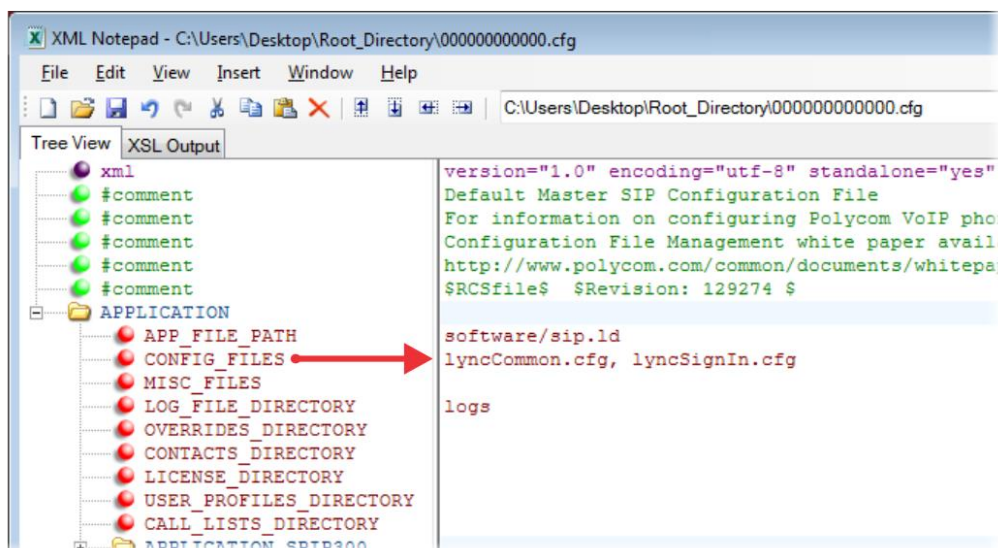
Settings: Configuring files in different directories

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 and Skype for Business 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

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 using parameters 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:
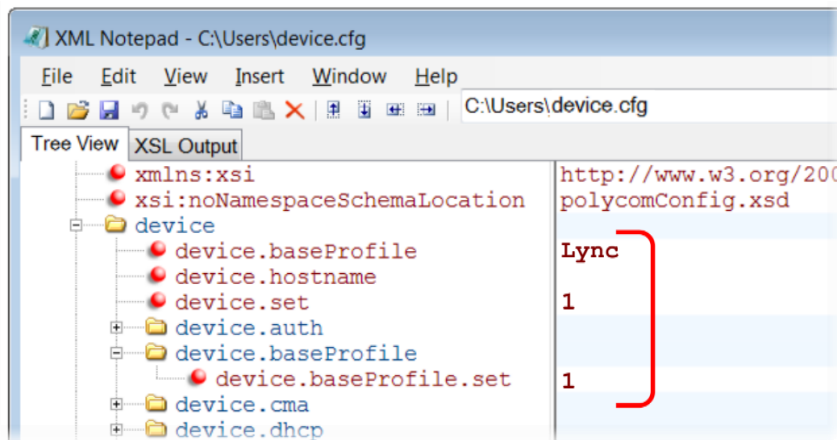
4 Rename and save the file.

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.
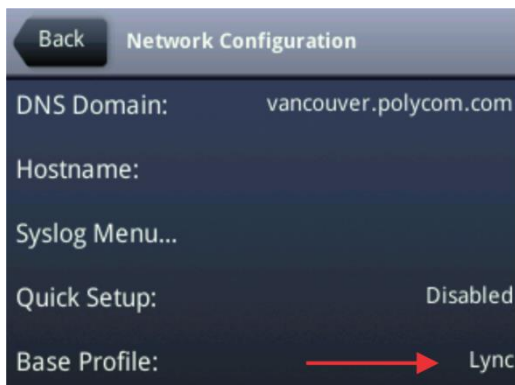
10 You can now Sign In or Out of Lync.

Configure Features for Lync Server and Skype for Business Server

This section shows you how to configure features and functions available on Polycom phones registered with Lync Server or Skype for Business Server.

Sign In or Out of Lync and Skype for Business

Users can sign in or out of the phone in one of the following ways:

- **Login Credentials**   Use this to sign in with user credentials on the Sign In screen. You cannot configure login credentials using the Polycom Web Configuration Utility.
- **PIN Authentication**   Use this to sign in on the phone or from the Web Configuration Utility. As of UC Software 5.1.1, this sign in method is available on the SoundStructure VoIP Interface. This option is available in on-premise Skype for Business deployments when you configure DCHP Option 43, and is not available for online deployments.
- **BToE Sign In**   If you use the BToE feature in your deployment, you can sign in to the phone from the client on your computer through the BToE application.

Sign In Using Login Credentials

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

To sign in/out from the phone:

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

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

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

➢ **Sign In Address**   This is your Lync SIP URI address, not the user name for the Active Directory account. For example, *username@domain*.com.

➢ **Domain**   By default, use the NetBIOS domain name.

➢ **User**   Enter a user name.

➢ **Password**   Enter a password.
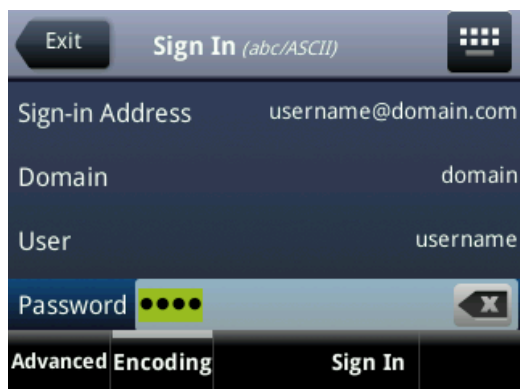
4 Select **Sign In**.

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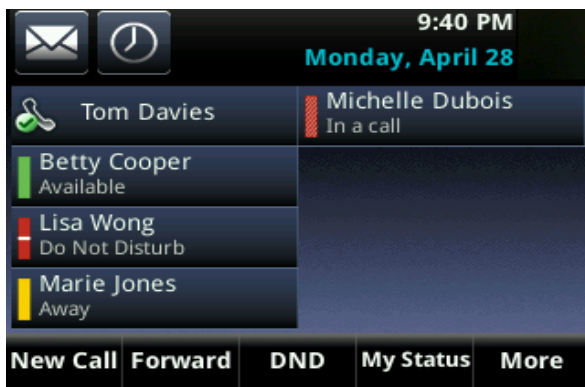
Settings: How Lync Server and Skype for Business Server sets the line label

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

Sign In Using PIN Authentication

You can sign in to Lync Server or Skype for Business Server using PIN authentication. Polycom UC Software 5.1.1 introduces PIN authentication for SoundStructure VoIP Interface registered with Microsoft Lync server.

To use PIN authentication, you must enable the Web Configuration Utility, which is disabled by default. Refer to 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 Configuration Parameters.

> **Note: DHCP Option 43 displays the PIN Authentication menu to users**
>
> If you configure DHCP Option 43 in on-premise Skype for Business deployments, the phone displays the PIN Authentication menu to users. The PIN Auth menu does not display and is not available for Skype for Business Online.

To sign in using PIN authentication:

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

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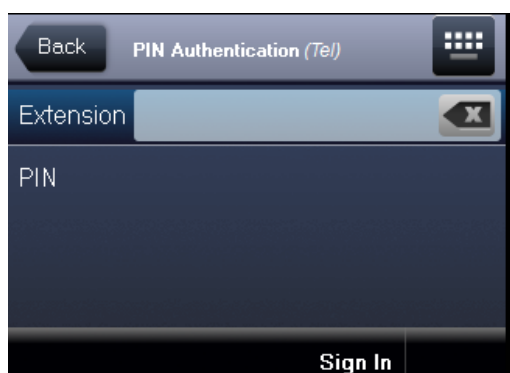
2   Enter the phone's extension and your PIN, and press **Sign In**. Press the **Exit** soft key to sign out and return to the idle screen.

Sign In with BToE

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

To use the BToE feature and sign in:

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

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

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

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

Enable Answer on a Locked Phone

By default, phones are locked and a user must log into a phone before any call functions are available. You can configure this feature to allow anyone to answer incoming calls on a locked phone.

Administrators configure phones to display an Answer soft key that displays when a locked phone receives an incoming call. When users answer a call with the Answer soft key, an Unlock and End Call soft key display. Users can lock or unlock the phone using their password at any time.

Users cannot make outgoing calls until a phone is unlocked.

Enable Answer Parameter

Parameter	Permitted Values	Default
phoneLock.Allow.AnswerOnLock	**0 or 1**	**0**

If 0, default phone lock behavior is applied. If 1, an Answer soft key displays to allow users to answer incoming calls on locked phones.

Enable Skype for Business Calendar Integration

Beginning with UC Software 5.3.0, Polycom phones support Exchange Server autodiscover. Or, you can enable the parameter `feature.EWSAutodiscover.enabled` in configuration files or on a per-phone basis with the Web Configuration Utility. When using a UC Software release prior to 5.3.0, you can enable the exchange calendar using centralized provisioning or with 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 parameter to one of your configuration files:

> ➢ `feature.exchangeCalendar.enabled`=1

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

If you are using UC Software 5.3.0 or later and you are using Exchange Server autodiscover, you do not need to complete this step, configure the Exchange Server URL manually.

This parameter is not included in the template configuration files. You must enter the parameter 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.
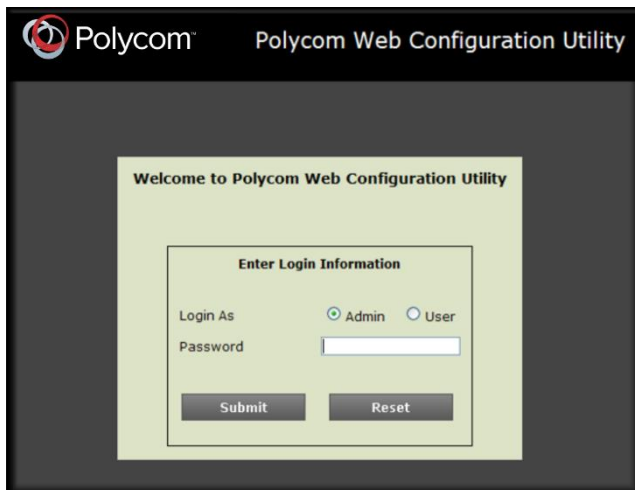
3 Choose **Admin**, enter the **Password** (default 456), and click **Submit**.

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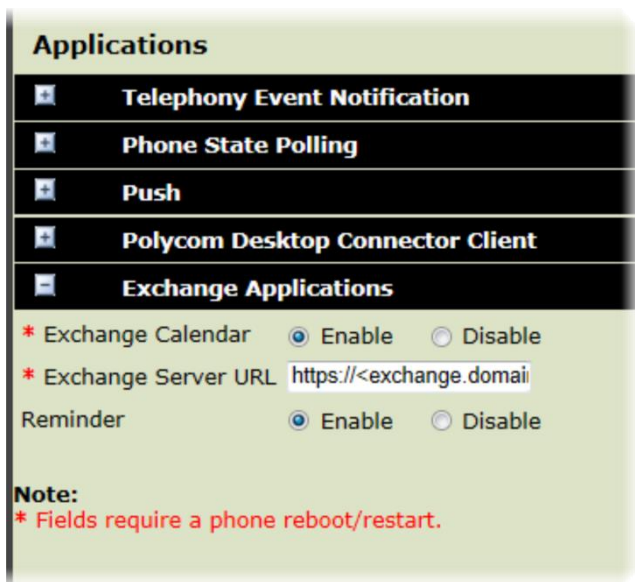
5 Enable the **Exchange Calendar**.

6 Enter the exchange web services URL using a Microsoft Exchange Server URL, for example `https://<mail.com>/ews/exchange.asmx`. In this example, the URL part *<mail.com>* is specific to an organization

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.
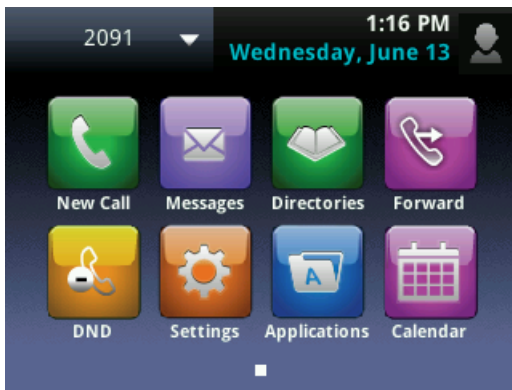
Set Skype for Business User Profiles

Administrators can enable users to access their personal settings from any phone in the organization registered to Skype for Business. For example, users can access their contact directory and speed dials, as well as other phone settings, even if they temporarily change work areas. This feature is particularly useful for remote and mobile workers who do not use a dedicated work space and conduct business in multiple locations. The user profile feature is also useful if an office has a common conference phone from which multiple users need to access their personal settings.

Administrators must decide whether to require users to always log in to a phone or not. If you do not require users to log in, users have the option to use the phone as is—without access to their personal settings—or they can log in to display their personal settings. You can also specify if, after the device restarts or reboots, a user is automatically logged out.

You can choose to define default credentials. If you specify a default user ID and password, the phone automatically logs itself in each time an actual user logs out or the device restarts or reboots. When the device logs itself in using the default login credentials, a default profile displays, and users retain the option to log in and view their personal settings.

You can configure the phones so that anyone can call authorized and emergency numbers when not logged in to a phone using the parameter `dialplan.routing.emergency.outboundIdentity`.

Polycom recommends that you create a single default user password for all users. You can reset a user's password by removing the password parameter from the override file. This causes the phone to use the default password in the <user>.cfg file.

Tip: Converting a phone-based deployment to a user-based deployment

To convert a phone-based deployment to a user-based deployment, copy the **<MACaddress>-phone.cfg** file to **<user>-phone.cfg** and copy **phoneConfig<MACaddress>.cfg** to **<user>.cfg**.

To set up the user profile feature, you must:

- Create a phone configuration file or update an existing file to enable the feature's settings, and configure attributes for the feature.
- Create a user configuration file in the format **<user>.cfg** to specify each user's password and registration and other user-specific settings that you want to define.

To create phone configuration file:

1 Create a **site.cfg** file for the phone and place it on the provisioning server.

You can base this file on the sample configuration template that is in your software package. To find the file, navigate to **<provisioning server location>/Config/site.cfg**.

2 In **site.cfg**, open the **<prov.login/>** attribute, and then add and set values for the user login parameters.

To create a user configuration file:

1 On the provisioning server, create a user configuration file for each user to log in to the phone. The name of the file is the user's ID to log in to the phone. For example, if the user's login ID is **user100**, the name of the user's configuration file is **user100.cfg**.

2 In each **<user>.cfg** file, you can add and set values for the user's login password (optional).

3 Add and set values for any user-specific parameters, such as:

> ➢ Registration details (for example, the number of lines the profile displays and line labels).
> ➢ Feature settings (for example, microbrowser settings).

Caution: Adding user-specific parameters

If you add optional user-specific parameters to <user>.cfg, add only those parameters that will not cause the phone to restart or reboot when the parameter is updated. For information on which parameters cause the phone to restart or reboot, see the reference section Configuration Parameters.

After a user logs in, with their user ID and password (The default password is **123**.)**,** users can:

- Log in to a phone to access their personal phone settings.
- Log out of a phone after they finish using it.
- Place a call to an authorized number from a phone that is in the logged out state.
- Change their user password.

If a user changes any settings while logged in, the settings save and display the next time the user logs in. When a user logs out, the user's personal phone settings no longer display.

Stored User Settings

If a user updates their password or other user-specific settings using the Main Menu on the phone, the updates are stored in **<user>-phone.cfg**, not **<MACaddress>-phone.cfg**.

If a user updates their contact directory while logged in to a phone, the updates are stored in **<user>-directory.xml**. Directory updates display each time the user logs in to a phone. For certain phones (for example, the VVX 1500 phone), an up-to-date call lists history is defined in **<user>-calls.xml**. This list is retained each time the user logs in to their phone. Configuration parameter precedence (from first to last) for a phone that has the user profile feature enabled is:

- <user>-phone.cfg
- Web Configuration Utility (through a browser)
- Configuration files listed in the master configuration file (including <user>.cfg)
- Default values

Configure Lync and Skype for Business Enhanced Presence

The Lync presence feature enables users to monitor the status of remote contacts from their phone. Users can monitor changes in the status of up to 200 remote contacts in real time when they add them as Favorites on the VVX phone and expansion module. Note that contacts can block others from monitoring their phones. For more information about the Microsoft presence feature, see the *Polycom VVX Business Media Phones – User Guide* on Voice Support.

> **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.

Configure the Lync Presence Feature

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

Presence Parameters

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

Example Presence Configuration

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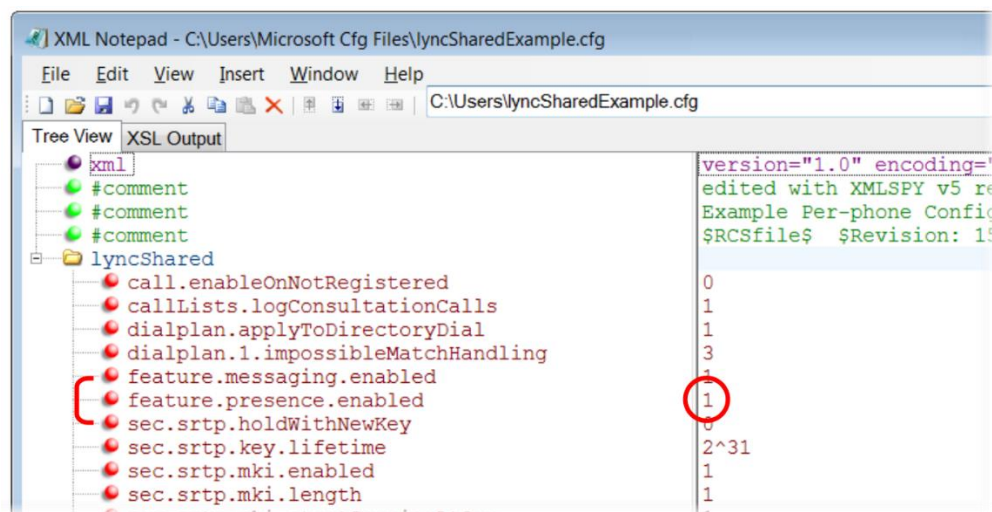
This configuration enables the presence feature and displays the My Status and Contacts soft keys on the phone. When you press the Contacts soft key, contacts you have entered to your Contacts list display.

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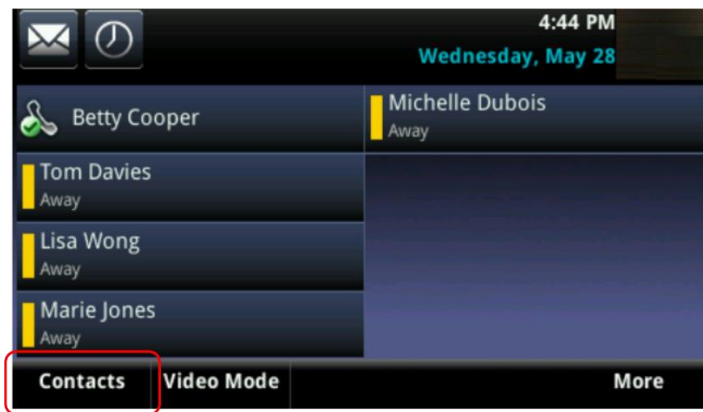
The figure Lync Presence Contacts illustrates the display of your contacts on the color expansion module.

Lync Presence Contacts

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

Enhanced Feature Line Key (EFLK)

This feature enables users with Microsoft-registered phones to assign contacts to specific line keys on a VVX phone or expansion module. ELFK can be enabled by administrators using configuration files, or by users from the phone interface.

This features is disabled by default, and the phone displays registrations and contacts in the following order:

- Registration
- Shared Line Appearance or Boss contacts
- Lync or Skype for Business favorites
- Favorites (Local contacts)

When enabled, users can assign contacts to specific line keys.

- Changes users make in Customized mode do not affect contacts in Default Mode.
- Deleting a contact from the Lync / Skype for Business client does not delete the contact from the phone.

When users create custom line key contacts, changes are stored to two files in .csv format and uploaded to the boot server:

- *<MACaddress>-<sign-in address>*.csv
- 000000000000-*<sign-in address>*.csv

User changes are loaded to MAC address file which is sent to the phone. Administrators cannot edit these files; however, you can edit the name of the file to 000000000000-<sign-in address>.csv to allow a user to access their custom line keys from any phone the user signs into.

Parameter	Permitted Values	Default
feature.flexibleLineKey.enable	**0 or 1**	**0**

If 1, the EFLK feature is enabled. If 0, the EFLK feature is disabled.

regOnPhone		

If 1, contacts users assign to a line key are pushed to the attached expansion module. If 0, contacts return to the position the user assigned on the phone line keys.

log.level.change.flk	**0 - 6**	**4**

Set the log level for Microsoft EFLK logs.

Configure Shared Line Appearance (SLA) for Skype for Business

Shared Line Appearance (SLA) feature enables user to share a single line with other contacts as a member of a group. Each shared line can receive only one incoming call at a time, and users cannot make outgoing calls from the shared line, including 911 emergency calls.

An incoming call to the shared line is received by all phones sharing the line. Any SLA group member can place, answer, hold, or resume calls on the line, and all group members can view the status of a call on the shared line on their phones.

This feature is not supported on VVX 101, 201, and 1500 phones. Check with your system administrator to find out if this feature is available on your phone.

The following features are not supported on SLA lines:

- BToE
- Conference class
- Call Park

Administrators must install the Shared line Application on the Microsoft Front End server and configure SLA groups in Windows PowerShell.

Administrators can configure a ring tone type, and users can set a ring type from the phone menu system at: **Settings > Basic > RingType > SLA Ring type**.

SLA Parameters

Parameter	Permitted Values	Default
up.SLA.ringType	**0 – 25**	**1**

Set the ring type for the share line so that users can distinguish between incoming calls to a private, primary line and the group SLA line. Note that users can set this ring type from the phone menu system which overrides the value you set here.

Centralized Conference Control Protocol (CCCP)

CCCP is enabled by default when the phone Base Profile is set to 'Lync' and phones with a Lync Server or Skype for Business SKU. CCCP enables you to initiate conference calls with your Lync contacts from your phone, manage conference participants, enable announcements, and lock a conference. You can manage a maximum of 24 Lync conference calls at a time on your phone. However, you can have only one active conference call in progress on your phone. This feature is not supported on SoundStructure VoIP Interface.

Configure CCCP

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

Enable Lync and Skype for Business Exchange Integration

Lync Exchange Integration is available for Lync Server 2010, 2013, and Office 365 deployments. This feature enables set up of visual voicemail, call log synchronization, Outlook contact search, and Microsoft Lync Address Book Service (ABS) adaptive search.

Note the following enhancements for this release:

- Verify which Exchange Server services are not working on each phone by going to **Status > Diagnostics > Warnings** on the phone.
- View the status of each service in the Web Configuration Utility.
- The phone receives voicemails from Lync Server and messages play on the phone. You cannot download voicemail messages to the phone.

Set up requirements:

- Connect the phone to the Exchange Server as shown in Enable Lync and Skype for Business Exchange Integration using one of two available methods.

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

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

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

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

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

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

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

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

Web Info: Configuring Lync Server

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

Configure Lync Exchange Integration

Parameter Function	parameter
The phone discovers the exchange server URL automatically.	feature.EWSAutodiscover.enabled
Enable or disable Exchange Calendar as a service.	feature.exchangeCalendar.enabled
Set meeting reminders as audio and visual, audio only, or silent.	exchange.meeting.reminderType
	exchange.meeting.reminderSound.enabled
	exchange.meeting.reminderEnabled
Synchronizes the user call logs from the server.	feature.exchangeCallLog.enabled
Enables Outlook contacts to display in the Outlook search menu or the ABS search.	feature.exchangeContacts.enabled
Phone displays the list of voicemails available on the exchange server.	feature.exchangeVoiceMail.enabled

Enable or disable Lync address book search.	feature.lync.abs.enabled
Set the maximum number of contact search results.	feature.lync.abs.maxResult
Displays the Address Book icon on the main menu and the Lync Directory search option.	up.oneTouchDirectory
Phone displays the visual voicemail menu.	up.oneTouchVoiceMail

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

Microsoft Exchange Parameters

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

Parameter	Permitted Values	Default
feature.exchangeCallLog.enabled		**1**
feature.exchangeContacts.enabled		**1**
feature.EWSAutodiscover.enabled	**0 or 1**	**1**
If 1, Exchange autodiscovery is enabled and the phone automatically discovers the Exchange server using the email address or SIP URI information. If 0, Exchange autodiscovery is disabled on the phone and you must manually configure the Exchange server address.		
feature.exchangeVoiceMail.enabled		**1**
feature.lync.abs.enabled	**0 or 1**	**1**
Set to 1 to enable comprehensive contact search in the Lync Server address book service. Set to 0 to disable comprehensive contact search in the Lync Server address book service.		
feature.lync.abs.maxResult	**5 to 50**	**12**
The value for this parameter defines the maximum number of contacts to display in a Lync Server address book service contact search.		
up.oneTouchDirectory	**0 or 1**	**1**
If 1, the Lync Search icon displays on the Home screen. If 0, the Lync Search icon does not display on the Home screen.		
up.oneTouchVoiceMail[1]	**0 or 1**	**0**
If 1, the phone dials voicemail services directly (if available on the call server) without displaying the voicemail summary. If 0, the phone displays a summary page with message counts. The user must press the Connect soft key to dial the voicemail server.		

[1] Change causes phone to restart or reboot.

Update Polycom UC Software

You can update the phones to Polycom UC Software manually on a per-phone basis. Or, if you are using VVX phones running UC Software 5.x.x, you can use the automatic software update feature to update your phone's software. All UC Software releases compatible with Microsoft are available at Polycom UC Software for Microsoft Deployments.

Update UC Software Manually

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

To update UC Software manually:

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

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

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

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

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

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

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

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

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

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

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

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

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

Update UC Software Automatically

When you register VVX phones running UC Software 5.x.x, by default the phones poll Lync Server or Skype for Business 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 or Skype for Business Server. As of UC Software 5.3, when you use automatic software updates, the phone notifies users of the software and prompts users to choose when to update the software. User options are detailed in the *Polycom VVX Business Media Phones - User Guide* on Polycom UC Software Support Center.

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

- Press **Reboot** to restart the phone and automatically update the phone's software.

- Press **Cancel** to cancel the automatic software update. When you press Cancel, a **DevUpdt** soft key displays on the phone's home screen. Press **Dev Updt** at any time to update your phone's software.

- Press **Details** to view information about current and available software, as shown next.

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

If you want to change the default behavior of the software update, you must configure the parameters in the table Automatic Software Update Parameters on your provisioning server. These parameters are not included in the sample configuration files Polycom provides Microsoft directory of the UC Software download.

Automatic Software Update Parameters

Parameter	Permitted Values	Default
device.prov.lyncDeviceUpdateEnabled.set	**0, 1**	**0**
Set to 1 to enable automatic device update for all devices and use of `device.prov.lyncDeviceUpdateEnabled.`		
device.prov.lyncDeviceUpdateEnabled	**0, 1**	**0**
If 1, the automatic device update is enabled on the phone and the phone receives software updates from the server. If 0, the automatic device update is disabled and the phone does not receive software updates from the server. Changing the value of this parameter reboots the phone.		
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.		

Reset the Phone to Factory Default Settings

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

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

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

Settings: Restore settings all three sources

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

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

To reset local phone settings:

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

2 Enter the password (default 456).

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

To reset web settings:

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

2 Enter the password (default 456).

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

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

To reset the phone to factory default settings:

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

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

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

Change the Default Password

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

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

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

Enable Access to the Web Configuration Utility

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

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

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

After you successfully access the phone, you can enable access to the Web Configuration Utility from the phone menu system or using the parameters listed in the table Enable Web Configuration Utility. After you successfully enable the Web Configuration Utility for the SoundStructure VoIP Interface, you can use the Web Configuration Utility to change the administrator password.

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

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

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

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

Web Server and Web Config Mode display.

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

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

Enable the Web Configuration Utility Using Configuration Files

The security update for Microsoft Lync Server with Polycom UC Software 5.1.1 includes a new device parameter and a corresponding `device.set` parameter. Polycom recommends using `<device/>` parameters only if you are familiar with the centralized provisioning method and with Polycom UC Software. The parameter values listed in the following table 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 or Skype for Business Server. The table Generic and Lync Defaults lists default values for both states.

Enable Web Configuration Utility

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

Local Phone User Interface

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

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

Generic and Lync Defaults

Parameter	UC Software 5.1.1 Value	Lync default Value	Permissible Values
device.sec.coreDumpEncryption.enabled.set	**0**		**0 or 1**
device.sec.coreDumpEncryption.enabled	**0**		**0 or 1**
httpd.enabled	**1**	**0**	**0 - Web server disabled** **1 - Web server enabled**

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

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

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

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

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

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

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

Example Lync 2013 Security Update Configuration

This section provides an example configuration for the Microsoft security update for Microsoft Lync 2013. When the phone registers, the 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 Server 2013.

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

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

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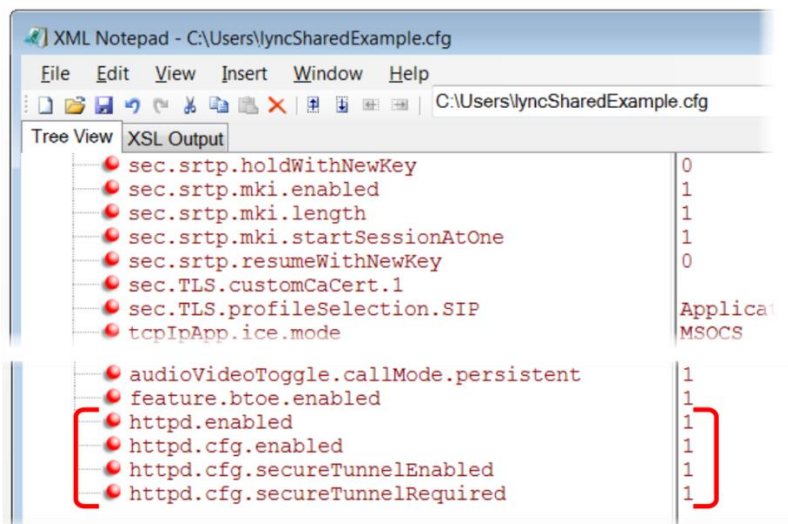
You can also enable access to the Web Configuration Utility on VVX phones on the phone menu system.

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

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

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

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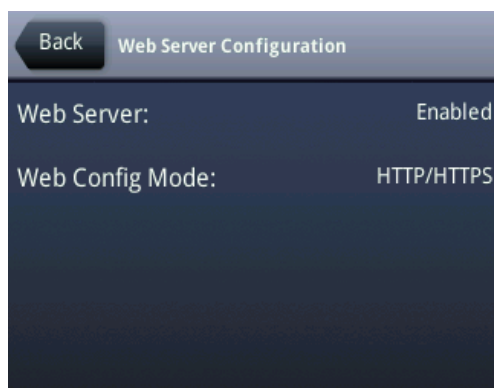
4 Press **Back** and save your changes.

Configure Lync Boss-Admin for Lync Server 2010

This section shows you how to configure Lync Boss-Admin for Lync Server 2010, and enable the safe transfer feature and soft key on the phones. Refer to the latest *Polycom VVX Business Media Phones - User Guide* on Polycom UC Software for Microsoft Deployments for more information about this feature.

Lync users can assign delegates to share a line so that both can place, answer, hold, transfer calls, and set ringtones on the delegate line. Bosses can assign up to 25 delegates to their line, and a delegate can be assigned to up to 15 bosses depending on the availability of line keys on the phone. If a VVX Expansion Module is connected to the phone, all VVX phones can support up to 18 bosses.

The following table includes the maximum number of line keys available for bosses assigned to a delegate on each phone.

Maximum Delegate Line Keys Available for Assigned Bosses

VVX Phone	Maximum Bosses Assigned
201	1
300/310	5
400/410	9
500	11
600	15

Configure Lync Boss-Admin for Lync Server 2010

You configure the Lync Boss-Admin feature from the Lync client application on a computer. For instructions, see the latest *Polycom VVX Business Media Phones – User Guide* on Polycom UC Software

However, if you are using Lync Server 2010, an administrator must complete the following procedure.

To configure shared call appearance for Lync Server 2010:

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

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

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

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

2 Run the command.

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

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

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

Configure Safe Transfer for Lync Boss-Admin

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

Configure Safe Transfer

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

Support Extended Link Layer Discovery Protocol (LLDP)

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

Media Endpoint Discover (MED) capabilities include:

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

LLDP Fast Start Count

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

Configure LLDP

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

LLDP Parameters

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

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

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

Configure an International Dialing Prefix

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

Configure International Dialing Prefix

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

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

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

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

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

call.internationalPrefix.key	**0 or 1**	**0**

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

Configure Comfort Noise

The phone sends background noise to near-end users. When enabled, the Comfort Noise payload type is negotiated in SDP with a default of 13 for 8 KHz codecs and a configurable value between 96 and 127 for 16 KHz codecs.

The following table lists the parameters you can use to enable Comfort Noise Control.

Voice Activity Detection Parameters

voice.CNControl	**0 or 1**	**0**
Specify if the support for Comfort Noise in the SDP body of the INVITE message is published with the supported comfort noise payloads included in the media line for audio.		
voice.CN16KPayload	**96 to 127**	**122**
Specify the dynamic payload type used for Comfort Noise RTP packets.		
voice.volume.persist.bluetooth.headset	**0 or 1**	**0**
If 0, the Bluetooth headset are not used for every call. If 1, the Bluetooth headset are used for all calls.		
voice.volume.persist.handset	**0 or 1**	**0**
If 0, the handset receive volume automatically resets to a nominal level after each call. If 1, the volume for each call are the same as the previous call. If set to 1, the handset receive volume persists across calls. If set to 0, the handset receive volume resets to nominal at the start of each call.		
voice.volume.persist.handsfree	**0 or 1**	**1**
If 0, the speakerphone receive volume automatically resets to a nominal level after each call. If 1, the volume for each call is the same as the previous call.		
voice.volume.persist.headset	**0 or 1**	**0**
If 0, the headset receive volume automatically resets to a nominal level after each call. If 1, the volume for each call is the same as the previous call.		
voice.volume.persist.usb.handsfree	**0 or 1**	**0**
If 0, the USB headset is not used. If 1, the USB headset is used.		

Enable Music on Hold

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

You specify on the provisioning server which file the phone plays when you place an active call on hold. The phone downloads the file you place on the server and stores the file on its internal flash drive. Or you can upload a music file to the phone using the phone's Web Configuration Utility at **Preferences > Additional Preferences > Music On Hold**.

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

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

Configure Music on Hold

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

Music on Hold Parameters

Parameter	Permitted Values	Default
feature.moh.enabled	**0 or 1**	**0**
Music on hold enables VVX phone users to stream music when they place a caller on hold. If 0, music on hold is disabled. If 1, music on hold is enabled and you must specify a music file in `feature.moh.filename`.		
feature.moh.filename	**String, maximum of 256 characters**	**Null**
Specify the file the music file you want the phone to play when users place an active call on hold.		

Parameter	Permitted Values	Default
feature.moh.payload	20, 40, 60, 80	80

xx Specify the payload for RTP packets when music on hold is playing. For best phone performance, set to 80. In PSTN calls using a media gateway that does not support a payload value of 80, set to 20.

res.quotas.tone	600 – 1024 KB	1024 KB

Set the maximum sample tone file size.

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

MoH Error Messages

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

Available Dial Plans

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

Polycom phones do support Lync External Access Prefix functionality.

Supported Digit Maps

No.	element	Meaning	Example	Explanation of example
1	^	Match at beginning of string	^123	Match the digits 123 at the beginning of the string

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

Unsupported Digit Maps

Number	Element	Meaning	Example	Explanation of Example
1	{,m}	Specifies at most m matches	\d {,6}	Match at most 6 digits

Number	Element	Meaning	Example	Explanation of Example
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

Use Master Key Identifier (MKI) to Secure Audio

For secure audio communciations, Polycom phones offer support for the crypto header with and without MKI in the offer SDP. The master key identifier (MKI) is an optional parameter to include the crypto header in the SDP that uniquely identifies the SRTP stream within an SRTP session. The far end can choose to include a crypto with or without MKI.

MKI Parameters

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

If 1, the Polycom phone offers two cryptos in the SDP offer, one without an MKI, and one with a four-byte MKI parameter in the SDP message of the SIP INVITE / 200 OK. If 0, Polycom phone offers only one non-MKI crypto in the SDL offer.

Enable Answer on Phone Lock

Administrators can allow users to answer incoming calls on a locked phone. Administrators configure phones registered with Skype for Business to display an Answer soft key that displays when a locked phone receives an incoming call. When users answer a call with the Answer soft key, an Unlock and End Call soft key displays. Users can lock or unlock the phone at any time.

Users cannot make outgoing calls until a phone is unlocked. Conferences, Call Park, and Call Transfer are not available until a user unlocks the phone.

Configure Answer on Phone Lock

Parameter	Permitted Values	Default
phoneLock.Allow.AnswerOnLock	**0 or 1**	**0**

If 0, users must unlock the phone before a call can be answered. If 1, users can answer a call when the phone is locked, and no call features are available until the phone is unlocked.

Manually Install a Certificate

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

To install a certificate using configuration files:

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

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

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

> `sec.TLS.customCaCert.1=<enter the certificate>`
> `sec.TLS.profileSelection.SIP=<ApplicationProfile1>`
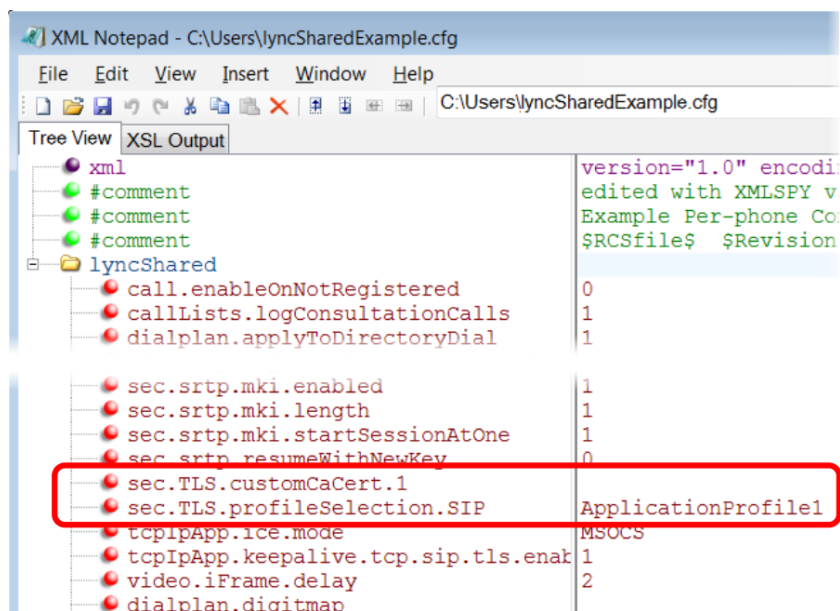
You can also enter the certificate by doing one of the following:

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

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

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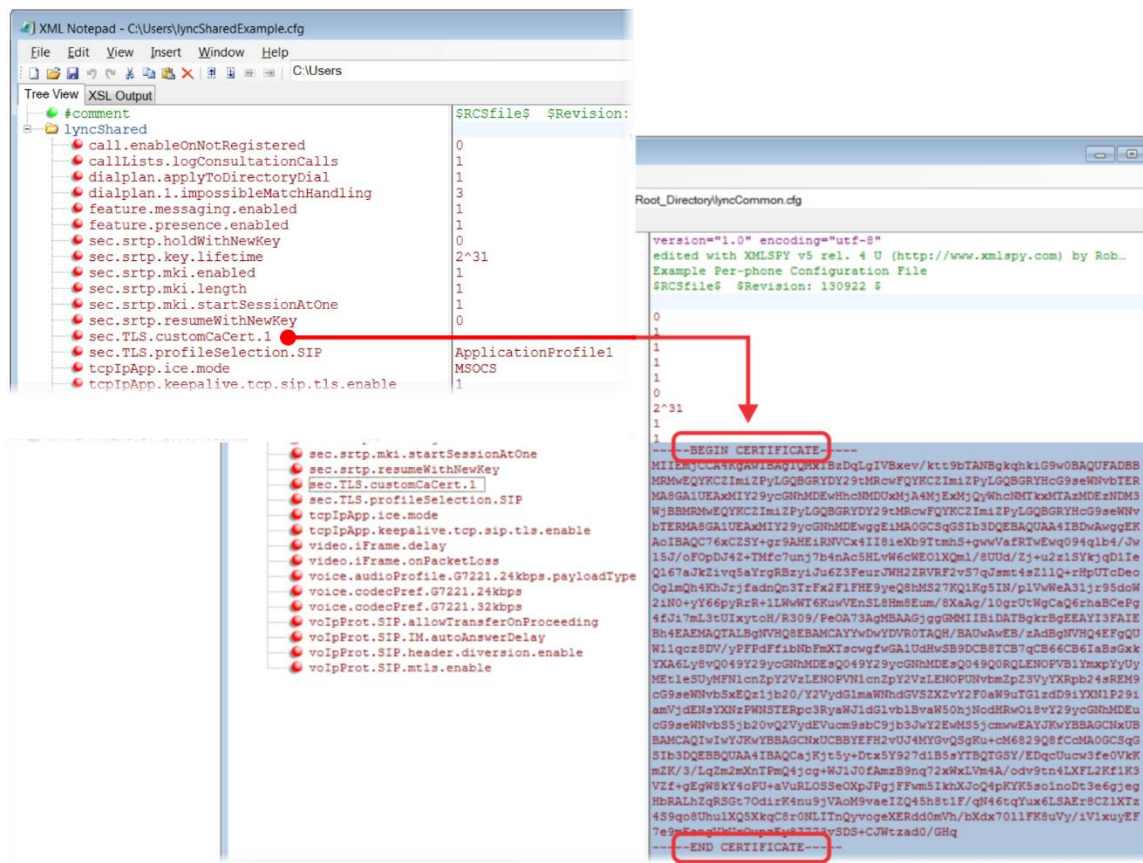
You have successfully installed a security certificate.

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

To install a certificate using the Web Configuration Utility:

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

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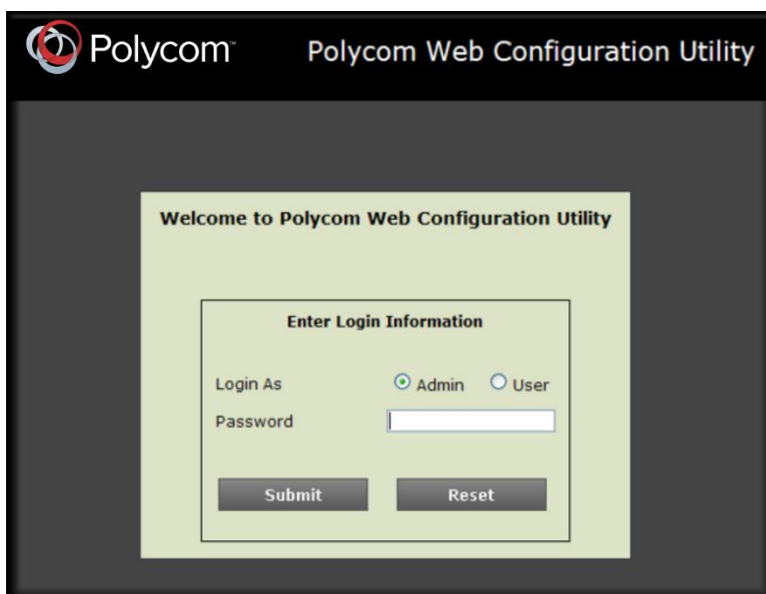
2 Choose **Admin**, enter the password (default 456), and click **Submit**.

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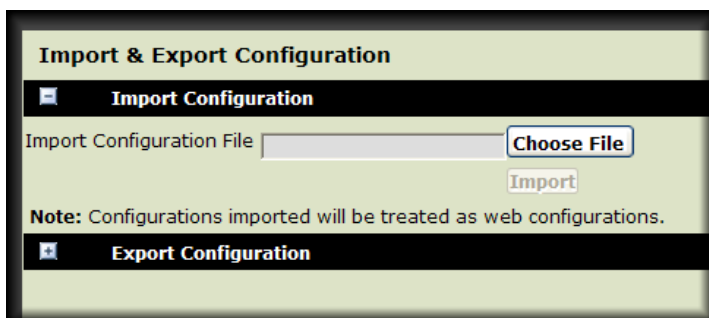
4 Under **Import Configuration**, click **Choose File**.

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

The XML configuration file is successfully loaded to the phone.

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

Data Center Resiliency

Data Center Resiliency ensures that minimum basic call functions remain available in the event of a server shutdown or Wide area network (WAN) outage. This features is available on VVX business media phones 300/310, 400/410, 500, 600, 1500, and the SoundStructure VoIP Interface using Polycom UC Software 5.1.1. Phones you register with Lync Server are enabled with this feature by default and no additional configuration is required. Data Center Resiliency is not supported with Skype for Business.

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 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.

Configuration Parameters - Lync Server and Skype for Business Online

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

- Default Lync Base Profile Parameters
- Support for Skype for Business Online Features
- Lync Shared LC Example Parameters
- Lync Shared Example Parameters
- Lync Per Phone Example
- Lync device.set Parameters

Base Profile

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

Default Lync Base Profile Parameter Values

Parameter	Permitted Values	Default
audioVideoToggle.callMode.persistent	**0 or 1**	**1**

If 1, the user setting to choose audio only or video calls as the default is retained after a phone restart or reboot. If 0, the user setting to choose audio only or video calls by default is not retained after a phone restart or reboot.

bossLine.x.AdminUri	**string**	**NULL**

Specify the URI of a Boss contact you set a ring type for using `bossLine.x.RingType.`

bossLine.x.RingType	**default, ringer1 to ringer24**	**ringer2**

Specify a ring type for a Boss contact.

call.DefaultTransferType	**Consultative or Blind**	**Blind**

If Blind, pressing the Transfer soft key immediately transfers the call to another party. If Consultative, pressing the Transfer soft key puts the call on hold while placing a new call to the other party.

call.enableOnNotRegistered	**0 or 1**	**0**

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

Parameter	Permitted Values	Default
callLists.collapseDuplicates	**0 or 1**	**0**

If 0, duplicate entries from multiple call lists are displayed separately. If 1, duplicate entries from multiple call lists collapse into a single entry indicating the total number of entries.

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.lync.timeZone	**0 or 1**	**1**

If 1, the sign-in wizard asks users to set the time zone. If 0, users are not asked to set the time zone.

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

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

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

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

dialplan.digitmap	**string**	**NULL**

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

dialplan.userDial.timeOut	**0 to 99**	**4**

Specifies the time in seconds that the phone waits before dialing a number you enter while the phone is on hook. You can apply `dialplan.userDial.timeOut` only when its value is lower than the value for `up.IdleTimeOut`.

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

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

dialplan.1.conflictMatchHandling	**0 or 1**	**1**

If the value is set to '0', when the digits entered match a digit map the digits are dialed immediately even though there are conflicting digit maps. If the value is set to '1', when the digits entered are matching more than one digit map, timeout is considered before dialing the digits.

Parameter	Permitted Values	Default
dialplan.1.digitmap	**String**	**x.T**
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.1.impossibleMatchHandling[1]	**0, 1 or 2**	**0**

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

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

dialplan.1.lyncDigitmap.timeOut	**0 to 99 seconds**	**4 seconds**

Use this parameter for lines registered with Lync Server or Skype for Business 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.

dir.local.contacts.maxNum[1]	**VVX business media phones = 1-500 except VVX1500 = 1–9999** **SoundStructure VoIP Interface = not applicable**	**VVX=500** **VVX 1500=9999**

Maximum number of contacts allowed in the local contact directory.

exchange.meeting.parseOption[1]	**enum**	**Location**

Choose how to display meeting and dial numbers.

- All. Displays numbers in Location, Subject, and Description fields.
- Location. Displays numbers in Location field.
- LocationAndSubject. Displays numbers in Location and Subject fields.
- Description. Displays numbers in Description fields.

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

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

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

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

feature.exchangeCalendar.enabled	**0 or 1**	**1**

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

feature.EWSAutodiscover.enabled	**0 or 1**	**1**

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

feature.exchangeCallLog.enabled	**0 or 1**	**1**

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

feature.exchangeContacts.enabled	**0 or 1**	**1**

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

feature.exchangeVoiceMail.enabled	**0 or 1**	**1**

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

feature.exchange2007.interop.enabled	**0 or 1**	**0**

If 1, Exchange 2007 interoperability is enabled. If 0, Exchange 2007 interoperability is disabled. Note: When enabling this parameter, you must disable `feature.exchangeVoiceMail.enabled`.

feature.flexibleLineKey.enable	**0 or 1**	**0**

If 1, the EFLK feature is enabled. If 0, the EFLK feature is disabled.

Parameter	Permitted Values	Default
feature.forward.enable	**0 or 1**	**1**

Enable or disable call forwarding. When disabled, the Forward soft key does not display and the option is removed from the phone's menu system at Menu > Settings > Features.

feature.lync.abs.enabled	**0 or 1**	**1**

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

feature.LyncCCCPDominantSpeakerDetection.enabled	**0 or 1**	**0**

If 0, in CCCP calls the phone does not display a handset icon beside the active speaker.. If 1, in CCCP calls the phone displays a handset icon beside the active speaker.

feature.LyncCCCP2010AudioWorkaround.enabled	**0 or 1**	**1**

If 1, when using Lync Server 2013 with an AVMCU server version Lync 2010 or earlier, the Hold/Resume soft key response is delayed 1.5 - 2 seconds. If 0, the soft keys respond without a delay.

feature.lyncSafeTransfer.enabled	**0 or 1**	**0**

Enable or disable the safe transfer feature and display of the Safe Transfer soft key.

feature.moh.enabled	**0 or 1**	**1**

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

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

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

httpd.cfg.enabled	**0 or 1**	**0**

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

httpd.cfg.secureTunnelRequired	**0 or 1**	**1**

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

httpd.enabled	**0 or 1**	**0**

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

Parameter	Permitted Values	Default
ind.pattern.powerSaving.step.1.state	**0 or 1**	**1**

If 1, the message waiting LED indicator is turned on when the phone I sin power-saving mode. If 0, the message waiting LED is turned off.

lcl.datetime.date.dateTop	**0 or 1**	

If set to 1, display date above time else display time above date.

lcl.ml.lang.clock.x.dateTop	**0 or 1**	

If 1, display date above time, otherwise display time above date. If enabled, this parameter overrides `lcl.datetime.date.dateTop`.

lcl.ml.lang.list[1]	**a comma-separated list**	

A list of the languages supported on the phones. Note that the VVX 101 business media phone does not support Traditional Chinese, Japanese, or Arabic.

locInfo.source	**LLDP or MS_E911_LIS or CONFIG**	**MS_E911_LIS**

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

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

log.level.change.flk	**0 - 6**	**4**

Set the log level for Microsoft EFLK logs.

mb.main.loadWebImages	**0 or 1**	**1**

If 1, images are loaded to the phone browser. If 0, images are not loaded to the browser.

mb.main.toolbar.autoHide.enabled	**0 or 1**	**1**

If 0, the toolbar displays continually. If 1, the toolbar disappears if not selected.

phoneLock.Allow.AnswerOnLock	**0 or 1**	**0**

If 0, users must unlock the phone before a call can be answered. If 1, users can answer a call when the phone is locked, and no call features are available until the phone is unlocked.

Parameter	Permitted Values	Default
powerSaving.enable	**0 or 1**	**0**
		VVX 500, 600, 1500=1

If 0, power-saving feature is disabled. If 1, power-saving feature is enabled. Note that this parameter does not apply to VVX 101 business media phones as it has no backlight.

powerSaving.idleTimeout.offHours	**1 – 10**	**1**

The number of minutes to wait while the phone is idle during off hours before activating power saving.

powerSaving.officeHours.duration.Monday	**0 to 24**	**12**
powerSaving.officeHours.duration.Tuesday	**0 to 24**	**12**
powerSaving.officeHours.duration.Wednesday	**0 to 24**	**12**
powerSaving.officeHours.duration.Thursday	**0 to 24**	**12**
powerSaving.officeHours.duration.Friday	**0 to 24**	**12**
powerSaving.officeHours.duration.Saturday	**0 to 24**	**0**
powerSaving.officeHours.duration.Sunday	**0 to 24**	**0**

The duration of the day's office hours.

powerSaving.officeHours.startHour.x	**0 – 23**	**7**

The starting hour for the day's office hours, where xxx is one of `monday`, `tuesday`, `wednesday`, `thursday`, `friday`, `saturday`, and `sunday` (refer to `powerSaving.officeHours.duration` for an example).

regOnPhone	**0 or 1**	**0**

If 1, contacts users assign to a line key are pushed to the attached expansion module. If 0, contacts return to the position the user assigned on the phone line keys.

reg.1.applyServerDigitMapLocally	**0 or 1**	**0**

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

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.offerFullCodecListUponResume	**0 or 1**	**0**

If 0, only the audio codec negotiated during call establishment is sent when a held call is resumed. If 1, all supported codes are sent when a held call is resumed.

Parameter	Permitted Values	Default
reg.x.outboundProxy.failOver.failBack.mode	newRequests, DNSTTL, registration, duration	duration

The mode for failover failback (overrides `reg.x.server.y.failOver.failBack.mode`).

- **newRequests** All new requests are forwarded first to the primary server regardless of the last used server.
- **DNSTTL** The phone tries the primary server again after a timeout equal to the DNS TTL configured for the server that the phone is registered to.
- **registration** The phone tries the primary server again when the registration renewal signaling begins.
- **duration** The phone tries the primary server again after the time specified by `reg.x.outboundProxy.failOver.failBack.timeout` expires.

Parameter	Permitted Values	Default
reg.1.serverFeatureControl.signalingMethod	string	serviceMsForwardContact

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

Parameter	Permitted Values	Default
reg.x.server.y.failOver.failBack.mode	newRequests, DNSTTL, registration, duration	duration

The mode for failover failback (overrides `reg.x.server.y.failOver.failBack.mode`).

- **newRequests** All new requests are forwarded first to the primary server regardless of the last used server.
- **DNSTTL** The phone tries the primary server again after a timeout equal to the DNS TTL configured for the server that the phone is registered to.
- **registration** The phone tries the primary server again when the registration renewal signaling begins.
- **duration** The phone tries the primary server again after the time specified by `reg.x.outboundProxy.failOver.failBack.timeout` expires.

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.

Parameter	Permitted Values	Default
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	enum	lync2010

Identifies the SIP signaling as Microsoft Lync Server and enables Lync Server features. This parameter supports Lync Server 2010 and 2013. Permitted values are lync2010, lcs2005 and ocs2007r2.

Parameter	Permitted Values	Default
reg.1.server.1.transport	TLS	TLS

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

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

If 1, the line key label displays the Lync account user name. If 0, the line key label displays the Lync TelURI, or line address.

roaming_buddies.reg	**0 to 34**	**1**

Set the line index number for the registered line you want to enable Presence and Instant Messaging. For Microsoft deployments, the value is always 1.

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.

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	**enum**	**ApplicationProfile1**

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

Parameter	Permitted Values	Default
softkey.feature.MeetNow	**0 or 1**	**1**

If 1, the Meet Now soft key displays on the idle screen. If 0, the Meet Now soft key does not display on the idle screen.

softkey.feature.simplifiedSignIn	**0 or 1**	**1**

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

tcpIpApp.ice.mode	**enum**	**MSOCS**

Specifies that ICE and TURN work with Microsoft Lync Server.

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

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

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

Choose the maximum supported end range of audio ports.

tcpIpApp.port.rtp.mediaPortRangeStart	**Default, 1024 to 65436**	**2222**

Choose the start range for media ports.

tcpIpApp.port.rtp.videoPortRange.enable	**0 or 1**	**Base Profile** **Lync=1** **Generic=0**

If 1, video ports are chosen from the range specified by `tcpIpApp.port.rtp.videoPortRangeStart` and `tcpIpApp.port.rtp.videoPortRangeEnd`. If 0, video ports are also chosen within the range specified by `tcpIpApp.port.rtp.mediaPortRangeStart` and `tcpIpApp.port.rtp.mediaPortRangeEnd`.

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

Choose the maximum supported end range of video ports.

tcpIpApp.port.rtp.videoPortRangeStart	**Default, 1024 to 65486**	**2272**

Choose the start range for the video port. This value is used only when the value of `tcpIpApp.port.rtp.videoPortRange.enable` is set to '1'.

tcpIpApp.sntp.address	**Valid hostname or IP address.**	**time.windows.com**

Specifies the address of an SNTP server.

Parameter	Permitted Values	Default
tone.dtmf.rfc2833Payload	**Base Profile:** **Lync=101** **Generic=127**	**Lync=101**

The phone-event payload encoding in the dynamic range to be used in SDP offers.

Parameter	Permitted Values	Default
up.backlight.idleIntensity	**VVX300, 310 = 0, 1, 2, 3** **All other VVX phones = 1, 2, 3**	**3**

The brightness of the LCD backlight when the phone is idle. 1 – low, 2 – medium, and 3 – high. Note: If this is higher than the active backlight brightness (`onIntensity`), the active backlight brightness is used.

Parameter	Permitted Values	Default
up.backlight.onIntensity	**VVX300, 310 = 0, 1, 2, 3** **All other VVX phones = 1, 2, 3**	**3**

The brightness of the LCD backlight when the phone is active (in use). 1 – low, 2 – medium, 3 – high.

Parameter	Permitted Values	Default
up.em.linkalivecheck.enabled	**0 or 1**	**0**

If1, ping packets are sent periodically from a host VVX phone to attached expansion modules to check whether or not communication between the host VVX phone and expansion module is alive or not.

Parameter	Permitted Values	Default
up.numOfDisplayColumns	**VVX 500, 501=1-3** **VVX 600, 601=1-4**	**VVX 500, 501=3** **VVX 600, 601=4**

Set the number of columns to display on the phone idle screen. The maximum number of columns varies by phone model.

Parameter	Permitted Values	Default
up.oneTouchDirectory	**0 or 1**	**1**

If 1, the Lync Search icon displays on the Home screen. If 0, the Lync Search icon does not display on the Home screen.

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

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

Parameter	Permitted Values	Default
up.SLA.ringType	**0 - 25**	**1**

Specify a ring type for an SLA line.

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

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

video.camera.contrast	**0 to 4**	**0**

Set contrast level. The value range is from 0 (No contrast increase) to 3 (Most contrast increase), and 4 (Noise reduction contrast).

video.enable	**0 or 1**	**1**

If 0, video is not enabled and all calls—both sent and received—are audio-only. If 1, video is sent in outgoing calls and received in incoming calls if the other device supports video.

Note: On the VVX 500 and 600, when you enable video, the G.722.1C codec is disabled.

video.iFrame.delay	**0-10**	**2**

When nonzero, an extra I-frame is transmitted after video starts. You can configure a time delay from the start of video until the I-frame is sent. 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.

video.localCameraView.fullscreen.mode	**pip, side-by-side**	**side-by-side** **VVX 501, 601=pip**

Determines how the local camera view is shown. If set to pip, the local camera view displays as a picture-in-picture with the far end window. If set to side-by-side, the local camera view displays side-by-side with the far end window.

voice.audioProfile.G7221.24kbps.payloadType	**0 to 127**	**112**

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

voice.cn.hd.attn	**1 - 90**	**30**

Set the attenuation level of comfort noise from full scale in decibels (dB) for headset audio. Note that smaller values insert louder comfort noise. Use this parameter only when `voice.cn.hd.enable=1`.

voice.cn.hd.enable	**0 or 1**	**0**

If 1, comfort noise is added to outgoing headset audio. Enable this parameter only when far-end users cannot perceive background noise when the near-end user stops talking. If 0, no comfort noise is added.

Parameter	Permitted Values	Default
voice.cn.hf.attn	**1 - 90**	**30**

Set the attenuation level of comfort noise from full scale in decibels (dB) for handsfree audio. Note that smaller values insert louder comfort noise. Use this parameter only when `voice.cn.hf.enable=1`.

voice.cn.hf.enable	**0 or 1**	**0**

If 1, comfort noise is added to outgoing handsfree audio. Enable this parameter only when far-end users cannot perceive background noise when the near-end user stops talking. If 0, no comfort noise is added.

voice.cn.hs.attn	**1 - 90**	**30**

Set the attenuation level of comfort noise from full scale in decibels (dB) for handset audio. Note that smaller values insert louder comfort noise. Use this parameter only when `voice.cn.hs.enable=1`.

voice.cn.hs.enable	**0 or 1**	**0**

If 1, comfort noise is added to outgoing handset audio. Enable this parameter only when far-end users cannot perceive background noise when the near-end user stops talking. If 0, no comfort noise is added.

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.

voice.CNControl	**0 or 1**	**0**

If 1, comfort noise payloads are published in the SDP body of the INVITE message by including the supported. Comfort noise uses payload type 13 for an 8 KHz sample rate codec and dynamic payload type 16k Hz codec. If 0, comfort noise payloads are not published in the SDP body of the INVITE message.

voice.CN16KPayload	**96 to 127**	**122**

voice.txEq.hf.preFilter.enable	**0 or 1**	**0**

If 1 and a narrow band codec is in use, such as G.711mu, G.711A, G.729, or iLBC, a 300 Hz high-pass filter is applied to the transmit audio prior to encoding. Enabling this filter may improve intelligibility to the far end when making narrow band calls through a PSTN gateway in a noisy environment. If 0, this filter is bypassed.

voIpProt.SIP.IM.autoAnswerDelay	**0 to 40**	**40**

The time interval from receipt of the instant message invitation to automatically accepting the invitation.

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.newCallOnUnRegister	**0 or 1**	**1**

If 1, the phones generates new a call-ID and From tag while re-registering. If 0, the phone does not generate new a call-ID and From tag while re-registering.

voIpProt.SIP.outboundProxy.failOver.failBack. mode newRequests,	**DNSTTL, registration, duration, newRequests**	**duration**

The mode for failover failback (overrides `voIpProt.server.x.failOver.failBack.mode`).

- **newRequests** All new requests are forwarded first to the primary server regardless of the last used server.
- **DNSTTL** The phone tries the primary server again after a timeout equal to the DNS TTL configured for the server that the phone is registered to.
- **registration** The phone tries the primary server again when the registration renewal signaling begins.
- **duration** The phone tries the primary server again after the time specified by

`reg.x.outboundProxy.failOver.failBack.timeout` expires.

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.localProces sing.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.

Parameter	Permitted Values	Default
voIpProt.server.x.failOver.failBack.mode	**newRequests, DNSTTL, registration, duration**	**duration**

Specify the failover failback mode.

- **newRequests** All new requests are forwarded first to the primary server regardless of the last used server.
- **DNSTTL** The phone tries the primary server again after a timeout equal to the DNS TTL configured for the server that the phone is registered to.
- **registration** The phone tries the primary server again when the registration renewal signaling begins.
  duration The phone tries the primary server again after the time specified by `voIpProt.server.x.failOver.failBack.timeout`.

Parameter	Permitted Values	Default
voIpProt.SIP.serverFeatureControl.localProcessing.dnd	**0 or 1**	**0**

If set to 0 and `voIpProt.SIP.serverFeatureControl.dnd` is set to 1, the phone does not perform local DND call behavior.

If set to 1, the phone performs local DND call behavior on all calls received.

Parameter	Permitted Values	Default
voIpProt.SIP.serverFeatureControl.signalingMethod	**subscribeAsFeatureEvent (or) inviteFACSubscribePresence (or) serviceMsForwardContact**	**serviceMsForwardContact**

Specify the method the phone uses to perform call-forwarding requests to the server.

Parameter	Permitted Values	Default
voIpProt.SIP.server.1.transport	**UDPOnly (or) TCPpreferred (or) DNSnaptr (or) TCPOnly (or) TLS**	**TLS**

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

Parameter	Permitted Values	Default
voIpProt.SIP.useSendonlyHold	**0 or 1**	**1**

If 1, the phone sends the "a=sendonly' in the 'Hold' invite request. If 0, the phone does not send the "a=sendonly' in the 'Hold' invite request.

Parameter	Permitted Values	Default
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.

Parameter	Permitted Values	Default
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.

Support for Skype for Business Online Features

Polycom UC Software 5.4.0A supports the following parameters with Skype for Business Online.

Parameters Supported for Skype for Business Online

UC Software Parameter Name	Skype for Business Parameter Name
dialplan.userDial.timeOut	UserDialTimeoutMS
feature.btoe.enabled	EnableBetterTogetherOverEthernet
feature.exchangeCalendar.enabled	EnableExchangeCalendaring
device.prov.lyncDeviceUpdateEnabled device.prov.lyncDeviceUpdateEnabled.set	EnableDeviceUpdate
One of: • voice.volume.persist.handsfree • voice.volume.persist.headset • voice.volume.persist.bluetooth.headset • voice.volume.persist.usbHeadset • voice.volume.persist.handset	VoiceVolumePersistMode
powerSaving.enable	EnablePowerSaveMode
powerSaving.idleTimeout.officeHours	PowerSaveDuringOfficeHoursTimeoutMS
powerSaving.idleTimeout.offHours	PowerSavePostOfficeHoursTimeoutMS
up.screenCapture.enabled	AllowScreenCapture
up.oneTouchVoiceMail	EnableOneTouchVoicemail
device.prov.user device.prov.user.set	LocalProvisioningServerUser
device.prov.serverType device.prov.serverType.set	LocalProvisioningServerType
device.prov.password device.prov.password.set	LocalProvisioningServerpassword
device.prov.serverName device.prov.serverName.set	LocalProvisioningServerAddress

Lync Shared LC Example

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

Lync Shared LC Example Parameters

Parameter	Permitted Values	Default
audioVideoToggle.callMode.persistent	**0 or 1**	**1**

If 1, the user setting to choose audio only or video calls as the default is retained after a phone restart or reboot. If 0, the user setting to choose audio only or video calls by default is not retained after a phone restart or reboot.

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	**0 or 1**	**1**

If 1, the automatic device update is enabled on the phone and the phone receives software updates from the server. If 0, the automatic device update is disabled and the phone does not receive software updates from the server. Changing the value of this parameter reboots the phone.

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

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

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

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

feature.audioVideoToggle.enabled	**0 or 1**	**1**

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

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

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

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

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

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

If 0, when the BToE app is unpaired, the credentials cached on the phone when the user signs in from the BToE application are erased. If 1, when the BToE app is unpaired, the credentials cached on the phone when the user signs in from the BToE application are stored.

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

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

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

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

Enables the Sign In screen on the phone.

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

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

Parameter	Permitted Values	Default
reg.1.serverFeatureControl.cf	**0 or 1**	**1**

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

Parameter	Permitted Values	Default
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.

Parameter	Permitted Values	Default
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.`

Parameter	Permitted Values	Default
reg.1.serverFeatureControl.localProcessing.dnd	**0 or 1**	**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.`

Parameter	Permitted Values	Default
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.

Parameter	Permitted Values	Default
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, lcs2005, ocs2007r2**	**enum**

Identifies the SIP signaling as Microsoft Lync Server and enables Lync Server features. This parameter supports Lync Server 2010 and 2013. Permitted values are lync2010, lcs2005 and ocs2007r2.

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

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

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

If 1, the line key label displays the Lync account user name. If 0, the line key label displays the Lync TelURI, or line address.

roaming_buddies.reg	**0 to 34**	**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	**enum**	**ApplicationProfile1**
Enter the TLS platform profile or TLS application profile.		
softkey.feature.simplifiedSignIn	**0 or 1**	**1**
If 0, the **SignIn** soft key is not displayed. If 1 and `voIpProt.server.x.specialInterop` is `lync2010`, the **SignIn** soft key is displayed.		
tcpIpApp.ice.mode	**enum**	**MSOCS**
Specifies that ICE and TURN work with Microsoft Lync Server.		
tcpIpApp.keepalive.tcp.sip.tls.enable	**0 or 1**	**1**
Set to 1 to enable keepalive packets and keep the TLS profile from timing out.		
video.iFrame.delay	**0-10**	**2**
When nonzero, an extra I-frame is transmitted after video starts. You can configure a time delay from the start of video until the I-frame is sent. 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	**0 to 127**	**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.

Lync Shared Example

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

Lync Shared Example Parameters

Parameter	Permitted Values	Default
audioVideoToggle.callMode.persistent	**0 or 1**	**1**

If 1, the user setting to choose audio only or video calls as the default is retained after a phone restart or reboot. If 0, the user setting to choose audio only or video calls by default is not retained after a phone restart or reboot.

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	**0, 1**	**0**

Set to 1 to enable automatic device update for all devices and use of
`device.prov.lyncDeviceUpdateEnabled`.

Parameter	Permitted Values	Default
device.prov.lyncDeviceUpdateEnabled	**0 or 1**	**1**

If 1, the automatic device update is enabled on the phone and the phone receives software updates from the server. If 0, the automatic device update is disabled and the phone does not receive software updates from the server. Changing the value of this parameter reboots the phone.

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

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

Parameter	Permitted Values	Default
dialplan.digitmap	**string**	**NULL**

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.

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

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

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

Parameter	Permitted Values	Default
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.

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

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

Parameter	Permitted Values	Default
feature.lyncbtoe.autosignin.signoff.enabled	**0 or 1**	**0**

If 0, when the BToE app is unpaired, the credentials cached on the phone when the user signs in from the BToE application are erased. If 1, when the BToE app is unpaired, the credentials cached on the phone when the user signs in from the BToE application are stored.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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	**enum**	**ApplicationProfile1**

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

tcpIpApp.ice.mode	**enum**	**MSOCS**

Specifies that ICE and TURN work with Microsoft Lync Server.

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

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

Parameter	Permitted Values	Default
video.iFrame.delay	**0-10**	**2**

When nonzero, an extra I-frame is transmitted after video starts. You can configure a time delay from the start of video until the I-frame is sent. Use a value of 2 seconds if you are using this parameter in a Microsoft Lync environment.

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

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

Parameter	Permitted Values	Default
voice.audioProfile.G7221.24kbps.payloadType	**0 to 127**	**112**

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

Parameter	Permitted Values	Default
voice.codecPref.G7221.24kbps	**0 to 27**	**5**

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

Parameter	Permitted Values	Default
voice.codecPref.G7221.32kbps	**0 to 27**	**0**

The priority of the G.722.1 32kbps codec. If 0 or Null, the codec is disabled. A value of 1 is the highest priority.

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.

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.

Parameter	Permitted Values	Default
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.

Parameter	Permitted Values	Default
voIpProt.SIP.mtls.enable	**0 or 1**	**0**

If 0, Mutual TLS is disabled. If 1, Mutual TLS is enabled.

Lync Per Phone Example

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

Lync Per Phone Example

Parameter	Permitted Values	Default
device.set	**0 or 1**	**1**
A global parameter that allows you to install software and change device parameters.		
device.prov.lyncDeviceUpdateEnabled.set	**0, 1**	**0**
Set to 1 to enable automatic device update for all devices and use of `device.prov.lyncDeviceUpdateEnabled`.		
device.prov.lyncDeviceUpdateEnabled	**0 or 1**	**1**
If 1, the automatic device update is enabled on the phone and the phone receives software updates from the server. If 0, the automatic device update is disabled and the phone does not receive software updates from the server. Changing the value of this parameter reboots the phone.		
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.		
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.		

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

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

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

Specify the line registration.

reg.1.applyServerDigitMapLocally	**0 or 1**	**0**

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

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

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

reg.1.auth.password	**string**	**NULL**

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

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

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

reg.1.auth.usePinCredentials	**0 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.auth.loginCredentialType	**enum**	**LoginCredentialNone**

Specify the credential type the user must provide to log in. You can choose the username/password or extension/PIN.

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

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

Parameter	Permitted Values	Default
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, lcs2005 and ocs2007r2**	**lync2010**

Identifies the SIP signaling as Microsoft Lync Server and enables Lync Server features. This parameter supports Lync Server 2010 and 2013. Permitted values are lync2010, lcs2005 and ocs2007r2.

Parameter	Permitted Values	Default
reg.1.server.1.transport	**TLS**	**TLS**

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

Parameter	Permitted Values	Default
reg.1.serverFeatureControl.cf	**0 or 1**	**1**

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

Parameter	Permitted Values	Default
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.`

Parameter	Permitted Values	Default
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.

Parameter	Permitted Values	Default
reg.1.serverFeatureControl.localProcessing.dnd	**0 or 1**	**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.`

Parameter	Permitted Values	Default
reg.1.serverFeatureControl.signalingMethod	**string**	**serviceMsForwardContact**

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

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

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

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

Parameter	Permitted Values	Default
roaming_buddies.reg	**0 to 34**	**1**
Set the line index number for the registered line you want to enable Presence and Instant Messaging.		
softkey.feature.simplifiedSignIn	**0 or 1**	**1**
If 0, the **SignIn** soft key is not displayed. If 1 and `voIpProt.server.x.specialInterop` is `lync2010,` the **SignIn** soft key is displayed.		

Lync device.set

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

Lync device.set Parameters

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

[1] Change causes phone to restart or reboot.

In-Band Provisioning

When you are signed in to Lync on your phone, the Lync Server automatically retrieves provisioning parameters you need to operate Lync features. You can view the in-band provisioning parameters from your phone or from 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.
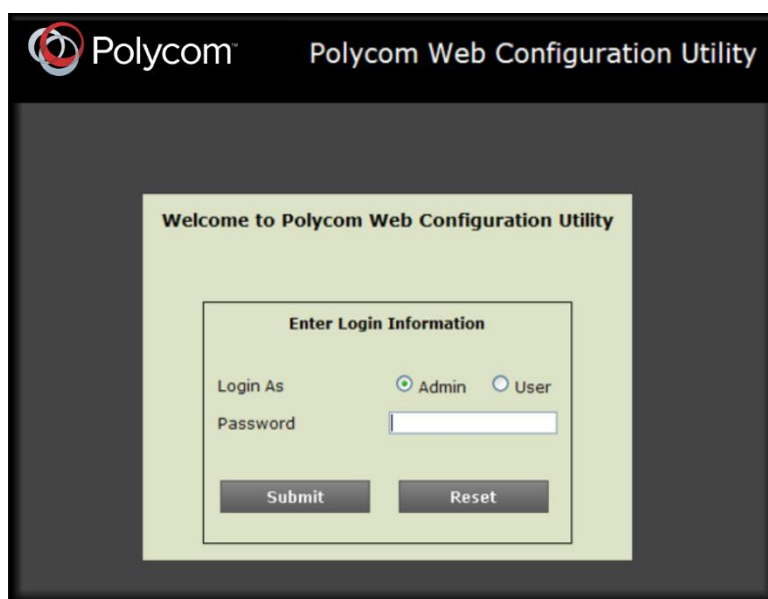
To view in-band provisioning parameters:

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.

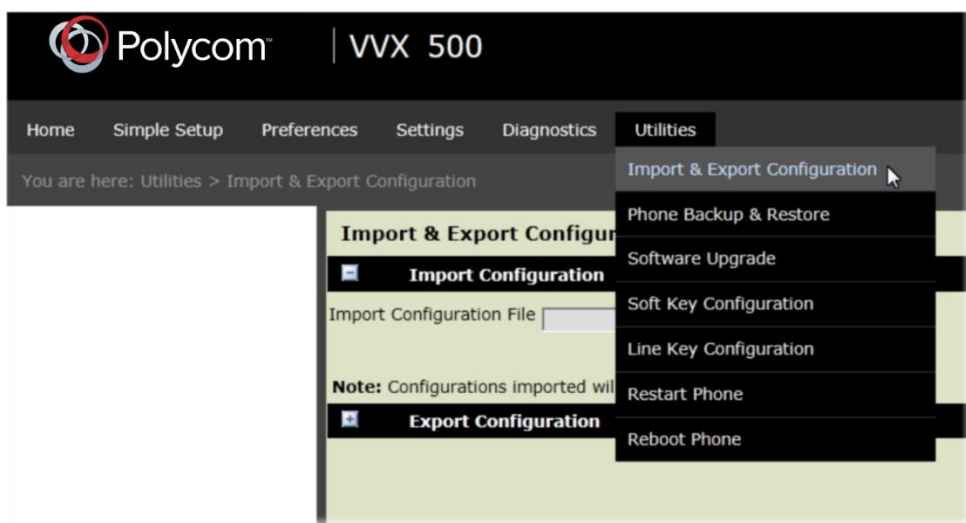**To view in-band provisioning parameters using the Web Configuration Utility:**

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.

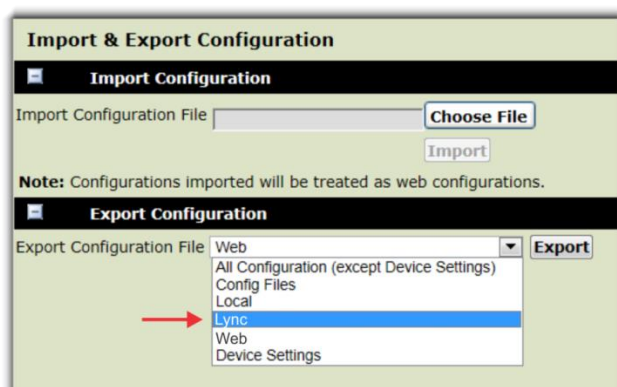   The Web Configuration Utility login screen displays, shown next.

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 Microsoft 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 Microsoft server is configured.**
tcpIpApp.ice.turn.server		**This value depends on how the Microsoft server is configured.**
tcpIpApp.ice.turn.tcpPort		**443**
tcpIpApp.ice.turn.udpPort		**3478**

Troubleshoot Issues

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

The phone fails to register.

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

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

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

If the phone still cannot register, check autodiscover:

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

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

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

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

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

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

When PIN authentication fails, a warning message displays:

Press Ok to open the PIN Authentication screen to sign in again. Any one of the following messages might display:

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

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

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