

Provisioning Polycom Phones with Microsoft Lync Server 2010

Microsoft® Lync™ Server 2010 is a unified communications (UC) solution that enables customers, colleagues, and business partners to communicate instantly by voice, video, or messaging through a single interface, regardless of their location or network.

This provisioning guide shows administrators how to provision Polycom phones for use with Microsoft Lync Server 2010. This guide is intended for both first-time users of Polycom phones and administrators with experience provisioning Polycom phones. To locate documentation appropriate for your level of familiarity with Polycom phones, see the following list.

- If you are new to Polycom phones and are provisioning a single phone, go to [How to Provision a Polycom Phone](#) for generic instructions on how to quickly get your Polycom phone working.
- The [Polycom UC Software Administrators' Guide 4.0.1](#) provides detailed information in the following areas:
 - For an overview of Polycom UC Software, see *Chapter 2: The Polycom UC Software Big Picture*.
 - If you are familiar with Polycom phones and have experience provisioning a large number of SIP phones, see *Part II: Setting Up Your System*, which shows you how to set up your phone network and your provisioning server.
 - Refer to *Part III: Configuring Your System* of the Administrators' Guide for instructions, with examples, on how to add and modify all Polycom phone features.
 - Use *Chapter 14* as a reference guide to each parameter, including parameter names, values, and descriptions.

For information on the configuration files and how to use them, see:

- *Chapter 13: Polycom UC Configuration Files* in the [Polycom UC Software Administrators' Guide 4.0.1](#).
- [White Paper 60806: UC Software Provisioning Best Practices](#) for an introduction to provisioning best practices.
- [Best Practices 35361: Using the Master Configuration File](#) for a detailed discussion of the master configuration file when provisioning multiple Polycom phones.

Microsoft Lync Server 2010 works with the following phones running Polycom UC Software 4.0.1 or later: Polycom® SoundPoint® IP desktop phones, SoundStation® IP 5000 conference phones, SoundStation Duo™ conference phones, VVX® 500 and 1500 business media phones, and SpectraLink® 8400 Series wireless handsets. All phones are compatible with presence-based real-time voice communications, and Microsoft Lync enables you to use instant messaging with the SpectraLink 8400 Series wireless handsets.

Configuring Polycom Phones for Use with Microsoft Lync Server 2010

This section shows you how to configure Polycom phones to work with the Microsoft Lync 2010 Server and provides illustrated example configurations. Note that the configuration shown in this provisioning guide is intended for a phone using one registered line. The example configurations in this provisioning guide use the Polycom centralized provisioning method, and are divided into two sections. The first section illustrates parameters that are common to all phones in your deployment; you need to specify values for these parameters only once. The second section illustrates the per-phone parameters. You will need to use per-phone parameters, such as a registration address, for each phone in your deployment as the values will be unique for each phone.

Alternatively, you can use the Web Configuration Utility, which can be useful when provisioning less than 20 phones. The centralized provisioning method and the Web Configuration Utility are discussed in the following section.

Using Centralized Provisioning

The centralized provisioning method involves use of the Polycom UC Software configuration files in XML format, and you will need to be familiar with this method to effectively provision your Polycom phones. Centralized provisioning is very flexible and is designed to accommodate a wide array of deployment environments and provisioning scenarios. You can change the XML tree structure, move parameters around within the XML files, and change the file names. For this reason, Polycom cannot recommend a specific configuration strategy. As a first step, use the following template configuration files attached to this guide:



Note: Obtaining the Lync Configuration Files

All of the parameters you need to provision your Polycom phones for use with the Lync server are included in the template configuration files attached to this document.

- **lyncSharedExample.cfg** This template configuration file contains all of the Lync parameters that are typically shared by all of the phones in your deployment.
- **lyncPerPhoneLCExample.cfg** This template configuration file contains all of the parameters you will need to set for *each phone* in your deployment when your provisioning scenario requires users to enter Lync login credentials with the phone user interface. Polycom recommends this approach as the simplest way to keep Lync login credentials secure.

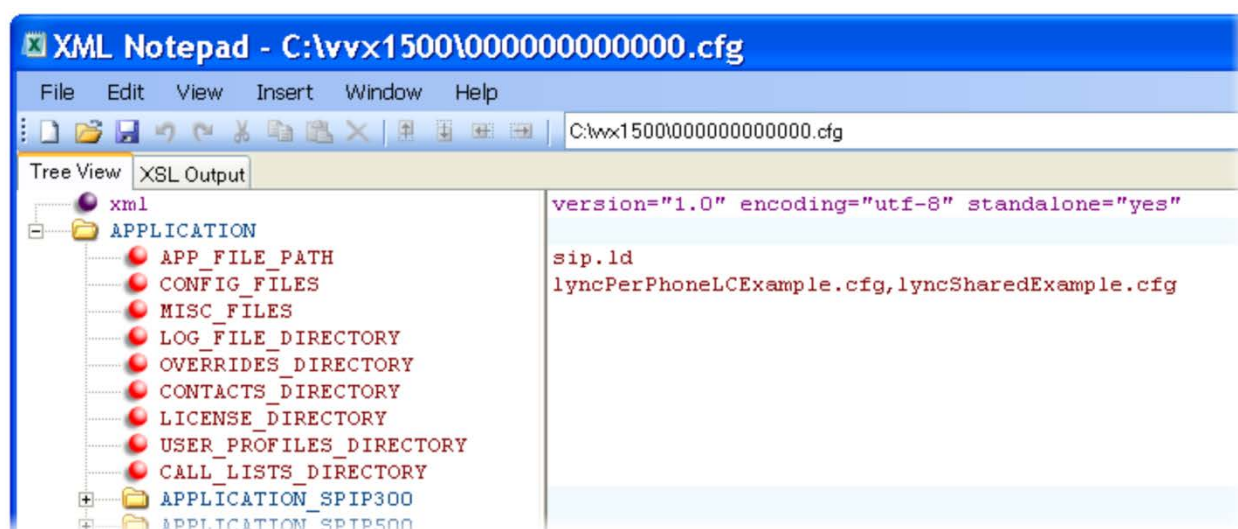
- **lyncPerPhoneExample.cfg** This template configuration file contains all of the parameters you will need to set for *each phone* in your deployment when you want to enter Lync login credentials directly in the configuration files. Polycom recommends this approach only if you are deploying a secure provisioning system using HTTPS file transport. Encrypting your configuration files will also increase security. For information on how to encrypt your configuration files, see *Configuration File Encryption* in the [Polycom UC Software 4.0.1 Administrators' Guide](#).



Note: Using the Lync Configuration Files

To provision your phones for use with the Lync server, you will need to base your configuration on two of the attached template configuration files. All deployments must use the `lyncSharedExample.cfg` configuration file, and *one* of the per-phone configuration files. You do not need both of the per-phone configuration files.

The template configuration files attached to this document contain the minimum parameters you need to provision your phones for use with Microsoft Lync Server 2010. When creating custom configuration files, be aware that parameters from the template files determine phone behavior and you will need familiarity with the Polycom centralized provisioning method. At minimum, you will need to enter the names of your configuration files in the `CONFIG_FILES` field of the master configuration files you deploy. For more information on using the master configuration file when provisioning multiple Polycom phones, see [Best Practices 35361: Provisioning with the Master Configuration File](#). The master configuration file template is included with the Polycom UC Software that you downloaded from the Polycom support Web site.



There are several ways to provision your phones using the master configuration file and the Polycom configuration file templates. How you use these files depends on your provisioning scenario. You can refer to the documents listed at the top of this provisioning guide for further help.

Provisioning with the Web Configuration Utility

In contrast to the central provisioning method, the Web Configuration Utility is a Web-based provisioning method you can use to apply settings to one phone at a time. The Web Configuration Utility is useful when provisioning less than 20 phones. If you are provisioning more than 20 phones, the central provisioning method will provide more flexibility and efficiency. If you want to provision your phones using the Web Configuration Utility, use the following all-in-one template configuration file attached to this guide:

- **lyncAllInOneExample.cfg** This attached template configuration file contains all of the shared and LC per-phone parameters. You can use this file if you want to load your settings one phone at a time using the Web Configuration Utility.

If you want to load your settings using the Polycom Web Configuration Utility, you can edit **lyncAllInOneExample.cfg** using the values indicated in the following sections [Configuring Shared Parameters](#) and [Enabling User Entry of Login Credentials at the Phone](#). When you are finished editing the files, access the Web Configuration Utility interface for each phone by entering the phone's IP address, available through the phone's menu, in the address bar of your Web browser. Choose to log in as **Admin** and enter the password (default 456) in the login screen that displays. In the Web Configuration Utility, choose **Utilities > Import & Export Configuration**, and use the **Import Configuration** option to upload configuration files. The Web Configuration Utility has built-in descriptions and contextual field help.



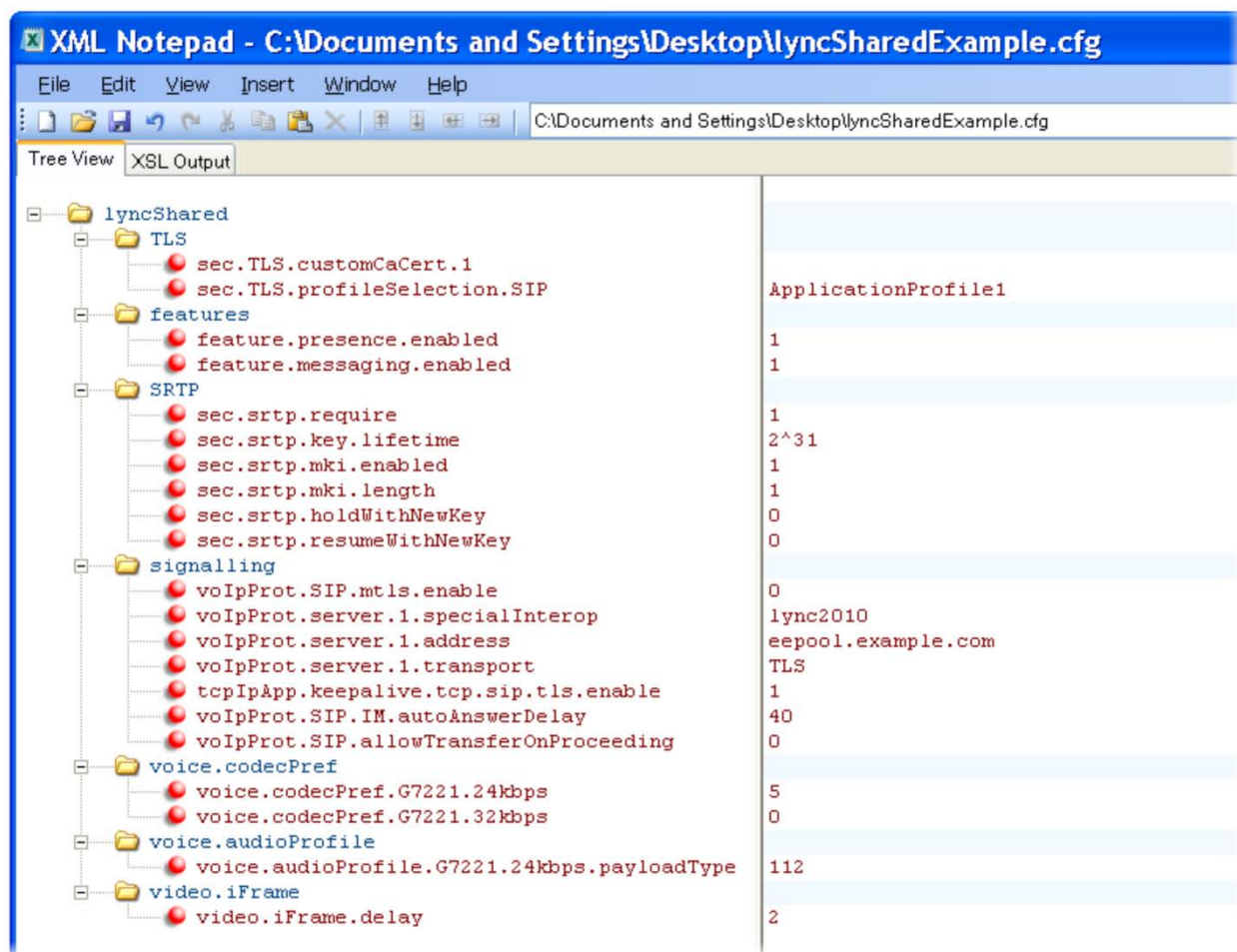
Web Info: Using the Web Configuration Utility

For an introduction to the Web Configuration Utility, see [Polycom Web Configuration Utility User Guide](#).

The next section shows you how to configure the shared and per-phone parameters. This provisioning guide focuses on the minimum configuration parameters that must be set to get your Polycom phones working with the Microsoft Lync 2010 Server. For descriptions and values of all parameters you can use, see [Table 5: Additional Lync Parameters](#).

Configuring Shared Parameters

The following illustration shows all of the shared Microsoft Lync parameters you will need to set. All of these parameters are included in the **lyncSharedExample.cfg** template configuration file attached to this guide.



See [Table 2: Shared Lync Parameters](#) for a description of each shared Lync parameter and the value to assign.

Table 2: Shared Lync Parameters

Parameter	Assigned Value
feature.presence.enabled	1
Enable the presence feature to manage your buddy list and display the status of your contacts.	
feature.messaging.enabled	1
Enable instant messaging on the SpectraLink 8400 Series wireless handsets. When used with Lync, this parameter will be ignored by other phones.	

<i>Parameter</i>	<i>Assigned Value</i>
<code>sec.srtp.require</code>	1
Enable this parameter by setting to 1. This ensures only secure media streams will be used. 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.	
<code>sec.srtp.key.lifetime</code>	2^31
This parameter specifies the number of SRTP packets and refers to the lifetime of the master key used for the cryptographic parameter in SDP.	
<code>sec.srtp.mki.enabled</code>	1
Enable this parameter by setting to 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. When this parameter is enabled, a four-byte MKI parameter is sent within the SDP message of the SIP INVITE / 200 OK.	
<code>sec.srtp.mki.length</code>	1
Enable this parameter by setting to 1. This parameter determines the length of the MKI in bytes and is required to support Microsoft SRTP.	
<code>sec.srtp.holdWithNewKey</code>	0
Set this to 0 to prevent a new key from displaying when you have a call on hold.	
<code>sec.srtp.resumeWithNewKey</code>	0
Set this parameter to 0 to prevent a new key from displaying when you resume a call.	
<code>voIpProt.SIP.mtls.enable</code>	0
If 0, Mutual TLS is disabled. If 1, Mutual TLS is enabled.	
<code>voIpProt.server.1.specialInterop</code>	lync2010
As of UC Software 4.0.1, Polycom devices support one Lync line per device. Assign <i>lync2010</i> as the parameter value.	
<code>voIpProt.server.1.address</code>	<hostname>
This parameter must be set equal to the domain name of either the Lync cluster's Director or front end server pool name.	
<code>voIpProt.server.1.transport</code>	TLS
This parameter specifies that the phone will use TLS as the transport method to communicate with the Microsoft Lync Server.	
<code>tcpIpApp.keepalive.tcp.sip.tls.enable</code>	1
Enter 1 to enable TCP keepalive for SIP signaling connections that use TLS transport.	

Parameter	Assigned Value
<code>voIpProt.SIP.IM.autoAnswerDelay</code>	40
The time period in seconds from receipt of the instant message invitation to accepting the invitation. Setting this parameter to 40 will ensure that instant messages you receive will stay on the PCs instant messaging client. If you want your SpectraLink 8400 Series wireless handset to intercept instant messages, set this parameter to 10 or 15.	
<code>voIpProt.SIP.allowTransferOnProceeding</code>	0
Set this parameter to 0 to prevent call transfers during the proceeding state of a consultation call.	
<code>voice.codecPref.G7221.24kbps</code>	5
Set this parameter to 5 and <code>voice.codecPref.G7221.32kbps</code> to 0 to ensure users can hear audio when accessing voicemail.	
<code>voice.codecPref.G7221.32kbps</code>	0
Set this parameter to 0 and <code>voice.codecPref.G7221.24kbps</code> to 5 to ensure users can hear audio when accessing voicemail.	
<code>voice.audioProfile.G7221.24kbps.payloadType</code>	112
Set this parameter to 112 to avoid dropped calls when retrieving voicemail.	
<code>video.iFrame.Delay</code>	2
Enter a value of 2 to transmit an extra I-frame 2 seconds after the start of video. This will improve interoperability between the VVX 1500 and the Lync PC client.	
<code>sec.TLS.profileSelection.SIP</code>	ApplicationProfile1
Enter <i>ApplicationProfile1</i> to specify the TLS application profile to use for SIP operations.	
<code>sec.TLS.customCaCert.1</code>	<custom certificate string>
If you are a Lync or IT administrator, enter the custom certificate for TLS Application Profile 1, or see your Lync or IT administrator to obtain one. The certificate must be in .PEM format to store in the XML configuration file. Copy and paste the certificate between BEGIN CERTIFICATE and END CERTIFICATE. Your certificate should look like this:	
<pre>-----BEGIN CERTIFICATE----- MIIDhzCCAvCgAwIBAgIJALYgWm545734tgYIWSn4A1UECBMOQW5ka HJhIFByYWRLc2gxZjAQBgNVBAcTCUh5ZGVyYWJhZDEhMB8GA1UECh MYSGVsbG9zb2Z044f59WEegWF4F8fe2FVQQLEw1XaXJlbGVzcyBUZ WftMRMwEQYDVQDDFApoc193bGFuX2NhMB4XDTA2MDQxNzEwMjUyMF oXDTE2MDQxNDUwMjUyMFowYoxCzAJBgNVBAYTAklOMRcwFQYDVQQQ IEw5BbmRocmEgUHJhZGVzaDESMBAGA1UEBxMJSklkZXJhYmFkMSEw HwYDVQQKEzhIZWxsZ3NvZnQgSW5kaWEgUHZ0LiBMdGQxYjAUBgNVB AsTDVdpcmVsZXNzIFRlYW0xEzARBgNVBAMUCmhzX3dsYW5fY2EwgZ 8wDQYJKoZIhvcNAQEBBQADgY0AMIGJAoGBAJzESpj3Rshcw7cR9dS pQDu0TtN1CnfVJTCIdelhLDX4Msns4ZvlIfhoBhAQpd47ec -----END CERTIFICATE-----</pre>	

Configuring Per-Phone Parameters

When configuring the per-phone parameters, you can choose to enable login credentials at the phone—Polycom’s recommended approach—or you can enter login credentials directly to the configuration file if you are using a secure provisioning system. The next section shows you how to obtain the login credentials.

- If you are enabling login credential entry at the phone, go to [Enabling User Entry of Login Credentials at the Phone](#).
- If you are entering login credentials to the configuration file, go to [Entering Login Credentials in the Configuration File](#).

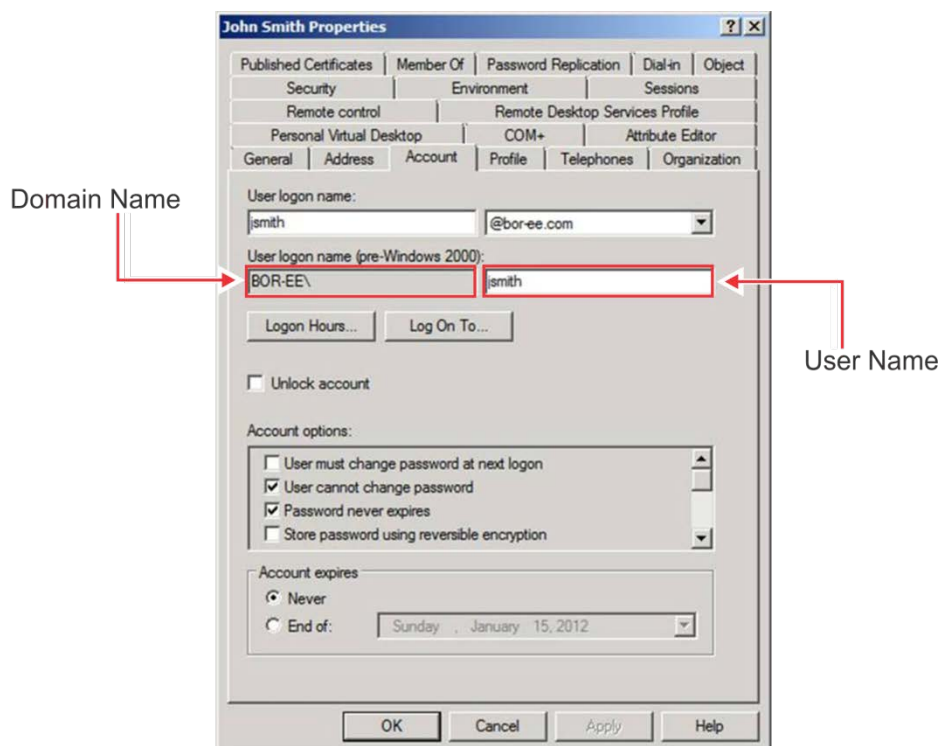
Enabling User Entry of Login Credentials at the Phone

The following illustration shows all of the parameters in the **lyncPerPhoneLCExample.cfg** template configuration file attached to this guide. Use this file if you want to enable entry of login credentials at the phone using the phone’s user interface. These parameters must be set for each phone in your deployment, as shown next.

You will need to obtain login credentials from the Active Directory Users and Computers (ADUC).

To get login credentials from the ADUC:

- 1 Got to the **Active Directory Users and Computers**.
- 2 Right-click on the user and choose **Properties**.
- 3 Select the **Account** tab, shown next.



- 4 Under *User logon name (pre-Windows 2000)*, use the left field as the domain name and the right field as the user name. In this example, **BOR-EE** is the domain name and **jsmith** is the user name. You can now enter the ADUC login credentials at the phone.

To enter login credentials at the phone:

- 1 On the phone, press **Menu > Settings > Basic > Login Credentials**.
- 2 Enter the domain you obtained from ADUC in the **Domain** field.
- 3 Enter the user name you obtained from ADUC in the **User** field and enter a password in the **Password** field.

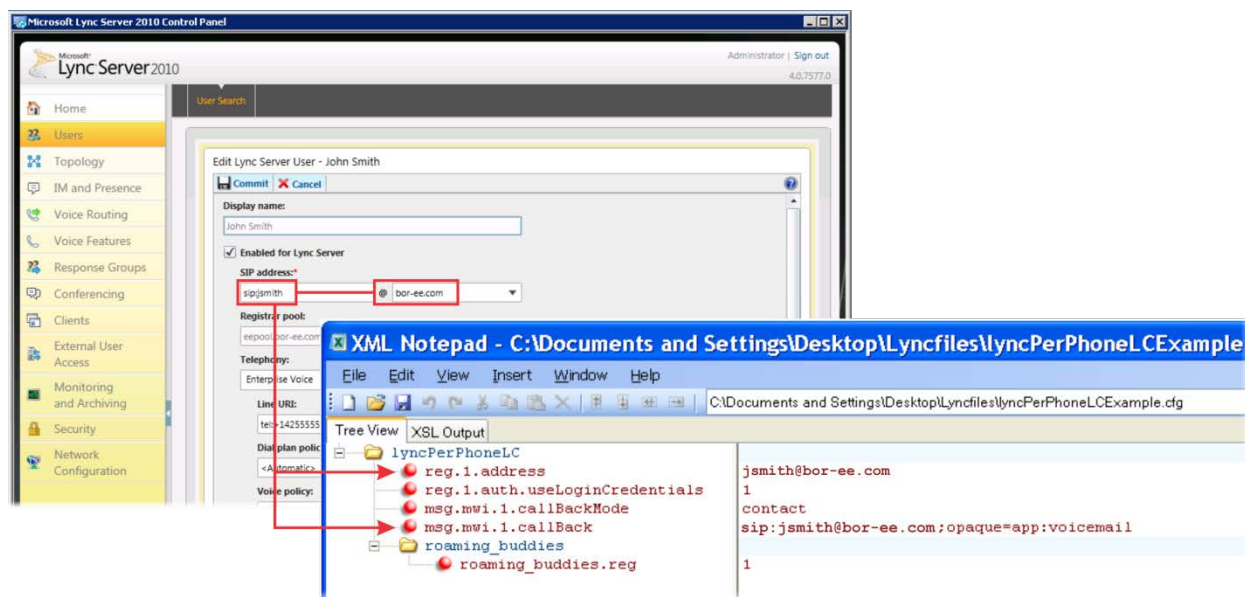
Your entries should look like the following illustration showing login credentials on the VVX 1500 business media phone:



Next, set the parameters in the *lyncPerPhoneLCExample.cfg* template configuration file to the values shown in the following illustration.

To get a user's Lync SIP/Sign-in address

- 1 Get the user's SIP/Sign-in address for the `reg.1.address` and `msg.mwi.1.callBackMode` parameters from the Lync Server.
- 2 Enter the user's address values in the configuration file, as shown next.



In this example, the user's SIP/Sign-in address is `sip:jsmith@bor-ee.com`.

See the following table for a description of each of the per-phone Lync parameters when enabling entry of Lync login credentials at the phone.

Table 3: Per-Phone Settings with Phone Lync Login Credentials

<i>Parameter</i>	<i>Assigned Value</i>
reg.1.address	Lync SIP/Sign-in address
Enter a Lync <i>sign-in address</i> .	
reg.1.auth.useLoginCredentials	1
Set this parameter to 1 to enable entry of Lync login credentials at the phone's interface.	
msg.mwi.1.callBackMode	contact
Set msg.mwi.x.callBackMode to <i>contact</i> and set the callback location to the Microsoft Lync Server voicemail address.	
msg.mwi.1.callBack	<Lync SIP/Sign-in address>;opaque=app:voicemail
Prepend a Lync <i>Sign-in address</i> to ;opaque=app:voicemail.	
roaming_buddies.reg	1
This parameter enables the Lync contact list interface for viewing and managing your Lync contacts.	

Entering Login Credentials in the Configuration Files

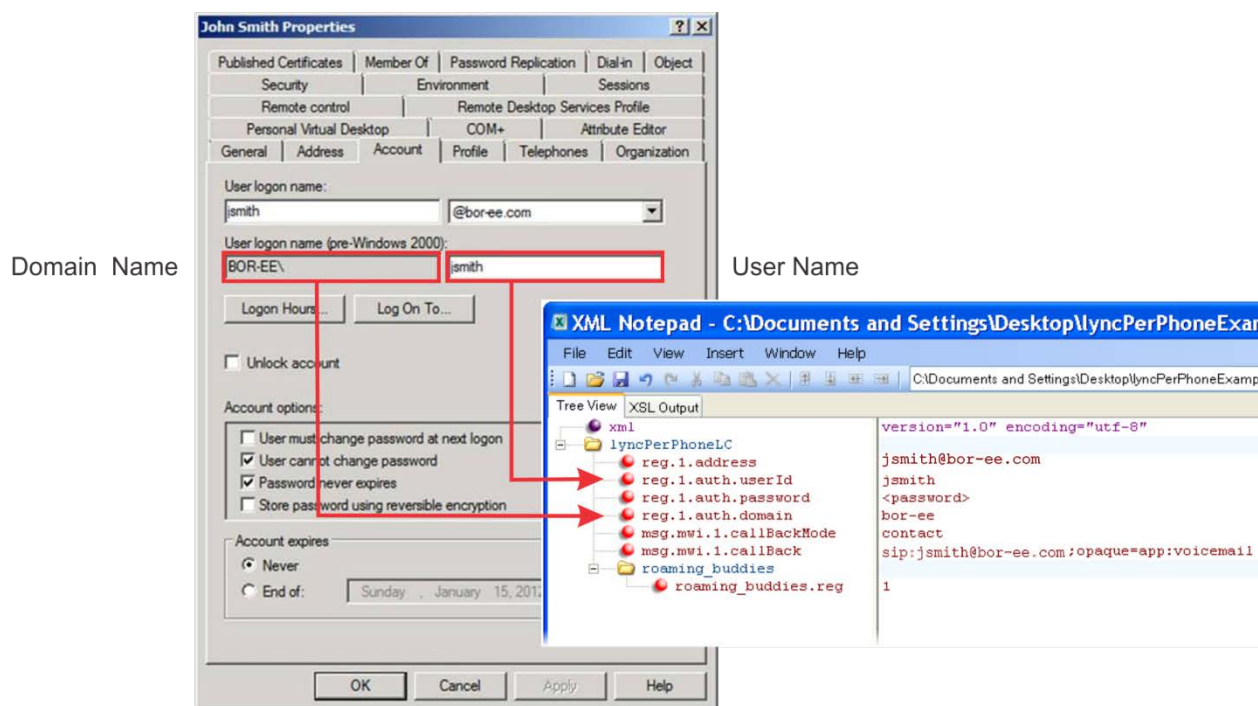
This section shows you how to set all of the parameters in the **lyncPerPhoneExample.cfg** template configuration file attached to this guide. These parameters must be set for each phone in your deployment. Use this file if you want to enter Lync login credentials in the configuration file. Polycom recommends using this file only if you are using a secure provisioning system using HTTPS file transport, preferably in addition to encrypted configuration files. For information on how to encrypt your configuration files, see *Configuration File Encryption* in the [Polycom UC Software 4.0.1 Administrators' Guide](#).

You will need to obtain login credentials from the Active Directory Users and Computers (ADUC).

To get login credentials from the ADUC:

- 1 Got to the **Active Directory Users and Computers**.
- 2 Right-click on the user and choose **Properties**.
- 3 Select the **Account** tab. Under *User logon name (pre-Windows 2000)*, use the left field as the domain name and the right field as the user name. In this example, **BOR-EE** is the domain name and **jsmith** is the user name.

4 Enter the user's address values in the configuration file, as shown next.



See [Table 4: Per-Phone Settings](#) for a description of each of the per-phone Lync parameters when entering login credentials to the configuration file.

Table 4: Per-Phone Settings for Secure Provisioning Systems

Parameter	Assigned Value
reg.1.address	Lync SIP/sign-in address
Enter a Lync sign-in address.	
reg.1.auth.userId	Lync user ID
Enter the Lync user ID you want to use for authentication challenges.	

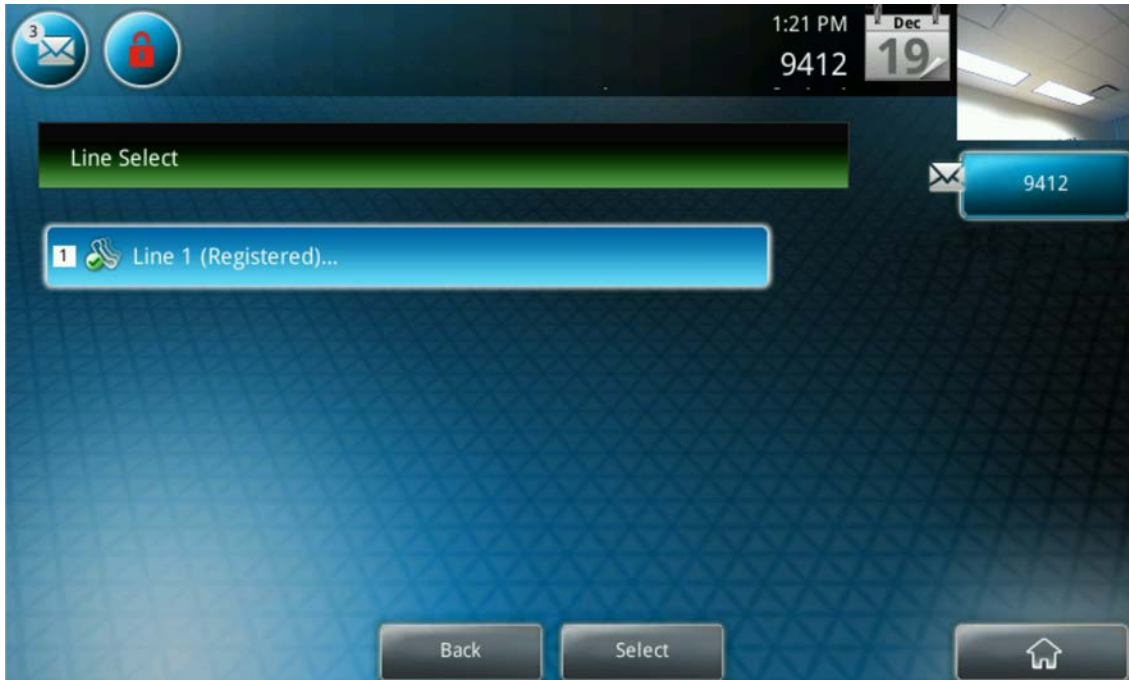
<i>Parameter</i>	<i>Assigned Value</i>
<code>reg.1.auth.password</code>	<i>password</i>
Enter the password you want to use for authentication challenges.	
<code>reg.1.auth.domain</code>	authentication server domain name
Enter the domain of the server used to authenticate user names and passwords.	
<code>msg.mwi.1.callBackMode</code>	contact
Set <code>msg.mwi.x.callBackMode</code> to <i>contact</i> and set the callback location to the Microsoft Lync Server voicemail address.	
<code>msg.mwi.1.callBack</code>	<Lync SIP/Sign-in address>;opaque=app:voicemail
Prepend a SIP URI to <code>;opaque=app:voicemail</code> .	
<code>roaming_buddies.reg</code>	1
This parameter enables the Lync contact list interface for viewing and managing your Lync contacts.	

Verify Your Connection to Lync

When you have finished provisioning your Polycom phones, you can verify your connection to the Lync server.

To verify your registration with the Lync server:

- On the phone's user interface, go to **Menu > Status > Lines**. A successful registration will display, as shown next.



Additional Parameters

The following table provides information about additional parameters that may be useful in a Lync environment. Note that in the following table, the value *x* in certain parameters represents the registration and the value *y* represents the server.

Table 5: Additional Lync Parameters

<i>Parameter</i>	<i>Permitted Values</i>	<i>Default</i>
callLists.logConsultationCalls	0 or 1	1
If 1, all consultation calls are logged. Consultation calls are calls made to a third party while the original party is on hold, such as when setting up a conference call. If 0, consultation calls are not logged.		
pres.idleTimeout.offHours.enabled	0 or 1	1
Enable or disable the off hours idle timeout feature. If enabled, you can set a period of inactivity at your phone after which your Lync presence status will display as Away. If 0, the off hours idle timeout feature is disabled. If 1, the feature is enabled.		
pres.idleTimeout.offHours.period	1 to 600	15
When the phone is idle for the time you set here, your Lync presence status will display as Away. The number of minutes you set here will determine when Lync presence status will display as Away.		
pres.idleTimeout.officeHours.enabled	0 or 1	1
Enable or disable the office hours timeout feature. If enabled, you can set the hours during which your phone will automatically enter the idle state. If 0, the office hours idle timeout feature is disabled. If 1, the feature is enabled.		
pres.idleTimeout.officeHours.period	1 to 600, minutes	15
When the phone is idle for the time period you set here, the phone will automatically enter the idle state. Once you press any key on the phone, the presence status returns to an active state.		
reg.x.server.y.address	dotted-decimal IP address or hostname	Null
The IP address or host name of a SIP server that accepts registrations. If not Null, all of the parameters in this table will override the parameters specified in <code>voIpProt.server</code> .		

<i>Parameter</i>	<i>Permitted Values</i>	<i>Default</i>
reg.x.server.y.transport	DNSnaptr, TCPpreferred, UDPOnly, TLS, TCPOny	DNSnaptr
<p>The transport method the phone uses to communicate with the SIP server.</p> <p>Null or DNSnaptr – if <code>reg.x.server.y.address</code> is a hostname and <code>reg.x.server.y.port</code> is 0 or Null, do NAPTR then SRV look-ups to try to discover the transport, ports and servers, as per RFC 3263. If <code>reg.x.server.y.address</code> is an IP address, or a port is given, then UDP is used.</p> <p>TCPpreferred – TCP is the preferred transport; UDP is used if TCP fails.</p> <p>UDPOnly – only UDP will be used.</p> <p>TLS – if TLS fails, transport fails. Leave port field empty (will default to 5061) or set to 5061.</p> <p>TCPOnly – only TCP will be used.</p>		
reg.x.server.y.specialInterop	standard, ocs2007r2, lcs2005, lync2010	standard
<p>Specify if this registration should support Microsoft Office Communications Server 2007 R2 (<i>ocs2007r2</i>), Microsoft Live Communications Server 2005 (<i>lcs2005</i>), or Microsoft Lync 2010 (<i>lync2010</i>). This parameter overrides <code>voIpProt.server.x.specialInterop</code>. Note: To use instant messaging on SpectraLink handsets running UC Software 4.0.1, set this parameter to <i>lync2010</i>.</p>		
reg.x.srtp.enable¹	0 or 1	0
<p>If 0, the phone always declines SRTP offers. If 1, the phone accepts SRTP offers. This parameter overrides <code>sec.srtp.enable</code>.</p>		
reg.x.srtp.offer	0 or 1	0
<p>If 1, the phone 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 phone initiating (offering) phone calls. If 0, no secure media stream is included in SDP of a SIP invite. This parameter overrides <code>sec.srtp.offer</code>.</p>		
reg.x.srtp.require	0 or 1	0
<p>If 0, secure media streams are not required. If 1, the phone 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, <code>reg.x.srtp.offer</code> will also be set to 1, regardless of the value in the configuration file. This parameter overrides <code>sec.srtp.require</code>.</p>		
reg.x.telephony	0 or 1	1
<p>If 0, you cannot use Lync telephony on this registration line. If 1, Lync telephony calls are enabled on this registration.</p>		
sec.srtp.enabled¹	0 or 1	0
<p>If 0, the phone always declines SRTP offers. If 1, the phone accepts SRTP offers. Note: The defaults for SIP 3.2.0 was 0 when Null or not defined.</p>		

<i>Parameter</i>	<i>Permitted Values</i>	<i>Default</i>
sec.srtp.offer¹	0 or 1	0
If 1, the phone 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 phone initiating (offering) a phone call. If 0, no secure media stream is included in SDP of a SIP invite.		
volpProt.SIP.allowTransferOnProceeding	0 to 1	1
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.		
volpProt.SIP.use486forReject	0 or 1	0
If set to 1 and the phone is indicating a ringing inbound call appearance, the phone will transmit a 486 response to the received INVITE when the Reject soft key is pressed. If set to 0, no 486 response is transmitted.		

This provisioning guide has shown you how to configure your Polycom phones with the Microsoft Lync Server 2010. For more information on Polycom phones, deployment and provisioning, and a full list of phone features and parameters, see the [Polycom UC Software Administrators' Guide 4.0.1](#).

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