



Avaya Microsoft Lync Integration Fundamentals for IP Office

Release 8.1
02-604119
Issue 01.03
September 2013

Notice

While reasonable efforts have been made to ensure that the information in this document is complete and accurate at the time of printing, Avaya assumes no liability for any errors. Avaya reserves the right to make changes and corrections to the information in this document without the obligation to notify any person or organization of such changes.

Documentation disclaimer

"Documentation" means information published by Avaya in varying mediums which may include product information, operating instructions and performance specifications that Avaya generally makes available to users of its products. Documentation does not include marketing materials. Avaya shall not be responsible for any modifications, additions, or deletions to the original published version of documentation unless such modifications, additions, or deletions were performed by Avaya. End User agrees to indemnify and hold harmless Avaya, Avaya's agents, servants and employees against all claims, lawsuits, demands and judgments arising out of, or in connection with, subsequent modifications, additions or deletions to this documentation, to the extent made by End User.

Link disclaimer

Avaya is not responsible for the contents or reliability of any linked websites referenced within this site or documentation provided by Avaya. Avaya is not responsible for the accuracy of any information, statement or content provided on these sites and does not necessarily endorse the products, services, or information described or offered within them. Avaya does not guarantee that these links will work all the time and has no control over the availability of the linked pages.

Warranty

Avaya provides a limited warranty on its hardware and Software ("Product(s)"). Refer to your sales agreement to establish the terms of the limited warranty. In addition, Avaya's standard warranty language, as well as information regarding support for this Product while under warranty is available to Avaya customers and other parties through the Avaya Support website: <http://support.avaya.com>. Please note that if you acquired the Product(s) from an authorized Avaya reseller outside of the United States and Canada, the warranty is provided to you by said Avaya reseller and not by Avaya. "Software" means computer programs in object code, provided by Avaya or an Avaya Channel Partner, whether as stand-alone products or pre-installed on hardware products, and any upgrades, updates, bug fixes, or modified versions.

Licenses

THE SOFTWARE LICENSE TERMS AVAILABLE ON THE AVAYA WEBSITE, [HTTP://SUPPORT.AVAYA.COM/LICENSEINFO](http://support.avaya.com/licenseinfo) ARE APPLICABLE TO ANYONE WHO DOWNLOADS, USES AND/OR INSTALLS AVAYA SOFTWARE, PURCHASED FROM AVAYA INC., ANY AVAYA AFFILIATE, OR AN AUTHORIZED AVAYA RESELLER (AS APPLICABLE) UNDER A COMMERCIAL AGREEMENT WITH AVAYA OR AN AUTHORIZED AVAYA RESELLER. UNLESS OTHERWISE AGREED TO BY AVAYA IN WRITING, AVAYA DOES NOT EXTEND THIS LICENSE IF THE SOFTWARE WAS OBTAINED FROM ANYONE OTHER THAN AVAYA, AN AVAYA AFFILIATE OR AN AVAYA AUTHORIZED RESELLER; AVAYA RESERVES THE RIGHT TO TAKE LEGAL ACTION AGAINST YOU AND ANYONE ELSE USING OR SELLING THE SOFTWARE WITHOUT A LICENSE. BY INSTALLING, DOWNLOADING OR USING THE SOFTWARE, OR AUTHORIZING OTHERS TO DO SO, YOU, ON BEHALF OF YOURSELF AND THE ENTITY FOR WHOM YOU ARE INSTALLING, DOWNLOADING OR USING THE SOFTWARE (HEREINAFTER REFERRED TO INTERCHANGEABLY AS "YOU" AND "END USER"), AGREE TO THESE TERMS AND CONDITIONS AND CREATE A BINDING CONTRACT BETWEEN YOU AND AVAYA INC. OR THE APPLICABLE AVAYA AFFILIATE ("AVAYA").

Avaya grants you a license within the scope of the license types described below, with the exception of Heritage Nortel Software, for which the scope of the license is detailed below. Where the order documentation does not expressly identify a license type, the applicable license will be a Designated System License. The applicable number of licenses and units of capacity for which the license is granted will be one (1), unless a different number of licenses or units of capacity is specified in the documentation or other materials available to you. "Designated Processor" means a single stand-alone computing device. "Server" means a Designated Processor that hosts a software application to be accessed by multiple users.

License types

CPU License (CP). End User may install and use each copy of the Software on a number of Servers up to the number indicated in the order provided that the performance capacity of the Server(s) does not exceed the performance capacity specified for the Software. End User may not re-install or operate the Software on Server(s) with a larger performance capacity without Avaya's prior consent and payment of an upgrade fee.

Named User License (NU). You may: (i) install and use the Software on a single Designated Processor or Server per authorized Named User (defined below); or (ii) install and use the Software on a Server so long as only authorized Named Users access and use the Software. "Named User", means a user or device that has been expressly authorized by Avaya to access and use the Software. At Avaya's sole discretion, a "Named User" may be, without limitation, designated by name, corporate function (e.g., webmaster or helpdesk), an e-mail or voice mail account in the name of a person or corporate function, or a directory entry in the administrative database utilized by the Software that permits one user to interface with the Software.

Heritage Nortel Software

"Heritage Nortel Software" means the software that was acquired by Avaya as part of its purchase of the Nortel Enterprise Solutions Business in December 2009. The Heritage Nortel Software currently available for license from Avaya is the software contained within the list of Heritage Nortel Products located at <http://support.avaya.com/LicenseInfo> under the link "Heritage Nortel Products". For Heritage Nortel Software, Avaya grants Customer a license to use Heritage Nortel Software provided hereunder solely to the extent of the authorized activation or authorized usage level, solely for the purpose specified in the Documentation, and solely as embedded in, for execution on, or (in the event the applicable Documentation permits installation on non-Avaya equipment) for communication with Avaya equipment. Charges for Heritage Nortel Software may be based on extent of activation or use authorized as specified in an order or invoice.

Copyright

Except where expressly stated otherwise, no use should be made of materials on this site, the Documentation, Software, or hardware provided by Avaya. All content on this site, the documentation and the Product provided by Avaya including the selection, arrangement and design of the content is owned either by Avaya or its licensors and is protected by copyright and other intellectual property laws including the sui generis rights relating to the protection of databases. You may not modify, copy, reproduce, republish, upload, post, transmit or distribute in any way any content, in whole or in part, including any code and software unless expressly authorized by Avaya. Unauthorized reproduction, transmission, dissemination, storage, and or use without the express written consent of Avaya can be a criminal, as well as a civil offense under the applicable law.

Third Party Components

"Third Party Components" mean certain software programs or portions thereof included in the Software that may contain software (including open source software) distributed under third party agreements ("Third Party Components"), which contain terms regarding the rights to use certain portions of the Software ("Third Party Terms"). Information regarding distributed Linux OS source code (for those Products that have distributed Linux OS source code) and identifying the copyright

holders of the Third Party Components and the Third Party Terms that apply is available in the Documentation or on Avaya's website at: <http://support.avaya.com/Copyright>. You agree to the Third Party Terms for any such Third Party Components.

Preventing Toll Fraud

"Toll Fraud" is the unauthorized use of your telecommunications system by an unauthorized party (for example, a person who is not a corporate employee, agent, subcontractor, or is not working on your company's behalf). Be aware that there can be a risk of Toll Fraud associated with your system and that, if Toll Fraud occurs, it can result in substantial additional charges for your telecommunications services.

Avaya Toll Fraud intervention

If you suspect that you are being victimized by Toll Fraud and you need technical assistance or support, call Technical Service Center Toll Fraud Intervention Hotline at +1-800-643-2353 for the United States and Canada. For additional support telephone numbers, see the Avaya Support website: <http://support.avaya.com>. Suspected security vulnerabilities with Avaya products should be reported to Avaya by sending mail to: securityalerts@avaya.com.

Trademarks

The trademarks, logos and service marks ("Marks") displayed in this site, the Documentation and Product(s) provided by Avaya are the registered or unregistered Marks of Avaya, its affiliates, or other third parties. Users are not permitted to use such Marks without prior written consent from Avaya or such third party which may own the Mark. Nothing contained in this site, the Documentation and Product(s) should be construed as granting, by implication, estoppel, or otherwise, any license or right in and to the Marks without the express written permission of Avaya or the applicable third party.

Avaya is a registered trademark of Avaya Inc.

Avaya Aura is a registered trademark of Avaya Inc.

Avaya ACE is a registered trademark of Avaya Inc.

All non-Avaya trademarks are the property of their respective owners, and "Linux" is a registered trademark of Linus Torvalds.

Downloading Documentation

For the most current versions of Documentation, see the Avaya Support website: <http://support.avaya.com>.

Contact Avaya Support

See the Avaya Support website: <http://support.avaya.com> for product notices and articles, or to report a problem with your Avaya product. For a list of support telephone numbers and contact addresses, go to the Avaya Support website: <http://support.avaya.com>, scroll to the bottom of the page, and select Contact Avaya Support.

Contents

Chapter 1: New in this Release.....	7
Chapter 2: Introduction.....	9
Support.....	9
Avaya Mentor videos.....	10
Chapter 3: Avaya Microsoft Lync Integration overview.....	11
Language support.....	11
Lync Integration features.....	12
Supported phones.....	13
Lync Integration network.....	13
Lync Integration support for Microsoft Office 365.....	14
Chapter 4: Lync Integration services.....	15
Telephony services with Lync Integration.....	15
Lync Integration telephony service limitations.....	16
Telephony presence with Lync Integration.....	18
Chapter 5: Dialing rules fundamentals.....	19
Simple dial plan.....	19
Simple dial plan examples.....	19
Dial plan variables.....	21
Chapter 6: Work flow for deploying Lync Integration.....	23
Chapter 7: Port configuration.....	25
Chapter 8: IP Office configuration.....	27
Chapter 9: Deploy Lync Integration on the desktop.....	29
Installing Lync Integration locally.....	29
Installing the Lync Integration on multiple machines from a remote server.....	30
Chapter 10: Troubleshooting Lync Integration.....	33
Add-in disappears when Conversation window is maximized.....	33
Application does not launch.....	33
Enabling debug when Lync Integration is not starting.....	34
Invalid phone number format: published phone number does not appear to My Contacts.....	34
Lync Integration Communicator Bar does not appear.....	35
Lync Integration may disable PC.....	35
Privacy settings block contact display: published phone number does not appear to My Contacts.....	36
Published work phone number does not appear in the Lync client.....	37
Scripting access to WMI is not working.....	37
Chapter 11: Uninstall Lync Integration.....	39
Uninstalling Lync Integration from the local desktop.....	39
Uninstalling Lync Integration from multiple machines.....	40

Chapter 1: New in this Release

This is the first release of *Avaya Microsoft Lync Integration Fundamentals for IP Office* (02–604119). There are no new features.

Chapter 2: Introduction

Avaya Microsoft Lync Integration Fundamentals for IP Office (02–604119) provides the information needed to administer Avaya IP Office deployments on Avaya Lync Integration.

This document is being released as part of the IP Office 8.1 release, but the version number listed in the Avaya Microsoft Lync Integration **Settings** panel is 6.2.0.

The Avaya Lync Integration is intended for a network environment where the Microsoft Lync Server 2010 is deployed. Avaya Lync Integration is a client side add-in to Microsoft Lync 2010.

Important:

Avaya Lync Integration is only supported on the Microsoft Lync 2010 client. Other versions of the Lync client do not support Lync Integration.

Terminology

Avaya product names:

The following product names are used for Avaya Lync Integration.

- Avaya Lync Integration
- Lync Integration

Microsoft product names:

The following product names are used for the Microsoft Lync solution.

- Microsoft Lync Server 2010
- Lync Server 2010
- Microsoft Lync 2010 (client)
- Lync 2010 (client)

Support

Visit the Avaya Support website at <http://support.avaya.com> for the most up-to-date documentation, product notices, and knowledge articles. You can also search for release notes, downloads, and resolutions to issues. Use the online service request system to create a service request. Chat with live agents to get answers to questions, or request an agent to connect you to a support team if an issue requires additional expertise.

Avaya Mentor videos

Avaya Mentor is an Avaya-run channel on YouTube that includes technical content on how to install, configure, and troubleshoot Avaya products.

Go to <http://www.youtube.com/AvayaMentor> and perform one of the following actions:

- Enter a key word or key words in the Search Channel to search for a specific product or topic.
- Scroll down Playlists, and click the name of a topic to see the available list of videos posted on the site.

Chapter 3: Avaya Microsoft Lync Integration overview

Network administrators can integrate the IP Office into their Microsoft Lync network infrastructure to enhance existing communication services. Administrators of Microsoft networks can provide unified communication services to clients utilizing their Avaya IP Office service provider.

The Avaya Lync Integration interacts with the Lync 2010 client directly using Microsoft Supported APIs. All telephony capabilities are integrated directly between Avaya Lync Integration, Avaya IP Office, and the Microsoft Lync 2010 client. The Avaya solutions telephony capabilities with Lync 2010 requires only a Standard CAL (license), eliminating the need for a Microsoft voice infrastructure and the Microsoft Lync Enterprise CAL. Remote Call Control and Enterprise Voice must be disabled on the Lync server.

Language support

Avaya Lync Integration supports the following languages:

- English
- French, International
- German
- Italian
- Japanese
- Korean
- Portuguese, Brazilian
- Russian
- Spanish, International
- Chinese, Simplified

Lync Integration features

The solution supports the following functionality.

- Make Calls from Contact list, or search dialog box utilizing contacts published numbers.
- Publish Telephony Presences on behalf of the user when their client is signed in and on a call.
- Display a conversation window with the following mid-call functionality:
 - Release/End call.
 - Place call on Hold and Retrieve call.
 - Insert DTMF digits in to an established call.
- Handling multiple calls
 - Support for multiple calls
 - While on a call, instigate a Call Transfer
 - Call waiting pop-up display
- Display an incoming call window with the following functionality:
 - Indicate the Incoming Caller line ID or Caller name.
 - Allow the user to answer or decline the call. If voicemail is enabled on the user's desk phone, a declined call is automatically transferred to voicemail.
 - Allow the user to disconnect an active call.
 - While on a call, indicate that another call is waiting. Answering this call places the first call on Hold.
- Support for Telecommuter mode using Avaya one-X Portal for IP Office
 - Users can make and receive calls using their mobile or home phone instead of their desk phone
 - When making calls, the user's desk phone number appears on the callee's call display

 Note:

When you install the Lync Add-in, the **Audio Device** and **Video Device** tabs are removed from the Lync **Options** menu. You cannot use audio and video devices, such as microphones and cameras, with the Lync Add-in.

Supported phones

The Lync Add-in for IP Office supports all IP Office phones. However, the following limitation applies for analog phones.

- The user cannot answer incoming calls through the Lync Add-in. The call must be answered from the desk phone.

Lync Integration network

Microsoft Lync 2010 may be deployed within an Enterprise, on premise, or within a Hosted Office 365 deployment. Avaya Microsoft Lync Integration will inter-operate with Lync 2010 clients deployed on the user's PC. The following diagram represents Avaya Lync Integration deployed within an Enterprise. For more information about Lync Integration deployed in a hosted service configuration, see [Lync Integration support for Microsoft Office 365](#) on page 14.

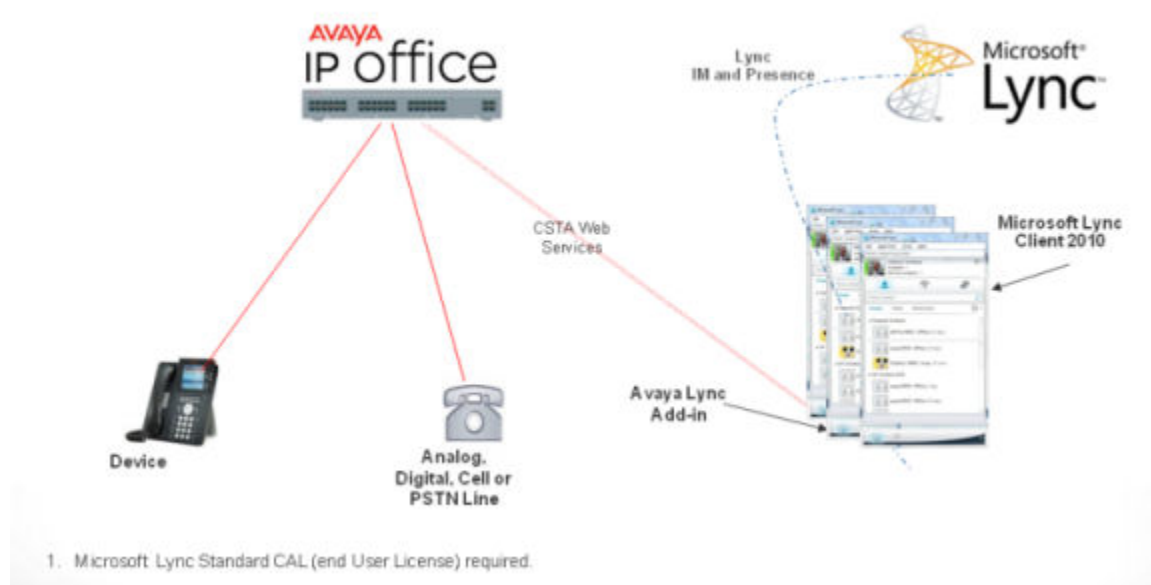


Figure 1: Avaya Lync Integration deployed in an Enterprise

Lync Integration support for Microsoft Office 365

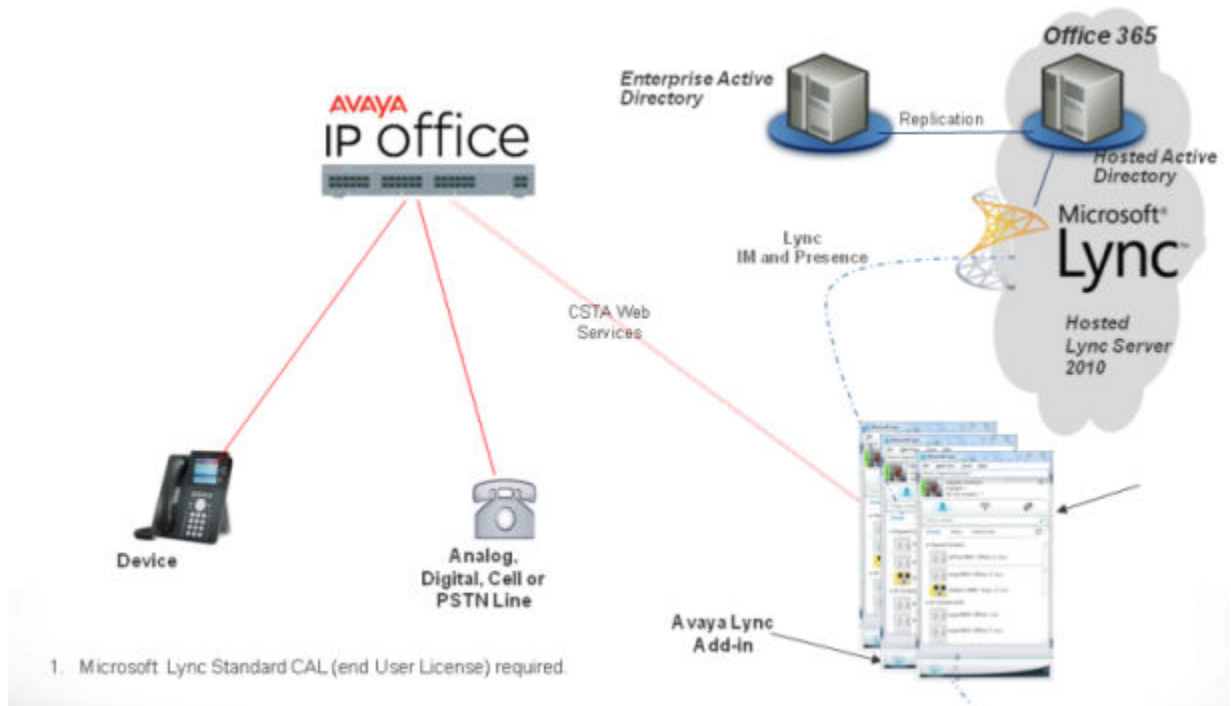


Figure 2: Avaya Lync Integration deployed in a Microsoft Office 365 environment

Authentication within an Office 365 deployment for IP Office

Once the Lync client is successfully logged in, Lync Integration launches. Upon verifying that the published work number of the user matches the Lync Integration extension, authentication occurs between the Avaya UC engine and the Avaya IP Office.

Chapter 4: Lync Integration services

Avaya Lync Integration is an add-in application that extends Microsoft Office Lync 2010 functionality using Lync supported APIs.

Integrating Lync Integration with Microsoft Lync 2010 enables telephony services in Lync 2010. Lync Integration customizes and configures Lync 2010 as part of its installation.

Note:

If you are using Lync 2010 over a Microsoft Remote Desktop session, it is recommended that you use Remote Desktop client version 6.1.7600.16385 or higher. Remote Desktop client software is available from the Microsoft web site. You should download the latest available version of the client as well as any available updates.

This chapter contains the following sections:

- [Telephony services with Lync Integration](#) on page 15
- [Telephony presence with Lync Integration](#) on page 18

Telephony services with Lync Integration

Lync Integration controls a single line, based on the user's primary line. If the user's desk phone supports multiple lines, non-primary lines will not be represented by Lync Integration.

The following table lists the functionality supported for Lync Integration with IP Office.

Note:

The following features are not supported for Lync Integration with IP Office:

- Single Step Transfer (Blind Transfer)
- Call History

Table 1: Telephony feature descriptions

Capability	Description
Make Call	Users can make a call on their phone by clicking on a contact in their contact list or entering a number in the Lync 2010 dialog box.

Capability	Description
Release Call	Users can end a phone call by clicking on the End Call icon in Lync Integration Conversation Bar.
Answer Call	Users can accept an incoming call that is presented to them via a pop-up window.
Decline Call	Users can decline a phone call by clicking the Decline Call icon in the Lync Integration Incoming Call Notification dialog box. On the PBX line, the call is treated as an unanswered call, and if voicemail is enabled, the call is redirected to voicemail.
Caller ID	Users receive Calling Party Name or Caller line ID in a popup window.
Call Hold and Retrieve	Users can place a call on hold using the Hold button within the Lync Integration Conversation Bar. The call may be retrieved by clicking somewhere within the text line when the call is in a held state.
Generate Digits (DTMF)	Users can initiate sending of DTMF digits through the PBX system by selecting the dial pad icon on the Add-in Conversation Bar.
Consult Call (multiple calls)	When on an active call, the user can: • answer a call • instigate a second call by clicking on a contact in their contact list or entering a number in the Lync 2010 dialog box When an additional call is answered or initiated, the previously active call is placed on hold. Multiple consult calls can be created.
Consult Transfer (multiple call transfer)	When one or more calls are established, the user is able to select, from a list of held calls, the call they wish to transfer their active call to.
Consult Conference	When one or more consult calls are established the user is able to select, from a list of held calls, the call they wish merge into a Conference call.
Call Waiting	When on an active call, a pop-up is presented indicating that an alternative call is waiting. If the user decides to answer this call, then the current active call is placed on hold. The new call now becomes the active call.

Lync Integration telephony service limitations

Lync Integration telephone service has the following limitations.

Lync server restarts

Avaya Lync Integration does not function during a Lync Server outage. Users retain the ability to use their desk phone to make calls until full functionality is restored.

Call Hold and Call Retrieve

After a network connectivity outage, the held state of the call is unknown and should be managed on the device.

Multiple Lync Integration sessions

Microsoft Lync supports multiple client sessions for each user. However, Avaya Lync Integration does not. For each user, only a single Lync Integration session can be running.

Lync Integration cannot be deployed on a shared computer. To avoid contention for telephony resources, only a single session of Lync Integration can run on a workstation at any time.

Multiple published work phone numbers

Avaya Lync Integration cannot support multiple published work phone numbers. Other phone numbers, such as home and mobile, can be published in the Lync client, but only one work phone number can be published. The published work phone number must match the number defined in the Active Directory.

Common phone numbers for multiple users

Multiple Lync Integration users should not publish the same Home, Mobile, or Other phone number in the Lync client. If multiple users have a common phone number, such as a reception or hunt group phone number, the users must create a new contact for the common phone number.

Multiple calls to the same contact

Only one Conversation window can be active against a Lync contact at a time. If a user needs to make a second call to the same contact while already on another active call with that contact, the user must make the call by entering the contact's alternative phone number in the Lync Search bar or by creating a separate contact for the phone number.

IP Office short codes entered in the Lync client's search field

When an IP Office short code is entered in the **Find a contact** bar in the Lync 2010 client, the Make Call conversation bar appears. It appears as though the Lync client is making a call even though the user is using the short code to perform a command. The user must close the conversation bar manually.

Important:

IP Office short codes that contain # do not work when entered in the Lync client. Users can only use short codes that do not contain the # symbol.

Conference calls with the People Options button

In a Lync Conversation window, users cannot use the **People Options** button to escalate a call or an instant messaging conversation to a conference call. The **People Options** button can only be used to add people to an instant messaging conversation.

Telephony presence with Lync Integration

The Lync Integration telephony presence implementation enables the “Busy – In A Call” status for a Lync 2010 user. Other Lync 2010 users see the appropriate presence status depending on their relative “Level of Access”. Lync Integration publishes the “Busy – In A Call” status when the user initiates a call, or when the user answers an incoming call. If the user has a call on hold, then “Busy – In a Call” is still published. If the user is part of multiple calls, “Busy – In A Call” is published until Lync Integration detects that the user is not part of any call.

The Custom Presence definition file is provided as a configuration item within the Lync Integration installation package. When custom presence is enabled on Lync 2010, the presence option “Busy – In A Call” is available in the list of presence options.

Do Not Disturb

While the Lync 2010 user presence status is “Do Not Disturb”, incoming call notifications are not presented on the user's Lync client. If voicemail is enabled on the desk phone, the phone rings once and then the call is redirected to voicemail.

Chapter 5: Dialing rules fundamentals

By default, Lync Integration uses the configured dial plan information defined within the Lync Integration **Settings** panel. These dial plan settings normalize phone numbers and match presented phone numbers with Lync contacts. This normalization requires the user extension to be a subset of the E.164 phone number; for example, the last 4 digits of the E.164 number. Dialing between users must be either extension dialing or E.164 dialing. In this document, this is referred to as a simple dial plan.

Simple dial plan

Users can configure dial plan settings in the Lync Integration **Settings** window by selecting the **Dialing Rules** tab.

Simple dial plan examples

North American dial plan example

E.164 Number +1 613 77[67] xxxx	
Number to dial to access an outside line	9
Your country code	1
Your area/city code	613
PBX Main Prefix	777
Number to dial for long distance calls	1
Number to dial for international calls	011
Extension length for internal extensions calls	4
Length of national phone numbers (including area/city code)	10
Include area/city code when making a local call	check

Results using a simple dial plan: North America

Dialed number is	Dialing number as	Entered number	Dialed number
Extension	E.164	+16133568293	8293
	International	01116133568293	901116133568293
	National	6133568293	8293
	Local	3568293	8293
	Extension	8293	8293
	Short code	500	500
Local	E.164	+16139078177	96139078177 (Include area code) or 99078177
	International	01116139078177	901116139078177
	National	6139078177	96139078177 (Include area code) or 99078177
	Local	9078177	99078177
National	E.164	+19088485596	919088485596
	International	01119088485596	901119088485596
	National	19088485596	919088485596
	Short code	911	911
International	E.164	+441628515068	9011441628515068
	International	011441628515068	9011441628515068

United Kingdom dial plan example

E.164 Number +44 1628 5xxxxx	
Number to dial to access an outside line	9
Your country code	44
Your area/city code	01628
PBX Main Prefix	5
Number to dial for long distance calls	0
Number to dial for international calls	00
Extension length for internal extensions calls	5

Length of national phone numbers (including area/city code)	10, 11
Include area/city code when making a local call	unchecked

Results using a simple dial plan: United Kingdom

Dialed number is	Dialing number as	Entered number	Dialed number
Extension	E.164	+441628515068	15068
	International	00441628515068	900441628515068
	National	01628515068	15068
	Local	515068	15068
	Extension	15068	15068
	Short code	4190	4190
Local	E.164	+441628777700	901628777700 (Include area code) or 9777700
	International	00441628777700	900441628777700
	National	01628777700	901628777700 (Include area code) or 9777700
	Local	777700	9777700
National	E.164	+441483308721	901483308721
	International	00441483308721	900441483308721
	National	01483308721	901483308721
	Special number	08001111	908001111
	Short code	999	999
International	E.164	+16133568293	90016133568293
	International	0016133568293	90016133568293

Dial plan variables

Variable	Description
Number to dial to access an outside line	The digit or digits you must dial to access an outside line.

Variable	Description
Your country code	The dialing code for your country.
Your area/city code	The area code or the city code where your phone server is located. You can enter multiple codes separated by commas. For example, 406, 208. In this example, Lync Integration treats all calls made the 406 or 208 regions as local calls.
PBX Main Prefix	The main prefix of your PBX. This is the digit(s) that comes after the area/city code and before the internal extension. If you cannot obtain the extension number by removing digits up to and including the PBX main prefix from an E.164 representation of the number, then this field should remain blank.
Number to dial for long distance calls	The digit or digits you must dial to make a long distance call.
Number to dial for international calls	The digit or digits you must dial to make an international call.
Extension length for internal extensions calls	The number of digits that comprise an internal extension. For example, if your internal extensions consist of five digits, enter 5. In this example, any number that consists of five digits or less would be treated as an internal extension. If your company supports internal extensions of varying lengths, enter the length numbers separated by commas. For example, if you use three-digit, five-digit, and seven-digit extensions, enter 3, 5, 7.  Note: If you specify multiple extension lengths, Lync Integration performs exact matches. For example, if you specify 3, 5, 7, then a four-digit number will not be recognized as an internal extension.
Length of national phone numbers (including area/city code)	The number of digits you must dial (including area/city code) for a call within your country.
Include area/city code when making a local call	Check the box if you are required to prefix the area or city code while making a local call.

Chapter 6: Work flow for deploying Lync Integration

This section illustrates the high level work flow required to deploy Avaya Lync Integration and lists the requirements for the network components.

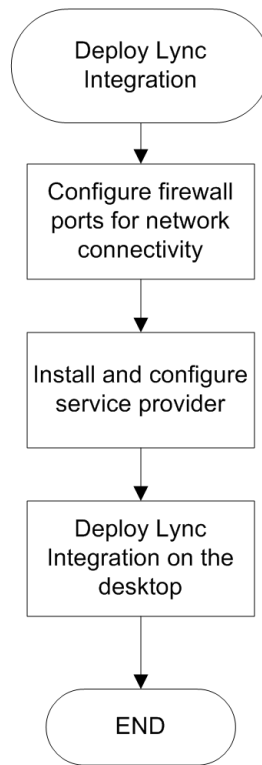
Lync Integration deployment notes

The following limitations apply to deployment of Lync Integration.

- The Avaya Lync Integration builds on Lync's IM and Presence capabilities. This requires the Lync 2010 Standard CAL . Upon deployment of Lync Integration, the Microsoft Lync 2010 UC capabilities are disabled.
- Lync Integration cannot be installed in conjunction with any other Lync Extension.
- Lync Integration supports a single extension per end user.
- Lync Integration may not integrate with other third party add-ins to the Microsoft Lync software. If Lync Integration fails to load after the installation of a third party add-in, you must reinstall Lync integration.

Deploying Lync Integration work flow

The work flow shows the tasks you perform to deploy Lync Integration.



Navigation

- **Configure firewall ports for network connectivity:** see [Port configuration](#) on page 25
- **Install and configure service provider:** see the requirements listed in [IP Office configuration](#) on page 27
- [Deploy Lync Integration on the desktop](#) on page 29

Chapter 7: Port configuration

Firewall rule configuration may be required for the solution deployment to work. This may require advance planning in order to comply with customer site IT governance and policy enforcement. The port number for the one-X server must be entered in the firewall rule configuration. The default port number is 8080.

When using Avaya Lync Integration outside of the company's LAN, the user must use VPN to ensure that a port forwarding rule is defined on the company's firewall. The forwarding rule forwards traffic on the port to the IP address of the one-X server.

Chapter 8: IP Office configuration

The IP Office Manager and one-X portal software must be installed and functional. As a minimum, the release 8.1 FP 1 version of the software must be installed.

For users to use Lync Integration for IP Office, you must do the following in the IP Office Manager software. For more information, see *IP Office Manager* (15–601011).

1. Select the user.
2. Click the **User** tab.
3. Under **Profile**, make sure that the **Enable one-X Portal Services** checkbox is selected.

 Important:

If the checkbox is not selected, the user receives the following warning when trying to start Lync Integration: User was not provisioned properly. Please contact your administrator.

Chapter 9: Deploy Lync Integration on the desktop

Prerequisites

The machine where Lync Integration is installed must meet the following requirements:

Table 2: Hardware requirements

Processor	1.8 GHz
Memory	1 GB (Windows XP) 2 GB (Windows 7)
Disk space	100 MB
Connectivity	Download bandwidth: 80 kbps Upload bandwidth: 80 kbps

Table 3: Software requirements

Operating system	Microsoft Windows XP Service Pack 3, or higher Microsoft Windows 7
Microsoft .Net	Release 4.0 or higher
Microsoft Lync 2010	Microsoft Lync 2010 version 4.0.7577.4103 or higher

Navigation

- [Installing Lync Integration locally](#) on page 29
- [Installing the Lync Integration on multiple machines from a remote server](#) on page 30

Installing Lync Integration locally

Use this procedure to install Avaya Lync Integration where the installation software is local to the machine where it is being installed. The Lync Integration is installed on end user machines coresident with Lync 2010.

When using this procedure to install Lync Integration, no installation log file is created. If you experience problems with installation, perform the installation from the command line and view

the log file. See [Installing the Lync Integration on multiple machines from a remote server](#) on page 30.

Before you begin

- You must have administrative privileges on the local desktop.
- You must have the Lync Integration .msi file.
- The Microsoft Lync 2010 client must be installed before Avaya Lync Integration is installed.

About this task

The log and support directories can be found in the APPDATA system property.

Procedure

1. If open, exit Microsoft Lync 2010.
 2. If open, exit Internet Explorer.
 3. Double click on the Microsoft Lync 2010 SDK installation file `LyncSdkRedist-4.0.7577.124.msi` and follow the instructions to complete the installation. This file only needs to be installed the first time Lync Integration is installed. For subsequent installations of Lync Integration, go to the next step.
 4. Double click on the Lync Integration installation file `LyncIntegration-<release#>.msi` and follow the instructions to complete the installation.
You may receive a prompt to restart the system. If this occurs, you must reboot the machine to complete the installation.
 5. Start Lync 2010.
 6. Start Lync Integration. On Lync 2010, select **Tools > Avaya Microsoft Lync Integration**.
-

Installing the Lync Integration on multiple machines from a remote server

To facilitate the integration of the Avaya Lync Integration software into bulk software distribution and installation infrastructure, the Lync Integration software can be installed without end-user intervention, using the following command:

```
msiexec /i [LyncIntegration]-<release#>.msi REBOOT=ReallySuppress /L*v  
[LyncIntegration].install.log /q
```

Installation notes

- The Microsoft Lync 2010 client must be installed before Avaya Lync Integration is installed.
- You must have the Lync Integration .msi file.
- The /q parameter kills running Lync 2010 client, Lync Integration, and one-X engine processes. The installation cannot proceed if the Microsoft Lync Client is running.
- You may receive a prompt to restart the system. If this occurs, you must reboot the machine to complete the installation.
- Any interaction with the Microsoft Lync Client by an end user during the installation can result in a failed installation. The [LyncIntegration].install.log will indicate the operation is complete. Please allow enough time for completion of the operation prior to re-starting the Lync 2010 client (up to 1 minute for slower machines). Failure to do so will result in an unsuccessful installation and the installation process must be repeated.
- You must have administrator privileges to install the application. On Windows 7, you must open the Command Prompt window using the **Run as administrator** option. To run the Command Prompt as administrator:
 - a. From the Windows start menu, type **Command Prompt** in the **Search programs and files** box.

The Command Prompt application is displayed in the list under **Programs**.
 - b. Right click on **Command Prompt** and select **Run as administrator**.

Lync Integration will start the next time Microsoft Lync 2010 is started after logging into Windows. To start Lync Integration without restarting Windows, from the Lync 2010 **Tools** menu, select **Avaya Microsoft Lync Integration**.

To validate the installation, view the log file `LyncIntegration.install.log`. The file contains text readable output of the installation process and indicates successful install of Lync Integration.

Deploy Lync Integration on the desktop

Chapter 10: Troubleshooting Lync Integration

Use the information in this chapter to help troubleshoot issues related to Lync Integration configuration. For the most detailed log information, run Lync Integration in debug mode. Click  to open the Settings window and then select the **Support** tab.

Add-in disappears when Conversation window is maximized

User Alert

The Avaya Lync Integration add-in disappears when users click the  icon to maximize the Conversation window. Users cannot control calls with Lync Integration.

Logs/Alarms

None.

Root Cause

Microsoft takes control of the screen when windows are maximized in the Lync client.

Recovery Action

Minimize the Conversation window. Expand the window by stretching it manually.

Application does not launch

User Alert

Lync Integration does not launch when signing into Lync Client 2010, and the Lync 2010 **Tools** menu does not contain the Avaya Lync Integration menu item.

Logs/Alarms

None.

Root Cause

Lync Integration application was not installed successfully.

Recovery Action

Examine Lync Integration installation log, rectify the failing condition, and repeat the installation. Microsoft Installer (MSI) error codes can be found here: <http://support.microsoft.com/kb/229683> .

Enabling debug when Lync Integration is not starting

User Alert

The user cannot get Lync Integration running, and you require more logs and debug information to resolve the issue.

Logs/Alarms

You must enable debug mode.

Root Cause

Unknown.

Recovery Action

1. Uninstall Lync Integration.
2. Reinstall Lync Integration using the following command line parameter:

```
msiexec /i LyncIntegrationIPO-6.2.0-SNAPSHOT.msi DEBUG=true
```
3. Restart Lync Integration.

Invalid phone number format: published phone number does not appear to My Contacts

User Alert:

The Microsoft Lync Communicator presents the following warning: "This number is not a valid phone number. Check the number and try again."

Logs/Alarms:

None.

Root Cause:

The telephone number is not a valid phone number. Only direct inward dial numbers are supported with the solution.

Recovery Action:

Phone numbers must use a Microsoft supported phone number format. See the Microsoft Lync 2010 documentation for information on supported formats. The following is a link to an online document: [Set Phones options and numbers](#).

Lync Integration Communicator Bar does not appear

User Alert:

No user alert displayed.

Logs/Alarms:

No Lync Integration logs.

Root Cause:

The Lync Integration process is not running because:

- The process was not started after a local install.
- The process has exited.

Recovery Action:

Start Lync Integration. From the Lync 2010 **Tools** menu, select **Avaya Microsoft Lync Integration**.

Lync Integration may disable PC

Lync Integration may disable the computer on which it is running. The computer displays a blue screen and is not responsive.

User Alert:

No user alert displayed.

Logs/Alarms:

No Lync Integration logs.

Root Cause:

The problem occurs because the computer graphics driver is not up to date and is conflicting with a Microsoft security update. The problem can be avoided by ensuring that the current graphics driver is installed.

Recovery Action:

1. Remove Security Update MS11-011 KB2393802.
2. Update graphics display driver to the latest manufacturer recommended version.
3. Reinstall the MS11-011 KB2393802 security patch.

If the workaround described above is not successful, do the following:

1. Restore a system update to a snapshot before installing the MS11-011 KB2393802 security patch.
2. Update graphics display driver to the latest manufacturer recommended version.
3. Reinstall the MS11-011 KB2393802 security patch.

Privacy settings block contact display: published phone number does not appear to My Contacts

User Alert:

When the user selects a contact and opens the Lync Integration contact card, or uses the **Make Voice Call** or **Make Video Call** buttons from the Lync Integration Conversation Bar, the user is presented with a “No call options available” message.

Logs/Alarms:

None.

Root Cause:

The contact has not published a phone number, or has not granted you access per the Microsoft Lync Privacy Relationship.

Recovery Action:

The rules that apply to Microsoft Lync 2010 presence and privacy relationships also apply to Avaya Lync Integration. For information on presence and privacy relationships, see the Microsoft Lync 2010 documentation. The following is a link to an online document: [Microsoft Communicator Presence and Privacy Relationships](#).

Published work phone number does not appear in the Lync client

User Alert

The user's published work phone number does not appear in the Lync client for up to several minutes. The user also receives a pop-up saying that the Lync Client Work Phone Number is not defined. If the user clicks **Cancel** in the pop-up message, Lync Integration shuts down. This issue occurs every time the user launches Lync Integration.

Logs/ Alarms

None.

Root Cause

The user's published work phone number has not been published in the E.164 format.

Recovery Action

Do one of the following:

- If the user's published work phone number is imported from Active Directory, make sure that all phone numbers in the Active Directory are published in the E.164 format.
- The user may also have permission to manually edit phone numbers in the Lync client. If this is the case, in the Lync client, under **Tools > Options > Phones**, the user must enter the published work phone number in the E.164 format.

Scripting access to WMI is not working

User Alert

There is a problem with this Windows Installer package. A script required for this install to complete could not be run. Contact your support personnel or package vendor.

Logs/Alarms

None.

Root Cause

The WMI repository on Windows XP is corrupted.

Recovery Action

Use the following steps to fix a corrupted WMI repository on Windows XP. For more information, see *Avaya one-X® Communicator Troubleshooting* (16–603218).

1. From the **Start** menu, select **Run**.
2. In the Run window, type `CMD.EXE`.
3. Enter the following command `net stop winmgmt`. Then press **Enter** on your keyboard.
4. Rename the folder `%windir%\System32\Wbem\Repository` (for example, you can rename the folder as `%windir%\System32\Wbem\Repository_Bad`).

 Note:

`%windir%` represents the path to the Windows directory, which is typically `C:\Windows`.

5. Open the Command Prompt window. To launch this window from the **Start** menu, do the following:
 - Click **Start > Programs > Accessories > Command Prompt**.
6. Type the following command:

```
net start winmgmt
EXIT
```

Press **Enter** on your keyboard after each line.

Chapter 11: Uninstall Lync Integration

This section contains the procedures for uninstalling the Avaya Lync Integration software deployed on the desktop.

Navigation

- [Uninstalling Lync Integration from the local desktop](#) on page 39
- [Uninstalling Lync Integration from multiple machines](#) on page 40

Uninstalling Lync Integration from the local desktop

Note:

- Avaya Lync Integration must be uninstalled before the Microsoft Lync 2010 client is uninstalled.

Before you begin

- You must have administrator privileges to uninstall the application.
- Close Lync 2010 before performing the uninstall.

Uninstallation notes

- If you attempt to uninstall Lync Integration from the Control Panel while an instance launched by a different user is still running, you receive the following message:

```
The following application is running and cannot be terminated: Avaya
Microsoft Lync Integration. The uninstaller cannot proceed.
Continue by choosing one of the following options:
- Restart the system and repeat the uninstall from the Control
  Panel.
- Uninstall using the command line procedure Uninstalling Lync
  Integration from multiple machines.
```
- You may receive a prompt to restart the system. If this occurs, you must reboot the machine to complete the uninstallation.
- Based on industry standard practise, the uninstall process does not remove the Lync Integration registry keys. The registry keys can be removed manually from `HKey_Current_User\Software\Avaya\Avaya Microsoft Integration`.
- The uninstall process does not remove the existing product log files. When upgrading from a previous version of the Lync client to a more recent version of the Lync client,

Uninstallation notes

the log destination folder changes. The log files from the previous client must be removed manually.

Procedure

1. From the Windows **Start** menu, select **Settings, Control Panel**, then **Add or Remove Programs**.
2. In the Add or Remove Programs window, select **Avaya Microsoft Lync Integration** and then click **Remove**.

You must exit the Lync 2010 client before removing Lync Integration. On Windows XP, you will receive a Fatal error during installation message when you try to remove Lync Integration while the Lync 2010 client is still running. This message has no user impact and no action is required.

3. You are prompted to confirm the uninstall. Click **Yes**.

Uninstalling Lync Integration from multiple machines

* Note:

- Avaya Lync Integration must be uninstalled before the Microsoft Lync 2010 client is uninstalled.

To facilitate the integration of the Avaya Lync Integration software into bulk software distribution and installation infrastructure, the Lync Integration software can be uninstalled without end-user intervention, using the following command.

```
msiexec /x [LyncIntegration]-<release#>.msi REBOOT=ReallySuppress /L*v  
[LyncIntegration].uninstall.log /q
```

Uninstallation notes

- The `/q` parameter kills the running Lync 2010 client, Lync Integration, and one-X engine processes. The uninstallation cannot proceed if the Microsoft Lync Client is running.
- Any interaction with the Microsoft Lync client by an end user during the uninstallation can result in a failed uninstallation. The `[LyncIntegration].install.log` will indicate the operation is complete. Please allow enough time for completion of the operation prior to restarting the Lync 2010 client (up to 1 minute, for slower machines). Failure to do so will result in an unsuccessful uninstallation and the uninstallation process must be repeated.

- You must have administrator privileges to uninstall the application. On Windows 7, you must open the Command Prompt window using the **Run as administrator** option. To run the Command Prompt as administrator:
 - a. From the Windows start menu, type **Command Prompt** in the **Search programs and files** box.

The Command Prompt application is displayed in the list under **Programs**.
 - b. Right click on **Command Prompt** and select **Run as administrator**.
- You may receive a prompt to restart the system. If this occurs, you must reboot the machine to complete the uninstallation.
- Based on industry standard practise, the uninstall process does not remove the Lync Integration registry keys. The registry keys can be removed manually from `HKey_Current_User\Software\Avaya\Avaya Microsoft Integration`.
- The uninstall process does not remove the existing product log files. When upgrading from a previous version of the Lync client to a more recent version of the Lync client, the log destination folder changes. The log files from the previous client must be removed manually.

To validate the uninstallation, view the log file `LyncIntegration.uninstall.log`. The file contains text readable output of the uninstallation process and indicates successful uninstall of Lync Integration.

