Administering Avaya Communicator for Microsoft Lync on Avaya Aura®

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Chapter 1: Introduction

Purpose

Administering Avaya Communicator for Microsoft Lync on Avaya Aura® (NN10850-014) provides the information needed to administer Avaya Aura® deployments of Avaya Communicator for Microsoft Lync. Avaya Communicator for Microsoft Lync can interwork with one of the following clients:

- Standard Lync 2010 client
- Standard Lync 2013 client
- Lync 2013 Basic client
- Lync 2013 Office 365 client
- Skype for Business 2015 and 2016

Note:

You can only have one Lync or Skype for Business client installed at a time.

Intended audience

This document is intended for people who perform deployment and system administration tasks, such as uninstalling, upgrading, and backing up and restoring data.

Document conventions

The following section outlines the conventions used in this document.

Terminology

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

- Microsoft Lync Server 2010 or 2013
- Lync Server 2010 or 2013
- Skype for Business 2015 Server
- Microsoft Exchange Server 2010 SP 1, 2013, or 2016

- Microsoft Lync 2010 or 2013 (client)
- Skype for Business 2015 and 2016 (client)
- Lync 2010 or 2013 (client)

Related resources

Documentation

Table 1: Avaya Communicator for Microsoft Lync documents

The following table provides a brief description of the Avaya Communicator for Microsoft Lync customer documentation being issued in this release.

Note:

Avaya Communicator for Microsoft Lync for CS 1000 documents are not being updated for this release. Information about the CS 1000 for Avaya Aura® solution (formerly known as the Collaboration Pack solution) is provided in *Administering Avaya Communicator for Microsoft Lync on Avaya Aura®* (NN10850–014).

Document number	Document title	Document type
Avaya Communicator for Microsoft Lync documents		
NN10850–014	*Administering Avaya Communicator for Microsoft Lync on Avaya Aura®*	Product overview, deployment, and administration information about Avaya Communicator for Microsoft Lync on Avaya Aura®. This document also provides overview information on the CS 1000 for Avaya Aura® solution (formerly known as the Collaboration Pack solution).
NN10850–041	*Using Avaya Communicator for Microsoft Lync 2010 on Avaya Aura®*	User guide describing how to navigate the Avaya Communicator for Microsoft Lync 2010 interface on Avaya Aura® and use features. **Note:** This document is also available as a help set integrated into the application.
02-604243	*Using Avaya Communicator for Microsoft Lync 2013 on Avaya Aura®*	User guide describing how to navigate the Avaya Communicator for Microsoft

Table continues…

Document number	Document title	Document type
		Lync 2013 interface on Avaya Aura® and use features. **Note:** This document is also available as a help set integrated into the application.
02–604198	*Avaya Communicator for Microsoft Lync Configurator Help*	Help set integrated into the Configurator tool and the Windows Start menu. This document is intended for administrative users, and describes the configuration options and specializations available through the Configurator.
Avaya Collaboration Services documents		
NN10850–031	*Administering Avaya Collaboration Services*	Product overview, deployment, and administration for Avaya Collaboration Services.
02-604208	*Using Avaya Collaboration Services*	Available as a help set integrated into the application. This document describes the features available to users with the Collaboration Services Office and Browser applications.

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3. Put your cursor over **Support by Product**.
4. Click **Documents**.
5. In the **Enter your Product Here** search box, type the product name and then select the product from the drop-down list.
6. If there is more than one release, select the appropriate release number from the **Choose Release** drop-down list.
7. Use the **Content Type** filter on the left to select the type of document you are looking for, or click **Select All** to see a list of all available documents.

   For example, if you are looking for user guides, select **User Guides** in the **Content Type** filter. Only documents in the selected category will appear in the list of documents.

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  - Scroll down Playlists, and click the name of a topic to see the available list of videos posted on the website.

Note:

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Go to 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.

Chapter 2: Avaya Communicator for Microsoft Lync overview

Avaya Communicator for Microsoft Lync is intended for a network environment where the Microsoft Lync Server is deployed. Avaya Communicator for Microsoft Lync is a client side add-in to the Microsoft Lync 2010 and 2013, and Skype for Business 2015 and 2016. Avaya Communicator for Microsoft Lync can be used to control an H.323 or SIP desk phone or a VDI Communicator client.

Avaya Communicator for Microsoft Lync joins Avaya Aura® communications with the Lync or Skype for Business client using Microsoft supported APIs. The result is industry leading Avaya communications integrated into the look and feel of Microsoft Lync. Avaya Communicator for Microsoft Lync can interwork with a desk phone or a VDI Communicator client. Using Computer Telephony Integration (CTI), you can integrate the telephone with the computer for managing telephone calls. Using a Virtual Desktop Infrastructure (VDI) soft client, you can enhance the audio quality of voice calls by processing the audio locally on your VDI endpoint. The VDI endpoint can be a thin client or a Windows personal computer.

Avaya Communicator for Microsoft Lync provides the following operational modes:

- Desk Phone or Shared Control mode.
- Computer mode.

  Note:

  Computer mode is not supported when Avaya Communicator for Microsoft Lync is deployed with a VDI client.
- Other Phone mode.

For a detailed description of Avaya Communicator for Microsoft Lync functionality, see Telephony and video services with Avaya Communicator for Microsoft Lync on page 32.

Avaya Communicator for Microsoft Lync interacts with Lync 2010, Lync 2013, or Skype for Business 2015 and 2016 directly using Microsoft supported APIs. All telephony capabilities are integrated directly between Avaya Communicator for Microsoft Lync and the Microsoft Lync or Skype for Business client. You only require 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.

Related links

New in this release on page 14
Language support on page 15
Interoperability on page 15

Avaya Communicator for Microsoft Lync network on page 16

New in this release

The following section details what is new in Avaya Communicator for Microsoft Lync on Avaya Aura® for Release 6.4.

Product names rebranded

Avaya Client Applications Lync Integration has been rebranded to Avaya Communicator for Microsoft Lync. The Configurator component has been rebranded to Avaya Communicator for Microsoft Lync Configurator.

Bridged Line Appearance

With Bridged Line Appearance, the incoming call notification indicates who the call is intended for, and displays the name and phone number of the bridged line owner.

Call History

Avaya Communicator for Microsoft Lync generates call history records for incoming, outgoing, and missed calls.

Multiple Device Access

With Multiple Device Access (MDA), you can log in to your extension, answer calls, and join calls from multiple devices.

Important:

MDA is only supported on SIP endpoints.

Dual Registration

Using Dual Registration, you can register Avaya Communicator for Microsoft Lync as an H.323 endpoint and simultaneously register a single SIP endpoint.

EC500

Using EC500, you can answer Avaya Communicator for Microsoft Lync calls on your Avaya Aura® PBX telephone.

Automatic Configuration

Automatic configuration automatically populates the Avaya Communicator for Microsoft Lync settings. To activate automatic configuration, select **Settings** > **Support** > **Automatically Configure Settings**.

Support for new headset vendor software

Avaya Communicator for Microsoft Lync supports the following new headset vendor software:

- Jabra Direct 3.2
- Plantronics Hub 3.7

For more information about compatibility list of supported headsets, see:

- Jabra Direct: http://www.jabra.com/headsets-and-speakerphones/compatibilityguide .
- Plantronics Hub: http://www.plantronics.com/us/compatibility-guide/ .

Related links

Avaya Communicator for Microsoft Lync overview on page 13

Language support

Avaya Communicator for Microsoft Lync supports the following languages:

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

Related links

Avaya Communicator for Microsoft Lync overview on page 13

Interoperability

Avaya Communicator for Microsoft Lync requires certain key components to work. Avaya Communicator for Microsoft Lync can also optionally interoperate with Avaya applications including:

- Avaya Collaboration Services
- Avaya Aura® Conferencing and Collaboration Agent

Tip:

For easy access to Collaboration Agent web conferencing, you can select the **Remember Me** check box on the login page to save your username and password. With this option selected,

you can automatically log in to your web conference without entering your credentials every time.

For additional information about Avaya Collaboration Services, see *Administering Avaya Collaboration Services* (NN10850–031).

For information about Avaya Aura® Conferencing and Collaboration Agent, see:

- *Deploying Avaya Aura® Conferencing*
- *Administering Avaya Aura® Conferencing*
- *Using Avaya Aura® Conferencing Collaboration Agent*

Avaya Communicator for Microsoft Lync network

Microsoft Lync can be deployed within an Enterprise, on premise, or within a Hosted Office 365 deployment. The following diagrams represent Avaya Communicator for Microsoft Lync deployed within an Enterprise. For more information about Avaya Communicator for Microsoft Lync deployed in a hosted service configuration, see Avaya Communicator for Microsoft Lync support for Microsoft Office 365 on page 18.

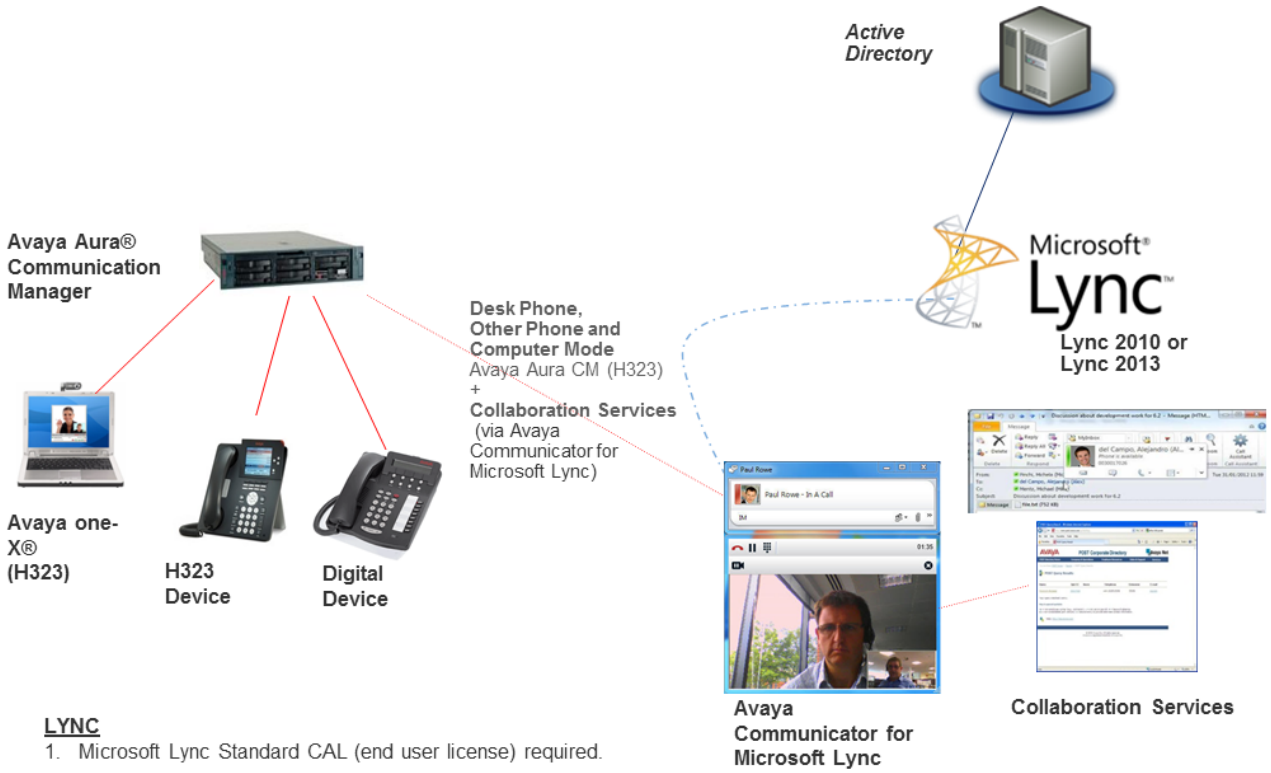


Figure 1: Avaya Communicator for Microsoft Lync deployed in an Enterprise with an H.323 endpoint



Figure 2: Avaya Communicator for Microsoft Lync deployed in an Enterprise with a SIP client

Avaya Communicator for Microsoft Lync support for Microsoft Office 365

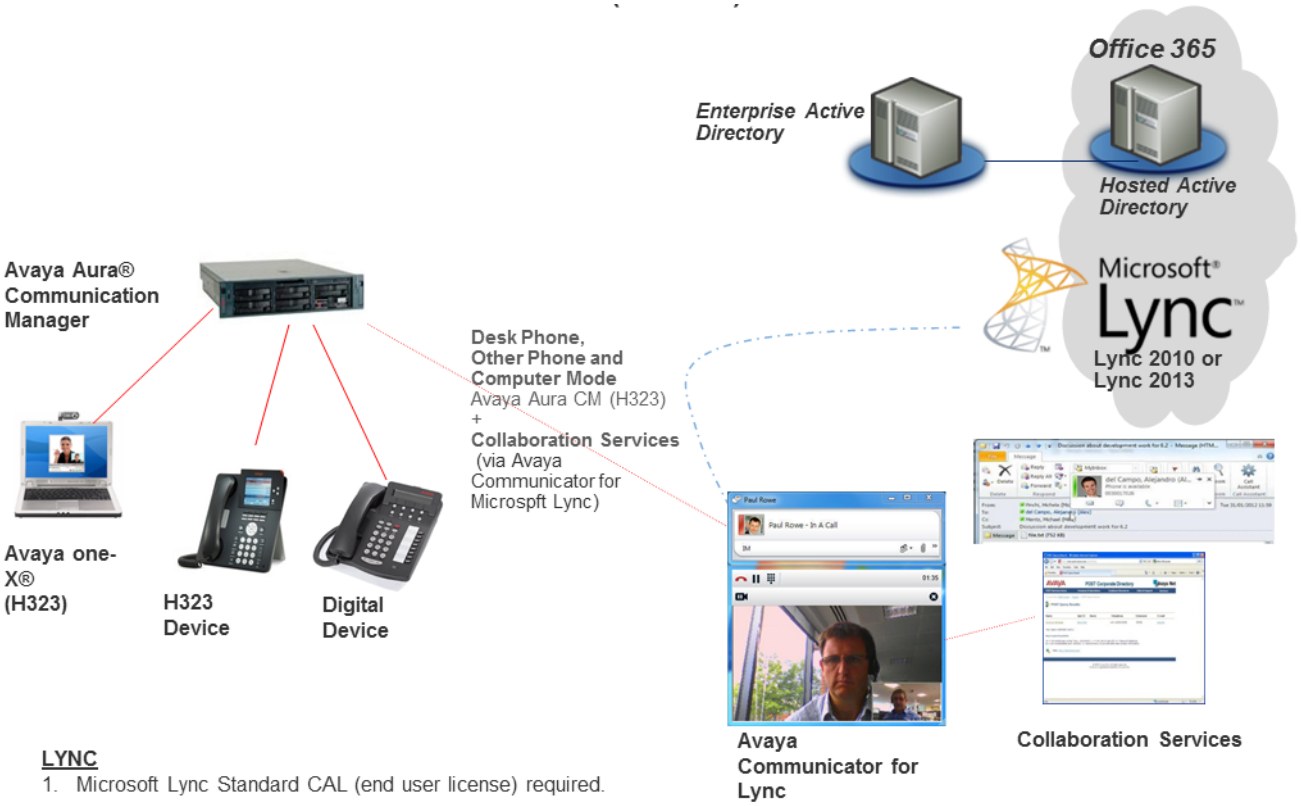


Figure 3: Avaya Communicator for Microsoft Lync with an H.323 endpoint deployed in a Microsoft Office 365 environment

The following diagram illustrates Avaya Communicator for Microsoft Lync with a SIP client in an Internet deployment. In this type of deployment, the SIP device is connected to Avaya Aura® Session Manager.

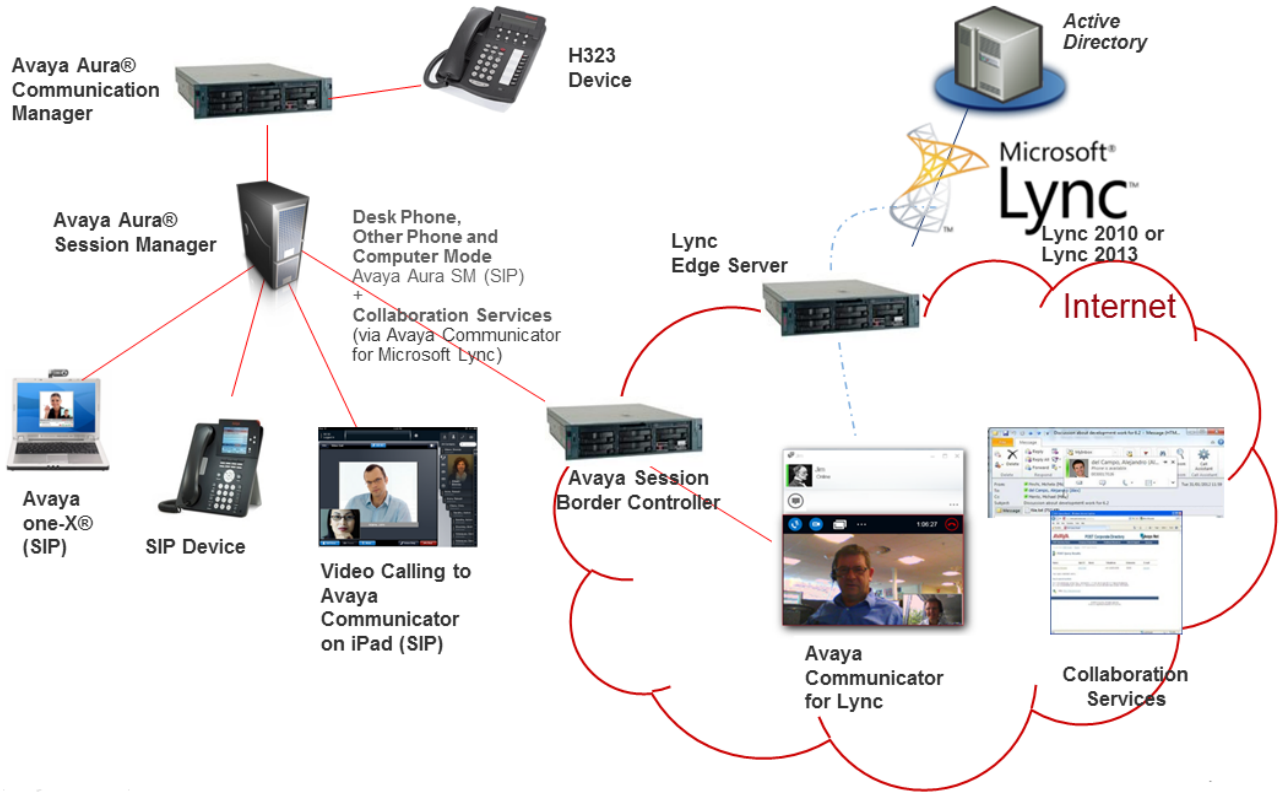


Figure 4: Avaya Communicator for Microsoft Lync with a SIP client in an Internet deployment

Authentication within an Office 365 deployment for Avaya Aura®

Avaya Communicator for Microsoft Lync runs when the Lync or Skype for Business client is successfully logged in. After verifying that the published work number of the user matches the Avaya Communicator for Microsoft Lync extension, authentication occurs between the Avaya UC engine and the Avaya Aura® system. For more information about Office 365 versions that can interwork with Avaya Communicator for Microsoft Lync, see http://support.avaya.com/CompatibilityMatrix/Index.aspx.

Related links

Client on page 28

Chapter 3: Avaya Communicator for Microsoft Lync on Avaya Communication Server 1000 with Avaya Aura® architecture

The CS 1000 with Avaya Aura® solution (formerly known as the Collaboration Pack solution) is used to extend Avaya Communicator for Microsoft Lync on Avaya Aura® functionality to CS 1000 users. This solution is suitable for users who want to retain their CS 1000 desk phone and add additional Avaya Aura® functionality such as point-to-point video support with Avaya Communicator for Microsoft Lync. The solution does not use the Avaya ACE™ server. Solution features include support for:

- Computer mode with point-to-point video.
- Other Phone mode.

The Avaya Aura® system controls calls over the extension of user, providing support for Computer mode. Avaya Communicator for Microsoft Lync registers directly to Avaya Aura®, and voice and video calls are presented on the computer of user.

The following diagram provides an overview of the solution topology.

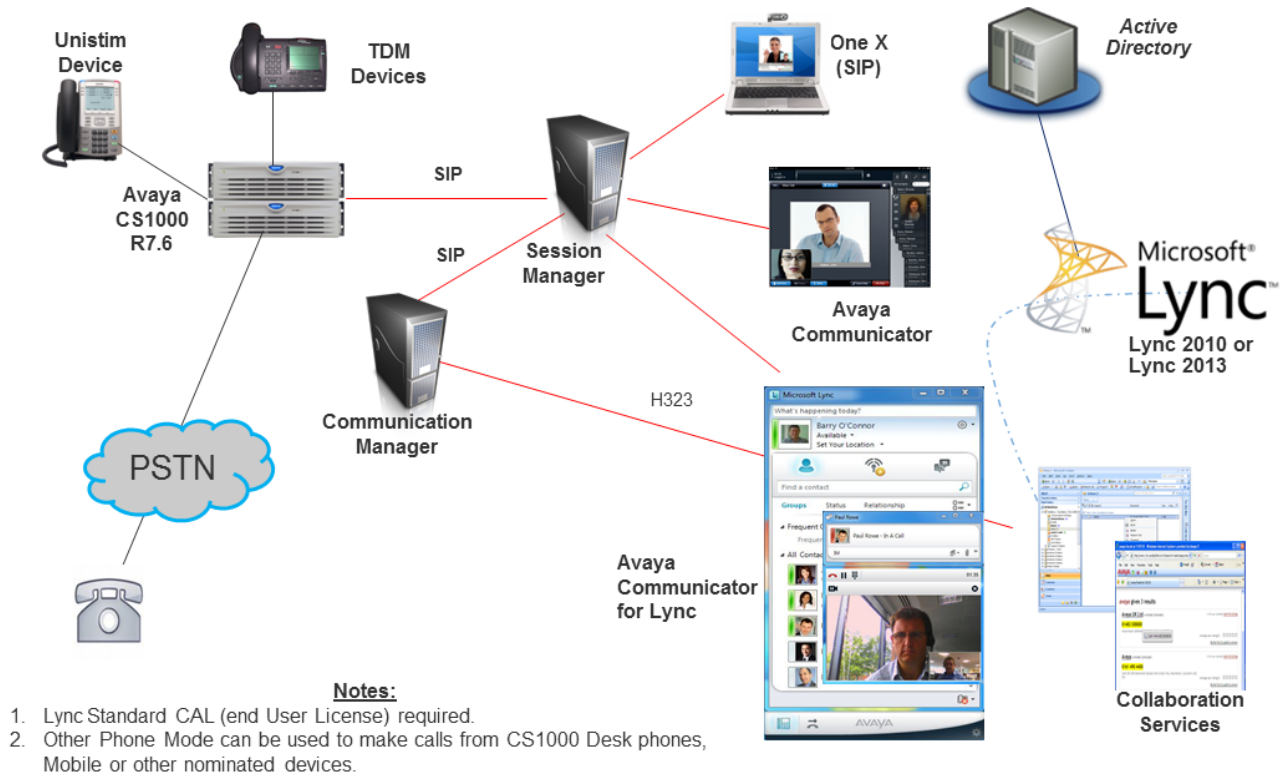


Figure 5: Topology for CS 1000 with Avaya Aura® solution

CS 1000 with Avaya Aura® features

The CS 1000 with Avaya Aura® solution uses the Lync or Skype for Business client for Presence and Instant Messaging, and leverages Avaya Communicator for Microsoft Lync for voice and video call functionality.

The features that this solution offers in Computer mode and Other Phone mode are similar to the features offered with a standard Avaya Communicator for Microsoft Lync on Avaya Aura® deployment. The solution includes the following key functionality.

- Support for video calls between peers is integrated into the Lync or Skype for Business client.
- Ability to switch between Computer mode and Other Phone mode. Desk Phone mode is not supported.
- Ability to make Avaya Communicator for Microsoft Lync voice or video call from:
  - Lync contact list
  - Microsoft applications, including Outlook, Word, Excel, PowerPoint, and SharePoint
  - Internet Explorer
  - Google Chrome

- Ability to escalate and de-escalate from:
  - An IM conversation to a voice or video call
  - A voice call to a video call
- Voice and video call options for Auto-answer or manual Accept and Ignore.
- Support for mid call control operations through the Avaya Communicator for Microsoft Lync Conversation window. These mid call control operations include:
  - Mute voice
  - Block and unblock camera
  - Hold and retrieve voice and video calls
  - Enter DTMF digits in an active call
  - Multi-call handling, such as voice and video call transfer as well as escalation or de-escalation of a video conference to an audio conference.
- Video interoperability with Avaya Aura®, Avaya Scopia®, and Polycom

Important:

Video functionality is supported in Computer mode, but a video call cannot be started when Other Phone mode is being used to control the CS 1000 desk phone, mobile phone, or other device of user.

Related links

Telephony and video services with Avaya Communicator for Microsoft Lync on page 32
Computer mode on page 37
Other Phone mode on page 38

CS 1000 with Avaya Aura® administration

Avaya Communicator for Microsoft Lync administration for the CS 1000 with Avaya Aura® solution is similar to the administration described in this document. However, there are some differences such as:

- PSTN trunking is performed through CS 1000 and not through Avaya Aura®.
- The primary work phone number for the user must be published as part of the solution configuration. The primary work phone number of user is not the standard CS 1000 desk phone number.

For more information about administering the CS 1000 with Avaya Aura® solution, see *White Paper/ Application Note: Configuring Avaya Communication Server 1000E and Avaya Aura® when deploying Avaya Client Applications for Microsoft Lync*.

Chapter 4: Avaya Communicator for Microsoft Lync Virtual Desktop architecture

Avaya Communicator for Microsoft Lync supports Virtual Desktop Infrastructure (VDI) deployments in Desk Phone (Shared Control) and Other Phone modes. VDI is a desktop computing deployment strategy where a virtual machine in the data center houses user data and applications. Monitor, keyboard, and mouse functionality is extended to the desktop.

With this deployment, Avaya Communicator for Microsoft Lync is installed on a centralized Citrix or VMware server in the data center. Citrix Xen Desktop, Xen Applications, or VMware Horizon viewers provide local users with access to applications and services, allowing users with a VDI setup to directly control their Avaya Aura® SIP desk phone.

The following diagram shows Avaya Communicator for Microsoft Lync in architectural topology for VDI deployments.

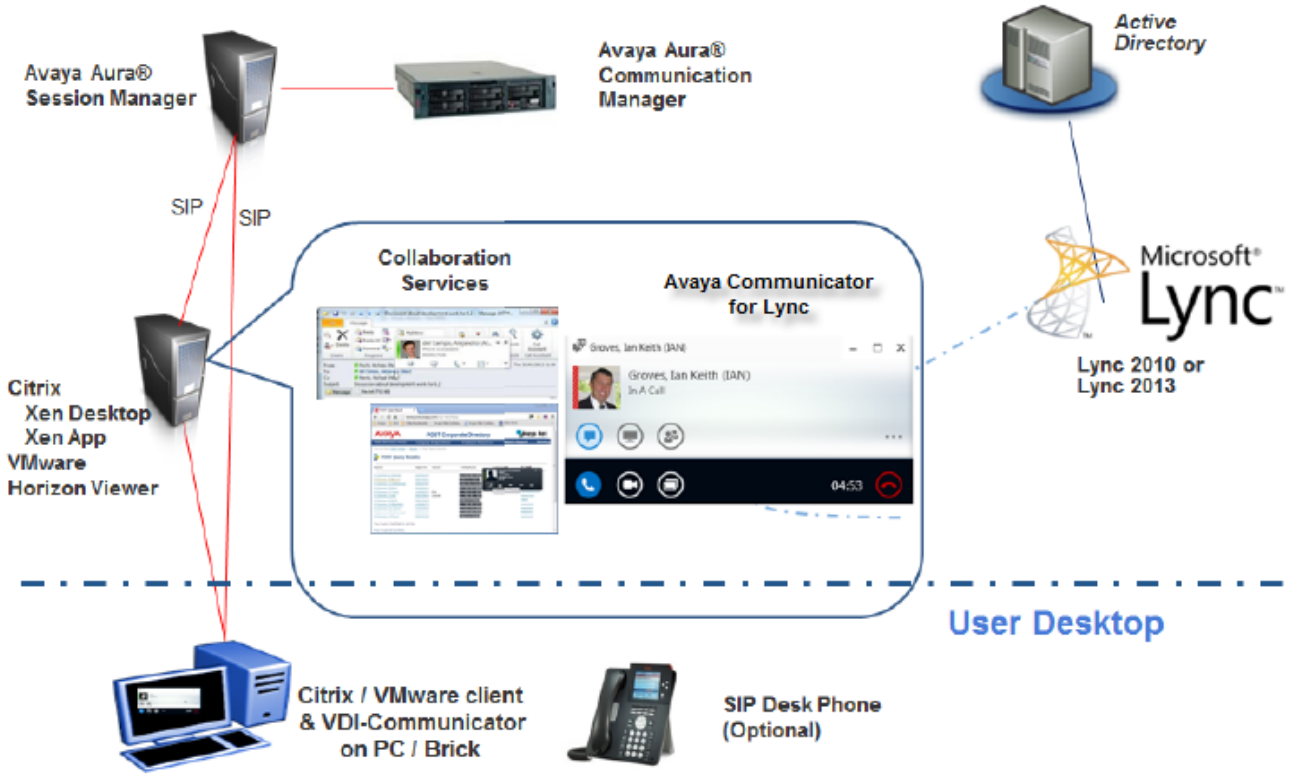


Figure 6: Virtual desktop topology

Avaya Communicator for Microsoft Lync Virtual Desktop features

The Avaya Communicator for Microsoft Lync VDI solution uses the Lync or Skype for Business client for Presence and Instant Messaging, and leverages Avaya Communicator for Microsoft Lync for voice call functionality. The solution offers Other Phone mode and Desk Phone (Shared Control) mode. Desk Phone (Shared Control) mode can either operate with an Avaya desk phone or a VDI Communicator client, with the experience similar to a standard Avaya Communicator for Microsoft Lync on Avaya Aura® deployment.

The key functionality of Avaya Communicator for Microsoft Lync in conjunction with VDI includes the following:

- Support for audio calls between peers is integrated into the Lync or Skype for Business client.
- Ability to switch between Desk Phone (Shared Control) mode and Other Phone mode. Computer mode is not supported.

- Ability to make Avaya Communicator for Microsoft Lync voice call from:
  - Avaya Communicator for Microsoft Lync Dialpad
  - Lync contact list
  - Microsoft applications, including Outlook, Word, Excel, PowerPoint, and SharePoint
  - Internet Explorer
  - Google Chrome
- Ability to escalate and de-escalate from:
  - An IM conversation to a voice call
- Option to manually Accept and Ignore voice calls.
- Support for mid call control operations through the Avaya Communicator for Microsoft Lync Conversation window. These mid call control operations include:
  - Mute voice
  - Hold and retrieve voice calls
  - Enter DTMF digits in an active call
  - Multiple call handling, such as share my bridge, voice call transfer, or voice conference

Related links

Telephony and video services with Avaya Communicator for Microsoft Lync on page 32
Desk Phone (Shared Control) mode on page 38
Other Phone mode on page 38

Avaya VDI Communicator deployment

Avaya Communicator for Microsoft Lync supports Avaya VDI Communicator deployments. Customers are looking to deliver unified communications (UC) and business productivity applications on a single desktop device, eliminating the need to deploy a desk phone. Avaya transfers real time media from the data center to the client.

Avaya VDI Communicator can be deployed on a thin client or a re-purposed PC used as a VDI client. VDI Communicator applications allow users to access their virtualized desktops in the data center. Traditional VDI deployments focus on application hosting from the data center and not real time communications. Real time communications that go through the data center before reaching the VDI application add delay, latency, and media processing. Using a VDI Communicator application instead of a traditional VDI deployment prevents these issues. VDI Communicator applications also provide survivability, without the Lync or Skype for Business client, so you can continue communication sessions with VDI even after connectivity to the data center is lost.

For additional information on VDI deployment options with Avaya Communicator for Microsoft Lync or Collaboration Services, see *Solution Description Document: Microsoft Lync 2013 with Avaya Aura® and Collaboration Services for Microsoft Applications and Web Browsers*.

Avaya Communicator for Microsoft Lync feature enhancements with Avaya VDI Communicator

When Avaya Communicator for Microsoft Lync is connected to and controlling Avaya VDI Communicator, the following user experience changes exist:

- The Switch Modes button indicates that you are controlling a VDI Communicator application.
- Mute microphone functionality is exposed to the user on the Avaya Communicator for Microsoft Lync Conversation bar. This functionality only appears when Avaya Communicator for Microsoft Lync is controlling an Avaya VDI Communicator application.

Avaya Communicator for Microsoft Lync limitations with VDI Communicator

- Video calls are not supported.
- VDI Communicator does not support H.323 endpoints.

Virtual Desktop interoperability requirements

The following table summarizes VDI product and server requirements. For detailed information about VDI requirements, including Virtual Desktop versions, see https://support.avaya.com/CompatibilityMatrix/Index.aspx.

Table 2: VDI requirements

Virtual Desktop versions	Latest versions of Citrix Xen Desktop, Citrix Xen Applications, and VMWare Horizon View
Virtual Desktop servers	Windows 2008 R2 Enterprise for Citrix Xen Desktop, Citrix Xen Applications, Microsoft Terminal Server, and VMWare Horizon View
VDI Communicator	Version 2.0

The following table lists the VDI specifications for various types of resources:

Table 3: VDI specifications

Resource type	Operating system	vCPU	RAM per user (in GB)	RAM per system (in GB)	Users per virtual machine
Xen Desktop Personal or Pooled desktop	Windows 7	2	2	N/A	1
	Windows 8.1	2	2	N/A	1
VMware Horizon	Windows 7	2	2	N/A	1

Table continues…

Resource type	Operating system	vCPU	RAM per user (in GB)	RAM per system (in GB)	Users per virtual machine
	Windows 8.1	2	2	N/A	1
XenApp - Hosted Apps or Shared desktop	Windows 2008 R2	8	N/A	24	12 to 18
	Windows 2012	8	N/A	24	12 to 18
	Windows 2012 R2	8	N/A	24	12 to 18
Microsoft Terminal Server Microsoft Remote Desktop Services	Windows 2008 R2	8	N/A	24	12 to 18
	Windows 2012	8	N/A	24	12 to 18
	Windows 2012 R2	8	N/A	24	12 to 18

Note:

- The recommended specifications are for a normal workload of an office-based user.
- With additional memory, you can add more users per virtual machine.

The following table summarizes the server specifications:

Table 4: Server and system memory specifications

Server type	CPU	System memory (in GB)	Hard Disk Drive (in GB)	Operation system
IBM BladeCenter HS22-[7870AC1]	Intel Xeon CPU E5540 @ 2.53 GHz	40	552	Windows 2012
Dell R620	Intel Xeon CPU E5-2640 @ 2.50 GHz	80	900	XenServer 6.2

Related links

Client work station requirements on page 30

Chapter 5: Avaya Communicator for Microsoft Lync key components

Avaya Communicator for Microsoft Lync features the following key components.

Client

Microsoft Lync is the unified communication desktop client providing IM and presence capabilities to the overall solution. The Microsoft Lync server delivers IM and presence aggregation services to the end user.

Users can use one of the following clients:

- Standard Lync 2010 client
- Standard Lync 2013 client
- Lync 2013 Basic client
- Lync 2013 Office 365 client
- Skype for Business 2015 and 2016

Related links

Avaya Communicator for Microsoft Lync support for Microsoft Office 365 on page 18

Configurator

Use the Avaya Communicator for Microsoft Lync Configurator to generate builds for Avaya Communicator for Microsoft Lync and Avaya Collaboration Services. The Configurator enables you to:

- Specify settings and preferences for your builds.
- Specify custom rules or include an advanced dial plan file.
- Enter an automatic configuration link for Avaya Communicator for Microsoft Lync. This automatically populates your Avaya Communicator for Microsoft Lync client settings at startup.

Avaya Communicator for Microsoft Lync

Avaya Communicator for Microsoft Lync is a client side add-in to the Microsoft Lync and Skype for Business clients. It utilizes the Lync or Skype for Business client user interface to drive Avaya Voice capabilities to the end user. Avaya Communicator for Microsoft Lync operates in three modes: Desk Phone mode, Computer mode, and Other Phone mode. In Computer mode, it utilizes the Avaya Unified Communication (UC) desktop engine to deliver soft client functionality. In Phone mode, it provides CTI control over the desk phone of end user.

To use Avaya Communicator for Microsoft Lync on Lync 2013 or Skype for Business 2015 and 2016, you must download the minimum patch available at http://support.microsoft.com/kb/2825630. Avaya recommends using the latest patch.

Microsoft Lync Server

The Microsoft Lync Server provides the end user with IM and Presence aggregation functionality. Avaya Communicator for Microsoft Lync builds on this Lync functionality and its Lync or Skype for Business client user interface to deliver an Avaya voice experience.

Service providers

The following service provider is supported with Avaya Aura® based Lync deployments:

- Avaya Aura® Communication Manager (Computer and Desk Phone mode)
- Avaya Aura® Session Manager (for SIP)
- Avaya Session Border Controller for Enterprise (optional for SIP Desk Phone or Shared Control mode)

Related links

SIP Shared Control mode interworking with Avaya Session Border Controller for Enterprise on page 73

Supported desk phones (hardware)

Avaya Aura® based Lync deployments support the following phones:

- All Avaya Digital Phone series 94xx, 24xx, 64xx, and 14xx
- Avaya SIP phone series 961x (including 9608)
- Avaya H.323 phone series 46xx, 24xx, 64xx, 96x0, and 96xx (except 9610)

All H.323 16xx phones configured as 46xx phones on the Communication Manager server are also supported. For more information about aliasing one telephone model as another, see **Using an Alias** in *Administering Avaya Aura® Communication Manager* (03-300509).

Approved headsets and cameras

Avaya Communicator for Microsoft Lync supports the following new headset vendor software:

- Jabra Direct 3.2
- Plantronics Hub 3.7

For more information about compatibility list of supported headsets, see:

- Jabra Direct: http://www.jabra.com/headsets-and-speakerphones/compatibilityguide .
- Plantronics Hub: http://www.plantronics.com/us/compatibility-guide/ .

For more information about supported versions of cameras and headsets, see:

- Avaya DevConnect website at http://www.devconnectprogram.com.
- Support website interoperability matrix at https://secureservices.avaya.com/compatibility-matrix/menus/product.xhtml?name=Avaya+Communicator+for+Microsoft+Lync under non-Avaya products.

Note:

Follow Microsoft Windows Operating System Recommended Hardware requirements based on the Operating System version information.

Client work station requirements

The machine where Avaya Communicator for Microsoft Lync is installed must meet the following requirements. For detailed information about interoperability and supported versions, see http://support.avaya.com/CompatibilityMatrix/Index.aspx.

Table 5: Hardware requirements

Processor	2 GHz
Memory	• 2 GB (32 Bit) • 4 GB (64 Bit)
Disk space	500 MB
Connectivity	Download bandwidth: 80 kbps Upload bandwidth: 80 kbps

Table continues…

Video	For deployments with video enabled, the following hardware requirements must be met: • Intel Dual Core, Core 2 Duo, Core i3, or higher processor • 500 MB video RAM with 100 MB of PC memory dedicated to video • Minimum 4 GB memory on 64 Bit systems • Digital video camera (up to 720p is supported)

Table 6: Software requirements

Operating system	• Microsoft Windows 7 • Microsoft Windows 8 and 8.1 **Note:** Apply the latest Microsoft patch to Windows 8.
Microsoft .Net	Release 4.0 or higher
Microsoft Lync client	• Microsoft Lync 2010 version 4.0.7577.4103 or higher • Microsoft Lync 2013 version 15.0.4649.1000 or higher

Related links

Virtual Desktop interoperability requirements on page 26

Configurator requirements

The Configurator is an administrative tool used to configure and build the installation packages for Avaya Communicator for Microsoft Lync prior to distribution to end users.

Table 7: Configurator requirements for administrators

Software prerequisites	Supported OS
Administrators must have the following software installed on their systems before installing the Configurator: • Microsoft.NET Framework 4.0	Administrators must be running one of the following operating systems (OS): • Microsoft Windows 7 • Microsoft Windows 8.1 Make sure the OS is fully updated with all Microsoft patches.

Chapter 6: Avaya Communicator for Microsoft Lync services

Avaya Communicator for Microsoft Lync is an add-in application that extends Microsoft Office Lync functionality using Lync supported APIs. Avaya Communicator for Microsoft Lync can interwork with an H.323 or SIP desk phone, or a VDI Communicator client to provide telephony services.

Integrating Avaya Communicator for Microsoft Lync with Microsoft Lync enables telephony services on the Lync or Skype for Business client. Avaya Communicator for Microsoft Lync customizes and configures the Lync or Skype for Business client as part of its installation.

Note:

If you are using the Lync or Skype for Business client over a Microsoft Remote Desktop session, use Remote Desktop client version 6.1.7600.16385 or higher. Remote Desktop client software is available from the Microsoft website. You should download the latest available version of the client as well as any available updates.

Related links

Telephony and video services with Avaya Communicator for Microsoft Lync on page 32
Telephony presence with Avaya Communicator for Microsoft Lync on page 49
Dialing rules on page 50

Telephony and video services with Avaya Communicator for Microsoft Lync

Avaya Communicator for Microsoft Lync controls a single line, based on your primary line. If your desk phone supports multiple lines, non-primary lines will not be represented by Avaya Communicator for Microsoft Lync.

Note:

The following features are not supported:

- Single Step Transfer or Blind Transfer.
- Video when Avaya Communicator for Microsoft Lync interworks with a VDI Communicator client.

The following table lists supported functionality:

Table 8: Telephony feature descriptions

Capability	Description
Make Call	You can make a call on your phone by: • Clicking a contact in the contact list, and then clicking the icon in Lync 2010. • Hovering over the picture of a contact and clicking the icon in Lync 2013 or Skype for Business 2015 and 2016. • Using Dialpad in Avaya Communicator for Microsoft Lync 2013 and the persona menu. • Entering a number in the Lync 2010, Lync 2013, or Skype for Business 2015 and 2016 dialog box. **Note:** With Avaya Collaboration Services, you can also make calls or send IMs from Microsoft Office applications or web browsers. For more information, see *Administering Avaya Collaboration Services (NN10850-031)*.
Release Call	You can release a phone call by clicking **End Call** in the Avaya Communicator for Microsoft Lync Conversation bar.
Answer Call	You can accept an incoming call that is presented to you through an Incoming Call Notification window. You can disable incoming call notifications when you are in Desk Phone mode. To do this, navigate to **Settings** > **General**, select **Disable Incoming Call Notifications (Phone Mode)** from the Call Notifications area, and then click **OK**. The Conversation window minimizes to the toolbar when you answer the call from a desk phone.
Ignore Call	You can ignore a phone call by clicking **Ignore Call** in the Incoming Call Notification window.
Escalate to a video call	You can escalate an existing audio call to a video call in the Conversation bar. The call can be in undocked or full screen mode. **Note:** • When an Avaya Communicator for Microsoft Lync H.323 endpoint is a party on a call, only the originator of the call can escalate an audio call to a video call. This behavior occurs regardless of whether the originator of the call is using an H.323 or SIP endpoint. • In an ad-hoc conference where the moderator has a SIP endpoint and the participants have H.323 endpoints, the participants might see a Video window.
Reply to a video call with an IM	You can accept or ignore an incoming video call, and reply with an IM.

Table continues…

Capability	Description
Block and unblock camera	Using the Mid-call control functionality, you can: • Block or unblock camera from the Video window menu. • Undock the Video window from the Conversation bar.
Stop video	You can stop video from the Video window menu. Stopping video does not end the call.
Telephony Presence	Avaya Communicator for Microsoft Lync automatically publishes telephony presence on behalf of you when you are on a call. You can still choose to manually update their presence status.
Caller ID	You receive Calling Party Name or Caller line ID in the Incoming Call Notification window.
Call forward to another phone line or voice mail	You can activate Call Forward on your PBX line for incoming calls by clicking **Call Forward** in the Avaya Communicator for Microsoft Lync bar. When the call forwarding feature is activated, you do not receive incoming call notifications. The callee that the call is forwarded to receives an incoming call notification, and after answering the call, a video request also appears. **Note:** When Avaya Communicator for Microsoft Lync is in Other Phone mode, call forwarding functionality is disabled.
EC500	Using EC500, you can answer Avaya Communicator for Microsoft Lync calls on your mobile device. You can also extend calls to your EC500 mobile device if the Extend Calls capability is enabled in your Avaya Aura® network.
Send All Calls	Using Send All Calls, you can route calls to your EC500 device within your coverage area.
Call Hold and Retrieve	Using the **Hold** button, you can put a call on hold. Click the button again to retrieve the call.
Generate Digits (DTMF)	You can send DTMF digits through the PBX system by selecting the **Dialpad** button on the Conversation bar. This feature is disabled when: • The call is on hold. • Avaya Communicator for Microsoft Lync is in SIP Other Phone mode. In Lync 2013 or Skype for Business 2015 and 2016, the dial pad is dimmed when disabled. In Lync 2010, the dial pad is invisible when disabled.
Consult Call	When on an active call, you can: • Answer a call. • Start a second call by: - Clicking a contact in your contact list. - Entering a number in the Lync 2010, Lync 2013, or Skype for Business 2015 and 2016 search box.

Table continues…

Capability	Description
	- Using the Avaya Communicator for Microsoft Lync Dialpad. When another call is answered or started, the previously active call is put on hold. You can create multiple consult calls.
Consult Transfer	When one or more consult calls are established, you can select the call you want to transfer from the list of calls on hold.
Consult Conference	When one or more consult calls are established, you can select the call you want to merge into a Conference call from the list of calls on hold.
Call Waiting	When on an active call, an Incoming Call Notification window displays, indicating that another call is waiting. If you answer this call, then current active call is put on hold. The new call becomes the active call.
Receiver Mute	You can mute or un-mute your PC speakers or headset receivers in Computer mode.
Receiver Volume Control	You can adjust the volume of the PC speakers or headset receivers in Computer mode.
Audio Devices Mute	You can mute or un-mute your PC speakers or headset microphones in Computer mode.
Make Video Call	You can make a video call by: • Selecting a contact in your contact list and then clicking **Make Video Call**. • Using the dial pad Lync persona menu in Lync 2013 or Skype for Business 2015 and 2016. **Note:** When making a video call or escalating an audio call to a video call, the IM pane does not appear in Avaya Communicator for Microsoft Lync 2013. This issue does not apply to Avaya Communicator for Microsoft Lync 2010.
Share My Bridge	With Avaya Communicator for Microsoft Lync 2013, you can send dial-in details and conference details to another user through IM. This feature is not available in Avaya Communicator for Microsoft Lync 2010.
Launch My Collaboration	With Avaya Communicator for Microsoft Lync 2013, you can start a web collaboration session. This feature is not available in Avaya Communicator for Microsoft Lync 2010.
Bridged Line Appearance	**Incoming Call Appearance:** Bridged Line Appearance enhances the experience of incoming calls with bridged lines. The incoming call notification displays the name or phone number of the bridged line owner. **Make Call As:**

Table continues…

Capability	Description
	You can also use Make Call As to make a call from another line. **Note:** Exclusion is not supported.
Message Waiting Indication	With Avaya Communicator for Microsoft Lync, the **Message Waiting Indicator** button on the Avaya Communicator for Microsoft Lync bar lights up to indicate when you have a new voice mail message. You can click this button any time to dial in to voice mail.
Call History	Call history records for calls made or answered through Avaya Communicator for Microsoft Lync are saved. Avaya Communicator for Microsoft Lync also generates call history records for missed calls.
Multiple Device Access (MDA)	MDA provides the following capabilities: • Ability to log on to the same extension from multiple SIP devices • Ability to answer a call from multiple devices • Ability to join an existing call from other logged in devices All logged in devices ring simultaneously when an incoming call is made to the extension. The configuration on your Avaya Aura® network determines how many devices you can log in with at the same time, and whether the first or last logged in device will be denied login access when you reach the maximum simultaneous device limit.
Dual Registration	Using Dual Registration, you can register Avaya Communicator for Microsoft Lync as an H.323 endpoint and simultaneously register a single SIP endpoint.

Related links

Avaya Communicator for Microsoft Lync services on page 32
Avaya Communicator for Microsoft Lync desktop life cycle on page 36
Avaya Communicator for Microsoft Lync operational modes on page 37
Extension to Cellular (EC500) on page 40
Call history on page 41
Multiple device access and dual registration on page 43
Bridged Line Appearance on page 44
Video codec levels on page 44
Avaya Communicator for Microsoft Lync telephony and video services limitations on page 45
Configuring MDA and dual registration in Avaya Aura on page 74

Avaya Communicator for Microsoft Lync desktop life cycle

Avaya Communicator for Microsoft Lync starts as an end-user service after the installation when the user signs into Windows. The service waits in an idle state for Lync 2010, 2013, or Skype for

Business 2015 and 2016 to start, and for the Lync or Skype for Business client to successfully sign in to the Lync server. At this point, Avaya Communicator for Microsoft Lync attempts to bind to its service provider. This takes between 5 seconds and 2 minutes, depending on network latency and workstation capacity. When the user signs out of the Lync or Skype for Business client, Avaya Communicator for Microsoft Lync unbinds from the active service provider and transition to the idle state.

Avaya Communicator for Microsoft Lync may be restarted after the computer returns from sleep or after an intermittent network outage.

If required, Avaya Communicator for Microsoft Lync can be started from the Windows **Start** menu under **Programs** > **Avaya** > **Avaya Communicator for Microsoft Lync 2010** or **Avaya Communicator for Microsoft Lync 2013**. To stop Avaya Communicator for Microsoft Lync for the current Windows session, use the `shutdown.bat` file available in the Program Files installation folder.

Related links

Telephony and video services with Avaya Communicator for Microsoft Lync on page 32

Avaya Communicator for Microsoft Lync operational modes

Avaya Communicator for Microsoft Lync supports the following operational modes:

- Desk Phone (also called Shared Control)
- Computer
- Other Phone

Select the mode from the Avaya Communicator for Microsoft Lync bar.

Related links

Telephony and video services with Avaya Communicator for Microsoft Lync on page 32
Computer mode on page 37
Desk Phone (Shared Control) mode on page 38
VDI Communicator mode on page 38
Other Phone mode on page 38
Disconnected state on page 40

Computer mode

Computer mode allows the Lync or Skype for Business client to use the computer as a phone. Avaya Communicator for Microsoft Lync uses Avaya UC Desktop Engine capabilities to use the media capabilities of the computer.

Computer mode is not available when Avaya Communicator for Microsoft Lync is interworking with the VDI Communicator client. This mode is only available when Avaya Communicator for Microsoft Lync is interworking with a desk phone.

Related links

Avaya Communicator for Microsoft Lync operational modes on page 37

Desk Phone (Shared Control) mode

Using Desk Phone (Shared Control) mode in Avaya Communicator for Microsoft Lync, you can control the desk phone. Avaya Communicator for Microsoft Lync uses Avaya UC Desktop Engine capabilities to remotely control media anchored on the desk phone. You can only log in to Avaya Communicator for Microsoft Lync with one desk phone at a time.

Related links

Avaya Communicator for Microsoft Lync operational modes on page 37

VDI Communicator mode

Using VDI Communicator mode in Avaya Communicator for Microsoft Lync, you can control the VDI Communicator client. Avaya Communicator for Microsoft Lync uses Avaya UC Desktop Engine capabilities to remotely control media anchored on the VDI client. You can only log in to Avaya Communicator for Microsoft Lync with one VDI Communicator client at a time.

The  icon with a VDI tool tip indicates that Avaya Communicator for Microsoft Lync is controlling a VDI Communicator client.

Related links

Avaya Communicator for Microsoft Lync operational modes on page 37

Other Phone mode

Use Other Phone mode when you are away from the office and would like to use Avaya Communicator for Microsoft Lync to make and receive calls in conjunction with another device such as your mobile, home, or hotel phone, or with a device at another office location. Unlike Computer mode, this mode is configured for toll-quality audio and optimizes audio through the other phone.

All calls made and received in Other Phone mode work through the Avaya Aura® system. This mode enables you to use the full feature set of your company's telephone system from a location other than your office. You place and handle calls via the Avaya Communicator for Microsoft Lync interface, and use a separate telephone line at your remote location to speak and listen. All outgoing calls appear as originating from the primary work phone number because Avaya Aura® hides the identity of the other device from the remote party.

To use this mode, you must have a separate telephone line available at your remote location.

In order to select Other Phone mode, you must specify a telephone number in the Avaya Communicator for Microsoft Lync **Settings** > **Devices** window. You can specify multiple devices, but only one device can be selected as your active device.

Provisioning Telecommuter phone number

Before using Other Phone mode, provision telephone numbers for Other Phone mode (Telecommuter numbers) under the **Settings** > **Devices** panel in Avaya Communicator for Microsoft Lync.

Launching Other Phone mode

When launching Other Phone mode from the Avaya Communicator for Microsoft Lync bar, select which Telecommuter number to use.

When Other Phone mode is activated, you are logged out of your normal phone extension. When you exit Other Phone mode, your extension number returns to the normal phone extension. If there is no desk phone or if the phone is unavailable, the line appears logged off from the phone system.

Originating calls

When a call starts in Other Phone mode, Avaya Aura® makes an initial call to the Telecommuter number selected. The Telecommuter device rings, and when the call is answered, Avaya Aura® calls the remote party's number. To the remote party, the call appears to be started from your main work phone number. When the remote party answers the call, Avaya Aura® joins both calls into a single two-party call.

Incoming calls

Incoming calls to your work phone number are directed to the Telecommuter number being used. The incoming call alert appears on Avaya Communicator for Microsoft Lync. It is not possible to answer the call from an incoming call notification. Instead, you must answer the call on the device directly.

You cannot answer an incoming call in Other Phone mode if another call is already in progress.

Managing active calls

You should manage all active calls in Avaya Communicator for Microsoft Lync. The only active call action supported on the Telecommuter device is End Call. This is because the Telecommuter device is not aware of the work phone number or the features associated with this number. Any call operation invoked on the device occurs independently of Avaya Aura® and is not reflected on Avaya Communicator for Microsoft Lync. These call operations are not visible to the remote party.

DTMF digits can optionally be entered on the device. If Avaya Communicator for Microsoft Lync is provisioned for a SIP line, the DTMF digits must be entered on the device directly.

Unsupported environments

- Video calls are not supported in Other Phone mode.
- You cannot use an extension of a co-worker as a Telecommuter number. If you want to use a phone of co-worker, you must log out of the phone of co-worker manually and log in to it with your credentials. This way, you can continue using the features provisioned for your extension on Avaya Communicator for Microsoft Lync with the phone device of co-worker.
- You cannot join remote calls using Other Phone mode.
- When you lose network connectivity during an active call, the Conversation bar for the active call might not be restored successfully after the system reconnects with the network.

Related links

Avaya Communicator for Microsoft Lync operational modes on page 37

Disconnected state

The Disconnected state appears on the Avaya Communicator for Microsoft Lync bar in place of the operational mode for Desk Phone (Shared Control) mode, Computer mode, or Other Phone mode. The Disconnected state appears for several reasons, such as the following:

- Avaya Communicator for Microsoft Lync cannot connect to Avaya Aura® Communication Manager or Avaya Aura® Session Manager.
- The configuration data is missing or incorrect.
- The network connectivity is lost or poor.
- The Desk Phone (Shared Control) resource is unavailable.
- Policy-based log outs are started by the server.

In the Disconnected state, Avaya Communicator for Microsoft Lync automatically tries to connect to Avaya Aura®. If the connection is not established, select the mode from the Avaya Communicator for Microsoft Lync mode menu to connect.

Avaya Communicator for Microsoft Lync 2010 does not display the Disconnected state when the Lync 2010 client is not logged in to the Lync server.

Note:

When you lose network connectivity during a conference call, the Conference call window re-appears in Avaya Communicator for Microsoft Lync after the system reconnects with the network. The Conference window that re-appears have no call control options.

If a remote call is in progress, then you can join the call using the **Join** ( ) button after the system reconnects with the network.

Related links

Avaya Communicator for Microsoft Lync operational modes on page 37

Extension to Cellular (EC500)

Using EC500, you can answer calls either on your EC500 mobile device or on the desk phone. Incoming calls ring simultaneously on both devices. You can also use the Send All Calls capability to route calls to your EC500 device. You can enable and disable EC500 using the Call Forward option in Avaya Communicator for Microsoft Lync. When EC500 is enabled:

- All incoming calls continue to ring on your desk phone and on your mobile device simultaneously when you are in the Desk Phone (Shared Control) mode.
- All incoming calls ring on your computer and on your mobile device simultaneously when you are in the Computer mode.

EC500 continues to work even when you sign in or out of Avaya Communicator for Microsoft Lync.

Note:

- You can only extend a call once. If you try to extend the call using a SIP endpoint a second time, you receive an error message. This error message does not appear if you are using an H.323 endpoint.
- You can join an existing call using the **Join** ( ) button.

Related links

Telephony and video services with Avaya Communicator for Microsoft Lync on page 32

Call history

Avaya Communicator for Microsoft Lync uses Exchange Web Services and Autodiscover to create call history records on the Microsoft Exchange server. You must enable Exchange Web Services and Autodiscover on the Microsoft Exchange server to activate call history. The supported Exchange versions are Exchange 2010 SP1 or later.

Avaya Communicator for Microsoft Lync writes call history records to Microsoft Exchange and not to the Microsoft Outlook email client directly. Call history records only appear in Microsoft Outlook, and the Lync or Skype for Business client after synchronization with Exchange is complete.

Call history records for all calls, except missed calls, appear in your Microsoft Outlook Conversation History folder. Call history records for missed calls appear in your Outlook Inbox folder.

To save call history records, in the Settings window, click the **Call History** tab, and then select **Save call history to email folder**.

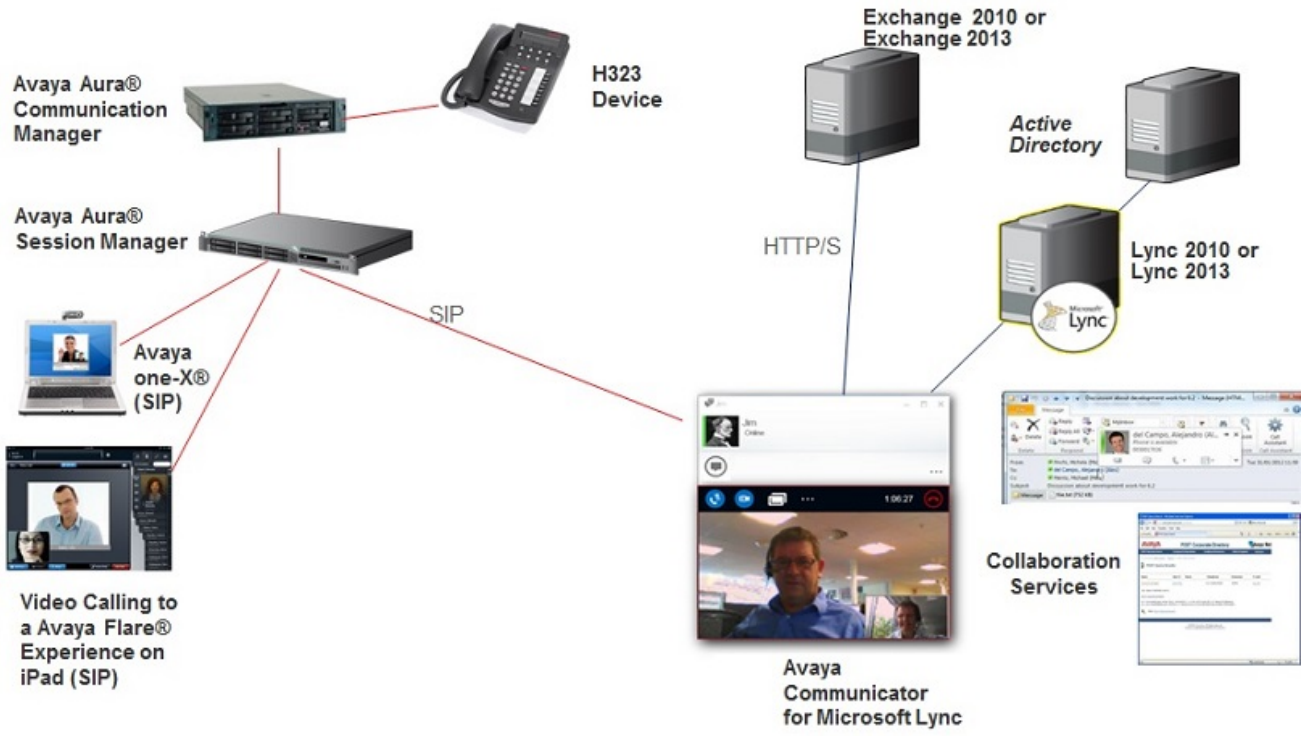


Figure 7: Call history topology

Configuring call history in Office 365

Procedure

1. In Avaya Communicator for Microsoft Lync Configurator, click **Change**.
2. In the Avaya Communicator for Microsoft Lync Settings window, click the **General Settings** tab.
3. Select **Office 365 Configuration** and click **OK**.

   The system adds an additional parameter, OFFICE365ENV=true, to the `InstallLyncAddin.bat` file.

   After the installation, a new registry setting, Office365Environment, is added to the Windows registry at the following location: `HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Avaya\Avaya Communicator for Microsoft Lync 2013`.
4. In the Avaya Communicator for Microsoft Lync Settings window, click the **Call History** tab. Ensure that the Microsoft Exchange Online sign-in address is automatically populated in the **Sign-in address** field.
5. If the system displays the following error message, you must provide your password, and then click **OK**.

   `Could not connect to email service.`

The **Sign-in address** field automatically populates the Skype for Business sign-in address. For Office 365, you must use the Skype for Business sign-in password to connect to Exchange Online.

The system automatically connects Avaya Communicator for Microsoft Lync with Microsoft Exchange in 1 to 5 minutes.

Result

After the connection to Microsoft Exchange is established, the Settings window displays an email folder to store call history records.

Multiple device access and dual registration

Avaya Communicator for Microsoft Lync supports the registration of multiple Avaya endpoints at the same time with MDA and dual registration. In both configurations, incoming calls ring on all the devices while outgoing calls are maintained on the originating device. In all cases, only a single Avaya Communicator for Microsoft Lync should be registered.

Using the dual registration, you can register an H.323 endpoint and a SIP endpoint at the same time. In general, Avaya Communicator for Microsoft Lync is the H.323 endpoint and an Avaya mobile client is the SIP endpoint. In Shared Control mode, the controllable endpoint and the controlling endpoint must use the same protocol.

Using the MDA, you can register multiple SIP endpoints at the same time. You can only register a single shared control endpoint (Desk phone or VDI Communicator client) at a time. If there are multiple shared control endpoints, the endpoints will register with Avaya Aura®, but they cannot be controlled by Avaya Communicator for Microsoft Lync.

Note:

- Avaya Aura® can support up to 10 SIP devices.
- With MDA and dual registration, you can join an existing call using the **Join** ( ) button.

Table 9: MDA and dual registration summary

Avaya Aura® feature	Avaya Communicator for Microsoft Lync protocol	Number of SIP endpoints registered	Number of H.323 endpoints registered	Number of Shared Control devices supported (including VDI)
Dual Registration	H.323	1	1	1
Dual Registration	SIP	Not supported	Not supported	Not supported
Multiple Device Access	SIP	Policy based	0	1

Related links

Telephony and video services with Avaya Communicator for Microsoft Lync on page 32

Bridged Line Appearance

Bridged Line Appearance (BLA) enhances the incoming call appearance and enables you to make calls from another line. You can also join an existing call using the **Join** ( ) button. You can configure BLA on Avaya Aura® System Manager using Endpoint Editor. For more information about the BLA configuration, see *Administering Avaya Aura® Communication Manager*.

Incoming call appearance

With bridged lines, the incoming call notification indicates:

- Who the call is intended for
- The name and phone number of the bridged line owner

Outgoing calls

With Bridged Line Appearance, you can make calls from another line. BLA can be used in conjunction with the Boss-Secretary functionality on Avaya Aura®. For example, a secretary can answer an incoming call intended for the boss and then the boss can join the same call after seeing the remote call Conversation window. A secretary can join a call answered by the boss in the same way.

Call merge or transfer

You cannot merge or transfer a bridged line call to a held conference call on the same bridged line. This limitation applies only when the conference call is on hold, and does not affect active conference calls.

Related links

Telephony and video services with Avaya Communicator for Microsoft Lync on page 32

Video codec levels

The Avaya Communicator for Microsoft Lync **Settings** > **Video** panel provides an option to adjust the H.264 codec level.

When you set the video codec resolution to a high level, the encoded video resolution also improves. As your video resolution becomes higher, the CPU usage required for video also increases. However, some applications do not support low video codec levels.

Tip:

Avaya recommends keeping the video codec level setting value low when the CPU usage is high enough as it might impact work station usage during a call. The default level for Avaya UC clients is 3.1.

Table 10: Video codec level description

Codec level	Resolution	fps	Aspect ratio	Video type	Macro block value
1.0	160 x 90	@ 30fps	16:9	I420	1687 MB/s
1.0	160 x 120	@ 30fps	4:3	I420	2250 MB/s
1.0	176 x 144	@ 30fps	11:9	I420	2970 MB/s
1.3	320 x 180	@ 30fps	16:9	I420	6750 MB/s
1.3	320 x 240	@ 30fps	4:3	I420	9000 MB/s
1.3	352 x 288	@ 30fps	11:9	I420	11,880 MB/s
2.3	432 x 240	@ 30fps	16:9	I420	12,150 MB/s
3.0	640 x 360	@ 30fps	16:9	I420	27,000 MB/s
3.0	640 x 480	@ 30fps	4:3	I420	36,000 MB/s
3.1	800 x 448	@ 30fps	16:9	I420	42,000 MB/s
3.1	864 x 480	@ 30fps	-	I420	48,600 MB/s
3.1	800 x 600	@ 30fps	4:3	I420	56,250 MB/s
3.1	1024 x 576	@ 30fps	16:9	I420	69,120 MB/s
3.1	960 x 720	@ 30fps	4:3	I420	81,000 MB/s
3.1	1280 x 720	@ 30fps	16:9	I420	108,000 MB/s

Avaya Communicator for Microsoft Lync telephony and video services limitations

Avaya Communicator for Microsoft Lync telephone and video services have the following limitations:

Audio controls

- When a conversation is started, if the audio device setting is already at the lowest setting, Avaya Communicator for Microsoft Lync does not present the conversation as muted.
- Audio device settings may appear unsynchronized with the PC settings.

Lync server restarts

Avaya Communicator for Microsoft Lync does not function during a Lync server outage. Within Phone mode, mid-call control may return when Lync becomes available. Users retain the ability to use their desk phone to make calls until full functionality is restored.

If a user is on a Computer mode call when the Lync server becomes unavailable, the call will be maintained, but mid-call control may be lost. The ability to end the call is maintained by a pop-up window. If the Lync or Skype for Business client is able to reconnect to the Lync server prior to the call being completed, Avaya Communicator for Microsoft Lync will begin providing service once the existing call is completed.

Call Forwarding

An incoming call originated by the user, which is eventually routed back to the originator, is not presented to the user. For example, a user sets call forwarding from device B to device A. The user then uses device A to call device B. Device A receives a call back, but the user cannot accept the call. The call may route to No Answer treatment.

Transferring video calls

Active video calls with Avaya Scopia® endpoint using Avaya Communicator for Microsoft Lync cannot be transferred to any other Avaya Scopia® endpoints.

Consult Transfer and Consult Conference

- Transferring into a conference is not supported.
- Presentation of only one conference is supported.
- It is not possible to add a call that is in the ringing state into a conference call. The call must be in the established state.
- Conference participants that are not Avaya Communicator for Microsoft Lync users are removed from the conference leader's window if the conference leader sends an IM.
- The Conversation window of a conference participant does not show other conference participants.
- After a participant drops in a three-party conference call, the Conference window might not become a Conversation window as expected.
- Consult Conference behavior is not guaranteed if the conference is started or manipulated through the phone or hard client.

Conversation window with unknown@number flashes and disappears

When a user in Shared Control mode performs any one of the following actions, a Conversation window with `Unknown@number` flashes and then disappears automatically:

- Extend Call
- Send all Calls
- Forward a call to another phone number

This issue does not have any other impact on the user experience, and does not require any user action.

Multiple Avaya Unified Communication clients

Multiple Avaya UC Clients may be deployed on a user workstation, but only a single UC client can be used for telephony services at any time. Having multiple Avaya soft phone clients (such as Avaya one-X® Communicator and Avaya Communicator for Windows) logged in simultaneously on the same work station is not supported.

Multiple Avaya Communicator for Microsoft Lync sessions

Microsoft Lync supports multiple client sessions for each user. However, Avaya Communicator for Microsoft Lync does not. For each user, only a single Avaya Communicator for Microsoft Lync session can be running. To avoid contention for telephony resources, only a single session of Avaya Communicator for Microsoft Lync can run on a workstation at any time.

Multiple published work phone numbers

Avaya Communicator for Microsoft Lync cannot support multiple published work phone numbers. The published work phone number must match the number defined in Lync Address Book or Microsoft Unified Contact Store.

Common phone numbers for multiple users

Multiple Avaya Communicator for Microsoft Lync users should not publish the same Home, Mobile, or Other phone number in the Lync or Skype for Business 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.

Unique work phone numbers for all users

All Avaya Communicator for Microsoft Lync users must publish unique phone numbers in the Microsoft Address Book or Microsoft Unified Contact Store (UCS). Multiple users cannot publish the same work phone number in their Lync or Skype for Business client.

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.

Video between SIP and H.323 endpoints

- Video escalation can only be done from an Avaya Communicator for Microsoft Lync H.323 endpoint. Escalation from a SIP endpoint is not supported.
- When an Avaya Communicator for Microsoft Lync H.323 endpoint is a party on a call, then only the originator of the call can escalate an audio call to a video call. This behavior occurs regardless of whether the originator of the call is using an H.323 or SIP endpoint.

Video calls with Avaya Scopia® endpoints and Polycom HDX H.323 endpoints

On a video call with Avaya Scopia® endpoints registered with Avaya Scopia® Management or with Polycom HDX H.323 endpoints registered with Polycom CMA:

- Video cannot be restarted when stopped.
- Sending DTMF digits causes video to drop. Audio is unaffected.

On a video call with Avaya Scopia® MCU 6000, Polycom RMX 2000, or the endpoints registered with Avaya Scopia® Management or Polycom DMA gatekeeper, your Avaya Communicator for Microsoft Lync camera might be blocked. If required, you must unblock the camera manually.

Video is not preserved when the Lync or Skype for Business client signs out

When you are part of an audio-video call and the Microsoft Lync or Skype for Business client signs out:

- The video portion of the call is not preserved.
- The audio portion of the call is minimally preserved until the call is complete.

Limitations specific to SIP Shared Control mode

Support for 96x0 series phones

SIP 96x0 endpoints are not currently supported in Shared Control mode.

Support for 1100 series phones

SIP 1100 series endpoints are not currently supported in Shared Control mode.

Support for video calls

Video calls are not currently supported in SIP Shared Control mode.

Conversation window does not re-appear after logging out and logging back in

When you sign out of the Lync or Skype for Business client and sign back in while on an active call, the Avaya Communicator for Microsoft Lync Conversation window should re-appear. However, in SIP Shared Control mode, when the user logs back in to the Lync or Skype for Business client, the Conversation window does not re-appear as expected and the user cannot control the call with Avaya Communicator for Microsoft Lync.

Call history limitations

- Call history does not record calls until the calls are complete. If the call ends unexpectedly due to network connectivity issues, then also the call history will not be recorded.
- Call history records might not be generated if your computer is in Sleep or Hibernate mode.
- Call history records can take up to 10 seconds to be written to Microsoft Exchange after the call is completed. Outlook must synchronize with Microsoft Exchange before you can see the call history record.
- Call history records do not differentiate between audio calls and video calls.
- Call history might not record a conference call correctly. You might see multiple call history records generated for a single conference call.
- Avaya Communicator for Microsoft Lync must be running to record missed calls in your call history.

Multiple device access limitations

The following sections describe MDA caveats and limitations. For more information, see *Multiple Device Access White Paper*.

Important:

MDA is only supported on SIP endpoints.

MDA force out

When you exit Avaya Communicator for Microsoft Lync from Windows Task Manager, your extension might not be released. This can prevent you from logging in to another device (force out policy is blocked in the CM configuration). You must release registration from Avaya Communicator for Microsoft Lync add-in by logging in and then logging out of the add-in again.

Other Phone mode

The Other Phone mode does not support the Join call feature.

Join calls

- You cannot join a call that is in an altering or held state. Avaya Communicator for Microsoft Lync does not indicate if another device is on hold until you click **Join** ( ).
- When a second device joins an existing Avaya Aura® conference, the user of that device can hear audio on the call but cannot access conferencing features or view shared applications. The second device must dial in to the conference separately to access conferencing features.
- When MDA conference calls are created on a remote device, you see a remote call Control window with an option to join the call. You do not see a Conference window on Avaya Communicator for Microsoft Lync until you join the conference call.
- When you are on a call with Avaya Communicator for Microsoft Lync in Computer mode, you put the call on hold, and another MDA device joins the call, then the Conversation window shows that a remote call is in progress. The voice path disappears and the call appears to be dropped on Avaya Communicator for Microsoft Lync.

Video escalation

- When more than one device is on a call, the call cannot be escalated to video. If additional devices drop from the call and only one device remains on the call, that device can escalate to a video call as normal.
- When a second device joins a video call, the video screen becomes black.
- An EC500 mobile device cannot escalate to a video call at any time. Even if the mobile device is the only device on the call, only audio calls are supported.
- In the interop, Video window closes when an MDA device joins a call.

Telephony presence with Avaya Communicator for Microsoft Lync

The Custom Presence definition file is provided as a configuration item within the Avaya Communicator for Microsoft Lync installation package.

Busy – In A Call presence

Avaya Communicator for Microsoft Lync publishes the **Busy – In A Call** status when the user starts 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 Avaya Communicator for Microsoft Lync detects that the user is not part of any call. The **Busy – In a Call** presence is an application state that should not be selected manually. If the user is not in a call and manually changes the presence state to **Busy – In a Call**, Avaya Communicator for Microsoft Lync automatically changes the presence state back to **Available**.

If you do not want your presence status to automatically change to **Busy – In A Call** when you are on a call, do one of the following:

- In the `PublishPresenceEnabled` registry key, set the `PublishPresence` parameter to `false`. By default, the value is set to `true`.

- During installation, set the following command line: **msiexec /i LyncIntegration<release#>.msi<extension 1><extension 2><extension 3>PUBLISHPRESENCE=false**.

Do Not Disturb presence

When the user's presence status is set to **Do Not Disturb**, Avaya Communicator for Microsoft Lync does not display incoming call notifications. In Computer mode or Shared Control mode for VDI Communicator, the call is automatically treated as an ignored call. In Desk Phone mode, the phone device continues to ring, and can be answered.

Avaya Communicator for Microsoft Lync presence service limitations

Do Not Disturb presence state

In the Phone mode, even if the presence status is **Do Not Disturb**, the phone rings.

Instant messages not delivered with Remote calls

IMs are not delivered when a Remote call is in progress. When you try to send an IM, you receive an error message: `Unknown@number could not be found so the message was not sent.`

Dialing rules

By default, Avaya Communicator for Microsoft Lync uses the configured dial plan information specified in the Configurator or defined within the Avaya Communicator for Microsoft Lync **Settings** panel. These dial plan settings normalize phone numbers and match presented phone numbers with Lync contacts. Dialing between users must be either extension dialing or E.164 dialing. This is referred to as a simple dial plan.

Simple dial plans are not always specific enough to handle all types of phone numbers. For these scenarios, an advanced dial plan must be configured. With an advanced dial plan, it is possible to manipulate incoming and outgoing phone numbers by creating a `dialingRules.xml` file.

Avaya Communicator for Microsoft Lync automatically translates E.164 numbers to the customer dial plan, and inserts or deletes digits as required.

Related links

Avaya Communicator for Microsoft Lync services on page 32
Supported phone number formats on page 51
Simple dial plan on page 52
Advanced dial plan on page 56

Supported phone number formats

Avaya Communicator for Microsoft Lync normalizes phone numbers, as presented when a call is ringing, into a format that matches Lync contacts. Avaya Communicator for Microsoft Lync also takes the phone numbers of Lync contacts and makes them dialable for the call server. Simple or advanced dialing rules must be configured for Avaya Communicator for Microsoft Lync to perform these normalizations and dialable transformations.

Phone numbers published in the Lync or Skype for Business client can be entered in one of the following formats as long as the appropriate dial plan is in place to support it:

- E.164 DID
- Extension
- E.164 non-DID

The following table provides an example and a description for each of the number formats listed above.

Table 11: Supported phone number formats

Format	Example	Description
E.164 DID	+17776671234	A number in the E.164 format with no extension at the end.
Extension	1234	An extension number. These types of numbers are not preceded by a `+`. Phone numbers entered in this format are not fully qualified and require dialing rules.
E.164 non-DID	+17776670000;ext=1234	A number in the E.164 format with an extension at the end. The first part of the number describes the switchboard or reception from which you can request the extension number. When this phone number format is detected, the system dials: `+17776670000,1234`. This allows the Avaya Aura® auto-attendant functionality to route the call to extension 1234.

Note:

In on-premise deployments, you can deploy the Unified Contact Store, used by Office 365, instead of the Avaya Communicator for Microsoft Lync Address Book. However, the Unified Contact Store does not support non-DID extension formats, (an example `+441628515000 x5001`) and hence, these types of extension formats are not visible in the Lync or Skype for Business client, or Avaya Communicator for Microsoft Lync.

Even though advanced dial plan transformations could theoretically allow for any mixture of number formats in Lync contacts, in practice a limited number of transformations will be put in place to normalize all numbers into the same format within an enterprise. This means that all Lync contact numbers within an enterprise should be presented in the same format so that a search and match can be performed.

Important:

The three supported number formats for Avaya Communicator for Microsoft Lync are not all immediately supported by the Microsoft Lync Address Book. The Microsoft Lync server needs to be configured to understand the allowable number formats when obtaining numbers from the Active Directory and inserting them in the Lync Address Book. See documentation on the Microsoft web site for more information about the `Company_Phone_Number_Normalization_Rules.txt` file and the Lync Server Resource Kit Tools – ABSConfig Tool.

Phone numbers for contacts outside the enterprise are always presented in E.164 DID format so that the default simple dial plan will normalize and correctly match those numbers with the Lync contacts.

Related links

Dialing rules on page 50
Best practices for publishing phone numbers on page 52

Best practices for publishing phone numbers

Do not leave users to publish their own phone numbers in the Lync or Skype for Business client. Instead, enter the work phone number for all users in the enterprise in Active Directory. This allows for consistent phone number formatting throughout the enterprise.

Related links

Supported phone number formats on page 51

Simple dial plan

You must configure a dial plan to enable the telephony features of Avaya Communicator for Microsoft Lync. You can configure a default dial plan in the Configurator when building the Avaya Communicator for Microsoft Lync install package. Users can also modify the dial plan in the Avaya Communicator for Microsoft Lync **Settings** window by selecting the **Dialing Rules** tab.

Related links

Dialing rules on page 50
Simple dial plan examples on page 52

Simple dial plan examples

North American dial plan example

E.164 Number +1 613 356 xxxx	
Number to dial to access an outside line	9
Your country code	1
Your area/city code	613

Table continues…

E.164 Number +1 613 356 xxxx	
PBX main prefix	356
Number to dial for long distance calls	1
Number to dial for international calls	011
Extension length for internal extension calls **Note:** • If the length of the internal extension number is 6 (for example, 5xxxxx), then the PBX main prefix is populated with 3. • If the length of the number is 7 (for example, 3xxxxxx), then no PBX main prefix is required. • If the length of the number is 8 (for example, 3xxxxxxx), in addition to the blank PBX main prefix, you must enter the area code as `61`. • If your enterprise supports short and long extension codes, then: - Extension length for internal extension calls is populated with `<short number length, long number length>`. - Area code and PBX main prefix are populated based on the smaller extension value. **Example of short and long extension codes:** 4 digits for in-location dialling and 10 digits across the enterprise, where both are subsets of the E.164 number. In this example, Extension length for internal extension calls is populated with `4,10`.	4
Length of national phone numbers (including area/city code)	10
Include area/city code when making a local call	Select

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

Table continues…

Dialed number is	Dialing number as	Entered number	Dialed number
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 **Note:** For countries that include a 0 as part of the out-of-area code (for example, 01628 515068), omit the initial 0 when populating Your area/city code. The 0 is populated in Number to dial for long distance calls.	1628
PBX Main Prefix	5
Number to dial for long distance calls **Note:** For countries that include a 0 as part of the out-of-area code (for example, 01628 515068), omit the initial 0 when populating Your area/city code. The 0 is populated in Number to dial for long distance calls.	0
Number to dial for international calls	00
Extension length for internal extension calls **Note:** • If the length of the internal extension number is 6 (for example, 5xxxxx), then no PBX main prefix is required. • If the length of the number is 7 (for example, 8xxxxxx), in addition to the blank PBX main prefix, you must enter the area code as `162`. • If your enterprise supports short and long extension codes, then: - Extension length for internal extension calls is populated with `<short number length, long number length>`. - Area code and PBX main prefix are populated based on the smaller extension value. **Example of short and long extension codes:** 4 digits for in-location dialling and 10 digits across the enterprise, where both are subsets of the	5

Table continues…

E.164 Number +44 1628 5xxxxx	
E.164 number. In this example, Extension length for internal extension calls is populated with `4,10`.	
Length of national phone numbers (including area/city code) **Note:** In Length of national phone numbers (including area/city code), enter the number of digits, excluding the leading 0, required to access land lines, mobile, and special numbers. The UK national dial plans, excluding the leading 0, support 7, 9, and 10 digit dialling.	7, 9, 10
Include area/city code when making a local call	Do not select

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	9777700
	International	00441628777700	900441628777700
	National	01628777700	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

Related links

Simple dial plan on page 52

Advanced dial plan

Simple dialing rules may not be specific enough to handle all situations. Advanced dialing rules might be needed to:

- Extract Avaya Aura® extension number from the user's work number where the extension is not a subset of the E164 work number. This is used to log on to Avaya Aura®.
- Interpret any numbers dialed and convert them into a form that can be used by the PBX.
- Match call progress updates with the display of the call in progress.
- Take incoming numbers and normalize them into the correct form to find the associated Lync contact.
- Match the normalized numbers to contacts from the user's Outlook or Active Directory contact list.

When simple dialing rules are not sufficient, it is possible to manipulate incoming and outgoing phone numbers by creating a `dialingRules.xml` file with advanced dialing rules. This file defines patterns used to match incoming or outgoing numbers, which are then manipulated by inserting and removing digits. You can create a `dialingRules.xml` file using the Avaya one-X® Communicator Centralized Administration Tool (CAT) or by using a text editor.

Dialing plans may differ per site or region and must be managed appropriately.

When crafting the advanced dialing rules, you must consider all of the possible number forms that are to be sent and received. See Simple dial plan examples on page 52 for examples of dialable translations, and the advanced dial plan examples below for the normalized translations.

Important:

Advanced dialing rules must be tested before they are deployed. Avaya Communicator for Microsoft Lync will not generate error messages if the `dialingRules.xml` file contains incorrect dialing rules.

The following scenario examples illustrate situations in which you need to use advanced dialing rules.

Operation	Extensions cannot be defined as a number of digits at the end of full E.164 numbers.
Example	E.164: +441628433000 - +441628434999 > Extension: 3000 - 4999

Operation	There is not a direct relation between extensions and their E.164 representations.
Example	E.164: +441628515000 - +441628515999 > Extension: 55000 - 55999

Operation	The PBX serves a number of locations with different country and area/city codes.
Example	Extension: 3000 > E.164: +441628433000 Extension: 4000 > E.164: +35391734000

Operation	A company uses private network dialing between sites.
Example	Local Extension: 3000 > E.164: +441628433000 Remote Extension: 3563000 > E.164: +35391733000

Operation	The PBX presents other special numbers to the phones that are not directly convertible into E.164 form.

Operation	The PBX presents a number that should not be turned into an E.164 number when looking for a Lync contact because the contact's phone number is expected to contain an extension number.
Example	Extension: 3000 > Extension: 3000. This is an example of an advanced rule that matches an extension and leaves the number unchanged so that the simple dial plan does not get a chance to normalize the extension to an E.164 number.

Related links

Dialing rules on page 50
The dialingRules.xml file on page 57
Advanced dial plan examples on page 62

The dialingRules.xml file

The `dialingRules.xml` file contains the advanced dialing rules. This file is read by Avaya Communicator for Microsoft Lync at start up. The following conditions apply to an advanced dial plan using a `dialingRules.xml` file.

- Rules defined in the `dialingRules.xml` file have to match and complete any digit manipulation on their own. If a number is matched and transformed by a `dialingRules.xml` pattern then no further change will be made by the simple dialing rules.
- The order of the rules in the `dialingRules.xml` file is important as these are checked in order and only the first match takes effect.
- If no `dialingRules.xml` patterns are matched then the simple dialing rules are applied.

Dialing rules contained in the `dialingRules.xml` file are applied only when using Avaya Communicator for Microsoft Lync. They are not applied when using the desk phone. As a result, telephone numbers may be presented differently in Avaya Communicator for Microsoft Lync and the desk phone.

Deploy the `dialingRules.xml` using the Configurator. When you are performing the procedure to build the install package using the Configurator, you can specify the `dialingRules.xml` file to be included.

You can make changes to the `dialingRules.xml` file without reinstalling the Avaya Communicator for Microsoft Lync software. Modify the `dialingRules.xml` using the CAT and deploy the new file using the `updateRules.wsf` tool. Changes to this file will take effect at the next Lync or Skype for Business client sign in.

Note:

If the new dial plan rules are not applied after a Lync or Skype for Business client restart, reboot the workstation to ensure that the Avaya Communicator for Microsoft Lync process has been restarted.

dialingRules.xml file example

Pattern	Type	Prefix	Delete Length	Min Length	Max Length
\+441628515[0-4]	Dialable	5	9	13	13
4190	Normalize	+441483309700	4	4	4
^55[0-4]	Normalize	+44162851	1	5	5
^5[89]	Normalize	+44148330	1	5	5

Below is a sample `dialingRules.xml` file based on the above table.

Note:

- The `DialingRulesPatternList` string that begins on the second line is a single string on one line. Do not introduce carriage return characters into the string. If you cut and paste from this document, the string will contain carriage returns. Ensure that you remove any carriage returns that are introduced.
- The `DialingRulesPatternList` string is composed of four segments separated by spaces. The following command line indicates the location of the spaces.

  `<DialingRulesPatternList` **`<space>`** `xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"` **`<space>`** `xmlns:xsd="http://www.w3.org/2001/XMLSchema"` **`<space>`** `xmlns="http://xml.avaya.com/endpointAPI">`

- In the following example file, type 0 is used for outgoing calls, and type 1 is used for incoming calls.

```
<?xml version="1.0" encoding="utf-8"?>
<DialingRulesPatternList xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns="http://xml.avaya.com/endpointAPI">
  <!-- Turn extensions dialed as E.164 numbers into extensions -->
  <DialingRulesPattern>
    <type>0</type>
    <pattern>\+441628515[0-4]</pattern>
    <subString>5</subString>
    <minLength>13</minLength>
    <maxLength>13</maxLength>
    <deleteLength>9</deleteLength>
  </DialingRulesPattern>
  <!-- Displayed number when calling voicemail, display as voicemail E.164 number -->
  <DialingRulesPattern>
    <type>1</type>
    <pattern>4190</pattern>
    <subString>+441483309700</subString>
    <minLength>4</minLength>
    <maxLength>4</maxLength>
    <deleteLength>4</deleteLength>
  </DialingRulesPattern>
  <!-- Displayed number is local extension, display as E.164 number -->
  <DialingRulesPattern>
    <type>1</type>
```

```
    <pattern>^55[0-4]</pattern>
    <subString>+44162851</subString>
    <minLength>5</minLength>
    <maxLength>5</maxLength>
    <deleteLength>1</deleteLength>
  </DialingRulesPattern>
  <!-- Displayed number is extension from another site, display as E.164 number -->
  <DialingRulesPattern>
    <type>1</type>
    <pattern>^5[89]</pattern>
    <subString>+44148330</subString>
    <minLength>5</minLength>
    <maxLength>5</maxLength>
    <deleteLength>1</deleteLength>
  </DialingRulesPattern>
  <DialingRulesPattern>
    <type>1</type>
    <pattern>^9[1-9]</pattern>
    <subString>+441628</subString>
    <minLength>7</minLength>
    <maxLength>7</maxLength>
    <deleteLength>1</deleteLength>
  </DialingRulesPattern>
    <DialingRulesPattern>
    <type>1</type>
    <pattern>^90[1-9]</pattern>
    <subString>+44</subString>
    <minLength>11</minLength>
    <maxLength>12</maxLength>
    <deleteLength>2</deleteLength>
  </DialingRulesPattern>
   <DialingRulesPattern>
    <type>1</type>
    <pattern>^900[1-9]</pattern>
    <subString>+</subString>
    <minLength>7</minLength>
    <maxLength>32</maxLength>
    <deleteLength>3</deleteLength>
  </DialingRulesPattern>
</DialingRulesPatternList>
```

Additional dialing rule scenarios

Incoming calls from 6133568 prefix cannot be normalized to match the E.164 numbers.

Incoming rule: Insert the +1 to properly normalize the incoming dialed number.
Example:
`<DialingRulesPattern>`
`  <type>1</type>`
`  <pattern>^6133568</pattern>`
`  <subString>+1</subString>`
`  <minLength>10</minLength>`
`  <maxLength>10</maxLength>`
`  <deleteLength>0</deleteLength>`
`  </DialingRulesPattern>`

Outgoing calls to the 1613967 require the leading 1 to be passed to Communication Manager because 613967 is a toll call, but other calls to 1613 are not toll calls.
E.164 number: +1613967XXXX **Outgoing rule:** Detect pattern and pass number.

Outgoing calls to the 1613967 require the leading 1 to be passed to Communication Manager because 613967 is a toll call, but other calls to 1613 are not toll calls.

Example:

```
<DialingRulesPattern>
         <type>0</type>
         <pattern>1613967</pattern>
         <subString></subString>
         <minLength>10</minLength>
         <maxLength>12</maxLength>
         <deleteLength>0</deleteLength>
</DialingRulesPattern>
```

Incoming call from extension 4190 to be presented as +35391733380

Incoming rule: Detect pattern and replace with +35391733380.

Example:

```
<!-- Short code expansion -->
  <DialingRulesPattern>
    <type>1</type>
    <pattern>4190</pattern>
    <subString>+35391733380</subString>
    <minLength>4</minLength>
    <maxLength>4</maxLength>
    <deleteLength>4</deleteLength>
  </DialingRulesPattern>
```

These rules apply when the internal extension is not a subset of the published E.164 number.

Outgoing rule: Change published E.164 prefixes of 16137778xxx to extension 9xxx.

Example:

```
<DialingRulesPattern>
        <type>0</type>
        <pattern>16137778</pattern>
        <subString>9</subString>
        <minLength>10</minLength>
        <maxLength>12</maxLength>
        <deleteLength>9</deleteLength>
</DialingRulesPattern>
```

Outgoing rule: Variation on change published E.164 prefixes of 16137778xxx to extension 9xxx.

Example:

```
<DialingRulesPattern>
        <type>0</type>
        <pattern>16137778</pattern>
        <subString>9</subString>
        <minLength>10</minLength>
        <maxLength>12</maxLength>
        <deleteLength>8</deleteLength>
</DialingRulesPattern>
```

Outgoing rule: Incoming notification, with a 4 digit extension starting with 99xx, will be converted to 161377789xx.

Example:

```
<DialingRulesPattern>
        <type>1</type>
```

These rules apply when the internal extension is not a subset of the published E.164 number.

```
        <pattern>99</pattern>
        <subString>+16137778</subString>
        <minLength>4</minLength>
        <maxLength>4</maxLength>
        <deleteLength>1</deleteLength>
</DialingRulesPattern>
```

Advanced dialing rules when an enterprise is using extensions for Lync enterprise contact phone numbers

If using extensions for enterprise contacts' phone numbers, then the simple and advanced dialing rules should aim to normalize all enterprise numbers into extensions when possible. All numbers outside the enterprise should resolve to E.164 numbers. The dialable rules should similarly turn all enterprise numbers into extensions and all non-enterprise numbers into numbers that can be dialed with the appropriate prefixes. The simple dialing rules will try to normalize all numbers into E.164 numbers so advanced rules are needed to convert enterprise numbers into extensions.

Example:

The following normalization rule keeps 4 digits extensions starting with 5 unchanged rather than converting them to E.164 numbers (normalize: 5xxx -> 5xxx)

```
<?xml version="1.0" encoding="utf-8" ?>
<DialingRulesPatterList xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns="http://xml.avaya.com/endpointAPI">
<DialingRulesPattern>
<type>1</type>
<pattern>^5</pattern>
<subString />
<minLength>4</minLength>
<maxLength>4</maxLength>
<deleteLength>0</deleteLength>
</DialingRulesPattern>
</DialingRulesPatternList>
```

Advanced dialing rules when an enterprise is using non-DID extensions for Lync enterprise contact phone numbers

Example:

+441628515000 x5001

If using non-DID E.164 numbers with extensions for enterprise contacts then the simple and advanced dialing rules should aim to normalize all enterprise numbers into extensions when possible except for the common reception or IVR E.164 number. All numbers outside the enterprise should resolve to E.164 numbers. The dialable rules should similarly turn all enterprise numbers into extensions and all non-enterprise numbers into numbers that can be dialed with the appropriate prefixes. The simple dialing rules will try and normalize all numbers into E.164 numbers so advanced rules are needed to convert enterprise numbers into extensions.

If non-DID E.164 numbers with extensions are used in an enterprise then all Lync users must have their work numbers set in this format.

Example:

Advanced dialing rules when an enterprise is using non-DID extensions for Lync enterprise contact phone numbers
This normalization rule converts the reception number into an E.164 format, but keeps the extension number unchanged. The following example shows the normalization rule for an E-164 number, with a 4 digit extension starting with 5 at the end (normalize: 5xxx -> 5xxx)

```
<?xml version="1.0" encoding="utf-8" ?>
<DialingRulesPatternList xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns="http://xml.avaya.com/endpointAPI">
<DialingRulesPattern>
<type>1</type>
<pattern>^5</pattern>
<subString />
<minLength>4</minLength>
<maxLength>4</maxLength>
<deleteLength>0</deleteLength>
</DialingRulesPattern>
</DialingRulesPatternList>
```

Related links

Advanced dial plan on page 56

Advanced dial plan examples

North American dial plan example

E.164 Number + 1 613 356 xxxx	
Number to dial to access an outside line	9
Your country code	1
Your area/city code	613
PBX Main Prefix	356
Number to dial for long distance calls	1
Number to dial for international calls	011
Extension length for internal extension calls	4
Length of national phone numbers (including area/city code)	10
Include area/city code when making a local call	Select

Example of outside line digit not removed in number received to displayed number: North America

Received number is	Received number as	Number received	Number displayed
Extension	Extension	8293	+16133568293
Short code	Short code	500	500
Local	National	96139078177	+16139078177
	Local	99078177	+16139078177
National	National	919088485596	+19088485596

Table continues…

Received number is	Received number as	Number received	Number displayed
Short code	Short code	9911	911
International	International	011441628515068	+441628515068

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	1628
PBX Main Prefix	5
Number to dial for long distance calls	0
Number to dial for international calls	00
Extension length for internal extension calls	5
Length of national phone numbers (including area/city code)	7, 9, 10
Include area/city code when making a local call	Do not select

Example of outside line digit not removed in number received to displayed number: United Kingdom

Received number is	Received number as	Number received	Number displayed
Extension	Extension	55068	+441628515068
Short code	Short code	4190	4190
Local	National	901628777700	+441628777700
	Local	9777700	+441628777700
National	National	901483308721	+441483308721
Special number	Special number	908001111	08001111
Short code	Short code	9999	999
International	International	90016133568293	+16133568293

Related links

Advanced dial plan on page 56

Chapter 7: Deployment process for Avaya Communicator for Microsoft Lync

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

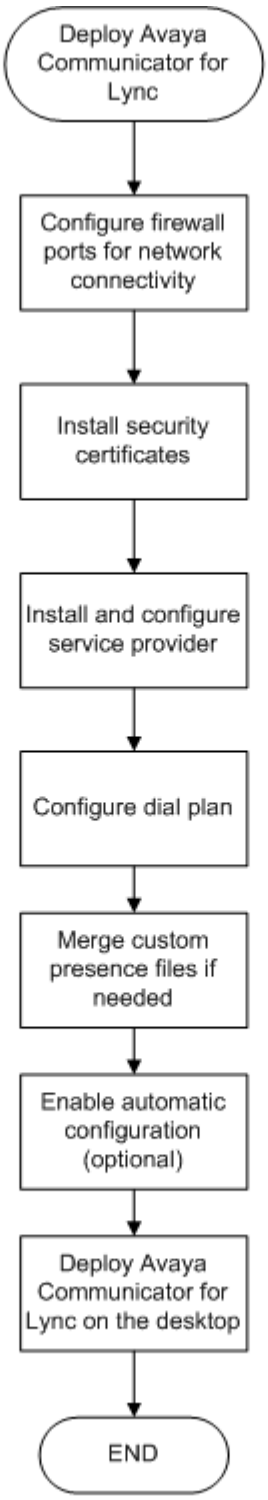
Avaya Communicator for Microsoft Lync deployment notes

The following limitations apply to deployment of Avaya Communicator for Microsoft Lync:

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

Deploying Avaya Communicator for Microsoft Lync work flow

The work flow shows the tasks you perform to deploy Avaya Communicator for Microsoft Lync.


Deploy Avaya Communicator for Lync
Configure firewall ports for network connectivity
Install security certificates
Install and configure service provider
Configure dial plan
Merge custom presence files if needed
Enable automatic configuration (optional)
Deploy Avaya Communicator for Lync on the desktop
END

Chapter 8: Security

The following sections describe security options and certificate requirements for Avaya Communicator for Microsoft Lync.

Connections through VPN or internal LAN

Avaya Communicator for Microsoft Lync supports connections through a VPN, internal LAN, or Session Border Controller for Enterprise (SBC-E).

Secure server connections

For more information about installing secure server certificates, see the corresponding documentation for Session Manager. If the server certificates are not signed by one of the certificate authorities included by default in the operating system, you must install the corresponding root certificates on the device.

You can also see *Updating server certificates to improve end-user security and client user experience* at https://downloads.avaya.com/css/P8/documents/100180626.

Security requirements

To maintain a secure environment for Avaya Communicator for Microsoft Lync:

- Use role assignments and assign security groups for operations.
- For accountability, ensure that each user has a unique login ID. Instruct users not to share the user login ID and password.
- Periodically review and update the list of administered users, roles, and permissions.
- Review administration logs regularly to ensure that the system is operating correctly.
- Review audit logs regularly to ensure that the system is operating correctly.
- Review security logs and alarms regularly to monitor possible security events.

Additional security information

For additional security information for Avaya Communicator for Microsoft Lync and related Avaya applications, see the Avaya Support website at http://support.avaya.com/security. For example, you can find information about the following:

- Avaya Product Security Vulnerability Response Policy
- Avaya Security Vulnerability Classification
- Avaya Product Security Support Flow
- Security advisories for Avaya products
- Software patches for security issues
- Reporting a vulnerability for any security issue

- Automatic email notifications of security advisories

You can also find more information about security practices on the National Security Agency http://www.nsa.gov.

Certificate distribution and management

Before you deploy Avaya Communicator for Microsoft Lync, determine whether the servers in the UC infrastructure use certificates signed by a certificate authority that the device operating system trusts. If the servers are using trusted certificates, you do not need to take further action.

Follow the standard operating system procedures for distributing and managing certificates.

Upload the certificates to a location, usually a website, from where the user can download and install the certificates. Avaya is not responsible for distribution of certificates.

Avaya Communicator for Microsoft Lync validates the server identity certificate while the TLS connection is established. The application displays an error message when the application cannot establish a TLS connection.

You must check for certificate requirements on the following servers:

- Avaya Aura® Session Manager
- Avaya Aura® System Manager
- Avaya Aura® Communication Manager
- Avaya Session Border Controller for Enterprise (Avaya SBCE)
- Avaya Aura® Conferencing

Note:

- Avaya Communicator for Microsoft Lync does not support self-signed certificates for any connection. All servers must have certificates that the trusted certificate authorities issue.
- The Shared Control device requires a TLS connection.
- In the Avaya SBCE R7.1 EMS web interface, select the **TLS 1.0** check box on the Client Profiles page and the Server Profiles page. For more information, see *Administering Avaya Session Border Controller for Enterprise*.

Third-party certificates

Deploy third-party certificates in the network to enhance the security of the enterprise. For instructions on installing third-party certificates, see *Application Notes for Supporting Third-party Certificates in Avaya Aura® System Manager*. For information on managing certificates, see *Administering Avaya Aura® System Manager*.

Port utilization

Complete required port configuration before deploying Avaya Communicator for Microsoft Lync. To maintain secure communication channels with Avaya Communicator for Microsoft Lync, ensure that ports you are not using remain closed. For detailed information about ports and protocols, see the port matrix for Avaya Communicator for Microsoft Lync servers at http://support.avaya.com/security.

Related links

Certificate requirements on page 68
Port configuration on page 70

Certificate requirements

If your Avaya Aura® servers and optional systems, such as Avaya SBCE, use:

- A commercial certificate and the CA certificates are already available on the operating system (OS), you can continue to use Avaya Communicator for Microsoft Lync.
- An enterprise server certificate and if you already deployed the matching CA certificate, you can continue to use Avaya Communicator for Microsoft Lync.
- A demonstration Avaya Certificate, you must distribute the matching Avaya demonstration CA certificate to each deployment of Avaya Communicator for Microsoft Lync.

Related links

Security on page 66
Client identity certificates on page 68
Obtaining the Avaya SIP Product CA certificate on page 69
Obtaining the Avaya Aura System Manager CA certificate on page 70

Client identity certificates

The Avaya Communicator for Microsoft Lync client might require a client identity certificate depending on your Avaya Aura® Session Manager server settings. If the server does not request for a client identity certificate, you need not select the certificate in Avaya Communicator for Microsoft Lync.

The Avaya Aura® Session Manager server might request, but not require, the certificate. If you select a client identity certificate in Avaya Communicator for Microsoft Lync, the server validates the certificate. Avaya Communicator for Microsoft Lync disconnects from the server if the certificate is invalid. If you do not select a client identity certificate in Avaya Communicator for Microsoft Lync, the Avaya Communicator for Microsoft Lync client remains connected with the server.

The Avaya Aura® Session Manager server might request, and require, the certificate. If you select a valid client identity certificate in Avaya Communicator for Microsoft Lync, the server remains connected with the Avaya Communicator for Microsoft Lync client.

Related links

Certificate requirements on page 68
Adding a client identity certificate in Avaya Communicator for Microsoft Lync on page 68

Adding a client identity certificate in Avaya Communicator for Microsoft Lync

About this task

Client identity certificates are issued by Trusted Third Party Certificate Authority (TTP CA). The certificates are stored in a Certificate store on your computer.

Procedure

1. In Avaya Communicator for Microsoft Lync, click **Settings**.

The system displays the Settings window.

2. In the left pane of the Settings window, click **Security**, and then select **Selected Certificate**.
3. To select a client identity certificate from the Certificate store on your computer, click **Browse**.
4. Select the certificate and click **OK**.

Related links

Client identity certificates on page 68

Obtaining the Avaya SIP Product CA certificate

Procedure

1. On the System Manager web console, click **Elements** > **Inventory** > **Manage Elements**.

   The system displays the Manage Elements screen.
2. Select the Session Manager instance from the list.
3. In the **More Actions** field, select **Configure Trusted Certificates**.

   The system displays the Trusted Certificates screen.
4. Select an Avaya SIP Product CA certificate from the list.

   For example, `trust-cert.pem`. Change the file extension name from `.pem` to `.crt` when installing on a client computer.
5. Click **Export**.

   The system downloads the `trust-cert.pem` file.
6. Save the file to a location on your computer.
7. Do one of the following:
   - Upload the CA Certificate to a website and send your users a link.
   - Compress the CA certificate file and send through email as an attachment.

Related links

Certificate requirements on page 68

Obtaining the Avaya Aura® System Manager CA certificate

About this task

If you have a server with a certificate issued by Avaya Aura® System Manager, you must either:

- Replace the certificate as described in *Updating server certificates to improve end-user security and client user experience* at https://downloads.avaya.com/css/P8/ documents/100180626.
- Distribute the Avaya Aura® System Manager CA certificate to the device of the users.

Procedure

1. On the home page of System Manager Web Console, under Services, click **Security** > **Certificates** > **Authority**.
2. On the main page, click **Download pem file**.
3. Save the file to a location on your system.
4. Perform one of the following:
   - Upload the CA Certificate to a website and send your users a link.
   - Send the CA certificate through email as an attachment.

Related links

Certificate requirements on page 68

Port configuration

Firewall rule configuration is required for the solution deployment to work. This may require advance planning in order to comply with customer site IT governance and policy enforcement.

Port configuration is required for the following network elements:

- **Client PC:** The Windows firewall is automatically traversed by Avaya Communicator for Microsoft Lync. However, for Computer mode, a firewall rule may be required to traverse proprietary firewalls.

Related links

Security on page 66

Chapter 9: Service provider configuration

Your service provider must be installed and functional.

Related links

Avaya Aura requirements on page 71

Avaya Aura® requirements

- Avaya Communicator for Microsoft Lync requires the following Communication Manager configuration settings. These settings allow Avaya IP soft phones to register with Communication Manager every minute, allowing reasonable switch mode behavior between Avaya Communicator for Microsoft Lync Computer mode and Phone mode.

Configuration category	Variable	Setting
Communication Manager system parameters — features	Unnamed registrations and PSA for IP Telephones?	N
Communication Manager system parameters — features	Unhold?	N
Communication Manager system parameters ip-options	Periodic Registration Timer (min)	1

- The PBX user line name cannot contain single digits delineated by spaces, For example, "Line 1" will cause problems but "Line-1" will not.

  If the user line name contains single digits, the call terminator does not get an incoming call notification for a call that is forwarded from another user. For a Computer mode user, the call is unanswerable.

- Perform the procedure Configuring Avaya Communicator for Microsoft Lync as an H.323 or SIP endpoint on Communication Manager on page 72 for all Avaya Communicator for Microsoft Lync endpoints.
- Perform the procedure Configuring Avaya Communicator for Microsoft Lync as a video endpoint on Communication Manager on page 73 for all Avaya Communicator for Microsoft Lync endpoints that use video.

Configuring Avaya Communicator for Microsoft Lync as an H.323 or SIP endpoint on Communication Manager

Before you begin

You must know:

- The Communication Manager IP address.
- A user ID and password for logging in to the Communication Manager server.
- The terminal type you are logging in from.

Procedure

1. Log in to the Communication Manager interface.
   a. Use the Communication Manager IP address to establish an SSH session.
   b. Log in to the Communication Manager.
   c. Enter **sat**.
   d. Enter your terminal type.

      For example, enter **W2KTT**.

      The SAT **Command:** prompt displays.
2. Determine the maximum number of Avaya one-X® Communicator endpoints your voice system supports:
   a. Use the `display system-parameters customer-options` command to access the Optional Features form.
   b. On page 9 of the form, verify the **oneX_Comm** setting. This number is provided by the RFA license file.
3. Perform one of the following steps on Communication Manager:
   - If you want to add a new station that uses Avaya Communicator for Microsoft Lync, use the `add station` command.
   - If you want to modify an existing station that uses Avaya Communicator for Microsoft Lync, use the `change station xxxx` command, where `xxxx` is the number of the station you want to modify.

   Communication Manager displays the Station form.
4. Enter the appropriate information for this station:
   a. Set **IP Softphone** to **y**.
   b. Set **IP Video Softphone** to **y**.
5. Repeat steps 3 on page 72 and 4 on page 72 for each Avaya Communicator for Microsoft Lync endpoint you want to configure on Communication Manager.

SIP Shared Control mode interworking with Avaya Session Border Controller for Enterprise

SIP endpoints in the Avaya Communicator for Microsoft Lync Desk Phone (Shared Control) mode interworks with Avaya Session Border Controller for Enterprise to:

- Provide additional network security.
- Allow users to use Avaya Communicator for Microsoft Lync in the Shared Control mode without logging in to the enterprise network.

You can support Avaya Session Border Controller for Enterprise by configuring:

- Session Border Controller (SBC) with Split-Horizon DNS required for the SBC and Session Manager configurations. The same FQDN is used for both SBC and Session Manager. However, the FQDN is resolved differently depending on whether the user is connected to the enterprise network or an external network. For more information about Split-Horizon DNS, see *Administering Avaya Communicator for Android, iOS, Mac, and Windows*.
- Avaya Communicator for Microsoft Lync to use the FQDN of SBC and always get routed through SBC.

For information about enabling Shared Control on Avaya Session Border Controller for Enterprise and setting up remote user support on the SIP endpoint, see the following documents:

- *Administering Avaya Session Border Controller for Enterprise*
- *Avaya Session Border Controller for Enterprise Release Notes* for Release 6.2
- *Administering Avaya Communicator for Android, iOS, Mac, and Windows*

Configuring Avaya Communicator for Microsoft Lync as a video endpoint on Communication Manager

About this task

This procedure works for both H.323 and SIP endpoints.

Before you begin

You must know:

- The Communication Manager IP address.
- A user ID and password for logging in to the Communication Manager server.
- The terminal type you are logging in from.

Procedure

1. Log in to the Communication Manager interface.
   a. Use the Communication Manager IP address to establish an SSH session.
   b. Log in to Communication Manager.
   c. Enter **`sat`**.

d. Enter your terminal type.

   For example, enter **W2KTT**.

   The SAT **Command:** prompt displays.

2. Use the `display system-parameters customer-options` command to verify the **Maximum Video Capable IP Softphones** (page 2 of form). This number is provided by the RFA license file.
3. Use the `change cos` command to set **Priority Video Calling** (page 2 of form) for the appropriate COS levels.
4. Use the `add station` command to add an Avaya IP Softphone station, and set the following parameters for that station:
   a. Set **IP Softphone** to **y**.
   b. Set **IP Video Softphone** to **y**.
   c. If you want this station to be able to make priority video calls, make sure you select a COS level that has **Priority Video Calling** enabled.
   d. On page 2 of the form, set **Direct IP-IP Audio Connections** to **y**.
5. Repeat steps 2 on page 74, 3 on page 74, and 4 on page 74 for each Avaya Communicator for Microsoft Lync endpoint you want to configure for video calling.

Configuring MDA and dual registration in Avaya Aura®

About this task

You must configure Multiple Device Access (MDA) settings in Avaya Aura® Session Manager and Avaya Aura® Communication Manager.

You can access the Avaya Aura® Session Manager and Avaya Aura® Communication Manager administration interface from Avaya Aura® System Manager. For more information, see *Administering Avaya Aura® Session Manager* and *Administering Avaya Aura® Communication Manager*.

Procedure

- In the **Max. Simultaneous Devices** and **Block New Registration When Maximum Registrations Active?** fields in Avaya Aura® Session Manager, specify the requirement for simultaneous device registrations.

  Important:

  Set the value for **Max. Simultaneous Devices** to:

  - Greater than 1 for MDA
  - 1 for dual registration

- Set the SIP profile for MDA

- In Avaya Aura® Communication Manager, for SIP and H.323 dual registration, configure the off-pbx-telephone station-mapping.

  If you have configured dual registration, that is, H.323 and SIP, for users that use Avaya Aura® Conferencing, set the **Fast Connect on Origination** field in the CONFIGURATION SET section to `n`.

  You can perform this by using the **`change off-pbx-telephone configuration-set n`** command, where n is a configuration set number.

Chapter 10: Dial plan and custom presence configuration

Before installing Avaya Communicator for Microsoft Lync, you must:

- Configure a simple or advanced dial plan.
- If you have your own Custom Presence Definition file, merge your file with the file provided with the Avaya Communicator for Microsoft Lync installation package.

Configure a dial plan

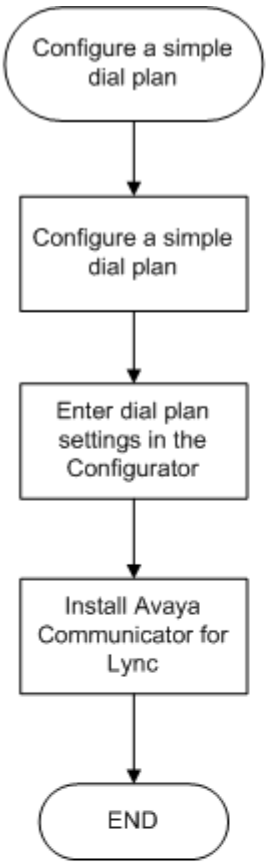
You must configure a dial plan to enable the telephony features of Avaya Communicator for Microsoft Lync. You can configure a simple or advanced dial plan. You create a simple dial plan by configuring the **Dialing Settings** in the Configurator. To create an advanced dial plan, you must configure the **Dialing Settings** in the Configurator and use the Configurator to deploy a `dialingRules.xml` file.

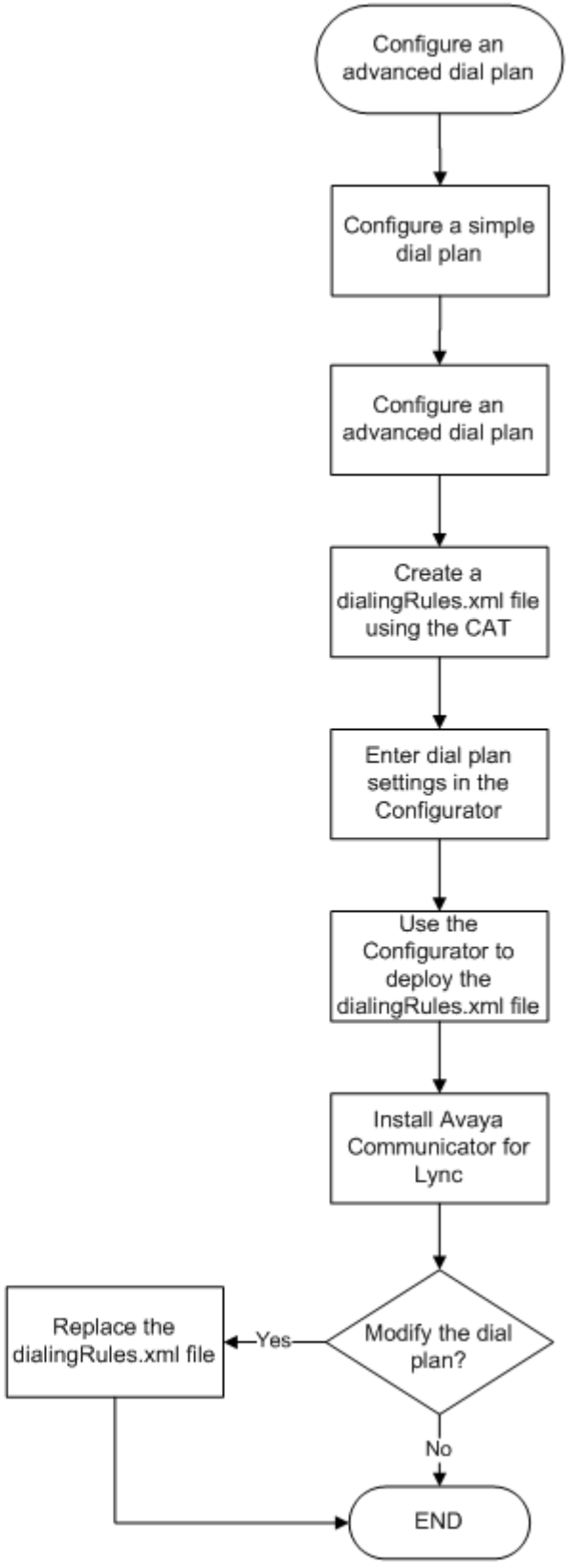
Prerequisites

You must understand the structure of a dial plan. For a description of dial plans, see Dialing rules fundamentals on page 50.

Configure a dial plan procedures

This task flow shows the procedures you perform to configure a dial plan.


Configure a simple dial plan
Configure a simple dial plan
Enter dial plan settings in the Configurator
Install Avaya Communicator for Lync
END


Configure an advanced dial plan
Configure a simple dial plan
Configure an advanced dial plan
Create a dialingRules.xml file using the CAT
Enter dial plan settings in the Configurator
Use the Configurator to deploy the dialingRules.xml file
Install Avaya Communicator for Lync
Modify the dial plan?
Yes
Replace the dialingRules.xml file
No
END

Configuring a simple dial plan

You can configure a simple dial plan in the Configurator when building the Avaya Communicator for Microsoft Lync install package. Users can modify the dial plan in the Avaya Communicator for Microsoft Lync **Settings** window by selecting the **Dialing Rules** tab.

Use the dial plan checklist to create a simple dial plan. The settings are described in Dial plan variables on page 78.

For examples of a simple dial plan, see Simple dial plan examples on page 52

Dial plan checklist

Phone Settings	
IP address of the telephone server or servers	
Dialing Rules Settings	
Enable Call Forward	
Digit(s) you must dial to access an outside line	
Country code	
Area/city code	
PBX Main Prefix	
Digit(s) you must dial to make long-distance calls	
Digit(s) you must dial to make international calls	
Extension length for internal extensions	
Length of national phone numbers (Includes area and city codes)	
Do you have to dial the area/city code when making a local call?	
Extension Settings	
Phone Extension	
Phone Password	

Dial plan variables

Variable	Description
Enable Call Forward	When Call Forward is enabled, the Call Forward icon is displayed.
Number to dial to access an outside line	The digit or digits you must dial to access an outside line.
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.

Table continues…

Variable	Description
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 comas. For example, if you use three-digit, five-digit, and seven-digit extensions, enter 3, 5, 7. **Note:** If you specify multiple extension lengths, Avaya Communicator for Microsoft Lync 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.

Configuring an advanced dial plan

In deployments where the simple dialing rules are not enough, you must manipulate incoming and outgoing phone numbers by creating a `dialingRules.xml` file. You can create a `dialingRules.xml` file using the Avaya one-X® Communicator Centralized Administration Tool (CAT) or by using a text editor. For examples of an advanced dial plan, see Advanced dial plan examples on page 62.

Deploy the `dialingRules.xml` using the Configurator. When you are performing the procedure to build the install package using the Configurator, you can specify the `dialingRules.xml` file to be included.

You can make changes to the `dialingRules.xml` file without reinstalling the Avaya Communicator for Microsoft Lync software. Modify the `dialingRules.xml` using the CAT and deploy the new file using the `updateRules.wsf` tool. Changes to this file will take effect at the next Lync sign in. See Replacing the dialingRules.xml file on the workstation where Avaya Communicator for Microsoft Lync is installed on page 108.

Creating a dialingRules.xml file using the Centralized Administration Tool

You can create or modify a `dialingRules.xml` file using a text editor or by using the Avaya one-X® Communicator Centralized Administration Tool (CAT). The CAT is distributed with the Avaya one-X® Communicator. Download the Avaya one-X® Communicator Admin Tool R6.1 SP2 or higher.

This document provides the procedures for working with a `dialingRules.xml` file. See the Avaya one-X® Communicator Centralized Administration Tool documentation for further details. When creating dialing rules in CAT, only use the **Dialing Rules** tab. The remaining tabs are not used.

Dialing rules interface

Add

Click this button to open the **Add Rule** dialog box.

Add Rule window

Use this window to specify a pattern match rule.

Field	Description
Pattern	Field to enter a regular expression. The pattern can exist anywhere in the input string, not necessarily from the beginning or the end of the input string.
Type	List box to specify whether to apply the **Dialable** rule to all the outgoing numbers before storing the number in the call log or to apply the **Normalize** rule to all the incoming numbers before storing the number in the call log. Specify **0** for Dialable or **1** for Normalize.
Prefix	Field to enter the string to be prefixed to the input string after deleting the specified number of characters.
Delete Length	Field to enter the number of characters, including the + character, to delete from the beginning of the input string.
Minimum Length	Field to enter the minimum length, including the + character, of the input string.
Maximum Length	Field to enter the maximum length, including the + character, of the input string.
OK	Button to add the pattern match rule and close the **Add Rule** dialog box.
Cancel	Button to cancel adding the pattern match rule and close the **Add Rule** dialog box.

Remove

Click this button to remove an existing pattern match rule.

Save

Click this button to save the Avaya one-X Communicator dialing rules settings.

Open

Click this button to open the existing `dialingRules.xml` file.

Configuring dialing rules

Use the **Dialing Rules** tab to configure dialing rules.

Procedure

1. Click the **Dialing Rules** tab.
2. Click **Add** to open the Add Rule dialog box.
3. Enter the appropriate information.
4. Click **OK** to add a new pattern match rule.
5. Click **Save** to save the Dialing Rules settings.

Modifying dialing rules

Use the **Dialing Rules** tab to modify the existing dialing rules settings.

Procedure

1. Click the **Dialing Rules** tab.
2. Click **Open**.
3. Select the `dialingRules.xml` file.
4. If you want to add additional pattern match rules, click **Add** to open the Add Rule dialog box, enter the appropriate information, and click **OK**.
5. If you want to remove a pattern match rule, select a rule and click **Remove**.
6. Click **Save** to update the dialing rules settings.

Merging custom presence files

About this task

A `CustomPresence.xml` file is included with the Avaya Communicator for Microsoft Lync installation package. Use the following procedure if you created your own Custom Presence file.

Note:

If you are using the `CustomPresence.xml` file located on the `S4B/Lync` server, you must add the Avaya Communicator for Microsoft Lync “In A Call” custom state to the `CustomPresence.xml` file.

Procedure

1. Merge your Custom Presence file with the `CustomPresence.xml` file included with the Avaya Communicator for Microsoft Lync installation package.
2. Assign the `customState ID` value of `1` to the Avaya Communicator for Microsoft Lync “Busy — In A Call” presence state.

3. Assign a different value other than `1` to all other presence states you add.

   You can add only four custom presence states.

4. Enter the appropriate `activity LCID` depending on your system language.

   The `activity LCID` for English presence statuses is `1033`. The `activity LCID` for other languages is different.

   Tip:

   For custom presence states to appear properly in the Lync or Skype for Business client, you should only have one activity under each `customState ID`. For example, under `customState ID=1`, you should only set the English `activity LCID` to `In A Call`. You can have the same presence status in other languages with the appropriate `activity LCID`.

Example custom presence file

The following example shows how you should structure your merged `CustomPresence.xml` file.

```
<customStates>
 <customState ID="1" availability="Busy">
   <activity LCID="1031">In einem Gesprach</activity>
   <activity LCID="1033">In A Call</activity>
   <activity LCID="1034">En una llamada</activity>
 </customState>
 <customState ID="2" availability="online">
   <activity LCID="1033">Video Available</activity>
 </customState>
 <customState ID="3" availability="Busy">
   <activity LCID="1033">Presenting</activity>
 </customState>
</customStates>
```

Related links

Merging custom presence files on page 81

Chapter 11: Enable automatic configuration

The automatic configuration process automatically configures the Avaya Communicator for Microsoft Lync settings when users open the client for the first time. To activate automatic configuration, you must select **Settings** > **Support** > **Automatically Configure Settings** in Avaya Communicator for Microsoft Lync.

If you do not want to enable automatic configuration, you must manually configure the settings in Avaya Communicator for Microsoft Lync.

Logs for automatic configuration

After setting up automatic configuration, you can check the Avaya Communicator for Microsoft Lync log file for errors. In the log file, search for `UriConfigurationDiscovery`.

Related links

Configuration file requirements on page 83
Configuration file parameters on page 84
Configuration file example on page 86
Modifying registry entries for automatic configuration on page 87

Configuration file requirements

Users can either configure the application settings manually or use a configuration file to automatically configure the settings. Using a configuration file simplifies the telephony settings configuration process and minimizes the chance of error. You must enter the automatic configuration link in the Configurator for users to use automatic configuration.

Note:

The values provided in the Configuration settings file take precedence over the values in the Configurator.

When you create a configuration file, remember the following requirements:

- The configuration file must be a settings.txt file.
- You can store all settings in the same settings.txt file for all endpoints.
- The configuration file structure can include information about the SIP settings, EC500 settings, and dialing rules.

- Each configuration file must only contain a single dial plan configuration. If you have users with different dial plan settings, create multiple files.

Related links

Enable automatic configuration on page 83

Configuration file parameters

Do not update automatic configuration settings when you are outside the enterprise network.

Avaya settings text file entry	Avaya Communicator for Microsoft Lync field name	Description
Signalling		
SIP_CONTROLLER_LIST	Servers	Specifies a list of SIP controller designators, separated by commas without any intervening spaces, where each controller designator has the following format: `[host:port;transport=xxx]` For example, `sm.abc.com:5061;transport=tls`.
SIPDOMAIN	Domain	The domain for transmitting VoIP data. An example is `abc.com`.
Dial plan		
PHNOL	Number to dial to access an outside line	Number to dial to access an external or outside line. This value is usually set to `9` or is empty.
PHNCC	Your country code	The country code used when you make a call within your home country. For example, the country code in USA and Canada is `1`.
SP_AC	Your area/city code	Your area or city code.
PHNPBXMAINPREFIX	PBX main prefix	The PBX main prefix for your telephone number or dial plan.
PHNLD	Number to dial for long distance calls	Long distance access code. Dial this number when you make a long distance call within the same country. In some cases, this value is the same as the value for PHNCC.

Table continues…

Avaya settings text file entry	Avaya Communicator for Microsoft Lync field name	Description
PHNIC	Number to dial for international calls	The number to dial when you make an international call.
PHNDPLENGTH	Extension length for internal extension calls	Indicates the internal extension length with only a single value. For example, you can enter `5` to indicate that extensions with 5 digits are supported. **Note:** The value cannot be less than 0.
DIALPLANEXTENSIONLENGTHLIST		Indicates the internal extension length with multiple values. For example, you can enter `5,7` to indicate that extensions with 5 or 7 digits are supported. DIALPLANEXTENSIONLENGTHLIST has a higher priority than PHNDPLENGTH.
PHNLDLENGTH	Length of national phone numbers (including the area/city code)	Indicates the national phone number length with only a single value. For example, if phone numbers can have 9 digits, enter `9`. **Note:** The value cannot be less than 0.
DIALPLANNATIONALPHONENUMLENGTHLIST		Indicates the national phone number length with multiple values. For example, if phone numbers can have either 9 or 10 digits, enter `9,10`. DIALPLANNATIONALPHONENUMLENGTHLIST has a higher priority than PHNLDLENGTH.
DIALPLANLOCALCALLPREFIX	Include area/city code when making a local call	Must be set to `true` to enable ten digit dialling. The ten digits include the area code for local calls.
Video		
VIDEOENABLED	Enable video	Indicates whether video is enabled.

Table continues…

Avaya settings text file entry	Avaya Communicator for Microsoft Lync field name	Description
		Set the value to `1` to indicate that video is enabled, and set the value to `0` to indicate that video is disabled.

Related links

Enable automatic configuration on page 83

Configuration file example

The following example shows the structure and the types of values that you can enter in your Configuration file.

```
# Signaling
SET SIP_CONTROLLER_LIST "sm.abc.com:5061;transport=tls"
SET SIPDOMAIN "abc.com"

# Video
SET VIDEOENABLED "0"

# Dialing Rules
## Dialing Algorithm Status
##   Controls whether algorithm defined by parameters in
##   this section is used during certain dialing behaviors.
SET ENHDIALSTAT "1"
##
## Outside line access code
SET PHNOL "91"
## Country Code
##   For United States the value=1
SET PHNCC "1"
##Area code
SET SP_AC "1666"
SET PHNPBXMAINPREFIX "595"
##
## Long distance access code
SET PHNLD "1"
##
## International access code
##   For United States the value=011
SET PHNIC "011"
##
## Internal extension number length
SET PHNDPLENGTH "5,7"
##
## National telephone number length
SET PHNLDLENGTH "10"
SET DIALPLANLOCALCALLPREFIX false
```

Related links

Enable automatic configuration on page 83

Modifying registry entries for automatic configuration

About this task

You can modify registry entries from the Avaya Communicator for Microsoft Lync installation `.bat` file. The registry entry value must be the URL where you store the Configuration file for automatic configuration.

Procedure

The registry location can be either on HKEY_CURRENT_USER or HKEY_LOCAL_MACHINE. Modify the registry entry at one of the following locations:

- HKEY_CURRENT_USER\Software\Avaya\Avaya Communicator for Microsoft Lync \SettingsFileURL
- HKEY_LOCAL_MACHINE\Software\Avaya\Avaya Communicator for Microsoft Lync \SettingsFileURL

The following are the examples of registry location for 32–bit and 62–bit operating system:

- For 32-bit operating system: HKEY_LOCAL_MACHINE\Software\Avaya\Avaya Communicator for Microsoft Lync <2010 or 2013>.
- For 64-bit operating system: HKEY_LOCAL_MACHINE\Software\Wow6432Node\Avaya\Avaya Communicator for Microsoft Lync <2010 or 2013>.

Related links

Enable automatic configuration on page 83

Chapter 12: Avaya Communicator for Microsoft Lync deployment

System requirements

The machine where Avaya Communicator for Microsoft Lync is installed must meet the following requirements:

Table 12: Hardware requirements

Processor	2 GHz
Memory	• 2 GB (32 Bit) • 4 GB (64 Bit)
Disk space	500 MB
Connectivity	Download bandwidth: 80 kbps Upload bandwidth: 80 kbps
Video	For deployments with video enabled, the following hardware requirements must be met: • Intel Dual Core, Core 2 Duo, Core i3, or higher processor • 500 MB video RAM with 100 MB of PC memory dedicated to video • Minimum 4 GB memory on 64 Bit systems • Digital video camera (up to 720p is supported)

Table 13: Software requirements

Operating system	• Microsoft Windows 7 • Microsoft Windows 8 and 8.1 **Note:** Apply the latest Microsoft patch to Windows 8.
Microsoft .Net	Release 4.0 or higher
Microsoft Lync client	• Microsoft Lync 2010 version 4.0.7577.4103 or higher • Microsoft Lync 2013 version 15.0.4649.1000 or higher

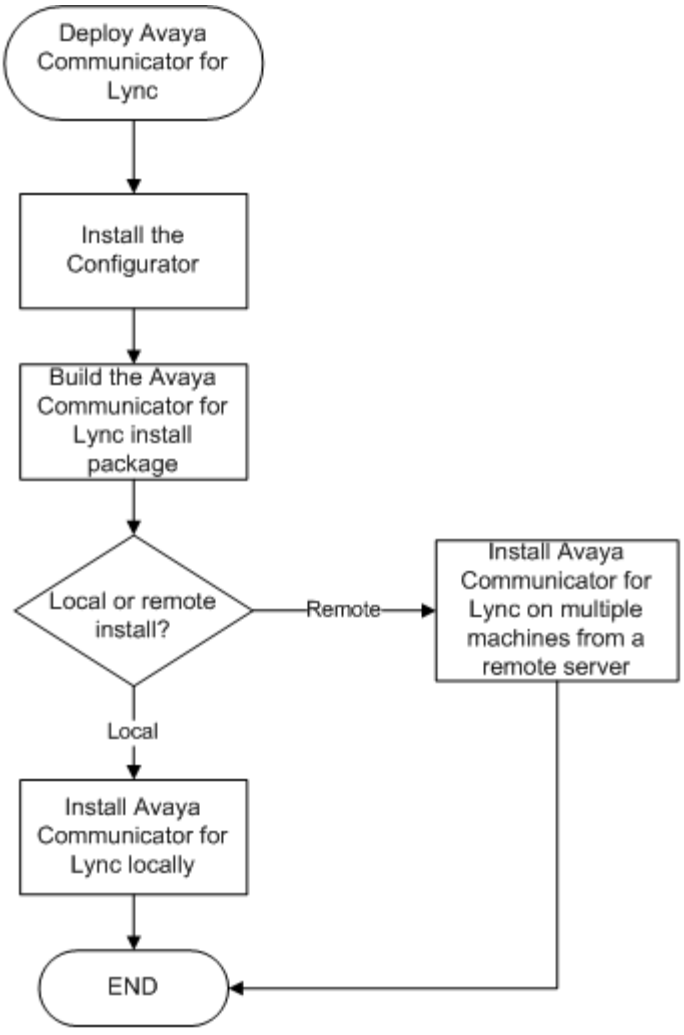
Installation process

Microsoft Lync SDKs are backward and forward compatible, allowing customer applications written for the Lync 2010 client to also work with the Lync 2013 or Skype for Business 2015 and 2016 client. Avaya Communicator for Microsoft Lync 2013 uses the Lync 2013 or Skype for Business 2015 and 2016 client SDK to achieve the optimal integrated experience. This means that if both Avaya Communicator for Microsoft Lync 2013 and Avaya Communicator for Microsoft Lync 2010 are installed on the same workstation, the Microsoft custom menu commands appear once for each instance of Avaya Communicator for Microsoft Lync installed. Therefore, you should only have one version of Avaya Communicator for Microsoft Lync installed on the workstation.

This task flow shows the procedures you perform to deploy Avaya Communicator for Microsoft Lync on the desktop. This task flow applies to a first time installation of Avaya Communicator for Microsoft Lync. If you previously installed Avaya Communicator for Microsoft Lync and are upgrading to a new version, see Avaya Communicator for Microsoft Lync administration on page 109.

Important:

To avoid performance issues, apply the latest Microsoft recommended patches to each work station before deploying Avaya Communicator for Microsoft Lync.



Installing the Configurator

About this task

The Configurator is an administrative tool used to configure and build the install packages for Avaya Communicator for Microsoft Lync prior to distribution to end users.

Before you begin

- Ensure you are running one of the following operating systems:
  - Microsoft Windows 7
  - Microsoft Windows 8.1
- You must have Microsoft .NET Framework 4.
- You must have the Configurator`.msi` file on your desktop.

Procedure

1. Double-click the Configurator.msi file to launch the Windows installer for the Avaya Communicator for Microsoft Lync Configurator.
2. When the Avaya Communicator for Microsoft Lync Configurator installer opens, click **Next**.
3. When the Avaya Communicator for Microsoft Lync Configurator setup wizard opens, click **Next**.
4. In the License Agreement window, click **I Agree** to accept the license agreement.
5. In the Select Installation Folder window, specify a path to the installation folder for the Avaya Communicator for Microsoft Lync Configurator and click **Next**.
6. In the Confirm Installation window, click **Next** to start the installation.

   The system displays the message: Please use Windows Update to check for any critical updates to the .NET Framework.
7. In the Installation Complete window, click **Close** to exit the setup wizard.

   The Avaya Communicator for Microsoft Lync Configurator icon appears on your desktop.

Avaya Communicator for Microsoft Lync Configurator usage

Use the Avaya Configurator to build the installation packages for:

- Avaya Communicator for Microsoft Lync
- Avaya Collaboration Services

The Configurator must be run on a Windows desktop. You cannot execute the Configurator from a Microsoft Terminal Server.

Click **Close** to close the Configurator.

When you are ready to build the installation packages for the Collaboration applications, in the Configurator wizard's **Build** screen, the **Destination Folder** section displays the name of the folder where the final installation packages are built. Click **Change** to browse for a destination folder.

Click **Build** to start the build of the installation packages.

This information is also available from the online help that is packaged with the Configurator. To access the online help, do the following:

- When you complete the install, from the **Start** menu, select **Programs** > **Avaya** > **Communicator for Lync Configurator** > **Help**.
- When you run the Configurator, click **Help**.

Avaya Communicator for Microsoft Lync

Microsoft Lync Settings

In the **Microsoft Lync Settings** screen, click the **Change** button to open the Avaya Communicator for Microsoft Lync Settings window.

Avaya Communicator for Microsoft Lync Settings

Use the Avaya Communicator for Microsoft Lync Settings window to configure the settings for the Avaya Communicator for Microsoft Lync build.

The toolbar on the Avaya Communicator for Microsoft Lync Settings window consists of the following icons.

Icon	Description
	Opens an existing settings file. Open the settings file by double-clicking the file.
	Saves the current settings file. The Save As dialog appears if the file has not been previously saved.
	Presents the Save As dialog allowing for a new file name to be associated with the current file.
	Resets the settings to the initial state.

For more information about building the install package for Avaya Communicator for Microsoft Lync, see *Building the install package*.

Related links

Building the install package for Avaya Communicator for Microsoft Lync on page 98

Automatic configuration

Users can automatically configure Avaya Communicator for Microsoft Lync using a settings file stored on a central server. Using the Avaya Communicator for Microsoft Lync Configurator, you can

include an automatic configuration link as an optional parameter. The automatic configuration link points to the location where your settings are stored.

You can enter the automatic configuration link in the **Settings File URL** field under Avaya Communicator for Microsoft Lync **Settings** > **General Settings**.

Note:

Preface the URL with *http* or *https*.

If you enter a link for automatic configuration in the Configurator, your Avaya Communicator for Microsoft Lync retrieves configuration data, and populates your client settings.

If you do not enter a link for automatic configuration in the Configurator, Avaya Communicator for Microsoft Lync skips the data retrieval phase, and you must manually configure the Avaya Communicator for Microsoft Lync settings.

Collaboration Services configuration

You can choose to build the installation package for Collaboration Services in the Configurator Wizard. For more information about Collaboration Services, see *Administering Avaya Collaboration Services* (NN10850-031).

Office and Browser Custom Rules

Custom rule files define:

- Browser subnet matching rule
- Browser URL matching rule
- Smart Tag matching rule for Microsoft desktop applications
- Conference dialer rules for click-to-join conference

In the Configurator wizard's **Custom Rules Entry** screen, under the **Office / Browser Add-in Custom Rules** section, do the following:

- To open an existing Custom Rule file, click the folder icon ( ).
- To open the Custom Rule Creator and create Office or Browser custom rules. click the Custom Rule Creator icon ( ).

Overview of telephone number detection with Office and Browser Add-in rules

The standard regular expression rule in the Office and Browser Add-ins searches a selection of text in a web page, email, or other type of file and validates potential numbers to make sure they are telephone numbers. The following sections describe validation steps and the purpose of custom rules. For more details about the regular expression syntax, see http://msdn.microsoft.com/en-us/library/az24scfc.aspx.

Standard validation steps

The Office and Browser Add-ins perform the following main validation steps to determine if a number is a telephone number:

- If the number is preceded by a country code, the internal database validates the country code. If the country code in the number is valid, the database checks if the number matches the corresponding dialing pattern for the country.

- If the number does not contain a country code, the database determines the locale context for the number based on the locale of the web page, where the email was sent from, or where the file was created. The database uses the locale context to determine the country code for the number and then checks if the number matches the dialing pattern for the country.
- The database ensures that the number has at least one separation character to be considered a telephone number. If the number does not have a country code preceded by a +, the number must have a space, period, slash, dash, or brackets to be considered a telephone number.

The Office and Browser Add-ins normalize validated telephone numbers and present these telephone numbers to the user in the E.164 format with the country code preceding number.

The following table shows examples of valid telephone numbers for two different locales and the normalized results of these telephone numbers.

Table 14: Examples of normalized telephone numbers

Locale and country code	Examples
Europe, with the country code +41	The original numbers on the page are: • +41 (0)44 450 90 90 • (0)44 450 90 90 The normalized result presented in the E.164 format will be +41444509090.
North America, with the country code +1	The original numbers on the page are: • 257/222-4444 • 257-222-4444 • (257) 222 4444 The normalized result presented in the E.164 format will be +12572224444.

Custom rules

Some organizations have internal dialing patterns or extensions that the standard pattern matching and validation rules cannot recognize. You can use the Avaya Communicator for Microsoft Lync Configurator to create custom rules that recognize these telephone numbers in web pages, documents, and bodies of emails. There are three types of custom rules that you can create:

- **SmartTag rule for the Office Add-in**: this rule only recognizes numbers that appear in SmartTags. For example, this rule can recognize numbers in an Outlook email body and in a Microsoft Word or Excel document.
- **URL rule for the Browser Add-in**: use this rule if the organization has a common URL pattern for intranet domains.
- **Sub-net rule for the Browser Add-in**: use this rule if the organization has a set of numbers prefixing intranet domains.

For all three custom rules, you can define a range rule or a pattern matching rule. The following table compares range and pattern rules and describes when to use each rule.

Table 15: Description of range and pattern rules

Range rule	Pattern matching rule
Range rules include all numbers within a specific range. With this type of rule, a number must have at least one separation character to be considered a telephone number. For example, if you define a range rule of `2222222-5555555`, the following numbers would be marked as telephone numbers: • 222-3333 • 222 3333 • 444-33-22 However, `2223333` and `4443322` would not be marked as telephone numbers because these numbers do not contain any separation characters.	Use a pattern matching rule to define a unique pattern that the range rule does not cover. For example, use a pattern matching rule if you need the system to recognize a 6 digit number with no separation characters as a telephone number. The following are examples of pattern matching rules that you can define to detect telephone numbers. • For matching 6 digit numbers: `\d{6}` • For matching 7 digit numbers: `\d{7}` • For matching 4 digit extension numbers with the extn prefix: `(?:extn)(\d{4})`

Custom Rule Creator

Use the Custom Rule Creator to create the Office and Browser Add-in Custom Rule files. These files contain the custom number and pattern matching rules to be included in the corresponding add-in installation package.

The toolbar on the Custom Rule Creator window consists of the following icons.

Icon	Description
	Creates a new empty custom rule file.
	Opens an existing custom rule file. You can open a custom rule file by double-clicking on the file or by drag-and-dropping the file into the Custom Rule Creator.
	Saves the current custom rules file. The Save As dialog appears if the file has not been previously saved.
	Presents the Save As dialog allowing for a new file name to be associated with the current file.
	Imports an existing custom rule file. You can also drag-and-drop an existing custom rule file into the Custom Rule Creator.

Office Custom Rule Creator

Right-click in the Custom Rule Creator window or on a selected rule item to see the following options. You must select at least one item for some options to be available.

Item	Description
New > Smart Tag Rule	Opens the Smart Tag dialog to define a new Smart Tag custom rule.
New > Conference Dialer Configuration	Opens the Conference Dialer Rule dialog to define the conference dialer pattern matching rule for the click-to-join conference feature.
Edit	Opens the selected custom rule item in the corresponding dialog to edit the rule.
Delete	Deletes the selected rule from the file.

Browser Custom Rule Creator

Right-click in the Custom Rule Creator window or on a selected rule item to see the following options. You must select at least one item for some options to be available.

Item	Description
New > Subnet Rule	Opens the Subnet dialog to define a new custom rule for a particular subnet.
New > URL Rule	Opens the URL dialog to define a new custom rule for a particular URL matching scheme.
Edit	Opens the selected custom rule item in the corresponding dialog to edit the rule.
Delete	Deletes the selected rule from the file.

Smart Tag dialog

Use the Smart Tag dialog of the Creator to create number matching rules for the Smart Tag component of the Office Add-in. The Office Add-in uses the number matching rule to determine if text should be marked as a Smart Tag.

See Number Matching Rule on page 96 for more information on number matching rules.

Click **Add** to add the Smart Tag matching rule.

Click **Cancel** to ignore any changes.

Conference Dialer Rule

Use the Conference Dialer Rule dialog of the Custom Rule Creator to define a pattern matching rule for the click-to-join conference feature of the Office Add-in. The Office Add-in uses the pattern matching rule to normalize pass code and host code numbers before they are played into a conference call. The Office Add-in also uses the conference dialer rule to detect pass codes in the Location field of appointments.

Item	Description
Passcode Normalization	A rule to normalize the pass code before the application plays the pass code into the conference call. A ‘p’ is equal to a 2–second delay.
Hostcode Normalization	A rule to normalize the host code before the application plays the host code into the conference call.
Passcode Tokens	The key word or words used to recognize the conference access code in the **Location** field of an appointment.

Currently the Office Add-in uses the following key words when scanning for access codes: pc, passcode, pswd, pw, pass, and pin. You cannot delete these key words; however, you can add additional key words. Separate any additional key words with a semi-colon (;), for example, password;the code;access code.

Click **Add** to add the conference dialer rule.

Click **Cancel** to ignore any changes.

Subnet dialog

Use the Subnet dialog of the Creator to create subnet-based number matching rules.

Item	Description
IP Address	The IP address used to define the base of the subnet. Right-click the IP address to produce a context menu that allows for the resolution of an IP address from a given machine name or URL. See Resolver on page 97 for more information on the Resolver.
Subnet Mask	The mask that applies to the provided IP address to define the range of IP addresses to which the rule applies.
Number Matching Rule	The number matching rule that applies to the pages delivered from the defined subnet. See Number Matching Rule on page 96 for more information on number matching rules.

Click **Add** to add the number matching rule.

Click **Cancel** to ignore any changes.

URL dialog

Use the URL dialog of the Creator to create URL pattern-based number matching rules.

Item	Description
URL Regular Expression	The regular expression that applies to URLs from where pages are being delivered. If the URL matches the defined pattern, the following rule applies to the matching numbers. Right-click on the text box to open a menu from which you can launch the Expression Tester dialog, as well as the standard text modification elements (cut, copy, paste, delete, and select all). See Expression Tester on page 97 for more information on the Expression Tester dialog.
Number Matching Rule	The number matching rule that applies to the pages delivered from the URLs that conform to the above URL regular expression. See Number Matching Rule on page 96 for more information on number matching rules.

Click **Add** to add the number matching rule.

Click **Cancel** to ignore any changes.

Number Matching Rule

Use the Number Matching Rule to define a range-based rule or a matching pattern-based rule.

Select the **Range** radio button to define a From and To limit in which a telephone number must fall within to be considered a match. The number of digits in the **Range From** field must match the number of digits in the **Range To** field. Define the range using numerical digits. The maximum number of digits is 30 and maximum value is 999999999999999999999999999999 (30 nines).

If you need more specific matching, select the **Matching Pattern** radio button. You can then enter a regular expression for the Number Matching Rule. Use the matching pattern option when you require non-digit elements to determine a match.

Note:

The operators ^ and $ are not permitted in the matching pattern as the rule is contained within a rule that already takes these operations into account. This is also reflected when you test the matching rule.

Right-click the Number Matching Rule text box (in Matching Pattern mode) to open a menu from which you can launch the Test Expression dialog, as well as the standard text modification elements (cut, copy, paste, delete, and select all).

See Expression Tester on page 97 for more information on the Expression Tester dialog.

Expression Tester

The Expression Tester dialog of the Creator lets you test regular expressions. As you enter text into the Source text box, the Results text box updates dynamically with any successful matches.

Resolver

The Resolver dialog of the Creator lets you resolve a URL or a machine name to the corresponding IP address.

Enter the URL or host name to resolve and click **Resolve**. If the resolution is successful, the result is placed in the **IP address** field of the Subnet dialog.

Click **Cancel** to close the Resolver.

Obtaining version information

To obtain version information for the Configurator, do the following:

1. In the Configurator, click **Help**.
2. In the Help window, click to view the version information for the Configurator.

Accessing log files

Logs are generated with every build of the Configurator, and these logs contain the results of the build. With each Configurator build, logs are appended to log files. A maximum of 10 log files can be generated with each build and the maximum size of each log file is 3 MB.

Use the Configurator log files to troubleshoot issues. You can access Configurator log files under **AppData** > **LocalLow** > **Avaya** > **Collaboration** > **Configurator**.

Building the install package for Avaya Communicator for Microsoft Lync

Build the install package for Avaya Communicator for Microsoft Lync. You can optionally enter an automatic configuration link in the Configurator. With automatic configuration, Avaya Communicator for Microsoft Lync retrieves configuration data, and automatically populates client settings at startup.

Avaya Communicator for Microsoft Lync can integrate with the Collaboration Services (Office and Browser Add-in applications) to provide a unified user experience across all Avaya desktop applications. For more information, see *Administering Avaya Collaboration Services* (NN10850–031).

Note:

Collaboration Services is installed automatically in IE when installed from Avaya Communicator for Microsoft Lync. You must disable the Lync Browser Helper Add-in to use Collaboration Services in conjunction with Avaya Communicator for Microsoft Lync.

The Configurator builds the following files:

- `AvayaCommunicatorForMicrosoftLync.zip` — The Avaya Communicator for Microsoft Lync software.
- `AvayaCollaborationServices.Installer.exe` — The installer for Avaya Collaboration Services.

Before you begin

- Install the Configurator.
- Define the configuration variables in Configurator variables on page 99.

Procedure

1. Double-click the Avaya Communicator for Microsoft Lync Configurator icon to open the Configurator tool.
2. Read the information in the **Welcome** screen, and then click **Next**.
3. In the **Collaboration Service Configuration** screen, under **Avaya Communicator for Microsoft Lync**, select **Build Avaya Communicator for Microsoft Lync**, and then click **Next**.
4. In the Microsoft Lync Settings window, click **Change**.
5. Under the **General Settings** and **Dialing Settings** tabs, enter the details for your deployment.
6. If you are deploying a `dialingRules.xml` file, click the **Specify Dialing Rules XML File** check box under the **Dialing Settings** tab, and then click the folder icon. Navigate to the file location and click **Open**.
7. If required, under the **Additional Settings** and **Video Settings** tabs, specify the settings that you want to use.
8. Click **OK** to return to the Configurator wizard.

9. In the Microsoft Lync Settings window, click **Next**.
10. Follow the instructions in the Configurator wizard to finish configuring the installation packages.
11. When you are ready to build the installation packages, in the Configurator wizard's **Build** screen, select the destination folder for the output and then click **Build**.
12. Unzip the Avaya Communicator for Microsoft Lync files, and extract the `.msi` file.

Related links

Enable automatic configuration on page 83
Avaya Communicator for Microsoft Lync Configurator usage on page 90

Configurator variables

Variable	Description
General Settings	
Signal Protocol	From the drop-down menu, select whether you are using SIP or H.323 signaling.
Settings File URL	Enter the automatic configuration link to automatically populate the Avaya Communicator for Microsoft Lync settings.
Communication System Type	The options are: • **Avaya Aura** • **Avaya Aura: VDI** • **CS 1000: Aura**
Integration Type	For Avaya Aura®, the options are: • **Computer Only** • **Phone Only** • **Computer & Phone** For CS 1000 with Avaya Aura®, the available option is: • **Computer Only**
Preferred Integration Type	This variable is enabled if the **Integration Type** is **Computer & Phone**. You can select which one of the two modes is presented to users when they start the client.
Server Address	**Avaya Aura:** A comma separated list of call servers applicable to the extension. Each server can be identified by IP address, FQDN, or host name.

Table continues…

Variable	Description
	Important: Do not add call servers that are not applicable to the extension. The Avaya Communicator for Microsoft Lync client may continue to search the call server list and become unresponsive.
Server Transport Protocol	Choose one of the following options: • TCP • TLS • UDP
Server Port	If required, update the server port number. The default port number is `5061`.
SIP Domain	Specify the SIP domain name if you are using a SIP endpoint. For example, `transport=tls`. **Important:** To use Avaya Communicator for Microsoft Lync with a SIP endpoint in Shared Control mode, the transport type must be set to TLS. The TCP transport type works for Computer mode, but not for Shared Control mode.
Specify Local UDP/TCP Port Range Preference	Update the default low and high UDP and TCP port range if required.
Support Email Address	Enter a support email address for users to report issues and send log files.
Support Multiple Devices	Select this option to enable multiple devices for Avaya Communicator for Microsoft Lync. **Note:** The devices can be any supported phones and telecommuter devices.
Enable Video	If selected, video is enabled in the Avaya Communicator for Microsoft Lync deployment.
Office 365 Configuration	Select this option to enable the call history functionality in Office 365.
Dialing Settings	
See Configure a dial plan on page 76 If you are configuring an advanced dialing plan and will be deploying a `dialingRules.xml` file, you must know the location of the file.	

Configurator variables for VDI H.323 deployments

VDI deployments are supported for SIP endpoints. If you want to use an H.323 endpoint in a VDI environment, you must set the following values in the Configurator:

- Signal Protocol: Set to H.323
- Communication System Type: Set to Avaya Aura®
- Integration Type and Preferred Integration Type: Set to Phone
- Enable Video: Clear this option

Installing Avaya Communicator for Microsoft Lync locally

About this task

Use this procedure to install Avaya Communicator for Microsoft Lync on a computer with the Lync 2010, Lync 2013, or Skype for Business 2015 and 2016 client.

The log and support directories can be found in `AppData`.

Note:

`AppData` is a hidden Windows folder that contains user data and settings information. The location of the `AppData` folder can vary. You can generally access this folder by typing `%appdata%/Avaya` in Windows Explorer.

Before you begin

- You must have administrative privileges on the local desktop.
- Have the Avaya Communicator for Microsoft Lync `.zip` file created by the Configurator and extract the contents of the `.zip` file.
- Install the Microsoft Lync or Skype for Business client.
- Exit the following if they are open:
  - Microsoft Lync or Skype for Business client
  - Internet Explorer

Procedure

1. Open Windows Explorer and navigate to the location of the Avaya Communicator for Microsoft Lync `.zip` file.
2. Unzip the file.
3. Double-click the following Microsoft Lync SDK installation files, and then follow the instructions to complete the installation:
   - For Lync 2010: `LyncSdkRedist-4.0.7577.124.msi`.
   - For Lync 2013 or Skype for Business 2015 and 2016: `lyncRuntime.msi`.
4. Run the `InstallLyncAddin.bat` file and follow the instructions to complete the installation.
5. Start the Lync or Skype for Business client.
6. To start Avaya Communicator for Microsoft Lync, from the Windows **Start** menu, click **Programs** > **Avaya**, and then do one of the following:
   - For Lync 2010 client, click **Avaya Communicator for Microsoft Lync 2010**.
   - For Lync 2013 or Skype for Business 2015 and 2016, click **Avaya Communicator for Microsoft Lync 2013**.

Note:

You only need to start Avaya Communicator for Microsoft Lync after the initial installation. For the subsequent Lync or Skype for Business client startups, Avaya Communicator for Microsoft Lync starts automatically.

7. Type your extension number and the password for your extension if the Avaya Communicator for Microsoft Lync Settings window opens displaying the Phone tab.

Installation using a command line

You can install Avaya Communicator for Microsoft Lync using a command line. Installation command lines start with `msiexec /i AvayaCommunicatorForMicrosoftLync-msi` and follows with other command information depending on the type of deployment you are performing.

You must have administration privileges to install the application with `/qn` key. On Windows 7, you must open the Command Prompt window using the **Run as administrator** option. To run the Command Prompt as administrator:

1. From the Windows start menu, type **`Command Prompt`** in the **Search programs and files** box.

   The system displays the Command Prompt application in the **Programs** list.

2. Right-click **Command Prompt**, and then click **Run as administrator**.

Table 16: Command line format

Switch	Description	Value	Default value	Usage example
Signalprotocol	SIP protocol installation.	SIP	H.323	`signalprotocol=SIP`
For SIP protocol				
ONEXSIPPROXYSERVERLIST	IP address of the SIP server.	`<ipaddress>`	N/A	`ONEXSIPPROXYSERVERLIST=xxx.xxx.xxx.xxx`
ONEXSIPCONTROLLERLIST	IP address of the SIP controller.	`<ipaddress>:<port>;transport=<tcp or tls>`	N/A	Example for SIP, `ONEXSIPCONTROLLERLIST=xxx.xxx.xxx.xxx;transport=tls.` For H.323 , `ONEXSIPCONTROLLERLIST=xx`

Table continues…

Switch	Description	Value	Default value	Usage example
				x.xxx.xxx.xxx
ONEXSIPDOMAIN	SIP domain.	<sip domain>	N/A	ONEXSIPDOMAIN=xxx.com
Video				
ADMINENABLEVIDEO	Enable or disable video.	1 or 0	1	ADMINENABLEVIDEO=1
Phone modes				
ENABLECM323SCMODE	To enable the Desk Phone mode on Avaya Aura®. **Note:** You can disable incoming call notifications in Desk Phone mode by setting CALLNOTIFICATIONSDISBALED to True.	True or false	False	ENABLECM323SCMODE=true
ENABLECM323MODE	To enable the Computer mode on Avaya Aura®.	True or false	True	ENABLECM323MODE=true
ENABLETCMODE	To enable the Other Phone mode on Avaya Aura®.	True	False	ENABLETCMODE=true
VDIENV	Installation for the VDI environment.	True	False	VDIENV=true
Dialing rules				
ONEXDIALPLANOUTSIDELINEACCESSCODE	Number to dial to access an outside line.	<value>	N/A	ONEXDIALPLANOUTSIDELINEACCESSCODE=<x>
ONEXDIALPLANCOUNTRYCODE	Your country code.	<value>	N/A	ONEXDIALPLANCOUNTRYCODE=<x>
ONEXDIALPLANAREACODE	Your area or city code.	<value>	N/A	ONEXDIALPLANAREACODE=<x>
ONEXDIALPLANPBXPREFIX	PBX main prefix.	<value>	N/A	ONEXDIALPLANPBXPREFIX=<x>
ONEXDIALPLANLONGDISTANCEACCESSCODE	Number to dial for long distance calls.	<value>	N/A	ONEXDIALPLANLONGDISTANCEACCESSCODE=<x>
ONEXDIALPLANINTERNATIONALACCESSCODE	Number to dial for international calls.	<value>	N/A	ONEXDIALPLANINTERNATIONALACCESSCODE=<x>

Table continues…

Switch	Description	Value	Default value	Usage example
ONEXDIALPLANEXTENSIONLENGTHLIST	Extension length for internal extension calls.	`<value>`	N/A	`ONEXDIALPLANEXTENSIONLENGTHLIST=<x,y>`
ONEXDIALPLANNATIONALPHONENUMBLENGTH	Length of national phone numbers.	`<value>`	N/A	`ONEXDIALPLANNATIONALPHONENUMBLENGTH=<x>`
ONEXDIALPLANNATIONALPHONENUMBLENGTH	Include area or city code while making a local call.	`<value>`	N/A	`ONEXDIALPLANLOCALCALLPREFIX=<x>`

Related links

Disabling incoming call notifications in Desk Phone mode on page 107

Installing Avaya Communicator for Microsoft Lync on multiple machines from a remote server

To integrate Avaya Communicator for Microsoft Lync into bulk software distribution and installation infrastructure, Avaya Communicator for Microsoft Lync can be installed without end user intervention, using the following command:

```
msiexec /i AvayaCommunicatorForMicrosoftLync-6.4.0-SNAPSHOT.msi<extension 1><extension 2><extension 3> REBOOT=ReallySuppress /L*v AvayaCommunicatorForMicrosoftLync.install.log /q
```

Installation notes

- The Microsoft Lync 2010, Lync 2013, or Skype for Business 2015 and 2016 must be installed before installing Avaya Communicator for Microsoft Lync.
- Have the Avaya Communicator for Microsoft Lync `.zip` file created by the Configurator and extract the contents of the `.zip` file.
- The /q parameter stops running the Lync 2010, Lync 2013, Skype for Business 2015 and 2016, Avaya Communicator for Microsoft Lync, and one-X engine processes. The installation cannot proceed if the Microsoft Lync or Skype for Business client is running.
- You might receive a prompt to restart the computer. If this occurs, you must reboot the computer to complete the installation.
- Any interaction with the Microsoft Lync or Skype for Business client by a user during the installation can result in unsuccessful installation.`AvayaCommunicatorForMicrosoftLync.install.log` indicates that the installation is complete. Allow enough time for completion of the installation prior to re-starting the Lync or Skype for Business client (up to 1 minute for slow machines). Failing to do so might result in an unsuccessful installation.

- You must have administration 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:
  1. From the Windows start menu, type **`Command Prompt`** in the **Search programs and files** box.

     The system displays the Command Prompt application in the **Programs** list.
  2. Right-click **Command Prompt**, and then click **Run as administrator**.

Avaya Communicator for Microsoft Lync starts automatically the next time Microsoft Lync or Skype for Business is started after logging in to Windows. To start Avaya Communicator for Microsoft Lync without restarting Windows, from the Windows **Start** menu, click **Programs** > **Avaya**, and then do one of the following:

- For Lync 2010 client, click **Avaya Communicator for Microsoft Lync 2010**.
- For Lync 2013 or Skype for Business 2015 and 2016, click **Avaya Communicator for Microsoft Lync 2013**.

To validate the installation, view the `AvayaCommunicatorForMicrosoftLync.install.log` log file. The file contains a text readable output of the installation process and indicates successful installation of Avaya Communicator for Microsoft Lync.

Installing Avaya Communicator for Microsoft Lync on a shared server for Virtual Desktop Infrastructure deployments

About this task

Use this procedure to install Avaya Communicator for Microsoft Lync where the installation software is on a shared server, such as Citrix. Avaya Communicator for Microsoft Lync must be installed on the same machine as the Microsoft Lync or Skype for Business client. For information about installing Collaboration Services in a VDI environment, see *Administering Avaya Collaboration Services* (NN10850–031).

Before you begin

- You must have administrative privileges on the local desktop.
- Build the install package for VDI with the Configurator.
- Have the Avaya Communicator for Microsoft Lync `.zip` file created by the Configurator and extract the contents of the `.zip` file.
- Install the Microsoft Lync or Skype for Business client.
- Exit the following if they are open:
  - Microsoft Lync or Skype for Business client
  - Internet Explorer

Procedure

1. Open Windows Explorer and navigate to the location of the Avaya Communicator for Microsoft Lync `.zip` file.

2. Unzip the file.
3. Open a Command window.
4. In the Command window, change to the directory where you unzipped the contents of the Avaya Communicator for Microsoft Lync zip file.
5. Double-click the following Microsoft Lync SDK installation files, and then follow the instructions to complete the installation:
   - For Lync 2010: `LyncSdkRedist-4.0.7577.124.msi`.
   - For Lync 2013 or Skype for Business 2015 and 2016: `lyncRuntime.msi`.
6. In the Command window, enter `msiexec /i AvayaCommunicatorForMicrosoftLync-6.4.0-SNAPSHOT.msi<extension 1><extension 2><extension 3> VDIENV=true /L*v [AvayaCommunicatorForMicrosoftLync].installLog /q`
7. Follow the instructions to complete the installation.

   If you receive a prompt to restart, you must reboot your machine to complete the installation.

Next steps

When the installation is complete, check the log files. The log and support directories are located under `AppData`.

Note:

`AppData` is a hidden Windows folder that contains user data and settings information. The location of the `AppData` folder can vary. You can generally access this folder by typing `%appdata%/Avaya` in Windows Explorer.

Installing Avaya Communicator for Microsoft Lync with Lync peer-to-peer calling enabled

About this task

Use the following procedure to enable the Avaya Communicator for Microsoft Lync UC Telephony setting during a command line installation.

Important:

Lync peer-to-peer calling should not be enabled in conjunction with virtual desktop infrastructure deployments.

Before you begin

You must disable either Avaya Video or Microsoft Video on the computer to avoid resource conflicts for the camera.

Procedure

1. In the command line, use CD to change the directory to the location with the extracted folder that contains the Avaya Communicator for Microsoft Lync set up.

2. Enter the following string: `msiexec /i AvayaCommunicatorForMicrosoftLync2013<x64 or x86>-<release#>.msi LYNCTELEPHONYMODE=?`, where ? indicates a Microsoft UC Telephony setting of 0 or 5.

   If Lync UC is on, the setting is 0. If Lync UC is off, the setting is 5.

   Note:

   If the file name is different from `AvayaCommunicatorForMicrosoftLync2013<x64 or x86>-<release>.msi`, change the file name.

   You can make calls using two different call controls when the Lync UC is active. Avoid running both the call paths simultaneously as one call cannot be on hold when another call is active.

3. If an error occurs, reverse the registry entry.

   You can manually change the Lync **TelephoneMode** to a value of `5` on the affected computer by modifying the registry.

```
HKEY_CURRENT_USER\Software\Policies\Microsoft\office\15.0\Lync
```

.

Disabling incoming call notifications in Desk Phone mode

Procedure

If you are using Desk Phone mode, you can do one of the following to disable incoming call notifications:

- Edit the `InstallLyncAddin.bat` file using a text editor and add `CALLNOTIFICATIONSDISABLED=true` as shown in the following example:

```
msiexec /i AvayaCommunicatorForMicrosoftLync<2010 or 2013><x64 or x86>-<release#>.msi
DEFAULTPROVIDER=cm323 ENABLECM323MODE=true ENABLECM323SCMODE=true ENABLETCMODE=true
ENABLERESTMODE=false ONEXSIPPROXYSERVERLIST=192.168.44.14 SIGNALPROTOCOL=H323
PBXPREFIXES=" " ONEXDIALPLANOUTSIDELINEACCESSCODE=9 ONEXDIALPLANCOUNTRYCODE=1
ONEXDIALPLANAREACODE=" " ONEXDIALPLANPBXPREFIX=" " ONEXDIALPLANLONGDISTANCEACCESSCODE=1
ONEXDIALPLANINTERNATIONALACCESSCODE=011 ONEXDIALPLANEXTENSIONLENGTHLIST=5
ONEXDIALPLANNATIONALPHONENUMBLENGTH=10 ONEXDIALPLANLOCALCALLPREFIX=" "
ADMINENABLEVIDEO=1 ENABLEDTMF=true VDIENV=false OFFICE365ENV=false /lx
CALLNOTIFICATIONSDISBALED=true "%LOGDIR%\InstallLog_%CurrDateTime%.log"
```

- Run the following command:

```
msiexec /i AvayaCommunicatorForMicrosoftLync<2010 or 2013><x64 or x86>-<release#>.msi
CALLNOTIFICATIONSDISBALED=true
```

Replacing the dialingRules.xml file on the workstation where Avaya Communicator for Microsoft Lync is installed

About this task

There are two ways of replacing the `dialingRules.xml` file used.

- Build a new Avaya Communicator for Microsoft Lync installer including the updated file and then follow the procedures to uninstall and reinstall Avaya Communicator for Microsoft Lync.
- Use the `updateRules.wsf` script to update the `dialingRules.xml` file on a workstation where Avaya Communicator for Microsoft Lync is installed. This script is intended to be used in conjunction with a company's preferred workstation software deployment method (for example, run as a Microsoft SMS deployed script).

Before you begin

- You must have an updated `dialingRules.xml` file. See Modifying dialing rules on page 81.
- You must be able to run the `updateRules.wsf` script with Administrative privileges.

Note:

If the new dial plan rules are not applied after a Lync or Skype for Business client restart, reboot the workstation to ensure that the Avaya Communicator for Microsoft Lync process has been restarted.

Procedure

1. On the machine where Avaya Communicator for Microsoft Lync is installed, open a command prompt window.
2. Navigate to the location of the `updateRules.wsf` tool. The tool is located in the `ProgramFiles` system property under `Avaya Communicator for Microsoft Lync`.
3. Run the tool and enter `cscript updateRules.wsf /?`.

   Details on how to replace the `dialingRules.xml` file are displayed.
4. Once the new file is deployed, log out and log back in to the Lync or Skype for Business client to apply the changes.

Chapter 13: Avaya Communicator for Microsoft Lync administration

The following sections describe initial and ongoing administration for Avaya Communicator for Microsoft Lync. You can perform administration tasks at any time.

The administration tasks include uninstalling, upgrading, backing up, and restoring Avaya Communicator for Microsoft Lync.

Related links

Upgrading Avaya Communicator for Microsoft Lync on page 112

Uninstalling Avaya Communicator for Microsoft Lync

Uninstalling Avaya Communicator for Microsoft Lync from the local desktop

Note:

Avaya Communicator for Microsoft Lync must be uninstalled before the Microsoft Lync or Skype for Business client is uninstalled.

Before you begin

- You must have administrator privileges to uninstall the application.
- Close the Lync or Skype for Business client before performing the uninstall.

Uninstallation notes
- If you attempt to uninstall Avaya Communicator for Microsoft Lync 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 Communicator for Microsoft Lync . 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 Avaya Communicator for Microsoft Lync from multiple machines.`

Uninstallation notes
- With Windows 7 Professional, when you attempt to uninstall Avaya Communicator for Microsoft Lync from the Control Panel, you may receive the following Windows Installer error: `Error opening installation log file. Verify that the specified log file location exists and is writable.` To work around this issue, stop and restart the `Explorer.exe` process using Task Manager. For more information, see http://support.microsoft.com/kb/2564571/en-us. - You may receive a prompt to restart the system. If this occurs, you must reboot the machine to complete the uninstallation. - If a version of the Avaya one-X® Communicator client lower than Release 6.1 is installed on the same machine as Avaya Communicator for Microsoft Lync, then the Avaya one-X® Communicator software must be re-installed after the Avaya Communicator for Microsoft Lync uninstallation. - Based on industry standard practice, the uninstall process does not remove the Avaya Communicator for Microsoft Lync registry keys. The registry keys can be removed manually from `HKey_Current_User\Software\Avaya\Avaya Communicator for Microsoft Lync`. - The uninstall process does not remove the existing product log files. When upgrading from a previous version of Avaya Communicator for Microsoft Lync to a new version of Avaya Communicator for Microsoft Lync, the log destination folder changes. Log files from the previous version of the 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 Communicator for Microsoft Lync** and then click **Remove**.
3. You are prompted to confirm the uninstall. Click **Yes**.

Related links

Avaya Communicator for Microsoft Lync administration on page 109

Uninstalling Avaya Communicator for Microsoft Lync from multiple machines

Note:

- Avaya Communicator for Microsoft Lync must be uninstalled before the Microsoft Lync or Skype for Business client is uninstalled.

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

```
msiexec /x AvayaCommunicatorForMicrosoftLync-6.4.0-SNAPSHOT.msi-
<release#>.msi REBOOT=ReallySuppress /L*v
AvayaCommunicatorForMicrosoftLync.uninstall.log /q
```

Uninstallation notes

- The `/q` parameter kills the running Lync or Skype for Business client, Avaya Communicator for Microsoft Lync, and Avaya Media and Signaling engine processes. The uninstallation cannot proceed if the Microsoft Lync or Skype for Business client is running.
- Any interaction with the Microsoft Lync or Skype for Business client by an end user during the uninstallation can result in a failed uninstallation. The `AvayaCommunicatorForMicrosoftLync.install.log` will indicate the operation is complete. Please allow enough time for completion of the operation prior to restarting the Lync or Skype for Business 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:
  1. 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**.
  2. Right-click **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.
- If a version of Avaya one-X® Communicator lower than Release 6.1 is installed on the same machine as Avaya Communicator for Microsoft Lync, then the Avaya one-X® Communicator software must be re-installed after the Avaya Communicator for Microsoft Lync uninstallation.
- Based on industry standard practise, the uninstall process does not remove the Avaya Communicator for Microsoft Lync registry keys. The registry keys can be removed manually from `HKey_Current_User\Software\Avaya\ Avaya Communicator For Microsoft Lync`.
- The uninstall process does not remove the existing product log files. When upgrading from a previous version of Avaya Communicator for Microsoft Lync to a new version of Avaya Communicator for Microsoft Lync, the log destination folder changes. Log files from the previous version of the client must be removed manually.

To validate the uninstallation, view the log file `AvayaCommunicatorForMicrosoftLync.uninstall.log`. The file contains text readable output of the uninstallation process and indicates successful uninstall of Avaya Communicator for Microsoft Lync.

Related links

Avaya Communicator for Microsoft Lync administration on page 109

Upgrading Avaya Communicator for Microsoft Lync

About this task

Use this procedure to upgrade Avaya Communicator for Microsoft Lync.

Before you begin

- You must review the chapters listed under Deployment process for Avaya Communicator for Microsoft Lync on page 64 to ensure that all prerequisites are met.

  Note:

  The **Preferred Integration Type** setting in the Configurator applies to the first time you start Avaya Communicator for Microsoft Lync. The **Preferred Integration Type** setting is default for all users. After an upgrade, Avaya Communicator for Microsoft Lync starts with the previously used integration type setting.

- You must close the Lync or Skype for Business client before performing the upgrade.

Procedure

1. Uninstall the old version of Avaya Communicator for Microsoft Lync.
2. Install the Configurator.
3. Build the `.msi` file using the Configurator tool.

   Note:

   If an old version of the Configurator is installed, it must be removed before the installation of the new Configurator.

4. Install Avaya Communicator for Microsoft Lync.

   Note:

   At the first startup after an upgrade, Avaya Communicator for Microsoft Lync uses the last used mode if that mode was the Computer mode or the Desk Phone (Shared Control) mode. If the last used mode was the Other Phone mode, Avaya Communicator for Microsoft Lync starts using the default provider as defined in the Configurator.

Related links

Avaya Communicator for Microsoft Lync administration on page 109
Changing the Avaya Communicator for Microsoft Lync signaling protocol on page 112

Changing the Avaya Communicator for Microsoft Lync signaling protocol

About this task

To change the Avaya Communicator for Microsoft Lync signaling protocol (SIP or H.323), you must upgrade to a new version of Avaya Communicator for Microsoft Lync with the appropriate protocol.

You cannot change the signaling protocol in an existing version of Avaya Communicator for Microsoft Lync.

Procedure

1. Uninstall Avaya Communicator for Microsoft Lync.
2. Remove all files and directories under `<User Data>\Avaya\Avaya Communicator for Microsoft Lync\`.
3. Install the new version of Avaya Communicator for Microsoft Lync with the appropriate signaling protocol.

Backing up and restoring Avaya Communicator for Microsoft Lync

Backup requirements for Avaya Communicator for Microsoft Lync data

Avaya Communicator for Microsoft Lync user data is stored under **AppData** > **Roaming** > **Avaya** > **Avaya Communicator for Microsoft Lync**.

Note:

`AppData` is a hidden Windows folder that contains user data and settings information. The location of the `AppData` folder can vary. You can generally access this folder by typing `%appdata%/Avaya` in Windows Explorer.

Files to back up

You should back up the following xml files on your machine:

- addresses.xml
- config.xml
- devices.xml
- dialingRules.xml
- dirserver.xml
- userprofile.xml

Files that do not need to be backed up

You do not need to back up the `history.xml` file because this file is provided as part of the installation.

Recovering Avaya Communicator for Microsoft Lync

About this task

If the Avaya Communicator for Microsoft Lync application installation becomes corrupt, use the this procedure to recover the application.

Before you begin

Back up required data. For more information, see Backup requirements for Avaya Communicator for Microsoft Lync data on page 113.

Procedure

1. Uninstall Avaya Communicator for Microsoft Lync.
2. Re-install Avaya Communicator for Microsoft Lync.

Warning:

Do not restore Avaya Communicator for Microsoft Lync data until after the initial login following the installation. This prevents Avaya Communicator for Microsoft Lync back-up data from being overwritten.

Chapter 14: Troubleshooting Avaya Communicator for Microsoft Lync

Use the information in this chapter to help troubleshoot issues related to Avaya Communicator for Microsoft Lync configuration.

For the most detailed log information, run Avaya Communicator for Microsoft Lync in debug mode. Click ⚙ to open the Settings window and then select the **Support** tab.

For additional troubleshooting information, see *Avaya one-X® Communicator Troubleshooting* (16-603218).

Active call ends when logging in to the desk phone

User Alert

When you are in an active call in Computer mode and you log in to your desk phone while the call is in progress, the call ends without warning. Avaya Communicator for Microsoft Lync does not provide an indication that a call is in progress when you log in to your desk phone.

Logs/Alarms

When you log in to your desk phone while in Computer mode, you receive a warning message saying `Computer mode was logged out`. At this point, your active call is terminated.

Root Cause

When you log in to your desk phone, Avaya Communicator for Microsoft Lync prepares to take control of your extension. Avaya Communicator for Microsoft Lync does not indicate that an active call is in progress.

Recovery Action

Re-start the lost call.

Active calls in dual registration shared mode are not turned into bridged line appearance with 96x0 phones

User Alert

With 96x0 series phones in dual registration shared mode, an active call does not turn into a bridged line appearance. The user scenario is as follows:

1. An active call is answered from a mobile device.
2. An Avaya Communicator for Microsoft Lync user joins the call.
3. The Avaya Communicator for Microsoft Lync user signs out and receives the message: `Do you want to terminate the active call?`
4. The Avaya Communicator for Microsoft Lync user clicks **Yes**.

The active call should turn into a bridged line appearance on the 96x0 series shared device. Instead, the active call remains.

Cause

This is a known limitation with 96x0 series phones.

Solution

End the active call manually.

Add-in disappears when windows are maximized

User Alert

The Avaya Communicator for Microsoft Lync add-in disappears when users click the  icon to maximize the Conversation window or the main Lync or Skype for Business client window. The video screen is no longer visible and users cannot control calls with Avaya Communicator for Microsoft Lync.

Logs/Alarms

None.

Root Cause

Microsoft takes control of the screen when windows are maximized in the Lync or Skype for Business client.

Recovery Action

Minimize the Conversation window or the main Lync or Skype for Business client window. Expand the window by stretching it manually.

Application does not launch

User Alert

Avaya Communicator for Microsoft Lync does not launch when signing into the Lync or Skype for Business client. The Windows **Start** menu does not contain the Avaya Communicator for Microsoft Lync menu item.

Logs/Alarms

None.

Root Cause

Avaya Communicator for Microsoft Lync application was not installed successfully.

Recovery Action

Examine Avaya Communicator for Microsoft Lync 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 .

Audio call cannot be escalated to a video call in Shared Control mode

User Alert

If you are on a desk phone audio call before Avaya Communicator for Microsoft Lync launches, the call cannot be escalated to a video call after Avaya Communicator for Microsoft Lync launches in Shared Control mode. The same issue occurs if you try to escalate to a video call after Avaya Communicator for Microsoft Lync recovers from a network outage.

Logs/Alarms

None.

Root Cause

Avaya Communicator for Microsoft Lync is not aware of the media capabilities at the remote end.

Recovery Action

After Avaya Communicator for Microsoft Lync launches, hang up and make the call again.

Call Control bar does not change to Remote Call Control bar when boss or secretary drops

User Alert

In a conference call with a boss, secretary, and another endpoint, when the boss or secretary drops off the call, the Call Control bar does not update to a Remote Call Control bar. The call timer is stopped but call control functionality is still available.

Root Cause

On the Avaya Communicator for Microsoft Lync engine, the *remoteAddressfield* for the *SessionUpdatedEvent* is empty.

Recovery Action

Click **End Call** again on the Call Control bar. The Conversation window disappears.

Call and video status not updated after network connection is lost

User Alert

If the other party is dropped from a call or video communication due to a failure, such as loss of network connection, the Lync Conversation bar of the active party is not updated to show that the call or video is inactive.

Logs/Alarms

None.

Root Cause

The Avaya Communicator for Microsoft Lync may not be notified immediately when the other party drops from a call due to a failure.

Recovery Action

If no audio can be heard, the call can be ended. If video is frozen, but audio is still active, the video window can be closed.

Calls fail to originate when the phone is off the hook and the Headset button is lit

User Alert

Calls fail to originate if the Avaya Communicator for Microsoft Lync shuts down when the desk phone handset is off the hook or the **Headset** button on the phone is lit. Users cannot make calls.

Logs/Alarms

None.

Root Cause

This issue is caused by an inconsistency in the way that the Avaya Media and Signaling engine manages the hook state of the phone line. If the Avaya Media and Signaling engine is in the wrong state when it shuts down or when Avaya Communicator for Microsoft Lync shuts down, the state is not updated correctly on recovery.

Recovery Action

Put the handset back in the cradle or press the **Headset** button on the phone to extinguish the light.

Call forwarding disabled with certain digital phones

User Alert

When you are in the Desk Phone mode on certain digital phones, such as the 1416 digital phone, call forwarding is disabled automatically after 50 seconds. Although you set call forwarding successfully, the call is not forwarded

Root Cause

Call forwarding is not supported on certain digital phones, such as the 1416 digital phone.

Recovery Action

None. This issue does not occur with the 1408 digital phone.

CallTo link does not work in an IM conversation

User Alert

`CallTo:”xxxxxxxxxx, where xxxxxxxxxx is a phone number”` link is non-functional in an IM conversation.

Root Cause

Known Avaya Communicator for Microsoft Lync issue.

Workaround

Copy the number from the link and paste into the search box or dialpad.

Conversation window for H.323 users does not become a Conference window

User Alert

An H.323 user (User A) in Computer mode calls two other H.323 users (Users B and C) who are also in Computer mode. Users B and C receive incoming call notifications. User A establishes a conference. A Conference window does not appear for User A, and the two active Conversation windows continue to appear.

Logs/Alarms

User A receives an error message stating: `Cannot create conference at this time.`

Root cause

Known H.323 limitation.

Workaround

None.

Conversation window is not updated when a user transfers an incoming call from an H.323 user

User Alert

User A (SIP or H.323 user) receives a call from User B (H.323 user) and User C (H.323 user). User A successfully transfers User B to User C. The Conversation window continues to indicate that Users B and C are on a call with User A. The Conversation window should indicate that Users B and C are on a call with each other. This issue is not observed if Users B and C are SIP users.

Root Cause

Known Communication Manager issue.

Workaround

None.

Different behaviors for calls made from the right-click menu and from the Phone icon

User Alert

When a Avaya Communicator for Microsoft Lync user makes a call by right-clicking a contact and selecting **Make Voice Call**, the call fails. When the user makes the call by clicking the Phone icon, the call is successful.

Logs/Alarms

The following example shows the type of information in the Avaya Communicator for Microsoft Lync log file when the user makes a call by right-clicking the contact and selecting **Make Voice Call**. For the most detailed log information, run Avaya Communicator for Microsoft Lync in debug mode.

```
2012-09-06 12:13:18.499 10 Debug DiallingRules: NormalizeUri: incoming number 8672 to
+75557778672 using default implementation
2012-09-06 12:13:18.499 10 Debug LyncClientManager: GetNativeContact for uri tel:
+75557778672
2012-09-06 12:13:18.604 10 Debug DiallingRules: GetTranformedString: matched rule:
+75557778672
2012-09-06 12:13:18.605 10 Debug DiallingRules: NormalizeUri: incoming number
+75557778672 to +85557778672 using pattern match
```

Root Cause

The normalized phone number is re-normalized a second time into a different phone number. For example:

- The default implementation normalizes `8672` to `+75557778672`.
- Pattern match then normalizes `+75557778672` to `+85557778672`.

The number resulting from the first normalization operation should not be re-normalized. All numbers must be completely normalized by the first normalization operation.

Recovery Action

Remove the second normalization operation, and add another normalization rule to convert the first number format into the final form. From the example above, the new normalization rule must convert `8672` to `+85557778672`.

Enabling debug when Avaya Communicator for Microsoft Lync is not starting

User Alert

The user cannot get Avaya Communicator for Microsoft Lync 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 Avaya Communicator for Microsoft Lync.
2. Reinstall Avaya Communicator for Microsoft Lync using the following command line parameter:

   ```
   msiexec /i AvayaCommunicatorForMicrosoftLync-6.4.0-SNAPSHOT.msi DEBUG=true
   ```
3. Restart Avaya Communicator for Microsoft Lync.

G729 or G722 Codec negotiation fails

User Alert

No User Alert Displayed

Logs/Alarms

No log exceptions. QueryConnection Response missing connection state details.

Root Cause

One or more endpoints or media elements has codecs disabled.

Recovery Action

- Verify the G729 and G722 codecs are enabled on Communication Manager.
- Verify that the following four lines exist in the Avaya Communicator for Microsoft Lync `config.xml` file :

```
<parameter>
<name>EnableG729</name>
<value>1</value>
</parameter>
```

The `config.xml` file can be found under **AppData** > **Roaming** > **Avaya** > **Avaya Communicator for Microsoft Lync**.

Note:

`AppData` is a hidden Windows folder that contains user data and settings information. The location of the `AppData` folder can vary. You can generally access this folder by typing `%appdata%/Avaya` in Windows Explorer.

H.323 user cannot see video in a peer-to-peer video call during a MeetMe conference

User Alert

When a SIP user in a MeetMe conference makes and transfers a video call to an H.323 Avaya Communicator for Microsoft Lync user, the H.323 user can join the Meet Me conference but cannot see video or escalate to video.

Root Cause

Known Avaya Communicator for Microsoft Lync issue.

Workaround

None

In SIP Shared Control mode, an incoming call notification is not displayed for a conference invite

User Alert

When the Conference moderator invites an Avaya Communicator for Microsoft Lync user to a conference, an incoming call notification is not displayed. The phone device rings.

Root Cause

Unknown.

Workaround

None. You can attend the conference call with your phone device.

In SIP Other Phone mode, user does not receive Bridged Line Appearance call

User Alert

In SIP Other Phone mode, a secretary does not receive an incoming call to the boss. The secretary's device does not ring and the secretary cannot answer the call.

Root Cause

Known Communication Manager issue. This is observed only in SIP Other Phone mode.

Workaround

None.

Incoming call error with Avaya Aura® Communication Manager 5.2

User Alert

With Lync and Avaya one-X® Communicator on a 5.2 Avaya Aura® Communication Manager server, if three parties are involved in a cyclic call scenario (user A calls user B, user B calls user C, and user C calls user A), the final call cannot be successfully answered. Any further attempts to re-start the call may result in the user not being able to control the Conversation window. When the uncontrollable Conversation window is closed, the call is not terminated.

Logs/Alarms

None.

Root Cause

Unknown.

This issue does not exist on Communication Manager 6.2.

Workaround

Sign out of the Lync or Skype for Business client and then sign back in. If this behavior persists, consider upgrading to an Avaya Aura® Communication Manager 6.2 server or higher.

Incoming call notification shows caller as unknown@number

User Alert

The Conversation window in Avaya Communicator for Microsoft Lync displays `unknown@number`.

On receiving an incoming call notification, Avaya Communicator for Microsoft Lync attempts to match the incoming call number with the user's Lync contacts. If the matching is not successful, then the Avaya Aura® calling name is displayed (if available) in the pop-up window. When the user answers the call, Avaya Communicator for Microsoft Lync passes the calling number to Lync. Avaya Communicator for Microsoft Lync provides name resolution against the Lync address book and the user's Outlook contacts. This may result in a different name format being presented in the Lync Conversation window to that shown in the incoming call notification pop-up window. If Lync does not provide a name match, then the caller's number is displayed. If the calling number is not presented by Avaya Aura®, then the incoming call notification window and the Conversation window associated with this call displays `unknown@number`.

Logs/Alarms:

The Avaya Communicator for Microsoft Lync log file displays the following information:

```
mm/dd/yyyy 15:16:18.098 Verbose 30 DiallingRules: NormalizeUri: incoming number 7000260
to 7000260 using default implementation
```

```
dd/mm/yyyy 15:16:18.099 Verbose 1 DiallingRules: NormalizeUri: incoming number
+00000000000 to +00000000000 using default implementation
```

```
mm/dd/yyyy 15:16:18.099 Verbose 1 CallEventHandler: CallEvtHandler CallEventArgs:
sessionID=2; state=alerting; calling=tel:+00000000000; called=tel:7000262;phone-
context=enterprise; reason=;32
```

Root Cause

Avaya Communicator for Microsoft Lync cannot normalize the incoming call due to a mismatch in the dialing rules. Normalization does not occur when the caller's extension is not of the same length as provisioned in the **Extension Length** field in the **Settings** > **Dialing Rules** pane.

Recovery Action

The extension length of the telephone number in the **Settings** > **Dialing Rules** pane should match the configured dial plan of the network. In this case, update the extension length to 7,11.

Install or uninstall failure: script could not be run

User Alert

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

Logs/Alarms

The Windows Installer log, if enabled, contains the following log entry.

```
Action start xx:xx:xx: stopOneXClientsForUninstaller.
MSI (s) (B0:04) [xx:xx:xx:xxx]: Product: Avaya MC Add-in – Error 1720. 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. Custom action
stopOneXClientsForUninstaller script error -2147217406, : Line 111, Column 15,
Scripting access to WMI is not working.
```

Root Cause

The Windows Management Instrumentation (WMI) repository is corrupt.

Recovery Action

Perform the following steps to complete the installation or uninstallation of Avaya Communicator for Microsoft Lync. Note that this procedure may not resolve the underlying Windows operating system issue.

1. Open a command prompt window. Choose one of the following.
   - On Windows 7, you must open an elevated command prompt window. From the Windows **Start** menu, select **All Programs**, then **Accessories**, then right-click **Command Prompt**, and select **Run as Administrator**.
2. Type in the following command and press Enter.

   `net stop winmgmt`
3. Open a Windows Explorer window and navigate to the folder `C:\Windows\System32\Wbem\Repository`.
4. Rename the `Repository` folder.
5. Return to the command prompt window and type in the following command and press Enter.

   `net start winmgmt`
6. Type in the following command and press Enter.

   `EXIT`

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

User Alert

The Microsoft Lync or Skype for Business client 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 documentation for information on supported formats. The following are links to online documents:

- For Lync 2010, Set Phones options and numbers for Lync 2010
- For Lync 2013 or Skype for Business 2015 and 2016, Set Phone options and numbers for Lync 2013

Unable to start a web collaboration session in a Citrix XenApp environment in Google Chrome

Condition

In a Citrix XenApp environment, the web collaboration link does not open in Google Chrome when you start the web collaboration session using Collaboration Services from:

- The Avaya Communicator for Microsoft Lync client
- The Outlook Meeting Invitation window
- The Reminder window

The Google Chrome browser opens, but you are not automatically directed to the web collaboration session as expected.

Cause

Unknwon

Solution

Before starting a web collaboration session from Outlook or Avaya Communicator for Microsoft Lync, ensure that the Google Chrome browser is open on your computer.

Log file uninstallation error

User Alert

The following error message appears when uninstalling Avaya Communicator for Microsoft Lync through the Windows Control Panel:

```
Error opening installation log file. Verify that the specified location
exists and is writable.
```

Cause

This issue occurs when Windows Installer Logging is enabled, but the Windows Installer engine cannot write the uninstallation log file correctly. For more information, see http://support.microsoft.com/kb/2564571/en-us.

Solution

Stop and restart the Explorer.exe process using Task Manager.

Avaya Communicator for Microsoft Lync cannot connect to servers

User Alert

Server or connection to the server is down. Please contact your administrator.

The following message displays in the Configure Settings Window on the client: Communication servers are not available. Please contact your administrator.

Logs/Alarms

2011-06-23 15:19:26.341 1 Debug PopupManager.ShowErrorMsgDialog: The selected mode cannot be accessed without configuring login settings.

Do you wish to exit the Avaya Communicator for Microsoft Lync? Select **Yes** to exit the Avaya Communicator for Microsoft Lync. To restart Avaya Communicator for Microsoft Lync, please sign-out and sign-in to the Lync or Skype for Business client. 2011-06-23 15:19:27.825 1 Debug PopupManager.ShowErrorMsgDialog: The selected mode cannot be accessed without configuring login settings.

Do you wish to exit Avaya Communicator for Microsoft Lync? Select **Yes** to exit Avaya Communicator for Microsoft Lync. To restart Avaya Communicator for Microsoft Lync, please sign-out and sign-in to the Lync or Skype for Business client.

Root Cause

No network connectivity between user's Avaya Communicator for Microsoft Lync machine and Communication Manager.

Recovery Action

- Use the ping command to ensure that Communication Manager or Call Server is reachable. This may require establishing the VPN tunnel to the enterprise network.

- Check that Communication Manager is functioning and has no alarms.

Avaya Communicator for Microsoft Lync Communicator Bar does not appear

User Alert

No user alert displayed.

Logs/Alarms

No Avaya Communicator for Microsoft Lync logs.

Root Cause

The Avaya Communicator for Microsoft Lync process is not running because:

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

Recovery Action

Start Avaya Communicator for Microsoft Lync.

- From the Windows **Start** menu, select **Programs** > **Avaya**. For Lync 2010 clients, select **Avaya Communicator for Microsoft Lync 2010**. For Lync 2013 or Skype for Business 2015 and 2016 clients, select **Avaya Communicator for Microsoft Lync 2013**.
- From the Lync or Skype for Business client **Tools** menu, select **Avaya Communicator for Microsoft Lync**.

The Avaya Communicator for Microsoft Lync Contact Card button does not appear

User Alert

When you hover over or click a contact in the Lync or Skype for Business client, the Avaya Communicator for Microsoft Lync **Contact Card** button (also called the **Phone** button) does not appear. You cannot view Avaya Communicator for Microsoft Lync contact cards.

Logs/Alarms

None.

Root Cause

The system has lost track of the active tuple for contacts.

Recovery Action

Switch to a different contact view, and then switch back to the desired contact view. The contact view options, displayed in the main Lync or Skype for Business client window, are:

- Groups
- Status
- Relationships
- New

If switching the contact view does not resolve the issue, you will need to sign out of the Lync or Skype for Business client and then sign back in.

Avaya Communicator for Microsoft Lync does not accurately display Adhoc conference participants

User Alert

During a conference call, the Avaya Communicator for Microsoft Lync Conversation window does not accurately list all participants. Instead, participants are listed with a name such as `Conference2@audioconference`.

Logs/Alarms

None.

Root Cause

Avaya Aura® indicates when a conference call is in progress, but does not display each conference participant.

Recovery Action

None. The Avaya Communicator for Microsoft Lync conference experience is similar to the conference experience on the desk phone.

Avaya Communicator for Microsoft Lync may disable PC

Avaya Communicator for Microsoft Lync 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 Avaya Communicator for Microsoft Lync 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.

Lync video pane has excessive black border around video frame when using H.264 video codec

User Alert

When using H.264 video encoding with certain video cameras, both the local video preview and the remote received video picture will be surrounded by a thick black border. As a result, the video picture presented in both the local preview and the picture presented to the remote user are smaller than desired.

Logs/Alarms

None.

Recovery Action

A different web camera may not present this issue. Disabling the H.264 video encoding option in the Avaya Communicator for Microsoft Lync settings also prevents this behavior.

Making a call displays Call number is not defined dialog

User Alert

When making a call, the **Call number is not defined** dialog is displayed.

Logs/Alarms

None.

Root Cause

The dialing rules are not configured correctly.

Dialing rules should be defined so that the result of the normalization rule is the end result. The number should not be re-normalized to another number. If a normalized number is passed through dialable translations, the number should also be normalized back to the same form that it was in before the dialable translation.

Below is an example of an entry in the `dialingRules.xml` file that normalizes the number `3509` to `19876543210`.

```
<DialingRulesPattern>
<type>1<type>
<pattern>^3509</pattern>
<subString>19876543210</subString>
<minLength>4</minLength>
<maxlegnth>4</maxLength>
<deleteLength>4</deleteLength>
</DialingRulesPattern>
```

With this example setup if a number is entered as `3509` it will first be normalized to `19876543210` using the dialingRules.xml file. This number can then be passed through the dialable rules before being sent to the call server. If the information in the simple dialing rules does not correspond with the normalized number; for example, if the number is longer than the national phone number length or if the area/city code in the simple dialing rules is different from the caller's number, then the number will be dialed unchanged as `19876543210` when it is passed through the dialable rules. If this number is normalized again, it will be discovered as an E.164 number (`+19876543210`) with the simple dialing rules. The E.164 number resulting from the re-normalization does not match the result of the initial normalization, so the dialing rules are incorrect.

Recovery Action

To fix the issue described above, perform one of the following actions.

- Make sure that the normalized number cannot be normalized again by making sure that the initial normalization converts the number to the E.164 form. To normalize the number in the example scenario above to the E.164 form, you must change the `subString` field in the dialingRules.xml file to:

  ```
  <subString>+19876543210</subString>
  ```

- Make sure that the normalized number cannot be normalized again to a different number by adding a second rule to stop the simple dialing rules from affecting the normalized number.

  After the example scenario above, you could add a rule to normalize the number `19876543210` to `19876543210`, and to override the simple dialing rule normalization of `19876543210` to `+19876543210`.

Poor video quality when Auto Select Camera setting is selected

User Alert

When the **Auto Select Camera** option is selected under Video Settings, you may experience poor video quality. This video quality only affects your local machine. The video quality for the other party is not affected.

Logs/Alarms

None.

Root Cause

Underlying Avaya Media and Signaling Engine issue.

Recovery Action

1. Under Avaya Communicator for Microsoft Lync Settings, click the **Video** tab.
2. In the Video Settings window, under **Preferred Camera**, select your camera manually instead of using the **Auto Select Camera** option.

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 Avaya Communicator for Microsoft Lync contact card, or uses the **Make Voice Call** or **Make Video Call** buttons from the Avaya Communicator for Microsoft Lync 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 presence and privacy relationships also apply to Avaya Communicator for Microsoft Lync. For information on presence and privacy relationships, see the Microsoft Lync documentation. The following are links to online documents:

- For Lync 2010, Presence and Privacy Relationships for Lync 2010.
- For Lync 2013 or Skype for Business 2015 and 2016, Presence and Privacy Relationships for Lync 2013.

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 is corrupted.

Recovery Action

Use the following steps to fix a corrupted WMI repository on Windows. 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.

Corrupt Office installation prevents Avaya Communicator for Microsoft Lync from launching

User Alert

Avaya Communicator for Microsoft Lync does not launch.

Logs/Alarms

Logs indicate a `LyncClientException` with error code `0x80080005`.

Root Cause

The error shown in the logs indicates that the cause of this issue is a corrupt Microsoft Office installation.

Recovery action

Try rebooting the work station. If this does not resolve the issue, use the Microsoft Office Installer to repair the Microsoft Office installation on the work station.

Performance issues during video calls

User Alert

User experiences poor work station performance while on a Avaya Communicator for Microsoft Lync video call. During this time, the work station is unresponsive.

Logs/Alarms

None.

Root Cause

Insufficient memory or virtual memory.

Recovery Action

Update your system properties to improve performance. For more information, see Solution: Enhancing system performance on page 134.

Solution: Enhancing system performance

Procedure

1. On your computer, navigate to **Control Panel** > **System** > **Advanced system settings**.
2. In the System Properties window, select the **Advanced** tab.
3. Click **Settings** under the Performance section.
4. In the Performance Options window, select the **Advanced** tab.
5. Click **Change** under the Virtual memory section.
6. Deselect **Automatically manage paging file size for all drives**.
7. Adjust the maximum virtual memory size to match the recommended virtual memory size.
8. Adjust the initial virtual memory size to be 99% of the recommended virtual memory size.
9. Click **Set**.
10. Click **OK** on all open windows to apply the new settings.
11. Restart your computer if prompted.

Video is not presented

User Alert

On a Avaya Communicator for Microsoft Lync video call, video is not presented as expected.

Logs/Alarms

None.

Root Cause

Negotiation for the initial video session failed.

Recovery Action

If the Video window is present but the remote video stream is not presented, do the following:

1. Pause the video
2. Wait for a few seconds and then resume the video

If the Video window is not present, do the following:

1. Hold the audio call in Avaya Communicator for Microsoft Lync
2. Wait a few seconds and then retrieve the held call
3. Re-escalate the call to video

Presence state flickers when the user is on a call

User Alert

The user's presence constantly switches from **Busy — In a Call** to another presence state while the user is on an active call.

Logs/Alarms

None.

Root Cause

In the Custom Presence definition file, another presence state has the same ID number as the **Busy — In a Call** state. As a result, when the user is on a call, the **Busy — In a Call** state is constantly overridden by another presence state.

Recovery Action

In the Custom Presence definition file, Avaya Communicator for Microsoft Lync uses the ID number 1 for the **Busy — In a Call** state. Make sure all other presence states have a different ID number assigned to them.

Related links

Merging custom presence files on page 81

Users cannot log in to SIP Shared Control mode

User Alert

Avaya Communicator for Microsoft Lync users cannot log in to SIP Shared Control mode.

Logs/Alarms

The system displays the following error: `403 Endpoint Routing Forbidden.`

Recovery Action

1. Log in to Avaya Aura® Session Manager.
2. In the **Session Manager Administration** tab, enable **Direct Routing to Endpoints**.
3. In the Settings file **Simultaneous Registrations** field, set the value to 2 or higher.
4. On the Avaya Aura® Session Manager profile, in the **Maximum Simultaneous Devices** field, set the value to 1 or higher.
5. To complete user configuration, check the following:
   a. Avaya Aura® Session Manager profile and endpoint profile on the Avaya Aura® System Manager.
   b. *Station profile*, *aar analysis*, *trunk group*, *signaling group*, and *numbering plan* on the Avaya Aura® Communication Manager.

   The extension range for the numbering plan should follow the same numbering format configured for the trunk group. For more information about user configuration, see *Administering Avaya Aura® Session Manager* and *Administering Avaya Aura® Communication Manager.*

User receives error messages after making a second call

User Alert

When the user makes a second call, Avaya Communicator for Microsoft Lync attempts to retrieve the first call from the held state and terminate the second call. The user receives one of the following error messages:

- `End call failed` message on the call control bar.
- `The Conversation window is closed. The call is still in progress. Do you wish to terminate the call?` pop-up message.

Logs/Alarms

The following example shows the type of information that appears in the Avaya Communicator for Microsoft Lync log file when the user makes the second call. For more detailed log information, run Avaya Communicator for Microsoft Lync in debug mode.

```
SparkXMLProxy: SENT: <?xml version="1.0" encoding="utf-8"?>
<HoldSessionRequest xmlns="http://www.avaya.com/schemas/UISchema.xsd">
<clientId>1</clientId>
<requestId>18</requestId>
```

```
<targetId>-2</targetId>
<connectionId>1</connectionId>
</HoldSessionRequest>
```

```
SparkXMLProxy: SENT: <?xml version="1.0" encoding="utf-8"?>
CreateSessionRequest xmlns="http://www.avaya.com/schemas/UISchema.xsd">
<clientId>1</clientId>
<requestId>19</requestId>
<targetId>-2</targetId>
 <mediaType>audio</mediaType>
<remoteAddress>211601</remoteAddress>
<subject>Make a call</subject>
<requestURL/>
<applyDialingRules>true</applyDialingRules>
<reuseDialingSession>false</reuseDialingSession>
<emergency>false</emergency>
<editDialing>false</editDialing>
<onhookDialing>false</onhookDialing>
</CreateSessionRequest>
```

```
OneXSparkXMLProvider: RECEIVED: <HeldEvent xmlns="http://xml.avaya.com/endpointAPI">
<connectionId>1</connectionId>
</HeldEvent>
```

```
OneXSparkXMLProvider: RECEIVED: <HoldSessionResponse xmlns="http://xml.avaya.com/
endpointAPI">
<clientId>1</clientId>
<requestId>18</requestId>
<statusCode>0</statusCode>
<reason>success</reason>
<connectionId>1</connectionId>
</HoldSessionResponse>
```

```
OneXSparkXMLProvider: RECEIVED: <UnheldEvent xmlns="http://xml.avaya.com/endpointAPI">
<connectionId>1</connectionId>
</UnheldEvent>
```

Root Cause

The **Unhold** dial plan parameter setting under **Conference/Transfer** in Avaya Aura® Communication Manager is set to `Y`. The logs display an unexpected `<UnheldEvent>` message.

Recovery Action

Change the **Unhold** setting in Communication Manager to `N`.

Video calls cause high CPU usage

User Alert

High CPU usage during video calls. The computer may appear inoperable.

Logs/Alarms

None.

Root cause

One or more of the following issues causes the computer to appear inoperable during Avaya Communicator for Microsoft Lync video calls:

- The computer barely meets the minimum video hardware requirements
- Video codec selection involves a high CPU utilization codec
- The computer is running many other programs at the same time, causing the computer to lag during video calls

Recovery Action

Action 1:

1. Add or modify the following text in the `config.xml` file. The file is located under **AppData** > **Roaming** > **Avaya** > **Avaya Communicator for Microsoft Lync**.

```
<parameter>
<name>VideoH264Level</name>
<value>30</value>
</parameter>
```

Note:

`AppData` is a hidden Windows folder that contains user data and settings information. The location of the `AppData` folder can vary. You can generally access this folder by typing `%appdata%/Avaya` in Windows Explorer.

2. Sign out of the Lync or Skype for Business client and then sign in again.

Action 2:

If the first recovery action does not resolve the problem, do the following:

1. Add or modify the following text in the `config.xml` file.

```
<parameter>
<name>VideoH264Level</name>
<value>22</value>
</parameter>
```

2. Sign out of the Lync or Skype for Business client and then sign in again.

Action 3:

If the second recovery action does not resolve the problem, do the following:

1. Add or modify the following text in the `config.xml` file.

```
<parameter>
<name>VideoH264Level</name>
<value>13</value>
</parameter>
```

2. Sign out of the Lync or Skype for Business client and then sign in again.

Warning message when you accept an incoming call from a user set to Do Not Disturb

User Alert

With Lync 2010, when you accept an incoming call from a user who has their presence status set to Do Not Disturb, a dialog box shows the following message. `This person does not want to be disturbed and may not see your conversation invitation. Do you want to send anyway?`

With Lync 2013 or Skype for Business 2015 and 2016, only a warning message appears in the Conversation window. A dialog box does not appear.

Recovery Action

In the Lync 2010 client, you can select the **Do not show this message again** check box in the dialog box.

In the Lync 2013 or Skype for Business 2015 and 2016 client, no dialog box appears.

Glossary

add-in	A software component that adds a specific feature to an existing software application.
Computer Telephony Integration (CTI)	Enables you to use your computer as a phone.
conference	The process of conducting a meeting between two or more people by using telecommunication circuits and equipment. For example, audio conferencing or teleconferencing.
thin client	An appliance that connects the peripherals of the user with a server or a data center.
Virtual Desktop Infrastructure (VDI)	A desktop-oriented service that hosts user desktop environments on remote servers.

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