Installation Manual

AudioCodes One Voice for Microsoft® Skype for Business

Microsoft Office 365 X-UM with IP PBXs using AudioCodes CloudBond X-UM Standard

Version 0.1

Skype for Business

audiocodes

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Notice

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Abbreviations and Terminology

Each abbreviation, unless widely used, is spelled out in full when first used.

Related Documentation

Document Name
X-UM Configuration Guide

Document Revision Record

LTRT	Description
40725	Initial document release for Version 0.1
40726	Updates to sections Skype for Business Pre-preparation; Exchange UM Online Feature List; Call Flows; Adding Users to X-UM Connector and HA and DR.
40727	Updates to Installation Steps; Preparing New Machine with Windows 2012 R2/2016; Adding Machine to Domain; Updating Windows with Latest Microsoft Update; Creating Virtual Machine on Hyper-V for X-UM Connector
40728	Update for Version 0.1.39: Added Software Revision Record below. Updates to Section Installing Unified Communications Managed API with UCMA Version table. Replaced references to X-UM Connector Wizard with X-UM Application.
40729	Update for Version 0.1.40: Fixed bug of restarting user even if it was moved to another server. Added support for Windows 2019.

Documentation Feedback

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Software Revision Record

The following table lists the software versions released in Version 0.1.

Table 1-1: Software Revision Record

Software Version	Date
0.1.22	Feb 2018
0.1.30	Mar 2018
0.1.31	Mar 2018
0.1.36	Jun 2018
0.1.38	Sep 2018
0.1.39	Dec 2018
0.1.40	Feb 2019

Note: The latest software versions can be downloaded from

https://s3.eu-central-1.amazonaws.com/downloads-audiocodes/Download/AC_XUM_Install.html

Ensure you download the correct X-UM platform version (Skype, Lync 2013 or Lync 2010). Unzip the file to a temporary directory.

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1 Introduction

Office 365™ Microsoft Exchange Online Unified Messaging (UM) provides voice mail for Exchange mailboxes “in the cloud”. To allow telephony equipment to communicate securely with the Office 365 network, customers are required to deploy AudioCodes' Mediant Session Border Controllers (SBCs) or some other SBC or gateway which have been tested for interoperability with Unified Messaging (UM).

As of July 2018, Office 365 Microsoft Exchange Online Unified Messaging (UM) no longer supports direct connectivity of third-party PBXs and IP PBXs using Session Border Controller (SBC). This document describes the AudioCodes X-UM Connector, a software product that enables voice mail connectivity from third-party PBXs and IP PBXs to Office 365 Microsoft Exchange Online Unified Messaging (UM) using the customer’s existing Skype for Business Server infrastructure while supporting existing features such as “Message Waiting Indication” and “Play Voicemail on Phone”.

The X-UM solution is available in two main configurations:

- **X-UM Standard based on CloudBond Standard Plus**

  In this configuration, the X-UM Connector is installed in the CloudBond environment (Mediant 800) as an additional Virtual Machine (VM). It is activated in the CloudBond Skype for Business server environment.

  The customer needs to connect this CloudBond server to the company’s environment (Skype / PBX / exchange).

- **X-UM Connector as a standalone server**

  In this configuration, the customer needs to dedicate a machine for the X-UM Connector, and install and activate it, as described below, on an existing Skype for Business\Lync 2013\Lync 2010 server topology configured to work with Office 365 Microsoft Exchange Online Unified Messaging.

This document details the installation procedure for **X-UM Connector as a standalone server.** For **X-UM Standard based on CloudBond Standard Plus** installation refer to *LTRT-26790 AudioCodes X-UM Configuration Ver. 3.0.*

Note: “Skype” or “Skype for Business” is is used interchangeably to refer to Skype for Business or Lync 2013/Lync 2010, unless specifically indicated.

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2 Installation Steps

This section summarizes the steps required for setting up and activating the X-UM Connector machine:

1. Prepare the new machine with Windows 2012 R2/2016/2019 - see Chapter 3 on page 15.
2. Add the machine to the domain - see Chapter 5 on page 25.
3. Update Windows with the latest Microsoft update - see Chapter 6 on page 29.
4. Install UCMA - see Chapter 7 on page 31.
5. Install the Skype for Business Components - see Chapter 8 on page 33.
6. Install the X-UM Connector Application - see Chapter 9 on page 37.
7. Activate X-UM Connector - see Chapter 10 on page 41.
8. Configure the X-UM Connector - see Chapter 11 on page 45.
9. Obtain the License - see Chapter 12 on page 49.
10. Configure the SBC in the X-UM Solution - Chapter 13 on page 53.
11. Use X-UM Connector Debugging Tools - see Chapter 14 on page 55.
12. Create Virtual Machine on Hyper-V for X-UM Connector - see Appendix A on page 57.
13. *Ini* file example – see Appendix C on page 69.

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3 Planning X-UM Architecture

Skype for Business topology is built from sites, pools, servers and more. Exchange Unified Messaging Connector (X-UM) is based on the Skype trusted application end point and user end points.

The Trusted application end point belongs to one Trusted application pool. Every trusted application pool is associated with one registrar pool.

Every X-UM can handle 5000 users. To be able to support more than 5000 users, you need to use several X-UM servers that work in Active-Active mode. In this case, when one X-UM is down, the other active X-UM reallocates the users.

For more information regarding HA refer to Appendix A on page 59

Notes:

- X-UM can provide service to users that are homed to different pools on different sites. If the associated registrar pool is down, the X-UM that is associated with this pool is not able to provide full service. This why need to have at least two X-UM servers (in case the topology has multi-registrar pools) which are associated with different registrar pools.
- The X-UM registers every user on the Registrar Pool for receiving calls and MWI. This registration is calculated as for a regular Skype client that Registrars every user by default from one of eight devices (where one of these devices is designated as the X-UM).

3.1 Skype for Business Pre-preparation

- The Skype for Business user must be UM enabled and set to Enterprise Voice.
- Configure Skype for Business to work with Exchange UM – check that the Skype client can connect with Exchange UM to leave a message and retrieve it.
- Configure PSTN access for the users –some of the X-UM flows need to go via the PSTN access for Skype for Business.

3.2 Exchange UM Online Feature List

From: https://technet.microsoft.com/en-us/library/jj938142(v=exchg.150).aspx

The feature names marked in red are relevant and can be handled by the X-UM.

When you configure UM for your organization, users can access voice mail, email, personal Contacts and calendar information that's located in their mailbox from an email client. For example, Microsoft Outlook or Outlook Web App, from a mobile phone with Microsoft Exchange ActiveSync set up, such as a Windows Phone, or from a telephone. Additionally, users can use the following features:

- **Access to their Exchange mailbox:** Users can access a full set of voice mail features from Internet-capable mobile phones, Outlook 2007 or later versions, and Outlook Web App. These features include many voice mail configuration options and the ability to play a voice message from either the reading pane, using an integrated Windows Media Player, or the message list, using computer speakers.
- **Play-on-Phone:** The Play-on-Phone feature lets users play voice messages through the handset. If the user works in an office cubicle, and is using a public computer or a computer that isn't enabled for multimedia, or is listening to a voice message that's confidential, that user may not want to or be able to listen to a voice message through computer speakers. The user can play the voice message using any telephone, including a home, office, or mobile telephone.

- **Voice Mail Form:** The voice mail form resembles the default email form. It gives users an interface for performing actions such as playing, stopping, or pausing voice messages, playing voice messages on a telephone, and adding and editing notes.

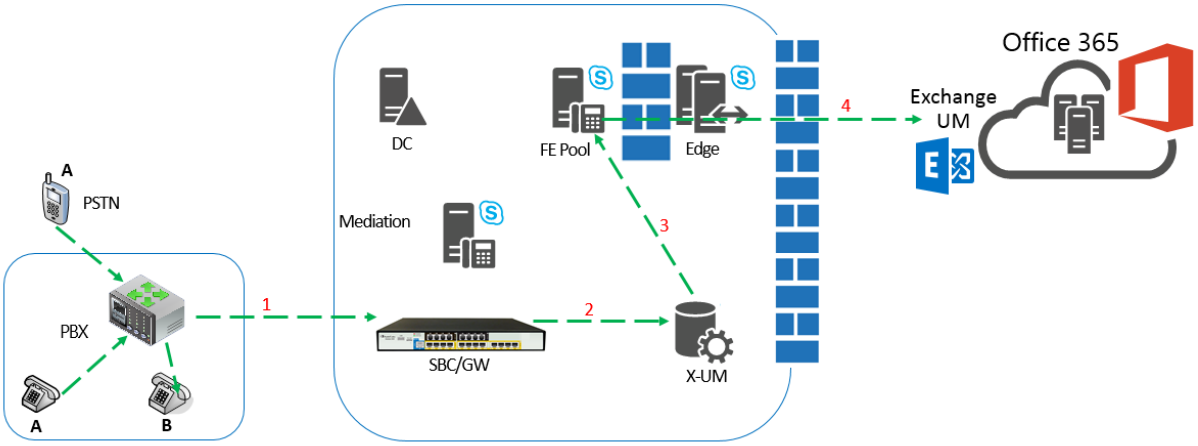
  The voice mail form includes the embedded Windows Media Player and an Audio notes field. The embedded Windows Media Player and notes field are displayed either in the reading pane when users preview a voice message or in a separate window when they open the voice message. If users aren't enabled for UM, or if a supported email client hasn't been installed on the client computer, they view voice messages as email attachments, and the voice mail form isn't available.
- **User Configuration:** Users can configure several voice mail options for UM using Outlook Web App. For example, the user can record personal greetings, configure missed call and text message notifications and a voice mail Play on Phone number, and reset a voice mail access PIN.
- **Call Answering:** Call answering includes answering incoming calls on behalf of users, playing their personal greetings, recording messages, and then sending the voice mail to their Inbox as an email message.
- **Call Answering Rules:** The Call Answering Rules feature lets users who are enabled for voice mail determine how their incoming call answering calls should be handled. The way call answering rules are applied to incoming calls is similar to the way Inbox rules are applied to incoming email messages. By default, no call answering rules are configured. If an incoming call is answered, the caller is prompted to leave a voice message for the person being called. By using call answering rules, a caller can:
  - Leave a voice message for the user.
  - Transfer to an alternate contact of the user.
  - Transfer to the alternate contact's voice mail.
  - Transfer to other phone numbers that the user has configured.
  - Use the Find Me feature or locate the user through a transfer from an operator.
- **Voice Mail Preview:** Unified Messaging uses Automatic Speech Recognition (ASR) on newly created voice mail messages. When users receive voice messages, the messages contain both a recording and text that's been created from the voice recording. Users see the voice message text displayed in an email message from within Outlook Web App or another supported email client.
- **Message Waiting Indicator:** Message Waiting Indicator is a feature found in most legacy voice mail systems and can refer to any mechanism that indicates the existence of a new message. Enabling or disabling Message Waiting Indicator is done on the user's mailbox or on a UM mailbox policy.
- **Missed Call and Voice Mail Notifications using SMS:** When users are part of a hybrid or Office 365 deployment, and they configure their voice mail settings with their mobile phone number and configure call forwarding, they can receive notifications about missed calls and new voice messages on their mobile phones in a text message through the Short Messaging Service (SMS). However, to receive these types of notifications, the users must first configure text messaging and enable notifications on their account.
- **Protected Voice Mail:** Protected Voice Mail is a feature that enables users to send private mail. This voice mail is protected and users are restricted from forwarding, copying, or extracting the voice file from email. Protected Voice Mail increases the confidentiality of voice mail messages, and lets users limit the audience for voice messages.

- **Outlook Voice Access:** There are two UM user interfaces available to users: the telephone user interface (TUI) and the voice user interface (VUI). These two interfaces together are called Outlook Voice Access. Outlook Voice Access users can use Outlook Voice Access when they access the voice mail system from an external or internal telephone. Users who dial in to the voice mail system can access their mailbox using Outlook Voice Access. However, when a user is searching the directory for your organization, they must use the key pad on their phone to search for a user. Using their voice to search the directory isn't available.
- Using a telephone, a UM-enabled user can:
  - Access voice mail.
  - Listen to, forward, or reply to email messages.
  - Listen to calendar information.
  - Access or dial contacts who are stored in the organization's directory or a single contact or contact group located in their personal Contacts.
  - Accept or cancel meeting requests.
  - Set a voice message to let callers know the called party is away.
  - Set user security preferences and personal options.
  - Search for users in the directory of the organization.
- **Group Addressing using Outlook Voice Access:** Users can send a single email message to a single user in their personal Contacts, to multiple recipients from the directory by adding each recipient individually, or by adding the name of a distribution list from the directory for your organization. In UM in Office 365, when a user signs in to their mailbox using Outlook Voice Access, they can also send email and voice messages to users in a group stored in their personal Contacts.

3.3 Call Flows

3.3.1 Call Answering – Leave Voicemail Message to User – Direct Call to X-UM

Figure 3-1: Call Answering – Leave Voicemail Message to User – Direct Call to X-UM

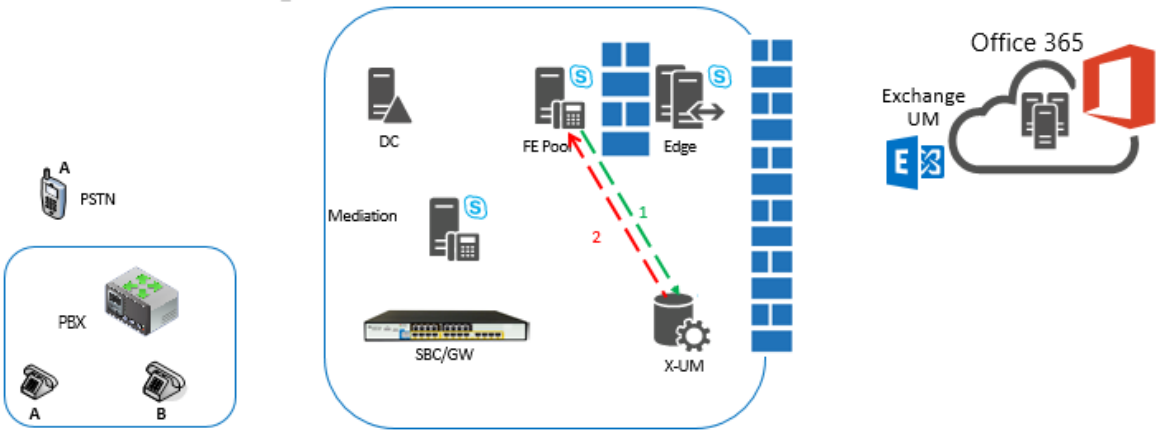


1. Party A calls party B and the call is forward to the SBC.
2. The SBC forwards the call to X-UM and adds the prefix (*55) to indicate that the call is deposit to voicemail.
3. X-UM validates that the mailbox is managed by the users file 0 and then forwards the call to the Front End as a direct deposit to the voicemail call.
4. The call is sent to Office 365 Exchange UM.

Note: Another option for this flow – the call can be forwarded to the Mediation server instead of X-UM for direct deposit by converting to SIP URI via Active Directory, or if forwarding to a Phone URI, the X-UM can reject the call so that it is instead directed to the Exchange UM.

3.3.2 Call Answering – Leave Voicemail Message to User – Call from Lync Client

Figure 3-2: Call Answering – Leave Voicemail Message to User – Call from Lync Client

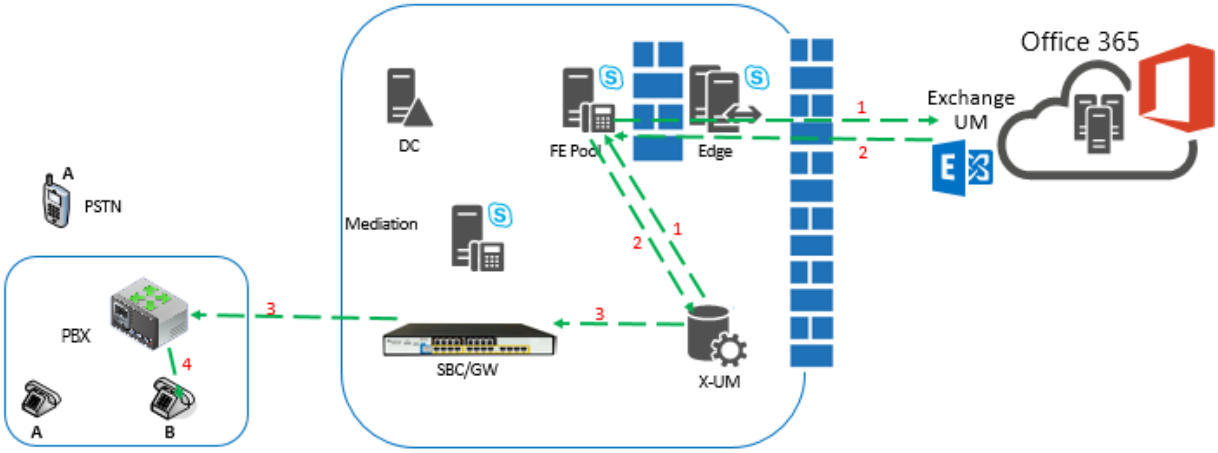


1. The Front End forwards incoming calls to the user and then to X-UM.
2. By default, X-UM rejects all incoming calls to the user, except for calls from the Exchange UM (see below). If other user devices are registered then they'll keep ringing, otherwise the call is terminated (or forwarded to Exchange UM).

Note: X-UM can be configured to accept incoming calls from the Skype side. In this case, X-UM forwards the call to the SBC, and ultimately the call reaches the PBX user's phone.

3.3.3 Message Waiting Indication (Unsolicited)

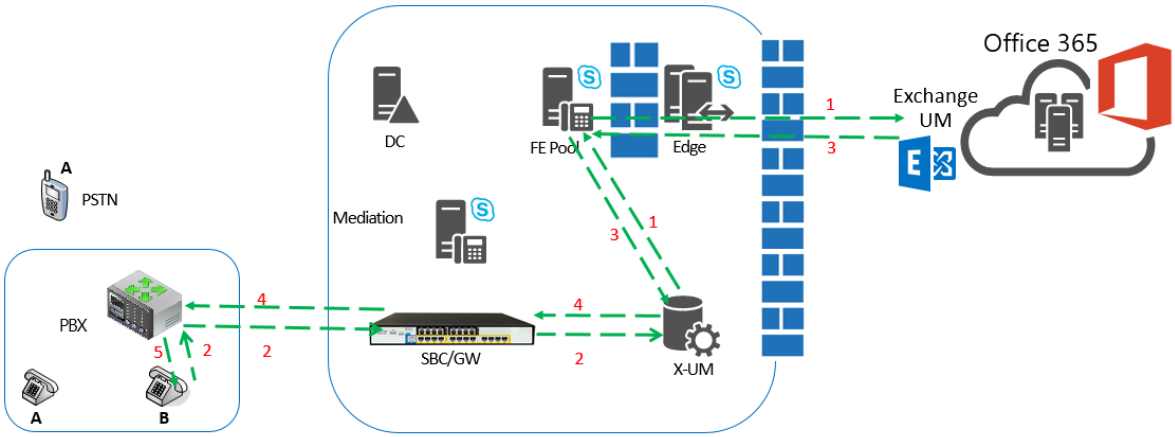
Figure 3-3: Message Waiting Indication (Unsolicited)



1. X-UM Application subscribes for Exchange MWI via the Front End (FE) and Edge.
2. Due to voicemail status changes, Office 365 sends a MWI message to the X-UM via the FE and Edge.
3. X-UM replaces the SIP URI with the phone extension and sends the MWI to the PBX via the SBC.
4. The PBX sends the MWI to the phone.

3.3.4 Message Waiting Indication (SIP Subscription)

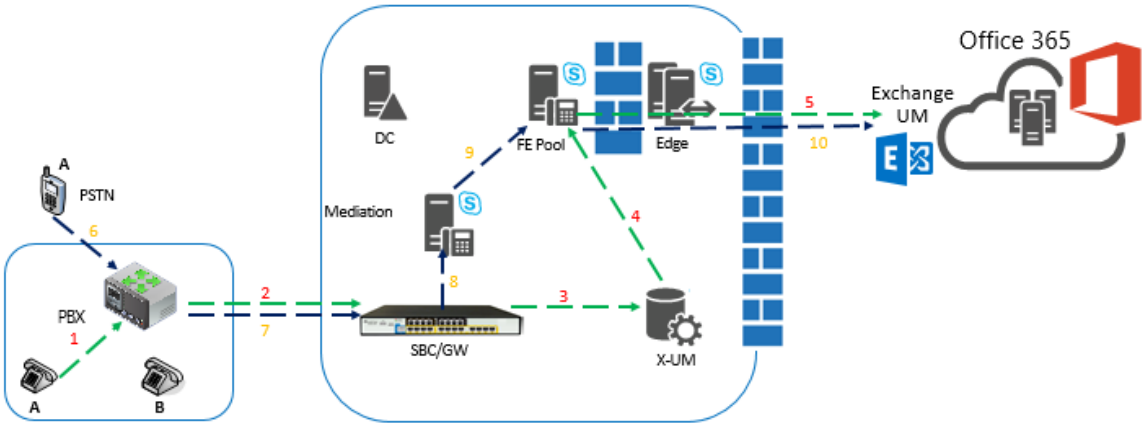
Figure 3-4: Message Waiting Indication (SIP Subscription)



1. X-UM Application subscribes for Exchange MWI via the FE and Edge.
2. The phone subscribes to MWI notifications. The Subscription is forwarded by PBX and SBC to X-UM.
3. Due to voicemail status changes, Office 365 sends a MWI message to the X-UM via the FE and Edge.
4. X-UM replaces the SIP URI with Phone extension and sends the MWI notification in the SIP subscription dialog to the PBX using the SBC.
5. PBX send the MWI to the phone.

3.3.5 Outlook Voice Access– User Access to Mailbox using Telephone

Figure 3-5: Outlook Voice Access– User Access to Mailbox using Telephone



Access from an Extension:

1. Party A calls a Special number (Voice Mail key on the phone).
2. The PBX forwards the call to the SBC.
3. The SBC forwards the call to X-UM – DN must be the number which was set on X-UM for subscribed login.
4. X-UM validates that the caller is managed by the user's file and then forwards the call to the FE as a direct subscriber login to voicemail.
5. The call is sent to the Office 365 Exchange UM using the Edge server.

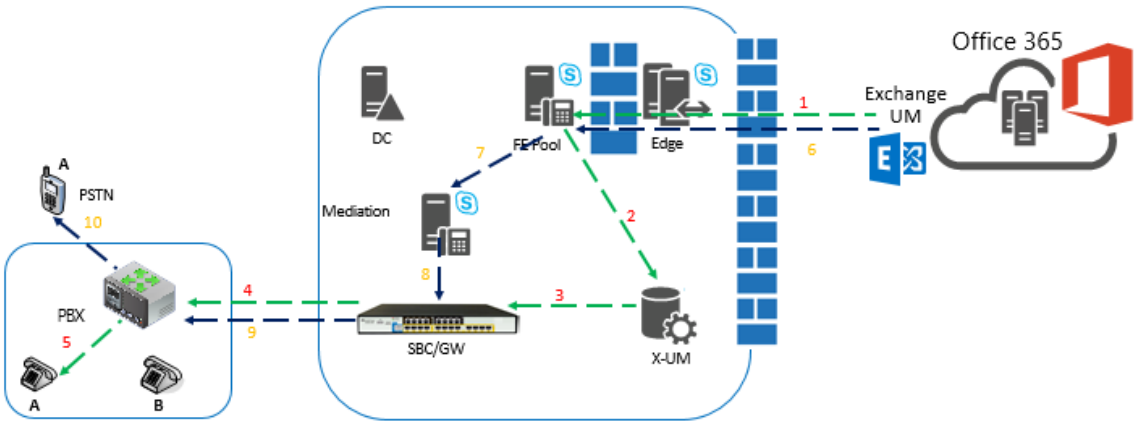
Note: By default, in this flow, the Exchange UM does not ask for a password. It can be changed on the XU-M Setup.

Access from an External phone:

1. Party A calls from the PSTN to the Special ATT number.
2. PBX forwards the call to the SBC.
3. SBC forwards the call to the Mediation server.
4. The Mediation forwards the call to the FE.
5. FE forwards to Exchange UM using the Edge.
6. Exchange UM asks for the mailbox number and password.

3.3.6 Play on Phone

Figure 3-6: Play on Phone



"Play On Phone" and "Phone" is a User SIP URI/or user Extension:

For example in Outlook, User A requests to play the message on User A's phone:

1. Exchange UM dials to User A using Edge and FE.
2. X-UM receives the call because it registers as User A.
3. X-UM forwards the call to SBC replacing the SIP URI user extension.
4. SBC calls user extension on the PBX
5. PBX calls user phone.

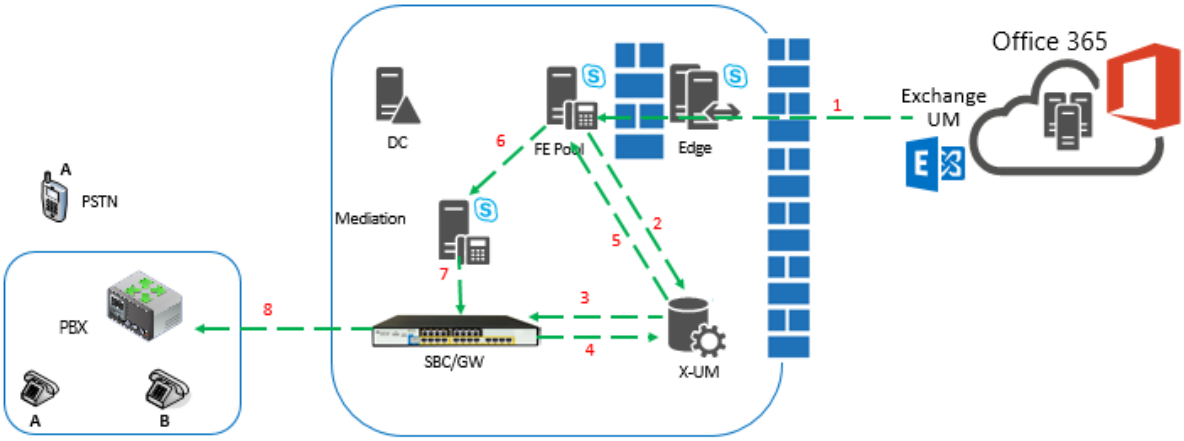
"Play On Phone" and "Phone" is an External number:

For example in Outlook, User A requests to play the message on User A's mobile phone:

1. Exchange UM dials to User A's mobile phone using Edge and FE.
2. FE dials to the Mediation server.
3. The Mediation server calls the SBC.
4. The SBC calls the user extension on the PBX.
5. The PBX calls User A's phone.

3.3.7 Outlook Voice Access Call Out – User Access to Mailbox using Telephone and Call Out

Figure 3-7: Outlook Voice Access call out – User Access to Mailbox using Telephone and Call Out



User A accesses the mailbox from an internal phone or external according to the flow: “Outlook Voice Access – User access to mailbox via telephone”.

User A selects to dial out to a contact:

1. Exchange UM sends a Refer message.
2. FE sends the Refer message to the X-UM.
3. X-UM sends a self REFER + REPLACES to SBC.
4. SBC sends new Invite + REPLACES to X-UM.
5. X-UM sends the Invite (to the contact) to the FE.
6. FE calls the Mediation server for external numbers and to Lync clients (and X-UM too) for internal users.
7. Mediation server sends the call to the SBC.
8. SBC calls to the PBX and the PBX calls out.

Note: If the contact is a Lync user registered on the X-UM, then the X-UM accepts the call and forwards it to the SBC, PBX and user phone.

4 Preparing New Machine with Windows 2012 R2/2016/2019

The X-UM Connector runs on Windows 2012 R2/2016/2019 (Desktop Experience) – on both virtual and physical machines.

The paragraphs below describe how to prepare Windows 2012 R2/2016/2019 for the X-UM Connector.

4.1 X-UM Connector System Requirements

The X-UM Connector's minimum requirements are listed below:

Table 4-1: System Requirements

System Requirements	
Operation System	Windows 2012 R2/2016/2019 standard (Desktop Experience)
Processor	4 Core
Memory	6 GB
Disk size	Minimum 50 Gb. We recommend 80 Gb.

Note: In Appendix A, you can find a step-by-step example that shows how to create a virtual machine for the X-UM Connector, using the Hyper-V Manager.

4.1 Latest Software Version to Download

The latest X-UM Connector software can be downloaded from

https://s3.eu-central-1.amazonaws.com/downloads-audiocodes/Download/AC_XUM_Install.html

Ensure that you download the correct X-UM platform version (Skype, Lync2013 or Lync 2010)

Copy the downloaded file to the *C:\xUM_InstallationFiles* folder on the X-UM Connector machine.

4.2 Windows 2012 R2/2016/2019 Server Roles & Features

Make sure that the following **Server Roles** and **Features** are enabled using the Server Manager.

- Server Roles to enable:
  - File and Storage Services – File and iSCSI Services – File Server
  - File and Storage Services – Storage Services
- Features to enable:
  - .Net Framework 3.5 Feature - .Net Framework 3.5
  - .Net Framework 4.5 Feature - .Net Framework 4.5 (Windows 2012 R2 Only)
  - .Net Framework 4.5 Feature - WCF Service – TCP Port Sharing (Windows 2012 R2 Only)
  - .Net Framework 4.6 Feature - .Net Framework 4.6 (Windows 2016 Only)
  - .Net Framework 4.6 Feature – WCF Service – TCP Port Sharing (Windows 2016 Only)
  - .Net Framework 4.7 Feature - .Net Framework 4.7 (Windows 2019 Only)
  - .Net Framework 4.7 Feature – WCF Service – TCP Port Sharing (Windows 2019 Only)
  - Media Foundation
  - User Interface and Infrastructure – Graphical Management Tools and Infrastructure (Windows 2012 R2 Only)
  - User Interface and Infrastructure – Server Graphical Shell (Windows 2012 R2 Only)
  - Windows PowerShell – Windows PowerShell 4.0 (Windows 2012 R2 Only)
  - Windows PowerShell – Windows PowerShell 5.1 (Windows 2016/2019 Only)
  - Windows PowerShell – Windows PowerShell 2.0 Engine (Windows 2012 R2 Only)
  - Windows PowerShell – Windows PowerShell ISE
  - WoW64 Support

4.3 Setting the Network Interface

Set the X-UM Connector network interface with the correct IP address, subnet, default gateway and DNS.

The X-UM needs to be able to resolve Skype pools, and vice versa. The Skype servers need to be able to resolve the X-UM pool on the DNS as well.

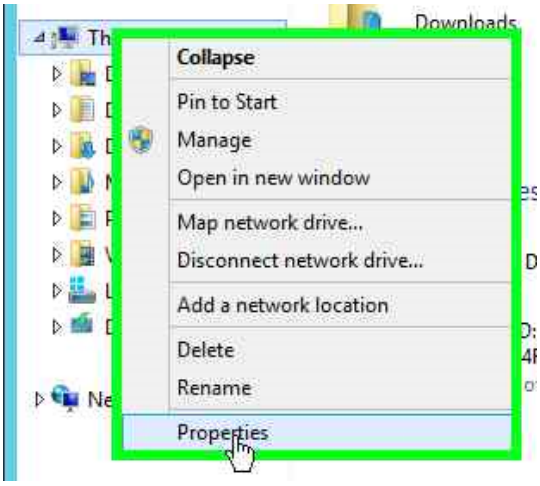
5 Adding Machine to Domain

The procedure below describes how to add the machine to the domain.

➢ **To add a machine to the domain**

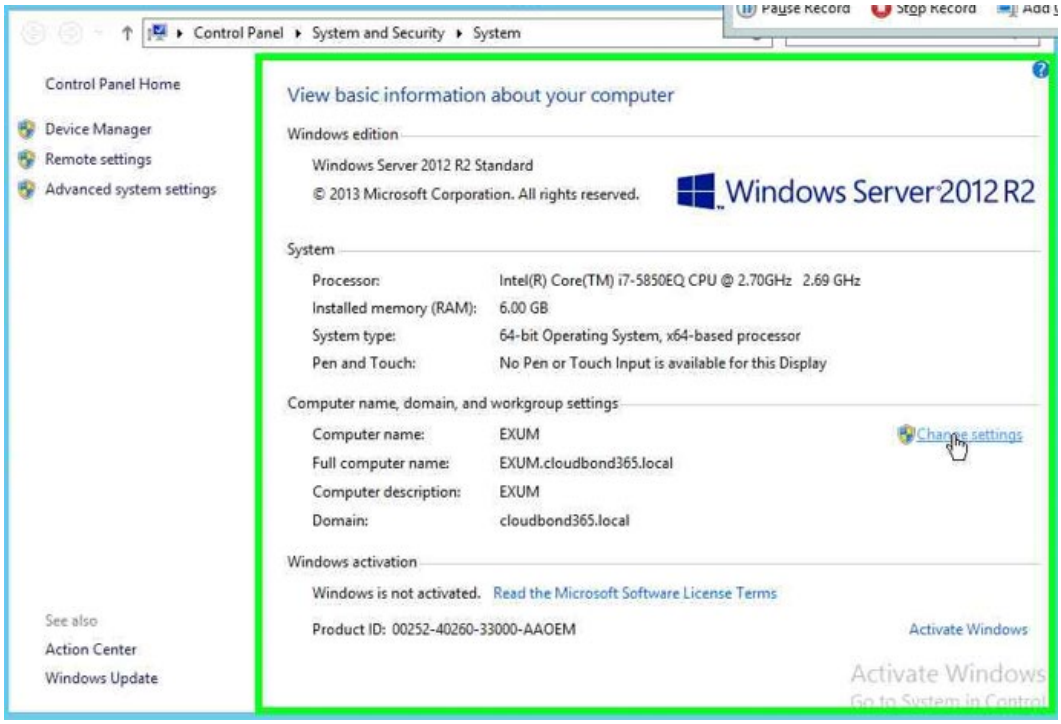
1. Log in to the machine as a local user.
2. From the File Explorer, select the **This PC** icon and right-click on it to view the settings.
3. Select **Properties**.

Figure 5-1:My Computer - Properties



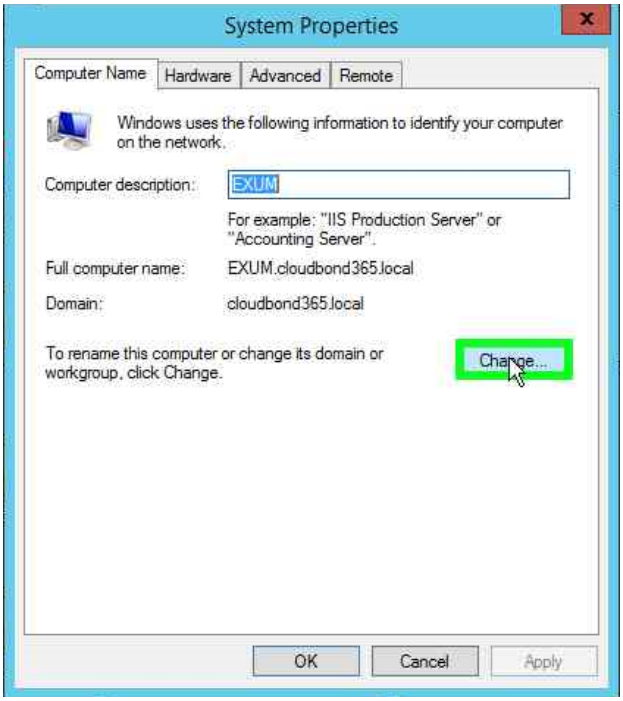
4. On the Windows Server 2012 R2/2016 screen, click **Change settings**.

Figure 5-2:Change Settings Link



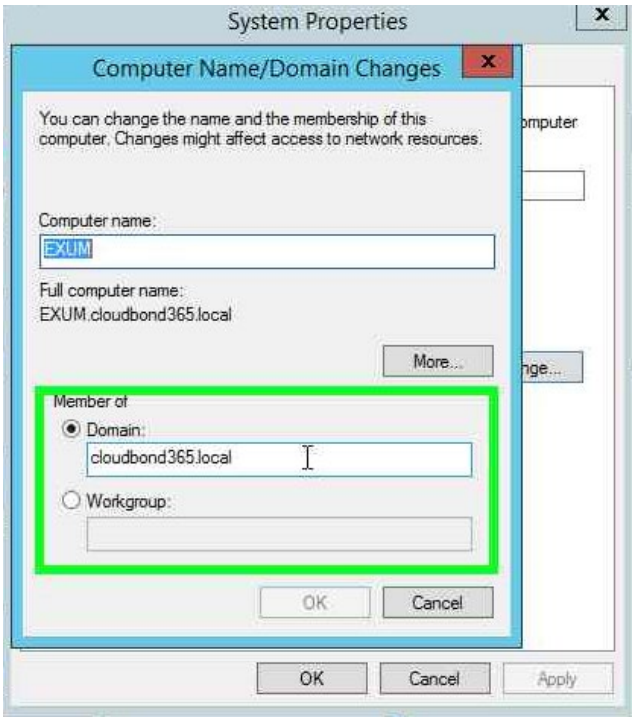
5. On the System Properties screen, click **Change.**

Figure 5-3:System Properties



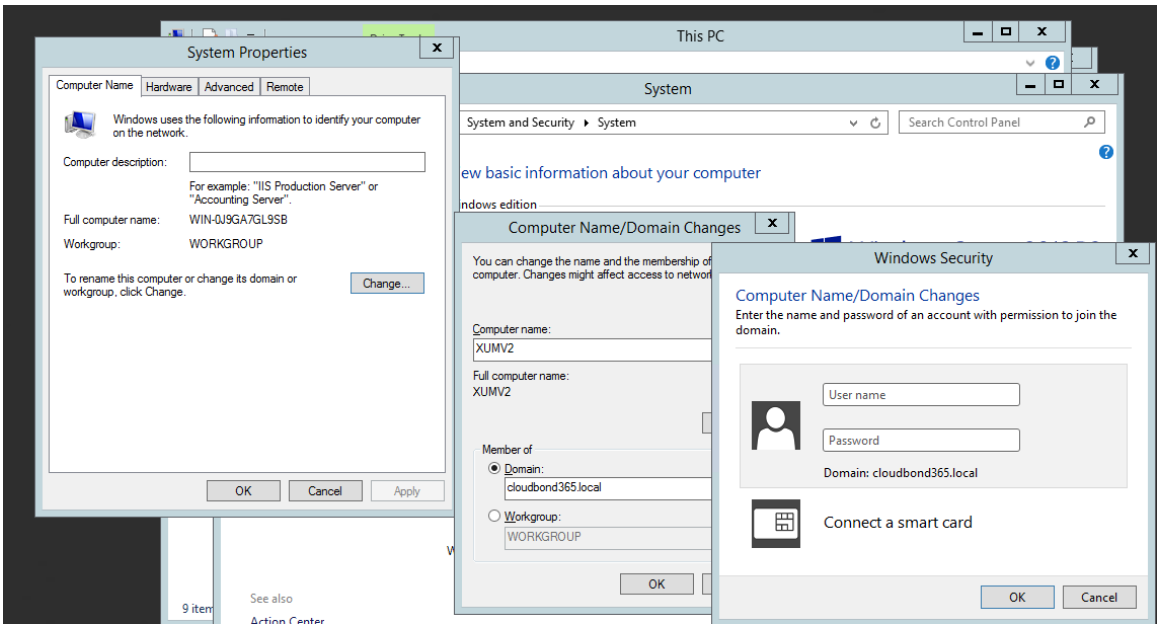
6. Change the **Computer Name** and **Domain,** and then click **OK**.

Figure 5-4:System Properties - Change



7. Insert the user name and password of your domain, and then click **OK**.

Figure 5-5:Windows Security



8. Restart the X-UM machine.

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6 Updating Windows with Latest Microsoft Update

In this step, we assume that the machine is ready with Windows 2012 R2/2016 in the customer domain, and configured with the system requirements as detailed in Section 4.1 on page 23.

The procedure below describes how to update Windows with the latest Microsoft operating system update.

➢ To perform a Windows update:

1. For Windows 2012 R2: Open the Windows Update screen (**Control Panel** > **System and Security** > **Windows Update**).

   For Windows 2016: Open the Settings application – Select **Updates and Security** down the bottom.
2. Update Windows with the latest update.

Figure 6-1:Windows Update for Windows 2012R2

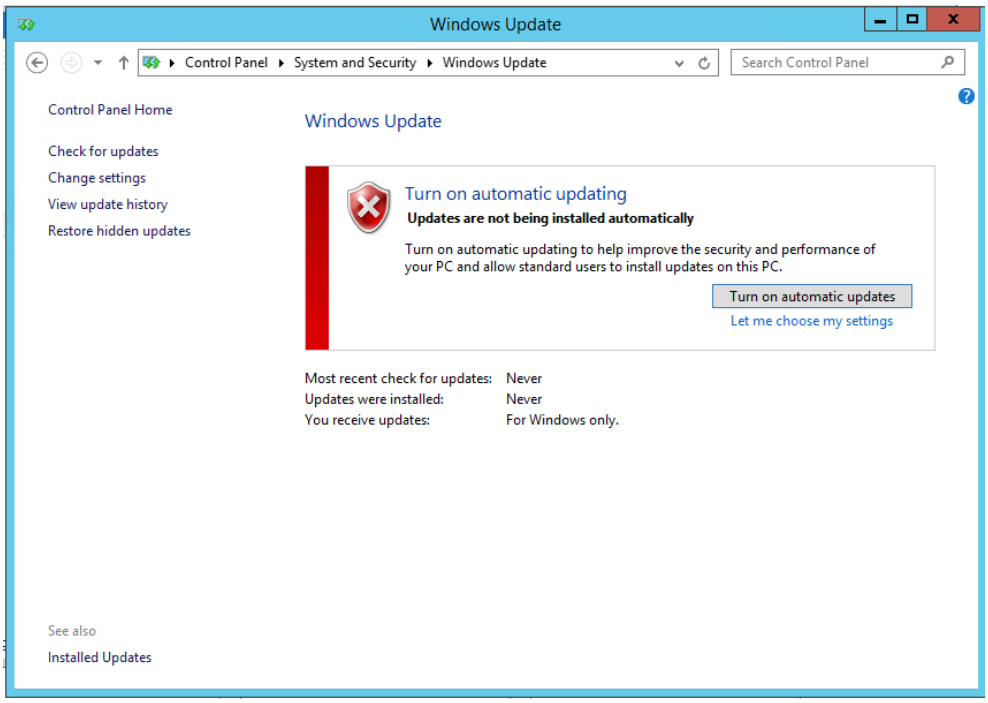
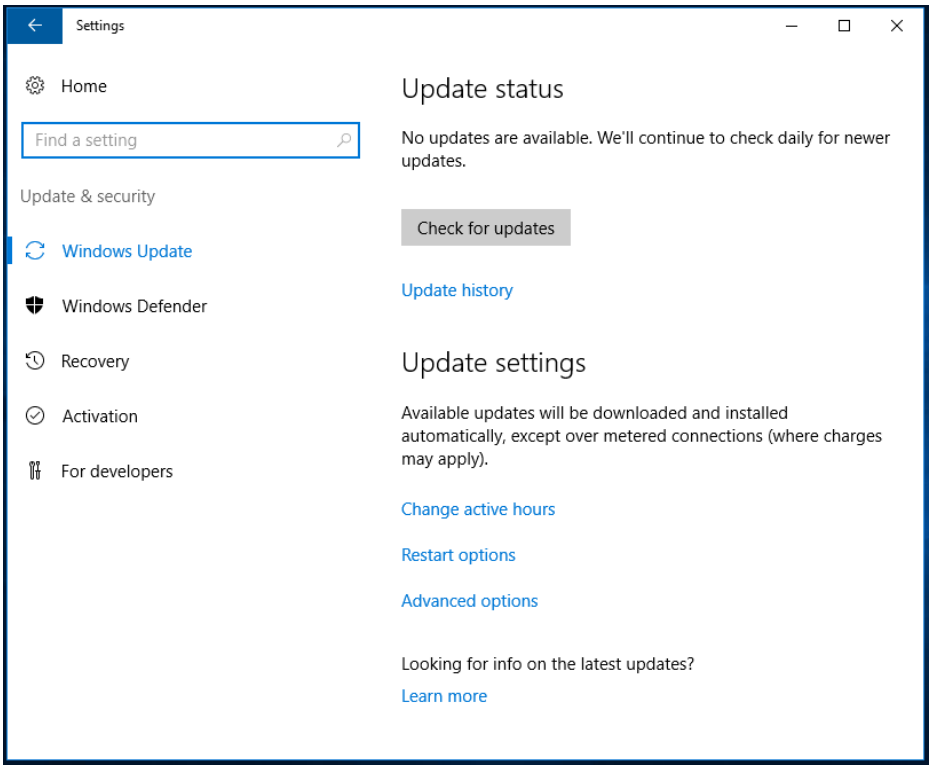


Figure 6-2: Windows Update for Windows 2016



3. We recommend you disable automatic updates at the end of the process (turn off Automatic Updates), so the X-UM machine does not update itself while in production.
4. The customer can perform Windows updates anytime according to the standards used by the organization for servers.

7 Installing Unified Communications Managed API (UCMA)

The procedure below describes how to install Unified Communications Managed API (UCMA)

You need to use the correct UCMA version according to the table below:

Table 7-1: UCMA Versions

Platform	UCMA Version
Skype For Business	UCMA 5.0
Lync 2013	UCMA 4.0
Lync 2010	UCMA 3.0

➢ **To install UCMA:**

1. Log on to the X-UM Connector as Domain/Skype Administrator and install UCMA.
2. Download and install the right UCMA version according to the platform of your system.

   The step by step installation below was taken from the UCMA 5.0 installation (for Skype) but other UCMA version installation is similar.

Download UCMA 5 from either:

AudioCodes:https://s3.eu-central-1.amazonaws.com/downloads-audiocodes/XUM/UcmaRuntimeSetup.exe

or

Microsoft: https://www.microsoft.com/en-us/download/details.aspx?id=47344

Download UCMA 4 from either:

AudioCodes:https://downloads-audiocodes.s3.amazonaws.com/XUM/Lync2013/UcmaRuntimeSetup.exe

or

Microsoft: https://www.microsoft.com/en-us/download/details.aspx?id=34992

Download UCMA 3 from either:

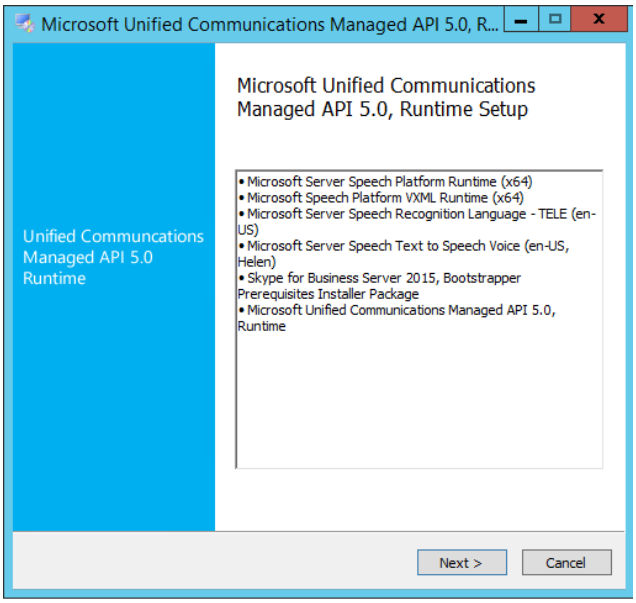
AudioCodes:https://downloads-audiocodes.s3.amazonaws.com/XUM/Lync2010/UcmaRuntimeSetup.exe

or

Microsoft: https://www.microsoft.com/en-us/download/details.aspx?id=10566

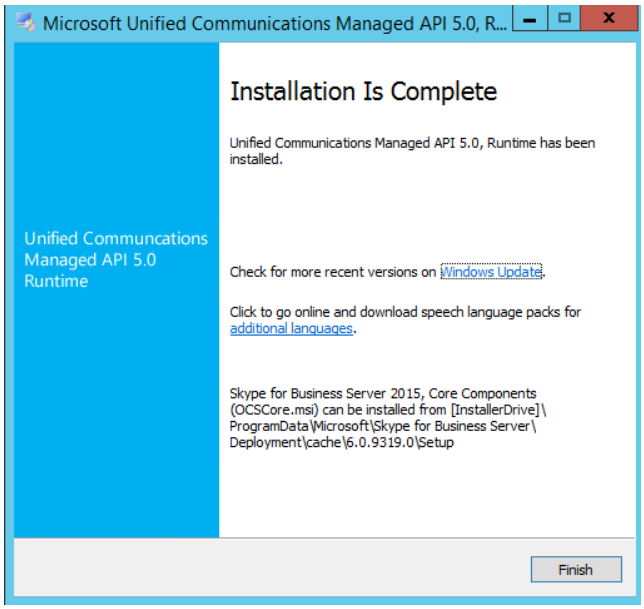
3. Run the UCMA UcmaRuntimeSetup.exe setup file as the Administrator.

Figure 7-1: UCMA 5.0 Setup



4. When the installation has completed, the following appears:

Figure 7-2:Installation Complete



5. Click **Finish**.

8 Installing Skype for Business Component

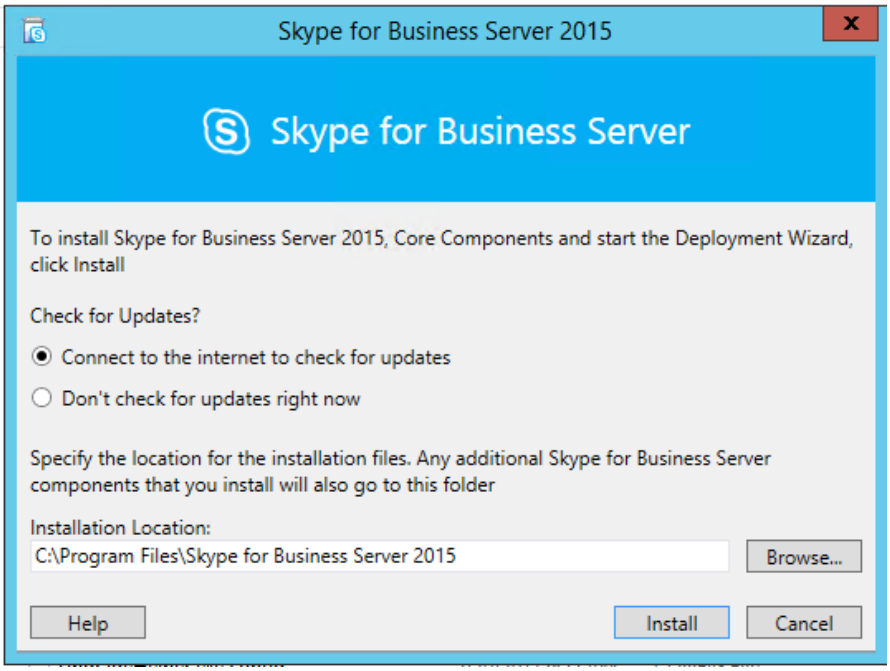
The procedure below describes how to install the Skype for Business (Local Configuration Store) component using the Skype for Business Deployment wizard, and the Skype for Business Cumulative Update (CU).

➢ **To install Skype for Business Local Configuration Store:**

1. Log in to the X-UM Connector with domain credentials.
2. Run the Microsoft Skype for Business Deployment wizard.

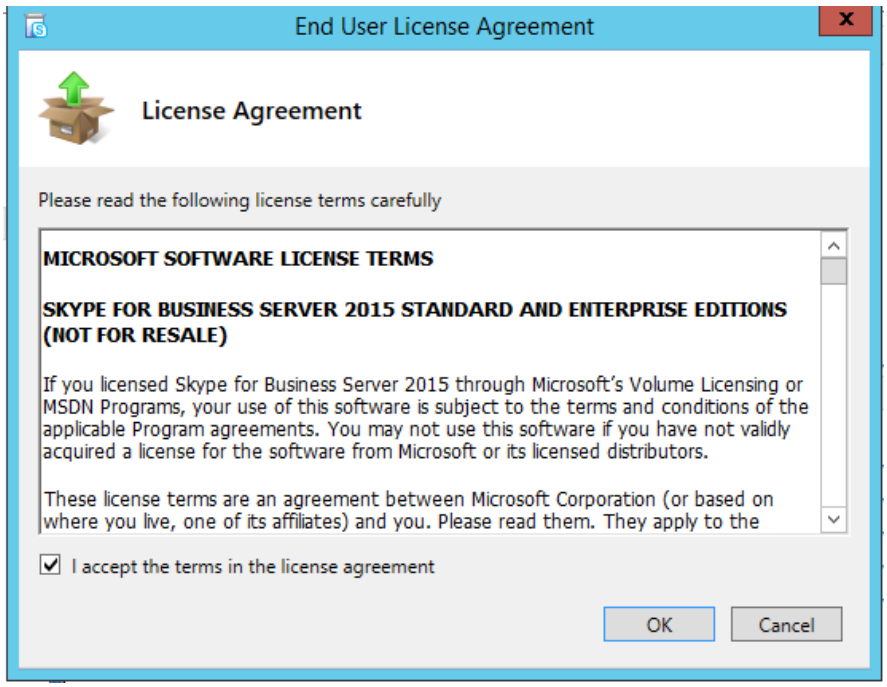
Note: If the installation is running in the customer hardware environment, the customer needs to provide the Skype for Business Deployment wizard.

Figure 8-1:Skype for Business Server – Check Updates



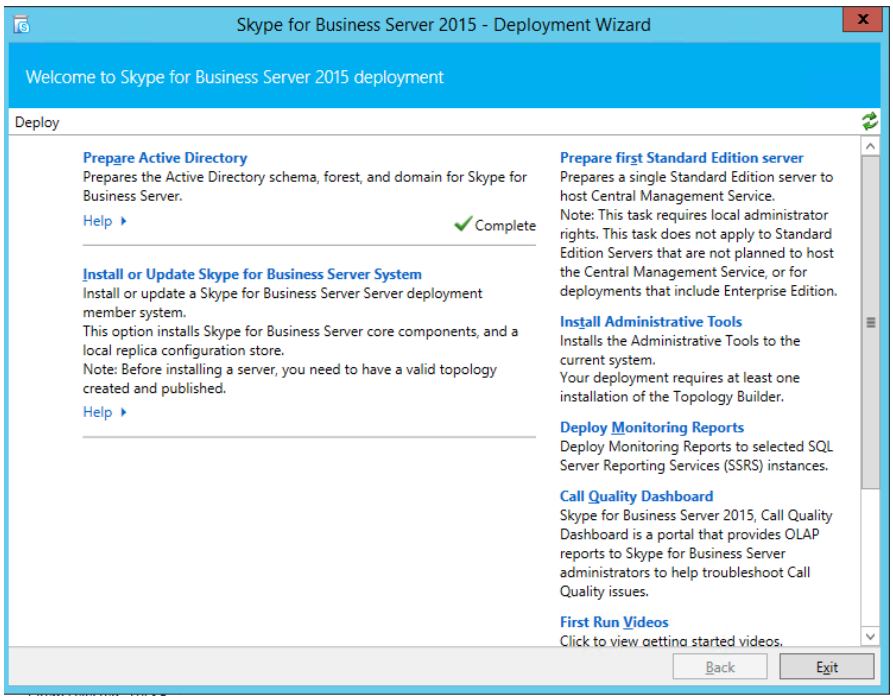
3. Click the **Connect to the internet to check for updates** option, and then click **Install**.

Figure 8-2:End User License Agreement



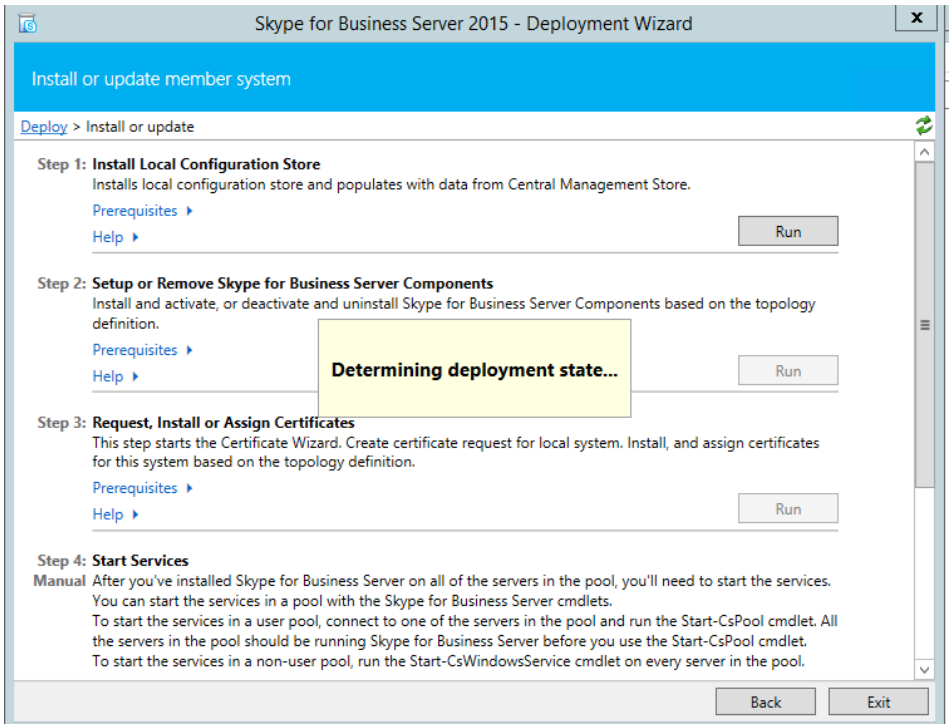
4. Accept the terms in the license agreement, and then click **OK**; the following appears:

Figure 8-3:Deployment Wizard



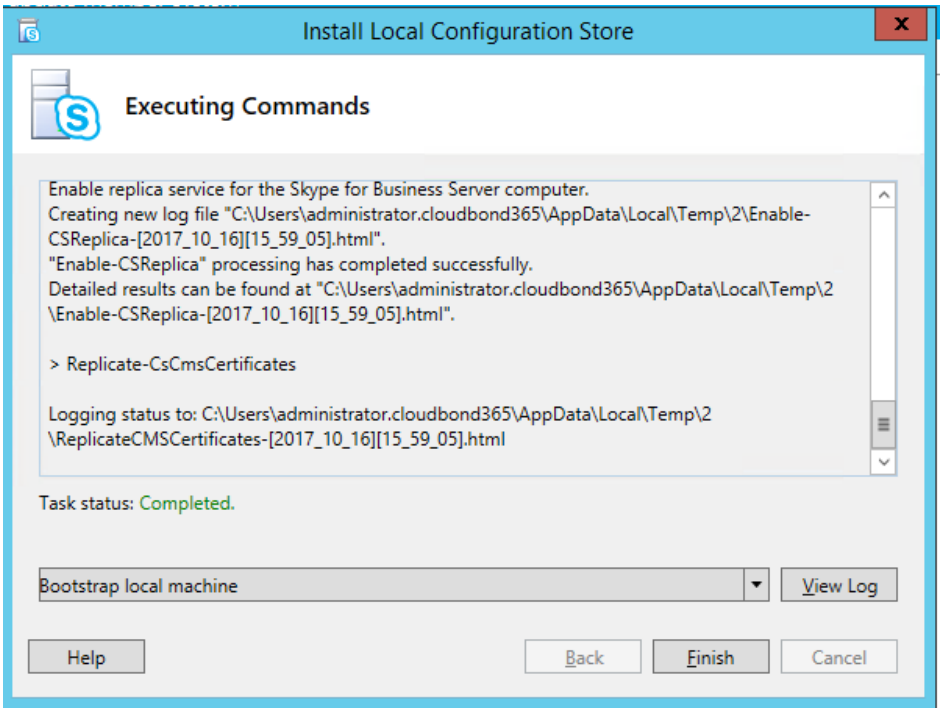
5. Click **Install or Update Skype for Business Server System**; the following appears:

Figure 8-4: Determining Deployment State



6. Click **Step 1: Install Local Configuration Store**; the installation runs and then the following appears:

Figure 8-5: Executing Commands



7. Click **Finish**.

➢ **To install Skype for Business Cumulative Update (CU):**

1. Open PowerShell and stop Skype Services:

   Stop-CsWindowsService

2. Copy the same CU used on the Skype for Business system to the X-UM and run it as the Administrator.
3. Follow the instructions to update Skype for Business components.
4. Start Skype Services:

   Start-CsWindowsService

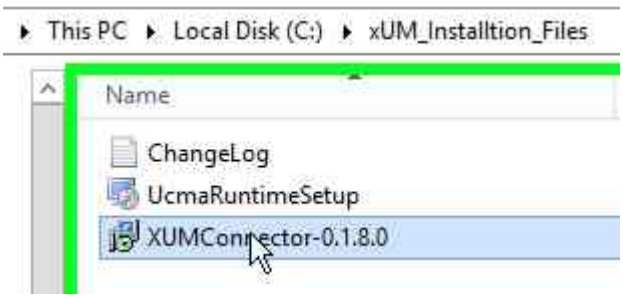
9 Installing X-UM Connector Application

The procedure below describes how to install the X-UM Connector application using the X-UM Connector wizard setup file.

➢ **To install the X-UM Connector Application:**

1. Run the X-UM setup file from **C:\xUM_InstalltionFiles\XUMConnector-x.x.x.x.msi**.

Figure 9-1: Run XUMConnector File

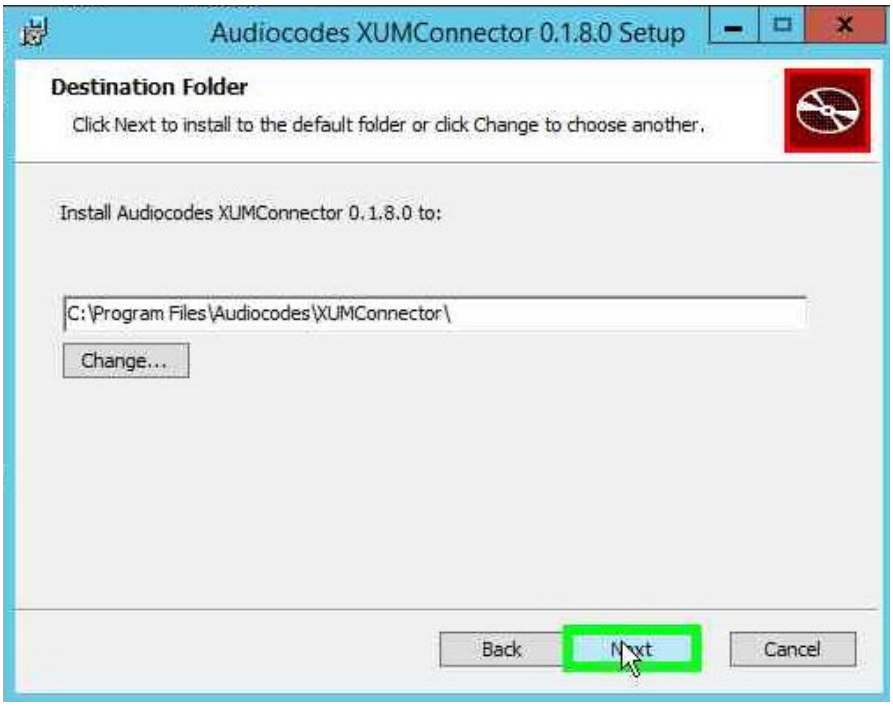


The following screen appears:

Figure 9-2: XUMConnector File Setup

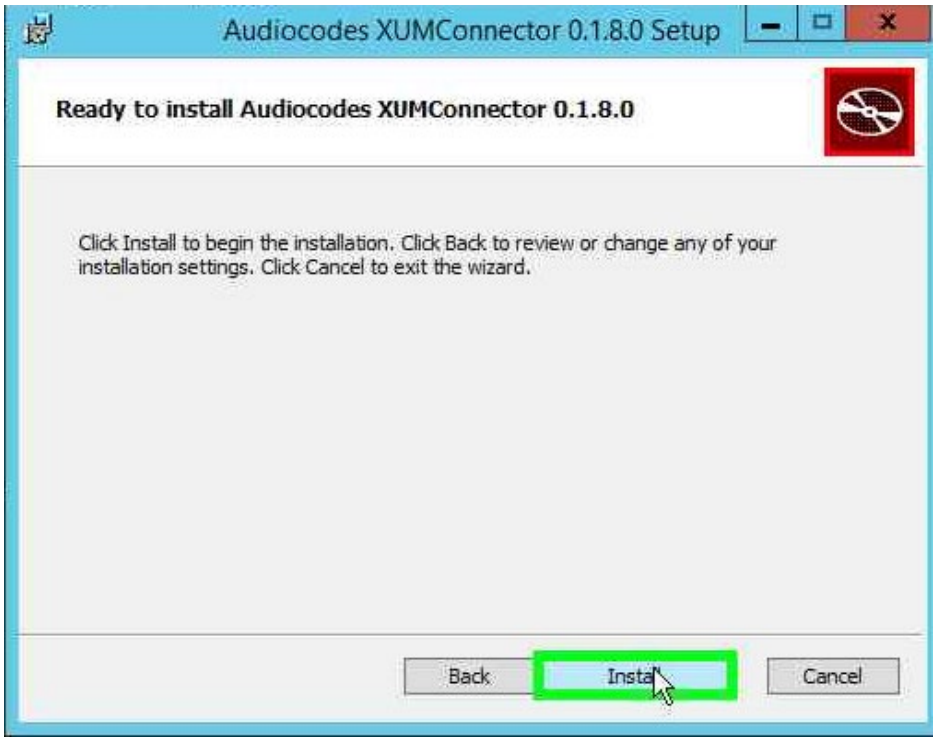
2. Click **Next**.

Figure 9-3: Setup Destination Folder



3. Confirm the Destination Folder, and then click **Next**.

Figure 9-4: Ready to Install



4. Click **Install**.

Figure 9-5: Setup Complete

5. Click **Finish**.

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10 Activating X-UM Connector

The procedure below describes how to activate X-UM Connector on the Skype for Business environment (Trusted application).

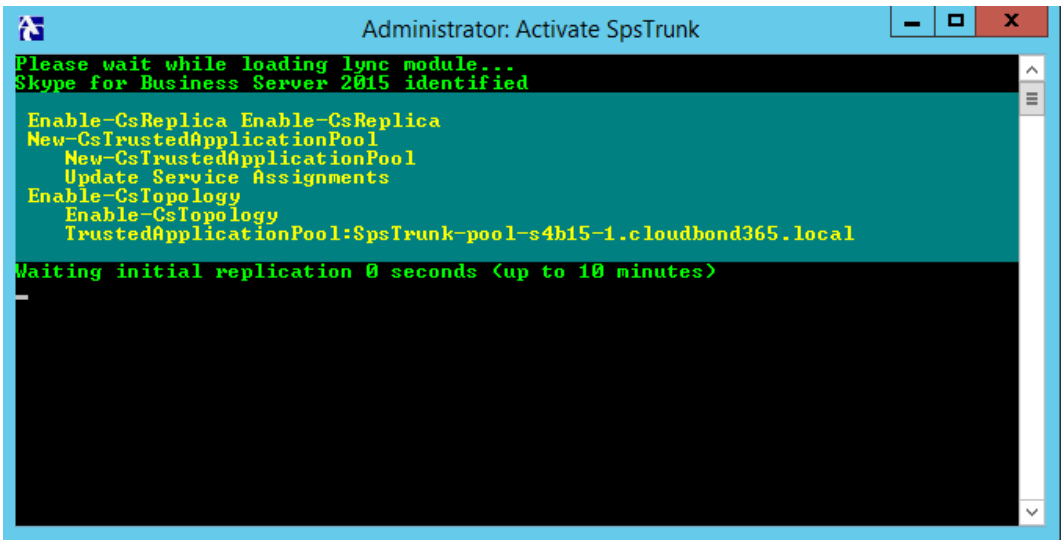
➢ **To activate X-UM Connector:**

1. From the Windows menu, right-click on **Search** pane.
2. Enter "activate".
3. Right-click on **activate XUMConnector**.

Figure 10-1: Search

4. Click **Run as administrator**; the following appears:

Figure 10-2: Activate X-UM Connector



5. Follow the script messages. In case of multi-sites, the script prompts you to select a site for the trusted application pool. In case there are several pools on the site, the script prompts you to select the trusted application endpoint registrar.
6. Continue to the next sub-section.

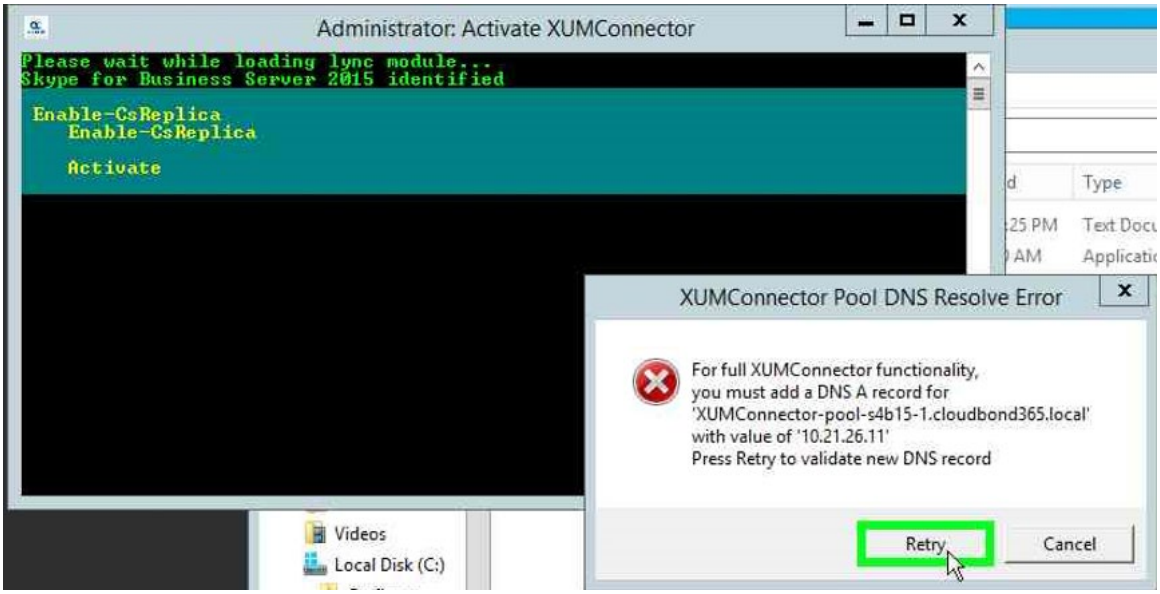
10.1 Adding DNS 'A Record'

The procedure below describes which DNS 'A record' needs to be added.

➢ **To add a DNS A Record:**

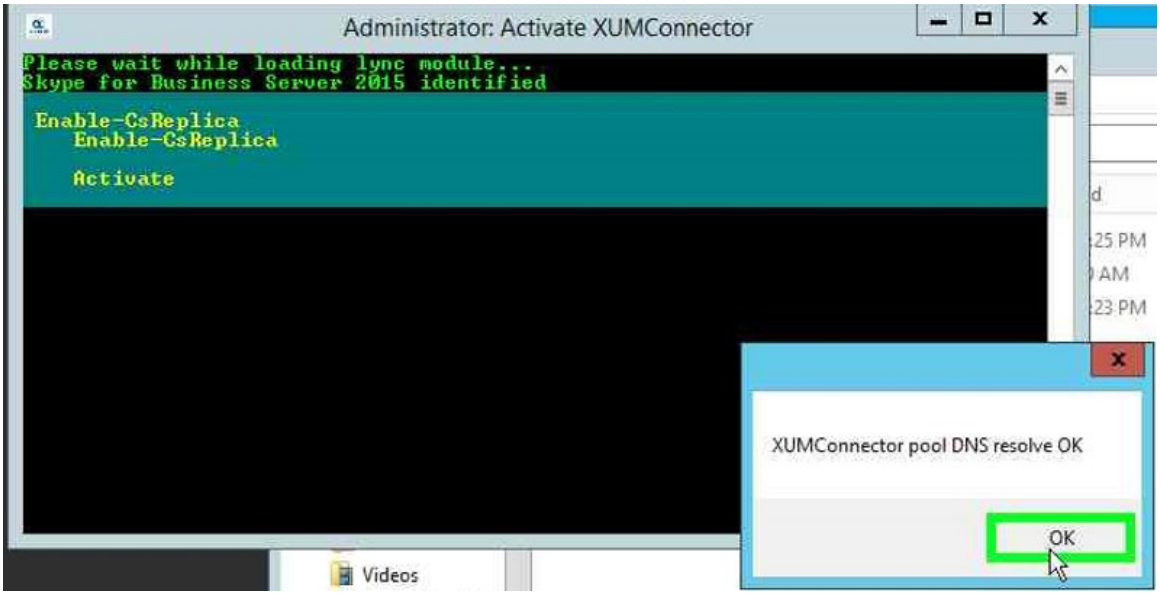
1. During the X-UM Connector Activate process (as shown above), a message appears advising you to add a DNS A record to the DNS server.

Figure 10-3: Activate X-UM Connector



2. When the message shown above appears, add the DNS record manually on the DNS server, used by the X-UM Connector, and then click **Retry** to re-check it.

Figure 10-4: Activate X-UM Connector - OK



3. Click **OK**.

Figure 10-5: Activate X-UM Connector – Activation Successful

4. The screen displays a message that the activation was successfully completed.
5. Validate that the X-UM Connector service is running:
   - **Service name:** XUMConnector
   - **Service display name:** AudioCodes XUMConnector

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11 Configuring X-UM Connector

This section describes how to configure the X-UM Connector by doing the following:

- Setting the X-UM Connector configuration for customer environment
- Creating users in CloudBond 365 using the CloudBond 365 GUI, or using the lifecycle management capability to create the users automatically.
- Adding users manually to X-UM Connector.

11.1 Setting X-UM Connector Configuration

The procedure below describes how to set the X-UM Connector configuration.

➢ **To set the X-UM Connector configuration:**

1. Connect to the X-UM Connector server using Remote Desktop.
2. Edit the C:\Program Files\AudioCodes\XUMConnector\Config\System.config file.

The following important parameters' default values need to be changed according to your environment:

Table 11-1: UM Connector Configuration

outboundHost	Defines the host or IP address for outbound connections – SBC/Gateway IP.
outboundPort	Defines the port for outbound connections.
proxyListenPort	Defines the X-UM Connector listening port. You must open this port for incoming traffic on the X-UM Firewall.
exchUmNumber	Defines the number to dial to log to your Exchange UM mailbox (no need to enter the mailbox number when dialing via this number via the X-UM Connector).
exchUmNoPin	If true, then no user PIN is required when dialing to Exchange UM.

Note: For more information about the System Configuration file, read *C:\Program Files\AudioCodes\XUMConnector\Config\XUMConnectorConfiguration.rtf*

Note: Make sure you restart the XM service after changing the config file.

11.2 Adding Users to X-UM Connector

The procedure below describes how to add users to the X-UM server. The users must be enabled for Skype Enterprise Voice.

You have three options for managing the users:

- Manual procedure using a *csv* file
- Active Directory Sync schedule script
- REST API

➢ **To add users to the X-UM Connector using a CSV file:**

1. Connect to the X-UM Connector server using Remote Desktop.
2. Edit the C:\Program Files\AudioCodes\XUMConnector \Users\users.csv file.

Note:

- Changes made to the file are immediately applied. There is no need to restart the service.
- For X-UM HA, the users file must be a network storage, accessible for all X-UM servers.

```
#
# This file contains the list of users for the application
# The file must be in CSV format with a header line containing
field 'SipUri' and 'Extension'
# SipUri must be the full SIP URI of the user to register, for
example 'sip:user1@example.org'
#
# The Extension field is used to map a phone extension
registration and its SIP URI.
# Multiple extensions per user are supported by separating
them with '|'. For example '4001 | 4002'.
# Sample file contents:
#
# SipUri,Extension
# sip:user1@example.net , 4001
#
# Empty lines, and lines beginning with '#' are ignored
#

SipUri,Extension
```

➢ To add users to the X-UM Connector using the Active Directory Sync script:

1. Connect to the X-UM Connector server using Remote Desktop.
2. Under C:\Program Files\AudioCodes\XUMConnector\UsersSync folder you can find the Active Directory (AD) sync files:
   - ReadMe.txt – This defines how to set the AD sync.
   - XumUsersSync.ps1 - This is the main PowerShell script.

Note: The PowerShell script should not be modified.

   - Config.ps1.DIST - This is the default distribution configuration file.
   - XumUsersSync.bat - This is a batch file convenience wrapper for running the synchronization script.

   By default, synchronization is disabled (because it doesn't know the custom AD group name).

   To enable synchronization:

   - Save Config.ps1.DIST as Config.ps1 and edit it as follows:
     - Change Enabled to $true (Enabled = $true).
     - Set GroupName to the AD group containing X-UM users.
     - Optional, set ExtensionAttribute to the attribute name containing the user extension. In PowerShell, run 'Get-ADUser <user> -Properties *' to view all user property names and values.
     - Optional, Change CsvFilePath to the CSV file path. By default, it is the users.csv file in the user's folder in the Installation directory, and usually there is no need for it to be modified.
     - If using X-UM HA, you must change it to the network shared CSV user's file.
     - Optional, change X-UM Windows task scheduler schedule as needed. By default, it runs every night. The entry is under the "AudioCodes" folder in the task scheduler.
3. **Testing Synchronization:**

   It is possible to run the synchronization task immediately from the task scheduler (under the "AudioCodes" folder).

   This should generate a "log" directory and a log file in this directory with details of the last synchronization results. Verify that the user's CSV file is updated accordingly.

➢ To add users to the X-UM Connector using REST API

1. Using the REST API, you can manage users with the basic operation of Add, Delete, and Edit user information.
2. The REST API format can be seen using the Swagger Web interface, where you can see the API calls, parameters per API and the format of the result.
3. By default, the REST API is blocked from the external, to allow the REST API from the remote need to change it on the X-UM configuration file.

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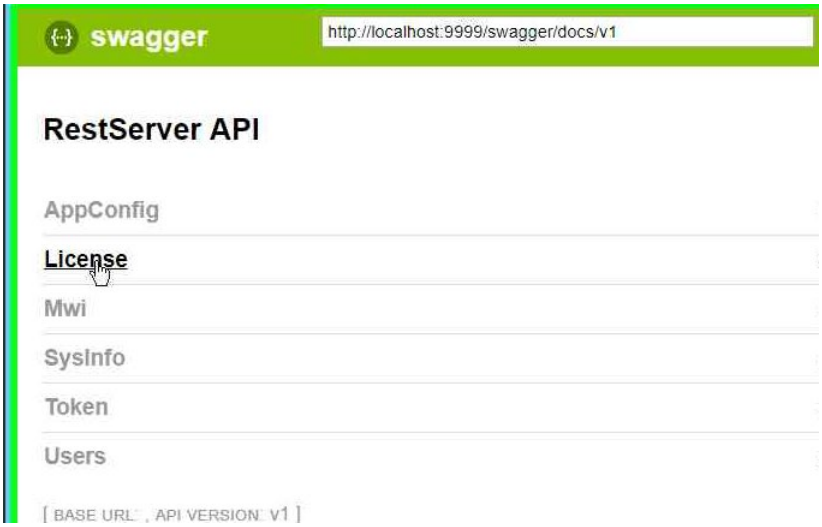
12 Obtaining the License

The procedure below describes how to obtain the license from AudioCodes. The system works with a maximum of three users without a license. To obtain a license, you need to get the X-UM machine ID first by doing the following:

➢ **To get the X-UM machine ID:**

1. Connect to the X-UM server using Remote Desktop.
2. Browse from a local browser to http://localhost:9999/swagger.
3. Open the **License** link and click on the /license/machineId link.

Figure 12-1: RestServer API



The following appears:

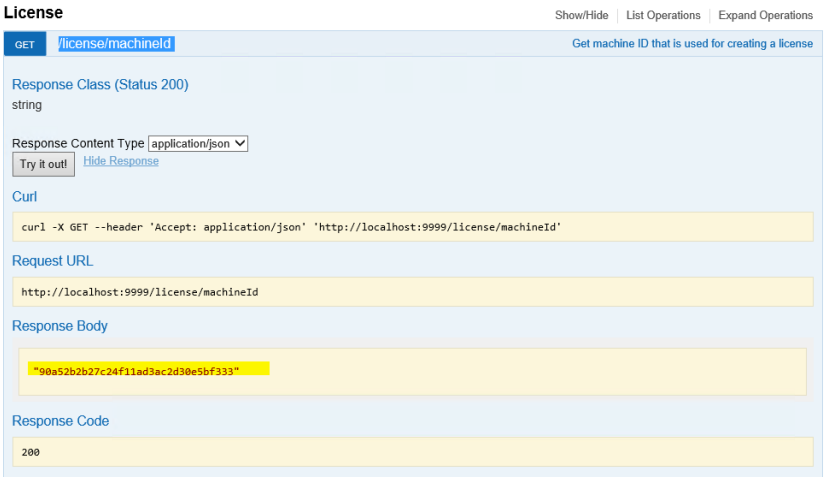
Figure 12-2: GET license/machineID

4. Click **GET license/machineID**; the following appears:

Figure 12-3: Try it out!

5. Click **Try it out!**; the following appears:

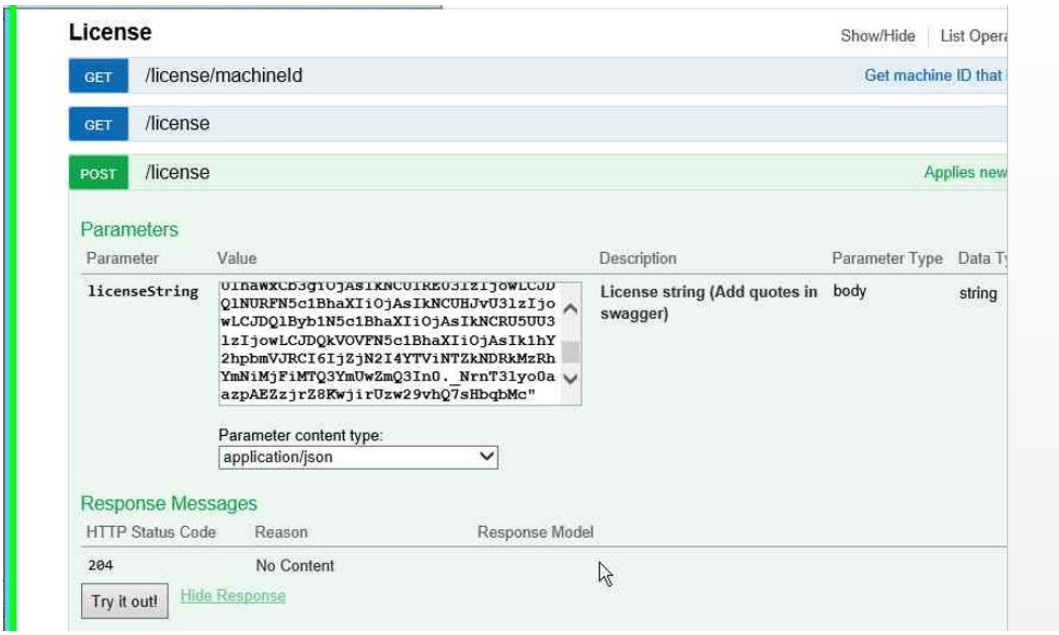
Figure 12-4: License Response Body



6. Under the 'Response Body' heading, the Machine ID appears within quotes (" ").
7. Supply the Machine ID, without quotes, to AudioCodes.
8. Activate the license after receiving the license from AudioCodes by doing the following:
   a. On the **License** screen, click **POST**.
   b. Insert the license string that you received from AudioCodes, in the **Value** field under the **Parameters** heading.

Note: Make sure you enter the license string WITH quotes (" ").

Figure 12-5: Inserting License String



9. Click **Try it out!**.

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13 Configuring the SBC in X-UM Solution

The telephony connection between the IP-PBX, PBX or PSTN to Skype and X-UM Connector is performed using the SBC/Gateway.

The IP-PBX, PBX or PSTN is referred to as IP-PBX. 'A' refers to the IP-PBX extension or external number while 'B' refers to the IP-PBX extension.

For detailed flows see Section 3.3 Call Flows on page 17.

The SBC participates in the following X-UM scenarios:

- **'A' calls 'B' on the IP-PBX, and the call is forwarded to the Exchange UM to leave a voice message**

  In this scenario, the SBC routes the call to the Mediation server running on the Front End Server. The SBC has to manipulate the numbers to match the user's numbers format.

- **'A' calls to log in to the Exchange UM**

  In this scenario, the SBC routes the call to the X-UM Connector, which converts 'A's phone number to an 'A' SIP URI and uses it to log in to the mailbox. The SBC has to manipulate the number to match the user's numbers on the X-UM Connector user file. In this flow, by default, use the direct login without entering the mailbox number and PIN.

Note: This scenario can be routed to the Mediation server using the special Exchange Login number. In this case, the Exchange asks you to enter mailbox 'A' and the PIN number.

- **MWI Interrogate (MWI Subscribe)**

  In this scenario, the IP-PBX checks the Message Waiting Indicator (MWI) state per extension (It is used most of the time after phone/IP-PBX has been reset).

  The SBC routes these messages to the X-UM Connector. The SBC has to manipulate the number to match the user's numbers on the X-UM Connector user file.

- **MWI Notify**

  In this scenario, the X-UM Connector sends a MWI SIP Notify to the IP-PBX. The SBC routes these messages from the X-UM Connector to the IP-PBX. The SBC has to manipulate the number to match IP PBX extensions. The X-UM Connector supports solicited MWI and unsolicited MWI.

- **Play on Phone**

  In this scenario, the user uses the Play on Phone feature on the Exchange UM. When the user opens a Voice message, it can be played on the phone instead of the computer.

  If the user enters the SIP URI user or Tel URI user as the destination, the call is routed using the X-UM Connector, to the SBC and IP-PBX.

  If the user enters a non-user number, the call is routed to the SBC and IP PBX, using the Mediation server. The SBC have has to route these calls correctly.

- **Callback**

  In this scenario, the user logs in to the mailbox and dials out from it, back to the caller who left the voice message.

  If the user is calling a SIP URI user or Tel URI user, the call is routed using the X-UM Connector, to the SBC and IP-PBX.

  If the user enters a non-user number, the call is routed using the Mediation server to the SBC and IP-PBX.

13.1 X-UM Connector SIP Interface

The X-UM SIP interface supports TCP only. The default listening port is '5070'. However, it can be changed using the Configuration file. The X-UM Connector answers SIP Option messages. The SBC can check that the X-UM connector is running, using SIP Option messages.

13.2 SBC Configuration Fundamentals

The SBC must be set to work with Skype for Business according to the SBC documentation (for example, Handle Refer Locally, Security Settings). According to the above scenarios you need to set the routing between the IP PBX, X-UM Connector and Mediation server.

Number manipulation should be done according to the Skype for Business Tel URI and according to the X-UM user's file that holds phone numbers for mapping between SIP URI and IP PBX phone numbers.

Notes:

- The SBC must be set to work in Skype for Business according to SBC documentation.
- You need to set the routing between the IP-PBX and the X-UM Connector and Mediation server, according to the above scenarios.
- Number manipulation should be done according to the Skype Tel URI X-UM user's files that hold phone numbers for mapping between SIP URI and IP PBX phone numbers.

For an *ini* file example, see Appendix C on page 69 .

14 Using X-UM Connector Debugging Tools

This section describes the following X-UM Connector debugging tools.

- X-UM Log
- X-UM Connector Running in Console Mode
- Syslog
- OCS Logger and Wireshark

14.1 X-UM Log

The X-UM Connector writes logs to *C:\Program Files\AudioCodes\XUMConnector\log.*

14.2 X-UM Connector Running in Console Mode

When you run the X-UM Connector in Console mode, it provides an online console with the log messages in it.

➢ **To run the X-UM Connector in console mode:**

1. Stop the AudioCodes X-UM Connector service.
2. Search for 'Run XUMConnector' in Console mode and run it as the Administrator.
3. When you finish the debug, stop the console by pressing "q" and run the service again.

14.3 Syslog

The X-UM Connector supports Syslog.

➢ **To configure Syslog:**

1. Connect to X-UM server using Remote Desktop.
2. Edit the C:\Program Files\AudioCodes\XUMConnector\Config\System.config file.
3. Add and configure the following parameters:
   - ***syslogEnabled*** - Enables logging to the Syslog server. The default value is 'False'.
   - ***syslogServer*** – Defines the Syslog server IP address.

Note: The *syslogServer* value must be an IPv4 address. Names are not allowed because IPv6 is not supported. The default value is "127.0.0.1".

   - ***syslogPort*** - Syslog server port DefaultValue = "514"

14.4 OCS Logger and Wireshark

OCS Logger and Wireshark can be used to take traces of the SIP messages.

The tools can be found under C:\Program Files\AudioCodes\XUMConnector\Tools.

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A HA and DR

There are several different levels of High Availability / DR in a X-UM environment:

- HA/DR at the Skype level – for example, enterprise users pool, pool pairing, etc.
- HA between X-UM servers - the ability to provide X-UM services if a X-UM server fails.

A.1 HA/DR On Skype level

X-UM works with Skype pools, pools with multi FE are "transparent" for X-UM that work with the pool like other Skype components. If the FE is down, the X-UM connects to another FE from the pool, like it does for other Skype components.

If pool pairing is used, the X-UM is activated towards one pool.

While both pools are up, the X-UM provides full functionality for users from all pools.

When the pool is down and it's the pool that holds the local store, then first fail over the local store to the active pool.

To supply full service for users from the fail pool, **pool fail over** needs to be performed.

If pool failover is not done, only partial functionality is provided: Deposit Voice message/Missed call and access to the mailbox still work.

A.2 HA On X-UM level

X-UM provides **automatic** HA for users by distributing the users between X-UM servers.

Each user is automatically assigned a unique X-UM server. If one server fails, then another server takes over responsibility for this user.

X-UM HA is implemented without any manual configuration.

There is no limit to the number of X-UM servers that can be configured in the HA setup. All servers in the HA configuration are active (there is no standby server), and users load are distributed evenly between them.

Each X-UM sends and listens to 'ImAlive' messages using a **UDP multicast address**. By using this multicast address, each server automatically discovers all servers, and there is no need to configure the list of servers.

A.2.1 Conditions for HA

Each X-UM server is configured with a path to a CSV file containing the list of users.

By default, this CSV file is a local file, located at 'Users\users.csv' relative to the X-UM installation location.

X-UM HA is only activated if the users file is located at a shared network location. Therefore, HA is disabled by default until a shared network path is defined for the users file.

Specifically, HA is activated only if the users file starts with "\\".

A.2.2 Incoming Messages Redirection

In a HA environment, incoming messages from the proxy side (SBC/gateway) should reach the HA user owner server. This is relevant for the following example scenarios:

- User MWI subscribe session
- User extension dial (if enabled)

Note: VM access calls (*151) are not redirected, because an impersonated application endpoint is used in an outgoing call to Lync.

Also, note that VM direct deposit prefix (*55) calls are also not redirected, because they are not necessarily the HA owner for the call. They can be from any PSTN number.

Since the proxy server is not aware of the current user owner server, X-UM replies with a **SIP redirect** response to the HA user owner server. The redirect address is taken from the ExtraData field sent by each server.

Important: The redirect messages destination is the server FQDN, not the IP address. This means that the proxy (SBC) must configured to use a DNS that can resolve the X-UM host names.

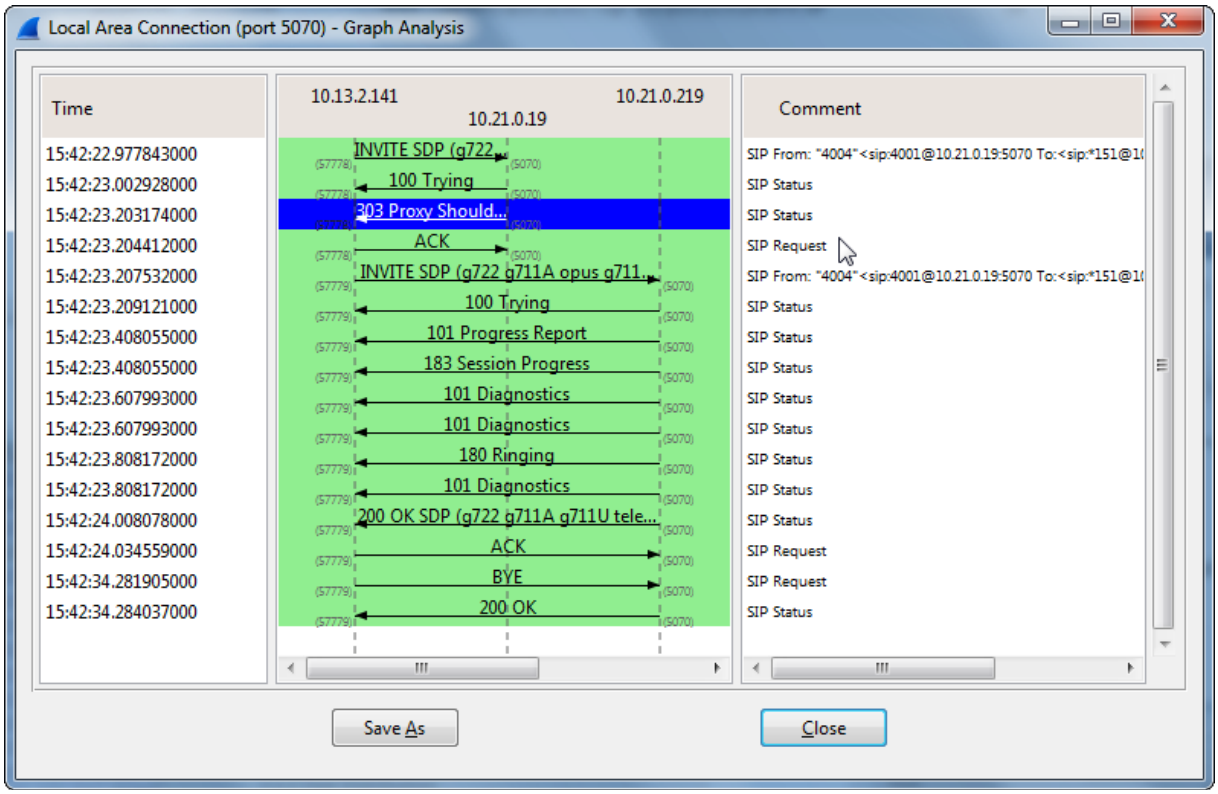
An example contact header of a redirect message is:

```
CONTACT: <sip:ron-devel-02.lync2013.net:5070;transport=Tcp>
```

Below is a sample redirect call flow by a user to access their voicemail:

1. Proxy server 10.13.2.141 sends an Invite to X-UM1 at 10.21.0.19.
2. X-UM1 receives the Invite from user. It finds that the user is not managed locally, however it is on X-UM2 at 10.21.0.219.
3. X-UM1 sends the proxy a 303 redirect to 10.21.0.219.
4. The Proxy sends a new invite to 10.21.0.219, and the call continues normally,

Figure A-1: Incoming Messages Redirection



A.2.2.1 Proxy Configuration

Ideally, the proxy (SBC) should be configured to distribute load evenly between all HA servers, while periodically checking that all servers are alive.

The list of servers that can be configured manually, or resolved using the common X-UM DNS pool address, that should be configured in DNS to all X-UM servers, as part of the activation.

In any case, the proxy should periodically verify that the server is still alive, possibly using a SIP options request.

A.2.3 Web GUI Swagger

The Web GUI using Swagger is available for:

- Retrieving HA status – including a list of all HA servers and their uptime
- Retrieving the user's owner – the calculated owner of each user.

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B Creating Virtual Machine on Hyper-V for X-UM Connector

This appendix describes how you can create a Virtual Machine on the Hyper-V for the X-UM Connector, when you have a Hyper-V virtual hard disk (VHDX) with Windows Server.

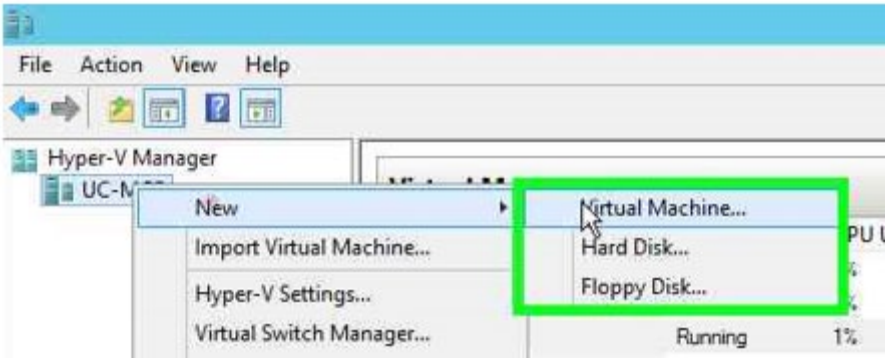
B.1 Creating the X-UM Connector Virtual Machine

The procedure below describes how to create the X-UM Connector virtual machine.

➢ **To create the X-UM Connector virtual machine:**

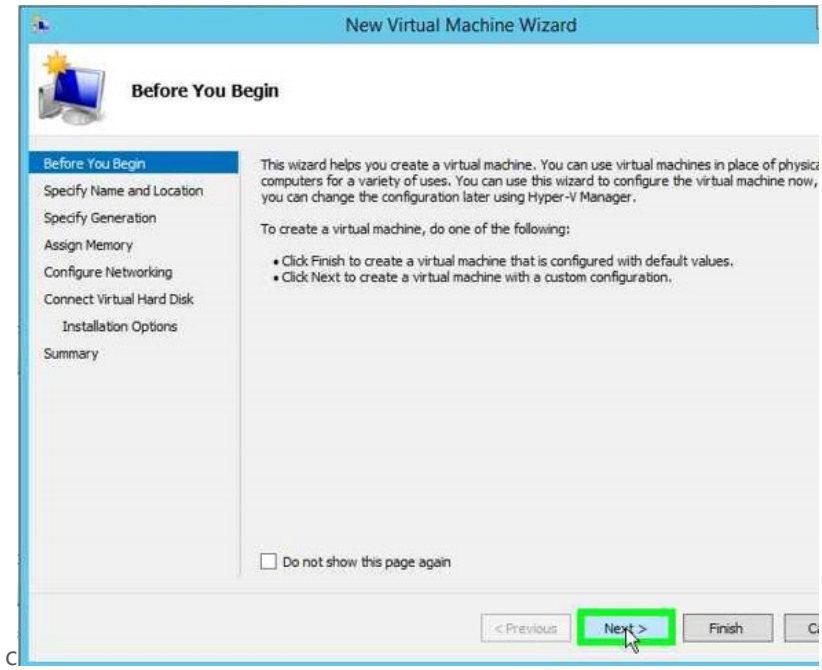
1. Open the **Hyper-V Manager**.
2. Right-click on your physical server name (tree item); the following appears:

Figure B-1: Hyper-V Manager



3. Click **New**; and then select **Virtual Machine**; the following appears:

Figure B-2: Before You Begin

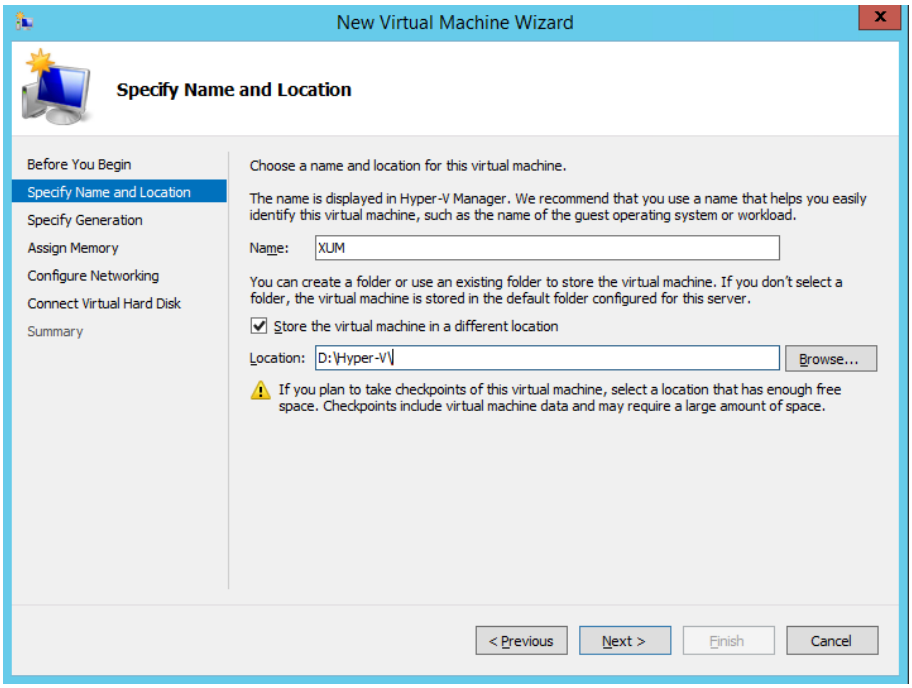


4. Click **Next**; the following appears:

Figure B-3: Specify Name and Location

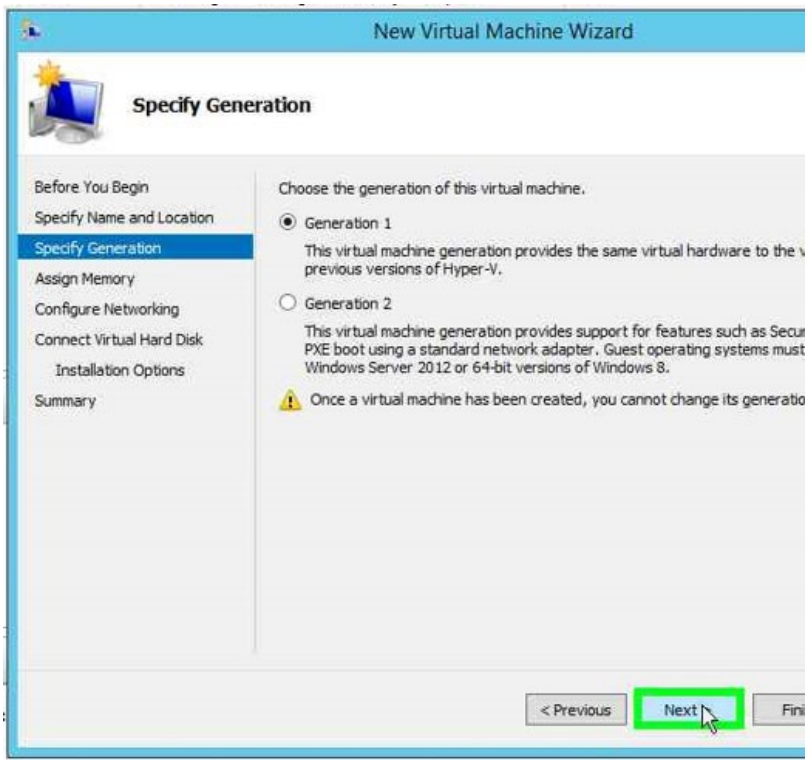
5. In the 'Name' field, enter “XUM”.
6. Select the 'Store the virtual machine in a different location' check box.
7. Click **Browse.**
8. In the 'Location' field, enter the storage path to hold the VM.
9. Click **Next**.

Figure B-4: Specify Name and Location – Updated Location



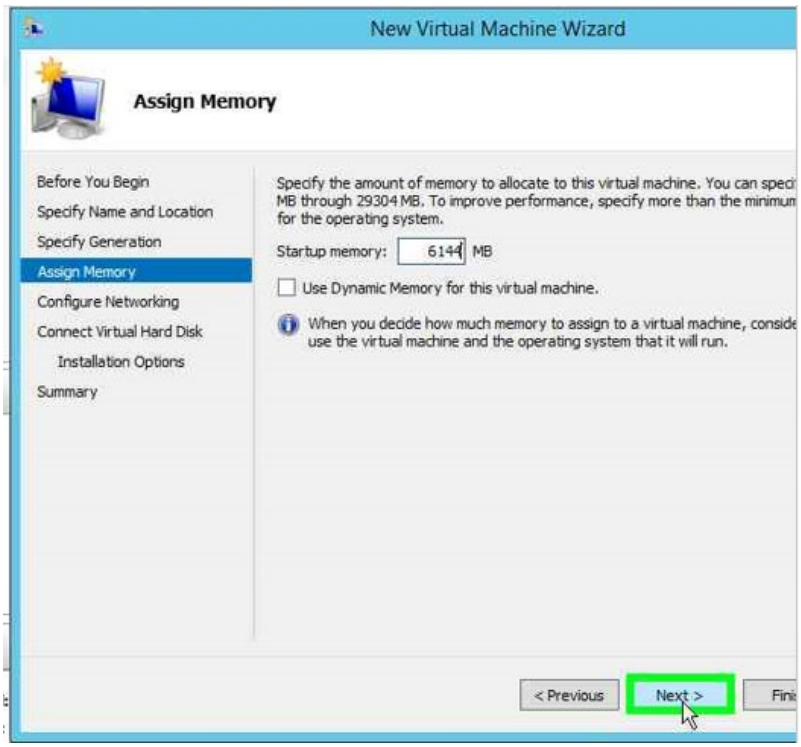
10. Click **Next**; the following appears:

Figure B-5: Specify Generation



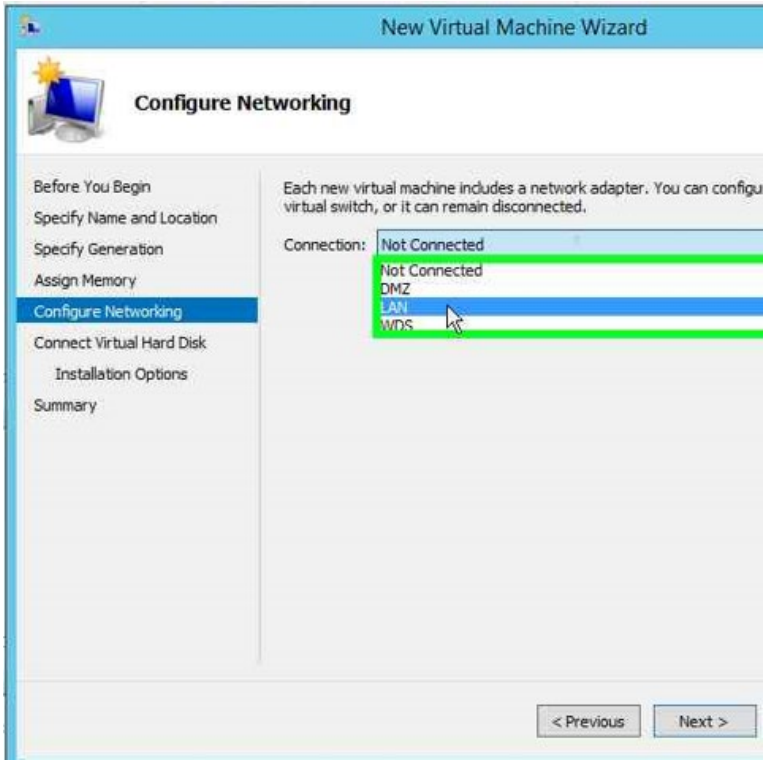
11. Select the correct **Generation** option according to your VHDX, and then click **Next**; the following appears:

Figure B-6: Assign Memory



12. In the 'Startup memory' box, allocate **6144 MB** to the machine, and then click **Next**; the following appears:

Figure B-7: Configure Networking



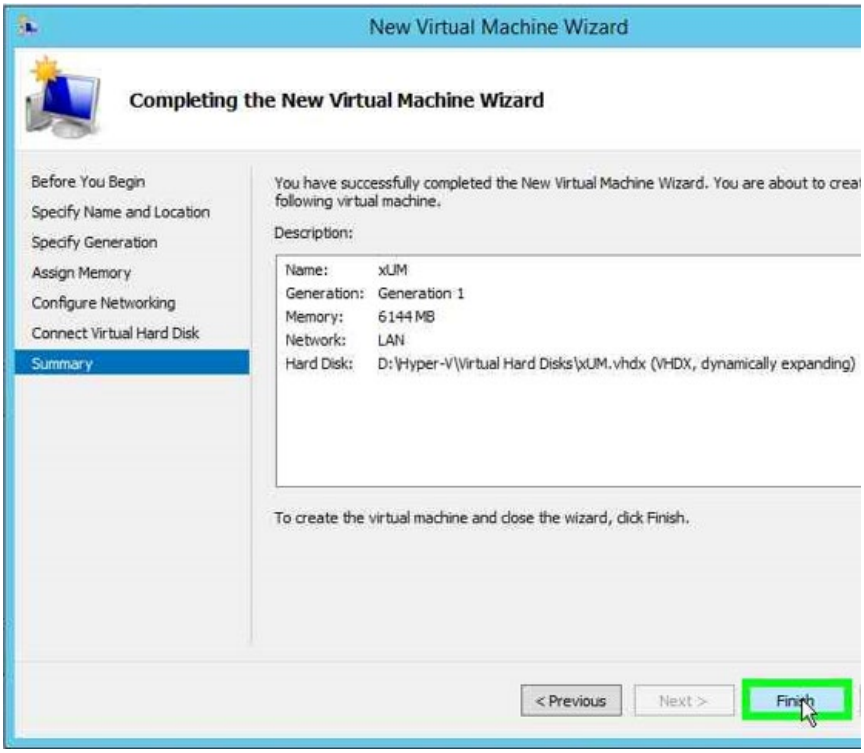
13. From the 'Connection' drop-down list, select the correct network card; and then click **Next**.

Figure B-8: Connect Virtual Hard Disk

14. Click the **Use an existing virtual hard disk** option.

15. In the 'Location' field, browse to the location of your VHDX.
16. Click **Next**.

Figure B-9: Completing the New Virtual Machine Wizard



17. Click **Finish.**

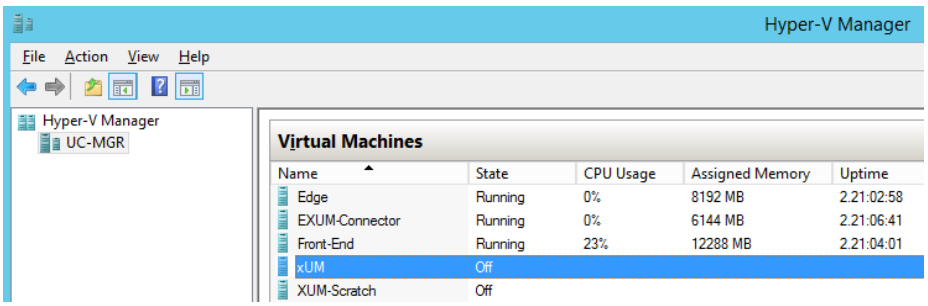
B.2 Configuring X-UM Connector Virtual Machine

The procedure below describes how to configure the Virtual Machine.

➢ **To configure the X-UM Connector Virtual Machine:**

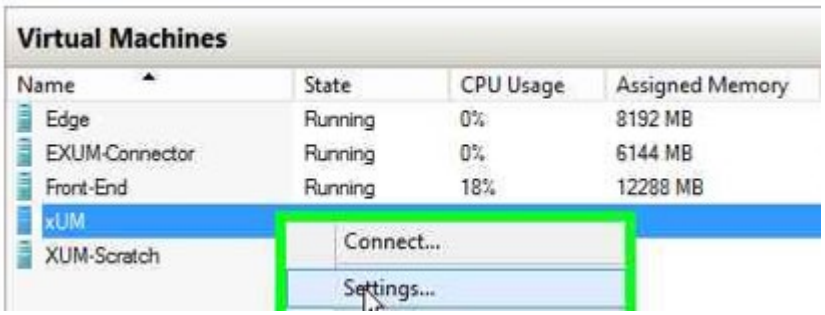
1. Start the **Hyper-V Manager**.

Figure B-10: Hyper-V Manager



2. Right-click **xUM**, and then select **Settings.**

Figure B-11: Virtual Machines

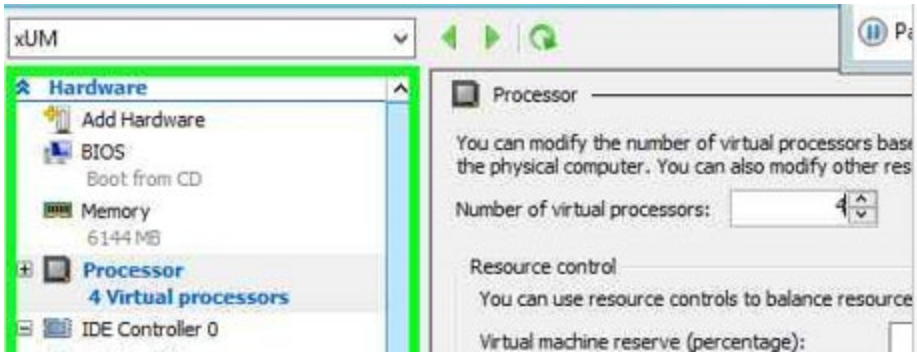


3. From the 'Settings' drop-down list, select **Processor**.

Figure B-12: Processor Settings

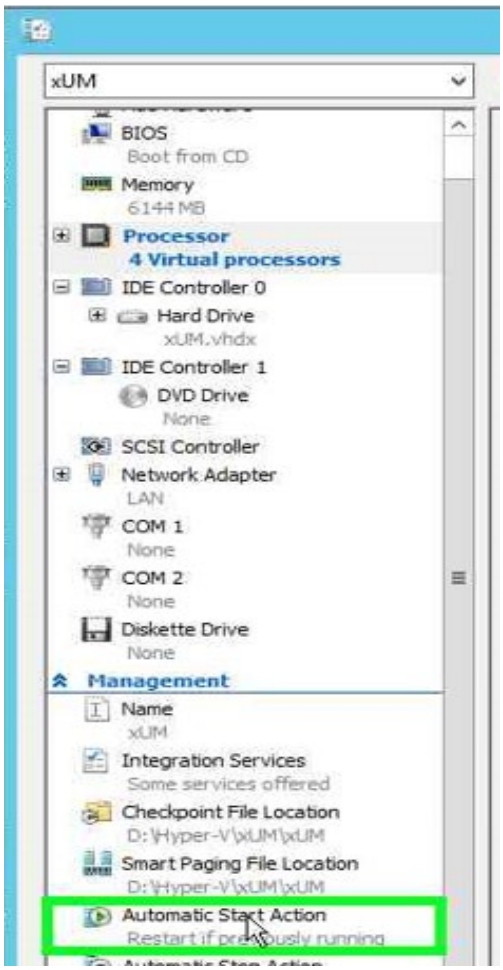
4. From the 'Hardware' drop-down list, modify the number of virtual processors to "4".

Figure B-13: Number of Virtual Processors



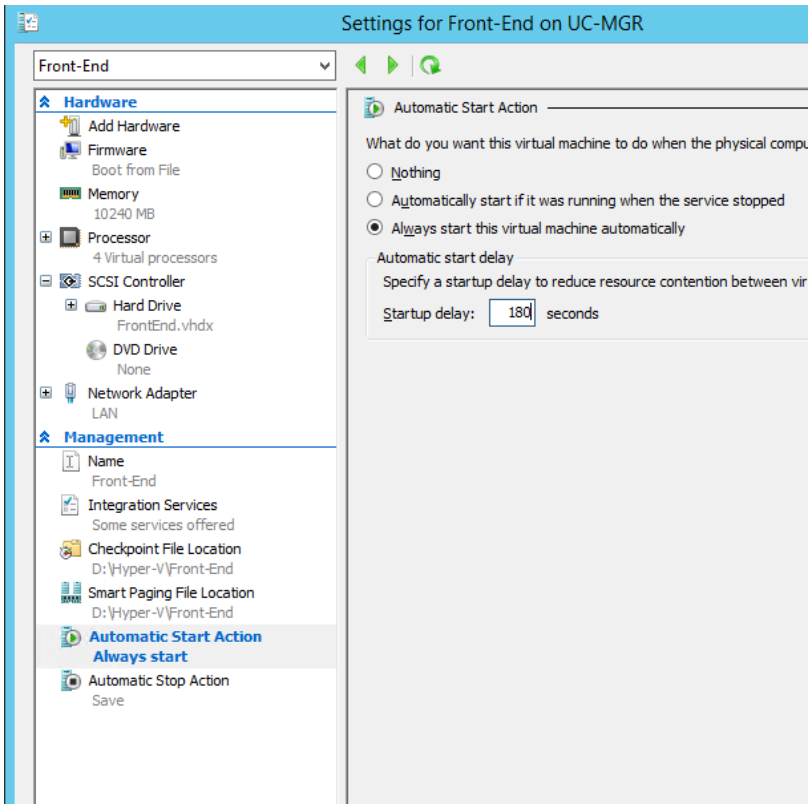
5. From the 'XUM' drop-down list, select **Automatic Start Action**.

Figure B-14: XUM - Automatic Start Action



6. Select the **Always start this virtual machine automatically** option, and then click **OK**.

Figure B-15: X-UM - Automatic Start Action – Startup Delay



C INI File Example

In reference to Section 13.2 on page 54, an *ini* file example is shown below:

```
;**************
;** Ini File **
;**************

;Board: M800B
;HW Board Type: 69  FK Board Type: 72
;Serial Number: 7559363
;Slot Number: 1
;Software Version: 7.20A.152.009
;DSP Software Version: 5014AE3_R => 721.09
;Board IP Address: 172.17.240.102
;Board Subnet Mask: 255.255.255.240
;Board Default Gateway: 172.17.240.97
;Ram size: 512M   Flash size: 64M   Core speed: 500Mhz
;Num of DSP Cores: 3  Num DSP Channels: 30
;Num of physical LAN ports: 4
;Profile: NONE
;;;Key features:;Board Type: M800B ;Security: IPSEC
MediaEncryption StrongEncryption EncryptControlProtocol ;IP Media:
VXML ;Channel Type: DspCh=30 ;HA ;DSP Voice features: IpmDetector
RTCP-XR ;E1Trunks=1 ;T1Trunks=1 ;FXSPorts=4 ;FXOPorts=0 ;Coders:
G723 G729 G728 NETCODER GSM-FR GSM-EFR AMR EVRC-QCELP G727 ILBC
EVRC-B AMR-WB G722 EG711 MS_RTA_NB MS_RTA_WB SILK_NB SILK_WB
SPEEX_NB SPEEX_WB OPUS_NB OPUS_WB ;QOE features:
VoiceQualityMonitoring MediaEnhancement ;DATA features: ;Control
Protocols: MSFT FEU=100 TestCall=100 MGCP SIP SASurvivability
SBC=50 ;Default features:;Coders: G711 G726;

;------  HW components------
;
; Slot # : Module type : # of ports
;-----------------------------------------------
;      1 : FALC56      : 1
;      2 : FALC56      : 1
;      3 : FXS         : 4
;-----------------------------------------------


[SYSTEM Params]

SyslogServerIP = 172.17.240.100
EnableSyslog = 1
DebugRecordingDestIP = 10.31.2.47
;VpFileLastUpdateTime is hidden but has non-default value
TR069ACSPASSWORD = '$1$gQ=='
TR069CONNECTIONREQUESTPASSWORD = '$1$gQ=='
NTPServerIP = '0.0.0.0'
;AUPDNETWORKSOURCE is hidden but has non-default value
;LastConfigChangeTime is hidden but has non-default value
```

```
;BarrierFilename is hidden but has non-default value
;PM_gwINVITEDialogs is hidden but has non-default value
;PM_gwSUBSCRIBEDialogs is hidden but has non-default value
;PM_gwSBCRegisteredUsers is hidden but has non-default value
;PM_gwSBCMediaLegs is hidden but has non-default value
;PM_gwSBCTranscodingSessions is hidden but has non-default value

[BSP Params]

PCMLawSelect = 3
UdpPortSpacing = 10
EnterCpuOverloadPercent = 99
ExitCpuOverloadPercent = 95

[Analog Params]


[ControlProtocols Params]

AdminStateLockControl = 0

[MGCP Params]


[MEGACO Params]


[PSTN Params]


[SS7 Params]


[Voice Engine Params]

CallProgressTonesFilename = 'usa_tones_13.dat'

[WEB Params]

LogoWidth = '145'
HTTPSCipherString = 'RC4:EXP'
;HTTPSPkeyFileName is hidden but has non-default value
;HTTPSCertFileName is hidden but has non-default value

[SIP Params]

PLAYRBTONE2IP = 1
ISREGISTERNEEDED = 1
GWDEBUGLEVEL = 5
ENABLEEARLYMEDIA = 1
TCPLOCALSIPPORT = 5067
```

```
ENABLEUSERINFOUSAGE = 1
USERINFOFILENAME = 'UserInfo-Numbers.txt'
ENABLESBCAPPLICATION = 1
MSLDAPPRIMARYKEY = 'telephoneNumber'
TESTCALLID = '1013'
TESTCALLDTMFSTRING = '11'
ENERGYDETECTORCMD = 587202560
ANSWERDETECTORCMD = 10486144
;GWAPPCONFIGURATIONVERSION is hidden but has non-default value

[IPsec Params]


[SNMP Params]


[ PhysicalPortsTable ]

FORMAT PhysicalPortsTable_Index = PhysicalPortsTable_Port,
PhysicalPortsTable_Mode, PhysicalPortsTable_SpeedDuplex,
PhysicalPortsTable_PortDescription,
PhysicalPortsTable_GroupMember, PhysicalPortsTable_GroupStatus;
PhysicalPortsTable 0 = "GE_4_1", 1, 4, "User Port #0", "GROUP_1",
"Active";
PhysicalPortsTable 1 = "GE_4_2", 1, 4, "User Port #1", "GROUP_1",
"Redundant";
PhysicalPortsTable 2 = "GE_4_3", 1, 4, "User Port #2", "GROUP_2",
"Active";
PhysicalPortsTable 3 = "GE_4_4", 1, 4, "User Port #3", "GROUP_2",
"Redundant";

[ \PhysicalPortsTable ]


[ EtherGroupTable ]

FORMAT EtherGroupTable_Index = EtherGroupTable_Group,
EtherGroupTable_Mode, EtherGroupTable_Member1,
EtherGroupTable_Member2;
EtherGroupTable 0 = "GROUP_1", 2, "GE_4_1", "GE_4_2";
EtherGroupTable 1 = "GROUP_2", 2, "GE_4_3", "GE_4_4";
EtherGroupTable 2 = "GROUP_3", 0, "", "";
EtherGroupTable 3 = "GROUP_4", 0, "", "";

[ \EtherGroupTable ]


[ DeviceTable ]

FORMAT DeviceTable_Index = DeviceTable_VlanID,
DeviceTable_UnderlyingInterface, DeviceTable_DeviceName,
DeviceTable_Tagging, DeviceTable_MTU;
DeviceTable 0 = 1, "GROUP_1", "vlan 1", 0, 1500;
```

```
DeviceTable 1 = 180, "GROUP_1", "vlan 2", 1, 1500;

[ \DeviceTable ]


[ InterfaceTable ]

FORMAT InterfaceTable_Index = InterfaceTable_ApplicationTypes,
InterfaceTable_InterfaceMode, InterfaceTable_IPAddress,
InterfaceTable_PrefixLength, InterfaceTable_Gateway,
InterfaceTable_InterfaceName,
InterfaceTable_PrimaryDNSServerIPAddress,
InterfaceTable_SecondaryDNSServerIPAddress,
InterfaceTable_UnderlyingDevice;
InterfaceTable 0 = 6, 10, 172.17.240.102, 28, 172.17.240.97,
"O+M+C", 0.0.0.0, 0.0.0.0, "vlan 1";
InterfaceTable 1 = 5, 10, 195.189.192.90, 28, 195.189.192.81,
"DMZ", 0.0.0.0, 0.0.0.0, "vlan 2";

[ \InterfaceTable ]


[ WebUsers ]

FORMAT WebUsers_Index = WebUsers_Username, WebUsers_Password,
WebUsers_Status, WebUsers_PwAgeInterval, WebUsers_SessionLimit,
WebUsers_CliSessionLimit, WebUsers_SessionTimeout,
WebUsers_BlockTime, WebUsers_UserLevel, WebUsers_PwNonce,
WebUsers_SSHPublicKey;
WebUsers 0 = "Admin",
"$1$dUJFFEBPTE5PSx1G47jhure3seHu67y4v+y/7vOk96TwoKOm+qGur6ip+/qUw8
TCwJCfkJjLm8jOmcybiNeE0dc=", 1, 0, 2, -1, 15, 60, 200,
"08a41bffc130c4219ea6b7597801f572", "";
WebUsers 1 = "User",
"$1$fRtOSOS4u+bg5+S3uu+ys7y+77ajoaKj8PDwo6+qo675/62qxMKbxpOQn5Gdy5
/NlJ2aloKD04OEgYeDgYuL39k=", 1, 0, 2, -1, 15, 60, 50,
"2a9cce31b8ac674d6c92103c21916281", "";

[ \WebUsers ]


[ TLSContexts ]

FORMAT TLSContexts_Index = TLSContexts_Name,
TLSContexts_TLSVersion, TLSContexts_DTLSVersion,
TLSContexts_ServerCipherString, TLSContexts_ClientCipherString,
TLSContexts_RequireStrictCert, TLSContexts_OcspEnable,
TLSContexts_OcspServerPrimary, TLSContexts_OcspServerSecondary,
TLSContexts_OcspServerPort, TLSContexts_OcspDefaultResponse,
TLSContexts_DHKeySize;
TLSContexts 0 = "default", 0, 0, "RC4:AES128", "DEFAULT", 0, 0,
0.0.0.0, 0.0.0.0, 2560, 0, 1024;

[ \TLSContexts ]
```

```
[ AudioCodersGroups ]

FORMAT AudioCodersGroups_Index = AudioCodersGroups_Name;
AudioCodersGroups 0 = "AudioCodersGroups_0";

[ \AudioCodersGroups ]


[ IpProfile ]

FORMAT IpProfile_Index = IpProfile_ProfileName,
IpProfile_IpPreference, IpProfile_CodersGroupName,
IpProfile_IsFaxUsed, IpProfile_JitterBufMinDelay,
IpProfile_JitterBufOptFactor, IpProfile_IPDiffServ,
IpProfile_SigIPDiffServ, IpProfile_RTPRedundancyDepth,
IpProfile_CNGmode, IpProfile_VxxTransportType, IpProfile_NSEMode,
IpProfile_IsDTMFUsed, IpProfile_PlayRBTone2IP,
IpProfile_EnableEarlyMedia, IpProfile_ProgressIndicator2IP,
IpProfile_EnableEchoCanceller, IpProfile_CopyDest2RedirectNumber,
IpProfile_MediaSecurityBehaviour, IpProfile_CallLimit,
IpProfile_DisconnectOnBrokenConnection,
IpProfile_FirstTxDtmfOption, IpProfile_SecondTxDtmfOption,
IpProfile_RxDTMFOption, IpProfile_EnableHold, IpProfile_InputGain,
IpProfile_VoiceVolume, IpProfile_AddIEInSetup,
IpProfile_SBCExtensionCodersGroupName,
IpProfile_MediaIPVersionPreference, IpProfile_TranscodingMode,
IpProfile_SBCAllowedMediaTypes,
IpProfile_SBCAllowedAudioCodersGroupName,
IpProfile_SBCAllowedVideoCodersGroupName,
IpProfile_SBCAllowedCodersMode,
IpProfile_SBCMediaSecurityBehaviour, IpProfile_SBCRFC2833Behavior,
IpProfile_SBCAlternativeDTMFMethod, IpProfile_SBCAssertIdentity,
IpProfile_AMDSensitivityParameterSuit,
IpProfile_AMDSensitivityLevel, IpProfile_AMDMaxGreetingTime,
IpProfile_AMDMaxPostSilenceGreetingTime,
IpProfile_SBCDiversionMode, IpProfile_SBCHistoryInfoMode,
IpProfile_EnableQSIGTunneling, IpProfile_SBCFaxCodersGroupName,
IpProfile_SBCFaxBehavior, IpProfile_SBCFaxOfferMode,
IpProfile_SBCFaxAnswerMode, IpProfile_SbcPrackMode,
IpProfile_SBCSessionExpiresMode, IpProfile_SBCRemoteUpdateSupport,
IpProfile_SBCRemoteReinviteSupport,
IpProfile_SBCRemoteDelayedOfferSupport,
IpProfile_SBCRemoteReferBehavior, IpProfile_SBCRemote3xxBehavior,
IpProfile_SBCRemoteMultiple18xSupport,
IpProfile_SBCRemoteEarlyMediaResponseType,
IpProfile SBCRemoteEarlyMediaSupport,
IpProfile_EnableSymmetricMKI, IpProfile_MKISize,
IpProfile_SBCEnforceMKISize, IpProfile_SBCRemoteEarlyMediaRTP,
IpProfile_SBCRemoteSupportsRFC3960,
IpProfile_SBCRemoteCanPlayRingback, IpProfile_EnableEarly183,
IpProfile_EarlyAnswerTimeout, IpProfile_SBC2833DTMFPayloadType,
IpProfile_SBCUserRegistrationTime,
IpProfile_ResetSRTPStateUponRekey, IpProfile_AmdMode,
IpProfile_SBCReliableHeldToneSource, IpProfile_GenerateSRTPKeys,
IpProfile_SBCPlayHeldTone, IpProfile_SBCRemoteHoldFormat,
IpProfile_SBCRemoteReplacesBehavior, IpProfile_SBCSDPPtimeAnswer,
IpProfile_SBCPreferredPTime, IpProfile_SBCUseSilenceSupp,
IpProfile_SBCRTPRedundancyBehavior,
```

```
IpProfile_SBCPlayRBTToTransferee, IpProfile_SBCRTCPMode,
IpProfile_SBCJitterCompensation,
IpProfile_SBCRemoteRenegotiateOnFaxDetection,
IpProfile_JitterBufMaxDelay,
IpProfile_SBCUserBehindUdpNATRegistrationTime,
IpProfile_SBCUserBehindTcpNATRegistrationTime,
IpProfile_SBCSDPHandleRTCPAttribute,
IpProfile_SBCRemoveCryptoLifetimeInSDP, IpProfile_SBCIceMode,
IpProfile_SBCRTCPMux, IpProfile_SBCMediaSecurityMethod,
IpProfile_SBCHandleXDetect, IpProfile_SBCRTCPFeedback,
IpProfile_SBCRemoteRepresentationMode,
IpProfile_SBCKeepVIAHeaders, IpProfile_SBCKeepRoutingHeaders,
IpProfile_SBCKeepUserAgentHeader,
IpProfile_SBCRemoteMultipleEarlyDialogs,
IpProfile_SBCRemoteMultipleAnswersMode,
IpProfile_SBCDirectMediaTag,
IpProfile_SBCAdaptRFC2833BWToVoiceCoderBW,
IpProfile_CreatedByRoutingServer, IpProfile_SBCFaxReroutingMode,
IpProfile_SBCMaxCallDuration, IpProfile_SBCGenerateRTP,
IpProfile_SBCISUPBodyHandling, IpProfile_SBCISUPVariant,
IpProfile_SBCVoiceQualityEnhancement, IpProfile_SBCMaxOpusBW,
IpProfile_LocalRingbackTone, IpProfile_LocalHeldTone;
IpProfile 1 = "CloudBond", 1, "AudioCodersGroups_0", 0, 10, 10,
46, 40, 0, 0, 2, 0, 0, 0, 0, -1, 1, 0, 0, -1, 1, 4, -1, 1, 1, 0,
0, "", "", 0, 0, "", "", "", 0, 0, 0, 0, 0, 0, 8, 300, 400, 0, 0,
0, "", 0, 0, 1, 3, 0, 1, 1, 1, 3, 2, 1, 0, 1, 0, 0, 1, 1, 1, 0, 0,
0, 0, 0, 0, 0, 1, 0, 0, 3, 0, 0, 0, 0, 0, 1, 1, 0, 0, 300, -1, -1,
0, 0, 0, 0, 0, 0, 0, -1, -1, -1, -1, -1, 0, "", 0, 0, 0, 0, 0, 0,
0, 0, 0, -1, -1;

[ \IpProfile ]


[ CpMediaRealm ]

FORMAT CpMediaRealm_Index = CpMediaRealm_MediaRealmName,
CpMediaRealm_IPv4IF, CpMediaRealm_IPv6IF,
CpMediaRealm_PortRangeStart, CpMediaRealm_MediaSessionLeg,
CpMediaRealm_PortRangeEnd, CpMediaRealm_IsDefault,
CpMediaRealm_QoeProfile, CpMediaRealm_BWProfile,
CpMediaRealm_TopologyLocation;
CpMediaRealm 0 = "DefaultRealm", "O+M+C", "", 50000, 999, 59989,
1, "", "", 0;

[ \CpMediaRealm ]


[ SBCRoutingPolicy ]

FORMAT SBCRoutingPolicy_Index = SBCRoutingPolicy_Name,
SBCRoutingPolicy_LCREnable, SBCRoutingPolicy_LCRAverageCallLength,
SBCRoutingPolicy_LCRDefaultCost,
SBCRoutingPolicy_LdapServerGroupName;
SBCRoutingPolicy 0 = "Default_SBCRoutingPolicy", 0, 0, 1, "";

[ \SBCRoutingPolicy ]
```

```
[ SRD ]

FORMAT SRD_Index = SRD_Name, SRD_BlockUnRegUsers,
SRD_MaxNumOfRegUsers, SRD_EnableUnAuthenticatedRegistrations,
SRD_SharingPolicy, SRD_UsedByRoutingServer, SRD_SBCOperationMode,
SRD_SBCRoutingPolicyName, SRD_SBCDialPlanName;
SRD 0 = "DefaultSRD", 1, -1, 1, 0, 0, 0,
"Default_SBCRoutingPolicy", "";

[ \SRD ]


[ MessagePolicy ]

FORMAT MessagePolicy_Index = MessagePolicy_Name,
MessagePolicy_MaxMessageLength, MessagePolicy_MaxHeaderLength,
MessagePolicy_MaxBodyLength, MessagePolicy_MaxNumHeaders,
MessagePolicy_MaxNumBodies, MessagePolicy_SendRejection,
MessagePolicy_MethodList, MessagePolicy_MethodListType,
MessagePolicy_BodyList, MessagePolicy_BodyListType,
MessagePolicy_UseMaliciousSignatureDB;
MessagePolicy 0 = "Malicious Signature DB Protection", -1, -1, -1,
-1, -1, 1, "", 0, "", 0, 1;

[ \MessagePolicy ]


[ SIPInterface ]

FORMAT SIPInterface_Index = SIPInterface_InterfaceName,
SIPInterface_NetworkInterface, SIPInterface_ApplicationType,
SIPInterface_UDPPort, SIPInterface_TCPPort, SIPInterface_TLSPort,
SIPInterface_SRDName, SIPInterface_MessagePolicyName,
SIPInterface_TLSContext, SIPInterface_TLSMutualAuthentication,
SIPInterface_TCPKeepaliveEnable,
SIPInterface_ClassificationFailureResponseType,
SIPInterface_PreClassificationManSet,
SIPInterface_EncapsulatingProtocol, SIPInterface_MediaRealm,
SIPInterface_SBCDirectMedia, SIPInterface_BlockUnRegUsers,
SIPInterface_MaxNumOfRegUsers,
SIPInterface_EnableUnAuthenticatedRegistrations,
SIPInterface_UsedByRoutingServer, SIPInterface_TopologyLocation,
SIPInterface_PreParsingManSetName;
SIPInterface 0 = "CloudBond", "O+M+C", 2, 5060, 5068, 5067,
"DefaultSRD", "", "default", -1, 0, 500, 2, 0, "DefaultRealm", 0,
-1, -1, -1, 0, 0, "";

[ \SIPInterface ]


[ ProxySet ]

FORMAT ProxySet_Index = ProxySet_ProxyName,
ProxySet_EnableProxyKeepAlive, ProxySet_ProxyKeepAliveTime,
ProxySet_ProxyLoadBalancingMethod, ProxySet_IsProxyHotSwap,
```

```
ProxySet_SRDName, ProxySet_ClassificationInput,
ProxySet_TLSContextName, ProxySet_ProxyRedundancyMode,
ProxySet_DNSResolveMethod, ProxySet_KeepAliveFailureResp,
ProxySet_GWIPv4SIPInterfaceName, ProxySet_SBCIPv4SIPInterfaceName,
ProxySet_GWIPv6SIPInterfaceName, ProxySet_SBCIPv6SIPInterfaceName,
ProxySet_MinActiveServersLB, ProxySet_SuccessDetectionRetries,
ProxySet_SuccessDetectionInterval,
ProxySet_FailureDetectionRetransmissions;
ProxySet 1 = "CloudBond", 1, 360, 0, 0, "DefaultSRD", 0, "", -1, -
1, "", "", "CloudBond", "", "", 1, 1, 10, -1;
ProxySet 2 = "xUM", 1, 360, 0, 0, "DefaultSRD", 0, "", -1, -1, "",
"", "CloudBond", "", "", 1, 1, 10, -1;
ProxySet 3 = "IP-PBX", 0, 60, 0, 0, "DefaultSRD", 0, "", -1, -1,
"", "", "CloudBond", "", "", 1, 1, 10, -1;

[ \ProxySet ]


[ IPGroup ]

FORMAT IPGroup_Index = IPGroup_Type, IPGroup_Name,
IPGroup_ProxySetName, IPGroup_SIPGroupName, IPGroup_ContactUser,
IPGroup_SipReRoutingMode, IPGroup_AlwaysUseRouteTable,
IPGroup_SRDName, IPGroup_MediaRealm, IPGroup_ClassifyByProxySet,
IPGroup_ProfileName, IPGroup_MaxNumOfRegUsers,
IPGroup_InboundManSet, IPGroup_OutboundManSet,
IPGroup_RegistrationMode, IPGroup_AuthenticationMode,
IPGroup_MethodList, IPGroup_EnableSBCClientForking,
IPGroup_SourceUriInput, IPGroup_DestUriInput, IPGroup_ContactName,
IPGroup_Username, IPGroup_Password, IPGroup_UUIFormat,
IPGroup_QOEProfile, IPGroup_BWProfile,
IPGroup_AlwaysUseSourceAddr, IPGroup_MsgManUserDef1,
IPGroup_MsgManUserDef2, IPGroup_SIPConnect, IPGroup_SBCPSAPMode,
IPGroup_DTLSContext, IPGroup_CreatedByRoutingServer,
IPGroup_UsedByRoutingServer, IPGroup_SBCOperationMode,
IPGroup_SBCRouteUsingRequestURIPort,
IPGroup_SBCKeepOriginalCallID, IPGroup_TopologyLocation,
IPGroup_SBCDialPlanName, IPGroup_CallSetupRulesSetId,
IPGroup_Tags, IPGroup_SBCUserStickiness;
IPGroup 0 = 2, "Default", "", "", "", -1, 0, "DefaultSRD", "", 1,
"", -1, -1, -1, 0, 0, "", 0, -1, -1, "", "", "$1$gQ==", 0, "", "",
0, "", "", 0, 0, "", 0, 0, -1, 0, 0, 1, "", -1, "", 0;
IPGroup 1 = 0, "CloudBond", "CloudBond", "", "", -1, 0,
"DefaultSRD", "DefaultRealm", 1, "CloudBond", -1, -1, -1, 0, 0,
"", 0, -1, -1, "", "", "$1$gQ==", 0, "", "", 0, "", "", 0, 0, "",
0, 0, -1, 0, 0, 0, "", -1, "", 0;
IPGroup 2 = 0, "xUM", "xUM", "", "", -1, 0, "DefaultSRD",
"DefaultRealm", 1, "", -1, -1, 2, 0, 0, "", 0, -1, -1, "", "",
"$1$gQ==", 0, "", "", 0, "", "", 0, 0, "", 0, 0, -1, 0, 0, 0, "",
-1, "", 0;
IPGroup 3 = 0, "IP-PBX", "IP-PBX", "", "", -1, 0, "DefaultSRD",
"DefaultRealm", 1, "CloudBond", -1, -1, 1, 0, 0, "", 0, -1, -1,
"", "", "$1$gQ==", 0, "", "", 0, "", "", 0, 0, "", 0, 0, -1, 0, 0,
0, "", -1, "", 0;

[ \IPGroup ]
```

```
[ ProxyIp ]

FORMAT ProxyIp_Index = ProxyIp_ProxySetId, ProxyIp_ProxyIpIndex,
ProxyIp_IpAddress, ProxyIp_TransportType;
ProxyIp 0 = "1", 0, "172.17.240.101:5060", 1;
ProxyIp 1 = "2", 0, "172.17.240.107:5070", 1;
ProxyIp 2 = "3", 0, "10.13.2.16", 0;
ProxyIp 3 = "3", 1, "172.17.240.100", 0;
ProxyIp 4 = "3", 2, "10.7.2.55", 0;
ProxyIp 5 = "3", 3, "172.17.240.106:5060", 0;
ProxyIp 6 = "3", 4, "10.16.2.73", 0;

[ \ProxyIp ]


[ IP2IPRouting ]

FORMAT IP2IPRouting_Index = IP2IPRouting_RouteName,
IP2IPRouting_RoutingPolicyName, IP2IPRouting_SrcIPGroupName,
IP2IPRouting_SrcUsernamePrefix, IP2IPRouting_SrcHost,
IP2IPRouting_DestUsernamePrefix, IP2IPRouting_DestHost,
IP2IPRouting_RequestType, IP2IPRouting_MessageConditionName,
IP2IPRouting_ReRouteIPGroupName, IP2IPRouting_Trigger,
IP2IPRouting_CallSetupRulesSetId, IP2IPRouting_DestType,
IP2IPRouting_DestIPGroupName, IP2IPRouting_DestSIPInterfaceName,
IP2IPRouting_DestAddress, IP2IPRouting_DestPort,
IP2IPRouting_DestTransportType, IP2IPRouting_AltRouteOptions,
IP2IPRouting_GroupPolicy, IP2IPRouting_CostGroup,
IP2IPRouting_DestTags, IP2IPRouting_SrcTags,
IP2IPRouting_IPGroupSetName, IP2IPRouting_RoutingTagName,
IP2IPRouting_InternalAction;
IP2IPRouting 0 = "option Ternination", "Default_SBCRoutingPolicy",
"Any", "*", "*", "*", "*", 6, "", "Any", 0, -1, 1, "", "",
"internal", 0, -1, 0, 0, "", "", "", "", "default", "";
IP2IPRouting 2 = "send subscribe to XUM",
"Default_SBCRoutingPolicy", "IP-PBX", "*", "*", "*", "*", 3, "",
"Any", 0, -1, 0, "xUM", "", "", 0, -1, 0, 0, "", "", "", "",
"default", "";
IP2IPRouting 3 = "VMLogin", "Default_SBCRoutingPolicy", "IP-PBX",
"*", "*", "7777", "*", 0, "", "Any", 0, -1, 0, "xUM", "", "", 0, -
1, 0, 0, "", "", "", "", "default", "";
IP2IPRouting 4 = "IP-PBX to CloudBond",
"Default_SBCRoutingPolicy", "IP-PBX", "*", "*", "*", "*", 0, "",
"Any", 0, -1, 0, "CloudBond", "", "", 0, -1, 0, 0, "", "", "", "",
"default", "";
IP2IPRouting 5 = "Calls from CloudBond and XUM to IP-PBX",
"Default_SBCRoutingPolicy", "Any", "*", "*", "*", "*", 0, "",
"Any", 0, -1, 0, "IP-PBX", "", "", 0, -1, 0, 0, "", "", "", "",
"default", "";

[ \IP2IPRouting ]


[ IPOutboundManipulation ]
```

```
FORMAT IPOutboundManipulation_Index =
IPOutboundManipulation_ManipulationName,
IPOutboundManipulation_RoutingPolicyName,
IPOutboundManipulation_IsAdditionalManipulation,
IPOutboundManipulation_SrcIPGroupName,
IPOutboundManipulation_DestIPGroupName,
IPOutboundManipulation_SrcUsernamePrefix,
IPOutboundManipulation_SrcHost,
IPOutboundManipulation_DestUsernamePrefix,
IPOutboundManipulation_DestHost,
IPOutboundManipulation_CallingNamePrefix,
IPOutboundManipulation_MessageConditionName,
IPOutboundManipulation_RequestType,
IPOutboundManipulation_ReRouteIPGroupName,
IPOutboundManipulation_Trigger,
IPOutboundManipulation_ManipulatedURI,
IPOutboundManipulation_RemoveFromLeft,
IPOutboundManipulation_RemoveFromRight,
IPOutboundManipulation_LeaveFromRight,
IPOutboundManipulation_Prefix2Add,
IPOutboundManipulation_Suffix2Add,
IPOutboundManipulation_PrivacyRestrictionMode,
IPOutboundManipulation_DestTags, IPOutboundManipulation_SrcTags;
IPOutboundManipulation 1 = "Check +", "Default_SBCRoutingPolicy",
0, "Any", "CloudBond", "*", "*", "+", "*", "*", "", 0, "Any", 0,
1, 0, 0, 255, "", "", 0, "", "";
IPOutboundManipulation 2 = "Full Number",
"Default_SBCRoutingPolicy", 0, "IP-PBX", "CloudBond", "*", "*",
"10", "*", "*", "", 0, "Any", 0, 1, 0, 0, 255, "+9723976", "", 0,
"", "";
IPOutboundManipulation 3 = "SPS to MP-11x",
"Default_SBCRoutingPolicy", 0, "xUM", "IP-PBX", "*", "*",
"972397610", "*", "*", "", 0, "Any", 0, 1, 7, 0, 255, "", "", 0,
"", "";
IPOutboundManipulation 4 = "Add +", "Default_SBCRoutingPolicy", 0,
"Any", "CloudBond", "*", "*", "*", "*", "*", "", 0, "Any", 0, 1,
0, 0, 255, "+", "", 0, "", "";

[ \IPOutboundManipulation ]


[ MessageManipulations ]

FORMAT MessageManipulations_Index =
MessageManipulations_ManipulationName,
MessageManipulations_ManSetID, MessageManipulations_MessageType,
MessageManipulations_Condition,
MessageManipulations_ActionSubject,
MessageManipulations_ActionType, MessageManipulations_ActionValue,
MessageManipulations_RowRole;
MessageManipulations 0 = "NOTIFY", 1, "NOTIFY", "body.mwi regex
(.*)(sip:)(.*)(.{4})(@)(.*)", "body.mwi", 2, "$1+$2+$4+$5+$6", 0;
MessageManipulations 1 = "", 3, "info.response", "",
"header.cseq.type", 2, "'SUBSCRIBE'", 0;
MessageManipulations 2 = "Subscribe to INFO", 4,
"subscribe.request", "", "header.request-uri.methodtype", 2,
"'12'", 0;
```

```
MessageManipulations 3 = "", 4, "", "", "header.cseq.type", 2,
"'INFO'", 1;

[ \MessageManipulations ]


[ GwRoutingPolicy ]

FORMAT GwRoutingPolicy_Index = GwRoutingPolicy_Name,
GwRoutingPolicy_LCREnable, GwRoutingPolicy_LCRAverageCallLength,
GwRoutingPolicy_LCRDefaultCost,
GwRoutingPolicy_LdapServerGroupName;
GwRoutingPolicy 0 = "GwRoutingPolicy", 0, 0, 1, "";

[ \GwRoutingPolicy ]


[ LoggingFilters ]

FORMAT LoggingFilters_Index = LoggingFilters_FilterType,
LoggingFilters_Value, LoggingFilters_LogDestination,
LoggingFilters_CaptureType, LoggingFilters_Mode;
LoggingFilters 0 = 1, "", 0, 1, 1;
LoggingFilters 1 = 1, "", 1, 1, 1;

[ \LoggingFilters ]


[ ResourcePriorityNetworkDomains ]

FORMAT ResourcePriorityNetworkDomains_Index =
ResourcePriorityNetworkDomains_Name,
ResourcePriorityNetworkDomains_Ip2TelInterworking;
ResourcePriorityNetworkDomains 1 = "dsn", 0;
ResourcePriorityNetworkDomains 2 = "dod", 0;
ResourcePriorityNetworkDomains 3 = "drsn", 0;
ResourcePriorityNetworkDomains 5 = "uc", 1;
ResourcePriorityNetworkDomains 7 = "cuc", 0;

[ \ResourcePriorityNetworkDomains ]


[ MaliciousSignatureDB ]

FORMAT MaliciousSignatureDB_Index = MaliciousSignatureDB_Name,
MaliciousSignatureDB_Pattern;
MaliciousSignatureDB 0 = "SIPVicious", "Header.User-Agent.content
prefix 'friendly-scanner'";
MaliciousSignatureDB 1 = "SIPScan", "Header.User-Agent.content
prefix 'sip-scan'";
MaliciousSignatureDB 2 = "Smap", "Header.User-Agent.content prefix
'smap'";
```

```
MaliciousSignatureDB 3 = "Sipsak", "Header.User-Agent.content
prefix 'sipsak'";
MaliciousSignatureDB 4 = "Sipcli", "Header.User-Agent.content
prefix 'sipcli'";
MaliciousSignatureDB 5 = "Sivus", "Header.User-Agent.content
prefix 'SIVuS'";
MaliciousSignatureDB 6 = "Gulp", "Header.User-Agent.content prefix
'Gulp'";
MaliciousSignatureDB 7 = "Sipv", "Header.User-Agent.content prefix
'sipv'";
MaliciousSignatureDB 8 = "Sundayddr Worm", "Header.User-
Agent.content prefix 'sundayddr'";
MaliciousSignatureDB 9 = "VaxIPUserAgent", "Header.User-
Agent.content prefix 'VaxIPUserAgent'";
MaliciousSignatureDB 10 = "VaxSIPUserAgent", "Header.User-
Agent.content prefix 'VaxSIPUserAgent'";
MaliciousSignatureDB 11 = "SipArmyKnife", "Header.User-
Agent.content prefix 'siparmyknife'";

[ \MaliciousSignatureDB ]


[ AudioCoders ]

FORMAT AudioCoders_Index = AudioCoders_AudioCodersGroupId,
AudioCoders_AudioCodersIndex, AudioCoders_Name, AudioCoders_pTime,
AudioCoders_rate, AudioCoders_PayloadType, AudioCoders_Sce,
AudioCoders_CoderSpecific;
AudioCoders 0 = "AudioCodersGroups_0", 0, 1, 2, 90, -1, 0, "";
AudioCoders 4 = "AudioCodersGroups_0", 1, 2, 2, 90, -1, 0, "";

[ \AudioCoders ]
```

D Limitations

The following is a list of X-UM limitations:

- Every X-UM can work with one Primary SBC and one Backup SBC.
- Up to ~5K users are supported per X-UM.
- Only use the Google Chrome browser to work with Swagger.
- X-UM has no SNMP or other monitoring capabilities. Monitoring of the service status can only be done using a third-party tool.
- If the SBC is down, new MWI messages are lost. On the next mailbox change or SIP Subscribe, the PBX is synchronized with the MWI status.

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E Known Issues

E.1 Working with Internet Explorer

When working with the Swagger management interface, it is mandatory to work with Google Chrome (instead of Internet Explorer IE) for full Swagger support.

E.2 Replication Fails

If the replication fails while performing the activation or during normal operation:

- Validate that the X-UM can resolve Skype pools, and vice versa, that the Skype Servers can resolve the X-UM pool on the DNS.
- Validate that all Server Times/Dates are synchronized
- Validate that a Firewall does not block communication between the X-UM and Skype servers and the AD.

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