



Integrate Microsoft Office Communicator Client and Microsoft Lync Client for Cisco UC

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Overview



Important

This Appendix contains information that may be relevant to partners with installations of Cisco HCS previous to release 10.1.2. It is presented here for reference purposes.

Cisco UC Integration for Microsoft Office Communicator provides interoperability with Microsoft Office Communicator Server 2007 (OCS) and the Microsoft Office Communicator (MOC) client. Cisco UC Integration for Microsoft Lync provides interoperability with Microsoft Lync 2010 and the Microsoft Lync 2010 client. Cisco UC Integration for Microsoft Office Communicator/ Cisco UC Integration for Microsoft Lync uses the Client Services Framework (CSF) and incorporates it into a tab integration of MOC. This tab integration allows for the use of audio functionality of existing Unified Communications Manager endpoints, both acting as work phone.



Note

Lync 2013 is not in the scope of this document.

As a general rule, you should use the latest version of the Cisco IC Integration applications. As of this writing, the latest versions are:

- CUCI-Lync Release 10.6
- CUCI-MOC Release 8.0.3

Check the relevant product pages on Cisco.com for the latest release information.

The Cisco Unified Communications (UC) Integration for Microsoft Office Communicator client provides the voice features and the MOC client provides the IM and Presence (provided directly to OCS).

Similarly, the Cisco UC Integration for Microsoft Lync client provides the voice features and the Lync client provides the IM and Presence (provided directly to Lync 2010).

With the introduction of Microsoft Lync, the Cisco offering has been updated to include support for both OCS and Lync solutions. Lync, like OCS, consists of a client and a server with a Cisco UC Integration for Microsoft Lync CSF-based integration into the Lync client just as the Cisco UC Integration for Microsoft Office Communicator solution integrates into the MOC client.

Following is a list of supported work phone features:

- Right-click call or conference from a contact list or IM session. See [Limitations and considerations, on page 2](#) for more information.
- Call from MOC/Lync search. See [Limitations and considerations, on page 2](#) for more information.
- Direct dial through keypad: Numbers to dial should be the same as if initiating a call from an HCS IP Phone.
- Do Not Disturb (DND): Set through MOC/Lync or IP Phone.
- Session Initiation Protocol (SIP) call control.
- Work phone features: DTMF, call waiting, mute, transfer (blind, consultative), conference, redial, hold, volume, hang up, park, shared line retrieval, headset/speakers switch.
- Start IM from conversation window.
- Conversation information: Call status, participants, participant availability (OCS), duration.
- Call forwarding.
- Single number reach.
- Placed, missed, and received calls in client call history.
- Call survival in case of MOC/OCS/Lync failure.

Limitations and considerations

- Active Directory provides phone numbers for Cisco UC Integration for Microsoft Lync and MOC.
- LDAP must be synchronized with Unified Communications Manager and OCS/Lync server.
- User IDs, devices, and directory numbers match in the Active Directory server, Microsoft Lync Server or OCS and Cisco Unified Communications Manager server.
- It is recommended that phone numbers are defined in +E.164 format for each user in the Active Directory.
- The user phone number within HCS (Unified Communications Manager) is configured in a private number plan. This requires Application Dialing Rules and Directory Lookup Dialing Rules to be configured in the Unified Communications Manager.
- [Application Dial Rules and Directory Lookup Dial Rules, on page 10](#)

Microsoft Office Communicator

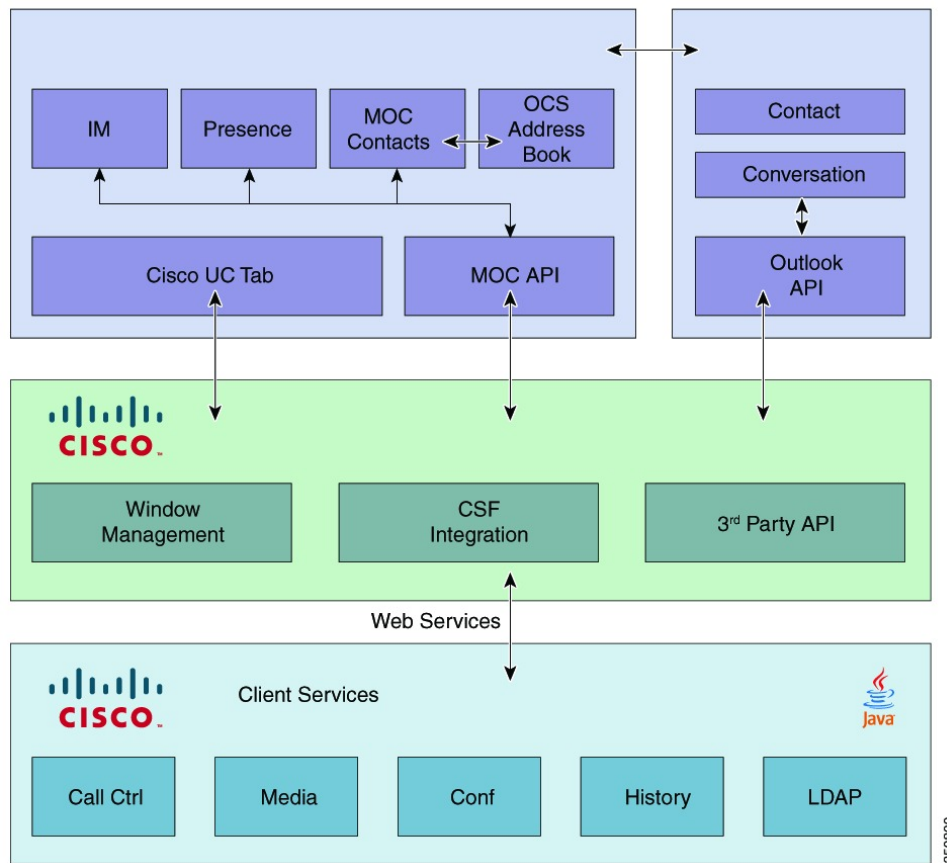
Cisco UC Integration for Microsoft Office Communicator client design and architecture

Following components are part of the Cisco UC Integration for Microsoft Office Communicator architecture:

- Microsoft Office Communicator (MOC)
 - Client for Office Communications Server
 - Downloads contact details from the Address Book Server (a component of OCS)
 - Address Book is made up of Active Directory users
- Office Communications Server (OCS)
 - Microsoft server providing Instant Messaging and Presence information
- Cisco UC Integration for Microsoft Office Communicator
 - Integrates with MOC through the Office Communicator Automation API for Contact, IM and Presence information
 - Integrates with Client Services Framework (CSF) to communicate with Cisco infrastructure and LDAP
- Client Services Framework (CSF)
 - Provides back-end integration to Unified Communications Manager and Active Directory
 - Implements work phone, desk phone control, LDAP integration, Media Termination, and so on

The following figure provides an overview of the Cisco UC Integration for Microsoft Office Communicator desktop architecture.

Figure 1: Cisco UC Integration for Microsoft Office Communicator desktop architecture



The Cisco UC Tab UI is embedded in MOC/Lync UI allowing interaction with Cisco UC Integration for MOC/Lync.

Cisco UC Integration provides windows management, client security, third-party integration and CSF integration. CSF provides call control, user authentication, Message Waiting Indicator (MWI), media, and so on. Cisco UC Integration for Microsoft Office Communicator/ Cisco UC Integration for Microsoft Lync Tab, Cisco UC Integration for Microsoft Office Communicator/ Cisco UC Integration for Microsoft Lync and CSF do not require special permissions and run using Standard User permissions.



Note

Cisco UC Integration for Microsoft Office Communicator/ Lync Installer installs all necessary client-side components.

Table 1: CSF Port usage for inbound traffic

Port	Transport Protocol	Application Layer Protocol
16384-32766	UDP	RTP

Table 2: CSF Port usage for outbound traffic

Port	Transport Protocol	Application Layer Protocol
69	UDP	TFTP ¹
389	TCP	LDAP (Version 3) ²
2748	TCP	CTI-QBE
5060	UDP/TCP	SIP
5061	UDP/TCP	Secure SIP
8443	TCP	Connects to the Cisco Unified Communications Manager IP Phone (CCMCIP) server to get a list of currently assigned devices.
8191	TCP	SOAP Web Service local port
16384-32766	UDP	RTP

¹ - Used to download the cnf.xml file at registration or resets.

² - LDAP connection is to the Microsoft OCS server.

Table 3: Codecs supported

G711A, U law
G722 wide-band
G729a
G729ab
iLBC (free narrow-band speech codec)

Desktop hardware minimum requirements**Table 4: Desktop PC**

Property	Minimum Requirements: Audio Only
Installed RAM	1024 MB
Free disk space	120 MB
CPU speed/type	2.4 GHz Intel Pentium IV
I/O ports	USB 2.0 port
Operating System	Windows XP (SP2, SP3), Windows Vista, Windows 7

Table 5: Laptop PC

Property	Minimum Requirements: Audio Only
Installed RAM	1024 MB
Free disk space	120 MB
CPU speed/type	1.5 GHz Intel Pentium M Centrino
I/O ports	USB 2.0 port
Operating System	Windows XP (SP2, SP3), Windows Vista, Windows 7

Table 6: Software minimum requirements

Operating System	32-Bit	64-Bit
Windows XP SP2	Supported	Not Supported
Windows XP SP3	Supported	Not Supported
Windows Vista Business SP1	Supported	Supported
Windows Vista Enterprise SP1	Supported	Supported
Windows Vista Ultimate SP1	Supported	Supported
Windows 7.0 (Pro, Enterprise, or Ultimate)	Supported	Supported

Table 7: Supported Microsoft version

Component	Version
OCS Server Version	Microsoft Office Communications Server 2007 R1 Microsoft Office Communications Server 2007 R2
MOC Client Version	Microsoft Office Communicator R1 build number 2.0.6362.36 or later

Additional design and architectural specifications

Ports used by Cisco UC Integration for Microsoft Lync

Port	Transport Protocol	Application Layer Protocol	Key Value Name
44442	HTTP	The Cisco UC Integration for Microsoft Lync process, cucimoc.exe, listens for events from Cisco Unified Client Services Framework on this port.	CUCIMOCCSFPort

Minimum hardware and software requirements for Cisco UC Integration for Microsoft Lync

Table 8: Desktop PC or Laptop PC

Property	Minimum Requirements: Audio Only
Memory	1 GB
Free disk space	350 MB
Minimum Windows Experience Index (WEI) processor score	2.0
I/O ports	USB 2.0 port

Table 9: Software minimum requirements

Operating System	32-Bit	64-Bit
Windows XP SP2	Supported	Not Supported
Windows XP SP3 with DirectX 9.0c	Supported	Not Supported
Windows Vista Business SP2 with DirectX 10	Supported	Supported
Windows Vista Enterprise SP2 with DirectX 10	Supported	Supported
Windows Vista Ultimate SP2 with DirectX 10	Supported	Supported
Windows 7.0 (Pro, Enterprise, or Ultimate)	Supported	Supported

Table 10: Supported Microsoft version

Component	Version
OCS/Lync Version	Microsoft Lync 2010 Microsoft Office Communicator 2007 R2

Table 11: Enterprise Voice feature comparison

Feature	MOC	Lync
Off Net (PSTN) Calling	Y	Y
On Net Calling	Y	Y
IP desk phone control	Y	Y
Call hold	Y	Y
Call transfer	Y	Y
Call forward	Y	Y
Private line (Second DDI)	N	Y

Prerequisites and overview of Cisco UC Integration for Microsoft Office Communicator and Lync integration

The following steps describe how to deploy Cisco UC Integration for Microsoft Office Communicator/Lync

Before You Begin

Before the Cisco UC Integration for Microsoft Office Communicator and Lync integration, complete the following prerequisites:

- Install Active Directory (AD).
- Create users inside AD.
- Activate Certificate Authority (CA) services on the same server.
- Install Microsoft OCS/Lync server.
- Install MOC/Lync clients on PC.
- Verify IM and Presence with native MOC/Lync client and voice with Cisco UC Integration for Microsoft Office Communicator/Lync.

The following link provides information about how to configure for Cisco UC Integration for Microsoft Office Communicator:

http://www.cisco.com/en/US/partner/docs/voice_ip_comm/cucimoc/7_1/english/integrat/guide/config_servers.html#wpxref91199

The following link provides information about how to configure servers for Cisco UC Integration for Microsoft Lync:

http://www.cisco.com/en/US/docs/voice_ip_comm/cucimoc/8_5/english/release/cucimocReleaseNote.html

Procedure

- Step 1** Configure Active Directory server and OCS/Lync server
- Step 2** Dial rules that are required for Cisco UC Integration for Microsoft Office Communicator/Lync. For more information, see [Application Dial Rules and Directory Lookup Dial Rules](#), on page 10.
 - a) Application dial rules
 - b) Directory lookup dial rules
- Step 3** Configure Cisco Unified CM server.
 - a) Cisco Unified CM client services framework device type.
 - b) Configure CUCM for LDAP integration with OCS/Lync server.
 - c) Enable LDAP authentication.
- Step 4** Create device and Directory Numbers for users. For more information, see [Install Cisco UC Integration for Microsoft Office Communicator or Lync client](#), on page 11.
- Step 5** Add a user to the Standard CTI enabled user group (optional). For more information, see [Enable CTI control of deskphone](#), on page 12.
- Step 6** Make Cisco Unified CM dial rules accessible.

For more information, see [Application Dial Rules and Directory Lookup Dial Rules](#), on page 10.

- a) Verify that dial rules are configured on Cisco Unified CM.
 - b) Generate copies of the dial rules.
 - c) Verify that copies of the dial rules were generated.
 - d) Restart the TFTP service.
 - e) Ensure Cisco UC integration for Microsoft Office Communicator clients are restarted.
-

Application Dial Rules and Directory Lookup Dial Rules

Deployment of OCS or Lync for integration with HCS requires the user phone number that is stored in Active Directory to be in +E.164 format. The user phone number within HCS (Unified Communications Manager) is configured in a private number plan. This requires Application dial rules and Directory lookup dial rules to be configured in the Unified Communications Manager.

Application dial rules map numbers in the OCS address book to a number format that can be correctly dialed within the context of the Cisco Unified Communications Manager configuration; that is, application dial rules map +E.164 numbers to the private numbering plan.

Conceptual and task-based information on Application dial rules are available in the *Cisco Unified Communications Manager Administration Guide, Release 10.0(1)* at:

http://www.cisco.com/c/en/us/td/docs/voice_ip_comm/cucm/admin/10_0_1/ccmcf/CUCM_BK_C95ABA82_00_admin-guide-100.html.

Directory lookup dial rules transform caller identification numbers into numbers that can be looked up in the directory; that is, to transform the private number into the +E.164 format number as stored in Active Directory, to identify the caller as a contact.

Conceptual and task-based information about Directory lookup dial rules is available in the *Cisco Unified Communications Manager Administration Guide, Release 9.1(1)* at

http://www.cisco.com/en/US/docs/voice_ip_comm/cucm/admin/9_1_1/ccmcf/CUCM_BK_A34970C5_00_admin-guide-91_chapter_011101.html.

For more details about the dial rules that are required for Cisco UC integration, see the Configuring Servers for Cisco UC Integration for Microsoft Lync available at

http://www.cisco.com/en/US/docs/voice_ip_comm/cucimoc/8_5/english/installguide/config_servers.html-wp1073533.

Microsoft Lync

Add a Client Services Framework

The following procedure applies for both CUCI-MOC and CUCI-Lync.

Procedure

- Step 1** Log in as the Location administrator.
 - Step 2** Go to **Subscriber Management** > **Subscriber** and click **Add**.
 - Step 3** Add the end user and click **Save**.
 - Step 4** Select the added User ID and click + on the Phone tab.
 - Step 5** Select the product type as Cisco Unified Client Services Framework.
 - Step 6** Enter the device name as the User ID.
 - Step 7** Select the Directory Number and click **Save**.
-

Add and register Cisco UC Integration for Microsoft Office Communicator client

Procedure

- Step 1** Login as **Location Admin**.
 - Step 2** Click **Subscriber** under **Subscriber Management**.
 - Step 3** Click **Add**.
 - Step 4** Add the **End User**, and then click **Save**.
 - Step 5** Click on the add user ID and on the **Phone** tab, click +.
 - Step 6** Select the **Product Type** as *Cisco Unified Client Services Framework*.
 - Step 7** Select the **Device Name** as the *User ID*.
 - Step 8** Select the **Directory Number**, and then click **Save**.
-

Install Cisco UC Integration for Microsoft Office Communicator or Lync client

You must download the following files from <http://www.cisco.com> for installing the Cisco UC Integration for Microsoft Office Communicator/Lync client:

- Cisco UC Integration for Microsoft Office Communicator Administration Toolkit
- Cisco UC Integration for Microsoft Office Communicator Installers

Configure Microsoft Office Communicator Administration Toolkit

Before you install the client on the user's computer, you require the CSF client configuration file. You must update the configuration file to point to the TFTP servers. You can configure other optional elements if

required. The following link provides specific information to install the Cisco UC Integration for Microsoft Lync:

http://www.cisco.com/en/US/docs/voice_ip_comm/cucimoc/8_5/english/installguide/deploying_installation.html

**Note**

You require the **CUCIMOC-SampleCUCSFAdminData.bat** batch file to configure the CSF client for Lync.

Configure Microsoft Office Communicator Installers

You can deploy the Cisco UC Integration for Microsoft Office Communicator application by using one of the following mechanisms:

- AD Group Policy
- SMS/Altris push
- Self-extracting executable and batch file or CUCIMOC ADM Template file
- Standalone Installation

Installation example using executable file

The following steps describe the Cisco UC Integration for Microsoft Office Communicator/Lync installation process.

Procedure

- Step 1** Double-click the installation executable file.
- Step 2** In the Cisco UC Integration TM for Microsoft Office Communicator - InstallShield Wizard window, click **Next**.
- Step 3** Select **I accept the terms in the license agreement**, and click **Next**.
- Step 4** Type a user name and organization and click **Next**.
- Step 5** Select **Complete**, and click **Next**.
- Step 6** Click **Install**.
- Step 7** In the Windows Security window, click **Install**.
- Step 8** Click **Finish**.
- Step 9** Click **Yes** to restart the computer and complete the installation.

Enable CTI control of deskphone

You can enable this feature for new and existing users. When you enable the setting for a new user, the user is automatically added to the following three standard Computer Telephony Integration (CTI)-related permission groups:

- 1 **Standard CTI Enabled**
- 2 **Standard CTI Allow Control of Phones supporting Connected Xfer and conf**
- 3 **Standard CTI Allow Control of Phones supporting Rollover Mode**

Existing users have a default setting of True for this feature but are not added to the three standard CTI-related permission groups.

Assign new user to Standard CTI User Group

Before You Begin

Make sure that the user is associated with the relevant desk phone before you perform the following steps.

Procedure

- Step 1** Select **Location Administration > Users**.
- Step 2** Click **Add**. See the figure below.

The screenshot shows the Cisco Hosted Collaboration Solution User Management interface. The 'Add' button is highlighted with a red box. The interface displays a table of users with the following data:

Username	Name	Associated Device(s) Extn	Voicemail	Conferencing	Presence	Extension Mobility	Single Number Reach	Mobility Identity
ajbj	nag	SEPA0000015032-5032	Add	Add	Add	Add	N/A	N/A
audi	uri	SEPA0000015001-5001 SEP8478ACEDAF07-0000	Add	Add	Add	Add	N/A	N/A
kbyalal	byalal	SEP001D45E95EA7-0001	Add	Add	Add	Add	N/A	N/A
pcoiamba	coiamba	SEPA0000015033-5033	Add	Add	Add	Add	N/A	N/A

- Step 3** Fill in the relevant fields in this window and click **Next**.
- Step 4** Check or uncheck the check box for **Standard CTI User Group** to assign or unassign the user to the Standard CTI User Group.
- Step 5** Fill in the relevant fields in this window and click **Add**. See the figure below.

The screenshot displays the Cisco Hosted Collaboration Solution User Management interface. At the top, the Cisco logo and 'Hosted Collaboration Solution' are visible. A navigation menu on the left lists various administrative tools. The main content area is titled 'User Management' and shows a table with user details. Below the table, there are sections for 'Options' and 'Details'. The 'Options' section contains buttons for 'Change Password', 'Change PIN', 'Extension Mobility Profile', 'Presence', and 'Voicemail'. The 'Details' section contains a form with fields for 'Username', 'Role', 'Security profile', 'Title', 'First name', 'Middle name', 'Last name', 'Home telephone number', 'Mobile telephone number', 'Contact telephone number', 'Alternative telephone number', 'Email address', and 'Job title'. The 'Associate Device' button is highlighted in blue.

Provider	Reseller	Customer	Division	Location	User	Role
HCS_Provider	RT	HCS-Ext3	Division_1	E3C1L1	bvsm Voss	Internal System SuperUser

Options:

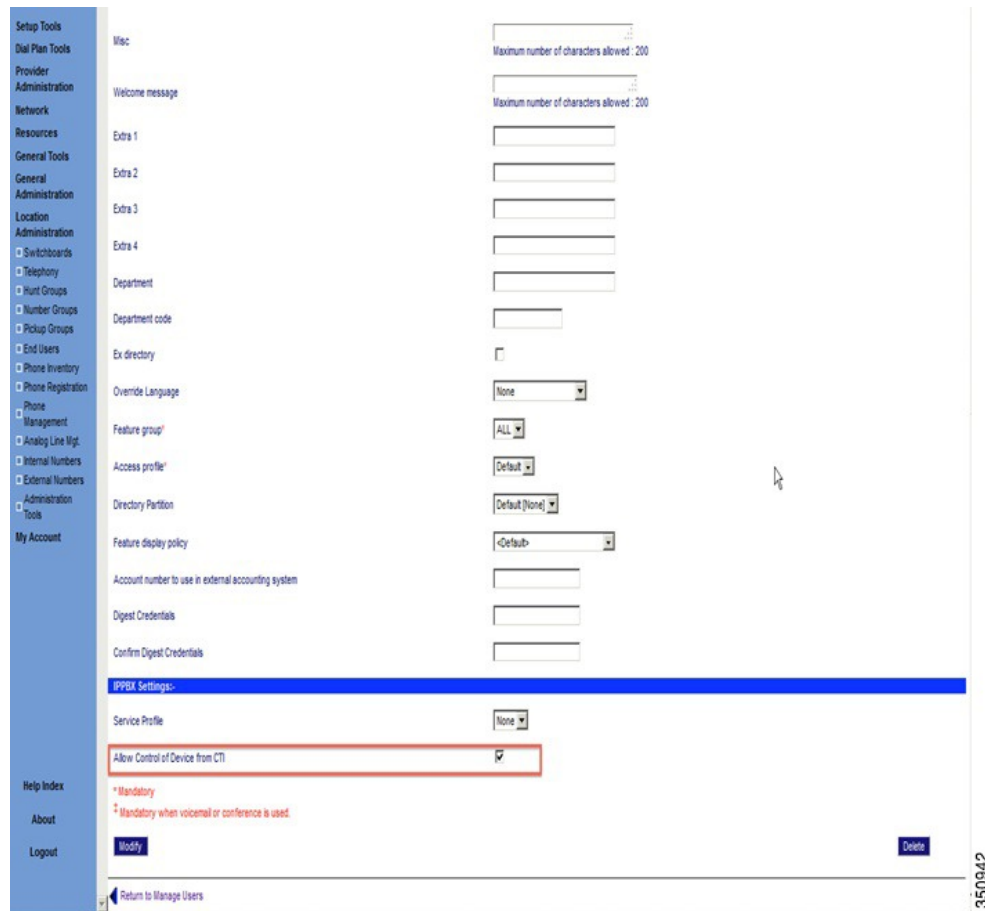
- Change Password
- Change PIN
- Extension Mobility Profile
- Presence
- Voicemail

Details:

Username: ajb
 Role: End User for E3C1L1
 Security profile: None
 Title:
 First name:
 Middle name:
 Last name: jbg
 Home telephone number:
 Mobile telephone number:
 Contact telephone number: 803215032
 Alternative telephone number:
 Email address: ajb@cisco.com
 Job title:

350941

Click the icon (highlighted below) to take control of your desk phone.



SIP device authentication for Cisco UC Integration for Microsoft Office Communicator

The following table provides a feature comparison between Cisco Unified Communications Manager and Cisco Hosted Collaboration Solution.

	Cisco Unified Communications Manager	Cisco Hosted Collaboration Solution
Device Authentication/Encryption	Yes	
Signaling Authentication (phone)	Yes	No
Signaling Encryption (phone)	Yes	No
Signaling Encryption (gateway)	Yes	No
Media Encryption SRTP (phone)	Yes	No

	Cisco Unified Communications Manager	Cisco Hosted Collaboration Solution
Media Encryption SRTP (gateway)	Yes	No
Visual Indication of Device Authentication/Encryption	Yes	No
SIP based Authentication	Yes	Yes (Manual configuration required)

As per the Cisco Hosted Collaboration Solution service description document, you must provision any SIP-based authentication manually on the Cisco Unified Communications Manager. The Cisco Unified Communications Domain Manager server does not provision this feature.

There are two configuration stages in the provisioning phase.

- 1 [Stage 1: Add new phone security profile, on page 16](#)
- 2 [Stage 2: Assign profile to client, on page 17](#)

Stage 1: Add new phone security profile

Procedure

-
- Step 1** Navigate to **System > Security Profiles > Phone Security Profile**.
- Step 2** Click **Find**.
- Step 3** Click **Cisco Unified Client Services Framework - Standard SIP Secure**.
- Step 4** Click **Copy**.
- Step 5** Configure the following Security Profile details:
- **Name:** SecurityProfileName, for example, **Cisco Unified Client Services Framework - Standard SIP Secure**.
 - **Description:** SecurityProfileDescription, for example, **Cisco Unified Client Services Framework - Standard SIP Secure**.
- Step 6** Configure the following Security Preferences:
- **Device Security Mode:** Set this option to **Authenticated**.
 - **Transport Type:** This option is automatically set to **TLS**.
 - **TFTP Encrypted Config Box:** Leave this check box unchecked.
 - **Authentication Mode:** Depending on the requirements, set this to one of the following:
 - **By Authentication String**
 - **By Null String**

- By Existing Certificate (Precedence to LSC)
- By Existing Certificate (Precedence to MIC)
- Key Size (bits): 1024
- SIP Phone Port: 5060

Step 7 Click Save.

Stage 2: Assign profile to client

Procedure

Step 1 Navigate to **Device > Phone**.

Step 2 Click **Find**

Step 3 Click the Cisco UC Integration for Microsoft Office Communicator client that you want to configure.

Step 4 Click the Device Security Profile parameter.

Step 5 Select the **Cisco Unified Client Services Framework - Standard SIP Secure** parameter that you configured in [Stage 1: Add new phone security profile, on page 16](#).

Step 6 Click **Save**.

Step 7 Click **Apply Config**.

Note In HCS, the enterprise parameter **Cluster security mode** is 0.

This parameter indicates the security mode of the cluster. A value of 0 indicates Nonsecure (phones register in nonsecure mode [no security]); a value of 1 indicates Mixed (the cluster allows the registration of both secure and nonsecure devices).

The default value is 0.
