



SIP Client App

This chapter provides information about the SIP Client app for Cisco IP cameras. This app lets an IP camera send audio to and receive audio from an external SIP client device, the Cisco Interoperability and Collaboration System (Cisco IPICS), or Cisco Unified Communications Manager (CUCM).

This chapter includes these topics:

- [About the SIP Client App, page 9-1](#)
- [Configuring the SIP Client App on an IP Camera, page 9-2](#)
- [Configuring Cisco IPICS for use with the SIP Client App, page 9-4](#)
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About the SIP Client App

The SIP Client app enables an IP camera to transmit and receive audio to and from an external SIP client device, Cisco IPICS, or Cisco Unified Communications Manage. The IP camera plays audio that it receives on external speakers that are connected to it. The IP camera transmits audio through its internal or external microphone.

The SIP Client app provides these operating modes:

- **Standalone mode**—In this mode, the IP camera waits for contact from a device on which a SIP client is operating and establishes a connection with that device when it receives contact. After the connection is established, the IP camera and this SIP client device can engage in full-duplex audio communication.

This mode supports one connection from a SIP device to the IP camera at a time. When a SIP client device disconnects from the IP camera, the camera is ready to establish another connection.

- **UMS mode**—In this mode, the IP camera connects to a designated channel in an active Cisco IPICS VTG. When you connect to that channel through a Cisco IPICS 4.7(1) or later remote client, the IP camera can engage in half-duplex audio communication over the channel. In this way, communication with the IP camera can be included in a VTG.

This mode supports simultaneous connections from multiple Cisco IPICS remote clients.

- **CUCM mode**—In this mode, the IP camera connects to an active Cisco Unified Communications Manager and can engage in full-duplex audio communication.

Configuring the SIP Client App on an IP Camera

Before you can use the SIP Client app, you must configure it on each IP camera on which it will run. To configure this app, perform the following steps.

Before You Begin

Install the SIP Client app on the IP camera on which it will run. See the [“Related Documentation” section on page 1-1](#) for more information.

Procedure

- Step 1** From the IP camera web-based user interface, click the **Setup** link, click **Application Manager** to expand the menu, then click **App Setup**.
- Step 2** Click the **SIPClient** radio button, then click **Configure**.
The Cisco SIP Client App configuration page appears.
- Step 3** Enter appropriate values in the Cisco SIP Client App configuration page fields as described in the following table:

Field	Settings for Standalone Mode	Settings for UMS Mode (IPICS)	Settings for CUCM Mode (Cisco Unified Communications Manager)	Default Setting
Debug Level	<p>Lets you enable logging, which causes the system to write app-related information to a log file. The log file is named SIPClient_verbose.log and is stored in the /var/log folder on the IP camera.</p> <p>When this file reaches 256 KB in size, it is archived to a file named SIPClient_verbose.log.1.gz in the /var/log folder and a new SIPClient_verbose.log file is created. When this new log file reaches 256 KB in size, it is archived to a file named SIPClient_verbose.log.2.gz and a new SIPClient_verbose.log file is created again. After that, each time the new SIPClient_verbose.log file reaches 256 KB in size, an archive file is created that overwrites the oldest existing archive file. In addition, the SIPlient_verbose.log is overwritten if the IP camera reboots and you restart the app.</p> <p>Options are:</p> <ul style="list-style-type: none"> • None—Disables generation of logging so that no information is written to the log file • Debug—Generates detailed logging information that can assist with debugging • Message—Generates announcements about normal operations of the app, including announcements about SIP exchange, multimedia, and event operations • Warning—Generates information about conditions that are not necessarily errors but that may indicate that the system is not running optimally. • Error—Generates information about conditions that indicate that the app is not operating correctly • Fatal—Generates information about conditions that indicate that the app cannot recover from a failure • Trace—Generates trace-level information messages 			None
App Mode	Standalone	UMS	CUCM	—

Field	Settings for Standalone Mode	Settings for UMS Mode (IPICS)	Settings for CUCM Mode (Cisco Unified Communications Manager)	Default Setting
Connection Check Time	<p>Enter a time interval in seconds at which the IP camera periodically contacts the SIP client to ensure that a live connection is in place.</p> <p>If the IP camera detects that the connection to the SIP client is lost, the camera tries three times to reestablish a connection. If the connection cannot be reestablished, the SIP Client app stops automatically.</p> <p>Valid values are 10 through 600 (10 seconds through 10 minutes).</p>	<p>Enter a time interval in seconds at which the IP camera periodically contacts the UMS to ensure that a live connection is in place.</p> <p>If the IP camera detects that the connection to the UMS is lost, the camera tries three times to reestablish a connection. If the connection cannot be reestablished, the SIP Client app stops automatically.</p> <p>Valid values are 10 through 600 (10 seconds through 10 minutes).</p>	<p>Enter a time interval in seconds at which the IP camera periodically contacts Cisco Unified Communications Manager to ensure that a live connection is in place.</p> <p>If the IP camera detects that the connection to Cisco Unified Communications Manager is lost, the camera tries three times to reestablish a connection. If the connection cannot be reestablished, the SIP Client app stops automatically.</p> <p>Valid values are 10 through 600 (10 seconds through 10 minutes).</p>	10
SIP Server	—	Enter the IP address of the UMS on which the channel to connect to is configured.	Enter the IP address of the Cisco Unified Communications Manager server.	0
Audio Gain	<p>Enter the volume in decibels (dB) at which the IP camera plays on its external speakers audio that it receives from a remote SIP device, Cisco Unified Communications Manager, or Cisco IPICS.</p> <p>Valid values are 0 through 20.</p>			15
Channel #	—	<p>Enter the number of the active channel to which to connect, preceded by 1.</p> <p>For example, if the channel number is 469, enter 1469.</p> <p>To determine the channel number, go to http://ip_address:8080/ums-sipua/live, where <i>ip_address</i> is the IP address of the UMS on which the channel is configured. Channels are listed by Channel ID in the VTG Listing area.</p>	—	1

Field	Settings for Standalone Mode	Settings for UMS Mode (IPICS)	Settings for CUCM Mode (Cisco Unified Communications Manager)	Default Setting
Username	—	—	Enter the camera username that the camera uses to register with Cisco Unified Communications Manager. This value is the User ID that you configure in Cisco Unified Communications Manager as described in the “Adding and Associating an End User” section on page 9-6.	—
Password	—	—	Enter the camera password that the camera uses to register with Cisco Unified Communications Manager. This value is the password that you configure in Cisco Unified Communications Manager as described in the “Adding and Associating an End User” section on page 9-6.	—

Step 4 Click the **Save** button in the Cisco SIP Client App configuration page, and then click **OK** in the confirmation dialog box.

If you want to reset the options in the Cisco SIP Client App configuration page to their default values, click the **Reset** button, click **OK** in the two dialog boxes that appear, click the **Save** button, and then click **OK** in the confirmation dialog box.

If you change configuration values while the SIP Client app is running, you must stop and then restart the app before the changes take effect.

Configuring Cisco IPICS for use with the SIP Client App

This section provides general steps for configuring Cisco IPICS for use with the SIP Client app. Ensure that Cisco IPICS is properly configured if you use the SIP Client app in UMS mode.

Cisco IPICS is configured through the Cisco IPICS Administration Console. For detailed information about configuring Cisco IPICS, see *Cisco IPICS Server Administration Guide*.

1. Make sure that a location is configured for the UMS that you are using.
2. Make sure that the UMS that you are using is properly configured to operate with Cisco IPICS.
3. Add a tone controlled radio, which represents an IP camera, and configure this radio.
4. Associate users to the radio that you added.
5. Enable the radio that you added.

6. Add a channel for the radio that you added.
7. Add associations for Cisco IPICS users whom you want to allow to communicate on the channel that you added.
8. Enable the channel that you added.
9. Create a virtual talk group (VTG), and add the radio, channel, and users that you added.
10. Save and activate the VTG.

Configuring Cisco Unified Communications Manager for use with the SIP Client App

You configure Cisco Unified Communications Manager for use with the SIP Client app by using the Cisco Unified Communications Manager Administration Console. For more detailed configuration information, see your Cisco Unified Communications Manager documentation.

This configuration involves the procedures that the following sections describe:

- [Adding a Camera to Cisco Unified Communications Manager, page 9-5](#)
- [Adding and Associating an End User, page 9-6](#)

Adding a Camera to Cisco Unified Communications Manager

Adding a camera to Cisco Unified Communications Manager enables that application to support the camera. When you add a camera, you add the device as a phone. You must add each camera that will run the SIP Client app.

To add a camera to Cisco Unified Communications Manager, follow these steps from the Cisco Unified Communications Manager Administration Console:

Procedure

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- Step 1** Log in to the Cisco Unified Communications Manager Administration Console.
 - Step 2** Choose **Device > Phone**.
The Add a New Phone page appears
 - Step 3** Click **Add New** near the top left side of the page.
The Add a New Phone page appears.
 - Step 4** From the Phone Type drop-down list, choose **Third-party SIP device (Advanced)**.
 - Step 5** Click **Next**.
The Phone Configuration page appears.
 - Step 6** In the Device Information area, take these actions:
 - a. In the MAC Address field, enter the MAC address of the IP camera.
 - b. From the Device Pool drop-down list, choose **Default**.
 - c. From the **Phone Button Template** drop-down list, choose **Third-party SIP Device (Advanced)**.

- Step 7** In the Protocol Specific Information area, take these actions:
- From the Device Security Profile drop-down list, choose **Third-party SIP Device Advanced**.
 - From the **SIP Profile** drop-down list, choose **Standard SIP Profile**.
 - Check the **Media Transmission Point Required** check box.
- Step 8** Click **Save** near the bottom of the Phone Configuration page to save and load the new phone configuration, and then click **OK** in the dialog box that appears.
- Step 9** Click **Line[1]-Add a new DN** in the Association Information area on left side of the window.
The Directory Number Configuration page appears.
- Step 10** In the Directory Number field near the top of the page, enter a valid four-digit directory number that is within your dial plan.
- Step 11** (Optional) In the Description field, enter a description of the camera.
For example, Hallway Camera.
- Step 12** (Optional) In the Alerting Name field, enter the name of the camera that appears on telephones when the camera is called.
- Step 13** Click **Save** near the bottom of the Directory Number Configuration page to associate the directory number with the device that you added.
- Step 14** Click **Apply Config** near the top of the screen.
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Adding and Associating an End User

Adding end user to Cisco Unified Communications Manager and associating an end user with a camera allows cameras that run the SIP Client app to register with Cisco Unified Communications Manager. Cisco recommends that you create one end user and associate that end user with each camera.

To add an end user in Cisco Unified Communications Manager, follow these steps from the Cisco Unified Communications Manager Administration Console:

Procedure

- Step 1** Choose **User Management > End User**.
The Find and List Users page appears
- Step 2** Click **Add New** near the top left side of the page.
The End User Configuration page appears.
- Step 3** In the User ID field, enter an identifier for the user.
For example, enter **camera**.
- Step 4** In the Password field, enter a password that the IP camera uses to register with Cisco Unified Communications Manager.
- Step 5** In the Confirm Password field, reenter the password that you entered in the Password field.
- Step 6** In the Last name field, enter a name to identify the user.
For example, enter **IP camera**.
- Step 7** Click **Save** near the bottom of the End User Configuration page.

- Step 8** Associate the device added with the end user by selecting a device from the Device association tab in the Device Information block.
- Step 9** In the Device Information area in the End User Configuration page, click **Device Association**.
- Step 10** Locate one or more devices that you added as described in the [“Adding a Camera to Cisco Unified Communications Manager”](#) section on page 9-5, click the check box that corresponds to that device, and then click **Save Selected Changes** at the bottom of the page.
- You can repeat this step as needed.
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Running the SIP Client App

When you run the SIP Client app, the IP camera does the following:

- If the SIP Client app is configured for Standalone mode, begins to wait for contact from a SIP client device
- If the SIP Client app is configured for UMS mode, an incoming call to the camera is established through the UMS
- If the SIP Client app is configured for CUCM mode, an incoming call to the camera is established through Cisco Unified Communication Manager

To run the SIP Client on an IP camera, follow these steps:

Procedure

- Step 1** Take these actions to enable audio on the IP camera, if it is not enabled already:
- a. From the IP camera web-based user interface, click the **Setup** link, click **Application Manager** to expand the menu, then click **Configuration**.
 - b. Check the **Enable Audio** check box in the Audio area.
 - c. Click **Save**.
- Step 2** From the IP camera web-based user interface, click the **Setup** link, click **Application Manager** to expand the menu, then click **App Setup**.
- Step 3** Click the **SIPClient** radio button.
- Step 4** (Optional) If you want the SIP Client app to run automatically each time the IP camera reboots, in the Installed Application List area, check the **Start on Boot** check box that corresponds to this app.
- If you do not check this check box, you must run the app manually each time the IP camera reboots.
- Step 5** Click the **Run** button.
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Stopping the SIP Client App

When you stop the SIP Client app, the IP camera does the following:

- Gracefully terminates any existing connection to a SIP client device or to Cisco IPICS

- If the SIP Client app is configured for standalone mode, stops waiting for contact from a SIP client device

To stop the SIP Client app on an IP camera, follow these steps:

Procedure

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- Step 1** From the IP camera web-based user interface, click the **Setup** link, click **Application Manager** to expand the menu, then click **App Setup**.
- Step 2** Click the **SIPClient** radio button.
- Step 3** Click the **Stop** button.
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