Cisco IP Camera Apps Reference Guide

February 17, 2018

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Preface

This document provides detailed information about the IP camera apps that are available from Cisco, including how to install, configure, and operate the apps. These apps extend the functionality of Cisco IP cameras.

Audience

This document is intended for administrators and others who are responsible for managing and configuring Cisco IP cameras.

Organization

This document is organized as follows:

Chapter 1, "Overview"	Provides an overview of the IP camera apps, lists app support by camera model, lists part numbers for app licenses, and explains how to obtain an app.
Chapter 2, "Audio Analytics Apps"	Describes the Audio apps, which enable an IP camera to trigger events when it detects certain sound patterns
Chapter 3, "Audio Detection App"	Describes the Audio Detection app, which triggers an event when it detects noise that exceeds a certain volume threshold
Chapter 4, "Cisco Video Analytics Apps"	Describes the Cisco Video Analytics apps, which enable an IP camera to perform various analytic and counting functions
Chapter 5, "Digi ZigBee Sensor App"	Describes the Digi ZigBee Sensor app, which enables an IP camera to post to a Xively website information that the camera collects from a Digi XBee sensor, and information about input 1 state changes, motion detection, and day/night mode change
Chapter 6, "intuVision Video Analytics Apps"	Describes the intuVision Video Analytics apps, which enable an IP camera to trigger events when it detects activities or behaviors that match predefined rules
Chapter 7, "Local Video Player App"	Describes the Local Video Player app, which lets you view video recordings from the IP camera web-based user interface

Chapter 8, "Lua App"	Describes the Lua app, which lets an IP camera run a script that is created in the Lua programming language
Chapter 9, "SIP Client App"	Describes the SIP Client app, which lets an IP camera send and receive audio to and from an external SIP client device, the Cisco Interoperability and Collaboration System, or Cisco Unified Communications Manager
Chapter 10, "SIP Video App"	Describes the SIP Video app, which lets an IP camera send and receive audio to and from, and send video to, an external SIP client device or Cisco Unified Communications Manager
Chapter 11, "Video Summarizer App"	Describes the Video Summarizer app, which generates snapshots from video recordings and uploads the snapshots to an FTP server
Chapter 12, "Video Tag App"	Describes the Video Tag app, which applies a tag that appears as on-screen text to a live video image based on an external trigger

Obtaining Documentation, Obtaining Support, and Security Guidelines

For information about obtaining documentation, obtaining support, providing documentation feedback, security guidelines, and recommended aliases and general Cisco documents, see the monthly *What's New in Cisco Product Documentation*. This publication also lists new and revised Cisco technical documentation. It is available at:

http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html

C H A P T E R 1

Overview

A Cisco IP Camera app lets you extend the functionality of a supported Cisco IP Camera by installing and running the app on the camera.

This chapter includes these topics:

Related Documentation

For additional information about IP camera apps, see the "Application Manager" chapter in *Cisco Video Surveillance IP Camera Configuration Guide* for your camera.

IP Camera Apps

Cisco offers the following apps for supported IP cameras. To obtain an app, contact your Cisco representative.

- Audio Analytics app—Enable an IP camera to trigger events when it detects certain sound patterns
- Audio Detection app—Enables the IP camera to trigger events when it detects noise that exceeds a set volume threshold
- Cisco Video Analytics apps—Enable an IP camera to perform various analytic and counting functions
- Digi ZigBee Sensor app—Enables an IP camera to post to a Xively website information that the camera collects from a Digi XBee sensor, and information about input 1 state changes, motion detection, and day/night mode change
- intuVision Video Analytics apps—Enable an IP camera to trigger events when it detects activities or behaviors that match predefined rules
- Local Video Player app—Lets you view video from continuous recordings from the IP camera web-based user interface
- Lua app—Enables an IP camera to run scripts that are created in the Lua programming language
- SIP Client app—Lets an IP camera send and receive audio to and from an external SIP client device, the Cisco Interoperability and Collaboration System (Cisco IPICS), or Cisco Unified Communications Manager (CUCM)

- SIP Video app—Lets an IP camera send and receive audio to and from, and send video to, an external SIP client device or Cisco Unified Communications Manager (CUCM)

- Video Summarizer app—Generates snapshots from video recordings and uploads the snapshots to an FTP server

- Video Tag app—Applies a tag (which appears as on-screen text) to a live video image based on an external trigger

Supported Apps for Cisco IP Camera Models

Table 1-1 lists the apps that Cisco IP camera models support.

Table 1-1   Supported Cisco IP Cameras

Camera Model	App Support										
	Audio Analytics	Audio Detection	Cisco Video Analytics	Digi ZigBee Sensor	intuVision Video Analytics	Local Video Player	Lua	SIP Client	SIP Video	Video Sum- marizer	Video Tag
CIVS-IPC-2830	Yes	Yes	No	No	No	Yes	Yes	Yes	No	Yes	Yes
CIVS-IPC-2835	Yes	Yes	No	No	No	Yes	Yes	Yes	No	Yes	Yes
CIVS-IPC-3050	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	Yes	Yes
CIVS-IPC-3421V	No	No	No	No	Yes	Yes	Yes	No	No	Yes	Yes
CIVS-IPC-3520	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	Yes	Yes
CIVS-IPC-3530	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	Yes	Yes
CIVS-IPC-3535	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	Yes	Yes
CIVS-IPC-3620	No	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CIVS-IPC-3630	No	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CIVS-IPC-6000P	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
CIVS-IPC-6020	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	Yes	Yes
CIVS-IPC-6030	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	Yes	Yes
CIVS-IPC-6050	No	No	No	No	Yes	Yes	Yes	No	No	Yes	Yes

Table 1-1   Supported Cisco IP Cameras (continued)

Camera Model	App Support										
	Audio Analytics	Audio Detection	Cisco Video Analytics	Digi ZigBee Sensor	intuVision Video Analytics	Local Video Player	Lua	SIP Client	SIP Video	Video Sum-marizer	Video Tag
CIVS-IPC-6400	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	Yes	Yes
CIVS-IPC-6400E	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	Yes	Yes
CIVS-IPC-6500PD	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CIVS-IPC-6620	No	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CIVS-IPC-6630	No	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CIVS-IPC-6930	Yes	Yes	No	No	No	Yes	Yes	Yes	No	Yes	Yes
CIVS-IPC-7030	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	Yes	Yes
CIVS-IPC-7030E	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	Yes	Yes
CIVS-IPC-7070	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	Yes	Yes
CIVS-IPC-7530PD	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

App Licenses

An IP camera app can be installed in either of the following ways:

- On an individual IP camera, as described in the "Application Manager" chapter in the Configuration Guide for your camera series. In this situation, you install an app and apply its license on the camera.

- Using Cisco Video Surveillance Operations Manager (VSOM) version 7.6 or later, as described in *Cisco Video Surveillance Operations Manager User Guide*. In this situation, you configure VSOM to install an app and apply its license to multiple cameras simultaneously.

Table 1-2 lists part numbers for the licenses for the IP camera apps. The license you need depends on how you will install an app.

Table 1-2   Part Numbers for IP Camera App Licenses

App	Part Number for IP Camera Installation	Part Number for VSOM Installation
Audio Analytics—Aggression	L-FL-AA-AG=	L-FL-AA-AG-VSM=
Audio Analytics—Car Alarm	L-FL-AA-CA=	L-FL-AA-CA-VSM =

Table 1-2   Part Numbers for IP Camera App Licenses (continued)

App	Part Number for IP Camera Installation	Part Number for VSOM Installation
Audio Analytics—Glass Break	L-FL-AA-GB=	L-FL-AA-GB-VSM =
Audio Analytics—Gun Shot	L-FL-AA-GS=	L-FL-AA-GS-VSM =
Audio Analytics—Demo	No license required	
Audio Detection	No license required	
Cisco Video Analytics—CiscoBaseAnalytics	L-FL-CVA-BAP=	L-FL-CVA-BAP-VSM=
Cisco Video Analytics—CiscoAdvancedAnalytics	L-FL-CVA-AAP=	L-FL-CVA-AAP-VSM=
Cisco Video Analytics—CiscoCrowdMonitoring	L-FL-CVA-CMA=	L-FL-CVA-CMA-VSM=
Cisco Video Analytics—CiscoFlowViolation	L-FL-CVA-FVA=	L-FL-CVA-FVA-VSM=
Digi ZigBee Sensor	No license required	
intuVision Video Analytics	L-FL-IVVA-T1=	L-FL-IVVA-T1-VSM=
Local Video Player	No license required	
Lua	L-FL-C-AP1=	L-FL-C-AP1-VSM=
SIP Client	L-FL-C-AP2=	L-FL-C-AP2-VSM=
SIP Video	L-FL-C-AP2=	L-FL-C-AP2-VSM=
Video Summarize	No license required	
Video Tag	No license required	

Obtaining an App

Before you can install an app on an IP camera, you must obtain the file for the app and place the file on your local system or on a system that can be accessed from the IP camera web-based user interface.

You must have a valid service contract and Cisco.com account to obtain an app file. For more information, contact your Cisco representative.

Procedure

Step 1   Open a web browser and go to http://software.cisco.com/download/navigator.html?mode=home#.

Step 2   In the list in the left box near the center of the page, click **Products**.

Step 3   In the list in the center box near the center of the page, click **Connected Safety and Security**.

Step 4   In the list in the right box near the center of the page, click **Video Surveillance** IP **Cameras**.

Step 5   In the list in the right box near the center of the page, click the link for an IP camera series that supports apps (see Table 1-1 on page 1-2).

Step 6   In the list in the right box near the center of the page, click your IP camera model.

Step 7   Click the **IP Camera Applications and Utilities** link near the top of the page.

Step 8   Click the **Download** button next to the app file that you want to obtain.

If you are obtaining an app for a CIVS-IPC-6500PD/7530PD IP camera model, the app file name must include PD. For example, SIPClient_PD_V*x.x*.cpk.

If you are obtaining an app for a CIVS-IPC-3620/3630/6620/6630 IP camera model, the app file name must include SX. For example, SIPClient_SX_V*x.x*.cpk.

If you are obtaining an app for other IP camera models, make sure that the app file name does not include PD or SX.

Step 9   In the Log In and Service Contract Required dialog box, click the **Login** button.

Step 10   In the Log In page, enter your Cisco.com user name and password, then click the **Log In** button.

Step 11   In the End User License Agreement dialog box, click the **Cisco End User License Agreement** link to review the agreement, then click the **Accept License Agreement** button to continue.

Step 12   Follow the on-screen prompts to save the license file to your local system or to a system that can be accessed from the IP camera web-based user interface.

■ **Obtaining an App**

Audio Analytics Apps

This chapter provides information about the audio analytics apps for Cisco IP cameras. These apps Enable an IP camera to trigger events when it detects certain sound patterns.

This chapter includes these topics:

About the Audio Analytics Apps

The Audio Analytics apps include the following:

- Aggression—Detects aggressive speech or shouting
- Car Alarm—Detects standard car alarms
- Glass Break—Detects standard window glass breaking
- Gunshot—Detects a variety of firearms being discharged.
- Demo—Lets you test the response of the Audio Analytics apps to an aggression, car alarm, glass breaking, or gunshot sound.

Audio Analytics Apps Guidelines and Operational Specifications

The following sections provide guidelines and operational specifications for the Audio Analytics apps:

General Guidelines

The following general guidelines apply to the Audio Analytics apps:

• Microphone quality—The microphone that is used to capture audio for an Audio Analytics app should have frequency response of +/–3db for frequencies in the bandwidths 0.1 kHz through 8.0 kHz.

• Microphone mounting—The microphone should be mounted in a fixed and stable position. Excessive vibration or movement should be avoided, Physical contact with the microphone by hand or object should be avoided. The microphone should be protected from environmental states such as wind and rain.

• Microphone placement—For use indoors where the expected sound source is within 33 feet (10 meters) of the microphone, the microphone should be placed in the same room as the expected sound source. For use indoors where the expected sound source is more 33 feet (10 meters) from the microphone, or for use outdoors, the microphone should have as clear a line of sight as possible to the expected sound source.

• Type of audio input—The system is designed to analyze sounds that come from a single, fixed point microphone that delivers a monophonic digital audio signal. The digital audio signal must be encoded in the PCM 16-bit format.

• Sound integrity—The digital audio signal that is delivered to the system should be a faithful sampling of the original acoustic waveform. In particular, the signal must not introduce discontinuities or changes in the sequential order in any part of the captured audio.

• Distortion—The digital audio signal that is delivered to the system should not clip or distort the original sound.

• Dynamic range—The dynamic range of the original audio should be greater than –92 dB to full scale over 1 second.

• Background noise—A SNR of 30 to 50 dB provides optimal results.

Aggression App

The Audio Analytics Aggression app detects the acoustic changes in the voice of someone who is becoming aggressive. Specific factors that the app considers include pitch, tone, and intonation changes that can occur in voice patterns when someone becomes aggressive.

This app is designed to detect actively aggressive speech, not impolite speech, passive aggression, or sarcasm. Therefore, it does not consider semantic information, such as spoken profanity.

Factors such as the accent or language of the voice can affect the performance of this app.

With this app, an IP camera can detect aggression from a sound source that is up to 33 feet (10 meters) away from the microphone and that has been sounding for at least 1 second.

Car Alarm App

The Audio Analytics Car Alarm app detects the seven standard car alarm types that are used by major car manufacturers in North America and Europe. These alarms are characterized by looping progressions of specific tonal patterns. With this app, an IP camera can detect an alarm from a sound source that is up to 164 feet (50 meters) away from the microphone and that has been sounding for at least 2 seconds.

Glass Break App

The Audio Analytics Glass Break app detects breaking of four types of glass in their standard thicknesses when used in building applications such as windows and doors. Glass breaking is characterized by the initial sound break, the impact, followed by the glass actually shattering. The system is designed to detect breakage by an intentional hit from a hand-held implement as opposed to breakage by explosion, accident, or natural event.

With the Glass Break app, an IP camera can detect glass breaking from a sound source that is up to 33 feet (10 meters) away from the microphone.

Table 2-1 describes the glass types and characteristics that are required for optimum detection by this app.

Table 2-1   Glass Specifications for Optimum Detection

Glass Type	Minimum Plate Size	Minimum Thickness	Maximum Thickness
Laminated	12 x 24 inches (305 x 610 mm)	0.252 inch (6.4 mm)	0.252 inch (6.4 mm)
Plate		0.094 inch (2.4 mm)	
Tempered		0.126 inch (3.2 mm)	
Wired		0.252 inch (6.4 mm)	

Gunshot App

The Audio Analytics Gunshot app detects a variety of firearms being discharged.

Gunshots are characterized by unique muzzle blasts that are associated with a range of unsilenced weapons that are typically used in civilian gun crimes in the Americas, Europe, Middle East, and Australasia. Types of weapons that this app can detect being discharged are handguns (including 9 mm automatics and revolvers with or without muzzle diffusers), shotguns (including 20 gauge, .410 and 12 bore), bolt-action rifles (.22 mm and 7.62 mm), and automatic rifles (including AK-47, AR-15 and Uzi submachine gun).

With this app, an IP camera can detect a gunshot from a sound source that is up to 656 feet (200 meters) away from the microphone.

Demo App

The Audio Analytics Demo app lets you test the response of the other Audio Analytics apps to a prerecorded aggression, car alarm, glass break, or gunshot sound.

To use the Audio Analytics Demo app, perform the following steps.

Before You Begin

Download the DemoAppSoundFiles.zip file that is provided with the Demo application package. Unzip and play the included audio files to test the connected speakers.

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 **audioAnalyticsDemo** radio button.

Step 3   Click **Run**.

The IP camera becomes ready to detect an aggression, car alarm, glass break, or gunshot sound, based on the configuration settings that you made as described in the "Configuring an Audio Analytics App on an IP Camera" section on page 2-4.

Step 4   Use an external speaker to play the audio file for an aggression, car alarm, glass break, or gunshot sound.

Step 5   Verify whether an event was triggered.

Configuring an Audio Analytics App on an IP Camera

Before you can use an Audio Analytics app, you must configure the app on each IP camera on which it will run. To configure an Audio Analytics app, perform the following steps.

Before You Begin

Install the Audio Analytics 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 one of the following radio buttons to choose the app that you want to configure.

The buttons that appear on your system depend on which apps you installed.

- **audioAnalyticsAggression**—Aggression app
- **audioAnalyticsCarAlarm**—Car Alarm app
- **audioAnalyticsGlassBreak**—Glass Break app
- **audioAnalyticsGunshot**—Gunshot app
- **audioAnalyticsDemo**—Demo app

Step 3   Click **Configure**.

The Cisco Audio Analytics configuration page for the app that you selected appears.

Step 4   Enter appropriate values in the Cisco Audio Analytics configuration page fields as described in the following table:

Field	Setting for Listen Mode
Configuration Area	
Audio Trigger Level slider	Drag the slider to select the minimum audio level, in decibels, that a sound that the IP camera microphone captures must register for the camera to trigger an event based on the sound.
	Valid values are –90 through 0 (decibels). The default value is –90.
Detection Sensitivity slider	Drag the slider to select the relative sensitivity at which the IP camera triggers an event based on a sound.
	A higher value causes the IP camera to be more sensitive and trigger more events, but can cause false triggers. Lower this value if the camera generates too many false triggers.
	Valid values are 0 through 100. The default value is 50 for all apps, except for the Glass Break app, for which the default value is 60.
Enable AGC	Check this check box to enable automatic gain control. AGC causes the IP camera to automatically adjust its microphone audio gain to avoid saturated audio from loud sounds and boost low-level audio.
	In most cases, this option should not be enabled because it can cause audio distortion.
Volume Gain slider	Available only when the Enable AGC check box is not checked.
	Drag the slider to select the volume gain for the IP camera microphone. Gain can help avoid saturated audio and boost low-level audio.
	Valid values are 0 through 100. Default value for all apps is 50 expect for the Gunshot app, for which the default value is 90.
Enable Test Mode	Check this check box put the camera in test mode, which allows you to test the response of the camera to recorded sounds. For more information, see the "Testing an Audio Analytics App" section on page 2-6.
	Note When a camera is in test mode, it can detect only sounds that are provided in a file that you can obtain from Cisco. Uncheck this check box when you are not testing the camera so that other features operate normally.
Start Audio Recording	Check this check box to cause the app to run in debug mode, which creates a 2 MB audio recording (approximately 1 minute of audio) when the app starts.
	The recording file is saved on the IP camera. You can export the file as described in the "Export Recording button" section on page 2-6 and provide it to a Cisco support representative if requested for troubleshooting.
	When this check box is checked, the IP camera creates a new recording file each time that you start the app. If there is an existing recording file on the camera, it is overwritten. If you want to save an existing recording file, export it before you start the app.

Field	Setting for Listen Mode
Export Recording button	Click to save the audio recording file that the IP camera created in debug mode. Use the dialog box that appears to save the file in the location of your choice.
Show Audio Level	Check this check box to display the Audio Level graph at the bottom of the Cisco Audio Analytics configuration page. This graph shows in real time the volume, in decibels, of the audio that the microphone of the IP camera picks up. This feature is available only if you log in to the IP camera by using an HTTP (not an HTTPS) connection. This feature is not supported if you are using the Safari browser or a version if Microsoft Internet Explorer earlier than version 10.
Save button	Click to save changes that you made on the Cisco Audio Analytics configuration page.
Reset button	Click to reset the values of the options on the Cisco Audio Analytics configuration page to their default values, then click **OK** in the dialog boxes that confirm this action. You do not need to click the **Save** button to save the changes.
View License link	Click to display the license for the open source component of the Audio Analytics apps.

Step 5   Click the **Save** button in the Cisco Audio Analytics configuration page, and then click **OK** in the confirmation dialog box.

Testing an Audio Analytics App

You can test whether an IP camera that is running an Audio Analytics app triggers an event as expected. To do so, you run the app an play a test aggression, car alarm, glass break, or gunshot sound.

To test an audio analytics app, perform the following steps.

Before You Begin

Download the DemoAppSoundFiles.zip file that is provided with the Demo application package. Unzip and play the included audio files to test the connected speakers.

Procedure

Step 1   Put the camera in test mode by checking the Enable Test Mode check box as described in the "Configuring an Audio Analytics App on an IP Camera" section on page 2-4.

Step 2   Run the app that you want to test.

The IP camera becomes ready to detect an aggression, car alarm, glass break, or gunshot sound, based on the configuration settings that you made as described in the "Configuring an Audio Analytics App on an IP Camera" section on page 2-4.

Step 3   Use an external speaker to play the audio file for an aggression, car alarm, glass break, or gunshot sound.

Step 4   Verify whether an event was triggered.

Step 5   Take the camera out of test mode by unchecking the Enable Test Mode check box.

Running an Audio Analytics App

To run an Audio Analytics app on an IP camera, perform the following steps. The IP camera can run one Audio Analytics app at a time.

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 radio button for the app that you want to run:

- **audioAnalyticsAggression**—Aggression app
- **audioAnalyticsCarAlarm** —Car Alarm app
- **audioAnalyticsGlassBreak** —Glass Break app
- **audioAnalyticsGunshot**—Gunshot app
- **audioAnalyticsDemo**—Demo app

Step 3   (Optional) If you want the 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 4   Click the **Run** button.

Stopping an Audio Analytics App

To stop an Audio Analytics app on an IP camera, follow these steps:

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 radio button for the app that you want to stop:

- **audioAnalyticsAggression**—Aggression app
- **audioAnalyticsCarAlarm** —Car Alarm app
- **audioAnalyticsGlassBreak** —Glass Break app
- **audioAnalyticsGunshot**—Gunshot app
- **audioAnalyticsDemo**—Demo app

Step 3   Click the **Stop** button.

C H A P T E R **3**

Audio Detection App

This chapter provides information about the Audio Detection app for Cisco IP cameras. This app triggers an event based on noise that exceeds a set volume threshold.

This chapter includes these topics:

About the Audio Detection App

The Audio Detection app triggers an event when it detects noise that exceeds a set volume threshold. The IP camera sets this threshold automatically by analyzing audio that it detects from its microphone during the first few seconds after you start this app. The average audio level that the camera detects during this time becomes the volume threshold.

Configuring the Audio Detection App on an IP Camera

Before you can use the Audio Detection 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 Audio Detection 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 **AudioDetection** radio button, then click **Configure**.

The Cisco Audio Detection Application configuration page appears.

Step 3   Enter appropriate values in the Cisco Audio Detection Application page fields as described in the following table:

Field	Description
Audio Threshold Level	Choose the relative audio threshold level that, when exceeded, causes the app to trigger an event.
Enable Debug	Check to create an audio file for debugging purposes. For more information, see the "Exporting an Audio File for Debugging the Audio Detection App" section on page 3-3.
Audio Frames to Record	Available only if you check the Enable Debug check box. Enter the number of audio frames to be recorded in an audio file for debugging. The default value is 512.

Step 4   Click the **Save** button in the Cisco Audio Detection Application configuration page, and then click **OK** in the confirmation dialog box.

If you want to reset the options in the Cisco Audio Detection Application 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 Audio Detection app is running, you must stop and then restart the app before the changes take effect.

Running the Audio Detection App

To run the Audio Detection app on an IP camera, perform the following steps:

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 **AudioDetection** radio button.

Step 3   (Optional) If you want the Audio Detection 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 4   Click the **Run** button.

Stopping the Audio Detection App

To stop the Audio Detection app on an IP camera, follow these steps:

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 **AudioDetection** radio button.

Step 3   Click the **Stop** button.

Exporting an Audio File for Debugging the Audio Detection App

The export audio feature lets you create an audio file that you can export and provide to a Cisco support representative if requested for troubleshooting the Audio Detection app.

To export an audio file for debugging the Audio Detection app, follow these steps:

Procedure

Step 1   Run the Audio Detection app as described in the "Running the Audio Detection App" section on page 3-2.

Step 2   Click the **AudioDetection** radio button, then click **Configure**.

The Cisco Audio Detection Application configuration page appears.

Step 3   Check the Enable Debug check box.

Step 4   In the Audio Frames to Record field, enter the number of audio frames to be recorded in an audio file.

Cisco recommends that you use the default value of 512.

Step 5   Click **Export Recording** and follow the on-screen prompts to save the file.

If you export a recording without checking the Enable Debug check box, the system exports the recording file that is stored on the IP camera, or exports an empty file if no recording file is stored.

C H A P T E R **4**

Cisco Video Analytics Apps

This chapter provides information about the Cisco Video Analytics apps for Cisco IP cameras. These apps enable an IP camera to perform various analytic and counting functions. Analytic functions trigger events when a camera detects activities or behaviors that match predefined rules. Counting functions count people.

This chapter includes these topics:

About the Cisco Video Analytics Apps

The Cisco Video Analytics apps include the following:

- CiscoBaseAnalytics—Includes Base Security and Base Counting packages. You can run one of these packages at a time.
- CiscoAdvancedAnalytics—Includes Advanced Security and Advanced Counting packages. You can run one of these packages at a time.
- CiscoCrowdMonitoring—Provides features for estimating the size and the relative density of a crowd of people.
- CiscoFlowViolation—Provides information if an object violates the flow that is set in the field of view of the camera.

Table 4-1 shows the features that each Cisco Video Analytics app provides. You can enable up to five features at a time for the app that you are running.

Table 4-1   Cisco Video Analytics Apps Features

Feature	Cisco Base Analytics		Cisco Advanced Analytics		Cisco Crowd Monitoring	Cisco Flow Violation
	Security	Counting	Security	Counting		
Object classification	Yes	Yes	Yes	Yes		
Tripwire event	Yes	Yes	Yes	Yes		
Enters event			Yes	Yes		

Table 4-1   Cisco Video Analytics Apps Features (continued)

Feature	Cisco Base Analytics		Cisco Advanced Analytics		Cisco Crowd Monitoring	Cisco Flow Violation
	Security	Counting	Security	Counting		
Exits Event			Yes	Yes		
Appears event (full view)			Yes			
Appears event (area of interest)			Yes			
Disappears event (full view)			Yes			
Disappears event (area of interest)			Yes			
Inside-of event			Yes			
Loitering event		Yes	Yes	Yes		
Leave behind event (full view)			Yes			
Leave behind event (area of interest)			Yes			
Configurable leave behind time			Yes			
Take away event (full view)			Yes			
Take away event (area of interest)	Yes		Yes			
Camera tamper detection	Yes		Yes			
Object size filters	Yes	Yes	Yes	Yes		
Object size change filters	Yes	Yes	Yes	Yes		
Salience filters	Yes	Yes	Yes	Yes		
Image stabilization	Yes	Yes	Yes	Yes		
Multi-view	Yes	Yes	Yes	Yes		
Forensics support	Yes	Yes	Yes	Yes		
Object tracking and markup data	Yes	Yes	Yes	Yes		
People and object counting		Yes		Yes		
Occupancy monitoring				Yes		
Dwell time				Yes		
Flow isolation						Yes
Object density level (area of interest) (heavy traffic)					Yes	
Crowd estimation (area of interest) (medium traffic)					Yes	

Configuring and Operating a Cisco Video Analytics App on an IP Camera

For information about configuring and operating the Cisco Video Analytics apps on an IP camera, see *Cisco Video Analytics Apps Reference Guide*, which is available at http://www.cisco.com/c/en/us/support/physical-security/ip-camera-applications-utilities/products-technical-reference-list.html.

Running a Cisco Video Analytics App

To run a Cisco Video Analytics app on an IP camera, perform the following steps. The IP camera can run one Cisco Video Analytics app at a time.

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 one of the following radio buttons to choose the app that you want to run.

The buttons that appear on your system depend on which apps you installed.

- **CiscoBaseAnalytics**
- **CiscoAdvancedAnalytics**
- **CiscoCrowdMonitoring**
- **CiscoFlowViolation**

Step 3 (Optional) If you want the Video Analytics 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 4 Click the **Run** button.

Stopping a Cisco Video Analytics App

To stop a Cisco Video Analytics app on an IP camera, follow these steps:

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 radio button for the app that you want to stop:

- **CiscoBaseAnalytics**
- **CiscoAdvancedAnalytics**
- **CiscoCrowdMonitoring**
- **CiscoFlowViolation**

Step 3 Click the **Stop** button.

Stopping a Cisco Video Analytics App

Digi ZigBee Sensor App

This chapter provides information about the Digi ZigBee Sensor app for Cisco IP cameras. This app enables an IP camera to post to a Xively website information that the camera collects from a Digi XBee sensor, and information about input 1 state changes, motion detection, and day/night mode changes.

This chapter includes these topics:

About the Digi ZigBee Sensor App

The Digi ZigBee Sensor app enables an IP camera to collect information from a Digi XBee sensor that is connected to the camera and post this information to a configured Xively website. Sensor information that the camera collects includes data about temperature, humidity, and lumens. This app also enables a camera to post to the Xively website information about an input 1 state change, a motion detection, and a change in day/night mode state.

The IP camera to send information from the sensor and about an event as an HTTP notification message to a remote Xively server. This notification includes the following information:

- Xively Channel ID—Configured description of the information type
- Event value—Value of the information, such as a number, or "on" or "off."

You can view this information from Xively website by setting up a Xively account and adding a device on the Xively website, and then accessing the URL for that device.

The IP camera receives information from a sensor on its RS-485 port. Using a sensor requires the following configuration:

- A Digi XBee RS-485 Adapter ZB Pro must connected to the RS-485 port on the IP camera
- A Digi XBee Sensor ZB Bat /L/T/H must be paired with the XBee RS-485 Adapter ZB Pro
- A Digi XBee Gateway must be used to pair the adapter and sensor

For information about setting up and configuring an XBee sensor and XBee Gateway, see the documentation that is available the Digi website.

Configuring the Digi ZigBee Sensor App on an IP Camera

Before you can use the Digi ZigBee Sensor 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 Digi ZigBee Sensor 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 **DigiZBSensorApp** radio button, then click **Configure**.

The Digi ZigBee Sensor Application page appears.

Step 3 Check the check box that corresponds to each trigger that you want to enable, then configure triggers as described in the following table.

When a trigger is enabled, information that relates to that trigger is posted to the Xively website.

Field	Description	Configuration
Enable check box	Causes the IP camera to post information about the corresponding trigger to the Xively website.	Check the check box for each trigger for which you want information to be posted to the Xively website.

Field	Description	Configuration
Input 1	Information is posted to the Xively website when input port 1 on the IP camera changes state from high to low or from low to high.	In the Xively Channel Id field, enter an ID that appears in the Xively website for the corresponding information type. This ID can be a descriptive name.
Motion	Information is posted to the Xively website when the camera detects motion, if motion detection is configured for the camera.	For the ID that corresponds to the Sensor Temp trigger, choose the units for the temperature display (**C** for Celsius or **F** for Fahrenheit).
Day/Night	Information is posted to the Xively website when the camera switches from day mode to night mode or from night mode to day mode.	
Sensor Temp	Information is posted to the Xively website each time the IP camera receives temperature input from the sensor. The camera receives this input at the interval that the Xively Update Interval option (described in this table) defines.	
Sensor Humidity	Information is posted to the Xively website each time the IP camera receives humidity input from the sensor. The camera receives this input at the interval that the Xively Update Interval option (described in this table) defines.	
Sensor Lux	Information is posted to the Xively website each time the IP camera receives lumens input from the sensor. The camera receives this input at the interval that the Xively Update Interval option (described in this table) defines.	
Xively API Key	Xively API key for your Xively account.	Enter the Xively API key provided by Xively for your account.
Xively Feed ID	Xively feed ID for your Xively account.	Enter the Xively feed ID provided by Xively for your account.
Xively Update Interval	Interval, in minutes, at which the app sends data from the sensor to the Xively website	Enter the desired interval, in minutes. The default value is 5.

Step 4   Click the **Save** button in the Digi ZigBee Sensor Application configuration page, and then click **OK** in the confirmation dialog box.

If you change configuration values while the Digi ZigBee Sensor app is running, you must stop and then restart the app before the changes take effect. The camera receives this input at the interval that the Xively Update Interval option in the Digi ZigBee Sensor Application page defines.

Running the Digi ZigBee Sensor App

To run the Digi ZigBee Sensor app on an IP camera, perform the following steps:

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 **DigiZBSensorApp** radio button.

Step 3 (Optional) If you want the Digi ZigBee Sensor 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 4 Click the **Run** button.

Stopping the Digi ZigBee Sensor App

To stop the Digi ZigBee Sensor app on an IP camera, follow these steps:

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 **DigiZBSensorApp** radio button.

Step 3 Click the **Stop** button.

C H A P T E R 6

intuVision Video Analytics Apps

This chapter provides information about the intuVision Video Analytics apps for Cisco IP cameras. These apps enable an IP camera to trigger events when it detects activities or behaviors that match predefined rules.

This chapter includes these topics:

About the intuVision Video Analytics Apps

The intuVision Video Analytics apps include the following:

- Activity—Detects moving objects within a area that is configured in the camera view
- LineCrossing—Detects moving objects that cross a line that is configured in the camera view
- ObjectTaken—Detects a marked object in the camera view being removed from its location
- WrongWay—Detects objects that are moving in the direction of an arrow that is configured in the camera view
- ZoneIntrusion—Detects objects that enter an area that is configured in the camera view
- Speed—Detects objects that pass too quickly over two user defined lines
- EnterExit—Detects objects that enter and exit or that exit an area that is configured in the camera view

Configuring an intuVision Video Analytics App on an IP Camera

For information about configuring the intuVision Video Analytics apps on an IP camera, see the instructions that are provided on the "Edge Analytics for Cisco Cameras" page on the intuVision website.

Running an intuVision Video Analytics App

To run an intuVision Video Analytics app on an IP camera, perform the following steps. The IP camera can run one intuVision Video Analytics app at a time.

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 one of the following radio buttons to choose the app that you want to run.

The buttons that appear on your system depend on which apps you installed.

- **Activity**
- **LineCrossing**
- **ObjectTaken**
- **WrongWay**
- **ZoneIntrusion**
- **Speed**
- **Enter/Exit**

Step 3   (Optional) If you want the Video Analytics 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 4   Click the **Run** button.

Stopping an intuVision Video Analytics App

To stop an intuVision Video Analytics app on an IP camera, follow these steps:

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 radio button for the app that you want to stop:

- **Activity**
- **LineCrossing**
- **ObjectTaken**
- **WrongWay**
- **ZoneIntrusion**
- **Speed**
- **Enter/Exit**

Step 3   Click the **Stop** button.

Local Video Player App

This chapter provides information about the Local Video Player app for Cisco IP cameras. This app lets you view video recordings from the IP camera web-based user interface.

This chapter includes these topics:

About the Local Video Player App

The Local Video Player app lets you use the IP camera web-based user interface to view continuous recordings that are stored on an SD or MicroSD card that is installed in the IP camera.

Configuring the Local Video Player App on an IP Camera

Install the Local Video Player app on the IP camera on which it will run. See the "Related Documentation" section on page 1-1 for more information.

In addition, using this app to view videos requires continuous recording to be enabled in the Local Storage window in the IP camera web-based user interface. For information about configuring continuous recording, see the Configuration Guide for your IP camera model.

Running the Local Video Player App

To run the Local Video Player app on an IP camera, perform the following steps:

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 **localVideoPlayer** radio button.

Step 3   (Optional) If you want the Local Video Player 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 4   Click the **Run** button.

Stopping the Local Video Player App

To stop the Local Video Player app on an IP camera, follow these steps:

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 **localVideoPlayer** radio button.

Step 3   Click the **Stop** button.

Using the Local Video Player App

To use the Local Video Player app to view a recording, follow these steps:

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 **localVideoPlayer** radio button.

Step 3   Click the **Configure** button.

The Local Video Player page appears.

Step 4   Click **Local Storage Recordings** near the top of the page to expand the list of recording, if this list is not expanded.

This list shows the following information for each recording that is stored on the SD or MicroSD card that is installed in the IP camera:

- Name—File name of the recording
- Start Time—Date and time that the recording started, in UTC format
- End Time—Date and time that the recording ended, in UTC format
- Media Type—Indicates that the recording is stored as a video file

Step 5   Click the radio button that corresponds to the recording that you want to view.

The system displays additional information about the recording.

Step 6   (Optional) To change the default start time or end time of the playback, take these actions:

- To change the start time, drag the square icon at the left of the bar that indicates the playback duration. Refer to the Start Time field above this bar for updated start time information.

- To change the end time, drag the square icon at the right of the bar that indicates the playback duration. Refer to the Start Time field above this bar for updated start time information.

The value in the Duration field updates as you adjust the playback time.

Step 7   Click **Play** to start viewing the recording.

You can control the playback by moving your mouse cursor over the playback image and using the following controls:

- Pause/Play toggle button—Click the **Pause** button 　 to pause the video playback. Click the **Play button** 　 to resume playback.

- Playback location—Click a location in the progress bar under the video playback image to go to play video from that relative location in the video file.

- Full-Screen button—Click the **Full-Screen** button 　 to display the video payback in full-screen mode. Press the **Esc** key to exit full-screen mode.

Click **Stop** at any time to stop viewing the recording.

If you play the current recording, it plays until you stop it. Other recordings stop when they end.

Lua App

This chapter provides information about the Lua app for Cisco IP cameras. This app lets an IP camera run a script that is created in the Lua programming language.

This chapter includes these topics:

About the Lua App

The Lua app enables the IP camera to run a script that is created in the Lua programming language. A Lua script provides instructions for the camera about how to behave or operate in certain situations.

Cisco provides sample scripts for the for the Lua app. You can run a sample script as provided, edit and then run a sample script, create and run your own script, or run a script that is provided by a third-party.

Configuring the Lua App on an IP Camera

Before you can use the Lua 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 Lua 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 **luaApp** radio button, then click **Configure**.

The Cisco luaApp configuration page appears.

Step 3 (Optional) Click the **Download** button in the Cisco luaApp configuration page. then use the dialog box that appears to save a copy of the existing script.

This step is useful if you want to save a backup copy of a script before you edit it, or save a copy of a completed script for future reference. You can save existing script where you want.

Step 4 In the script area in the Cisco luaApp configuration page, write a script in the Lua programming language, or paste an existing Lua script and edit it as needed.

Step 5 Click **Save** in the Cisco luaApp configuration page, then click **OK** in the Overwrite dialog box.

The script is saved with the name script.lua. The existing script with that name is overwritten.

Running the Lua App

When you run the Lua app on an IP camera, the camera executes the functionality that the current script.lua Lua script defines.

To run the Lua app on an IP camera, follow these steps:

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 **luaApp** radio button.

Step 3 (Optional) If you want the Lua 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 4 Click the **Run** button.

Stopping the Lua App

When you stop the Lua app on an IP camera, the camera stops executing the functionality that the current script.lua Lua script defines.

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

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 **luaApp** radio button.

Step 3 Click the **Stop** button.

Lua App Sample Scripts

When you install the Lua app on an IP camera, sample scripts for use with the app are placed in the /usr/apps/luaApp/html folder on the camera. Each of these scripts is written in the Lua programming language.

Table 8-1 describes each script and provide references to sections in this document that show the contents of the scripts.

Table 8-1   Sample Lua Scripts

Script File Name	Description	Reference
hello.lua	Prints "Hello World!" to the app log file	Hello World Script, page 8-3
event.lua	Sends a test event to the event manager	Test Event Script, page 8-3
input_event.lua	Subscribes to the camera input triggers and generates an app trigger when the IP camera receives an input trigger	Send Event on Input Trigger Script, page 8-4
motion_event.lua	Subscribes to the motion trigger and generates an app trigger when the IP camera receives a motion trigger	Send Event on Motion Trigger Script, page 8-4

To access a sample Lua script on an IP camera, use an SSH client to access the camera, log in with the password that is configured on the camera for SSH access, then open the desired log file with a text editor. For more information about accessing a camera via an SSH client, see the Configuration Guide for your IP camera model.

Hello World Script

The sample script named hello.lua sends the text "Hello World!" to the app log file. This script contains the following code:

```
log.info("Hello World!")
```

Test Event Script

The sample named script event.lua sends a test event to the event manager. This script contains the following code:

```
app_event_data = [[
<EventPayload>
        <App>EventTest</App>
        <test>1</test>
</EventPayload>
]]

event.send(app_event_data, 0)
```

Send Event on Input Trigger Script

The sample script named input_event.lua subscribes to the camera input triggers and generates an app trigger when the IP camera receives an input trigger. This script contains the following code:

```
input_trigger = "cisco.input1"
max_events = 10

input_event_template = [[
    <CameraAppEventPayload>
    <vendorName>Cisco Systems,Inc</vendorName>
    <eventName>%s</eventName>
    <eventState>%s</eventState>
    <severity>info</severity>
    <description>Cisco luaApp</description>
    </CameraAppEventPayload> ]]

status = trigger.subscribe(input_trigger)
log.info("Subscribed to "..input_trigger.." with status = "..status)

for i = 1, max_events do
        t = trigger.get()
        input_event = string.format(input_event_template, t:name(), t:state())
        event.send(input_event, 0)
--      log.info(input_event)
end
```

Send Event on Motion Trigger Script

The sample script named motion_event.lua subscribes to the motion trigger and generates an app trigger when the IP camera receives a motion trigger. This script is the default script.lua script and contains the following code:

```
motion_trigger = "cisco.motion"
max_events = 10

motion_event_template = [[
    <CameraAppEventPayload>
    <vendorName>Cisco Systems,Inc</vendorName>
    <eventName>%s</eventName>
    <eventState>%s</eventState>
    <severity>info</severity>
    <description>Cisco luaApp</description>
    </CameraAppEventPayload> ]]

status = trigger.subscribe(motion_trigger)
print("Subscribed to "..motion_trigger.." with status = "..status)

for i = 1, max_events do
        t = trigger.get()
        if t:state() == "start" then
        motion_event = string.format(motion_event_template, t:name(), 1)
        else
        motion_event = string.format(motion_event_template, t:name(), 2)
        end
        print(motion_event)
        event.send(motion_event, 0)
end
```

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

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	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. 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. Options are: • **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	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. 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. Valid values are **10** through **600** (10 seconds through 10 minutes).	Enter a time interval in seconds at which the IP camera periodically contacts the UMS to ensure that a live connection is in place. 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. Valid values are **10** through **600** (10 seconds through 10 minutes).	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. 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. Valid values are **10** through **600** (10 seconds through 10 minutes).	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	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. Valid values are **0** through **20**.			15
Channel #	—	Enter the number of the active channel to which to connect, preceded by **1**. For example, if the channel number is 469, enter **1469**. To determine the channel number, go to **http://***ip_address***:8080/ums-sipua/live**, where *ip_address* is the IP address of the UMS on which the channel is configured. Channels are listed by Channel ID in the VTG Listing area.	—	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 IPCIS.

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

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:

  a.   From the Device Security Profile drop-down list, choose **Third-party SIP Device Advanced**.

  b.   From the **SIP Profile** drop-down list, choose **Standard SIP Profile**.

  c.   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 i**n 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.

Adding and Associating an End User

Adding end user to Cisco Unified Communications Manager and associating and 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.

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.

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

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.

C H A P T E R **10**

SIP Video App

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

This chapter includes these topics:

About the SIP Video App

The SIP Video app enables an IP camera to transmit and receive audio to and from an external SIP client device or Cisco Unified Communications Manage. It also lets you send video to a device. 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 Video 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, and half-duplex video 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.

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

Configuring the SIP Video App on an IP Camera

Before you can use the SIP Video 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 Video 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 **SIPVideo** radio button, then click **Configure**.

The Cisco SIP Video App configuration page appears.

Step 3   Enter appropriate values in the Cisco SIP Video App configuration page fields as described in the following table:

Field	Settings for Standalone Mode	Settings for CUCM Mode (Cisco Unified Communications Manager)	Default Setting
Debug Level	Lets you enable logging, which causes the system to write app-related information to a log file. The log file is named SIPVideo_verbose.log and is stored in the /var/log folder on the IP camera. When this file reaches 256 KB in size, it is archived to a file named SIPVideo_verbose.log.1.gz in the /var/log folder and a new SIPVideo_verbose.log file is created. When this new log file reaches 256 KB in size, it is archived to a file named SIPVideo_verbose.log.2.gz and a new SIPVideo_verbose.log file is created again. After that, each time the new SIPVideo_verbose.log file reaches 256 KB in size, an archive file is created that overwrites the oldest existing archive file. In addition, the SIPVideo_verbose.log is overwritten if the IP camera reboots and you restart the app. Options are: • **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	CUCM	—

Field	Settings for Standalone Mode	Settings for CUCM Mode (Cisco Unified Communications Manager)	Default Setting
Connection Check Time	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. 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 Video app stops automatically. Valid values are **10** through **600** (10 seconds through 10 minutes).	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. 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 Video app stops automatically. Valid values are **10** through **600** (10 seconds through 10 minutes).	10
SIP Server	—	Enter the IP address of the Cisco Unified Communications Manager server.	0
Video Calling	Choose **Enabled** enable the app to send video in addiction to sending and receiving audio. If you choose Disabled, the app sends and receives audio only.		Enabled
Video Resolution	Available only if the Video Calling field is set to **Enabled**. Choose the resolution at which the video is sent to a device. The options that appear depend on the model of IP camera that you are using.		Depends on the IP camera model
Audio Gain	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 or Cisco Unified Communications Manager. Valid values are **0** through **20**.		15
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 10-5.	—

Field	Settings for Standalone Mode	Settings for CUCM Mode (Cisco Unified Communications Manager)	Default Setting
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 10-5.	—

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

If you want to reset the options in the Cisco SIP Video 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 Video app is running, you must stop and then restart the app before the changes take effect.

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

You configure Cisco Unified Communications Manager for use with the SIP Video 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 10-4
- Adding and Associating an End User, page 10-5

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 Video app.

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

Procedure

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:

  a.   From the Device Security Profile drop-down list, choose **Third-party SIP Device Advanced**.

  b.   From the **SIP Profile** drop-down list, choose **Standard SIP Profile**.

  c.   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 i**n 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.

Adding and Associating an End User

Adding end user to Cisco Unified Communications Manager and associating and end user with a camera allows cameras that run the SIP Video 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 Take these actions:

   a.   Locate one or more devices that you added as described in the "Adding a Camera to Cisco Unified Communications Manager" section on page 10-4, click the check box that corresponds to that device.

   b.   In the Protocol Specific Information area, uncheck the **Media Termination Point Required** check box.

   c.   Click **Save Selected Changes** at the bottom of the page.

You can repeat this step as needed.

Running the SIP Video App

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

- If the SIP Video app is configured for Standalone mode, begins to wait for contact from a SIP Video device

- If the SIP Video app is configured for CUCM mode, an incoming call to the camera is established through Cisco Unified Communication Manager

To run the SIP Video 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 Video 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.

Stopping the SIP Video App

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

- Gracefully terminates any existing connection to a SIP video device
- If the SIP Video app is configured for standalone mode, stops waiting for contact from a SIP client device

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

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.

Step 3 Click the **Stop** button.

Stopping the SIP Video App

Video Summarizer App

This chapter provides information about the Video Summarizer app for Cisco IP cameras. This app this app generates snapshots from video recordings and uploads the snapshots to an FTP server.

This chapter includes these topics:

About the Video Summarizer App

The Video Summarizer app generates snapshots from video recordings at configured intervals and uploads the snapshots to the designated FTP server.

Configuring the Video Summarizer App on an IP Camera

Before you can use the Video Summarizer 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 Video Summarizer app on the IP camera on which it will run. See the "Related Documentation" section on page 1-1 for more information.

Using this app requires continuous recording to be enabled in the Local Storage window in the IP camera web-based user interface. For information about configuring continuous recording, see the Configuration Guide for your IP camera model.

In addition, the IP camera CIVS-IPC-7030, CIVS-IPC-7030E, and CIVS-IPC-7070 models support this app only if the Video Resolution option in the Setup > Streaming window in the IP camera web-based user interface is configured as shown:

- For 1:1 aspect ratio, up to 1280 x1280
- For 16:9 aspect ratio, up to 1920 x1080

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 **VideoSummarizer** radio button, then click **Configure**.

The Cisco Video Summarizer configuration page appears.

Step 3 Enter appropriate values in the Cisco Video Summarizer page fields as described in the following table:

Field	Description
Upload Interval	Interval, in seconds, at which snapshots are generated from the video file and uploaded to the FTP server. Valid values are 120 to 2592000 (2 minutes to 90 days).
IP Address	IP address of the FTP server to which snapshots are uploaded.
Username	User name for logging in to the FTP server to which snapshots are uploaded.
Organize Upload	If you choose **Enable**, the system uploads snapshots to the following location on the FTP server. In this way, snapshots are organized into subfolders that correspond to the upload date: *folder*/*camera_serial_number*/*mm-dd-yyyy* where: • *folder*—Path to a folder under the FTP root folder as defined by the Upload Location option that this table describes • *camera_serial_number*—Serial number of the IP camera from which the snapshot is uploaded • *mm-dd-yyyy*—Month, day, and year on which the file is uploaded If you choose **Disable**, the system uploads snapshots to the following location on the FTP server. In this case, the *mm-dd-yyyy* subfolder is not included. *folder*/*camera_serial_number*
Upload Format	Choose the image file format for snapshots (**JPG** or **BMP**).
Snapshot Timestamp	Choose whether the timestamp that is included as part of a snapshot filename shows the local time that the file was created (**Local-Time**) or the UTC time that it was crated (**UTC-Time**).
Upload Location	Path to the folder under the FTP root folder on the FTP server where snapshots are stored. This path must exist on the server or the server must have permission to create directories. If you do not specify an upload location, the system uses the FTP root folder.
Server Type	Indicates that snapshots are uploaded to and FTP server.
Port	Port on which the FTP server is running.

Field	Description
Password	Password for logging in to the FTP server to which snapshots are uploaded.
Snapshot Prefix	Prefix for the snapshot filename.
	Snapshot files are named as follows:
	prefixmm-dd-yyyy hh_mm_ss
	where:
	• *prefix*—Prefix text that you set with this option
	• *mm-dd-yyyy*—Month, day, and year at which the file is created
	• *hh_mm_ss*—Hour, minute, and second at which the file is created
	The default prefix is **CIVS-IPC**.
Quality Factor	Choose the image quality factor for snapshots. A higher value provides better quality but consumes more bandwidth and storage.
	This option applies only when the following configuration settings are made for the IP camera:
	• The Video Codec option is set to **H.264** on the Streaming page in the web-based user interface for the camera
	• The Upload Format option in the Configuration page for this app (as described in this table) is set to **JPG**
	When the Video Codec option is set to **MJ PEG**, snapshots use the quality factor that is configured for the Video Quality Control option on the steaming page.
	If you set the Upload Format option in the Configuration page for this app to BMP, this Quality Factor option is ignored.
	Valid values are integers 0 through 100.

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

If you want to reset the options in the Cisco Video Summarizer 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 Video Summarizer app is running, you must stop and then restart the app before the changes take effect.

Running the Video Summarizer App

To run the Video Summarizer app on an IP camera, perform the following steps:

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 **VideoSummarizer** radio button.

Step 3   (Optional) If you want the Video Summarizer 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 4   Click the **Run** button.

Stopping the Video Summarizer App

To stop the Video Summarizer app on an IP camera, follow these steps:

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 **VideoSummarizer** radio button.

Step 3   Click the **Stop** button.

C H A P T E R 12

Video Tag App

This chapter provides information about the Video Tag app for Cisco IP cameras. This app applies a tag to a live video image based on an external trigger. The tag appears as text on the video image from the IP camera. The app also can cause the IP camera to take a designated action.

This chapter includes these topics:

About the Video Tag App

The Video Tag app causes a tag to appear on the live video image from the IP camera when the app detects a designated external trigger. The app also can cause the IP camera to take a designated action, which can include sending information in an email message or HTTP stream, sending information to a Syslog server, uploading a snapshot or video clip, and changing the state of the output 1 port on the IP camera.

A tag is preconfigured text, for example "Door open" or "Entry alarm activated." You can configure the Video Tag app to respond to either or both of the following external trigger types:

- State change of an input port on the IP camera—The app displays a tag and optionally causes the camera to take an action when the state of an input port on the IP camera changes.

- An HTTP POST request in the appropriate format—The app listens for a request on a designated port. The app displays a tag and optionally causes the camera to take an action when it receives an appropriate request.

If you used the Video Overlay window in the IP Camera web-based user interface to configure overlay text, statistics, or an image, the tag from the Video Tag app replaces the configured overlay item or items. The configured overlay item or items redisplay when the tag is cleared.

Configuring the Video Tag App on an IP Camera

Before you can use the Video Tag 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 Video Tag app on the IP camera on which it will run. See the "Related Documentation" section on page 1-1 for more information.

- If you want the app to display a tag when it detects a state change of an input port on the IP camera, configure the IP camera as described in the "Configuring the IP Camera for a GPIO Tag Trigger" section on page 12-3.

- If you want the app to display a tag when it detects and HTTP POST request, review the information in the "Sending an HTTP POST Request Tag Trigger" section on page 12-4.

- If you want the app to cause the IP camera to take an action when it detects a state change of an input port or an appropriate HTTP POST request, configure the IP camera as described in the "Configuring the IP Camera to Take an Action" section on page 12-5.

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 **VideoTag** radio button, then click **Configure**.

The Cisco Video Tag Application page appears.

Step 3   Enter appropriate values in the Cisco Video Tag Application page fields as described in the following table:

Field	Description
GPIO Trigger Area	
Enable GPIO	Check this check box to cause the app to listen for a state change of an input port on the IP camera, and to display the configured tag when it detects a state change.
Trigger Description	Enter the text of the tag to be displayed when the app detects a stat change of an input port on the IP camera.
	The text can contain up to 26 characters and can include letters, numbers, spaces, and these characters: ! $ % ( ) + , - . / : = @ ^ _ ` { } ~.
Enable Auto Clear	Check this check box cause the app to clear the text of the tag from the video display after the tag appears for a specified amount of time.
	If you do not enable auto clear, the text of the tag remains on the video display indefinitely.

Field	Description
Auto Clear Duration	If you checked the Enable Auto Clear option, enter the amount of time, in seconds, that the text of the tag should appear on the video display. The text is cleared from the display after this amount of time. Valid values are **5** through **300** (seconds). The default value is **30**.
HTTP Trigger Area	
Enable HTTP POST	Check this check box to cause the app to continuously listen for an HTTP POST request on the designated port, and to display the configured tag when it detects an appropriate request.
Port Number	Enter the port number on which the IP camera listens for an HTTP POST request. Valid port numbers are **48654** through **48999**.
Enable Auto Clear	Check this check box cause the app to clear the text of the tag from the video display after the tag appears for a specified amount of time. If you do not enable auto clear, the text of the tag remains on the video display indefinitely.
Auto Clear Duration	If you checked the Enable Auto Clear option, enter the amount of time, in seconds, that the text of the tag should appear on the video display. The text is cleared from the display after this amount of time. Valid values are **5** through **300** (seconds). The default value is **30**.

Step 4   Click the **Save** button in the Cisco Video Tag Application configuration page, and then click **OK** in the confirmation dialog box.

If you want to reset the options in the Cisco Video Tag 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 Video Tag app is running, you must stop and then restart the app before the changes take effect.

Configuring the IP Camera for a GPIO Tag Trigger

If you want the Video Tag app to display a tag when it detects a state change of an input port on the IP camera, you must enable the Input 1 setting on the IP camera in addition to configuring the GPIO trigger options as described in the "Configuring the Video Tag App on an IP Camera" section on page 12-2.

To enable the Input 1 setting, follow these steps:

Procedure

Step 1   From the IP camera web-based user interface, click the **Setup** link, click **Events** to expand the menu, then click **Notification Settings**.

Step 2 In the Event Triggering area on the Notification Settings page, check the **Input 1** check box.

Step 3 Click **Save** at the bottom of the Notification Settings page.

Sending an HTTP POST Request Tag Trigger

If you want the Video Tag app to display a tag when it detects an HTTP POST request, you must configure the HTTP trigger options as described in the "Configuring the Video Tag App on an IP Camera" section on page 12-2. In addition, you must ensure that the request is sent in the format that this section describes.

An HTTP POST request can be generated from a third-party application or add-on, such as the Advanced REST Client Application for Google Chrome, the RESTClient add-on for Mozilla Firefox, or the Linux wget command. The app can receive the request from any external source that can send HTTP requests and that is on the same network as the IP camera on which the app is running.

The HTTP POST request should include the elements that Table 12-1 describes.

Table 12-1   *Elements of HTTP POST Request for Video Tag App*

Request Element	Format	Remarks
URL	http://*ip_address*:*port*	*ip_address* is the IP address of the IP camera to which to send the request. *port* is the port on which the IP camera listens for an HTTP POST request.
Header	Content-Type: text/xml	—
Request payload	<HttpTrigger> <EnableTrigger>1</EnableTrigger> <TriggerDescription>*tag_text* </TriggerDescription> </HttpTrigger>	*tag_text* is the text of the tag to display. The text can contain up to 26 characters and can include letters, numbers, spaces, and these characters: ! $ % ( ) + , - . / : = @ ^ _ ` { } ~..

The following examples show two ways in which you can generate an HTTP POST trigger for the video tag app. In each example:

- The IP address of the IP camera is 10.110.0.00
- The View Video app is configured to listen for an appropriate HTTP request on port 48999
- The tag that this request generates appears as "Door Open" on the video image from the IP camera

Example 12-1   Sending an HTTP POST Request by Using the REST Client Application for Google Chrome

Figure 12-1 shows an example of using the REST Client Application for Google Chrome to generate an HTTP POST trigger for the Video Tag app. The REST Client Application application receives the status message "200:OK" when the request is successfully sent.

Figure 12-1   HTTP POST Request Using the REST Client Application for Google Chrome

Example 12-2   Sending an HTTP POST Request by Using the Linux wget Command

The following example shows using the Linux wget command to generate data in the form of an HTTP POST request and send the request to the Video Tag app:

$ **wget --header="Content-Type: text/xml" --post-data="<HttpTrigger><EnableTrigger>1 </EnableTrigger><TriggerDescription>Door Open</TriggerDescription></HttpTrigger>" 'http://10.110.0.00:48999'**

Configuring the IP Camera to Take an Action

You can configure the IP camera to take any or all of the following actions when it detects a state change or an HTTP trigger:

- Send information in an email message to the designated recipient.
- Change the state of the output 1 port on the IP camera as defined in the IO Ports page in the IP Camera web-based user interface
- Send information a designated Syslog server
- Send information as an HTTP stream to a remote system
- Upload a snapshot or video clip of the event to an FTP server

To configure actions, follow these steps:

Procedure

Step 1   From the IP camera web-based user interface, click the **Setup** link, click **Events** to expand the menu, then click **Notification Settings**.

Step 2   In the Event Triggering area on the Notification Settings page, check the **App** check box.

Step 3   Check the desired check boxes to designate that actions that the Video Tag app causes the IP camera to take when a trigger occurs:

- **Email**—Sends information about the event that caused the trigger in an email message to the designated recipient. You designate the recipient and configure other email options in other fields on the Notification Settings page.
- **Output 1**—Changes the state of the output 1 port on the IP camera as defined in the IO Ports page in the IP Camera web-based user interface.

- **Syslog**—Sends information about the event that caused the trigger to a designated Syslog server.
- **HTTP**—Sends information about the event as an HTTP stream to a remote system.
- **FTP**—Uploads a snapshot or video clip of the event to an FTP server.

Step 4   In the Notifications page, configure related options for the actions that you chose, if needed.

For detailed instructions, see *Cisco Video Surveillance IP Camera Configuration Guide* for your IP camera mode, or click the **Help** link for the Notifications page in the IP camera web-based user interface.

Step 5   Click **Save** at the bottom of the Notification Settings page.

Running the Video Tag App

To run the Video Tag app on an IP camera, perform the following steps:

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 **VideoTag** radio button.

Step 3   (Optional) If you want the Video Tag 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 4   Click the **Run** button.

Stopping the Video Tag App

To stop the Video Tag app on an IP camera, follow these steps:

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 **VideoTag** radio button.

Step 3   Click the **Stop** button.

I N D E X