Cisco Analog Video Gateway CLI Administrator Guide

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Americas Headquarters
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
http://www.cisco.com
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 527-0883

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CONTENTS

Cisco Analog Video Gateway Module Overview

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The Cisco IP Video Surveillance 16-Port Analog Video Gateway Network Module, referred to as the Cisco Analog Video Gateway module throughout this guide, converts analog camera signals into IP-accessible endpoints. The network module receives input from analog video cameras and converts analog signals to IP video streams for IP networks used in closed-circuit IP video surveillance (IPVS) systems (see Figure 1). These video streams can be displayed over a network or locally on analog monitors.

The Cisco Analog Video Gateway module fits into Cisco Integrated Services Routers (Cisco ISRs) that are optimized for the secure, wire-speed delivery of concurrent data, voice, video, and wireless services.

The Cisco Analog Video Gateway aggregates video streams for transport across the network. By transporting the video over your existing IP network, you no longer need to maintain a separate, duplicate system. Specific capabilities of the Cisco Analog Video Gateway include:

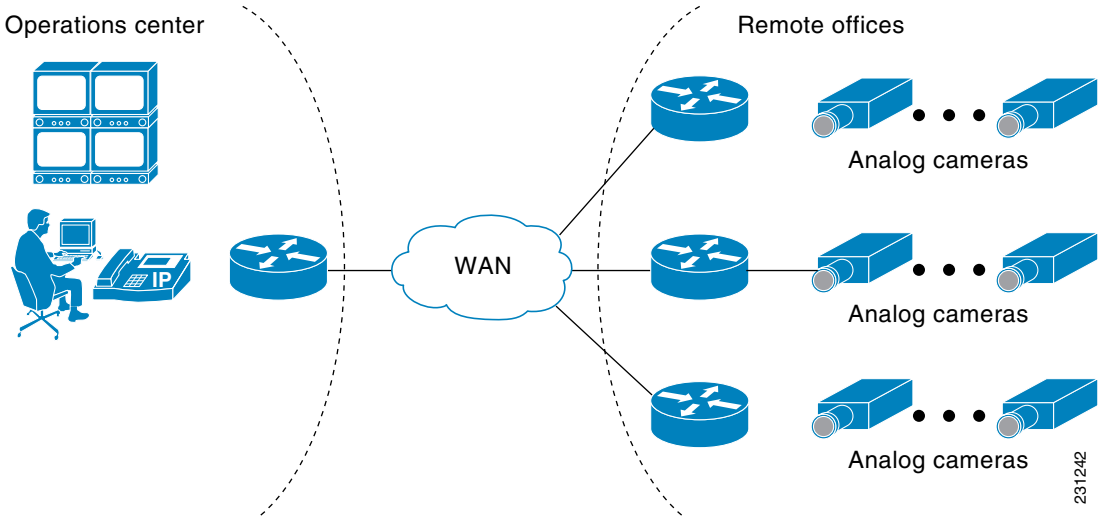
- High-density analog video encoding: Up to 16 ports in a single module
- Maximum-quality video resolution:
  - Common Intermediate Format (CIF) to 2CIF/4CIF
  - Frame rates up to 30 frames per second (fps) per port
- Remote camera control: Two independent RS-485 loops for serial pan-tilt-zoom (PTZ) control of traditional cameras
- Flexible codec selection: Motion JPEG (MJPEG), MPEG4, and H.264
- Integrated contact closure ports: Four input and four additional configurable inputs and outputs
- Embedded motion detection
- Hardware is based on a flexible digital-signal-processor (DSP) platform

This router-integrated, single-box solution is designed for video surveillance and other network services such as routing, security, and unified communications. It allows you to consolidate costly branch-office servers and deploy new applications centrally, while offering real-time access to physical security video and data.

Whenever possible, configuration and management of the Cisco Analog Video Gateway module should be configured using the Video Surveillance Operations Manager (VSOM) graphical user interface.

This guide supports features for version 1.2 and earlier versions of the Cisco Analog Video Gateway network module. To view the product feature history, see the *Release Notes for the Cisco Video Management and Storage System*, which lists feature support for Cisco Analog Video Gateway versions.

Figure 1 Analog Camera Signals Converted to IP Video Streams



Analog cameras are connected to video input ports of the network module over coaxial cable using DB-37 connector. Each Cisco Analog Video Gateway module has 16 ports, all of which can be configured as inputs. Ports 0 and 1 can be configured as inputs or outputs for connecting to analog monitors.

The video encoder converts the analog signal into a compressed video stream for transmission over the IP network and sends it to a network video recorder (NVR), which is typically located in the data center.

Security operations personnel can access and review archived surveillance video recorded at remote sites from terminals in their local facility. The NVR can reposition remote cameras by centering, focusing, and zooming them based on event triggers. Pan-tilt-zoom (PTZ) camera control is tunneled across the IP network using serial (RS-232/RS-485) interfaces.

Contact closure of eight input sensors and four output control elements allows the video surveillance system to report on events detected by the input sensors and allows the system to determine output control movements or feedback to the PTZ devices.

The primary means of configuring the Cisco Analog Video Gateway is by using the Cisco Video and Management Storage System (for details, see the *Cisco Video Management and Storage System CLI Administrator Guide*). The Cisco Analog Video Gateway can also be configured using either its command-line interface (CLI) or the XML-based application programming interface (API). For example, you can configure XML scripts and use the NVR to configure the module. See the *Cisco Analog Video Gateway XML API Guide* for information about using the XML API to configure the Cisco Analog Video Gateway. This guide describes how to use the CLI to configure the software options of the Cisco Analog Video Gateway module.

The Cisco Analog Video Gateway is one of four components that make up the Cisco IP Video Surveillance solution. Other components are the:

- Cisco integrated services routers (ISRs)
- Cisco Video Management and Storage System Network Module
- Cisco Video Surveillance Manager product line, consisting of the Cisco Video Surveillance Operations Manager Software and the Cisco Video Surveillance Media Server Software

System Application

The Cisco Analog Video Gateway software is a Linux-based application (see *Open Source License Notice*) that resides on a video network module that plugs into a host Cisco ISR running Cisco IOS software.

The Cisco Analog Video Gateway module is a video encoder engine with its own startup and run-time configurations and its own CLI, all of which are independent of the Cisco IOS configuration on the ISR. The Linux-based software of the network module does not have its own console on its front panel but uses the internal virtual console from the host router.

Launch and configure the module through the router by means of a configuration session on the module (see "Configuring Host Router and Cisco Analog Video Gateway Module Interfaces" section on page 7).

This arrangement—host router plus video network module (the latter is also sometimes called an *appliance* or *blade* or, with installed software, a *services* or *services engine*)—provides a router-integrated application platform for accelerating data-intensive applications.

Applications typically involve:

- Analog video gateway
- Application-oriented networking
- Contact centers and interactive-voice-response applications
- Content caching and delivery
- Data and video storage
- Network analysis
- Voice-mail and auto-attendant applications

Video Ports

Video port profiles are physical hardware profiles that you can configure by using either the CLI or the XML-based API. For example, you can configure XML scripts and use the NVR to configure the module. See the *Cisco Analog Video Gateway XML API Guide* for information about using the XML API to configure the Cisco Analog Video Gateway.

Physical port profile parameters can be modified but cannot be deleted. Two of the 16 video ports, port 0 and 1, can be configured as either input ports or output ports. The remaining ports can be configured only as input ports. Video monitors are connected to ports that are configured as output ports. To use the CLI to configure video ports for the Cisco Analog Video Gateway, see Configuring Video Parameters.

Video Services

A video surveillance session is initiated by a remote end user using HTTP or RTSP session requests. Video profiles are software profiles, such as video codec or video stream profiles, that can be added, modified, or deleted. To configure video profiles on the Cisco Analog Video Gateway by using the CLI, see "Configuring Video Parameters" section on page 29.

Video Profiles

Video stream profiles are created for every camera and are viewed through the stream ID created for every port. Video profiles can be created by using the CLI or the XML APIs.

The following are basic types of video profiles:

- Video Codec Profiles
- Video Motion Detection Profiles
- Video Stream Profiles

Video Codec Profiles

The video codec profile is a collection of characteristics for that codec. You can configure frame rate, codec type, resolution, bit rate, maximum bit rate, signal format, and groups of pictures (GOPs). Single or multiple video codec profiles can be created and associated with all the video ports. You can enable or disable deinterlacing, which is the process of converting interlaced video into a non-interlaced form, starting with Cisco Analog Video Gateway 1.1, and later versions.

The MJPEG, H.264, and MPEG4 codecs can use a variable bit-rate (VBR) algorithm, in which the desired bit rate can be controlled through the quality factor for MJPEG and the bit-rate can be maximized for MPEG4 and H.264. The H.264 and MPEG4 codecs can also use constant bit-rate (CBR) algorithms that allow the setting of a maximum bit-rate parameter.

Video Motion Detection Profiles

Cisco video servers support motion detection algorithms (MDAs) for all video codecs. Motion detection (using raw motion detection) for MJPEG is supported starting with Cisco Analog Video Gateway 1.1, and later versions. A motion detection region is created with x, y coordinates. Multiple regions can be created for motion detection.

Video Stream Profiles

A video stream profile is a collection of video characteristics that includes codec, detection, and port information.

Video streaming is controlled through the XMLAPI, in which the network video recorders attempt a TCP connection to the Cisco Analog Video Gateway module to establish video streaming.

Input streams from the camera to the Cisco Analog Video Gateway module are analog, and output streams from the network module to the IP network are packetized.

Contact Closure Ports

Each Cisco Analog Video Gateway module has eight contact-closure interfaces. The first four contact-closure interfaces can be configured as alarm inputs or relay outputs. The other interfaces can be configured only as inputs. The contact-closure inputs are used to detect contact trigger events and the outputs are used to control external devices.

You can configure and monitor these alarm interfaces by using the CLI or the XML API. See the *Cisco Analog Video Gateway XML API Guide* for information about using the XML API to configure the Cisco Analog Video Gateway. A contact-closure software module manages the alarm interfaces. To configure contact-closure ports on the Cisco Analog Video Gateway using the CLI, see "Configuring Contact Closure Profiles" section on page 49.

Alarm Monitor Profiles

The Cisco Analog Video Gateway alarm software module serves as a central point for the control of alarms and relay interfaces in the video network module. The alarm software module sets the alarm interfaces to their predetermined states and monitors trigger events. When an alarm is detected, the alarm software module determines the source of the alarm, updates the system log file, and sends predefined HTTP messages to the controllers. The controllers act on these messages, based on the nature of the alarm. For example, a controller might adjust the camera, start video streaming, or trigger the external devices.

All four relay interface outputs in the video network module can be accessed by multiple users, but each interface can be operated by only one user at a time.

The alarm monitor senses alarm events on each alarm interface. When an event is triggered, it notifies the alarm application, which then passes the information to the configured monitor destination. To configure alarm profiles on the Cisco Analog Video Gateway using the CLI, see Configuring Alarm Monitor Profiles.

RS-485 Ports for Camera Control

The Cisco Analog Video Gateway module only supports a half-duplex, two-wire RS-485 communication network, sometimes called a ring, which is used to connect PTZ cameras. The video network module consists of two RS-485 ports.

The RS-485 application is designed to work with external third-party vendor software in the NVR and supports only pass-through mode. You can configure and monitor these alarm interfaces using the CLI or GUI interfaces. See the *Cisco Analog Video Gateway XML API Guide* to configure the Cisco Analog Video Gateway using the XML API. To configure destination profiles on the Cisco Analog Video Gateway using the CLI, see "Configuring Camera Controls" section on page 61.

Configuring Host Router and Cisco Analog Video Gateway Module Interfaces

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To configure the Cisco Analog Video Gateway network module after it is installed in your host Cisco Integrated Services Router (ISR), you need to configure the following:

- Cisco ISR external interface to an external network link using the Cisco IOS CLI for setting standard router settings
- Cisco ISR internal interface to the Cisco Analog Video Gateway module, using the Cisco IOS CLI for setting the network module IP address and default gateway router
- Cisco Analog Video Gateway module internal interface to the host router, using network module firmware for setting application settings
- Cisco Analog Video Gateway module external interface to an external link, using the module firmware for servicing external requests

Whenever possible, configuration and management of the Cisco Analog Video Gateway module should be configured using the Video Surveillance Operations Manager (VSOM) graphical user interface.

The following sections describe the tasks required to configure the host router and Cisco Analog Video Gateway module interfaces:

Before Configuring the Cisco Analog Video Gateway

Complete the following prerequisites for the ISR, network module, and file server before you attempt to configure the Cisco Analog Video Gateway:

Cisco ISR

- Plan software installations, upgrades, or downgrades for times when you can take out of service or off line all applications that run on the host router.
- Ensure that your Cisco router serves as your host router, running the appropriate Cisco IOS release. To learn which release your router is currently running, check the output from the **show version** command.

Note When minimum release requirements are met, you can change images on either the host router or on the Cisco Analog Video Gateway module, without affecting the other image.

Network Module

- If it is not already installed at the factory, install the Cisco Analog Video Gateway network module into the host router with sufficient physical memory (see Table 1) to accommodate the Cisco Analog Video Gateway application software.

Table 1 Cisco Analog Video Gateway Module Memory Requirements

Type of Memory	Required Size
CompactFlash memory	512 M
RAM	512 M

Note For detailed information on hardware installation, see *Installing Cisco Network Modules in Cisco Access Routers*.

- Before swapping out a Cisco Analog Video Gateway module in an existing system, perform a full backup of all data.
- After the swap, restore the data.

Note For more information, see the "Backing Up and Restoring Configurations" section on page 19.

- Note the Cisco Analog Video Gateway module location in the host router:
  - *slot*: Number of the host router chassis slot for the module. After you install the module, you can obtain this information by using the router **show running-config** command.
  - *unit*: Number of the daughter card on the module. This value should be 0.

Note You need this information for the "Interface Configuration Tasks" section on page 12 and the "Opening and Closing a Network Module Session" section on page 14.

File Server

- Verify that your download File Transfer Protocol (FTP) or Trivial File Transfer Protocol (TFTP) file server is accessible:
  - FTP file server: Use for installations, backups, and data restores.
  - TFTP file server: Use for boot helper operations to recover from a failed installation.
- Configure the Cisco Analog Video Gateway module software only from a console that connects to a serial console port on the host router.

Note See the *Cisco Analog Video Gateway Installation and Upgrade Guide* for more information.

- Access the Cisco Analog Video Gateway module software only by first accessing one of the following:
  - Cisco IOS command-line interface (CLI)
  - Cisco Analog Video Gateway XML application programming interface (API)

Entering and Exiting the Command Environment

This section describes the procedures for entering and exiting the command environment, in which the Cisco Analog Video Gateway configuration commands are executed. The following sections describe these procedures:

EXEC and Configuration Modes

The Cisco Analog Video Gateway user EXEC, privileged EXEC, and configuration command modes are similar to the user EXEC, privilege EXEC, and configuration modes for Cisco IOS CLI commands. The description for each command of this section indicates the command mode.

Entering the Command Environment

When the Cisco Analog Video Gateway module has been installed and is active, use the following procedure to enter the command environment.

Prerequisites

The following information is required to enter the command environment:

- IP address of the Cisco ISR that contains the Cisco Analog Video Gateway module
- Username and password for logging in to the router
- Slot number of the module

SUMMARY STEPS

1. Open a Telnet session.
2. **telnet** *ip-address*
3. Enter the user ID and password of the router.
4. **service-module video-service-engine** *slot*/*port* **session**
5. (Optional) **enable**

DETAILED STEPS

	Command or Action	Purpose
Step 1	Open a Telnet session.	Use Microsoft Windows command prompt window, a secure shell, or a software emulation tool such as WRQ Reflection.
Step 2	**telnet** *ip-address* **Example:** `C:\>telnet 172.16.231.11`	Specifies the IP address of the router.
Step 3	`Username: userid` `Password: password`	Enter your user ID and password for the router.

Step 4	**service-module video-service-engine** *slot/port* **session**
	
	Example:
	`Router# service-module video-service-engine 1/0 session`
	`se-10-0-0-0#`
		Enters the Cisco Analog Video Gateway module command environment by using the module located in *slot* and *port*. The prompt changes to the service module prompt with the IP address of the network module.
		If the message
		`"Trying ip-address slot/port ..."`
		`Connection refused by remote host`
		appears, enter the command
		service-module video-service-engine *slot/port* **session clear**
		and repeat Step 4.

Step 5	**enable** **Example:** `se-10-0-0-0# enable`	(Optional) Enters Cisco Analog Video Gateway EXEC mode. You can begin configuring the network module.

Exiting the Command Environment

To leave the Cisco Analog Video Gateway module command environment and return to the router command environment, return to the Cisco Analog Video Gateway EXEC mode and enter the **exit** command twice.

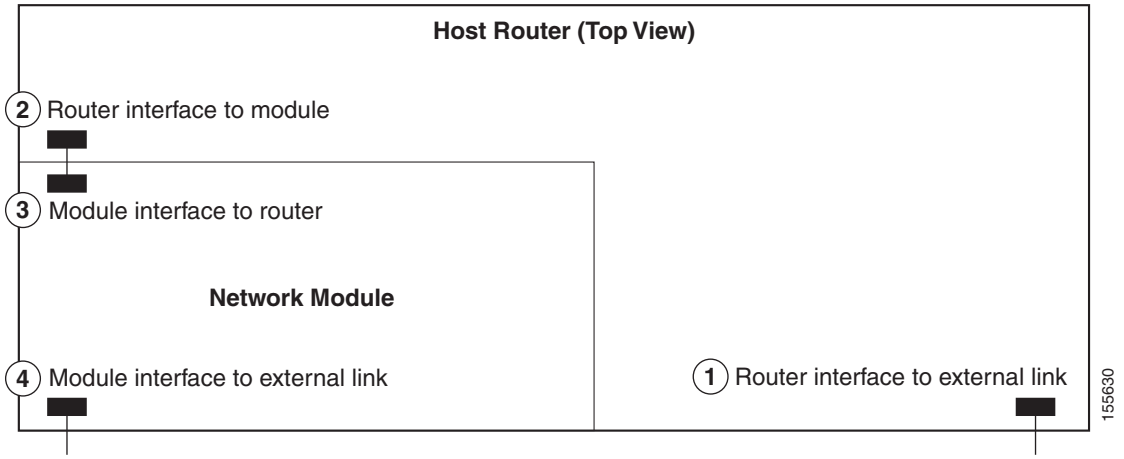
The following example shows the exit procedure:

```
se-10-0-0-0# exit
se-10-0-0-0> exit
Router#
```

Configuring Interfaces

The host router and the Cisco Analog Video Gateway network module use several interfaces for internal and external communication (see Figure 2). Each interface is configurable—for the router by using the Cisco IOS CLI, and for the module by using the module firmware Linux-based CLI or XML API.

Figure 2 Router and Cisco Analog Video Gateway Module Interfaces



	On This Hardware Interface...	Configure These Settings...	Using This Configuration Interface
1	Host router interface to external link	Standard router settings	Host router Cisco IOS CLI
2	Host router interface to module	Cisco Analog Video Gateway network module IP address and default gateway router	
3	Cisco Analog Video Gateway module interface to router	All other Cisco Analog Video Gateway module application settings	Cisco Analog Video Gateway module CLI or XML API
4	Cisco Analog Video Gateway module interface to external link	Support for data requests and transfers from outside sources **Note** This external network interface was disabled and is not usable in software version 1.2 and later.	

The following sections describe the tasks that are necessary for configuring the host router and network module interfaces:

- Interface Configuration Tasks, page 12
- Opening and Closing a Network Module Session, page 14

Interface Configuration Tasks

The first configuration task is to set up the Cisco Analog Video Gateway module interface to the host router and to its external links. This enables you to access the module so that you can install and configure the Cisco Analog Video Gateway software application.

Steps 1 and 2 open the host router CLI and accesses the router interface to the Cisco Analog Video Gateway module. The remaining steps configure the interface.

Note If you lose power or connection during any of the following procedures, the system usually detects the interruption and tries to recover. If it fails to do so, fully reinstall the system using the boot helper.

SUMMARY STEPS

From the Host-Router CLI

1. **enable**
2. **configure terminal**
3. **interface video-service-engine** *slot*/**0**
4. **ip address** *router-side-ip-address subnet-mask*

   or

   ip unnumbered *type number*
5. **service-module ip address** *module-side-ip-address subnet-mask*
6. **service-module external ip address** *external-ip-address subnet-mask*
7. **service-module ip default-gateway** *gateway-ip-address*
8. If **ip unnumbered** *type number* is used in step 4, then set **ip route**
9. **end**
10. **copy running-config startup-config**
11. **show running-config**

DETAILED STEPS

	Command or Action	Purpose
	From the Host-Router CLI	
Step 1	**enable** **Example:** `Router> enable`	Enters privileged EXEC mode on the host router. Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Router# config t`	Enters global configuration mode on the host router.

	Command or Action	Purpose
Step 3	**interface video-service-engine** *slot*/**0** **Example:** `Router(config)# interface video-service-engine 1/0`	Enters interface configuration mode for the slot and port where the Cisco Analog Video Gateway module resides. • slot: specifies the module slot • port: specifies the port number

Step 4	**ip address** *router-side-ip-address subnet-mask*
	
	or
	
	ip unnumbered *type number*
	
	Example:
	`Router(config-if)# ip address 10.0.0.20 255.255.255.0`
	
	or
	
	`Router(config-if)# ip unnumbered ethernet 0`
		Specifies the router interface to the module.
		• *router-side-ip-address subnet-mask*—IP address and subnet mask for the host router interface.
		• *type number*—Type and number of another serial interface on which the router has an assigned IP address. It cannot be another unnumbered interface. Serial interfaces using High Level Data Link Control (HDLC), Point-to-Point Protocol (PPP), Link Access Procedure, Balanced (LAPB), Frame Relay encapsulations, Serial Line Internet Protocol (SLIP), and tunnel interfaces can be unnumbered.

Step 5	**service-module ip address** *module-side-ip-address subnet-mask* **Example:** `Router(config-if)# service-module ip address 172.0.0.20 255.255.255.0`	Specifies the IP address for the Cisco Analog Video Gateway module interface to the router. • *module-side-ip-address*—IP address for the interface. • *subnet-mask*—Subnet mask to append to the IP address; must be in the same subnet as the host router.
Step 6	**service-module external ip address** *external-ip-address* subnet-*mask* **Example:** `Router(config-if)# service-module external ip address 172.0.0.30 255.255.255.0`	Specifies the IP address for the external LAN interface on the module. • *external-ip-address*—IP address for the interface. • *subnet-mask*—Subnet mask to append to the IP address.
Step 7	**service-module ip default-gateway** *gateway-ip-address* **Example:** `Router(config-if)# service-module ip default-gateway 10.0.0.40`	Specifies the IP address for the default gateway router for the module. The argument is as follows: • *gateway-ip-address*—IP address for the gateway router.
Step 8	(Optional) If the **ip unnumbered** *type number* command is used in step 4, then set: **ip route** *service-module-ip-address subnet-mask* **video-service-engine** *1/0* **Example:** `Router(config-if)# ip route 172.0.0.20 255.255.255.255 video-service-engine 1/0`	Sets the **ip route** command if the **ip unnumbered** *type number* command is used in Step 4.
Step 9	**end** **Example:** `Router(config-if)# end`	Returns to global configuration mode on the host router.

	Command or Action	Purpose
Step 10	**copy running-config startup-config** **Example:** `Router# copy running-config startup-config`	Saves the new running configuration of the host router.
Step 11	**show running-config** **Example:** `Router# show running-config`	Displays the running configuration of the host router. Use this command to verify address configurations.

Examples

The following partial sample output from the **show running-config** command shows how the interfaces are configured.

```
interface video-service-engine1/0
 ip address 10.0.0.20 255.255.255.0
 service-module external ip address 172.0.0.30 255.255.0.0
 service-module ip address 172.0.0.20 255.255.255.0
 service-module ip default-gateway 10.0.0.40
```

Opening and Closing a Network Module Session

This section describes how to open and close a session on the Cisco Analog Video Gateway module.

Note

- Before you install your application software, opening a session brings up the boot loader. The boot loader is a small set of system software that runs when the system first powers up. It loads the operating system from the disk (external CompactFlash memory) or network, which loads and runs the Cisco Analog Video Gateway application. The boot loader may optionally load and run the boot helper. After you install the software, opening a session brings up the application.
- You can conduct only one session at a time.
- The Steps 1 and 2 open the host-router CLI and access the module. The remaining steps configure the module and return you to the host-router CLI.

SUMMARY STEPS

From the Host-Router CLI

1. **enable**
2. **service-module video-service-engine** *slot*/**0 status**
3. **service-module video-service-engine** *slot*/**0 session**

From the Service-Module Interface

4. Network module configuration commands
5. **Control-Shift-6 x**

From the Host-Router CLI

6. **service-module video-service-engine** *slot*/**0 session clear**

DETAILED STEPS

	Command or Action	Purpose
	From the Host-Router CLI	
Step 1	**enable** **Example:** `Router> enable`	Enters privileged EXEC mode on the host router. Enter your password if prompted.
Step 2	**service-module video-service-engine** *slot*/**0 status** **Example:** `Router# service-module video-service-engine 2/0 status`	Displays the status of the specified module, so that you can ensure that the module is running (that is, in steady state). **Note** If the module is not running, start it with one of the startup commands listed in the "Shutting Down and Starting Up the Cisco Analog Video Gateway Application" section on page 18.

Step 3	**service-module video-service-engine** *slot*/**0 session**
	
	Example:
	`Router# service-module video-service-engine 1/0 session`
	
	`Trying 10.10.10.1, 2065 ... Open`
		Begins a module session on the specified module. Do one of the following:
		• To interrupt the auto-boot sequence and access the boot loader, quickly type ***.
		Note The *** entry can only be executed at reload.
		• To start a configuration session, press **Enter**.

	From the Service-Module Interface (boot loader prompt or configuration prompt)	

Step 4	.
	.
	.
	
	Example (boot loader):
	`VSE-Module bootloader> config`
	
	OR
	
	Example (Configuration):
	`VSE-Module> configure terminal`
	`VSE-Module(config)>`
	.
	.
	.
	`VSE-Module(config)> exit`
	`VSE-Module> write`
		Enters boot loader or configuration commands on the module as needed.
		
		• *Boot loader command* choices include **boot**, **config**, **exit**, **help**, **ping**, **reboot**, **show**, and **verify**.
		OR
		• *Configuration command* choices are similar to those that are available on the router. Access global configuration mode by using the **configure terminal** command. Enter configuration commands. Then exit global configuration mode with the **exit** command and save your new configuration with the **write** command. Notice that you do not use the **enable** command and the prompt does not change from **>**.

Step 5	Press **Control-Shift-6 x**.	Closes the module session and returns to the router CLI. **Note** The module session stays up until you clear it in Step 6. While the session remains up, you can return to it from the router CLI by pressing **Enter**.

	Command or Action	Purpose
	From the Host-Router CLI	
Step 6	**service-module video-service-engine** *slot*/**0 session clear** **Example:** `Router# service-module video-service-engine 1/0 session clear`	Clears the module session for the specified module. When prompted to confirm this command, press **Enter**.

Configuring the Cisco Analog Video Gateway Profiles

After you configure the host router and the Cisco Analog Video Gateway network module, you can begin to configure the video (see Configuring Video Parameters), contact-closure (see Configuring Contact Closure Profiles), and alarm-monitor (see Configuring Alarm Monitor Profiles) profiles.

Administering the Cisco Analog Video Gateway

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Whenever possible, configuration and management of the Cisco Analog Video Gateway module should be configured using the Video Surveillance Operations Manager (VSOM) graphical user interface.

This chapter contains the following information for administering the Cisco Analog Video Gateway module application:

Note

- The tables in these sections show only common router and network module commands.
  - To view a complete list of available commands, type **?** at the prompt

    Example: `Router(config-if)# ?`
  - To view a complete list of command keyword options, type **?** at the end of the command

    Example: `Router# service-module video-service-engine ?`
- The commands are grouped in the tables by the configuration mode in which they are available. If the same command is available in more than one mode, it can act differently in each mode.

Shutting Down and Starting Up the Cisco Analog Video Gateway Application

To start up or shut down the network module or the Cisco Analog Video Gateway application that runs on the module, use **shutdown** and **startup** commands as needed from Table 2.

Note

- Some shutdown commands can potentially disrupt service. If command output for such a command displays a confirmation prompt, confirm by pressing **Enter** or cancel by typing **n** and pressing **Enter**. Alternatively, prevent the prompt from displaying by using the **no-confirm** keyword.
- Some commands shut down the module or application and then immediately restart it.

Table 2 Common Shutdown and Startup Commands

Configuration Mode	Command	Purpose
`Router#`	**service-module video-service-engine** *slot*/**0 reload**	Shuts down the module operating system gracefully, and then restarts it from the boot loader.
`Router#`	**service-module video-service-engine** *slot*/**0 reset**	Resets the hardware on a module. Use only to recover from shutdown or a failed state. **Caution** Use this command with caution. It does *not* provide an orderly software shutdown, and it can impact file operations that are in progress.
`Router#`	**service-module video-service-engine** *slot*/**0 session**	Accesses the specified network module and begins a module configuration session.
`Router#`	**service-module video-service-engine** *slot*/**0 shutdown**	Shuts down the module operating system gracefully. Use this command sequence when removing or replacing a hot-swappable module during online insertion and removal (OIR).
`Router#`	**service-module video-service-engine** *slot*/**0 status**	Displays configuration and status information for the module hardware and software.
`Router(config)#`	**shutdown**	Shuts down the entire system (host router and network module) gracefully.
`VSE-Module bootloader>`	**boot**	Starts the boot loader, boot helper, or application.
`VSE-Module(offline)>`	**reload**	Performs a graceful halt and reboot of the module operating system.

Table 2 Common Shutdown and Startup Commands (continued)

Configuration Mode	Command	Purpose
VSE-Module>	**reboot**	Shuts down the module without first saving configuration changes, and then reboots the module from the boot loader.
VSE-Module>	**reload**	Shuts down the module gracefully, and then reboots the module from the boot loader.
VSE-Module>	**shutdown**	Shuts down the module application gracefully, and then shuts down the module.

Backing Up and Restoring Configurations

To back up or restore configuration settings or to manage previous backups, use commands listed in Table 3.

Table 3 Common Backup and Restore Commands

Configuration Mode	Command	Purpose
VSE-Module(config)>	**backup revisions**	Specifies the number of previous backups to keep on the server. A value of zero causes all previous backups to be removed and only the current one kept.
VSE-Module(config)>	**backup server**	Configures an external FTP backup server for storage.
VSE-Module(offline)>	**backup category**	Performs a backup of the configuration files to a backup server.
VSE-Module(offline)>	**backup revisions**	Specifies the number of previous backups to keep on the server. A value of zero causes all previous backups to be removed and only the current one kept.
VSE-Module(offline)>	**backup server**	Configures an external FTP backup server for storage.
VSE-Module(offline)>	**restore**	Restores the system to its factory default configuration or to the specified backup.
VSE-Module(offline)>	**show backup**	Displays information about previous backups and about the configured backup server.
VSE-Module>	**show backup**	Displays information about previous backups and about the configured backup server.

Verifying System Status

To verify the status of an installation, upgrade, or downgrade, or to troubleshoot problems, use verification and troubleshooting commands as needed from Table 4.

Note Among keyword options for many **show** commands is the provision to display diagnostic output on your screen or to pipe it to a file or a URL.

Table 4 Common Verification and Troubleshooting Commands

Configuration Mode	Command	Purpose
`Router#`	**ping**	Pings a specified IP address to check network connectivity (does not accept a hostname as destination).
`Router#`	**show arp**	Displays the current Address Resolution Protocol (ARP) table.
`Router#`	**show clock**	Displays the current date and time.
`Router#`	**show configuration**	Displays the current boot loader configuration as entered by means of the **configure** command.
`Router#`	**show controllers video-service-engine**	Displays interface debug information.
`Router#`	**show diag**	Displays standard Cisco IOS diagnostics information, including information about Cisco Analog Video Gateway.
`Router#`	**show hardware**	Displays information about network module and host-router hardware.
`Router#`	**show hosts**	Displays the default domain name, style of name lookup, list of name-server hosts, and cached list of hostnames and addresses
`Router#`	**show interfaces**	Displays information about all hardware interfaces, including network and disk.
`Router#`	**show interfaces video-service-engine**	Displays information about the module side of the router-module interface.
`Router#`	**show ntp status**	Displays information about Network Time Protocol (NTP).
`Router#`	**show processes**	Displays a list of the application processes that are running.
`Router#`	**show running-config**	Displays the configuration commands that are in effect.
`Router#`	**show startup-config**	Displays the startup configuration.

Table 4 Common Verification and Troubleshooting Commands (continued)

Configuration Mode	Command	Purpose
Router#	**show tech-support**	Displays general information about the host router that is useful to Cisco technical support for problem diagnosis.
Router#	**show version**	Displays information about the loaded router-software or network module-boot loader version and also hardware and device information.
Router#	**test scp ping**	Pings the network module to check network connectivity.
Router#	**verify**	Displays version information for installed hardware and software.
VSE-Module>	**ping**	Pings a specified IP address to check network connectivity (does not accept a hostname as destination).
VSE-Module>	**show arp**	Displays the current Address Resolution Protocol (ARP) table.
VSE-Module>	**show clock**	Displays the current date and time.
VSE-Module>	**show config**	Displays the current boot loader configuration as entered by the **configure** command.
VSE-Module>	**show hosts**	Displays the default IP domain name, lookup style, name servers, and host table.
VSE-Module>	**show interfaces**	Displays information about the network module interfaces.
VSE-Module>	**show ntp status**	Displays information about Network Time Protocol (NTP).
VSE-Module>	**show processes**	Displays a list of the application processes that are running.
VSE-Module>	**show running-config**	Displays the configuration commands that are in effect.
VSE-Module>	**show software directory download**	Displays the contents of the downgrade or download directory on the download FTP file server.
VSE-Module>	**show software download server**	Displays the name and IP address of the configured download FTP file server.
VSE-Module>	**show software licenses**	Displays license information for installed packages.
VSE-Module>	**show software packages**	Displays version information for installed packages.
VSE-Module>	**show software versions**	Displays version information for installed software.
VSE-Module>	**show startup-config**	Displays the startup configuration.

Table 4 Common Verification and Troubleshooting Commands (continued)

Configuration Mode	Command	Purpose
VSE-Module>	**show tech-support**	Displays general information about the network module that is useful to Cisco technical support for problem diagnosis.
VSE-Module>	**show trace**	Displays the contents of the trace buffer.
VSE-Module>	**show version**	Displays information about the loaded router-software or network module-boot loader version and also hardware and device information.
VSE-Module>	**software remove**	Removes downloaded files (all files, downloaded package and payloads, or stored downgrade files created during an upgrade).

Diagnostics and Logging Options

To configure logging options for Cisco Analog Video Gateway, use logging commands as needed from Table 5.

Note Among keyword options for many **log** and **trace** commands is the provision to display diagnostic output on your screen or to save it to a file or a URL.

Table 5 Common Logging Commands

Configuration Mode	Command	Purpose
VSE-Module>	**log console monitor**	Configures error logging by means of console logging (logged messages are displayed on the console).
VSE-Module(config)>	**log console**	Configures error logging by means of console logging (logged messages are displayed on the console).
VSE-Module(config)>	**log server**	Configures error logging by means of a system-log (syslog) server (syslog is an industry-standard protocol for capturing log information for devices on a network).

Diagnostics are of two types:

- System log (syslog)—Syslog is an industry-standard protocol for capturing the following events:
  - Fatal exceptions that cause an application or system crash, during which normal error-handling paths are typically nonfunctional
  - Application run-time errors that cause unusual conditions and configuration changes

  The syslog file size is fixed at 10 MB. Syslog configurations survive a power failure.

- Traces—Trace logs capture events related to the progress of a request through the system.

  Trace logs survive a CPU reset; trace configurations survive a power failure. Log and display these with the **trace** commands.

To generate and display syslog and trace diagnostics, use trace commands as needed from Table 6.

Table 6 Common Trace Commands

Configuration Mode	Command	Purpose
SE-Module>	**clear trace**	Clears logged trace events for specified modules.
SE-Module>	**log trace**	Logs configured traces to the network module (can be done locally or remotely).
SE-Module>	**no trace**	Disables tracing for specified modules, entities, or activities.
SE-Module>	**show errors**	Displays error statistics by module, entity, or activity.
SE-Module>	**show trace**	Displays trace settings.
SE-Module>	**show trace buffer**	Displays the contents of the trace buffer.
SE-Module>	**show trace store**	Displays the contents of the traced messages that are stored.
SE-Module>	**trace**	Enables tracing (that is, generates error reports) for specified modules, entities, or activities.

Adding a DNS Server (Optional)

Cisco Analog Video Gateway uses a cache-only domain name system (DNS) server that listens on port 53 for both User Datagram Protocol (UDP) and Transmission Control Protocol (TCP) packets. A typical use for such a server is to enable the application to continue operation in a branch office when the WAN is down and the server is on the other side of the WAN in an enterprise or service-provider data center.

The DNS server cache policy is to automatically revalidate a cached entry when its time to live (TTL) expires, and to discard an entry only when the parent DNS server is accessible and no longer contains the name. This differs from most DNS caches, which simply discard an entry when the TTL expires.

Note

- Steps 1 and 2 opens the host router CLI and accesses the network module. The remaining steps configure the module return you to the host router CLI.
- Open, close, and clear a module session as described in the "Opening and Closing a Network Module Session" section on page 14.

SUMMARY STEPS

From the Host-Router CLI

1. **service-module video-service-engine** *slot*/**0 session**

From the Service-Module Interface

2. **configure terminal**
3. **hostname** *hostname*
4. **ip domain-name** *domain*
5. **ip name-server** <*ip-address*> [<*ip-address*> …]
6. **exit**
7. **show hosts**
8. **write**
9. **Control-Shift-6 x**

From the Host-Router CLI

10. **service-module video-service-engine** *slot*/**0 session clear**

DETAILED STEPS

	Command or Action	Purpose
	From the Host-Router CLI	
Step 1	**service-module video-service-engine** *slot*/**0 session** **Example:** `Router# service-module video-service-engine 2/0 session`	Opens a Cisco Analog Video Gateway module session.
	From the Service-Module Interface	
Step 2	**configure terminal** **Example:** `VSE-Module> configure terminal`	Enters global configuration mode on the module.
Step 3	**hostname** *hostname* **Example:** `VSE-Module(config)> hostname hostname1`	Specifies the DNS server hostname. The default is Router.
Step 4	**ip domain-name** *domain* **Example:** `VSE-Module(config)> ip domain-name domain1.com`	Defines a default domain name for use in completing unqualified hostnames (names without a dotted-decimal domain name).
Step 5	**ip name-server** *ip-address* [<*ip-address*> …] **Example:** `VSE-Module(config)> ip name-server 10.0.0.0`	Specifies the IP address for one or more DNS servers. The argument is as follows: • *ip-address*—Server IP address
Step 6	**exit** **Example:** `VSE-Module(config)> exit`	Exits global configuration mode on the module.

	Command or Action	Purpose
Step 7	**show hosts** **Example:** `VSE-Module> show hosts`	Displays the default domain name, style of name lookup, list of name-server hosts, and cached list of hostnames and addresses.
Step 8	**write** **Example:** `VSE-Module> write`	Saves the new running configuration of the module.
Step 9	Press **Control-Shift-6 x**.	Closes the module session.
	From the Host-Router CLI	
Step 10	**service-module video-service-engine** *slot*/**0 session clear** **Example:** `Router# service-module video-service-engine 1/0 session clear`	Clears the module session for the specified module. When prompted to confirm this command, press **Enter**.

Additional References

The following sections provide references related to the Cisco Analog Video Gateway application.

Related Documents

Related Topic	Document Title
Cisco Analog Video Gateway and the Video Surveillance Solution	• *Release Notes for the Cisco Video Management and Storage System* • *Connecting Cisco Analog Video Gateway Network Modules to the Network* • *Cisco Analog Video Gateway Installation and Upgrade Guide* • *Cisco Analog Video Gateway XML API Guide* • *Connecting Cisco Video Management and Storage System Enhanced Network Modules to the Network* • *Cisco Video Management and Storage System Installation and Upgrade Guide* • *Cisco Video Management and Storage System CLI Administrator Guide* • *Connecting Cisco Integrated Storage System Enhanced Network Modules to the Network* • *Cisco Integrated Storage System Installation and Upgrade Guide* • *Cisco Integrated Storage System CLI Administrator Guide* • *Open Source License Notice*
Cisco IOS software	*Cisco IOS Software*
Network modules	*Installing Cisco Network Modules in Cisco Access Routers*
Technical documentation, including feedback and assistance	*What's New in Cisco Product Documentation* (including monthly listings of new and revised documents)

Technical Assistance

Description	Link
For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at: Subscribe to the *What's New in Cisco Product Documentation* as a Really Simple Syndication (RSS) feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service and Cisco currently supports RSS version 2.0.	http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html
Cisco Feature Navigator website	http://www.cisco.com/go/cfn Use Cisco Feature Navigator to find information about platform support and Cisco IOS and Catalyst OS software image support. An account on Cisco.com is not required.
Cisco Software Center website	http://www.cisco.com/public/sw-center/

Configuring Video Parameters

Last Updated: August 17, 2009

This chapter describes how to configure the Cisco Analog Video Gateway video ports and video profiles. The Cisco Analog Video Gateway command-line interface (CLI) commands are used to add a new video profile or, if a video profile already exists, allow you to modify existing video profiles.

Whenever possible, configuration and management of the Cisco Analog Video Gateway module should be configured using the Video Surveillance Operations Manager (VSOM) graphical user interface.

This chapter covers the following topics:

Configuring Video Ports

The Cisco Analog Video Gateway consists of 16 video ports, which correspond to the 16 physical ports on the video service module.

Use the **video port** command to configure Cisco Analog Video Gateway port profile.

Restrictions

Only video ports 0 and 1 can be configured as either input or output ports. Video ports 2 through 15 are input ports.

Note The **brightness**, **contrast**, **hue**, **saturation**, and **sharpness** CLI command options are applicable only to *in* or *input* direction. When direction is changed from *out* or *output* to *in*, **brightness**, **contrast**, **hue**, **saturation**, and **sharpness** values change to their default values.

SUMMARY STEPS

1. **configure terminal**
2. **video port** *portnum*
3. Video port command options:

Note Valid for version 1.2 and later.

- [**brightness** | **contrast** | **default** | **description** | **direction** | **hue** | **saturation** | **sharpness** | **state**]

Note Valid only for versions 1.0 and 1.1.

- [**brightness** | **contrast** | **default** | **description** | **direction** | **hue** | **maxresolution** | **saturation** | **sharpness** | **state**]

4. **end**
5. **exit**
6. **show video port** *portnum*
   or
   show video port summary

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.

Step 2	**video port** *portnum*
	
	Example:
	`Router# VSE-Module(config)> video port 0`
	`Modifying existing port`
	`VSE-Module(config-port)>`
		Enters video port configuration mode.
		portnum: Identifier for the video port integer value in the range of 0 to 15.

	Command or Action	Purpose

Step 3	**Note** The following command options are valid for version 1.2 and later:
	
	[**brightness** | **contrast** | **default** | **description** | **direction** | **hue** | **saturation** | **sharpness** | **state**]
	
	Note The following command options are only valid for versions 1.0 and 1.1:
	
	[**brightness** | **contrast** | **default** | **description** | **direction** | **hue** | **maxresolution** | **saturation** | **sharpness** | **state**]
	
	Example:
	`VSE-Module(config)> video port 0`
	`Modifying existing port`
	`VSE-Module(config-port)> brightness 100`
	`VSE-Module(config-port)> contrast 80`
	`VSE-Module(config-port)> description "video port 0 config"`
	`VSE-Module(config-port)> direction out`
	`VSE-Module(config-port)> hue 50`
	`VSE-Module(config-port)> saturation 45`
	`VSE-Module(config-port)> sharpness 2`
	`VSE-Module(config-port)> state enabled`
	`VSE-Module(config-port)> end`
	`VSE-Module(config)> exit`
	`VSE-Module >`
		Configures a specific video port profile parameters.
		
		brightness: Video brightness integer value in the range of –128 to 127.
		
		Default: 0
		
		contrast: Video contrast integer value in the range of –128 to 127.
		
		Default: 0
		
		default: Video port default value. Use the **no** form of this command to revert to the default values.
		
		description: Video port description text in quotes. Up to 80 text characters allowed.
		
		Default: " "
		
		direction: Video port direction:
		• in: input direction
		• out: output direction
		
		Default: input direction
		
		hue: Video hue integer value in the range of –128 to 127.
		
		Default: 0
		
		maxresolution:
		
		Note This command is only valid for versions 1.0 and 1.1.
		
		Maximum height and width of the frame in Common Intermediate Format (CIF).
		• CIF: 352 x 240 for NTSC; 352 x288 for PAL.
		• 2CIF: 704 x 240 for NTSC; 704 x 288 for PAL. This option is available only in 1.1 and later versions.
		• 4CIF: 704 x480 for NTSC; 704 x 576 for PAL.
		
		Default: 4CIF.
		
		saturation: Video saturation integer value in the range of –128 to 127.
		
		Default: 0
		
		sharpness: Video sharpness in the integer value range of 0 to 3.
		
		Default: 0
		
		state: Operational state of the video port: enabled or disabled.
		
		Default: enabled

Step 4	**end** **Example:** `VSE-Module(config-port)> end`	Exits video port configuration.

	Command or Action	Purpose
Step 5	**exit** **Example:** `VSE-Module(config)> exit`	Exits global configuration mode.

Step 6	**show video port** *portnum*
	or
	show video port summary
	
	Example:
	`VSE-Module> show video port 0`
	or
	`VSE-Module> show video port summary`
		Displays the port configuration of a specific port number or a summary of the video ports.

Examples

Use the **show video port** *portnum* command to view the status of a specific video port. For example:

```
vse-module> show video port 0
description "Video port initial config"
state enabled
direction in
maxResolution 4cif
brightness 100
contrast 80
hue 75
saturation 110
sharpness 2
```

Use the **show video port summary** command to view the status of the video ports. For example:

```
vse-module> show video port summary
port   state   dir mxRes brightness contrast hue   saturation sharpness
=============================================================================
 0     ena     out   -         -        -        -        -        -
 1     ena     out   -         -        -        -        -        -
 2     ena     in   4cif       0        0        0        0        0
 3     ena     in   4cif       0        0        0        0        0
 4     ena     in   4cif       0        0        0        0        0
 5     ena     in   4cif       0        0        0        0        0
 6     ena     in   4cif       0        0        0        0        0
 7     ena     in   4cif       0        0        0        0        0
 8     ena     in   4cif       0        0        0        0        0
 9     ena     in   4cif       0        0        0        0        0
 10    ena     in   4cif       0        0        0        0        0
 11    ena     in   4cif       0        0        0        0        0
 12    ena     in   4cif       0        0        0        0        0
 13    ena     in   4cif       0        0        0        0        0
 14    ena     in   4cif       0        0        0        0        0
 15    ena     in   4cif       0        0        0        0        0
vse-module>
```

Configuring Video Profiles

The Cisco Analog Video Gateway provides analog video gateway profiles to external video recorders, browsers, viewers, and players. The video profiles must be configured in the following order:

1. Video codec
2. Video motion region
3. Video motion detection
4. Video codec, motion region, and motion detection profiles must all be associated with a video stream profile

Use the procedures in following sections to configure video profiles:

- Video Codec Profile, page 33
- Video Motion Region Profile, page 38
- Video Motion Detection Profile, page 40
- Video Stream Profile, page 42

Video Codec Profile

A video codec profile can be assigned to multiple video ports. Use the **video codec-profile** command to configure a video codec profile.

SUMMARY STEPS

1. **configure terminal**
2. **video codec-profile** *tag*
3. [**bitrate** | **codec** | **default** | **deinterlace** | **description** | **format** | **framerate** | **gopsize** | **maxbitrate** | **qualityfactor** | **resolution** | **skipfactor** | **state**]
4. **end**
5. **exit**
6. **show video codec** *tag*
   or
   show video codec-profile user-configured summary
   or
   show video codec-profile dynamically-generated summary

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.

Step 2	**video codec-profile** *tag*
	
	Example:
	`VSE-Module(config)> video codec codec000`
	`Modifying existing codec`
	`VSE-Module(config-codec-profile)>`
		Enters the video codec profile configuration mode.
		tag: Identifier for the video codec profile in the range of codec000 to codec999.

Step 3	[**bitrate** | **codec** | **default** | **deinterlace** |**description** | **format** | **framerate** | **gopsize** | **maxbitrate** | **qualityfactor** | **resolution** | **skipfactor** | **state**]
	
	Example:
	`VSE-Module(config)> video codec codec000`
	`Modifying existing codec`
	`VSE-Module(config-codec-profile)> bitrate cbr`
	`VSE-Module(config-codec-profile)> codec mpeg4`
	`VSE-Module(config-codec-profile)> deinterlace enable`
	`VSE-Module(config-codec-profile)> desription "video codec profile 0 config"`
	`VSE-Module(config-codec-profile)> format ntsc`
	`VSE-Module(config-codec-profile)> framerate 30`
	`VSE-Module(config-codec-profile)> gopsize 50`
	`VSE-Module(config-codec-profile)> maxbitrate 170`
	`VSE-Module(config-codec-profile)> qualityfaxtor 50`
	`VSE-Module(config-codec-profile)> resolution 4cif`
	`VSE-Module(config-codec-profile)> skipfactor 150`
	`VSE-Module(config-codec-profile)> enabled`
	`VSE-Module(config-codec-profile)> end`
	`VSE-Module(config)> exit`
	`VSE-Module >`
		Configures specific video codec profile parameters.
		bitrate: Video codec profile bit rate:
		• vbr: Variable bit rate (VBR).
		• cbr: Constant bit rate (CBR).
		MJPEG accepts only VBR. H.264 and MPEG4 accept both VBR and CBR.
		An error message appears if CBR is selected for MJPEG.
		Default: CBR.
		codec: Video codec profile type:
		• h264: H.264.
		• mjpeg: MJPEG.
		• mpeg4: MPEG4.
		Default: mpeg4.
		default: Use the video codec profile default values. Use the **no** form of this command to revert to the default values.
		description: Video codec profile text description, in quotes. Up to 80 text characters are allowed.
		deinterlace: Enables or disables deinterlace mode. This option is available only in 1.1 and later versions.
		Default: enabled
		format: Video codec video format:
		• ntsc: NTSC (National Television Standards Committee).
		• pal: PAL (Phase Alternating Line).

Command or Action	Purpose
	framerate: Video codec profile frame rate number that defines how many frames 1 second (fps) of video or audio contains: • NTSC: 30 to 0.1. • PAL: 25 to 0.0833 (up to 6 decimal places). For example, a frame rate of 0.01 means 1 frame every 100 seconds. Default: 10. **gopsize**: Video codec profile group-of-picture (GOP) size. Integer value in the range of 0 to 600 for MPEG4 and H.264 only. Default: 20. **maxbitrate**: Video codec profile maximum bit rate in kbps. Not applicable to MJPEG. • MPEG4: Integer value range of 168 to 2000 • H.264: Integer value in the range of 168 to 3000 Default: 768 for both MPEG4 and H.264 codec types **qualityfactor**: Video codec profile quality factor. Applicable only to MJPEG codec. Integer value in the range of 0 to 100. Default: 70. **resolution**: Video Codec profile resolution in CIF: • 4cif • 2cif (This option available only in 1.1 and later versions.) • cif Default: 4cif. **skipfactor**: Video codec profile skip factor (also called the skip rate). Integer value in the range of 1 to 300. See "Supported Skip Factor" section on page 36. Default: 3 **state**: Operational state of the video codec profile: enabled or disabled. Default: enabled.
Step 4 `end` **Example:** `VSE-Module(config-codec-profile)> end`	Exits video codec-profile configuration mode.

	Command or Action	Purpose
Step 5	**exit** **Example:** `VSE-Module(config)> exit`	Exits global configuration mode.
Step 6	**show video codec** *tag* or **show video codec-profile user-configured summary** or **show video codec-profile dynamically-generated summary** **Example:** `VSE-Module> show video port summary`	Displays the video codec profile parameters for a specified codec profile, for dynamically generated codec profiles, and for user-configured codec profiles.

Supported Skip Factor

The skip factor reduces the frame rate in the video stream (frame skip ration) to reduce bandwidth when the full frame rate is not needed. The skip factor is defined by the following formulas for NTSC an PAL:

Frame Rate * Skip Factor = NTSC (30)

Frame Rate * Skip Factor = PAL (25)

The Cisco Analog Video Gateway module supports only the following specific skip rate factors:

- For NTSC, the supported skip factors are:

  30/1, 30/2, 30/3, and 30/4

- For PAL, the supported skip factors are:

  25/6, 25/10, and 25/15

If a skip factor falls outside those supported by the Cisco Analog Video Gateway, the closest supported skip factor is used. Table 7 shows a subset of possible frame rate/skip factor values for NTSC and PAL in the range of 1 to 300.

Table 7 Subset of Possible NTSC (30) and PAL (25) Frame Rate/Skip Factor Values

Skip Factor	NTSC Frame Rate = 30/Skip Factor	PAL Frame Rate = 25/Skip Factor
1	30	25
2	15	12.5
3	10	8.333333
4	7.5	6.25
5	6	5
6	5	4.166666
7	4.285714	3.57
8	3.75	3.125
10	3	2.5

Table 7 Subset of Possible NTSC (30) and PAL (25) Frame Rate/Skip Factor Values (continued)

Skip Factor	NTSC Frame Rate = 30/Skip Factor	PAL Frame Rate = 25/Skip Factor
12	—	2.083333
15	2	—
25	—	1
30	1	—
50	—	0.5
60	0.5	—
250	—	0.1
300	0.1	—

Examples

The following example shows the video codec-profile codec000 parameters:

```
VSE-Module> show video codec-profile codec000
description "video codec profile 0 config"
state enabled
codec mpeg4
format ntsc
frameRate 0.2
skipFactor 150
resolution 4cif
bitRate cbr
maxBitRate 170
gopSize 50
```

The following example shows a user-configured codec profile summary:

```
VSE-Module> show video codec-profile user-configured summary
tag     state codec format frameRate bitRate  mxBR gopSize QF  SF  resolution deinterlace
================================================================================================
codec000 ena   mpeg4 ntsc   0.2       cbr     170  50      -   150 4cif
codec001 ena   mpeg4 ntsc   5         cbr     1000 15      -   6   cif
codec002 ena   mpeg4 ntsc   5         cbr     1000 15      -   6   cif
codec003 ena   mpeg4 pal    5         cbr     1000 15      -   5   cif
codec004 ena   mpeg4 ntsc   5         cbr     1000 15      -   6   cif
codec005 ena   mpeg4 ntsc   5         cbr     1000 15      -   6   cif
codec006 ena   mpeg4 ntsc   5         cbr     1000 15      -   6   cif
codec007 ena   mpeg4 ntsc   5         cbr     1000 15      -   6   cif
codec008 ena   h264  ntsc   5         cbr     1000 15      -   6   cif
codec009 ena   h264  ntsc   5         cbr     1000 15      -   6   cif
codec010 ena   h264  ntsc   3         cbr     1000 15      -   10  4cif
codec011 ena   h264  ntsc   5         cbr     1000 15      -   6   cif
codec012 ena   h264  ntsc   5         cbr     1000 15      -   6   cif
codec013 ena   h264  ntsc   5         cbr     1000 15      -   6   cif
codec014 ena   h264  ntsc   5         cbr     1000 15      -   6   cif
codec015 ena   h264  ntsc   5         cbr     1000 15      -   6   cif
codec020 ena   mpeg4 ntsc   10        cbr     384  20      -   3   cif
codec099 ena   mpeg4 ntsc   5         cbr     1000 15      -   6   cif
codec100 ena   mjpeg ntsc   5         vbr     -    -       50  6   cif
codec200 ena   mjpeg ntsc   5         vbr     -    -       80  6   cif
codec999 ena   mpeg4 ntsc   5         cbr     1000 15      -   6   cif
codec030 ena   mjpeg ntsc   30        vbr     -    -       100 1   cif
httpx    ena   mjpeg ntsc   5         vbr     384  30       70 2   cif      enabled
```

Video Motion Region Profile

A video motion region profile can be assigned to multiple video ports. Use the **video motion-region** command to configure a video motion region profile. A video motion region defines an area in a video frame and assigns a numberical value to the region to identify it. A video motion region is defined by coordinates as a percentage in the integer range of 0 to 100:

- Lower-right X-coordinate
- Lower-right Y-coordinate
- Upper-left X-coordinate
- Upper-left Y-coordinate

The Cisco Analog Video Gateway currently supports 8 motion regions per video stream.

SUMMARY STEPS

1. **configure terminal**
2. **video motion-region** *tag*
3. [**default | description | lowerrightcoordx | lowerrightcoordy | state | threshold | upperleftcoordx | upperleftcoordy**]
4. **end**
5. **exit**
6. **show video motion-region** *tag*
   or
   show video motion-region summary

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.

Step 2	**video motion-region** *tag*
	
	Example:
	`VSE-Module(config)> video motion-region mr000`
	`Adding new motion`
	`VSE-Module(config-motion-region)>`
		Enters video motion region configuration mode.
		
		tag: Video motion region identifier in the range of mr000 to mr999.

	Command or Action	Purpose

Step 3	[**default** | **description** | **lowerrightcoordx** | **lowerrightcoordy** | **state** | **threshold** | **upperleftcoordx** | **upperleftcoordy**]
	
	Example:
	`VSE-Module(config)> video motion-region mr000`
	`Adding new motion`
	`VSE-Module(config-motion-region)> description "video motion region 0 config"`
	`VSE-Module(config-motion-region)> lowerrightcoordx 25`
	`VSE-Module(config-motion-region)> lowerrightcoordy 50`
	`VSE-Module(config-motion-region)> upperleftcoordx 40`
	`VSE-Module(config-motion-region)> upperleftcoordy 60`
	`VSE-Module(config-motion-region)> state enabled`
	`VSE-Module(config-motion-region)> threshold 20`
		Configures video motion region profile parameters.
		
		default: Video motion region default values. Use the **no** form of this command to revert to the default values.
		
		description: Video motion region text description in quotes. Up to 80 text characters are allowed.
		
		lowerrightcoordx: Video motion region lower-right X-coordinate. Integer percentage in the range of 0 to 100.
		
		Default: 0.
		
		lowerrightcoordy: Video motion region lower-right Y-coordinate. Integer percentage in the range of 0 to 100.
		
		Default: 0.
		
		state: Operational state of the video motion region: enabled or disabled.
		
		Default: enabled.
		
		threshold: Video motion region threshold. Integer value in the range of 1 to 100. The Motion Detection algorithm is most sensitive when **threshold** is set to 1, and is least sensitive when it is set to 100.
		
		Default: 10.
		
		upperleftcoordx: Video motion region upper-left X-coordinate. Integer percentage in the range of 0 to 100.
		
		Default: 0.
		
		upperleftcoordy: Video motion region upper-left Y-coordinate. Integer percentage in the of range 0 to 100.
		
		Default: 0.

Step 4	**end** **Example:** `VSE-Module(config-motion-region)> end`	Exits video motion region configuration mode.
Step 5	**exit** **Example:** `VSE-Module(config)> exit`	Exits global configuration mode.
Step 6	**show video motion-region** *tag* or **show video motion-region summary** **Example:** `VSE-Module> show video motion-region mr111`	Displays video motion region for a specific region.

Examples

The following example displays the specific video motion-region mr000 parameters:

```
VSE-Module> show video motion-region mr000
description "video motion region 0 config"
state enabled
upperLeftCoordx 20
upperLeftCoordy 30
lowerRightCoordx 25
lowerRightCoordy 50
threshold 10
```

The following example displays the video motion-region summary:

```
VSE-Module> show video motion-region summary
 tag   state  upper-x   lower-x   upper-y   lower-y  threshold
============================================================
mr000  ena     20        25        30        50        10
```

Video Motion Detection Profile

Video motion detection defines activity in a scene by analyzing image data and differences in a series of images. Video region alarm programming allows you to define areas of a screen where you want to detect any visual changes.

After motion is detected in a region predefined by a coordinate system, events can be triggered. The video motion region profile is identified using a tag identifier (see "Video Motion Region Profile" section on page 38).

A video motion detection profile can then be assigned to multiple video ports. Use the **video motion-detection** command to configure a video motion detection profile.

SUMMARY STEPS

1. **configure terminal**
2. **video motion-detection** *tag*
3. [**default** | **description** | **motion-region-tag** | **state**]
4. **end**
5. **exit**
6. **show video motion-detection** *tag*
   or
   show video motion detection summary

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.

Step 2	**video motion-detection** *tag*
	
	Example:
	`VSE-Module(config)> video motion-detection md000`
	`Adding new motion`
	`VSE-Module(config-motion-detection)>`
		Enters video motion detection mode.
		
		tag: Identifier for motion detection parameters in the range of md000 to md999.

Step 3	[**default** | **description** | **motion-region-tag** | **state**]
	
	Example:
	`VSE-Module(config)> video motion-detection md000`
	`Adding new motion`
	`VSE-Module(config-motion-detection)> description "video motion detection md000 config"`
	`VSE-Module(config-motion-detection)> motion-region-tag 10 mr000`
	`VSE-Module(config-motion-detection)> state enabled`
	`VSE-Module(config-motion-detection)> end`
	`VSE-Module(config)> exit`
	`VSE-Module >`
	`VSE-Module(config)> video stream-profile stream000`
	`Adding new stream`
	`VSE-Module(config-stream-profile)> codecprofiletag codec000`
		Configures video motion detection profile parameters.
		
		default: Use the video motion detection default values. Use the **no** form of this command to revert to the default values.
		
		description: Video motion detection text description in quotes. Up to 80 text characters are allowed.
		
		motion-region-tag: Video motion region tag number (integer value in the range of 0 to 7).
		
		Note The motion detection region tag cannot be assigned until the video motion region profile has been configured. If the video motion region profile has not been configured, the error message "The specified video motion region tag has not been configured" appears. See "Video Motion Region Profile" section on page 38 to define a viedo motion region profile.
		
		state: Operational state of the video motion detection: enabled or disabled.
		
		Default: enabled.

Step 4	**end** **Example:** `VSE-Module(config-motion-detection)> end`	Exits video motion detection configuration mode.
Step 5	**exit** **Example:** `VSE-Module(config)> exit`	Exits global configuration mode.
Step 6	**show video motion-detection** *tag* or **show video motion-detection summary** **Example:** `VSE-Module> show video motion-detection md000`	Displays the video motion detection profile for a specified motion detection tag or a motion detection summary for all configured motion detection tags.

Examples

The following example shows output from the **show video motion-detection** command configuration for a specific tag:

```
VSE-Module> show video motion-detection md000
description "video motion detection md000 config"
state enabled
motion-region-tag 5 mr000
```

The following example displays the show video motion detection summary:

```
VSE-Module> show video motion-detection summary
tag md000
state enabled
```

Video Stream Profile

A video stream profile can be assigned to multiple video ports. Use the **video stream-profile** command to configure a video stream profile.

Note With the exception of motion detection configurations, when the video stream is initiated based on a profile, any changes to the corresponding codec or port configurations have no effect on the video stream already in progress. Any changes to motion detection configurations will have an immediate effect on the video stream already in progress.

SUMMARY STEPS

1. **configure terminal**
2. **video stream-profile** *tag*
3. [**codecprofiletag | default | description | motiondetectiontag | packetization-mode | portnum | state**]
4. **end**
5. **exit**
6. **show video stream-profile** *tag*
   or
   show video stream-profile dynamically-generated summary
   or
   show video stream-profile user-configured summary

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.

Step 2	**video stream-profile** *tag*
	
	Example:
	`VSE-Module(config)> video stream-profile stream000`
	`Adding new stream`
	`VSE-Module(config-stream-profile)>`
		Enters video stream profile configuration mode.
		• *tag*: Video stream profile identifier in the range of stream000 to strean999.

Step 3	[**codecprofiletag** | **default** | **description** | **motiondetectiontag** | **packetization-mode** | **portnum** | **state**]
	
	Example:
	`VSE-Module(config)> video stream-profile stream000`
	`Adding new stream`
	`VSE-Module(config-stream-profile)> codecprofiletag codec000`
	`VSE-Module(config-stream-profile)> description "sample video stream profile 1"`
	`VSE-Module(config-stream-profile)> end`
	`VSE-Module(config > exit`
	`VSE-Module >`
	`VSE-Module(config)> video stream-profile stream111`
	`Modifying existing stream`
	`VSE-Module(config-stream-profile)> motiondetectiontag md111`
	`VSE-Module(config-stream-profile)> no default`
	`VSE-Module(config-stream-profile)> packetization-mode h264 RTP`
	`VSE-Module(config-stream-profile)> portnum 0`
	`VSE-Module(config-stream-profile)> state enabled`
	`VSE-Module(config-stream-profile)> end`
	`VSE-Module(config)> exit`
	`VSE-Module >`
		Configures parameters for a video stream profile.
		codecprofiletag: Identifier for the video codec profile to be used with the video stream profile. String value in the range of codec000 to codec999.
		default: Video stream profile default values for the video codec profile. Use the **no** form of this command to revert to the default values.
		description: Video stream profile text description in quotes. Up to 80 text characters are allowed.
		motiondetectiontag: The identifier for the video-codec motion detection used with the video stream profile. String value in the range of md000–md999.
		packetization-mode: Video stream profile applicable only to H.264 RTP packetization mode (RFC-3984):
		• non-interleaved mode
		• single-network abstraction layer (NAL) unit mode
		Default: non-interleaved.
		Exits video stream profile configuration mode.
		portnum: The port number used for the video stream profile. Integer value in the range of 0 to 15.
		Default: 0.
		Note The video stream profile must be attached to a port number; otherwise, port 0 is used as the default port.
		state: Operational state of the video stream profile: enabled or disabled.
		Default: enabled.

Step 4	**end** **Example:** `VSE-Module(config-video-stream-profile)> end`	Exits video stream profile configuration mode.

	Command or Action	Purpose
Step 5	**exit** **Example:** `VSE-Module(config)> exit`	Exits global configuration mode.
Step 6	**show video stream-profile** *tag* or **show video stream-profile dynamically-generated summary** or **show video stream-profile user-configured summary** **Example:** `VSE-Module> show video stream-profile stream000`	Displays video stream profile for a specific stream.

Examples

The following example shows the specific video stream profile stream000 parameters:

```
VSE-Module> show video stream-profile stream000
description "video stream profile 0"
state enabled
portNum 0
codecProfileTag codec000
packetization-mode N/A
motionDetectionTag md000
```

The following example shows user-configured video stream profile parameters:

```
VSE-Module> show video stream-profile user-configured summary
   tag    state CPTag    MDTag portNum RTCPInactive RTCPBye RTCPTimer ICMPUn ICMPtimer PKmode
=============================================================================================================
stream000 ena   codec000 md000 0       dis          dis     25        dis    5         N/A
stream001 ena   codec001 -     3       sys          sys     25        sys    5         N/A
stream002 ena   codec002 -     4       sys          sys     25        sys    5         N/A
stream003 ena   codec003 -     5       sys          sys     25        sys    5         N/A
stream004 ena   codec004 -     6       sys          sys     25        sys    5         N/A
stream005 ena   codec005 -     7       sys          sys     25        sys    5         N/A
stream006 ena   codec006 -     9       sys          sys     25        sys    5         N/A
stream007 ena   codec007 -     9       sys          sys     25        sys    5         N/A
stream008 ena   codec008 -     5       sys          sys     25        sys    5         non-interleaved
stream009 ena   codec009 -     5       sys          sys     25        sys    5         non-interleaved
stream010 ena   codec010 -     2       sys          sys     25        sys    5         non-interleaved
stream011 ena   codec011 -     5       sys          sys     25        sys    5         non-interleaved
stream012 ena   codec012 -     5       sys          sys     25        sys    5         non-interleaved
stream013 ena   codec013 -     5       sys          sys     25        sys    5         non-interleaved
stream014 ena   codec014 -     5       sys          sys     25        sys    5         non-interleaved
stream015 ena   codec015 -     5       sys          sys     25        sys    5         non-interleaved
stream099 ena   codec099 -     2       sys          sys     25        sys    5         N/A
stream100 ena   codec100 -     5       sys          sys     25        sys    5         N/A
stream200 ena   codec200 -     5       sys          sys     25        sys    5         N/A
stream300 ena   codec200 -     6       sys          sys     25        sys    5         N/A
stream444 ena   codec000 -     14      sys          sys     25        sys    5         N/A
stream999 ena   codec999 -     7       sys          sys     25        sys    5         N/A
stream020 ena   codec020 -     2       sys          sys     25        sys    5         N/A
stream030 ena   codec030 -     3       sys          sys     25        sys    5         N/A
```

Configuring Video Cross-Connect Loopback

The video cross-connect loopback diagnostic command transmits a signal that is returned to the sending port after passing through all or a portion of a network or circuit. The returned signal is compared with the transmitted signal to evaluate the integrity of the equipment or transmission path. The video cross-connect loopback test mode is persistent across the Cisco Analog Video Gateway encoder reload.

Use the **video xconn-lpbk** command to configure and enable the Cisco Analog Video Gateway cross connect test mode.

SUMMARY STEPS

1. **configure terminal**
2. **video xconn-lpbk-conn** *0–1*
3. [**default** | **description** | **inport** | **state**]
4. **end**
5. **exit**
6. **show video xconn-lpbk-conn summary**
   or
   show video xconn-lpbk-conn *0–1*

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.

Step 2	**video xconn-lpbk-conn** *0–1*
	`(config-xconn-lpbk-conn)#`
	
	Example:
	`VSE-Module(config)> video xconn-lpbk-conn 1`
	`VSE-Module(config-xconn-lpbk-conn)#`
		Enters video cross-connect loopback configuration mode.
		• *0–1*: Video cross-connect loopback connection identifier in the range of 0 to 1.

	Command or Action	Purpose

Step 3	[**default** | **description** | **Inport** | **state**]
	
	Example:
	`VSE-Module(config)> video config-xconn-lpbk-conn conn0`
	`VSE-Module(config-xconn-lpbk-conn)> description " video connection 0"`
	`VSE-Module(config-xconn-lpbk-conn) end`
	`VSE-Module(config > exit`
	`VSE-Module >`
	`VSE-Module(config)> video config-xconn-lpbk-conn conn0`
	`VSE-Module(config-xconn-lpbk-conn)> no`
	`VSE-Module(config-xconn-lpbk-conn)> inport 0`
	`VSE-Module(config-xconn-lpbk-conn)> state enabled`
	`VSE-Module(config-xconn-lpbk-conn)>end`
	`VSE-Module(config)> exit`
	`VSE-Module >`
		Configures parameters for a video cross-connect loopback.
		default: Video cross-connect loopback default values. Use the **no** form of this command to revert to the default values.
		description: Video stream profile text description in quotes. Up to 80 text characters are allowed.
		inport: Sets the video cross-connect loopback to import.
		state: Operational state of the video cross-connect loopback mode: enabled or disabled.
		Default: enabled.

Step 4	**exit**
	
	Example:
	`VSE-Module(config-xconn-lpbk-conn)>end`
	`VSE-Module(config)>`
		Exits video cross-connect loopback configuration mode.

Step 5	**exit**
	
	Example:
	`VSE-Module(config)> exit`
	`VSE-Module>`
		Exits global configuration mode.

Step 6	**show video xconn-lpbk-conn summary** or **show video xconn-lpbk-conn** *0–1* **Example:** `VSE-Module> show video xconn-lpbk-conn 0`	Displays video cross-connect loopback summary or for a specific connection.

Examples

The following example shows the specific video cross-connect loopback connection parameters:

```
VSE-Module> show video xconn-lpbk-conn 0

description "video connection 0"
state enabled
import 2
outport 0
```

The following example shows a summary of video cross-connect loopback connection parameters:

```
VSE-Module> show video xconn-lpbk-conn summary

xconn-lpbk-conn     state      inport       outport
```

```
=====================================================
conn0                ena         1             0
conn1                ena         1             0
```

Configuring Contact Closure Profiles

Last Updated: August 17, 2009

Each Cisco Analog Video Gateway module comes with eight contact closure interfaces. Four contact closure interfaces can be configured as alarm inputs or as contact closure relay outputs. The other four contact closure interfaces are for inputs only. Alarm interfaces can be used to detect contact trigger events and to control external devices.

The Cisco Analog Video Gateway is designed to interact with local or remote controllers to manage and control the contact closure interfaces. Alarm interfaces are set to their proper states and monitor trigger events. When an alarm is detected, the source and severity of the alarm are determined, the system log file is updated, and predefined HTTP messages are sent to the controllers. For example, in response to the nature of the alarm, the alarm can request the Cisco Analog Video Gateway to adjust the camera, begin video streaming, or trigger the external devices.

The Cisco Analog Video Gateway has eight preconfigured contact closure ports. The contact closure ports have the following default configuration. You can only *modify* a contact closure port; you cannot *add* or *delete* a contact closure port.

Use the **contactclosure-port** command to configure the specified contact closure interface profile.

Whenever possible, configuration and management of the Cisco Analog Video Gateway module should be configured using the Video Surveillance Operations Manager (VSOM) graphical user interface.

Note In the VSOM, the state change from *open-to-close* is considered *falling* and the state change from *close-to-open* is considered *rising*.

SUMMARY STEPS

1. **configure terminal**
2. **contactclosure-port** *portnum*
3. [**default** | **description** | **direction** | **relaystate** | **state**]
4. **end**
5. **exit**
6. **show contactclosure-port** *portnum*
   or
   show contactclosure-port hw-state
   or
   show contactclosure-port summary

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.

Step 2	**contactclosure-port** *portnum*
	
	Example:
	`VSE-Module(config)> contactclosure-port 0`
	`Modifying existing port`
	`VSE-Module(config-contactclosure-port)>`
		Enters contact closure port configuration profile mode.
		portnum: Contact closure ports. Integer value in the range of 0 to 7.

Step 3	[**default** | **description** | **direction** | **relaystate** | **state**]
	
	Example:
	`VSE-Module(config)> contactclosure-port 0`
	`Modifying existing port`
	`VSE-Module(config-contactclosure-port)>`
	`description "contact closure port 0 config"`
	`VSE-Module(config-contactclosure-port)>`
	`direction in`
	`VSE-Module(config-contactclosure-port)>`
	`relaystate close`
	`VSE-Module(config-contactclosure-port)> state enabled`
	`VSE-Module(config-contactclosure-port)>`
	`VSE-Module(config-contactclosure-port)>`
	`VSE-Module(config-contactclosure-port)> end`
	`VSE-Module(config)> exit`
	`VSE-Module >`
		Configures a contact closure port profile.
		default: Contact closure default values. Use the **no** form of this command to remove the default values.
		description: Contact closure text description in quotes. Up to 80 text characters are allowed.
		direction: Contact closure for output direction applies only to ports 0 to 3. Contact closure for the input direction applies to all contact closure ports. Default: in.
		relaystate: Contact closure relay state: open or close. Default: open.
		state: Operational state of the contact closure port: enabled or disabled. Default: disabled.

Step 4	**end** **Example:** `VSE-Module(config-contactclosure-port)> end`	Exits contact closure port configuration.
Step 5	**exit** **Example:** `VSE-Module(config)> exit`	Exits global configuration mode.
Step 6	**show contactclosure-port** *portnum* or **show contactclosure-port hw-state** or **show contactclosure-port summary** **Example:** `VSE-Module> show contactclosure-port 0`	Displays the contact closure configuration parameters for a specified port, displays the hardware state for all contact closure ports, or displays the contact closure port summary.

Examples

The following example shows the contact closure configuration parameters for a specified port 0:

```
vse-module> show contactclosure-port 0
description "contact closure port 0 config"
state enabled
direction in
relayState close
```

The following example shows the hardware state (open or close) for evert contact closure port:

```
vse-module> show contactclosure-port hw-state
0: close
1: close
2: close
3: close
4: close
5: close
6: close
7: close
```

The following example shows the contact closure port summary:

```
vse-module> show contactclosure-port summary
port   state  direction   relayState
====================================
  0     ena     in          close
  1     dis     in          open
  2     dis     in          open
  3     dis     in          open
  4     dis     in          open
  5     dis     in          open
  6     dis     in          open
  7     dis     in          open
```

Configuring Alarm Monitor Profiles

Last Updated: August 17, 2009

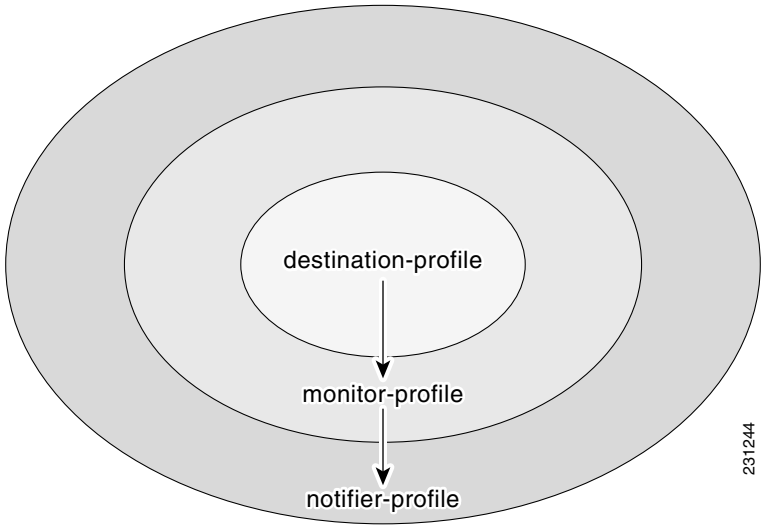
The alarm monitor surveys every alarm interface for any alarm event. When an event is triggered, it notifies the alarm application, which passes the information to the configured monitor destination.

Whenever possible, configuration and management of the Analog Video Gateway module should be configured using the Video Surveillance Operations Manager (VSOM) graphical user interface.

Alarm monitor profiles should be configured in the following order (see Figure 3):

1. Destination profile
2. Monitor profile
3. Notifier profile

Figure 3 Order of Alarm Monitor Configurations



Alarm Monitor—Destination Profile

To notify the client of an alarm condition when the configured alarm event is detected, use the **alarm-monitor destination-profile** command. The notification is configured to notify a preferred URL and backup URL, in case the preferred URL is unavailable.

SUMMARY STEPS

1. **configure terminal**
2. **alarm-monitor destination-profile** *tag*
3. [**default** | **description** | **primaryURL** | **secondaryURL**]
4. **end**
5. **exit**
6. **show alarm-monitor destination-profile** *tag*
   or
   show alarm-monitor destination-profile summary

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.

Step 2	**alarm-monitor monitor-destination** *tag*
	
	Example:
	`VSE-Module(config)> alarm-monitor destination-profile dest000`
	`Adding new profile`
	`VSE-Module(config-dest-profile)> default`
		Enters alarm-monitor destination-profile configuration mode.
		
		tag: Identifier of the alarm-monitor destination-profile in the range of dest000 to dest999.

Step 3	[**default** | **description** | **primaryURL** | **secondaryURL**]
	
	Example:
	`VSE-Module(config)> alarm-monitor destination-profile dest000`
	`Adding new profile`
	`VSE-Module(config-dest-profile)> default`
	`VSE-Module(config-dest-profile)> description "alarm monitor destination profile 0"`
	`VSE-Module(config-dest-profile)> primaryURL "http://www.somewhere.com/cgi-bin/grabAlarm"`
	`VSE-Module(config-dest-profile)> secondaryURL "http://nowwhere.com/cgi-bin/captureAlarm"`
	`VSE-Module(config-dest-profile)> end`
	`VSE-Module(config)> exit`
	`VSE-Module>`
		Configures the alarm-monitor destination-profile parameters.
		
		default: Resets alarm-monitor destination profile parameters to their default values.
		
		description: The alarm-monitor destination-profile text description in quotes. Up to 80 text characters are allowed.
		
		primaryURL: Preferred URL of the server that is capturing the message to notify the client when the configured alarm event is detected. For example, http://www.somewhere.com/cgi-bin/grabAlarm.
		
		secondaryURL: Backup URL of the server that is capturing the message to notify the client when the configured alarm event is detected. For example, http://nowwhere.com/cgi-bin/captureAlarm.

Step 4	**end** **Example:** `VSE-Module(config-dest-profile)> end`	Exits alarm-monitor destination-profile configuration mode.

	Command or Action	Purpose
Step 5	**exit** **Example:** `VSE-Module(config)> exit`	Exits global configuration mode.
Step 6	**show alarm-monitor destination-profile** *tag* or **show alarm-monitor destination-profile summary** **Example:** `VSE-Module> show alarm-monitor destination-profile dest000`	Displays the alarm-monitor destination profile for a specified destination or a summary of all configured destination profiles.

Examples

The following example shows the alarm monitor destination profile parameters for the specified destination dest000:

```
VSE-Module> show alarm-monitor destination-profile dest000
description "Capture Alarms Message"
primaryURL "http://www.somewhere.com/cgi-bin/grabAlarm"
secondaryURL "http://nowwhere.com/cgi-bin/captureAlarm"
```

The following example shows the alarm monitor destination profile summary:

```
VSE-Module> show alarm-monitor destination-profile summary
tag      URL          address
================================================
dest000  primaryURL   http://www.somewhere.com/cgi-bin/grabAlarm
         secondaryURL http://nowwhere.com/cgi-bin/captureAlarm
```

Alarm Monitor—Monitor Profile

Use the **alarm-monitor monitor-profile** command to configure the alarm monitor to keep track of the following port events: any change in contact closure port state, changes in contact closure port from closed to opened, changes in contact closure port from opened to closed, reloading of the system, detection of motion, and detection of a signal loss on the video port, or change in state is detected on the video port configured by the **sourceTrigger** keyword.

SUMMARY STEPS

1. **configure terminal**
2. **alarm-monitor monitor-profile** *tag*
3. [**default** | **description** | **event** | **sourceTrigger** | **state**]
4. **end**
5. **exit**
6. **show alarm-monitor monitor-profile** *tag*
   or
   show alarm-monitor notifier-profile summary

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.

Step 2	**alarm-monitor monitor-profile** *tag*
	
	Example:
	`VSE-Module(config)> alarm-monitor monitor-profile mon000`
	`Adding new profile`
	`VSE-Module(config-mon-profile)>`
		Enters alarm-monitor monitor-profile configuration mode.
		tag: Identifier of the alarm-monitor monitor-profile in the range of mon000 to mon999.

	Command or Action	Purpose

Step 3	[**default** | **description** | **event** | **sourceTrigger** | **state**]
	
	Example:
	`VSE-Module(config)> alarm-monitor monitor-profile mon000`
	`Adding new profile`
	`VSE-Module(config-mon-profile)> default`
	`VSE-Module(config-mon-profile)> description "alarm monitor profile mon000"`
	`VSE-Module(config-mon-profile)> end`
	`VSE-Module(config-mon-profile)> event ccport-any-state-change`
	`VSE-Module(config-mon-profile)> sourceTrigger cc0`
	`VSE-Module(config-mon-profile)> state enabled`
	`VSE-Module(config-mon-profile)> end`
	`VSE-Module(config)> exit`
	`VSE-Module>`
		Configures the alarm-monitor monitor-profile parameters.
		
		default: Alarm-monitor monitor-profile default values.
		
		description: Alarm-monitor monitor-profile text description in quotes. Up to 80 text characters are allowed.
		
		event: Alarm-monitor monitor-profile event.
		• **ccport-any-state-change**: Monitor any change in the state of the contact closure port.
		• **ccport-close-to-open**: Monitor contact closure state changes from close to open.
		• **ccport-open-to-close**: Monitor contact closure state changes from open to close.
		• **system-reload**: Monitor system reloads.
		• **video-motion-detection**: Monitor motion detection.
		• **video-signal-change**: Monitor any change in the video port signal (loss or detect) that is configured by the **sourceTrigger** keyword.
		• **video-signal-detect**: Monitor valid signal detected on the video port that is configured by the **sourceTrigger** keyword.
		• **vport-signal-loss**: Monitor signal loss detected on the video port that is configured by the **sourceTrigger** keyword.
		• **vport-state-change**: Monitor change in port state (enabled/disabled) detected on the video port that is configured by the **sourceTrigger** keyword.
		
		sourceTrigger: Alarm-monitor monitor-profile event source trigger keyword.
		• vp-any: Event on any video port.
		• vp0 to vp15: Video port event as a string value in the range of vp0 to vp15.
		• cc0 to cc7: Contact closure port event. String value in the range of cc0 to cc7.
		• stream000 to stream999: Video motion detection event. String value in the range of stream000 to stream999 (see Figure 4 on page 70).
		
		state: Operational state of the alarm-monitor monitor-profile state: enabled or disabled.
		
		Default: enabled.

Step 4	**end** **Example:** `VSE-Module(config-mon-profile)> end`	Exits alarm-monitor monitor-profile configuration mode.

	Command or Action	Purpose
Step 5	**exit** **Example:** `VSE-Module(config-mon-profile)> exit`	Exits global configuration mode.
Step 6	**show alarm-monitor monitor-profile** *tag* or **show alarm-monitor monitor-profile summary** **Example:** `VSE-Module(config)> show alarm-monitor monitor-profile mon000`	Displays the alarm-monitor monitor-profile configuration parameters for a specified monitor profile or for a summary of all configured monitor profiles.

Examples

The following example displays the alarm-monitor monitor-profile for the specified monitor-profile mon000:

```
VSE-module> show alarm-monitor monitor-profile mon000
description "alarm monitor profile mon000"
state enabled
event ccport-any-state-change
sourceTrigger vp0
```

The following example displays the alarm-monitor monitor-profile summary:

```
tag      state  sourceTrigger    event
=========================================================
mon999   ena    -                -
mon000   ena    cc0              ccport-any-state-change
```

Alarm Monitor—Notifier Profile

Use the **alarm-monitor notifier-profile** command to set the unique identifier for the destination profile and monitor profile to use with the video alarm-monitor notifier-profile.

SUMMARY STEPS

1. **configure terminal**
2. **alarm-monitor notifier-profile** *tag*
3. [**default** | **description** | **destinationprofiletag** | **monitorprofiletag** | **state**]
4. **end**
5. **exit**
6. **show alarm-monitor notifier-profile** *tag*
   or
   show alarm-monitor notifier-profile summary

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.

Step 2	**alarm-monitor notifier-profile** *tag*
	
	Example:
	`VSE-Module(config)> alarm-monitor notifier-profile not111`
	`Adding new profile`
	`VSE-Module(config-notifier-profile)>`
		Enters video alarm-monitor notifier-profile configuration mode.
		
		tag: Video alarm-monitor notifier-profile identifier in the range of not000 to not999.

Step 3	[**default** | **description** | **destinationprofiletag** | **monitorprofiletag** | **state**]
	
	Example:
	`VSE-Module(config)> alarm-monitor notifier-profile not111`
	`Adding new profile`
	`VSE-Module(config-notifier-profile)> description "alarm notifier profile not000"`
	`VSE-Module(config-notifier-profile)> destinationprofiletag dest000`
	`VSE-Module(config-notifier-profile)> monitorprofiletag mon000`
	`VSE-Module(config-notifier-profile)> state enabled`
	`VSE-Module(config-notifier-profile)> end`
	`VSE-Module(config)> exit`
	`VSE-Module>`
		Configures a video alarm-monitor notifier-profile parameters.
		
		default: Video alarm-monitor notifier-profile default settings.
		
		description: Video alarm-monitor notifier-profile text description in quotes. Up to 80 text characters allowed.
		
		destinationprofiletag: Unique identifier for the destination-profile to use with the video alarm-monitor notifier-profile in the range of dest000 to dest999.
		
		monitorprofiletag: Unique identifier for the monitor-profile to use with the video alarm-monitor notifier-profile in the range of mon000 to mon999.
		
		state: Operational state of the notifier-profile: enabled or disabled. Default: enabled.

Step 4	**end** **Example:** `VSE-Module(config-not-profile)> end`	Exits the video alarm-monitor notifier-profile configuration mode.
Step 5	**exit** **Example:** `VSE-Module(config-not-profile)> exit`	Exits global configuration mode.
Step 6	**show alarm-monitor notifier-profile** *tag* or **show alarm-monitor notifier-profile summary** **Example:** `VSE-Module> show alarm-monitor notifier-profile not000`	Displays the alarm-monitor notifier profile configuration parameters for a specified notifier-profile or for a summary of all configured notifier profiles.

Examples

The following example shows the alarm-monitor notifier-profile parameters for the specified notifier profile not000:

```
VSE-Module> show alarm-monitor notifier-profile not000
description "alarm notifier profile not000"
state enabled
monitorProfileTag mon000
destinationProfileTag dest000
```

The following example show the alarm-monitor notifier-profile summary:

```
VSE-Module> show alarm-monitor notifier-profile summary
tag     state   destinationProfileTag   monitorProfileTag
============================================================
not000    ena       dest000                mon000
```

Configuring Camera Controls

Last Updated: August 17, 2009

The Cisco Analog Video Gateway module has two RS-485 half-duplex interfaces that can be used to connect pan-tilt-zoom (PTZ) cameras. Security personnel can log in to the network module to reposition or otherwise control the PTZ cameras connected to the RS-485 interfaces.

The RS-485 application supports only the pass-through mode. The RS485 application does not sense the received PTZ encoded data; it simply sends the received data, unchanged, to the specified serial port.

Whenever possible, configuration and management of the Cisco Analog Video Gateway module should be configured using the Video Surveillance Operations Manager (VSOM) graphical user interface.

Restrictions

One control device is on one RS-485 port, and the PTZ cameras are on the other RS-485 port. Local PTZ control sessions within two RS-485 ports are not supported.

Only remote PTZ control requests and responses are supported.

The network video recorder (NVR) can send multiple PTZ requests at the same time, but the RS-485 application processes them one at a time.

SUMMARY STEPS

1. **configure terminal**
2. **rs485-port** *portnum*
3. [**baudrate** | **databits** | **default** | **description** | **parity** | **stopbits** | **state** | **termination-state**]
4. **end**
5. **exit**
6. **show rs485-port** *portnum*
   or
   show rs485-port summary

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.

Step 2	**rs485-port** *portnum*
	
	Example:
	`VSE-Module(config)> rs485-port 0`
	`VSE-Module(config-rs485-port)>`
		Enters RS-485 port configuration mode.

Step 3	[**baudrate** | **databits** | **default** | **description** | **parity** | **stopbits** | **state** | **termination-state**]
	
	Example:
	`VSE-Module(config)> rs485-port 0`
	`VSE-Module(config-rs485-port)> baudrate 9600`
	`VSE-Module(config-rs485-port)> databits 8`
	`VSE-Module(config-rs485-port)> description "rs485 port 0 config"`
	`VSE-Module(config-rs485-port)> parity even`
	`VSE-Module(config-rs485-port)> stopbits 1`
	`VSE-Module(config-rs485-port)> state enabled`
	`VSE-Module(config-rs485-port)> termination-state connected`
	`VSE-Module(config-rs485-port)> end`
	`VSE-Module(config)> exit`
	`VSE-Module)>`
		Configures profile parameters for an RS-485 port.
		baudrate—RS-485 baud rate. Integer value: 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200. Default: 9600.
		datbits—RS485 data bits. Integer value: 5, 6, 7, 8. Default: 8.
		default—RS-485 port default settings.
		description—RS-485 port text description in quotes. Up to 80 text characters allowed.
		parity—RS-485 parity: even, mark, none, odd, space. Default: none.
		stopbits—RS-485 stop bits. String value: 1, 1.5, 2 (use 1.5 for data bit 5; use 2 for data bits 6, 7, 8). Default: 1.
		state—Operational state of the RS-485 port: enabled or disabled. Default: enabled.
		termination-state—RS-485 termination resistor state:
		• **connection**—Termination resistor state in connected state.
		• **open**—Termination resistor state in open state.
		Default: open.

Step 4	**end** **Example:** `VSE-Module(config-rs485-profile)> end`	Exits the RS-485 port configuration mode.

	Command or Action	Purpose
Step 5	**exit** **Example:** `VSE-Module(config)> exit`	Exits global configuration mode.
Step 6	**show rs485-port** *portnum* or **show rs485-port summary** **Example:** `VSE-Module(config)> show rs485-port 0`	Displays the RS-485 configuration parameters for a specified RS-485 port or a summary of all configured RS-485 ports.

Examples

The following example shows the configuration parameters for the specified RS-485 port 0:

```
VSE-module> show rs485-port 0
description "serial port 0 config"
state enabled
baudrate 9600
databits 8
stopbits 1
parity even
termination-state connected
```

The following example shows the configuration summary of all configured RS-485 ports:

```
VSE-module> show rs485-port summary
port   state  baudrate  databits  stopbits  parity  termState
=================================================================
  0     ena     9600        8        1       even      connected
  1     ena     9600        8        1       none      open
```

Cisco Analog Video Gateway Command Reference

Last Updated: August 17, 2009

This chapter documents commands for the Cisco Analog Video Gateway module application and new commands for Cisco IOS:

Cisco Analog Gateway Module Commands

Whenever possible, configuration and management of the Cisco Analog Video Gateway module should be configured using the Video Surveillance Operations Manager (VSOM) graphical user interface. The following lists the command-line interface commands.

- **alarm-monitor destination-profile**
- **alarm-monitor monitor-profile**
- **alarm-monitor notifier-profile**
- **contactclosure-port**
- **rs485-port**
- **show alarm-monitor destination-profile**
- **show alarm-monitor monitor-profile**
- **show alarm-monitor notifier-profile**
- **show contactclosure-port**
- **show rs485-port**
- **show videoport-led summary**
- **show video codec-profile**
- **show video dsp**
- **show video motion-detection**
- **show video motion-region**
- **show video port**
- **show video session**

- show video stream-profile
- show video xconn-lpbk-conn
- video codec-profile
- video motion-detection
- video motion-region
- video port
- video stream-profile
- video xconn-lpbk-conn

alarm-monitor destination-profile

To configure an alarm-monitor destination profile, use the **alarm-monitor destination-profile** command in global configuration mode. To use a default alarm-monitor destination profile, use the **no** form of this command.

alarm-monitor destination-profile *tag* [**default | description | primaryURL | secondaryURL**]

no alarm-monitor destination-profile *tag*

Syntax Description

tag	Identifier for the alarm-monitor destination profile values in the range of dest000 to dest999.
default	Use the default values for the alarm monitor destination profile. Use the **no** form of this command to restore the default alarm-monitor destination profile values.
description	Description for the alarm monitor destination profile. Text with up to 80 string characters within quotation marks.
primaryurl	URL used to notify the client when the configured alarm event is detected. (For example “http://www.somewhere.com/cgi-bin/grabAlarm”)
secondaryurl	Backup URL used to notify the client when the configured alarm event is detected. (For example, “http://nowhere.com/cgi-bin/captureAlarm”)

Command Default

No alarm monitor destination profile is configured.

Command Modes

Global configuration

Command History

version	Modification
1.0	This command was introduced.

Usage Guidelines

Alarm monitor profiles should be configured in the following order (see Figure 3 on page 53):

1. Destination profile
2. Monitor profile
3. Notifier profile

Examples

The following example shows an alarm-monitor destination-profile configuration:

```
vse-module> show alarm-monitor destination-profile dest111

description "sample destination profile"
primaryURL "http://www.somewhere.com/cgi-bin/grabAlarm"
secondaryURL "http://nowhere.com/cgi-bin/captureAlarm"
end destination-profile
```

Related Commands

Command	Description
show alarm-monitor destination-profile	Displays alarm-monitor destination-profile configuration parameters.

alarm-monitor monitor-profile

To configure an alarm-monitor monitor profile, use the **alarm-monitor monitor-profile** command in global configuration mode. To remove an alarm-monitor monitor profile, use the **no** form of this command.

alarm-monitor monitor-profile *tag* [**default** | **description** | **event** | **sourceTrigger** | **state**]

no alarm-monitor monitor-profile *tag*

Syntax Description

tag	Identifier for the alarm-monitor monitor-profile values in the range of mon000 to mon999.
default	Uses the default values for the alarm-monitor monitor profile. Use the **no** form of this command to restore the default alarm-monitor monitor-profile values.
description	Description for the alarm-monitor monitor profile. Text with up to 80 string characters within quotation marks.
event	Event to monitor. • **ccporrt-any-state-change**: Any change in the state of the contact-closure port. • **ccport-close-to-open**: Contact-closure state changes from closed to open. • **ccport-open-to-close**: Contact-closure state changes from open to closed. • **system-reload**: System reload. • **video-motion-detection**: Configured video motion detected. • **video-signal-change**: Monitor any change in the video port signal (loss or detect) that is configured by the **sourceTrigger** keyword. • **video-signal-detect**: Monitor valid signal detected on the video port that is configured by the **sourceTrigger** keyword. • **vport-signal-loss**: Signal loss on the video port that is configured using the **sourceTrigger** keyword. • **vport-state-change**: Any state change on the video port that is configured using the **sourceTrigger** keyword.
sourceTrigger	String value to define the trigger event source to monitor. • vp-any: Event on any video port. • vp0 to vp15 for a video port event. • cc0 to cc7 for a contact-closure port event. • stream000 to stream999 for video motion detected (see Figure 4 on page 70).
state	Operational state of the alarm-monitor monitor profile: enabled or disabled. Default: enabled.

Command Modes

Global configuration

Command History

Version	Modification
1.0	This command was introduced.

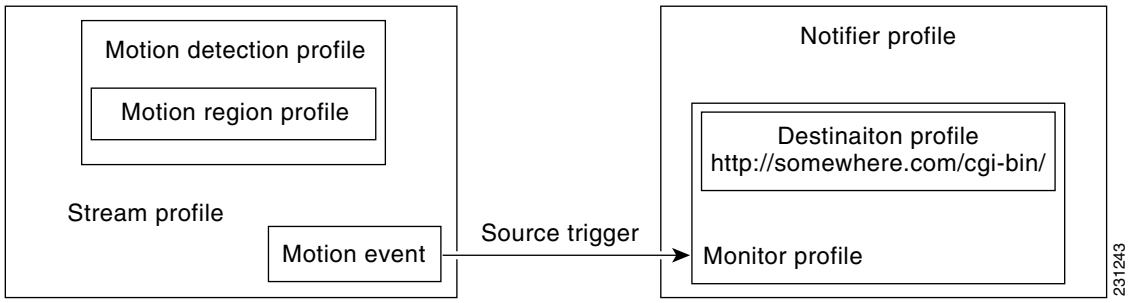
Usage Guidelines

Alarm monitor profiles should be configured in the following order (see Figure 3 on page 53):

1. destination profile
2. monitor profile
3. notifier profile

Figure 4 shows how a motion detection event source triggers the video stream.

Figure 4 Source Trigger Motion Detection Triggers Video Stream



Examples

The following example shows an alarm-monitor monitor-profile configuration:

```
vse-module> show alarm-monitor monitor-profile mon000
description "alarm monitor profile mon000"
state enabled
event ccport-any-state-change
sourceTrigger -
```

Related Commands

Command	Description
show alarm-monitor monitor-profile	Displays alarm-monitor monitor-profile configuration parameters.

alarm-monitor notifier-profile

To configure an alarm-monitor notifier profile, use the **alarm-monitor notifier-profile** command in global configuration mode. To remove an alarm-monitor notifier profile, use the **no** form of this command.

alarm-monitor notifier-profile *tag* [**default | description | destinationprofiletag | monitorprofiletag | state**]

no alarm-monitor notifier-profile *tag*

Syntax Description

tag	Identifier for the alarm-monitor notifier profile. Values are in the range of not000 to not999.
default	Use the default settings for the notifier profile. Use the **no** form of this command to restore the default alarm-monitor notifier profile values.
description	Description for the alarm-monitor notifier profile. Text with up to 80 string characters within quotation marks.
destinationprofiletag	Unique identifier for the destination profile to use with this notifier profile. String value in the range of dest000 to dest999.
monitorprofiletag	Unique identifier for the monitor profile to use with this notifier profile. String in the range of mon000 to mon999.
state	Operational state of the notifier profile: enabled or disabled. Default: enabled.

Command Default

No alarm monitor notifier profile is configured.

Command Modes

Global configuration

Command History

Version	Modification
1.0	This command was introduced.

Usage Guidelines

You must configure a destination and monitor profiles first. Alarm monitor profiles should be configured in the following order:

1. Destination profiles
2. Monitor profiles
3. Notifier profiles

Examples

The following example shows an alarm-monitor notifier-profile configuration:

```
vse-module> show alarm-monitor notifier-profile not000
description "alarm notifier profile not000"
```

```
state enabled
monitorProfileTag mon000
destinationProfileTag dest000
```

Related Commands

Command	Description
show alarm-monitor notifier-profile	Displays alarm-monitor notifier-profile configuration parameters.

contactclosure-port

To configure a contact closure port, use the **contactclosure-port** command in global configuration mode. To restore the default values on the contact closure port, use the **no** form of this command.

contactclosure-port *portnum* [**default | description | direction | relaystate | state**]

Syntax Description

portnum	Port number of contact closure ports in the integer value range of 0 to 7.
default	Use the default values for the contact closure port. Use the **no** form of this command to restore the default contact closure values.
description	Description of the contact closure port. Text with up to 80 string characters within quotation marks.
direction	Direction of the contact closure port: • in: input direction • out: output direction Default: in.
relaystate	Relay state of the contact closure port: open or close. Default: close.
state	Operational state of the contact closure port: enabled or disabled. Default: enabled.

Command Default

The contact closure ports retain their default configurations.

Command Modes

Global configuration

Command History

Version	Modification
1.0	This command was introduced.

Usage Guidelines

Each module has eight contact closure interfaces. The first four contact closure interfaces can be configured as alarm inputs or relay outputs. The other interfaces can be configured only as inputs. The contact closure inputs are used to detect contact trigger events and the outputs are used to control external devices.

Examples

The following example shows a contact closure port configuration:

```
vse-module> show contactclosure-port 0
description ""
state enabled
direction in
relayState close
```

Related Commands

Command	Description
show contactclosure-port	Displays contact closure port configuration parameters.

rs485-port

To enter RS-485-port configuration mode to set pan, tilt, and zoom camera control, use the **rs485-port** command in global configuration mode. To restore the default values of the RS-485 port configuration, use the **no** form of this command.

rs485-port *portnum* [**baudrate** | **databits** | **default** | **description** | **parity** | **state** | **stopbits** | **termination-state**]

Syntax Description

portnum	RS-485 port number: 0 or 1.
baudrate	Baud rate for the RS-485 port. Set to integer value 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, or 115200. Default: 9600.
databits	Data bits for the RS-485 port. Set to integer values 5, 6, 7, or 8. Default: 8.
default	Use the default values for the RS-485 port. Use the **no** form of this command to restore the default RS-485 port values.
description	Description of the RS-485 port. Text with up to 80 string characters within quotation marks.
parity	Parity for RS-485 port. Values are even, mark, none, odd, and space. Default: none.
state	Operational state of RS-485 port: enabled or disabled. Default: enabled.
stopbits	Stop bits for RS-485 port. Set stop bit value to: 1, 1.5, or 2. Use 1.5 for data bit 5, and 2 for data bits 6, 7, or 8. Default: 1.
termination-state	Termination resistor state for RS-485 port. Values are open and connected. Default: open.

Command Default

No RS-485 port is configured.

Command Modes

Global configuration

Command History

Version	Modification
1.0	This command was introduced.

Usage Guidelines

Observe the following guidelines:

- **stopbit** 1.5 applies only to **databit** 5.
- **stopbit** 2 applies only to **databit** 6, 7, or 8.

Use the **end** keyword to reprogram the serial port after a parameter (**baud rate, databit, stop bit, or parity**) has been changed.

Examples

The following example shows the configuration for an RS-485 port:

```
vse-module> show rs485-port 0

baudrate 19200
databits 7
description "sample rs485-port"
parity mark
state disabled
stopbits 2
termination-state connected
end rs485-port
```

Related Commands

Command	Description
show rs485-port	Shows the current configuration of the RS-485 port.

show alarm-monitor destination-profile

To display configuration parameters for alarm-monitor destination profiles, use the **show alarm-monitor destination-profile** command in user EXEC configuration mode.

show alarm-monitor destination-profile {*tag* | **summary**}

Syntax Description

tag	Identifier for the alarm-monitor destination profile values in the range of dest000 to dest999.
summary	Displays all configured alarm-monitor destination profiles.

Command Modes

User EXEC

Command History

Version	Modification
1.0	This command was introduced.

Usage Guidelines

You can display a specified destination profile or a summary of all configured destination profiles.

Note The primary URLs and secondary URLs can carry messages, such as the identity of the source port.

Examples

The following example shows a specific alarm-monitor destination profile:

```
vse-module> show alarm-monitor destination-profile dest111
description "Capture Alarms Message"
primaryURL "http://www.somewhere.com/cgi-bin/grabAlarm"
secondaryURL "http://nowhere.com/cgi-bin/captureAlarm"
```

The following example shows all configured alarm-monitor destination profiles:

```
vse-module> show alarm-monitor destination-profile summary
tag      URL          address
================================================
dest111  primaryURL   http://www.somewhere.com/cgi-bin/grabAlarm
         secondaryURL http://nowhere.com/cgi-bin/captureAlarm
```

Table 8 describes the significant fields in the example.

Table 8 show alarm-monitor destination-profile Field Descriptions

Field	Description
description	Description of the alarm monitor. Text with up to 80 string characters within quotation marks.
tag	Identifier for the monitor profile value in the range of dest000 to dest999.

Table 8 show alarm-monitor destination-profile Field Descriptions (continued)

Field	Description
primaryURL SecondaryURL URL	URLs to receive notification when the configured alarm event is detected: • primaryURL: Primary URL to receive notification. • secondaryURL: Backup URL to receive notification.
address	Address of the primary and secondary URLs.

Related Commands

Command	Description
alarm-monitor destination-profile	Configures an alarm-monitor destination profile.

show alarm-monitor monitor-profile

To display configuration parameters for alarm-monitor monitor profiles, use the **show alarm-monitor monitor-profile** command in user EXEC configuration mode.

show alarm-monitor monitor-profile {*tag* | **summary**}

Syntax Description

tag	Identifier for the alarm-monitor monitor profile values in the range of mon000 to mon999.
summary	Displays all configured alarm-monitor monitor profiles.

Command Modes

User EXEC

Command History

Version	Modification
1.0	This command was introduced.

Usage Guidelines

You can display a specified monitor profile or a summary of all configured monitor profiles.

Examples

The following example shows the alarm-monitor monitor profile for a specific monitor profile:

```
vse-module> show alarm-monitor monitor-profile mon017
description "sample monitor profile"
state enabled
event vport-state-change
sourceTrigger vp1
```

The following example shows all configured alarm-monitor monitor profiles:

```
vse-module> show alarm-monitor monitor-profile summary
tag      state  sourceTrigger    event
=======================================================
mon000   ena    -                video-motion-detection
mon001   ena    cc0              ccport-open-to-close
mon002   ena    -                video-motion-detection
mon017   ena    vp1              vport-state-change
```

Table 9 describes the significant fields in the example.

Table 9 show alarm-monitor monitor-profile Field Descriptions

Field	Description
tag	Identifier for the monitor profile in the range of mon000 to mon999.
state	Operational state of the monitor profile: enabled or disabled.

Table 9 show alarm-monitor monitor-profile Field Descriptions (continued)

Field	Description
sourceTrigger	Source that triggers the event being monitored: • vp0 to vp15 for a video port event. • cc0 to cc7 for a contact-closure port event. • stream000 to stream999 for video motion detected.
event	Type of event to monitor: • **ccporrt-any-state-change**: Any change in the state of the contact closure port. • **ccport-close-to-open**: Contact closure state changes from closed to open. • **ccport-open-to-close**: Contact closure state changes from open to closed. • **system-reload**: System reload. • **video-motion-detection**: Configured video motion detected. • **vport-signal-loss**: Signal loss on the video port that is configured using the **sourceTrigger** keyword. • **vport-state-change**: Any state change on the video port that is configured using the **sourceTrigger** keyword.

Related Commands

Command	Description
alarm-monitor monitor-profile	Configures an alarm-monitor monitor profile.

show alarm-monitor notifier-profile

To display configuration parameters for alarm monitor notifier profiles, use the **show alarm-monitor notifier-profile** command in user EXEC configuration mode.

show alarm-monitor notifier-profile {*tag* | **summary**}

Syntax Description

tag	Identifier for the alarm-monitor notifier profile. Values are in the range of not000 to not999.
summary	Displays all configured alarm-monitor notifier profiles.

Command Modes

User EXEC

Command History

Version	Modification
1.0	This command was introduced.

Usage Guidelines

You must first configure an alarm-monitor destination profile and an alarm-monitor monitor profile before you can associate them with the notifier profile.

You can display a specified notifier profile or a summary of all configured notifier profiles.

Examples

The following example shows the alarm-monitor notifier profile for a specific monitor profile:

```
vse-module> show alarm-monitor notifier-profile not111
description "sample notifier profile"
state disabled
monitorProfileTag mon111
destinationProfileTag dest111
```

The following example shows all configured alarm-monitor notifier profiles:

```
vse-module> show alarm-monitor notifier-profile summary
tag     state   destinationProfileTag   monitorProfileTag
============================================================
not000    ena
not111    dis       dest111                mon111
```

Table 10 describes the significant fields in the example.

Table 10 show alarm-monitor notifier-profile Field Descriptions

Field	Description
tag	Identifier for the alarm monitor notifier profile values in the range of not000 to not999.
state	Operational state of the notifier profile: enabled or disabled.

Table 10 show alarm-monitor notifier-profile Field Descriptions (continued)

Field	Description
destinationProfileTag	Destination profile to associate with the notifier profile. Values in the range of dest000 to dest999.
monitorProfileTag	Monitor profile to associate with the notifier profile. Values in the range of mon000 to mon999.

Related Commands

Command	Description
alarm-monitor notifier-profile	Configures an alarm-monitor notifier profile.

show contactclosure-port

To show the configuration and status of contact closure ports, use the **show contactclosure-port** command in user EXEC mode.

show contactclosure {**portnum** | **summary** | **hw-state**}

Syntax Description

portnum	Port number of contact closure port integer values in the range of 0 to 7.
summary	Displays all configured contact closure ports.
hw-state	Displays all contact closure port hardware states.

Command Modes

User EXEC

Command History

Version	Modification
1.0	This command was introduced.

Usage Guidelines

To display the configuration for:

- A specific contact closure port, enter the port number.
- All contact closure ports, use the **summary** keyword.

To list the state (open or close) of all contact closure ports, use the **hw-state** keyword. For example, **show contactclosure hw-state**.

Examples

The following example shows the configuration for a specific contact closure port:

```
vse-module> show contactclosure 0
description ""
state disabled
direction in
relayState open
```

The following example shows the configuration for all configure contact closure ports:

```
vse-module> show contactclosure-port summary
port   state  direction   relayState
====================================
  0     dis     in          open
  1     dis     in          open
  2     dis     in          open
  3     dis     in          open
  4     dis     in          open
  5     dis     in          open
  6     dis     in          open
  7     dis     in          open
```

The following example shows the hardware state for all contact closure ports:

```
vse-module> show contactclosure hw-state
0: close
```

```
1: close
2: close
3: close
4: close
5: close
6: close
7: close
```

Table 11 describes the significant fields in the example.

Table 11 show contactclosure-port Field Descriptions

Field	Description
port	Port number integer value in the range of 0 to 7.
state	Operational state of the contact closure port: enabled or disabled.
direction	• in: Input direction. • out: Output direction.
relayState	Relay state: open or close.

Related Commands

Command	Description
contactclosure-port	Configures contact closure ports.

show rs485-port

To display RS-485 port configuration parameters, use the **show rs485-port** command in user EXEC mode.

show rs485-port {**portnum** | **summary**}

Syntax Description

portnum	RS-485 port number: 0 or 1.
summary	Displays configuration parameters for all RS-485 ports.

Command Modes

User EXEC

Command History

Version	Modification
1.0	This command was introduced.

Usage Guidelines

To display the configuration for a specific RS-485 port, enter the port number. To display the configuration for all RS-485 ports, use the **summary** keyword.

Examples

The following example shows the configuration for the specific RS-485 port 0:

```
vse-module> show rs485-port 0
description "sample rs485 port 0"
state enabled
baudrate 19200
databits 7
stopbits 2
parity odd
termination-state connected
```

The following example shows the configuration for the specific RS-485 port 1:

```
vse-module> show rs485-port 1
description ""
state enabled
baudrate 9600
databits 8
stopbits 1
parity none
termination-state open
```

The following example shows all configured RS-485 ports:

```
vse-module> show rs485-port summary
port   state  baudrate  databits  stopbits  parity  termState
=============================================================
  0     ena     19200        7         2       odd       connected
  1     ena     9600         8         1       none      open
```

Table 12 describes the significant fields in the example.

Table 12 show rs485-port Field Descriptions

Field	Description
port	RS-485 port number: 0 or 1.
state	Operational state of RS-485 port: enabled or disabled.
baudrate	Baud rate of the RS-485 port.
databits	Data bits of the RS-485 port.
stopbits	Stop bits of the RS-485 port.
parity	Parity of the RS-485 port.
termState	Termination resistor state of the RS-485 port.

Related Commands

Command	Description
rs485-port	Configures an RS-485 port.

show videoport-led summary

To display the status summary of the video port LEDs on the Cisco Analog Video Gateway module, use the **show videoport-led** command in user EXEC mode.

show videoport-led summary

Syntax Description

summary	Displays a summary of all configured video port LED states.

Command Modes

User EXEC

Command History

Version	Modification
1.0	This command was introduced.

Usage Guidelines

Table 13 defines the video port LED states for video ports 0 to 15.

Table 13 Video Port LED States

Port	Status	Description
Video Ports 0 to 15	Dual color: Amber Green	Video port 0 LED status indicator: Off: Video port is idle. Amber: Video port is initializing. Green: Video port is up; video input is detected or video output is active.

Examples

The following example shows the states of the video port LEDs.

```
vse-module> show videoPortLed summary
PortNum          Status
======================
0                AMBER
1                GREEN
2                OFF
3                OFF
4                OFF
5                OFF
6                OFF
7                OFF
8                OFF
9                OFF
10               OFF
11               OFF
12               OFF
13               OFF
14               OFF
15               OFF
```

Related Commands

Command	Description
video port	Configures a video port profile.

show video codec-profile

To display video codec profile configuration parameters, use the **show video codec-profile** command in user EXEC mode.

show video codec-profile {*tag* | **dynamically-generated summary** | **user-configured summary**}

Syntax Description

tag	Identifier for the codec profile value in the range of codec000 to codec999.
dynamically-generated summary	Displays configuration summary for dynamically generated codec profiles.
user-configured summary	Displays configuration summary for all user-configured codec profiles.

Command Modes

User EXEC

Command History

Version	Modification
1.0	This command was introduced.
1.1	This command was enhanced by adding selection options.

Usage Guidelines

You cannot configure or request a dynamically generated codec or stream profile. You can only view these types of profiles by using the **show video codec-profile dynamically-generated** command.

Dynamically generated codec profiles apply only to an HTTP-initiated session and cannot be saved.

Examples

The following example shows specific configuration parameters for a codec001 profile:

```
vse-module> show video codec-profile codec001
description "p_test2"
state enabled
codec mjpeg
format ntsc
frameRate 15.0
skipFactor 2
resolution 2cif
bitRate vbr
qualityFactor 70
deinterlace enabled
skipfactor 2
```

The following example shows a configuration summary for dynamically generated video codec profiles:

```
vse-module> show video codec-profile dynamically-generated summary
 tag     state codec format frameRate bitRate mxBR gopSize QF  SF  resolution deinterlace
================================================================================================
httpx    ena   mjpeg ntsc      5      vbr     384    30    70   2  cif         enabled
```

The following example shows a configuration summary for all user-configured video codec profiles:

```
vse-module> show video codec-profile user-configured summary
 tag     state codec format frameRate bitRate mxBR gopSize QF  SF  resolution deinterlace
=============================================================================================
codec000 ena   mpeg4 ntsc     30       cbr     2000   30    -    1  4cif       enabled
```

Table 14 describes the significant fields in the example.

Table 14 show video codec-profile Field Descriptions

Field	Description
tag	Identifier for the video codec profile in the range of codec000 to codec999.
state	Operational state of the codec profile: enabled or disabled.
codec	Codec type associated with the codec profile: H.264, MPEG4, or MJPEG.
format	Video format of the codec profile: NTSC or PAL.
frameRate	Frame rate of the codec profile: NTSC or PAL frame rate in fps. (See video codec-profile, page 106 for more details.)
bitRate	Bit rate of the codec profile: CBR or VBR.
mxBR	Maximum bit rate of the codec profile: 168 to 2000 KBps for codec MPEG4 and 168 to 3000 KBps for codec H.264.
gopSize	Group-of-picture size of the codec profile in the range of 0 to 600.
QF	Quality factor of the codec profile for MJPEG video codec only in the range of 0 to 100 percent.
SF	Skip factor of the codec profile in the range of 1 to 100.
resolution	Resolution of the codec profile: 4cif, 2cif, or cif.
deinterlace	Indicates whether or not deinterlace mode is enabled. This indicator is available only in 1.1 and later versions.

Related Commands

Command	Description
video codec-profile	Configures a video codec profile.

show video dsp

To display video digital signal processor (DSP) brief, detailed, internal statistics, or objects summaries, use the **show video dsp** command in user EXEC mode.

show video dsp [**detail** | **internal** | **objects**]

Syntax Description

detail	Displays video DSP status details.
internal	Displays video DSP internal statistics.
objects	Displays video DSP internal object handles.

Command Modes

User EXEC

Command History

Version	Modification
1.0	This command was introduced.

Examples

The following example shows a brief summary of the DSP status:

```
vse-module> show video dsp
Resources used and ports in use (U) and not in use (F)
DS MEDWARE   CREDITS   BUF  PORTS  I CPU Load   Intern Mem     Extern Mem
P# VERSION CPU IMM XMM POL 2 3 4 5 S  cu/av/mx  (used/max)     (used/max)
-- ------- --- --- --- --- - - - - - --------- ----------- -----------------
 0  0.2.44  99 100 100 100 F F F F Y    1/1/57     8/16384    15320/10485760
 1  0.2.44  99 100 100 100 F F F F Y    1/1/95     8/16384    15320/10485760
 2  0.2.44  99 100 100 100 F F F F Y    1/1/56     8/16384    15320/10485760
 3  0.2.44  99 100 100 100 F F F F Y    1/1/58     8/16384    15320/10485760
```

Table 15 describes the significant fields in the example.

Table 15 show video dsp Field Descriptions

Field	Description
DSP#	Identifier for the DSP resource.
MEDWARE VERSION	MediaWare software version running in DSPs. MediaWare provides video, audio, and voice/fax/modem/text gateway processing.
CREDITS	Credit-based resource allocation: • CPU: CPU resource usage. • IMM: Internal memory resource usage. • XMM: External memory resource usage.
BUF POL	Buffer pool resource usage.

Table 15 show video dsp Field Descriptions (continued)

Field	Description
PORTS	Video port resource usage for ports 2, 3, 4, and 5. • F: Ports not in use. • U: Ports in use.
CPU Load	CPU loading: • cu: Current CPU load. • av: Average CPU load. • mx: Maximum CPU load.
Intern Mem	Internal memory resources: • used: Internal memory used, in bytes. • max: Maximum memory available, in bytes.
Extern Mem	External memory resources: • used: Internal memory used, in bytes. • max: Maximum memory available, in bytes.

Related Commands

Command	Description
video port	Configures video port profiles.

show video motion-detection

To display video motion detection configuration parameters, use the **show video motion-detection** command in user EXEC mode.

show video motion-detection {*tag* | **summary**}

Syntax Description

tag	Identifier for the video motion detection parameter. Values are in the range of md000 to md999.
summary	Displays all configured video motion detection parameters.

Command Modes

User EXEC

Command History

Version	Modification
1.0	This command was introduced.

Usage Guidelines

You must first configure a motion region before you can associate it with a motion detection parameter.

Examples

The following example shows configuration parameters for motion detection parameter mr111:

```
mpc8349e> show video motion-detection md111
description "sample motion detection 1"
state disabled
motionRegionTag_1 mr111
motionRegionTag_2 mr222
```

The following example shows configuration parameters for motion detection parameter mr222:

```
mpc8349e> show video motion-detection md222
description "sample motion detection 2"
state enabled
motionRegionTag_1 mr111
motionRegionTag_2 mr222
```

The following example shows configuration parameters for all motion detection parameters:

```
mpc8349e> show video motion-detection summary
tag md011
state enabled

tag md111
state disabled
motionRegionTag_1 mr111
motionRegionTag_2 mr222

tag md222
state enabled
motionRegionTag_1 mr111
motionRegionTag_2 mr222
```

Table 16 describes the significant fields in the example.

Table 16 show video motion-detection Field Descriptions

Field	Description
tag	Identifier for the motion detection parameter.
state	Operational state of the motion region: enabled or disabled.
motionRegionTag_x	Motion region associated with motion detection parameters (where x is the number for the motion region tag). You can specify multiple motion region tags.

Related Commands

Command	Description
video motion-detection	Configures video motion detection parameters.

show video motion-region

To display video motion region configuration, use the **show video motion-region** command in user EXEC mode.

show video motion-region {*tag* | **summary**}

Syntax Description

tag	Identifier for the video motion region.
summary	Displays all configured video motion regions.

Command Modes

User EXEC

Command History

Version	Modification
1.0	This command was introduced.

Usage Guidelines

This command-line interface (CLI) command is used to show the motion region configuration. The upper-x motion region coordinate must be a smaller percentage than the lower-y coordinate.

Examples

The following example shows a configuration parameters summary for all motion regions:

```
mpc8349e> show video motion-region summary
 tag   state  upper-x   lower-x   upper-y   lower-y  threshold
============================================================
mr222  dis     20        300       30        250       90
mr111  ena     40        280       60        270       95
```

The following example shows configuration parameters for motion region mr111:

```
mpc8349e> show video motion-region mr111
description "sample motion region 1"
state enabled
upperLeftCoordx 40
upperLeftCoordy 60
lowerRightCoordx 280
lowerRightCoordy 270
threshold 95
```

The following example shows configuration parameters for motion region mr222:

```
mpc8349e> show video motion-region mr222
description "sample motion region 2"
state disabled
upperLeftCoordx 20
upperLeftCoordy 30
lowerRightCoordx 300
lowerRightCoordy 250
threshold 90
```

Table 17 describes the significant fields in the example.

Table 17 show video motion-region Field Descriptions

Field	Description
tag	Identifier for the motion region.
state	Operational state of the motion region: enabled or disabled.
upper-x	Coordinate percentage for the upper-left area of the video screen.
lower-x	Coordinate percentage for the lower-left area of the video screen.
upper-y	Coordinate percentage for the upper-right area of the video screen.
lower-y	Coordinate percentage for the lower-right area of the video screen.
threshold	Motion vector threshold for the specified motion region.

Related Commands

Command	Description
video motion-region	Configures video motion region parameters.

show video port

To display configuration parameters for video ports, use the **show video port** command in EXEC mode.

show video port {*portnum* | **summary**}

Syntax Description

portnum	Specifies the video port number.
summary	Displays configuration parameters for all video ports.

Command Modes

EXEC

Command History

Version	Modification
1.0	This command was introduced.

Examples

The following example shows configuration parameters for video port 0:

```
vse-module> show video port 0
description ""
state enabled
direction in
brightness 0
contrast 0
hue 0
saturation 0
sharpness 0
```

The following example shows configuration parameters for all video ports:

```
vse-module> show video port summary
port state dir mxRes brightness contrast hue  saturation sharpness
================================================================
0    ena   in  4cif  0          0        0    0          0
1    ena   in  4cif  0          0        0    0          0
2    ena   in  4cif  0          0        0    0          0
3    ena   in  4cif  0          0        0    0          0
4    ena   in  4cif  0          0        0    0          0
5    ena   in  4cif  0          0        0    0          0
6    ena   in  4cif  0          0        0    0          0
7    ena   in  4cif  0          0        0    0          0
8    ena   in  4cif  0          0        0    0          0
9    ena   in  4cif  0          0        0    0          0
10   ena   in  4cif  0          0        0    0          0
11   ena   in  4cif  0          0        0    0          0
12   ena   in  4cif  0          0        0    0          0
13   ena   in  4cif  0          0        0    0          0
14   ena   in  4cif  0          0        0    0          0
15   ena   in  4cif  0          0        0    0          0
```

Table 18 describes the significant fields in the example.

Table 18 show video port Field Descriptions

Field	Description
port	Video port number.
state	Operational state of the video port: enabled or disabled.
dir (direction)	Direction of the video port: in for input, and out for output.
brightness	Brightness setting of video port as an integer value in the range of –128 to 127.
contrast	Contrast setting of video port as an integer value in the range of –128 to 127.
hue	Hue setting for the video port as an integer value in the range of –128 to 127.
saturation	Saturation setting for the video port as an integer value in the range of –128 to 127.
sharpness	Sharpness setting for the video port as an integer value in the range of 0 to 3.

Related Commands

Command	Description
video port	Modifies an existing video port configuration.

show video session

To display video session statistics, use the **show video session** command in user EXEC mode.

show video session {**connection** | **history** | **library** | **rtcp** | **stream**}

Syntax Description

connection	Displays video session connection statistics.
history	Displays video session historical statistics.
library	Displays video session library statistics.
rtcp	Displays video session real-time control protocol (RTCP) statistics.
stream	Displays video session stream statistics.

Command Modes

User EXEC

Command History

Version	Modification
1.0	This command was introduced.

Examples

The following example shows output from the **show video session stream** command:

```
vse-module# show video session stream

StreamId Sockfd      IP Address    Port  Prot   D  O Pkts Count   Bytes(K)   TxDp  kbps
-------- ------ ---------------    ----- ----   -  - ----------   ---------- ----  -----
00000001 000030 128.107.146.235 4730  RTP   O  Y 3330        3110       0     980
00000002 000031 128.107.146.235 4731  RTCP  O  N 0           0          0     0
00000101 000032 128.107.146.235 4730  RTP   I  N 0           0          0     0
00000102 000033 128.107.146.235 4731  RTCP  I  N 0           0          0     0
```

Table 19 describes the significant fields in the example.

Table 19 show video session stream Field Descriptions

Field	Description
StreamID	Video stream identifier.
Sockfd	Socket field.
IP Address	IP address.
Port	Port number.
Prot	Streaming protocol type.
D	Direction (*in* or *out*).
O	On: *Yes* or *No*.
Pkts Count	Number of packets.
Bytes (K)	Number of bytes (in thousands of bytes).

Table 19 show video session stream Field Descriptions (continued)

Field	Description
TxDrp	Number of transmission packets dropped.
kbps	Session streaming rate, in kilobytes per second (KBps).

The following example shows output from the **show video session rtcp** command:

```
vse-module# show video session rtcp

SessionID     site   RTPtx(s) RTPrx(s) DRate(%) DropCnt Jitter(ms) loopDelay
00000002-001f local  44bd54a7 00000000 0        0       0           ----
              remote ----     ----     0        0       4          28
```

Table 20 describes the significant fields in the example.

Table 20 show video session rtcp Field Descriptions

Field	Description
SessionID	Video streaming session identifier.
site	Site: *local* or *remote*.
RTPtx(s)	Real-time Transport Protocol packet(s) transmitted.
RTPrx(s)	Real-time Transport Protocol packet(s) received.
DRate(%)	Drop rate, in percentage.
DropCnt	Number of packets dropped.
Jitter(ms)	Jitter signal variation, in milliseconds.
loopDelay	Real-time Transport Control Protocol loop delay (in milliseconds).

The following example shows output from the **show video session connection** command:

```
vse-module# show video session connection

 S T R E A M     M A N A G E R                                  MW API     C L I
ConnId AnEp isId Port PkEp osId        IpAdress Encap Codec StreamId   Profile
------ ---- ---- ---- ---- ---- --------------- ----- ----- -------- ---------
   188  180  180    2  179  179 128.107.146.235   rtp mpeg4 00000001 stream000
```

Table 21 describes the significant fields in the example.

Table 21 show video session connection Field Descriptions

Field	Description
ConnId	Connection identifier.
AnEp	Analog endpoints
isId	Input stream identifier.
Port	Physical port number.
PkEp	Packet endpoints.
osId	Output stream identifier.

Table 21 show video session connection Field Descriptions (continued)

Field	Description
IpAdress	IP address.
Encap	Encapsulation type.
Codec	Codec type.
StreamId	Streaming video identifier.
Profile	Streaming video profile (for example, stream000).

Related Commands

Command	Description
video stream-profile	Configures the video stream profile.

show video stream-profile

To display video stream profile configuration parameters, use the **show video stream-profile** command in user EXEC mode.

show video stream-profile {*tag* | **dynamically-generated summary** | **user-configured summary**}

Syntax Description

tag	Identifier for the video stream profile. String values are in the range of stream000 to stream999.
dynamically-generated summary	Displays a summary of dynamically generated video stream profiles.
user-configured summary	Displays a summary of user-configured video stream profiles.

Command Modes

User EXEC

Command History

Version	Modification
1.0	This command was introduced.

Usage Guidelines

This command-line interface (CLI) command shows the video stream profile configuration.

Examples

The following example shows a specific video stream profile:

```
vse-module> show video stream-profile stream011
description "sample stream profile 011”
state enabled
portNum 0
codecProfileTag -
motionDetectionTag -
```

The following example shows all user-configured video stream profiles:

```
vse-module> show video stream-profile user-configured summary
   tag      state  codecProfileTag  motionDetectionTag  portNum
============================================================
stream001   ena      -                 -                   0
stream010   ena      -                 -                   0
stream011   ena      -                 -                   0
stream017   ena      -                 -                   0
```

The following example shows dynamically-generated video stream profiles:

```
vse-module> show video stream-profile dynamically-generated summary
   tag      state  codecProfileTag  motionDetectionTag  portNum
============================================================
httpx      ena      -                 -                   0
```

Table 22 describes the significant fields in the example.

Table 22 show video stream-profile Field Descriptions

Field	Description
tag	Identifier for the stream profile in the range of stream000 to stream999.
state	Operational state of the stream profile: enabled or disabled.
codecProfileTag	Identifier for the codec profile associated with the stream profile.
motionDetectionTag	Identifier for the motion detection parameters associated with the stream profile.
portNum	Port number associated with the stream profile.

Related Commands

Command	Description
video stream-profile	Creates a video stream profile.

show video xconn-lpbk-conn

To display video cross-connect loopback configuration parameters, use the **show video xconn-lpbk-conn** command in user EXEC mode.

show video xconn-lpbk-conn {*0–1* | **summary**}

Syntax Description

0–1	Identifies the video cross-connect loopback connection in the range of 0 to 1.
summary	Displays a summary video cross-connect loopback connections.

Command Modes

User EXEC

Command History

Version	Modification
1.2	This command was introduced.

Usage Guidelines

This command-line interface (CLI) command shows the video cross-connect loopback configuration to conduct video loopback diagnostic tests.

The video cross-connect loopback diagnostic command transmits a signal that is returned to the sending port after passing through all or a portion of a network or circuit. The returned signal is compared with the transmitted signal to evaluate the integrity of the equipment or transmission path. The video cross-connect loopback test mode is persistent across the Cisco Analog Video Gateway encoder reload.

Examples

The following example shows the specific video cross-connect loopback connection parameters:

```
VSE-Module> show video xconn-lpbk-conn 0

description "video connection 0"
state enabled
import 2
outport 0
```

The following example shows a summary of video cross-connect loopback connection parameters:

```
VSE-Module> show video xconn-lpbk-conn summary

xconn-lpbk-conn     state      inport       outport
=======================================================
conn0               ena        1            0
conn1               ena        1            0
```

Table 23 describes the significant fields in the example.

Table 23 show video cross-connect loopback Field Descriptions

Field	Description
xconn-lpbk-conn	Identifies the connection as either conn0 or conn1.
state	Operational state of the video cross-connect loopback test: enabled or disabled.
inport	Displays the video cross-connect loopback inport.
outport	Displays the video cross-connect loopback to outport.

Related Commands

Command	Description
video xconn-lpbk-conn	Configures and enables the Cisco Analog Video Gateway cross connect test mode.

video codec-profile

To create a video codec profile, use the **video codec-profile** command in video port configuration mode. To use the default video codec profile, use the **no** form of this command.

video codec-profile *tag* [**bitrate** | **codec** | **default** | **deinterlace** | **description** | **format** | **framerate** | **gopsize** | **maxbitrate** | **qualityfactor** | **skipfactor** | **resolution** | **state**]

no video codec-profile *tag*

Note The video codec profile cannot be removed until the streaming profile is removed.

Syntax Description

tag	Identifier for the video codec profile. String values are in the range of codec000 to codec999.
bitrate	Bit rate for the video codec profile. • variable bit rate (vbr): VBR. Used for MJPEG, MPEG4, and H.264. • constant bit rate (cbr): CBR. Used for MPEG4 and H264 only. Default: cbr.
codec	Codec type for the video codec profile. • h264: H.264. • mjpeg: MJPEG. • mpeg4: MPEG4. Default: mpeg4.
default	Use default values for the video codec profile. Use the **no** form of this command to use or restore the default video codec profile values.
deinterlace	Enables or disables deinterlace mode. This option is available only in version 1.1 or later. Default: enabled
description	Description for the video codec profile. Text with up to 80 string characters within quotation marks.
format	Format for the video codec profile: • ntsc: NTSC video format. • pal: PAL video format.
framerate	Frame rate for the video codec profile, in frames per second (fps): • NTSC frame rate: 30, 15, 10, 7.5, 6, 5, 4.28, 3.75, 3.33, 3, 2.72, 2.5, 2.31, 2.14, 2, 1.87, 1.76, 1.67, 1.58, 1.5, 1.43, 1.36, 1.3, 1.25, 1.2, 1.15, 1.11, 1.07, 1.03, 1, 0.99, 0.98, ..., 0.02, 0.01. Default: 5. • PAL frame rate: 25, 12.5, 8.33, 6.25, 5, 4.17, 3.57, 3.13, 2.78, 2.5, 2.27, 2.08, 1.92, 1.79, 1.67, 1.56, 1.47, 1.39, 1.32, 1.25, 1.19, 1.14, 1.09, 1.04, 1.00, 0.99, 0.98, ..., 0.02, 0.01. Default: 10.
gopsize	Group-of-picture (GOP) size for the video codec profile in the range of 0 to 600. Default: 20.

maxbitrate	Maximum bit rate for the video codec profile. • Integer value in the range of 168 to 2000 KBps for codec MPEG4. • Integer value in the range of 168 to 3000 KBps for codec H.264. Default: 768. **Note** You cannot set a **maxbitrate** value for MJPEG because it uses a VBR algorithm.
qualityfactor	Quality factor for MJPEG video codec only. Integer value in the range of 0 to 100 percent. Default: 70.
skipfactor	Skip factor for the video codec profile. Integer value in the range of 1 to 100.
resolution	Resolution for the video codec profile: • 4cif: 4CIF • 2cif: 2CIF (This option is only available in version 1.1 or later.) • cif: CIF Default: 4cif
state	Operational state of the video codec profile: enabled or disabled. Default: enabled.

Command Default

No video codec profile is configured.

Command Modes

Video port configuration

Command History

Version	Modification
1.0	This command was introduced.
1.1	De-interlace enable/disable option added to this command. Resolution option 2CIF added to this command.

Usage Guidelines

When setting **framerate**, the default is 5 frames per second (fps). For example, a frame rate of 0.01 means 1 frame every 100 seconds.

When setting **gopsize**, set it for MPEG4 and H.264 only in frames. For example, if you have a frame rate of 15 fps and GOP size of 30 frames, it is set to 30/15 or 2 seconds.

When setting **maxbitrate**, it cannot be set for MJPEG because it uses a VBR algorithm.

The NTSC CIF resolution is:

- NTSC-CIF = 352 x 240 pixels
- NTSC-2CIF = 704 x 240 pixels
- NTSC-4CIF = 704 x 480 pixels

The PAL CIF resolution is:

- PAL-CIF = 352 x 288 pixels
- PAL-2CIF = 704 x 288 pixels
- PAL-4CIF = 704 x 576 pixels

Examples

This example shows video codec profile and stream profile configuration for video streaming with **codec** set to MPEG4, **bitrate** set to VBR, format set to NTSC, **framerate** is set to 30, **gopsize** is set to 20, and **maxbitrate** is set to 1000 KBps on video port 4.

```
VSE-module(config)> video codec-profile codec000
VSE-module(config-codec-profile)> codec mpeg4
VSE-module(config-codec-profile)> bitrate vbr
VSE-module(config-codec-profile)> format ntsc
VSE-module(config-codec-profile)> framerate 30
VSE-module(config-codec-profile)> gopsize 20
VSE-module(config-codec-profile)> maxbitrate 1000
VSE-module(config-codec-profile)> end
VSE-module(config)> video stream-profile stream000
VSE-module(config-stream-profile)> codecprofiletag codec000
VSE-module(config-stream-profile)> portnum 4
```

Related Commands

Command	Description
show video codec-profile	Displays video codec profile configuration parameters.

video motion-detection

To create a video motion detection profile, use the **video motion-detection** command in video port configuration mode. To use a default video motion detection profile, use the **no** form of this command.

video motion-detection *tag* [**default** | **description** | **motion-region-tag** *x y* | **state**]

no video motion-detection *tag*

Syntax Description

tag	Identifier for the motion detection profile. String values are in the range of md000 to md999.
default	Use default values for the video motion detection profile. Use the **no** form of this command to restore the default video motion detection profile values.
description	Description for the video motion detection profile. Text with up to 80 string characters within quotation marks.
motion-region-tag *x y*	Motion region to use for the video motion detection profile, where *x* specifies the motion region integer tag number in the range of 0 to 31, and *y* specifies the motion region tag in the range of mr000 to mr999.
state	Operational state of the video motion detection profile: enabled or disabled. Default: enabled

Command Default

No video motion detection profiles are configured.

Command Modes

Video port configuration

Command History

Version	Modification
1.0	This command was introduced.

Usage Guidelines

A video motion region profile must be configured before it can be used by a video codec motion detection profile; otherwise, the following error message appears:

```
The specified video motion region tag has not been configured
```

Examples

The following example shows a configuration for video motion detection md000:

```
vse-module> show video motion-detection md000
description "video motion detection md000"
state enabled
motion-region-tag 30 mr000
```

Related Commands

Command	Description
show video motion-detection	Displays video motion detection configuration parameters.

video motion-region

To create a video motion region profile, use the **video motion-region** command in video port configuration mode. To use a default video motion region profile, use the **no** form of this command.

video motion-region *tag* [**default | description | lowerrightcoordx | lowerrightcoordy | state | threshold | upperleftcoordx | upperleftcoordy**]

no video motion-region *tag*

Syntax Description

tag	Identifier for the motion region profile. String values are in the range of mr000 to mr999.
default	Use default values for the video motion region profile. Use the **no** form of this command to restore the default video motion region profile values.
description	Description for the video motion region profile. Text with up to 80 string characters within quotation marks.
lowerrightcoordx	Lower-right x coordinate integer percentage value in the range of 0 to 100. Default: 0.
lowerrightcoordy	Lower-right y coordinate integer percentage value in the range of 0 to 100. Default: 0.
state	Operational state of the video motion region: enabled or disabled. Default: enabled.
threshold	Motion region threshold value in the range of 1 to 100. Default: 10.
upperleftcoordx	Upper-left x coordinate integer percentage value in the range of 0 to 100. Default: 0.
upperleftcoordy	Upper-left y coordinate integer percentage value in the range of 0 to 100. Default: 0.

Command Default

No video motion region is configured.

Command Modes

Video port configuration

Command History

Version	Modification
1.0	This command was introduced.

Usage Guidelines

The lower-right and upper-left coordinate values are whole percentage values. The upper-left x coordinate must be a smaller percentage value than the lower-right x coordinate.

Examples

The following example shows the configuration for video motion region mr000.

```
vse-module> show video motion-region mr000
description "video motion region mr000"
```

```
state enabled
upperLeftCoordx 25
upperLeftCoordy 35
lowerRightCoordx 30
lowerRightCoordy 40
threshold 10
```

Related Commands

Command	Description
show video motion-region	Displays video motion region configuration parameters.

video port

To enter video port configuration mode or to modify the default video port configuration, use the **video port** command in global configuration mode. To use the video port to the default values, use the **no** form of this command.

Note The following command is valid for version 1.2 and later.

video port *portnum* [**brightness | contrast | default | description | direction | hue | saturation | sharpness | state**]

Note The following command is only valid for versions 1.0 and 1.2.

video port *portnum* [**brightness | contrast | default | description | direction | hue | maxresolution | saturation | sharpness | state**]

no video port *portnum*

Syntax Description

portnum	Video port number in the range of 0 to 15.
brightness	Brightness setting of video port as an integer value in the range of –128 to 127. Default: 0
contrast	Contrast setting of video port as an integer value in the range of –128 to 127. Default: 0
default	Returns the configuration to default values. Use the **no** form of this command to restore the default video port profile values.
description	Description of the video port. Text with up to 80 string characters within quotation marks.
direction	Video port direction: • in: input direction. • out: output direction. Default: in.
hue	Hue setting for the video port as an integer value in the range of –128 to 127. Default: 0.
maxresolution	**Note** This command is valid only for versions 1.0 and 1.1. Maximum resolution of the video port: • 4cif: 4CIF resolution. • 2cif: 2CIF resolution. This option is only available in version 1.1 or later. • cif: CIF resolution. Default: 4cif.
saturation	Saturation setting for the video port as an integer value in the range of –128 to 127. Default: 0.

sharpness	Sharpness setting for the video port as an integer value in the range of 0 to 3. Default: 0.
state	Operational state of the video port: enabled or disabled. Default: enabled.

Command Default

Video ports retain default configuration parameters.

Command Modes

Global configuration

Command History

Version	Modification
1.0	This command was introduced.
1.1	Maximum resolution option 2CIF added to the command.
1.2	Maximum reslolution (**maxresolution**) command removed.

Usage Guidelines

Video format is automatically detected, based on the hardware setting.

The **maxresolution** command is applicable only in versions 1.0 and 1.1 for the in (input) direction, so the *Invalid input* error appears if an attempt is made to apply the **maxresolution** command in the out (output) direction.

```
vse-module(config)> video port 0
Modifying existing port
vse-module(config-port)> description "sample video port 0"
vse-module(config-port)> direction out
vse-module(config-port)> maxresolution ?
  cif          CIF resolution
vse-module(config-port)> maxresolution cif
Invalid input. maxResolution is not applicable to output direction
```

Examples

The following example shows the parameters configured for video port 0.

```
vse-module> show video port 0
description ""
state enabled
direction in
brightness 125
contrast 80
hue 100
saturation 0
sharpness 0
```

Related Commands

Command	Description
show video port	Displays configuration parameters for video ports.

video stream-profile

To create a video stream profile, use the **video stream-profile** command in video port configuration mode. To use a default video stream profile, use the **no** form of this command.

video stream-profile *tag* [**codecprofiletag | default | description | motiondetectiontag | packetization-mode | portnum | state**]

no video stream-profile *tag*

Syntax Description

tag	Identifier for this video stream profile values in the range of stream000 to stream999.
codecprofiletag	Identifier for the video codec profile to use with the video stream profile values in the range of codec000 to codec999.
default	Use default values for the video stream profile. Use the **no** form of this command to restore the default video stream profile values.
description	Description for the video stream profile. Text with up to 80 string characters within quotation marks.
motiondetectiontag	Identifier for video motion detection profile profile values in the range of md000 to md999 to use with the video stream profile.
packetization-mode	H.264 real-time transport protocol (RTP) packetization mode (RFC-3984): • non-interleaved: Non-interleaved mode. • single-NAL: single Network Abstraction Layer (NAL) unit mode. Default: non-interleaved.
portnum	Port number to use for the video stream profile values in the range of 0 to 15.
state	Operational state of the video stream profile: enabled or disabled. Default: enabled.

Command Default

No video stream profile is configured.

Command Modes

Video port configuration

Command History

Version	Modification
1.0	This command was introduced.

Usage Guidelines

A video codec profile must be configured before it can be used by a video stream profile.

Note With the exception of motion detection configurations, once the video stream is initiated based on a profile, any changes to the corresponding codec or port configurations will have no effect on the video stream already in progress. Any changes to motion detection configurations will have an immediate effect on the video stream already in progress.

Examples

The following example shows a streaming profile configuration of stream000:

```
vse-module> show video stream-profile stream000
description "video stream profile 000"
state enabled
portNum 2
codecProfileTag codec000
packetization-mode non-interleaved
motionDetectionTag - md000
```

Related Commands

Command	Description
show video stream-profile	Displays video stream profile configuration parameters.

video xconn-lpbk-conn

To configure a video cross-connect loopback diagnostic test, use the **video xconn-lpbk-conn** command in video cross-connect loopback configuration mode. To restore the video cross-connect loopback command to the default condition, use the **no** form of this command.

video xconn-lpbk-conn *0–1* [**default | description | inport | state**]

no video xconn-lpbk-conn

Syntax Description

0–1	Identifies the video cross-connect loopback connection 0 or 1.
default	Use default values for the video cross-connect loopback test. Use the **no** form of this command to restore the default condition.
description	Description for the video cross-connect loopback configuration. Text with up to 80 string characters within quotation marks.
inport	Identifies the video cross-connect inport.
state	Operational state of the video stream profile: enabled or disabled. Default: enabled.

Command Default

No video cross-connect loopback is configured.

Command Modes

Video cross-connect loopback configuration

Command History

Version	Modification
1.2	This command was introduced.

Examples

The following example shows the specific video cross-connect loopback connection parameters:

```
VSE-Module> show video xconn-lpbk-conn 0

description "video connection 0"
state enabled
import 2
outport 0
```

The following example shows a summary of video cross-connect loopback connection parameters:

```
VSE-Module> show video xconn-lpbk-conn summary

xconn-lpbk-conn     state      inport       outport
=======================================================
conn0               ena        1            0
conn1               ena        1            0
```

Related Commands

Command	Description
show video xconn-lpbk-conn	Displays the video cross-connect loopback configuration summary.

Cisco IOS Commands

This section documents new Cisco IOS commands. Use these commands to access and configure the Cisco Analog Video Gateway module from the host router.

service-module video-service-engine

To begin a network module session through a console connection, use the **service-module video-service-engine** command in privileged EXEC configuration mode.

service-module video-service-engine *slot/port* {**session | password-reset | reload | reset | session | shutdown | statistics | status**}

Syntax Description

slot	Number of the router chassis slot for the network module.
port	Number of the video port on the network module. For network modules, always use 0. The slash mark (/) is required between the slot argument and the port argument.
password-reset	Reset of network module password.
reload	Reload network module.
reset	Hardware reset of the network module.
session	Network module session. Opens a Telnet session that provides the Cisco video encoder command-line interface (CLI) from the Cisco IOS interface side.
shutdown	Shutdown of the network module.
statistics	Shows the video network module reset statistics.
status	Operational information about the network module.

Command Default

None.

Command Modes

Privileged EXEC

Command History

Version	Modification
12.4(11)T	This command was introduced.

Usage Guidelines

Use the **service-module video-service-engine** *slot/port* **shutdown** command before you remove the video network module from the router.

Removing the video encoder without using the proper shutdown sequence can result in corruption of the hard disk. After successful shutdown of the application, the Cisco IOS software displays a message indicating that the network module can be removed.

Only one session at a time is allowed into the network module from the internal network-module-side interface.

After starting a session, you can perform any video module configuration task. You first access the console in a user-level shell. To access the privileged EXEC command shell, in which most commands are available, use the **enable** command.

After you finish configuring the module and exit the module console session, clear the session by using the **service-module video-service-engine** *slot/port* **session clear** command. At the confirmation prompt, press **Enter** to confirm the action, or press **n** to cancel.

Examples

The following example shows a session being opened for a Cisco Analog Video Gateway module in slot 1:

```
Router# service-module video-service-engine 1/0 session

Trying 31.0.0.99, 2066 ... Open
vse-module>
```

Related Commands

Command	Description
enable	Enters privileged EXEC mode.
interface	Configures an interface and enters interface configuration mode.
show diag	Displays controller information for a network module.
show interface video-service engine	Displays basic interface configuration information for the Cisco Analog Video Gateway network module.

show interfaces video-service-engine

To display basic interface configuration information for an the video interface, use the **show interfaces video-service-engine** command in user EXEC mode.

show interfaces video-service-engine *slot/port*

Syntax Description

slot	Number of the router chassis slot for the Cisco Analog Video Gateway module.
port	Number of the video Cisco Analog Video Gateway module. For network modules, always use 0. The slash mark (/) is required between the *slot* argument and the *port* argument.

Defaults

None

Command Modes

User EXEC

Command History

Version	Modification
12.4(11)T	This command was introduced.

Examples

The following example shows the output from the **show interfaces video-Service-Engine 1/0** command:

```
Router# show interfaces video-service-Engine 1/0

Video-Service-Engine1/0 is up, line protocol is up
  Hardware is BCM5703, address is 0015.629a.efe0 (bia 0015.629a.efe0)
  Internet address is 31.0.0.99/16
  MTU 1500 bytes, BW 1000000 Kbit, DLY 10 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive not set
  Full-duplex, 1000Mb/s, link type is force-up, media type is internal
  output flow-control is XON, input flow-control is XON
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 00:00:09, output 00:00:09, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: fifo
  Output queue: 0/512 (size/max)
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
     43797 packets input, 1854377 bytes, 0 no buffer
     Received 18 broadcasts, 0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 watchdog, 0 multicast, 0 pause input
     0 input packets with dribble condition detected
     31682 packets output, 10485509 bytes, 0 underruns
     0 output errors, 0 collisions, 4 interface resets
     0 babbles, 0 late collision, 0 deferred
```

```
     0 lost carrier, 0 no carrier, 0 pause output
     0 output buffer failures, 0 output buffers swapped out
Router#
```

Related Commands

Command	Description
interface video-service-engine	Configures the interface slot and port numbers where the network module resides.

show controllers video-service-engine

To display controller information for video network module, use the **show controllers video-service-engine** command in the privileged EXEC mode.

show controllers video-service-engine *slot/unit*

Syntax Description

slot	Number of the router chassis slot for the video module.
unit	Number of the video module. For network modules, always use 0. The slash mark (/) is required between the slot argument and the unit argument.

Command Default

None

Command Modes

Privileged EXEC

Command History

Version	Modification
12.4(11)T	This command was introduced.

Examples

The following example shows the output from the **show controllers video-service-engine** *slot/unit* command:

```
Router# show controllers video-Service-Engine 1/0
Interface Video-Service-Engine1/0
Hardware is BCM5703 Gig Ethernet
IDB: 657C708C, FASTSEND: 60E21D2C, MCI_INDEX: 0

INSTANCE=0x657C819C
  Rx Ring entries = 512
  Rx Shadow = 0x657C8AEC
  Rx Ring = 0x2D7C3040
  Rx Ring Head = 184
  Rx Ring Last = 183
  Rx Jumbo Ring entries = 256
  Rx Jumbo Shadow = 0x657C9324
  Rx Jumbo Ring = 0x2D7C7080
  Rx Jumbo Ring Head = 0
  Rx Jumbo Ring Last = 255
  Rx Return Ring = 0x2D7CB0C0
  Rx Return Ring Head = 696
  Rx Return Ring Last = 695
  Rx STD Ring Shadow (malloc) = 0x657C8AEC
  Rx STD Ring (malloc) = 0x2D7C3040
  Rx JUMBO Ring Shadow (malloc) = 0x657C9324
  Rx JUMBO Ring (malloc) = 0x2D7C7080
  Rx Buffer Descr (malloc) = 0x2D7CB0C0
  Tx Ring entries = 512
  Tx Shadow = 0x657CA35C
  Tx Shadow Head = 2
  Tx Shadow Tail = 2
```

```
  Tx Shadow Tail Last = 1
  Tx Shadow Free = 512
  Tx Ring = 0x2D7D3100
  Tx Count = 0
  Tx Free = 512
  Tx Buffer Descr = 0x2D7D3100
  Tx Shadow (malloc) = 0x657CA35C
  Tx Ring (malloc) = 0x2D7D3100

Status block and mail_box information
  Status = 0x0, StatusTag = 0xB1
  Status::RcvStdConIdx: 184 , RcvJumboConIdx: 0   , RcvMiniConIdx: 0
  MBOX::RcvStdProdIdx:183 , RcvJumboProdIdx:255 , RcvMiniProdIdx: 0
  Status::Send 0, SendConIdx: 2   , Rx Rtn 0, RcvProdIdx: 696
  mail_box::Send 0,SendHostProdIdx: 2   , Rx Rtn 0,RcvRetConIdx: 695

Rings Status:
 *** RX Entry: 3   , Tx Entry: 14   ***

  RX #  duration  RtnHead  RtnTail ProdHead ProdTail
  [0 ]     35        693      694      181      182
  [1 ]     31        694      695      182      183
  [2 ]     40        695      696      183      184
  [3 ]     29        676      677      164      165
  [4 ]     35        677      678      165      166
  [5 ]     30        678      679      166      167
  [6 ]     31        679      680      167      168
  [7 ]     31        680      681      168      169
  [8 ]     29        681      682      169      170
  [9 ]     28        682      683      170      171
  [10]     35        683      684      171      172
  [11]     38        684      685      172      173
  [12]     38        685      686      173      174
  [13]     35        686      687      174      175
  [14]     36        687      688      175      176
  [15]     34        688      689      176      177
  [16]     36        689      690      177      178
  [17]     41        690      691      178      179
  [18]     31        691      692      179      180
  [19]     32        692      693      180      181

  TX #  duration  Send_head Send_tail
  [0 ]     3         442      443
  [1 ]     5         504      505
  [2 ]     4         505      506
  [3 ]     3         506      507
  [4 ]     5         443      444
  [5 ]     4         507      508
  [6 ]     2         444      445
  [7 ]     0         508      509
  [8 ]     3         509      510
  [9 ]     3         510      511
  [10]     3         445      446
  [11]     4         511      0
  [12]     4         0        1
  [13]     5         1        2
  [14]     4         499      500
  [15]     3         500      501
  [16]     3         441      442
  [17]     4         501      502
  [18]     3         502      503
  [19]     3         503      504

PCI Register [0x4B000000]
```

```
  PCI Msi Control = 0x5
  PCI Msi addr = 0xBFFD7DF7, 0xDFFF97F4
  PCI MiscHostCtrl = 0x10020098
  PCI DMA Control = 0x763F0000
  PCI PciState = 0x20FE
  PCI clk ctrl = 0xBF
  PCI ModeCtrl = 0x4030034
  PCI MiscCfg = 0x83082
  PCI MiscLocalCtrl = 0x1016F09

Mac Control Register [0x4B000400]
  MAC Mode = 0xE0480C
  Mac Status = 0x403
  Mac Event = 0x1000
  Mac Led = 0x880
  Mac RX MTU = 0x2808
  Mac Tx AutoNeg = 0x0
  MAC Rx AutoNeg = 0x0
  Mac Tx Mode  = 0x52
  Mac Tx Status = 0x8
  Mac Tx Length = 0x2620
  Mac Rx Mode  = 0x406
  Mac Rx Status = 0x0
  Mac Serdes Ctrl = 0x616000
  Mac Serdes Status = 0x140

General Control Register [0x4B006800]
  GCR Mode = 0x4030034, GCR MiscCfg = 0x83082
  GCR LocalCtrl = 0x1016F09, GCR Timer    = 0x878ABA6
  Buf Mgr Address Space Begin = 0x4B004400
  Buf Mgr Flow Control Low Water Mark Adr = 0x4B004414 Data = 0x130
  Buf Mgr Flow Control High Water Mark Adr = 0x4B004418 Data = 0x17C

Hardware MAC Address Filters
----------------------------
  Hardware Perfect Address Filters
MAC addr[00] = 00-15-62-9A-EF-E0
MAC addr[01] = 01-00-0C-CC-CC-CC
MAC addr[02] = 01-80-C2-00-00-07
MAC addr[03] = 00-00-00-00-00-00
MAC addr[04] = 00-00-00-00-00-00
MAC addr[05] = 00-00-00-00-00-00
MAC addr[06] = 00-00-00-00-00-00
MAC addr[07] = 00-00-00-00-00-00
MAC addr[08] = 00-00-00-00-00-00
MAC addr[09] = 00-00-00-00-00-00
MAC addr[10] = 00-00-00-00-00-00
MAC addr[11] = 00-00-00-00-00-00
MAC addr[12] = 00-00-00-00-00-00
MAC addr[13] = 00-00-00-00-00-00
MAC addr[14] = 00-00-00-00-00-00
MAC addr[15] = 00-00-00-00-00-00
  Hardware Multicast Hash Filters
MAC Hash addr[00] = 00000000
MAC Hash addr[01] = 00000000
MAC Hash addr[02] = 00000000
MAC Hash addr[03] = 00000000
  Hardware Receive Rules Filters
Receive Rules Config = 00000008
 Rule:  [00]  = 0x42000000
 Value: [00]  = 0x7FFFFFFF
 Rule:  [01]  = 0x06000004
 Value: [01]  = 0x7FFFFFFF
 Rule:  [02]  = 0x00000000
```

```
 Value: [02]  = 0x00000000
 Rule:  [03]  = 0x00000000
 Value: [03]  = 0x00000000
 Rule:  [04]  = 0x00000000
 Value: [04]  = 0x00000000
 Rule:  [05]  = 0x00000000
 Value: [05]  = 0x00000000
 Rule:  [06]  = 0x00000000
 Value: [06]  = 0x00000000
 Rule:  [07]  = 0x00000000
 Value: [07]  = 0x00000000
 Rule:  [08]  = 0x00000000
 Value: [08]  = 0x00000000
 Rule:  [09]  = 0x00000000
 Value: [09]  = 0x00000000
 Rule:  [10]  = 0x00000000
 Value: [10]  = 0x00000000
 Rule:  [11]  = 0x00000000
 Value: [11]  = 0x00000000
 Rule:  [12]  = 0x00000000
 Value: [12]  = 0x00000000
 Rule:  [13]  = 0x00000000
 Value: [13]  = 0x00000000
 Rule:  [14]  = 0x00000000
 Value: [14]  = 0x00000000
 Rule:  [15]  = 0x00000000
 Value: [15]  = 0x00000000

Software MAC Address Filter (hash:length/addr/mask/hits)
---------------------------------------------------------
  0x000:  0  ffff.ffff.ffff  0000.0000.0000         0
  0x082:  0  0015.629a.efe0  0000.0000.0000         0
  0x0C0:  0  0100.0ccc.cccc  0000.0000.0000         0
  0x0C5:  0  0180.c200.0007  0000.0000.0000         0

  Software filtered frames: 0
  Unicast software filter needed: 0
  Multicast software filter needed: 0
  Promiscuous mode: 0

HARDWARE STATISTICS
  Rx good packets: 20152
  Rx CRC:          0
  Rx alignment:    0
  Rx short:        0

  Tx good frames:        31234
  Tx maxm collisions:    0
  Tx late collisions:    0
  Tx underruns:          0
  Tx lost carrier:       0
  Tx deferred:           0
  Tx single collision:   0
  Tx multiple collision: 0
  Tx total collisions:   0
  -------- HW FLOW CONTROL STATS ---------
  Rx XON PAUSE Frames Received:   0
  Rx XOFF PAUSE Frames Received:   0
  Rx XOFF State Entered:   0
  Tx XON Sent:   0
  Tx XOFF Sent:   0

INTERRUPT STATISTICS
  CX  = 75443
```

```
  FR  = 43763
  CNA = 0
  RNR = 0
  MDI = 0
  SWI = 0
  FCP = 0

Full Promiscuous Mode = disabled
Loopback Mode = disabled

I/O Congestion Counters:
     Standard Packet Count : 0
     Jumbo Packet Count    : 0

I2C Registers:
  AFS - Control Register   : 0x4000D000
  SMBUS Input Register     : 0x00000464
  SMBUS Output Register    : 0x00004C61
  SMBUS GRC Local Register : 0x01016F09

I2C Error Counter:
  Total I2C Output Errors  : 0
  Total I2C Input Errors   : 0
  I2C Transaction Errors   : 0

Module Reset Statistics:
  CLI reset count = 3
  CLI reload count = 0
  Registration request timeout reset count = 2
  Error recovery timeout reset count = 3
  Module registration count = 4

The last IOS initiated event was a error recovery timeout reset at 23:26:57.306
UTC Wed May 9 2007
Router#
```

Related Commands

Command	Description
show interfaces integrated-service-engine	Displays basic interface configuration information for the video network module.

GLOSSARY

A

AIC Alarm Indication Control.

appliance Alternate term for *service module*.

ARP Address Resolution Protocol. Internet protocol used to map an IP address to a MAC address.

ASP Advanced Simple Profile. *See* MPEG4 standard.

B

boot helper A small subset of the system software that runs on the Cisco Analog Video Gateway. It boots the module from the network and assists in software installation, software upgrades, disaster recovery, and other operations when the module cannot access its software.

boot loader A small set of system software that runs when the system first powers up. It loads the operating system (from the disk, network, external CompactFlash, or external USB flash), which loads and runs the Cisco Analog Video Gateway application. The boot loader may optionally load and run the boot helper.

BP Baseline Profile. *See* H.264 standard.

C

CIF Common Intermediate Format, usually referring to 352 x 240 pixels per picture for NTSC and 352 x 288 pixels per picture for PAL.

4CIF—Four Times CIF: 704 x 480 pixels per picture for NTSC, and 704 x 576 pixels per picture for PAL.

CODEC Coder and decoder. An encoder converts the source data into a compressed form prior to transmission or storage. The decoder converts the compressed data into a representation of the original data.

D

D1 This is an equivalent resolution of 4CIF, or 720 x 480 pixels per picture for NTSC and 720 x 576 pixels per picture for PAL.

E

EXT3 Linux popular file system.

F

FTP File Transfer Protocol. Application protocol, part of the TCP/IP protocol stack, used for transferring files between network nodes.

G

GOP Group-of-pictures (GOP). The GOP layer contains a small number of frames (typically 12) coded so that they can be decoded completely as a unit, without reference to frames outside of the group. There are three types of frame:

Intracoded frames (I)—coded as single frames as in JPEG, without reference to any other frames.

Predictive coded frames (P)—coded as the difference from a motion compensated prediction frame, generated from an earlier I or P frame in the GOP.

Bidirectional coded frames (B)—coded as the difference between a bidirectional interpolated frames, generated from earlier and later I or P frames in the sequence (with motion compensation).

H

H.264, JVT/H.26L, MPEG4 Part10,AVC Video standard successor to MPEG-4 SP and ASP video coding (MPEG-4 Part 2). At the expense of much greater computational complexity, it provides compression rates that can well be 40% better than MPEG-4 SP/ASP.

J

JPEG Still image transmission and storage standards including digital photos—ISO.

M

MJPEG Motion JPEG—ISO.

MP Main Profile. *See* H.264 standard.

MPEG-4 MPEG-4, Part 2, Simple Profile (SP) and Advanced Simple Profile. SP is an improvement of H.263 for low-bit-rate application, mainly used for video streaming—ISO. ASP is higher quality and bit rate.

N

network module An add-on board that plugs into Cisco 2800 and 3800 series Integrated Services Routers (ISRs).

NM Network module. In this case, the Cisco Analog Video Gateway.

NTSC National Television System Committee. It has 525 horizontal lines and 30 frames per second interlaced video.

NTP Network Time Protocol. Protocol built on top of TCP that ensures accurate local time-keeping with reference to radio and atomic clocks located on the Internet. This protocol is capable of synchronizing distributed clocks within milliseconds over long time periods.

NVR Network Video Recorder.

P

PAL Phase Alternate Line. It has 625 horizontal lines 25 frames per second interlaced video.

PTZ Pan-tilt-zoom.

Q

QoS Quality of service.

R

RaiserFS New Linux file system support.

RTCP Real-time Transport Control Protocol. Provides out-of-band control information for an RTP flow and feedback on the quality of service that is provided by RTP.

RSTP Real-time Streaming Protocol. Enables the controlled delivery of real-time data, such as audio and video. Sources of data can include both live data feeds, such as live audio and video, and stored content, such as prerecorded events. RTSP is designed to work with established protocols, such as RTP and HTTP.

S

service (or services) engine Alternate term for *network module* with installed application software.

service module Standalone content engine with its own startup and run-time configurations that are independent of the Cisco IOS configuration on the router.

syslog Industry-standard protocol for capturing log information for devices on a network.

T

TCP Transmission Control Protocol. Connection-oriented transport-layer protocol that provides reliable full-duplex data transmission. TCP is part of the TCP/IP protocol stack.

TFTP Trivial File Transfer Protocol. Simplified version of FTP that allows files to be transferred from one computer to another over a network, usually without the use of client authentication (for example, username and password).

U

UDP User Datagram Protocol. Connectionless transport-layer protocol in the TCP/IP protocol stack that exchanges datagrams without acknowledgments or guaranteed delivery, requiring that error processing and retransmission be handled by other protocols.

X

XML eXtended Markup Language. You can configure video profiles using the command-line interface (CLI) or the XML-based application programming interface (API).

Y

YUV YCbCr 4:2:2 extended precision 10-bits per component in Y0U0Y1V0 order.

For terms not included in this glossary, see the following references:

- *Cisco IOS Voice Configuration Library Glossary*
- *Internetworking Terms and Acronyms*

INDEX

A

B

C

D

E

F

I

L

M

N

O

P

R

S

T

U

V