



## **Cisco QAM Gateway Manager User Guide, Release 1.0**

### **Corporate 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: 408 526-4100

Text Part Number: OL-5763-01



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## About This Guide

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This guide provides the necessary information to help you use Cisco QAM Gateway Manager (Cisco QGM) to configure and monitor Cisco uMG9820 QAM gateways and Cisco uMG9850 QAM modules in Cisco Catalyst 4500 series switches.

This section discusses the following major topics:

- [Document Audience](#)
- [Document Organization](#)
- [Document Conventions](#)
- [Related Documentation](#)
- [Obtaining Documentation](#)
- [Documentation Feedback](#)
- [Obtaining Technical Assistance](#)
- [Obtaining Additional Publications and Information](#)

# Document Audience

This guide is a reference resource for network managers, system administrators responsible for managing the video network, and network analysts responsible for configuring the network.

# Document Organization

This document is organized as shown in [Table 1](#).

**Table 1 Document Organization**

Chapter/Appendix Title	Description
Chapter 1, “Introduction to Cisco QAM Gateway Manager”	Provides a product overview and describes basic concepts and tasks.
Chapter 2, “Installing Cisco QAM Gateway Manager”	Outlines minimum system requirements and set-up requirements.
Chapter 3, “Using Cisco QAM Gateway Manager”	Describes the use of Cisco QAM Gateway Manager for configuration of Cisco QAM Gateway devices.
Chapter 4, “Monitoring Cisco QAM Gateway Devices”	Provides information on monitoring configured devices and lists application display messages.

# Document Conventions

The following conventions are used in this document:

Convention	Description
<b>boldface</b> font	Commands and keywords are in <b>boldface</b> .
<i>italic</i> font	Arguments for which you supply values are in <i>italics</i> .
[ ]	Elements in square brackets are optional.
{x   y   z}	Alternative, mutually exclusive, keywords are grouped in braces and separated by vertical bars.
[x   y   z]	Optional alternative keywords are grouped in brackets and separated by vertical bars.
string	A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.
screen font	Terminal sessions and information the system displays are in <code>screen font</code> .
<b>boldface screen font</b>	Information you must enter is in <b>boldface screen font</b> .
<i>italic screen font</i>	Arguments for which you supply values are in <i>italic screen font</i> .



Convention	Description
^	The symbol ^ represents the key labeled Control—for example, the key combination ^D in a screen display means hold down the Control key while you press the D key.
< >	Nonprinting characters, such as passwords, are in angle brackets in contexts where italics are not available. Angle brackets are also used for variables.
[ ]	Default responses to system prompts are in square brackets.
!, #	An exclamation point (!) or a pound sign (#) at the beginning of a line of code indicates a comment line.

**Tip**

Means *the following information might help you solve a problem.*

**Note**

Means reader take note. Notes contain helpful suggestions or references to material not covered in the publication.

**Caution**

Means *reader be careful.* In this situation, you might do something that could result in corruption of data.

## Related Documentation

The following documentation provides information relating to the installation, configuration, and operation of the Cisco uMG9820 QAM Gateway, Cisco uMG9850 QAM Module, Cisco Catalyst 4500 series switches, and Cisco QAM Gateway Manager.

### Cisco uMG9820 QAM Gateway

- *Cisco uMG9820 QAM Gateway Installation and Configuration Guide for Release 2.2*  
<http://www.cisco.com/univercd/cc/td/doc/product/cable/vod/umg9820/9820icg2/index.htm>
- *Release Notes for Cisco uMG9820 QAM Gateway, Release 2.2*  
<http://www.cisco.com/univercd/cc/td/doc/product/cable/vod/umg9820/9820rn20.htm>
- *Cisco uMG9820 QAM Gateway Regulatory Compliance and Safety Information*  
<http://www.cisco.com/univercd/cc/td/doc/product/cable/vod/umg9820/9820rcsi.htm>
- *Quick Start Guide—Rack-Mounting the Cisco uMG9820 QAM Gateway*  
<http://www.cisco.com/univercd/cc/td/doc/product/cable/vod/umg9820/9820rkmt.pdf>
- *Quick Start Guide—Removing and Replacing a Fan Assembly in the Cisco uMG9820 QAM Gateway*  
<http://www.cisco.com/univercd/cc/td/doc/product/cable/vod/umg9820/20fanfru.pdf>
- *Quick Start Guide—Removing and Replacing a Processor Card in the Cisco uMG9820 QAM Gateway*  
<http://www.cisco.com/univercd/cc/td/doc/product/cable/vod/umg9820/20profu.pdf>

- *Quick Start Guide—Removing and Replacing a Power Supply in the Cisco uMG9820 QAM Gateway*  
<http://www.cisco.com/univercd/cc/td/doc/product/cable/vod/umg9820/20pwrfru.pdf>
- *Quick Start Guide—Removing and Replacing a QAM Card in the Cisco uMG9820 QAM Gateway*  
<http://www.cisco.com/univercd/cc/td/doc/product/cable/vod/umg9820/20qamfru.pdf>

## Cisco uMG9850 QAM Module

- *Quick Start Guide—Installing the Cisco uMG9850 QAM Module*  
<http://www.cisco.com/univercd/cc/td/doc/product/cable/vod/umg9850/9850qsg.htm>
- *Configuring the Cisco uMG9850 QAM Module*  
<http://www.cisco.com/univercd/cc/td/doc/product/cable/vod/umg9850/9850fm.htm>
- *Release Notes for the Cisco uMG9850 QAM Module, Cisco IOS Release 12.1(20)EU1*  
<http://www.cisco.com/univercd/cc/td/doc/product/cable/vod/umg9850/9850rn11.htm>
- *Cisco uMG9850 QAM Module Compatibility Matrix*  
<http://www.cisco.com/univercd/cc/td/doc/product/cable/vod/umg9850/9850cmx1.htm>

## Cisco Catalyst 4500 Series Switches

- *Catalyst 4500 Series Installation Guide*  
[http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/hw\\_doc/4500inst/index.htm](http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/hw_doc/4500inst/index.htm)
- *Catalyst 4500 Series Module Installation Guide*  
[http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/hw\\_doc/mod\\_inst/index.htm](http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/hw_doc/mod_inst/index.htm)
- *Catalyst 4500 Series Regulatory Compliance and Safety Information*  
[http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/hw\\_doc/78\\_13233.htm](http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/hw_doc/78_13233.htm)
- *Catalyst 4500 Series Supervisor Engines and Switching Modules Installation Note*  
[http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/inst\\_nts/gmdcf\\_nt.htm](http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/inst_nts/gmdcf_nt.htm)
- *Installation and Configuration Note for the Catalyst 4500 Series Supervisor Engine IV*  
[http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/inst\\_nts/78\\_14496.htm](http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/inst_nts/78_14496.htm)
- *Installation Note for Fan Tray Assemblies in Catalyst 4500 Series Switches*  
[http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/inst\\_nts/78\\_15335.htm](http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/inst_nts/78_15335.htm)
- *Catalyst 4500 Series Switch Cisco IOS Command Reference, 12.1(20)EW*  
[http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/12\\_1\\_20/cmdref/index.htm](http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/12_1_20/cmdref/index.htm)
- *Catalyst 4500 Series Switch Cisco IOS Software Configuration Guide, 12.1(20)EW*  
[http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/12\\_1\\_20/config/index.htm](http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/12_1_20/config/index.htm)
- *Catalyst 4500 Series Switch Cisco IOS System Message Guide, 12.1(20)EW*  
[http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/12\\_1\\_20/message/index.htm](http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/12_1_20/message/index.htm)
- *Release Notes for the Catalyst 4500 Series Switch, Cisco IOS, 12.1(20)EW*  
[http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/relnotes/ol\\_2170.htm](http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/relnotes/ol_2170.htm)

## Cisco QAM Gateway Manager

- *Release Notes for Cisco QAM Gateway Manager, Release 1.0*  
<http://www.cisco.com/univercd/cc/td/doc/product/cable/vod/cqgm/cqmrn.htm>

## Obtaining Documentation

Cisco documentation and additional literature are available on Cisco.com. Cisco also provides several ways to obtain technical assistance and other technical resources. These sections explain how to obtain technical information from Cisco Systems.

### Cisco.com

You can access the most current Cisco documentation at this URL:

<http://www.cisco.com/univercd/home/home.htm>

You can access the Cisco website at this URL:

<http://www.cisco.com>

You can access international Cisco websites at this URL:

[http://www.cisco.com/public/countries\\_languages.shtml](http://www.cisco.com/public/countries_languages.shtml)

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- Nonregistered Cisco.com users can order documentation through a local account representative by calling Cisco Systems Corporate Headquarters (California, USA) at 408 526-7208 or, elsewhere in North America, by calling 800 553-NETS (6387).

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### Cisco Technical Support Website

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<http://www.cisco.com/techsupport>

Access to all tools on the Cisco Technical Support Website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a user ID or password, you can register at this URL:

<http://tools.cisco.com/RPF/register/register.do>

### Submitting a Service Request

Using the online TAC Service Request Tool is the fastest way to open S3 and S4 service requests. (S3 and S4 service requests are those in which your network is minimally impaired or for which you require product information.) After you describe your situation, the TAC Service Request Tool automatically provides recommended solutions. If your issue is not resolved using the recommended resources, your service request will be assigned to a Cisco TAC engineer. The TAC Service Request Tool is located at this URL:

<http://www.cisco.com/techsupport/servicerequest>

For S1 or S2 service requests or if you do not have Internet access, contact the Cisco TAC by telephone. (S1 or S2 service requests are those in which your production network is down or severely degraded.) Cisco TAC engineers are assigned immediately to S1 and S2 service requests to help keep your business operations running smoothly.

To open a service request by telephone, use one of the following numbers:

Asia-Pacific: +61 2 8446 7411 (Australia: 1 800 805 227)

EMEA: +32 2 704 55 55

USA: 1 800 553 2447

For a complete list of Cisco TAC contacts, go to this URL:

<http://www.cisco.com/techsupport/contacts>

## Definitions of Service Request Severity

To ensure that all service requests are reported in a standard format, Cisco has established severity definitions.

Severity 1 (S1)—Your network is “down,” or there is a critical impact to your business operations. You and Cisco will commit all necessary resources around the clock to resolve the situation.

Severity 2 (S2)—Operation of an existing network is severely degraded, or significant aspects of your business operation are negatively affected by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.

Severity 3 (S3)—Operational performance of your network is impaired, but most business operations remain functional. You and Cisco will commit resources during normal business hours to restore service to satisfactory levels.

Severity 4 (S4)—You require information or assistance with Cisco product capabilities, installation, or configuration. There is little or no effect on your business operations.

## Obtaining Additional Publications and Information

Information about Cisco products, technologies, and network solutions is available from various online and printed sources.

- Cisco Marketplace provides a variety of Cisco books, reference guides, and logo merchandise. Visit Cisco Marketplace, the company store, at this URL:  
<http://www.cisco.com/go/marketplace/>
- The Cisco *Product Catalog* describes the networking products offered by Cisco Systems, as well as ordering and customer support services. Access the Cisco Product Catalog at this URL:  
<http://cisco.com/univercd/cc/td/doc/pcat/>
- *Cisco Press* publishes a wide range of general networking, training and certification titles. Both new and experienced users will benefit from these publications. For current Cisco Press titles and other information, go to Cisco Press at this URL:  
<http://www.ciscopress.com>
- *Packet* magazine is the Cisco Systems technical user magazine for maximizing Internet and networking investments. Each quarter, Packet delivers coverage of the latest industry trends, technology breakthroughs, and Cisco products and solutions, as well as network deployment and troubleshooting tips, configuration examples, customer case studies, certification and training information, and links to scores of in-depth online resources. You can access Packet magazine at this URL:  
<http://www.cisco.com/packet>

- *iQ Magazine* is the quarterly publication from Cisco Systems designed to help growing companies learn how they can use technology to increase revenue, streamline their business, and expand services. The publication identifies the challenges facing these companies and the technologies to help solve them, using real-world case studies and business strategies to help readers make sound technology investment decisions. You can access iQ Magazine at this URL:

<http://www.cisco.com/go/iqmagazine>

- *Internet Protocol Journal* is a quarterly journal published by Cisco Systems for engineering professionals involved in designing, developing, and operating public and private internets and intranets. You can access the Internet Protocol Journal at this URL:

<http://www.cisco.com/ipj>

- World-class networking training is available from Cisco. You can view current offerings at this URL:

<http://www.cisco.com/en/US/learning/index.html>



# Introduction to Cisco QAM Gateway Manager

This chapter provides basic information about Cisco QAM Gateway Manager (Cisco QGM) and includes the following sections:

- [Overview, page 1-1](#)
- [Cisco QAM Gateway Manager Views, page 1-2](#)
- [Basic Tasks, page 1-16](#)

## Overview

Cisco QAM Gateway Manager is a PC-based graphical user interface (GUI) element management application to be used with Cisco uMG980 series QAM gateway products, the Cisco uMG9820 QAM Gateway and the Cisco uMG9850 QAM Module. The SNMP-based Java application is used for basic configuration, monitoring, and troubleshooting, and also includes hierarchical views of devices and their components, as well as a Telnet interface to the managed devices.

## Hardware and Software Supported

[Table 1-1](#) lists Cisco hardware supported by Cisco QAM Gateway Manager, along with the minimum software release required for each.

**Table 1-1 Supported Hardware and Software**

	<b>Product Number</b>	<b>Description</b>	<b>Minimum Software Release</b>	<b>Notes</b>
<b>Cisco Catalyst Switches</b>	WS-C4506	Cisco Catalyst 4506 switch chassis	12.1(20)EU1	
	WS-C4507R	Cisco Catalyst 4507R switch chassis	12.1(20)EU1	
<b>Cisco uMG9850 QAM Module</b>	WS-X4712-UMG9850	QAM card for Cisco Catalyst 4500 series switches	12.1(20)EU1	Used in Cisco Catalyst 4506 and Cisco Catalyst 4507R switches
<b>Cisco uMG9820 QAM Gateway</b>	uMG9820-SYS-AC	Cisco QAM Gateway system	Release 2.2	

# Cisco QAM Gateway Manager Views

Cisco QAM Gateway Manager uses a variety of views for configuration, monitoring, and troubleshooting:

- Chassis View
- Slot View
- All Sessions View
  - All Session Details
- Sessions View
- QAM Summary View
- QAM Channel View
- ASI Port View
- Ethernet Port View
- Notification History table

Each of these views are described in the following sections. Differences between the views for the Cisco uMG9820 QAM Gateway and the Cisco uMG9850 QAM modules in Cisco Catalyst switches are noted.



## Chassis View

The Chassis View (see [Figure 1-1](#) and [Figure 1-2](#)) lists for a selected device, the contents of each slot in the device, including the status of fan tray and power supply assemblies. For Cisco Catalyst switches, operating status is also displayed.

The Chassis View also provides the means to configure global timeouts and, for Cisco Catalyst switches, program-specific information (PSI) parameters.

**Figure 1-1 Chassis View (Cisco uMG9820)**

Chassis View - uMG9820-2(172.22.95.90)

Chassis Status

Software Revision: Ramdisk 2.0.38, Bootloader 2.0.15, Kernel 2.0.14, Microcode 0447

Slot Number	Card Name	Card Type
Slot 0	Processor card	PROCESSOR CARD
Slot 1	QAM card	QAM CARD
Slot 2	QAM card	QAM CARD
Slot 3	QAM card	QAM CARD
Slot 4	QAM card	QAM CARD
Slot 5		
Slot 6		
Fan Tray Bay	Fan Tray	Fan tray
Power Supply Bay 1	Power Supply	Power supply
Power Supply Bay 2	Power Supply	Power supply

Global Timers

Session Close Timeout (1-1440)min

Signal Loss Timeout (500-10000)ms

Apply OK Cancel Help

121588



**Note**

To access Chassis view, highlight the device in the navigation tree and choose **View > Chassis**.

Figure 1-2 Chassis View (Cisco Catalyst Switch with Cisco uMG9850 QAM Module)

Chassis View - Switch\_5(172.22.95.35)

Chassis Status

Software Revision: 12.1(20040809:201710)EWW1

Slot Number	Card Name	Card Type	Operating Status
Slot 1	1000BaseX (GBIC) Supervisor	Supervisor	ok
Slot 2	24 QAM with 1 SFP(1000BaseX), 1 RJ45(10/100/1000) ports	uMG9850	ok
Slot 3	24 QAM with 1 SFP(1000BaseX), 1 RJ45(10/100/1000) ports	uMG9850	ok
Fan Tray Bay	FanTray	Fan tray	normal
Power Supply Bay 1	Power Supply ( AC 1000W )	Power supply	ok
Power Supply Bay 2			

Global Timers

Session Close Timeout (1-1440)min

Signal Loss Timeout (200-10000)ms

Program Association Table Interval (50-450)ms

Program Mapping Table Interval (50-450)ms

Apply OK Cancel Help

121601

**Note**

To access Chassis view, highlight the device in the navigation tree and choose **View > Chassis**.

## Slot View

The Slot View (see [Figure 1-3](#) and [Figure 1-4](#)) lists for a specific device, a summary of the QAM channels' administrative and link status, and, for Cisco Catalyst switches, the administrative and link status of ASI and Ethernet ports. Also provided is information on the number of incoming sessions and outgoing programs.

For Cisco Catalyst switches, the Slot View also provided the means to configure slot-level timeouts, slot-level addressing, and jitter.

**Figure 1-3 Slot View (Cisco uMG9820)**

**QAM Channels Summary Status**

Channel	Administrative status	Link status	Sessions
Qam 1 (slot 1/port 1.qam 1)	●	●	3
Qam 2 (slot 1/port 1.qam 2)	●	●	0
Qam 3 (slot 1/port 2.qam 1)	●	●	3
Qam 4 (slot 1/port 2.qam 2)	●	●	0
Qam 5 (slot 2/port 1.qam 1)	●	●	3
Qam 6 (slot 2/port 1.qam 2)	●	●	0
Qam 7 (slot 2/port 2.qam 1)	●	●	3
Qam 8 (slot 2/port 2.qam 2)	●	●	0
Qam 9 (slot 3/port 1.qam 1)	●	●	3
Qam 10 (slot 3/port 1.qam 2)	●	●	0
Qam 11 (slot 3/port 2.qam 1)	●	●	3
Qam 12 (slot 3/port 2.qam 2)	●	●	0
Qam 13 (slot 4/port 1.qam 1)	●	●	3
Qam 14 (slot 4/port 1.qam 2)	●	●	0
Qam 15 (slot 4/port 2.qam 1)	●	●	3
Qam 16 (slot 4/port 2.qam 2)	●	●	0

**All Session Information**

Incoming Sessions

Outgoing Programs



**Note**

To access Slot view, highlight a QAM slot in the navigation tree and choose **View > Slot**.

Figure 1-4 Slot View (Cisco Catalyst Switch with Cisco uMG9850 QAM Module)

**QAM Channels Summary Status**

Channel	Admin status	Link status	Sessions
QAM2/1.1	●	●	0
QAM2/1.2	●	●	0
QAM2/2.1	●	●	0
QAM2/2.2	●	●	0
QAM2/3.1	●	●	0
QAM2/3.2	●	●	0
QAM2/4.1	●	●	0
QAM2/4.2	●	●	0
QAM2/5.1	●	●	0
QAM2/5.2	●	●	0
QAM2/6.1	●	●	0
QAM2/6.2	●	●	0
QAM2/7.1	●	●	0
QAM2/7.2	●	●	0
QAM2/8.1	●	●	0
QAM2/8.2	●	●	0
QAM2/9.1	●	●	0
QAM2/9.2	●	●	0
QAM2/10.1	●	●	0
QAM2/10.2	●	●	0
QAM2/11.1	●	●	0
QAM2/11.2	●	●	0
QAM2/12.1	●	●	0
QAM2/12.2	●	●	0

**Ethernet Ports and ASI Port Summary Status**

Port	Admin status	Link status
GigabitEthernet2/13	●	●
GigabitEthernet2/14	●	●
ASI2/15	●	●

**Slot Level Timeouts**

Session Close (1-1440)min: 1440  
Signal Loss (200-10000)ms: 5000

**Video Routing**

Input VLAN: Vlan21  
IP address: 192.168.21.6  
Clear Video Route?

**Jitter**

Jitter (1-300)ms: 100

**All Session Information**

Incoming Sessions: 0  
Outgoing Programs: 0 Detail

Buttons: Configure QAM Channels, Apply, OK, Cancel, Help

**Note**

To access Slot view, highlight a QAM slot in the navigation tree and choose **View > Slot**.

## All Sessions View

(Cisco Catalyst switches only) The All Sessions View (see Figure 1-5) lists session statistics for idle, inactive, and active sessions, and for invalid PSI states.

**Figure 1-5 All Sessions View (Cisco Catalyst Switch with Cisco uMG9850 QAM Module)**

UDP Port	Video Module Address	Source IP	Out QAM	Bandwidth	Status
55329	192.168.135.6	192.168.50.112	QAM3/1.1	7825	Active
55330	192.168.135.6	192.168.50.112	QAM3/1.1	7849	Active
55331	192.168.135.6	192.168.50.112	QAM3/1.1	7904	Active
55332	192.168.135.6				Idle
55333	192.168.135.6				Idle
55334	192.168.135.6				Idle
55335	192.168.135.6				Idle
55336	192.168.135.6				Idle
55337	192.168.135.6				Idle
55338	192.168.135.6				Idle
55339	192.168.135.6				Idle
55340	192.168.135.6				Idle
55341	192.168.135.6				Idle
55342	192.168.135.6				Idle
55343	192.168.135.6				Idle
55344	192.168.135.6				Idle
55345	192.168.135.6				Idle
55346	192.168.135.6				Idle
55347	192.168.135.6				Idle
55348	192.168.135.6				Idle
55349	192.168.135.6				Idle
55350	192.168.135.6				Idle
55351	192.168.135.6				Idle
55352	192.168.135.6				Idle
55353	192.168.135.6				Idle



### Note

To access All Sessions view, highlight the desired Cisco uMG9850 slot in the navigation tree and choose **View > All Sessions**.

121582

## All Session Details

(Cisco Catalyst switches only) All Session Details (see [Figure 1-6](#)) provides read-only values for a specific session.

**Figure 1-6** All Session Details (Cisco Catalyst Switch with Cisco uMG9850 QAM Module)

The screenshot shows a window titled "All Session Details - 172.22.95.35 - Session UDP Port 55331 - 192.168.135.6". The window contains the following fields:

Slot Number	Slot 3
UDP Port Number	55331
Status	Active
Maximum Jitter	8.845
Source IP Address	192.168.50.112
Bandwidth	7827
Missing Sync. Bytes	0
Start Time	Fri, 19 Sep 2003 20:36:05 UTC

At the bottom right of the window, there are "Cancel" and "Help" buttons. A vertical number "121599" is visible on the right edge of the window frame.



### Note

To access All Session Details for a particular session, double-click on that session on in the All Sessions view.

## Sessions View

Sessions View (see [Figure 1-7](#) and [Figure 1-8](#)) lists session statistics for active and inactive sessions, and invalid PSI states.



**Note**

Video module address is shown for Cisco uMG9850 modules only.

**Figure 1-7 Sessions View (Cisco uMG9820 QAM Gateway)**

UDP Port	Source IP	Out QAM	Bandwidth	Status
257	192.168.50.112	Qam 1 (slot 1/port 1.qam ...	3821	Active
258	192.168.50.112	Qam 1 (slot 1/port 1.qam ...	3821	Active
259	192.168.50.112	Qam 1 (slot 1/port 1.qam ...	3821	Active
769	192.168.50.112	Qam 3 (slot 1/port 2.qam ...	3832	Active
770	192.168.50.112	Qam 3 (slot 1/port 2.qam ...	3824	Active
771	192.168.50.112	Qam 3 (slot 1/port 2.qam ...	3821	Active
1281	192.168.50.112	Qam 5 (slot 2/port 1.qam ...	3821	Active
1282	192.168.50.112	Qam 5 (slot 2/port 1.qam ...	3821	Active
1283	192.168.50.112	Qam 5 (slot 2/port 1.qam ...	3821	Active
1793	192.168.50.112	Qam 7 (slot 2/port 2.qam ...	3821	Active
1794	192.168.50.112	Qam 7 (slot 2/port 2.qam ...	3821	Active
1795	192.168.50.112	Qam 7 (slot 2/port 2.qam ...	3821	Active
2305	192.168.50.112	Qam 9 (slot 3/port 1.qam ...	3832	Active
2306	192.168.50.112	Qam 9 (slot 3/port 1.qam ...	3821	Active
2307	192.168.50.112	Qam 9 (slot 3/port 1.qam ...	3821	Active
2817	192.168.50.112	Qam 11 (slot 3/port 2.qa...	3832	Active
2818	192.168.50.112	Qam 11 (slot 3/port 2.qa...	3796	Active
2819	192.168.50.112	Qam 11 (slot 3/port 2.qa...	3791	Active
3329	192.168.50.112	Qam 13 (slot 4/port 1.qa...	3791	Active
3330	192.168.50.112	Qam 13 (slot 4/port 1.qa...	3797	Active
3331	192.168.50.112	Qam 13 (slot 4/port 1.qa...	3800	Active
3841	192.168.50.112	Qam 15 (slot 4/port 2.qa...	3800	Active
3842	192.168.50.112	Qam 15 (slot 4/port 2.qa...	3794	Active
3843	192.168.50.112	Qam 15 (slot 4/port 2.qa...	3800	Active



**Note**

To access Sessions view, highlight a Cisco uMG9820 slot in the navigation tree and choose **View > Sessions**.

Figure 1-8 Sessions View (Cisco Catalyst Switch with Cisco uMG9850 QAM Module)

Session View - 172.22.96.6 - Linecard(slot 3)

Sessions Status : Showing 1 to 25 of 240

UDP Port	Video Module Address	Source IP	Out QAM	Bandwidth	Status
49152	192.168.20.6	192.168.51.101	QAM3/1.1	8064	Active
49153	192.168.20.6	192.168.51.101	QAM3/1.1	8113	Active
49154	192.168.20.6	192.168.51.101	QAM3/1.1	8134	Active
49155	192.168.20.6	192.168.51.101	QAM3/1.1	8010	Active
49156	192.168.20.6	192.168.51.101	QAM3/1.1	8106	Active
49157	192.168.20.6	192.168.51.101	QAM3/1.1	8119	Active
49158	192.168.20.6	192.168.51.101	QAM3/1.1	8116	Active
49159	192.168.20.6	192.168.51.101	QAM3/1.1	8095	Active
49160	192.168.20.6	192.168.51.101	QAM3/1.1	8132	Active
49161	192.168.20.6	192.168.51.101	QAM3/1.1	8157	Active
49162	192.168.20.6	192.168.51.101	QAM3/1.2	8343	Active
49163	192.168.20.6	192.168.51.101	QAM3/1.2	8013	Active
49164	192.168.20.6	192.168.51.101	QAM3/1.2	7929	Active
49165	192.168.20.6	192.168.51.101	QAM3/1.2	8086	Active
49166	192.168.20.6	192.168.51.101	QAM3/1.2	8137	Active
49167	192.168.20.6	192.168.51.101	QAM3/1.2	8276	Active
49168	192.168.20.6	192.168.51.101	QAM3/1.2	8089	Active
49169	192.168.20.6	192.168.51.101	QAM3/1.2	8052	Active
49170	192.168.20.6	192.168.51.101	QAM3/1.2	8022	Active
49171	192.168.20.6	192.168.51.101	QAM3/1.2	8010	Active
49172	192.168.20.6	192.168.51.101	QAM3/2.1	8422	Active
49173	192.168.20.6	192.168.51.101	QAM3/2.1	8218	Active
49174	192.168.20.6	192.168.51.101	QAM3/2.1	8005	Active
49175	192.168.20.6	192.168.51.101	QAM3/2.1	8477	Active
49176	192.168.20.6	192.168.51.101	QAM3/2.1	8427	Active

View All Sessions

Previous Next Cancel Help

121605

**Note**

To access Sessions view, highlight a Cisco uMG950 slot in the navigation tree and choose **View > Sessions**.



## QAM Summary View

For both devices, the QAM Summary View (see [Figure 1-9](#)) allows viewing and configuration of all QAM channels for all parameters except bandwidth utilization and video sessions mapping.

**Figure 1-9 QAM Summary View (Cisco Catalyst Switch with Cisco uMG9850 QAM Module Shown)**

QAM Channel	Admin Status	RF Freq (Mhz)	Power Level (dBmV)	Modulation Format	Interleaver Level	Interleaver Mode	TS ID	PAT Interval	PMT Interval
QAM2/1.1	up	100.0	50	qam64	level1	FEC-I-128-J-1	200	55	444
QAM2/1.2	down	106.0	50	qam64	level1	FEC-I-128-J-1	201	55	444
QAM2/2.1	down	112.0	50	qam64	level1	FEC-I-128-J-1	203	55	444
QAM2/2.2	down	118.0	50	qam64	level1	FEC-I-128-J-1	204	55	444
QAM2/3.1	down	124.0	50	qam256	level2	FEC-I-128-J-4	206	55	444
QAM2/3.2	down	130.0	50	qam256	level2	FEC-I-128-J-4	207	55	444
QAM2/4.1	down	136.0	50	qam256	level2	FEC-I-128-J-4	209	55	444
QAM2/4.2	down	142.0	50	qam256	level2	FEC-I-128-J-4	210	55	444
QAM2/5.1	down	148.0	50	qam256	level2	FEC-I-128-J-4	212	55	444
QAM2/5.2	down	154.0	50	qam256	level2	FEC-I-128-J-4	213	55	444
QAM2/6.1	down	160.0	50	qam256	level2	FEC-I-128-J-4	215	55	444
QAM2/6.2	down	166.0	50	qam256	level2	FEC-I-128-J-4	216	55	444
QAM2/7.1	down	172.0	50	qam256	level2	FEC-I-128-J-4	218	55	444
QAM2/7.2	down	178.0	50	qam256	level2	FEC-I-128-J-4	219	55	444
QAM2/8.1	down	184.0	50	qam256	level2	FEC-I-128-J-4	221	55	444
QAM2/8.2	down	190.0	50	qam256	level2	FEC-I-128-J-4	222	55	444
QAM2/9.1	down	196.0	58	qam256	level2	FEC-I-128-J-4	224	55	444
QAM2/9.2	down	202.0	58	qam256	level2	FEC-I-128-J-4	225	55	444
QAM2/10.1	down	208.0	50	qam256	level2	FEC-I-128-J-4	227	55	444
QAM2/10.2	down	214.0	50	qam256	level2	FEC-I-128-J-4	228	55	444
QAM2/11.1	down	220.0	50	qam256	level2	FEC-I-128-J-4	230	55	444



### Note

To access QAM Summary view, click **Configure QAM Channels** while in Slot view.

## QAM Channel View

For both devices, the QAM Channel View (see [Figure 1-10](#)) lists the current configuration parameters for the selected QAM channel, and allows configuration of these parameters.

**Figure 1-10 QAM Channel View (Cisco Catalyst Switch with Cisco uMG9850 QAM Module Shown)**

Channel Information	
Channel Name	QAM3/1.1
Administrative Status	up
Output Frequency (50000000-854000000)Hz	717000000
Output Power (42-58)dBmV	55
Modulation Format	qam64
QAM Group	1
Video Sessions Mapping	
Maximum number of sessions (2-25, 1-default map)	1
Starting UDP port number (256-65535, 0-default port)	0
Starting program number (1-255)	0
Even UDP port numbers only?	false
Clear Video Session Mapping?	<input type="checkbox"/>
Utilization	
Bandwidth Utilization (%)	0
Low Utilization Threshold (0-95)%	0
High Utilization Threshold (5-95)%	5
Identifiers	
Transport Stream ID (1-65535)	300
Network Information Table Packet ID (16-8191)	65535
Timers	
Program Association Table Interval (50-450)ms	55

Buttons: Apply, OK, Cancel, Help

121626



### Note

To access QAM Channel view, select a QAM port from the navigation tree and choose **View > Interface**.

## ASI Port View

For both types of devices, the asynchronous serial interface (ASI) Port View (see [Figure 1-11](#)) lists the current configuration parameters for the ASI port and allows configuration of these parameters.

**Figure 1-11** ASI Port View (Cisco Catalyst Switch with Cisco uMG9850 QAM Module Shown)

The screenshot shows a configuration window titled "ASI port View - 172.22.95.35 - ASI3/15". The window contains the following configuration parameters:

Parameter	Value
Interface name	ASI3/15
Administrative Status	down
Byte Gap (1-4)	0
Qam Routed	QAM3/1.1

At the bottom right of the window, there are four buttons: Apply, OK, Cancel, and Help. A small vertical number "121600" is visible on the right edge of the window.

**Note**

To access the ASI Port view for Cisco uMG9820, highlight the ASI port on Cisco uMG9820 processor card in the navigation tree and choose **View > Interface**.

For Cisco Catalyst switches, highlight the ASI port on the Cisco uMG9850 module in the navigation tree, and choose **View > Interface**.

## Ethernet Port View

The Ethernet Port View (see [Figure 1-12](#)) lists information on port configuration and status, and allows setting of administrative status for the port and, for Cisco Catalyst switches only, switchport status and VLAN number.

**Figure 1-12 Ethernet Port View (Cisco Catalyst Switch with Cisco uMG9850 QAM Module Shown)**

Ethernet Information	
Interface Name	GigabitEthernet3/14
Administrative Status	up
Operating Status	down
Switchport Status	switchport
VLAN	Vlan1
IP Address	
Subnet Mask	
MAC Address	0000.0c07.abfc
DHCP Enabled?	Disabled
Input Packets	0
Output Packets	0
Dropped Input Packets	0
Dropped Output Packets	0

Buttons: Apply, OK, Cancel, Help



### Note

To access the Ethernet Port view for Cisco uMG9820, highlight an Ethernet port on Cisco uMG9820 processor card in the navigation tree and choose **View > Interface**.

For Cisco Catalyst switches, highlight an Ethernet port on the Cisco uMG9850 module in the navigation tree, and choose **View > Interface**.

## Notification History Table

For both types of devices, the Notification History table (see [Figure 1-13 on page 1-15](#)) lists statistics for a device. Each time a device threshold is passed or an invalid PSI data condition is detected, an entry is recorded in the table.

**Figure 1-13 Notification History Table (Cisco Catalyst Switch with Cisco uMG9850 QAM Module Shown)**

Entity name	Message	Time since reload	Status
Linecard(slot 3)	The video session 49194 has invalid PSI data	10 hr(s) 47 min(s) 33 sec(s) sinc...	warning
Linecard(slot 3)	The video session 49232 has invalid PSI data	10 hr(s) 47 min(s) 33 sec(s) sinc...	warning
Linecard(slot 3)	The video session 49229 has invalid PSI data	10 hr(s) 47 min(s) 33 sec(s) sinc...	warning
Linecard(slot 3)	The video session 49272 has invalid PSI data	10 hr(s) 47 min(s) 33 sec(s) sinc...	warning
QAM3/6.1	Utilization has gone above the higher threshold value	0 hr(s) 2 min(s) 35 sec(s) since s...	warning
QAM3/6.2	Utilization has gone above the higher threshold value	0 hr(s) 2 min(s) 35 sec(s) since s...	warning
QAM3/1.2.1	Utilization has gone above the higher threshold value	0 hr(s) 2 min(s) 35 sec(s) since s...	warning
QAM3/1.2.2	Utilization has gone above the higher threshold value	0 hr(s) 2 min(s) 35 sec(s) since s...	warning
QAM3/1.1	Utilization has gone above the higher threshold value	0 hr(s) 2 min(s) 51 sec(s) since s...	warning
QAM3/1.2	Utilization has gone above the higher threshold value	0 hr(s) 2 min(s) 51 sec(s) since s...	warning
QAM3/2.1	Utilization has gone above the higher threshold value	0 hr(s) 2 min(s) 51 sec(s) since s...	warning
QAM3/2.2	Utilization has gone above the higher threshold value	0 hr(s) 2 min(s) 51 sec(s) since s...	warning
QAM3/3.1	Utilization has gone above the higher threshold value	0 hr(s) 2 min(s) 51 sec(s) since s...	warning
QAM3/3.2	Utilization has gone above the higher threshold value	0 hr(s) 2 min(s) 51 sec(s) since s...	warning
QAM3/4.1	Utilization has gone above the higher threshold value	0 hr(s) 2 min(s) 51 sec(s) since s...	warning
QAM3/4.2	Utilization has gone above the higher threshold value	0 hr(s) 2 min(s) 51 sec(s) since s...	warning
QAM3/5.1	Utilization has gone above the higher threshold value	0 hr(s) 2 min(s) 51 sec(s) since s...	warning
QAM3/5.2	Utilization has gone above the higher threshold value	0 hr(s) 2 min(s) 51 sec(s) since s...	warning
QAM3/7.1	Utilization has gone above the higher threshold value	0 hr(s) 2 min(s) 51 sec(s) since s...	warning
QAM3/7.2	Utilization has gone above the higher threshold value	0 hr(s) 2 min(s) 51 sec(s) since s...	warning
QAM3/8.1	Utilization has gone above the higher threshold value	0 hr(s) 2 min(s) 51 sec(s) since s...	warning
QAM3/8.2	Utilization has gone above the higher threshold value	0 hr(s) 2 min(s) 51 sec(s) since s...	warning
QAM3/9.1	Utilization has gone above the higher threshold value	0 hr(s) 2 min(s) 51 sec(s) since s...	warning
QAM3/9.2	Utilization has gone above the higher threshold value	0 hr(s) 2 min(s) 51 sec(s) since s...	warning
QAM3/10.1	Utilization has gone above the higher threshold value	0 hr(s) 2 min(s) 51 sec(s) since s...	warning



### Note

To access the Notification History Table, highlight a device in the navigation tree. Right-click and choose **View Notification**.

# Basic Tasks

The following basic tasks are covered in subsequent chapters of this user guide:

- Installing Java Web Start (Chapter 2)
- Installing and uninstalling Cisco QAM Gateway Manager (Chapter 2)
- Before using Cisco QAM Gateway Manager (Chapter 2)
  - Setting up SNMP
  - Setting up input video traffic
  - Configuring a VLAN
- Launching Cisco QAM Gateway Manager (Chapter 3)
- Configuration tasks (Chapter 3)
  - Establishing communication with Cisco QAM Gateway devices
  - Loading configurations from a TFTP server
  - Configuring SNMP parameters
  - Setting output frequency and power for the QAM channels
  - Setting up, editing, and routing a video stream to a QAM channel
  - Setting up PSI parameters
  - Enabling or disabling ports or QAM channels
- Exiting Cisco QAM Gateway Manager (Chapter 3)
- Monitoring Cisco QAM Gateway devices (Chapter 4)
  - Configuring the ASI port for QAM channel routing
  - CLI **show** commands
  - Setting and monitoring utilization thresholds
  - Application display messages



## Installing Cisco QAM Gateway Manager

This chapter describes the tasks that should be performed prior to using Cisco QAM Gateway Manager (Cisco QGM).

- [Minimum System Requirements, page 2-1](#)
- [Installing Software, page 2-2](#)
- [Before Using Cisco QAM Gateway Manager, page 2-4](#)
- [Removing Software, page 2-5](#)

### Minimum System Requirements

[Table 2-1](#) lists the minimum system requirements for Cisco QGM running on the Microsoft Windows platform. [Table 2-2](#) lists Java system requirements.

**Table 2-1** *Microsoft Windows System Requirements*

Specification	Requirement
Processor	600 MHz
Operating system	Microsoft Windows 2000
Available disk space	10 MB
Memory	256 MB
Additional software	Zip/unzip utility

**Table 2-2** *Java System Requirements*

Specification	Requirement
Java 2 Platform	Standard Edition, V.1.4.2 (Includes Java Web Start 1.2)
Available disk space required for Java software	70 MB

# Installing Software

Cisco QGM uses the Java Runtime Environment (JRE). Both Cisco QGM and JRE can be downloaded without charge from the Internet.

This section presents the following tasks:

- [Downloading and Starting Cisco QAM Gateway Manager](#)
- [Downloading and Installing the Java Runtime Environment \(JRE\)](#)

**Note**

---

The following instructions assume the use of Microsoft Internet Explorer.

---

## Downloading and Starting Cisco QAM Gateway Manager

To download the Cisco QAM Gateway Manager application from Cisco.com:

- 
- Step 1** Access the Cisco QGM installation file.
- a. Go to the following URL:  
<http://www.cisco.com/cgi-bin/tablebuild.pl/qam-gateway>
  - b. Click on the following file:  
CQM1.0.zip  
The unzip window appears.
- Step 2** Select all files by choosing **Actions > Select All**.
- Step 3** Click **Extract**
- Step 4** Enter a destination drive and directory where you want the files to be located, for example, C:\cqm\_install.
- Step 5** Click **Extract**.
- 

To install and start Cisco QAM Gateway Manager:

- 
- Step 1** Ensure that the appropriate Java software is installed on the PC. (See [Downloading and Installing the Java Runtime Environment \(JRE\)](#), page 2-3.) Cisco QGM cannot be used until the Java software is installed.
- Step 2** Use Windows Explorer to find and open the C:\cqm\_install directory.
- Step 3** Click on the cqm.bat file.
- The Cisco QGM application is installed and started.



**Note**

Start the application each time by clicking on `qcm.bat` in the `C:\qcm_install` directory.

If you prefer to launch Cisco QGM from the desktop, copy the `qcm.bat` file from the directory by right-clicking on the file and choosing **Copy**, then right-clicking on the desktop and choosing **Paste Shortcut**.

## Downloading and Installing the Java Runtime Environment (JRE)

Before using Cisco QAM Gateway Manager, you must have Java Standard Edition, version 1.4.2 installed.

- Step 1** Confirm whether your PC already has Java installed, and if so, which version.
- Open a command prompt window (Start > Programs > Accessories > Command Prompt) and enter the following:  

```
java -version
```
  - Confirm that the following appears:  

```
java version "1.4.2_05"  
Java(TM) 2 Runtime Environment, Standard Edition (build 1.4.2_05-b04)  
Java HotSpot(TM) Client VM (build 1.4.2_05-b04, mixed mode)
```
  - If the above appears, you have the correct version of Java. Proceed to [Downloading and Starting Cisco QAM Gateway Manager, page 2-2](#).
  - If the above does not appear, or a different version of Java is listed, proceed to Step 2, below.

- Step 2** Access the appropriate JRE file.



**Note** You may be prompted by multiple security warnings. Choose **Yes** when prompted.

- Go to the following URL:  
<http://java.sun.com/j2se/1.4.2/download.html>
  - Choose **Download J2SE JRE**.
  - Accept the License Agreement.  
The download options appear.
  - In the Microsoft Windows platform section choose **Windows Installation, Multi-Language**.  
The File Download window appears.
- Step 3** Download the Java JRE software.
- Choose **Save this program to disk**.
  - For convenience, save the file to your desktop.
- Step 4** Install the Java software.
- Double-click the file you saved in Step 3b above. The name of the file is `j2re-1_4_2_05-windows-i586-p-iftw.exe`.

An installer window appears.

- b. Accept the defaults and choose **Typical Install**.
- 

## Before Using Cisco QAM Gateway Manager

This section summarizes the minimum configuration required before using Cisco QGM. These tasks would normally be completed in advance by the network or device administrator using the device command line interface (CLI).

To see the detailed steps for completing each of these tasks, refer to the Cisco uMG9820 QAM Gateway or Cisco Catalyst 4500 series switch documentation listed in [Related Documentation](#).

Before using Cisco QGM, ensure you have the following information for each device to be managed:

- Telnet password
- IP address
- SNMP community string
- (Cisco Catalyst switches only) VLAN information:
  - VLAN numbers
  - IP addresses

### Telnet Password

A Telnet password should be set to control access to the device through the Telnet window in Cisco QAM Gateway Manager. You will need to know this password to use the application's Telnet function.

### SNMP Setup

Cisco QAM Gateway Manager uses Simple Network Management Protocol (SNMP) and a special management information base (MIB) to manage Cisco QAM gateway devices. The MIBs are included in the software releases shown in [Table 1-1 on page 1-1](#).

### Ethernet Port for SNMP Configuration

An IP address must be configured for each device for SNMP use. You must have this information when adding devices to the device list in Cisco QAM Gateway Manager.

### SNMP Community String

The SNMP community string authenticates access to MIB objects, and functions as an embedded password. You must have this information when adding devices to the device list in Cisco QAM Gateway Manager. Cisco uMG9820 QAM Gateways and Cisco Catalyst switches must be configured with SNMP community strings before using Cisco QAM Gateway Manager to monitor or configure these devices.

## Setting Up Input Video Traffic

Video input specifications must be set and, for Cisco Catalyst switches, any required VLANs must be configured on the device before using Cisco QAM Gateway Manager.

## Removing Software

### Removing Cisco QAM Gateway Manager from the PC

To remove Cisco QAM Gateway Manager from the PC, use Windows Explorer to find and delete the C:\cqam\_install directory.

### Removing Java Software from the PC

To remove the Java software from the PC, choose **Start > Settings > Control Panel > Add/Remove Programs** and select the Java application.





## Using Cisco QAM Gateway Manager

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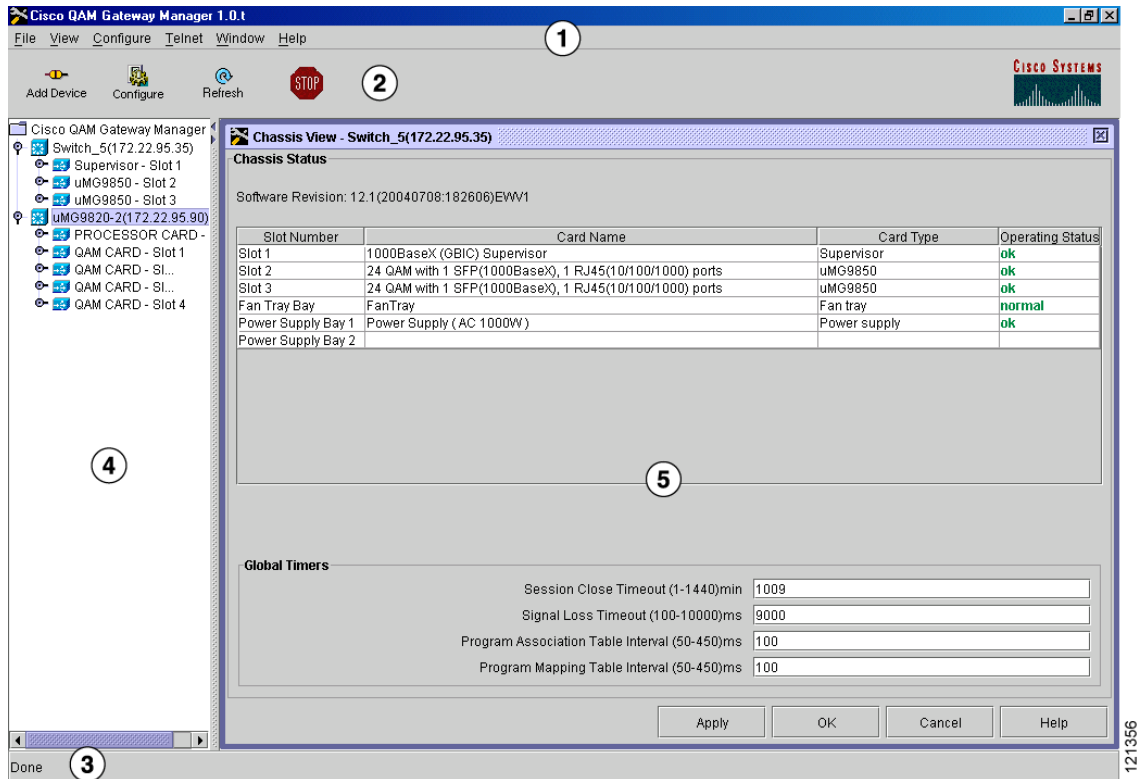
This chapter describes the steps required to launch Cisco QAM Gateway Manager (Cisco QGM) and configure Cisco Catalyst switches and Cisco QAM gateways.

- [Launching Cisco QAM Gateway Manager, page 3-1](#)
- [Main Window Components, page 3-2](#)
- [Using Help, page 3-10](#)
- [Exiting Cisco QAM Gateway Manager, page 3-13](#)
- [Establishing Communication with Cisco QAM Gateway Devices, page 3-14](#)
- [Configuration Steps, page 3-22](#)

### Launching Cisco QAM Gateway Manager

To launch Cisco QGM, click on `cqm.bat` in the `C:\cqm_install` directory on the desktop. The Main Window appears (see [Figure 3-1](#)).

Figure 3-1 Main Window



## Main Window Components

The main window (see [Figure 3-1](#)) consists of five areas:

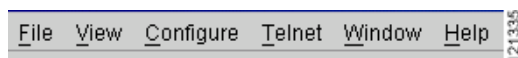
1. Menu bar
2. Toolbar
3. Status bar
4. Navigation tree
5. Work area

Each of these areas is discussed in the following sections.

## Menu Bar

The menu bar (see [Figure 3-2](#)) provides access to common application functions and tasks (see [Table 3-1](#)).

Figure 3-2 Menu Bar



**Table 3-1 Menu Bar Functions**

Menu	Function	Description
File	Add Device	Adds a Cisco Catalyst switch or Cisco uMG9820 QAM Gateway to the device list.
	Load Configuration	Loads a configuration file from a TFTP server.
	Save Startup to TFTP	Saves the startup configuration to a TFTP server.
	Configure SNMP Parameters	When “Cisco QAM Gateway Manager” (root) selected in the navigation tree, configures SNMP polling parameters.  When device selected in the navigation tree, configures the Community String SNMP parameter for that device.
	Close All	Closes all open views and configuration dialog boxes.
	Exit	Exits Cisco QAM Gateway Manager application.
	View	Chassis
Slot		Displays contents of slots in chassis.
All Sessions		Lists both active and idle sessions.
Sessions		Lists only active sessions.
Interface		Displays ASI or Ethernet interface configurations.
Configure	Configure VLAN	Assigns an IP address and optional subnet mask to a selected VLAN. Activates or suspends a VLAN.
Telnet	Device 1	Allows selection of connected devices for Telnet sessions.
	Device n	
Window	various	Lists all open/active views and configuration dialog boxes.
Help	Contents	Provides access to all help files by Table of Content heading and text search.
	About	Displays software version of Cisco QGM.

## Toolbar

The toolbar (Figure 3-3) provides quick access to some commonly performed tasks (see Table 3-2 on page 3-4).

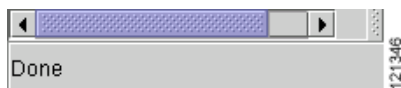
**Figure 3-3 Toolbar**

**Table 3-2** *Toolbar Functions*

Tool	Description
Add Device	Adds Cisco Catalyst switches and Cisco uMG9820 QAM Gateways to the navigation tree.
Configure	When “Cisco QAM Gateway Manager” (root) in the navigation tree (see <a href="#">Figure 3-1</a> ) is selected, allows configuration of SNMP polling parameters.  When device is selected in the navigation tree, configures the Community String SNMP parameter for that device.
Refresh	Refreshes current view.
Stop	Stops refresh process for current view.

## Status Bar

The Status Bar ([Figure 3-4](#)) indicates status of configuration load and refresh operations (see [Table 3-3](#)).

**Figure 3-4** *Status Bar***Table 3-3** *Status Bar Messages*

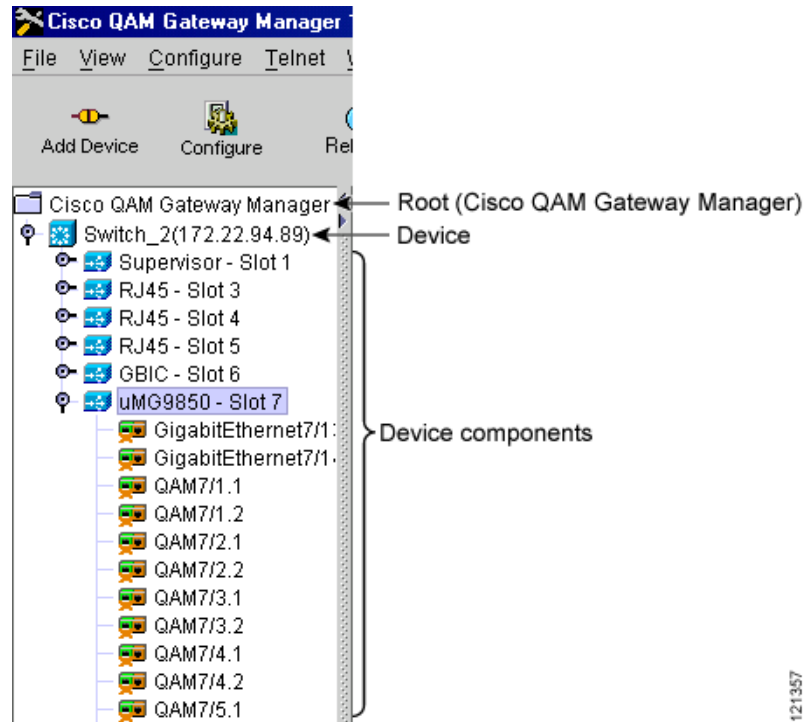
Function	Description
Done	Function is complete.
Refreshing tree. Please wait.	Navigation tree refresh in process.
Loading slot configuration. Please wait.	Slot View information being loaded.
Loading Ethernet configurations. Please wait.	Ethernet Port View information being loaded.
Loading QAM channel configurations. Please wait.	QAM Channel View information being loaded.
Loading chassis configurations. Please wait.	Chassis View information being loaded.
Loading session configuration. Please wait.	Session View or session status information is being loaded.
Loading notification history. Please wait.	Refreshing Notification History table.

## Navigation Tree

The Navigation Tree (see [Figure 3-5](#)) lists all added devices. Each entry expands to display its components. Use the scroll bar to see the full expansion.



Figure 3-5 Navigation Tree (Cisco Catalyst Switch Shown)



To refresh the navigation tree, select and right-click on “Cisco QAM Gateway Manager” at the top of the tree and choose **Refresh tree**. (See Figure 3-6.)

Figure 3-6 Refresh Navigation Tree

**Note**

Refreshing the navigation tree also collapses the navigation tree to the device level.

## Work Area

The Work area (see Figure 3-7) can contain a variety of view windows and configuration dialog boxes. This area changes depending on the function being performed (see Table 3-4). Up to 30 of these windows can be open simultaneously.

Figure 3-7 Work Area (Cisco Catalyst Switch Chassis View Shown)

The screenshot shows a window titled "Chassis View - Switch\_5(172.22.95.35)". The main content area is titled "Chassis Status" and displays the software revision: 12.1(20040727:153823)EWW1. Below this is a table with the following data:

Slot Number	Card Name	Card Type	Operating Stat...
Slot 1	1000BaseX (GBIC) Supervisor	Supervisor	ok
Slot 2	24 QAM with 1 SFP(1000BaseX), 1 RJ45(10/100/1000) ports	uMG9850	ok
Slot 3	24 QAM with 1 SFP(1000BaseX), 1 RJ45(10/100/1000) ports	uMG9850	ok
Fan Tray Bay	FanTray	Fan tray	normal
Power Supply Bay 1	Power Supply ( AC 1000W )	Power supply	ok
Power Supply Bay 2			

Below the table is a section titled "Global Timers" with four input fields:

- Session Close Timeout (1-1440)min: 10
- Signal Loss Timeout (200-10000)ms: 5000
- Program Association Table Interval (50-450)ms: 335
- Program Mapping Table Interval (50-450)ms: 100

At the bottom of the window are four buttons: Apply, OK, Cancel, and Help. A vertical number "121316" is visible on the right side of the window frame.

Table 3-4 on page 3-7 lists configuration, monitoring, and troubleshooting tasks that are commonly performed, and provides a cross-reference to the appropriate view or configuration window.



**Tip**

Print out Table 3-4 and keep it as a quick reference tool.

Table 3-4 Quick Reference—Work Area Navigation Map

Go To . . .	For This Task . . .	Or Subtask . . .	Notes
<b>Chassis View</b> <ul style="list-style-type: none"> <li>Contents of each slot in the device.</li> <li>For Cisco Catalyst switches, the operating status.</li> </ul>	<a href="#">Setting Up PSI Parameters, page 3-31</a> (see Notes).	<a href="#">Setting PMT and PAT Intervals for the Switch, page 3-31.</a>	Cisco Catalyst switches only.
		<a href="#">Setting PMT and PAT Intervals for a QAM Channel, page 3-32.</a>	
		<a href="#">Setting TSID and NIT-PID Values, page 3-32</a>	
	<a href="#">Setting Up, Editing, and Routing a Video Stream to a QAM Channel, page 3-26.</a>	<a href="#">Statically Setting Session Timeouts.</a>	
<b>Slot View</b> <ul style="list-style-type: none"> <li>For a specific QAM device, a summary of the QAM channels' administrative and link status.</li> <li>For Cisco Catalyst switches, the administrative and link status of ASI and Ethernet ports.</li> </ul>	<a href="#">Configuring Gigabit Ethernet Input and Output Ports into a VLAN, page 3-22</a> (see Notes).	<a href="#">Assigning the Output GE ports to a VLAN.</a>	Cisco Catalyst switches only. See also <a href="#">Interface View (Ethernet)</a> and <a href="#">Configure VLAN Dialog</a> .
	<a href="#">Setting Up, Editing, and Routing a Video Stream to a QAM Channel, page 3-26.</a>	<a href="#">Configuring Maximum Jitter for a Session.</a>	See also <a href="#">QAM Channel View</a> and <a href="#">Chassis View</a> .
<b>Session View</b> <ul style="list-style-type: none"> <li>Statistics for active sessions.</li> </ul>	View table of all active sessions.		
<b>All Session View</b> <ul style="list-style-type: none"> <li>Statistics for both idle and active sessions.</li> </ul>	View table of both idle and active sessions.	<a href="#">Check individual session Statistics (See Notes).</a>	Idle sessions not shown for Cisco uMG9820. Session Details available on Cisco Catalyst switches only.
<b>Interface View (ASI)</b> <ul style="list-style-type: none"> <li>For a specific ASI port, lists the current configuration parameters for the ASI port and allows configuration of the administrative status, byte gap, and the QAM from which the stream is routed.</li> </ul>	<a href="#">Enabling or Disabling Ports and QAM Channels, page 3-33.</a>		

Table 3-4 Quick Reference—Work Area Navigation Map (continued)

Go To . . .	For This Task . . .	Or Subtask . . .	Notes
<b>Interface View (Ethernet)</b> <ul style="list-style-type: none"> <li>For a specific Ethernet port, lists current status and configuration and allows configuration of the administrative status, switchport status, VLAN number, IP address and subnet mask.</li> </ul>	<a href="#">Enabling or Disabling Ports and QAM Channels, page 3-33.</a>		
	<a href="#">Configuring Gigabit Ethernet Input and Output Ports into a VLAN, page 3-22.</a>	<a href="#">Assigning the Input GE Port to a VLAN.</a>	See also <a href="#">Interface View (Ethernet)</a> and <a href="#">Slot View</a> .
<b>QAM Channel View</b> <ul style="list-style-type: none"> <li>Lists the current configuration parameters for the selected QAM channel, and allows configuration of these parameters.</li> </ul>	<a href="#">Setting the Output Frequency and Output Power of the QAM Channels, page 3-25.</a>		Also see <a href="#">QAM Summary View</a> .
	<a href="#">Setting Up, Editing, and Routing a Video Stream to a QAM Channel, page 3-26.</a>	<a href="#">Setting the Modulation Format.</a>	
		<a href="#">Configuring the FEC Interleave Level and Mode.</a>	
		<a href="#">Statically Routing a Range of Program Sessions to a QAM Channel (UDP Port Mapping).</a>	
	<a href="#">Enabling or Disabling Ports and QAM Channels, page 3-33.</a>		
	<a href="#">Setting the Output Frequency and Output Power of the QAM Channels, page 3-25.</a>	<a href="#">Setting the Output Frequency.</a>	
<a href="#">Setting the Output Power.</a>			
<b>QAM Summary View</b> <ul style="list-style-type: none"> <li>Allows viewing and configuration of all QAM channels on a specific Cisco uMG9850 QAM module slot or Cisco uMG9820 QAM Gateway QAM slot.</li> </ul>			

**Table 3-4 Quick Reference—Work Area Navigation Map (continued)**

Go To . . .	For This Task . . .	Or Subtask . . .	Notes
<b>Notification History</b> <ul style="list-style-type: none"> <li>Lists statistics for a device. Each time a device threshold is passed or an error condition is detected, an entry is recorded in the table.</li> </ul>			
<b>Configure VLAN Dialog</b>	Configuring Gigabit Ethernet Input and Output Ports into a VLAN, page 3-22.	Selecting a VLAN Interface.	See also <a href="#">Interface View (Ethernet)</a> and <a href="#">Slot View</a> .
<b>Telnet Window</b>	Using the Telnet Window, page 3-17.		

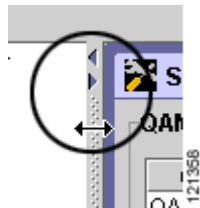
Choose an already opened view from the Window menu or open a new one using the View menu. To close all views simultaneously, choose **File > Close All**.

## Resizing the Navigation Tree and Work Area

To hide the navigation tree and expand the work area, click on the left arrow. To hide the work area and expand the navigation tree, click on the right arrow. (See [Figure 3-8](#).)

**Figure 3-8 Hide Buttons**

To readjust the navigation tree and work area to specific widths, place the cursor on the margin as shown in [Figure 3-9](#). When it becomes a double-headed arrow, drag the margin to the left or right.

**Figure 3-9 Sizing the Navigation Tree and Work Area**

## Using Help

The help files for the Cisco QAM Gateway Manager application are provided to simplify the use of the application. These files can be accessed in two ways:

- Help for a specific screen can be accessed by clicking **Help** on that screen.
- The full help set can be accessed by choosing **Help > Contents** or by pressing **F1**.

## Screen-Specific Help

Clicking **Help** in a window opens the help set and displays help files for that particular window. These files include discussions of any configuration options or read-only values present. Further navigation cross-references are included where necessary for greater understanding.

## Full Help Set

Choose **Help > Contents** or press **F1** to open the entire help set.

The navigation pane on the left side of the window includes two tabs: the Contents tab and the Search tab. Navigation and printing aids are present in the help files and in the help toolbar. See [Figure 3-10](#).

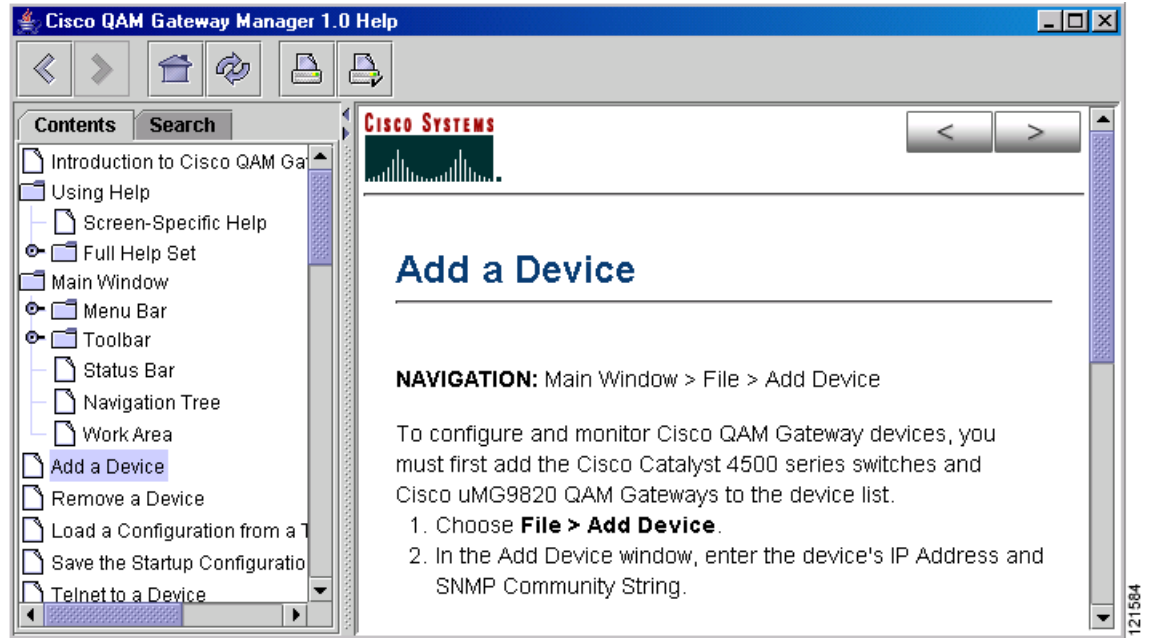
**Figure 3-10** Help Tools and Tabs



## Contents Tab

Click the **Contents** tab to display a Table of Contents of all help files, which allows you to click on a specific subject or task for information. See [Figure 3-11](#).

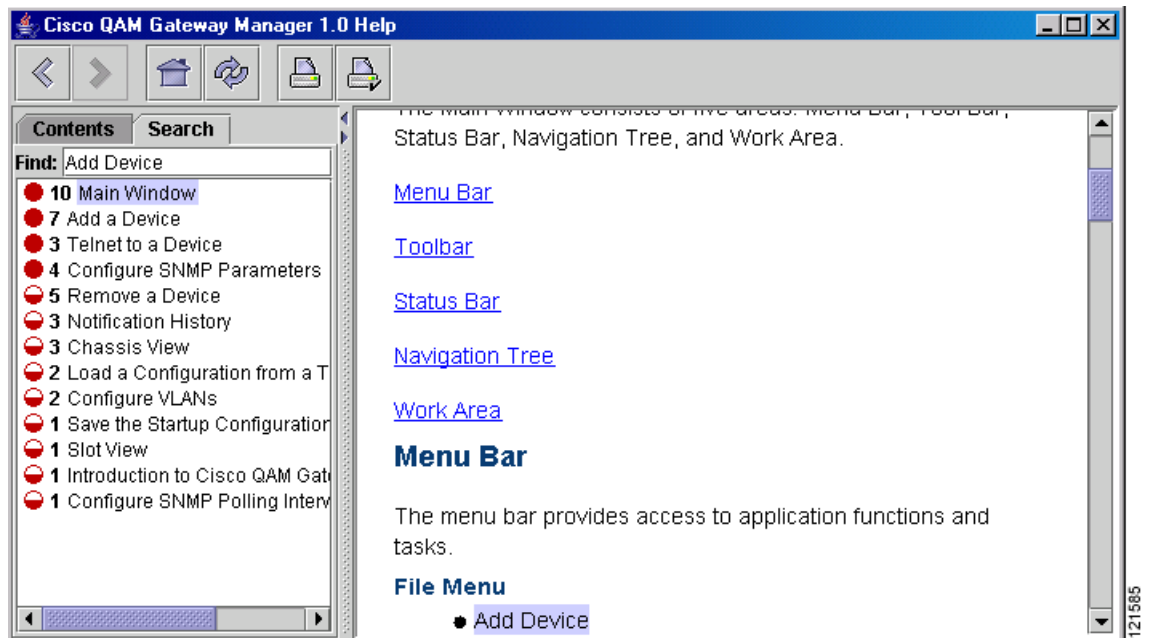
Figure 3-11 Help File Table of Contents



## Search Tab

Click the **Search** tab and enter a text search term. All help files are searched for the term, and the results (number of occurrences) are displayed in the left side of the window in order of significance. The page containing the first occurrence appears on the right. See Figure 3-12.

Figure 3-12 Help Files Search Tab



## Navigation

Click the Home icon in the toolbar (see [Figure 3-13](#)) to return to the top file in the Table of Contents.

**Figure 3-13 Home Icon**



Click the arrows at the top and bottom of all the help file text windows (see [Figure 3-14](#)) to step backward and forward sequentially through the files.

**Figure 3-14 Navigation Arrows**



Use the arrows in the toolbar (see [Figure 3-15](#)) to return directly to the previous position in a text window.

**Figure 3-15 Return to Previous**



## Printing

Click the printer icons in the toolbar (see [Figure 3-16](#)) for page setup or to print help text.

**Figure 3-16 Print Icon**



## Reload

Click the reload icon in the toolbar (see [Figure 3-17](#)) to reload the current help page.

**Figure 3-17 Reload Icon**



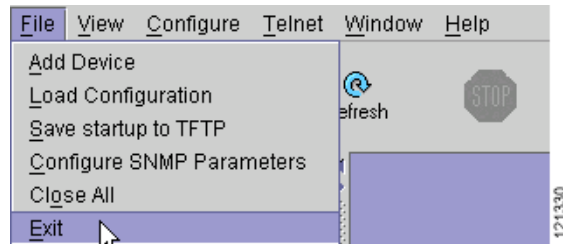


# Exiting Cisco QAM Gateway Manager

To exit the application, follow these steps:

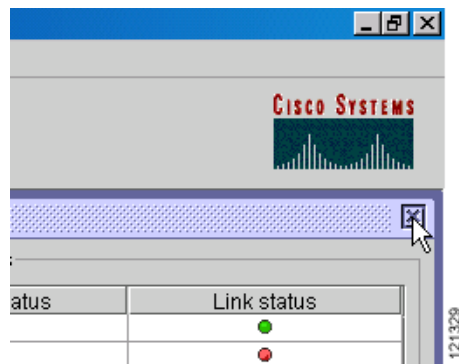
- Step 1** Do one of the following:
- Choose **File > Exit** (see [Figure 3-18](#)).

**Figure 3-18 File Exit**



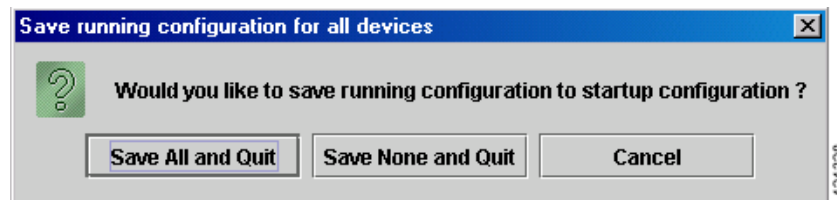
- Click the X in the upper-right corner of the Main Window (see [Figure 3-19](#)).

**Figure 3-19 Exit Using X in Main Window**



The Save Running Configuration dialog box appears. (see [Figure 3-20](#)).

**Figure 3-20 Save Running Configuration**



- Step 2** Click **Cancel** to keep the application active and return to configuration tasks. Click **Save All and Quit** to save all configuration changes to the startup configuration. Click **Save None and Quit** to disregard all configuration changes. All active windows are closed and the Cisco QAM Gateway Manager session ends.

**Note**

If the Save all configurations to startup configuration? check box is selected in the Add Device or Configure SNMP Parameters dialog box (see “[Adding a Device](#)” section on page 3-14 and “[Configuring SNMP Parameters](#)” section on page 3-20), configuration changes are automatically saved to the startup configuration each time **Apply** is clicked, independently of Save All and Quit or Save None and Quit selections.

## Establishing Communication with Cisco QAM Gateway Devices

- [Adding a Device](#)
- [Removing a Device](#)
- [Using the Telnet Window](#)

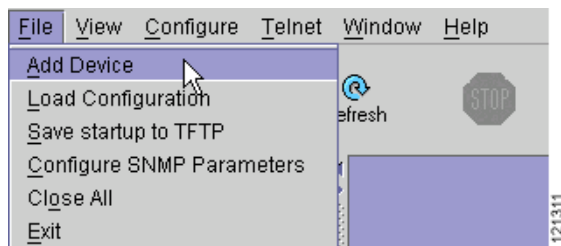
### Adding a Device

To configure and monitor Cisco QAM Gateway devices, you must first add Cisco Catalyst switches and Cisco uMG9820 QAM Gateways to the device list. Up to 20 devices can be managed by Cisco QAM Gateway Manager. To add a device:

**Step 1** Select Add Device using one of the following methods:

- Choose **File > Add Device** (see [Figure 3-21](#)).

**Figure 3-21 Add Device Using File Menu**

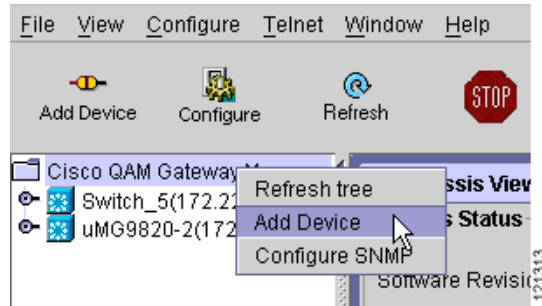


- Click the Add Device tool (see [Figure 3-22](#)).

**Figure 3-22 Add Device Using Add Device Button**



- In the navigation tree, select, then right-click “Cisco QAM Gateway Manager” (see [Figure 3-23](#)).

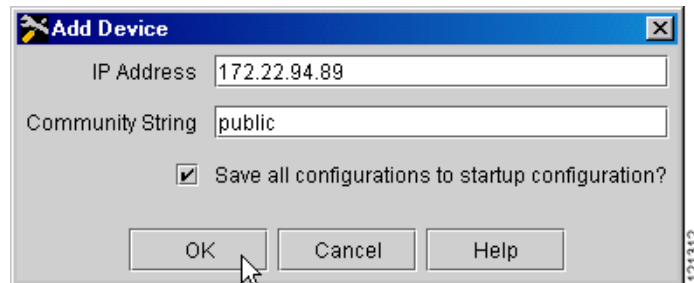
**Figure 3-23 Add Device Using Right Mouse Click**

**Step 2** In the Add Device dialog box, enter the IP Address and Community String of the device (see [Figure 3-24](#)).

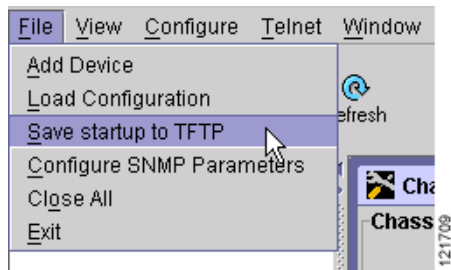
**Note**

Entering the SNMP community string does not change the value on the device. It authenticates access to the device. The community string must be defined before adding the device to the list. See [Before Using Cisco QAM Gateway Manager, page 2-4](#).

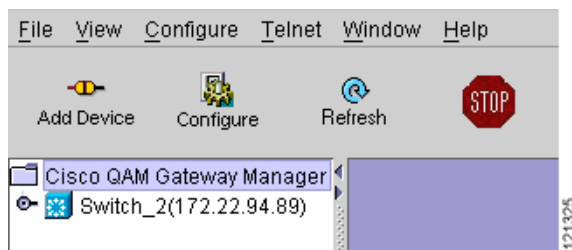
If you want to automatically save all configurations to the startup configuration, select the check box. When the check box is selected, any change made to a device using Cisco QAM Gateway Manager is automatically saved to both the running and startup configuration files of that device. If the check box is not selected, configuration changes are saved only to the running configuration.

**Figure 3-24 Add Device Dialog Box****Note**

When using the option to automatically save all changed configuration information to the startup configuration file, you can make a backup of the existing startup configuration to a TFTP server before changing configurations. Choose **File > Save Startup to TFTP** (see [Figure 3-25 on page 3-16](#)). This backup can be used in case it is necessary to restore the original startup configuration after a device reload.

**Figure 3-25 Save Startup to TFTP**

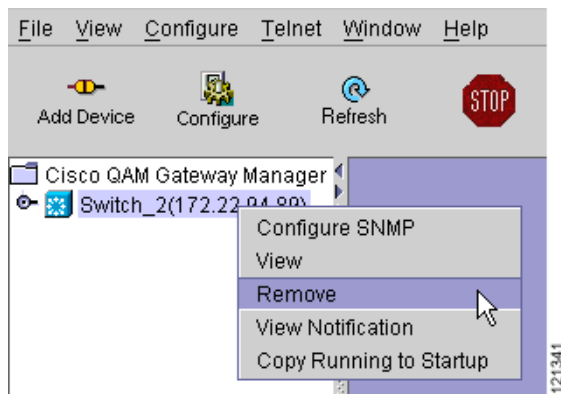
**Step 3** Click **OK**. The device name and its IP address are displayed in the navigation tree (see [Figure 3-26](#)).

**Figure 3-26 Navigation Tree with Device Added**

## Removing a Device

To remove a device from the list, do the following:

**Step 1** In the Navigation Tree, select the device to remove, then right-click. (see [Figure 3-27](#)).

**Figure 3-27 Selecting Remove**

**Step 2** Choose **Remove**. When the confirmation screen appears, click **Yes**.

## Using the Telnet Window

Use the Telnet window to enter command-line interface (CLI) commands such as **show** commands, or perform configuration tasks on the devices listed in the navigation tree that cannot be achieved using the GUI interface.

**Note**

For further information regarding CLI commands refer to *Cisco uMG9820 QAM Gateway Installation and Configuration Guide*, *Configuring the Cisco uMG9850 QAM Module*, and *Cisco Catalyst 4500 Series IOS Software Configuration Guide*.

Commonly used **show** commands are summarized in Chapter 4, “[Monitoring Cisco QAM Gateway Devices](#)”.

To access a device using the Telnet window:

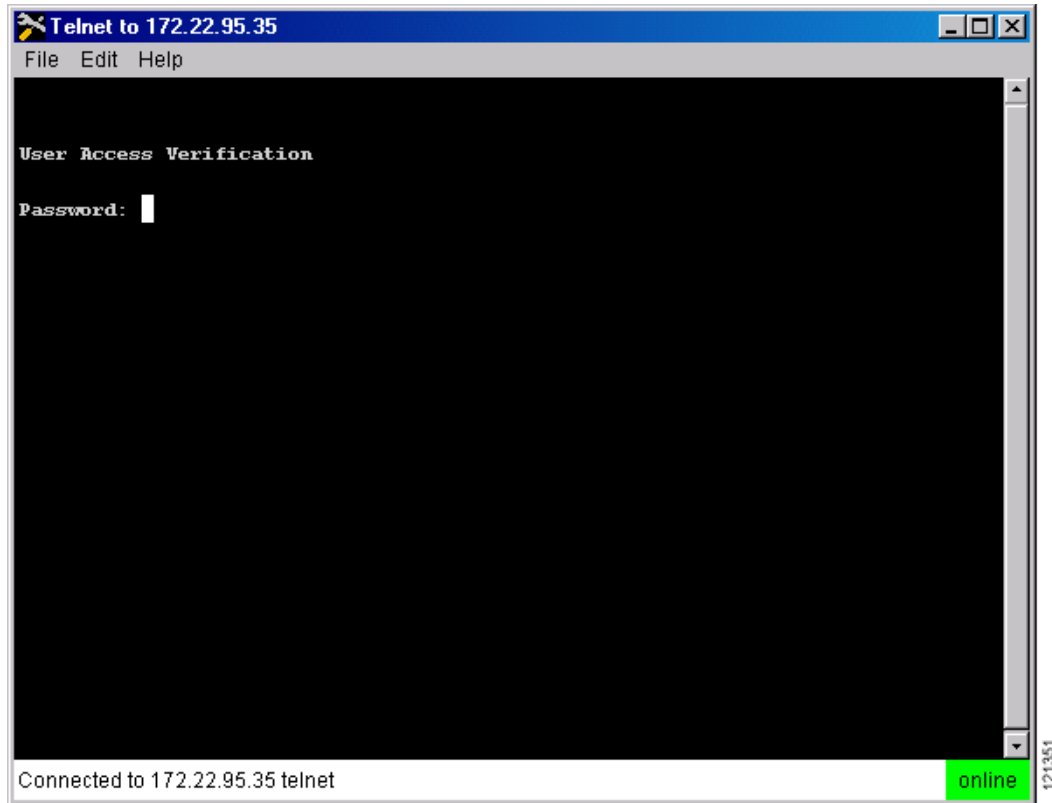
- Step 1** Choose the device using the Telnet menu (see [Figure 3-28](#)).

**Figure 3-28 Telnet to Device**



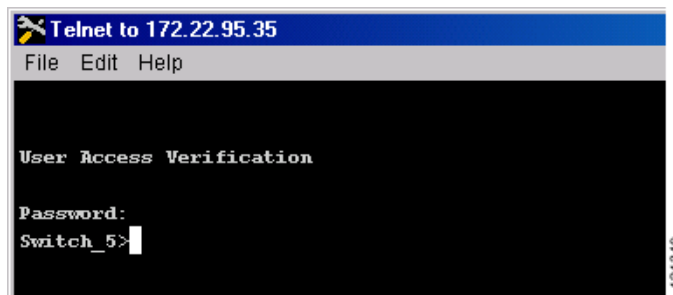
The Telnet window appears (see [Figure 3-29](#)).

Figure 3-29 Telnet Window



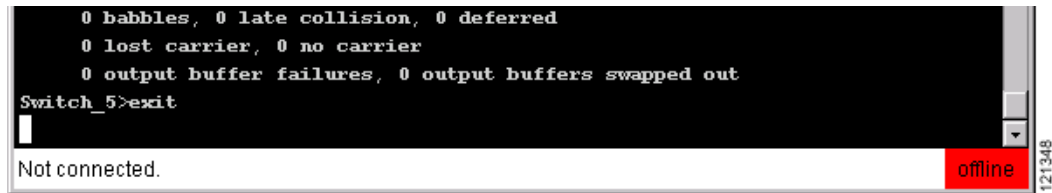
**Step 2** Enter the Telnet password for the device and press **Enter** (see Figure 3-30).

Figure 3-30 Logged on to Device



**Step 3** Enter any desired CLI commands.

**Step 4** To terminate the Telnet session, type **exit** (see Figure 3-31), or choose **File > Exit** in the Telnet window menu bar.

**Figure 3-31** Exiting Telnet Session

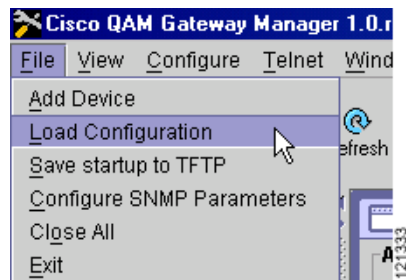
- Step 5** To close the Telnet window, click the X in the upper right of the window.

## Loading a Configuration from a TFTP Server

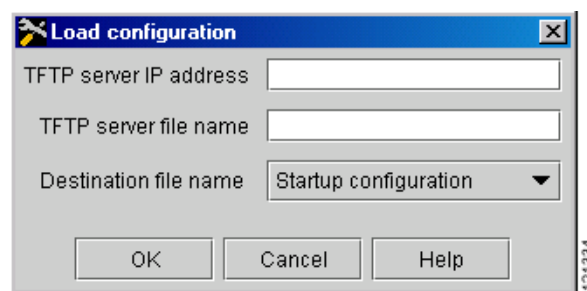
An existing configuration of a Cisco Catalyst Switch or Cisco uMG9820 QAM Gateway can be downloaded from a TFTP server and sent to the running configuration or startup configuration of a device.

To load a configuration from a TFTP server:

- Step 1** Highlight the device and choose **File > Load Configuration**.

**Figure 3-32** Choosing Load Configuration from the File Menu.

- Step 2** Enter the TFTP server filename and IP address.

**Figure 3-33** TFTP Server IP Address and Filename

- Step 3** Select the Destination filename—either Startup configuration or Running configuration.
- Step 4** Click **OK** to load the configuration. Click **Cancel** to close the window without loading a configuration.

**Note**

The device must be reloaded for the startup configuration to take effect. Changes to the running configuration take effect immediately.

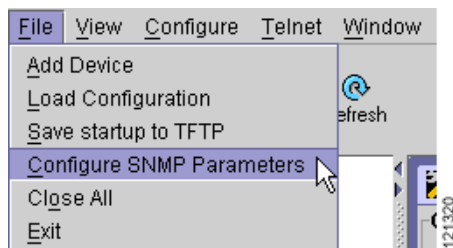
## Configuring SNMP Parameters

### Setting SNMP Polling Interval

The polling interval determines how frequently Cisco QAM Gateway Manager requests status information from each of the managed devices. To set the SNMP polling parameters for all devices:

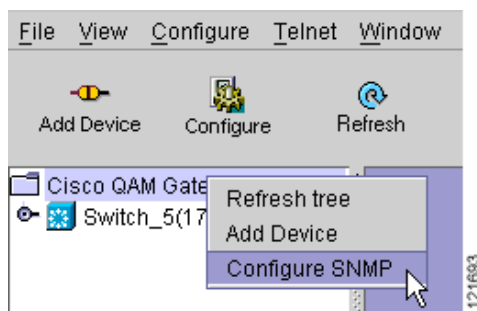
- Step 1** Highlight “Cisco QAM Gateway Manager” in the navigation tree.
- Step 2** Select Set SNMP Parameters using one of the following methods:
- Choose **File > Configure SNMP Parameters** (see [Figure 3-34](#)).

**Figure 3-34 Using File Menu**



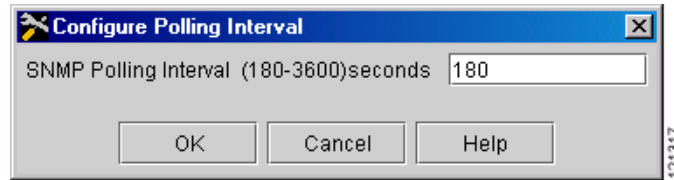
- Right-click on “Cisco QAM Gateway Manager” (see [Figure 3-35](#)).

**Figure 3-35 Using Right Click**



- Step 3** Enter the polling interval (see [Figure 3-36](#)). The range of values is 180 to 3600 seconds. The default value is 180 seconds.



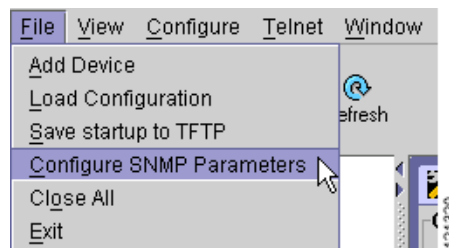
**Figure 3-36 Polling Interval Configuration Dialog Box**

- Step 4** Click **OK** to save the configuration. Click **Cancel** to close the dialog box and discard any changes.

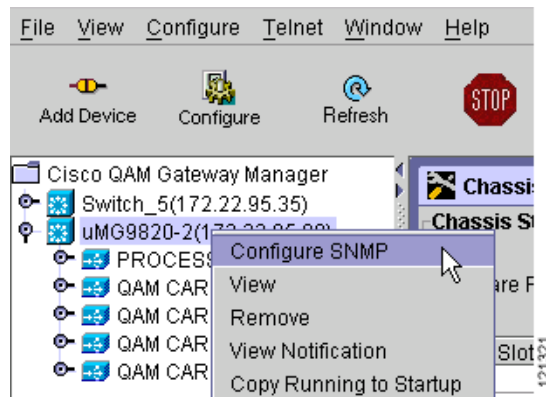
## Setting the SNMP Community String

If the system administrator changes the community string on the device, use this function to set the new SNMP community string for that device in Cisco QGM:

- Step 1** Highlight a device in the navigation tree.
- Step 2** Select Set SNMP Parameters using one of the following methods:
- Choose **File > Configure SNMP Parameters** (see [Figure 3-37](#)).

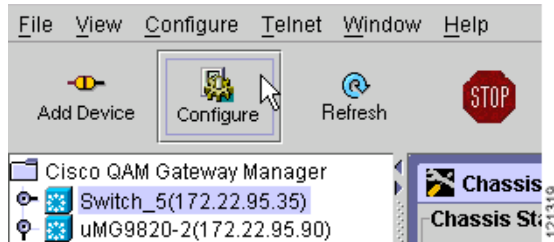
**Figure 3-37 Using File Menu**

- Right-click on the device and choose **Configure SNMP** (see [Figure 3-38](#)).

**Figure 3-38 Using Right Click**

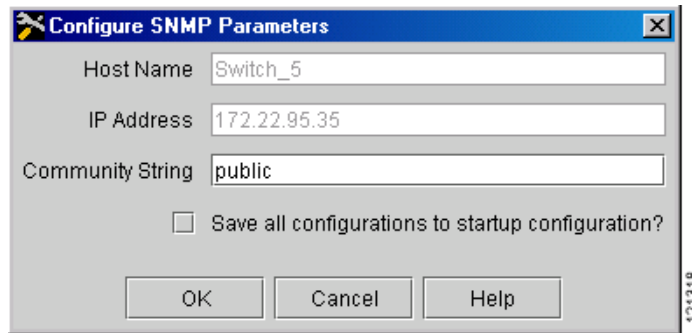
- Click **Configure** in the toolbar (see [Figure 3-39](#)).

**Figure 3-39 Using Configure Button**



- Step 3** Enter the new SNMP community string and, if there has been a requirement change since first adding the device, select or deselect the Save all configurations to startup configuration? box (see [Figure 3-40](#)).

**Figure 3-40 Configure SNMP Parameters Dialog Box**



- Step 4** Click **OK** to save the configuration. Click **Cancel** to close the dialog box and discard any changes

## Configuration Steps

### Initial Configuration

#### Configuring Gigabit Ethernet Input and Output Ports into a VLAN



**Note**

This procedure applies to Cisco Catalyst switches only. It does not apply to the Cisco uMG9820 QAM Gateway.

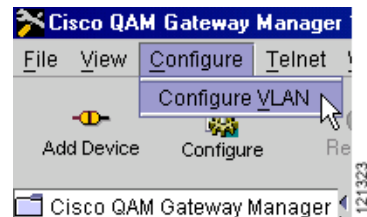
Outbound interfaces are included in single VLANs to use network addresses more efficiently. The IP addresses and subnet masks configured for each VLAN interface populate the IP switching table on the switch with the forwarding information needed to forward the video packets to their destination. The number and use of VLANs varies according to the programming and management needs of the system operator.

Do the following to select a VLAN interface, assign an IP address to the incoming (video source) interface, and assign input and output Gigabit Ethernet (GE) ports to the VLAN. This routes the incoming video to the appropriate output ports on the Cisco uMG9850 QAM module.

## Selecting a VLAN Interface

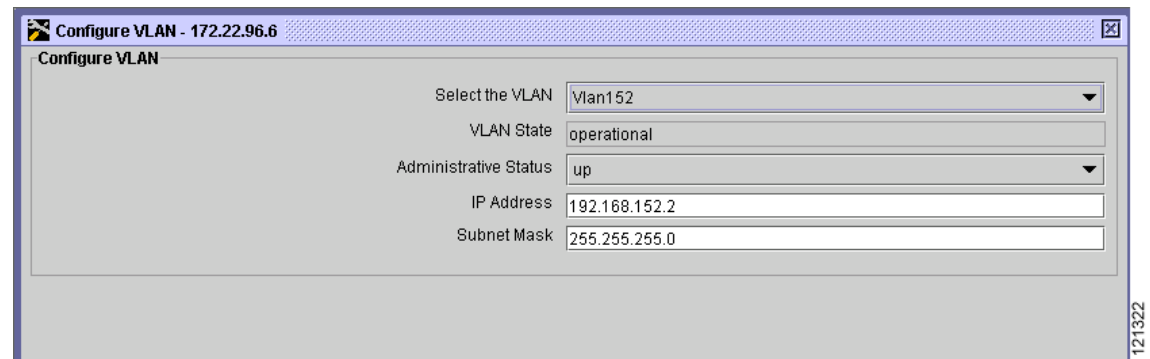
- Step 1** Choose **Configure > Configure VLAN** (see [Figure 3-41](#)).

**Figure 3-41 Configure VLAN Menu**



The Configure VLAN dialog box appears (see [Figure 3-42](#)).

**Figure 3-42 Configure VLAN Dialog Box**



- Step 2** Choose an existing VLAN from the drop-down menu and, if necessary, enter its IP address and subnet mask.



**Note**

If it is necessary to create a new VLAN, use the Telnet window and create the VLAN using commands found in *Cisco Catalyst 4500 Series IOS Software Configuration Guide*.

## Assigning the Input GE Port to a VLAN

- Step 1** Go to Ethernet Port View (see [Table 3-4](#)) and assign the GE interface of the incoming video stream to be included in the VLAN by entering the IP address and optional subnet mask of the interface. This is the interface of an incoming video stream (see [Figure 3-43](#)).

**Figure 3-43 Interface IP Address and Subnet Mask**

Switchport Status	routed
VLAN	Vlan1
IP Address	172.22.95.35
Subnet Mask	255.255.255.0

- Step 2** When assigning a VLAN to an Ethernet port, switchport status must be set to **switchport** using the Switchport Status drop-down menu (see [Figure 3-44](#)).

**Figure 3-44 Setting Switchport Status**

Switchport Status	routed
VLAN	switchport

- Step 3** Click **Apply** to save all changes and keep the window open. Click **OK** to save the changes and close the window. Click **Cancel** to close the window and discard any changes.
- Step 4** Return to the Configure VLAN dialog box and set Administrative Status to **up**.
- Step 5** Click **Apply** to save all changes and keep the window open. Click **OK** to save the changes and close the window. Click **Cancel** to close the window and discard any changes.

## Assigning the Output GE ports to a VLAN

- Step 1** Go to Slot View, Video Routing section and assign an IP address in the same subnet as that assigned to the VLAN in Step 2. This allows video packets to be switched from the input GE port to the output GE port.



**Note** To remove the video stream from the VLAN, click the Clear Video Route? box.

**Figure 3-45 Setting the GE Port**

<b>Video Routing</b>	
Input VLAN	Vlan135
IP address	192.168.135.6
Clear Video Route?	<input type="checkbox"/>

- Step 2** Click **Apply** to save all changes and keep the window open. Click **OK** to save the changes and close the window. Click **Cancel** to close the window and discard any changes.

Repeat these steps for additional VLAN and GE interfaces, as required.

## Setting the Output Frequency and Output Power of the QAM Channels

Each F-connector (QAM port) provides two QAM channels, and the frequency and output power are configured for both channels simultaneously. Setting frequency and power for one QAM channel automatically sets the appropriate values for the other channel in the same interface.

The Frequency value configures the frequency for the upconverter connected to a QAM port. Configuring the frequency for one QAM channel automatically configures the correct frequency for the other QAM channel in its upconverter group. The frequency bandwidth of each QAM upconverter block is 6 MHz. Consequently, if QAM channel 1 is set to frequency  $f_1$ , then the other QAM channel is automatically set to frequency  $f_1 + 6$  MHz. Similarly, if QAM channel 2 is set to frequency  $f_2$ , then QAM channel 1 is automatically set to frequency  $f_2 - 6$  MHz.

The power value configures the power level for the upconverter connected to a QAM channel. Configuring the output power for one QAM channel automatically configures the same power level for the other QAM channel in its upconverter group.

### Setting the Output Frequency

To set the output frequency of the QAM channel:

- Step 1** Go to QAM Channel View, Channel Information section (see [Figure 3-46](#)).



**Note** For a map to this and all tasks, see [Table 3-4 on page 3-7](#).

**Figure 3-46** Setting the QAM Channel Frequency and Output Power in QAM Channel View (Cisco uMG9850 Shown)

Channel Information	
Channel Name	QAM3/1.2
Administrative Status	up
Output Frequency (56000000-900000000)Hz	723100000
Output Power (42-58)dBmV	51
Modulation Format	qam64
QAM Group	1

- Step 2** Enter the frequency for the selected channel.



**Note** For the Cisco uMG9850, the frequency range for QAM channel 1 is 50000000 to 854000000 Hz, and for QAM channel 2 is 56000000 to 860000000.

For the Cisco uMG9820, the frequency range for QAM channel 1 is 222000000 to 897000000 Hz, and for QAM channel 2 is 228000000 to 903000000 Hz.

- Step 3** Click **Apply** to save all changes and keep the window open. Click **OK** to save the changes and close the window. Click **Cancel** to close the window and discard any changes.

**Note**

For further information regarding the setting of QAM channel frequency and power, refer to *Cisco uMG9820 QAM Gateway Installation and Configuration Guide* and *Configuring the Cisco uMG9850 QAM Module*.

**Setting the Output Power**

To set the QAM channel output power:

**Step 1** Go to QAM Channel View, Channel Information section (see [Figure 3-46](#)).

**Step 2** Enter the desired QAM channel power.

**Note**

For the Cisco uMG9850, if both QAM channels in an RF port are enabled, the power range is 42 to 55 dBmV. The default value is 50 dBmV.

For the Cisco uMG9820, when you configure a power value for one QAM channel in a port, the other QAM in the port is assigned the same value. The power range is 44 to 60 dBmV. The default value is 50 dBmV.

**Step 3** Click **Apply** to save all changes and keep the window open. Click **OK** to save the changes and close the window. Click **Cancel** to close the window and discard any changes.

**Setting Up, Editing, and Routing a Video Stream to a QAM Channel****Basic Tasks****Setting the Modulation Format**

Each Cisco uMG9850 has six modulator groups, yielding a total of 24 channels per module. Setting the modulation format on one QAM channel applies the same format to all four QAM channels in a modulator group. For example, QAM channels 5/1.1, 5/1.2, 5/2.1, and 5/2.2

To set the modulation format for the QAM channel:

**Step 1** Go to QAM Channel View, Channel Information section (see [Figure 3-46 on page 3-25](#)).

**Step 2** Set the modulation format to either qam64 or qam256. The default value is qam256.

**Note**

If the FEC interleave level is set to 1, the value 256 is not valid. See the [“Configuring the FEC Interleave Level and Mode”](#) section that follows.

**Step 3** Click **Apply** to save all changes and keep the window open. Click **OK** to save the changes and close the window. Click **Cancel** to close the window and discard any changes.

**Note**

If level 1 is already selected and it is necessary to change to qam256, first change the FEC Interleave level to 2, then click **Apply** and wait for the configuration change to take effect. Select qam256.

**Configuring the FEC Interleave Level and Mode**

The FEC interleave settings set the Reed-Solomon forward error correction (FEC) interleave level and mode on a QAM port. Forward error correction reduces bit error rate (BER) in data transmission by correcting recovered bit errors in the demodulator. Interleaving is a technique that reorders (in time) individual code-word bits with other code-word bits to spread error bursts over many different code words. The technique used is compliant with ITU J.83, Annex B.

Setting the interleave level and mode on any of the 12 QAM interfaces (ports) sets the QAM symbol rate on that port only. If the interleave level and mode is set on one QAM channel, the same value is applied to all four QAM channels in a modulator group.

**Caution**

The default settings should be satisfactory. Realize that varying the settings can result in an increase in packet latency. Always monitor new settings to ensure that resulting BERs are acceptable.

To configure the FEC interleave level and mode:

- Step 1** Go to QAM Channel View, Interleave parameters section (see [Figure 3-47](#)).

**Figure 3-47 Setting the FEC Interleave Level and Mode**

Interleave parameters	
FEC Interleave level	level1
FEC Interleave mode	1 - FEC-I-128-J-1

- Step 2** Choose the interleave level.  
Values for the FEC interleave level can be level1 or level2. The default value is level2.

**Note**

If the FEC interleave level is set to level1, the modulation format option of qam256 (256 QAM) is not valid. (See the [“Setting the Modulation Format”](#) section on page 3-26.)

- Step 3** Select the value for FEC interleave mode. The default is 6-FEC-I-128-J-4.

**Note**

The interleave mode can be set only then the interleave level is set to level2 (default).

**Note**

The Cisco uMG9820 does not support modes 8-FEC-I-128-J-5 and 10-FEC-I-128-J-6.

- Step 4** Click **Apply** to save all changes and keep the window open. Click **OK** to save the changes and close the window. Click **Cancel** to close the window and discard any changes.

### Statically Setting Session Timeouts

You can statically set a session timeout for the a single Cisco uMG9850 QAM module, for the entire Cisco Catalyst switch, or for the Cisco uMG9820 QAM Gateway to determine when the session is closed once packets no longer come into the session. You can also set the time, following the absence of packets, at which a loss of signal is reported. Use **global timeouts** to address the entire switch or QAM gateway, and **slot-level timeouts** (Cisco Catalyst switches only) to address an entire module in a given slot. The options and parameters are the same in both cases.



#### Note

When a session is closed, this means that the Cisco uMG9850 has not received any video packets for the given session's UDP port for the period determined by the module-level or switch-level session close timeout. The session no longer exists.

When a session is inactive, this means that the Cisco uMG9850 has not received any video packets for the given session's User Datagram Protocol (UDP) port for the period determined by the global or slot-level timeout signal-loss. The session still exists, and is listed following a **show** command. If packets start arriving before the timer set by slot-level session-close timeout or global session-close timeout counts down, the session becomes active.

The value for slot-level timeout signal-loss or global timeout signal-loss should always be larger than the value configured for jitter. See [Configuring Maximum Jitter for a Session, page 3-30](#).

To configure global timeouts:

- Step 1** Go to Chassis View, Global Timers section. (See [Figure 3-48](#).)

**Figure 3-48 Setting Global Timers (Cisco Catalyst Switch Chassis View Shown)**

Parameter	Value
Session Close Timeout (1-1440)min	10
Signal Loss Timeout (200-10000)ms	5000
Program Association Table Interval (50-450)ms	335
Program Mapping Table Interval (50-450)ms	100

- Step 2** Enter a value for Session Close Timeout. The range of values is 1 to 1440 minutes. The default value is 10 minutes.
- Step 3** Enter a value for Signal Loss Timeout.



#### Note

For the Cisco Catalyst switch, the range of values is 200 to 10000 milliseconds. The default value is 5000 milliseconds.

For the Cisco uMG9820, the range of values is 500 to 10000 milliseconds. The default value is 5000 milliseconds.

- Step 4** Click **Apply** to save all changes and keep the window open. Click **OK** to save the changes and close the window. Click **Cancel** to close the window and discard any changes.



To configure slot-level timeouts:

**Note**

This procedure applies to Cisco Catalyst switches only. It does not apply to the Cisco uMG9820 QAM Gateway.

- Step 1** Go to Slot View, Slot Level Timeouts section (see [Figure 3-49](#)).

**Figure 3-49 Setting Slot-Level Timers**

Slot Level Timeouts	
Session Close (1-1440)min	10
Signal Loss (200-10000)ms	450

- Step 2** Enter a value for Session Close Timeout. The range of values is 1 to 1440 minutes. The default value is 10 minutes.
- Step 3** Enter a value for Signal Loss Timeout. The range of values is 200 to 10000 milliseconds. The default value is 5000 milliseconds.
- Step 4** Click **Apply** to save all changes and keep the window open. Click **OK** to save the changes and close the window. Click **Cancel** to close the window and discard any changes.

### Statically Routing a Range of Program Sessions to a QAM Channel (UDP Port Mapping)

The UDP port number of each program session allows each session to be routed to a designated QAM channel by default. You can overwrite the default routing (which is signaled by the port number) and route a range of program sessions to a QAM channel.

To route a range of program sessions to a QAM channel:

- Step 1** Go to QAM Channel View, Video Sessions Mapping section (see [Figure 3-50](#)).

**Figure 3-50 Statically Routing a Range of Program Sessions to a QAM Channel**

Video Sessions Mapping	
Maximum number of sessions (2-25, 1-default map)	1
Starting UDP port number (256-65535, 0-default port)	0
Starting program number (1-255)	0
Even UDP port numbers only?	false
Clear Video Session Mapping?	<input type="checkbox"/>

**Note**

[Figure 3-50](#) displays the default values, indicating that the device is using default UDP port mapping. If you want to use default port mapping, do not change these values. If you want to create a static port map, proceed to Step 2.

- Step 2** Enter maximum number of sessions for this UDP port mapping. The range of values is 2 to 25.
- Step 3** Enter the starting UDP port number to be mapped. The range of values is 256 to 65535.

- Step 4** Enter the starting output program number to be mapped. The range is 1 to 255.
- Step 5** To use only even UDP port numbers, reserving odd numbers for Real-Time Control Protocol (RTCP) for other purposes, set the value to true. False is the default.
- Step 6** To clear video session mapping and revert to the session defaults, click on the Clear Video Session Mapping check box.



**Note** This returns the device to default port mapping mode. See *Configuring the Cisco uMG9850 QAM Module* and *Cisco uMG9820 QAM Gateway Installation and Configuration Guide* for additional information on default port mapping.

- Step 7** Click **Apply** to save all changes and keep the window open. Click **OK** to save the changes and close the window. Click **Cancel** to close the window and discard any changes.



**Note** (Cisco Catalyst switches only) Active video sessions must be stopped while the port map settings are changed. Stop the video sessions by temporarily disabling the VLAN bringing video into the switch. After port maps are changed, the VLAN can be enabled to allow active video streams.

Video session mapping cannot be changed if the Cisco uMG9850 is set to emulation mode.

## Advanced Tasks

### Configuring Maximum Jitter for a Session

(Cisco Catalyst switches only) You can set the maximum allowable network jitter (packet latency variation) for a specified UDP port session. This global video setting affects the overall packet latency (at the buffer level) within an entire Cisco uMG9850.



**Note** The jitter option sets the size of a dejittering buffer that absorbs the input jitter. This buffer introduces system delay (the time for a packet to enter and leave the Cisco uMG9850). The greater the value of jitter, the greater the delay introduced to the output stream. You can change the size of the dejitter buffer at either the slot or the session level. Changing it at the slot level changes the default value for jitter. (Consequently, for all sessions having the default value for jitter, the jitter value is changed to the new value. For sessions that have nondefault jitter values, their current jitter value is maintained.)

To configure maximum jitter:

- Step 1** Go to Slot View, Jitter section (see [Figure 3-51 on page 3-30](#)).

**Figure 3-51 Setting the Jitter Specification**

The screenshot shows a configuration window titled 'Jitter'. Inside, there is a text input field labeled 'Jitter (0-300)ms' with the number '100' entered. To the right of the input field, the number '121332' is visible, likely a page or document ID.

- Step 2** Set the jitter. The range of values is 0 to 300 milliseconds. The default value is 100 milliseconds.

**Tip**

When setting the jitter value (the size of the dejitter buffer), take into consideration the network jitter (the inherent jitter introduced at the input of the Cisco uMG9850), and allow for clock tracking. Leave approximately 50 milliseconds for clock tracking. For example, if peak-to-peak network jitter is 100 milliseconds, set the jitter value to 150 milliseconds.

The value for global timeout signal loss or slot-level timeout signal loss should always be larger than the value configured for jitter.

**Step 3**

Click **Apply** to save all changes and keep the window open. Click **OK** to save the changes and close the window. Click **Cancel** to close the window and discard any changes.

## Setting Up PSI Parameters

You can set up various program-specific information (PSI) parameters, either globally (for the entire switch) or on an individual QAM channel.

**Note**

If any sessions are active in the switch, new global Program Association Table (PAT) and Program Map Table (PMT) settings are rejected. Active sessions can be suspended while PAT and PMT variables are updated by disabling either the VLAN bringing video into the switch or the Ethernet port assigned to that VLAN.

### Setting PMT and PAT Intervals for the Switch

**Note**

This procedure applies to Cisco Catalyst switches only. It does not apply to the Cisco uMG9820 QAM Gateway.

The Program Association Table (PAT) interval sets the interval at which the PAT is distributed for all Cisco uMG9850 modules in the switch. Changing the default rate in this configuration mode overwrites the rate for the switch.

The Program Mapping Table (PMT) interval sets the interval at which the PMT is distributed to all Cisco uMG9850 modules in the switch. Changing the default rate in this configuration mode overwrites the rate for the switch.

To set PMT and PAT intervals for the switch:

**Step 1**

Go to Chassis View, Global Timers section (see [Figure 3-52 on page 3-31](#)).

**Figure 3-52 Setting PSI Parameters (Switch) in Chassis View**

Global Timers	
Session Close Timeout (1-1440)min	10
Signal Loss Timeout (200-10000)ms	5000
Program Association Table Interval (50-450)ms	335
Program Mapping Table Interval (50-450)ms	100

121347

- Step 2** Enter a value for the PAT interval. The range of values is 50 to 450 milliseconds. The default value is 100 milliseconds.
- Step 3** Enter a value for the PMT interval. The range of values is 50 to 450 milliseconds. The default value is 100 milliseconds.
- Step 4** Click **Apply** to save all changes and keep the window open. Click **OK** to save the changes and close the window. Click **Cancel** to close the window and discard any changes.

### Setting PMT and PAT Intervals for a QAM Channel

These parameters set the intervals at which an individual QAM channel distributes the PAT and PMT. To set these parameters:

- Step 1** Go to QAM Channel View, Timers section. (See [Figure 3-53](#))

**Figure 3-53 Setting PSI Parameters**

Timers	
Program Association Table Interval (50-450)ms	100
Program Mapping Table Interval (50-450)ms	100

- Step 2** Enter a value for the PAT interval. The range of values is 50 to 450 milliseconds. The default value is 100 milliseconds.
- Step 3** Enter a value for the PMT interval. The range of values is 50 to 450 milliseconds. The default value is 100 milliseconds.
- Step 4** Click **Apply** to save all changes and keep the window open. Click **OK** to save the changes and close the window. Click **Cancel** to close the window and discard any changes.

### Setting TSID and NIT-PID Values

At each hub, each QAM channel must have a unique transport stream ID (TSID). The software checks for and guarantees the uniqueness of a TSID within a chassis only. These identifiers specify the TSID used to identify transport stream packets sent on the QAM channel and the packet ID (PID) used to identify Network Information Table (NIT) packets sent on a QAM port.



#### Caution

It is the responsibility of the operator to avoid TSID conflicts among switches. To see all the TSIDs within a switch, look at the QAM Summary View.

The PID for the network information table, or NIT-PID, can be configured from the QAM interface. If the NIT-PID is already used as a video, audio, or data PID, the configuration is rejected.

For the transport stream that is to be transmitted over a QAM channel, you must configure the TSID and NIT-PID (network information table packet ID) values for that channel.

To set these parameters:

- Step 1** Go to QAM Channel View, Identifiers section (see [Figure 3-54 on page 3-33](#)).

**Figure 3-54** Setting TSID and NIT-PID Values (in QAM Channel View)

Identifiers	
Transport Stream ID (1-65535)	203
Network Information Table Packet ID (16-8191)	16

- Step 2** Set the value of the Transport Stream ID for the QAM channel. The range of values is 16 to 65535. By default, nonconflicting TSIDs are assigned to all modules in a chassis.
- Step 3** Set the value of the Network Information Table packet ID for the QAM channel. The range in values is from 16 to 65536. The default value is 16.
- Step 4** Click **Apply** to save all changes and keep the window open. Click **OK** to save the changes and close the window. Click **Cancel** to close the window and discard any changes.

## Enabling or Disabling Ports and QAM Channels

Ports and QAM channels are enabled or disabled by setting the administrative status to up or down, respectively. To activate an Ethernet port, ASI port, or QAM channel, you must set the administrative status to up. If it is necessary to shut down a port or channel, set the administrative Status to down.

- For all types of Ethernet ports, use Ethernet Port View.
- For ASI ports, use ASI Port View.
- For QAM Ports, use QAM Channel View

**Figure 3-55** Setting the Administrative Status in ASI Port View

Administrative Status	down
Byte Gap (1-4)	up
	down





## Monitoring Cisco QAM Gateway Devices

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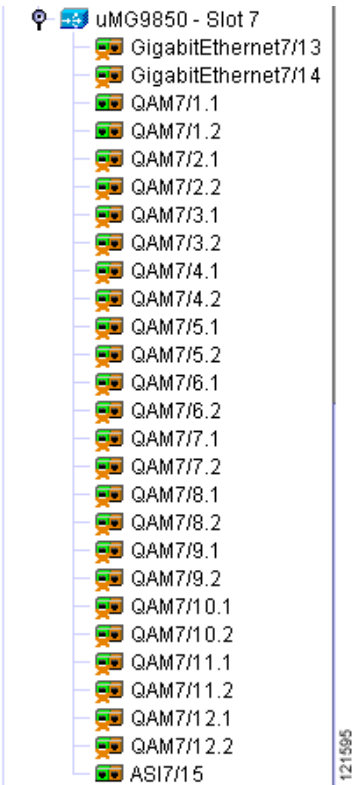
This chapter provides information on the monitoring of configured Cisco QAM Gateway devices to ensure proper operation of the network, including information that can be displayed with Cisco QAM Gateway Manager views and by using the command line interface within the application's Telnet window.

- [Navigation Tree, page 4-1](#)
- [Chassis View, page 4-2](#)
- [Slot View, page 4-3](#)
- [QAM Channel Summary View, page 4-5](#)
- [Telnet - CLI show commands, page 4-6](#)
- [Configuring the ASI Port for QAM Channel Routing, page 4-10](#)
- [Notification History Table, page 4-11](#)
- [Application Display Messages, page 4-13](#)

### Navigation Tree

Using the navigation tree, you can observe the status of all QAM, Ethernet, and ASI ports (see [Figure 4-1 on page 4-2](#)). When administrative or operating status is down, an X will appear on the icon representing that port. To see the details for a specific port, double-click on the port. The detail QAM, Ethernet, or ASI port view will appear.

Figure 4-1 Navigation Tree



# Chassis View

The Chassis Status section of the Chassis View displays the components of the device. For each device, each slot number is listed along with the name of the card in that slot, the card type and, for Cisco Catalyst switches, the operating status. Power supplies and fan tray information also is included in the component list. (See [Figure 4-2](#) and [Figure 4-3](#) on page 4-3.)



Figure 4-2 Chassis Status (Cisco Catalyst Switch)

Chassis View - Switch\_2(172.22.94.89)

Chassis Status

Software Revision: 12.1(20040824:041800)EWW1

Slot Number	Card Name	Card Type	Operating Status
Slot 1	1000BaseX (GBIC) Supervisor	Supervisor	ok
Slot 2			
Slot 3	10/100BaseTX (RJ45) with 48 10/100 baseT ports	RJ45	ok
Slot 4	10/100BaseTX (RJ45) with 48 10/100 baseT ports	RJ45	ok
Slot 5	10/100BaseTX (RJ45) with 48 10/100 baseT ports	RJ45	ok
Slot 6	1000BaseX (GBIC) with 6 1000 GBIC ports	GBIC	ok
Slot 7	24 QAM with 1 SFP(1000BaseX), 1 RJ45(10/100/1000) ports	uMG9850	ok
Fan Tray Bay	FanTray	Fan tray	normal
Power Supply Bay 1	Power Supply ( AC 1300W )	Power supply	ok
Power Supply Bay 2			

Figure 4-3 Chassis Status (Cisco uMG9820)

Chassis View - uMG9820-2(172.22.95.90)

Chassis Status

Software Revision:

Slot Number	Card Name	Card Type
Slot 0	Processor card	PROCESSOR CARD
Slot 1	QAM card	QAM CARD
Slot 2	QAM card	QAM CARD
Slot 3	QAM card	QAM CARD
Slot 4	QAM card	QAM CARD
Slot 5	QAM card	QAM CARD
Slot 6	QAM card	QAM CARD
Fan Tray Bay	Fan Tray	Fan tray
Power Supply Bay 1	Power Supply	Power supply
Power Supply Bay 2	Power Supply	Power supply

## Slot View

Using the Slot View QAM Channels Summary Status Table (see [Figure 4-4 on page 4-4](#)), you can monitor the status of all the QAM channels in a specific slot. For each QAM channel, the administrative and link status (green for up and red for down), and the number of sessions on that channel are listed.

Figure 4-4 Slot View QAM Channels Summary Status

Slot View - 172.22.94.89 - uMG9850 Linecard(slot 7)

**QAM Channels Summary Status**

Channel	Admin status	Link status	Sessions
QAM7/1.1	●	●	0
QAM7/1.2	●	●	0
QAM7/2.1	●	●	0
QAM7/2.2	●	●	0
QAM7/3.1	●	●	0
QAM7/3.2	●	●	0
QAM7/4.1	●	●	0
QAM7/4.2	●	●	0
QAM7/5.1	●	●	0
QAM7/5.2	●	●	0
QAM7/6.1	●	●	0
QAM7/6.2	●	●	0
QAM7/7.1	●	●	0
QAM7/7.2	●	●	0
QAM7/8.1	●	●	0
QAM7/8.2	●	●	0
QAM7/9.1	●	●	0
QAM7/9.2	●	●	0
QAM7/10.1	●	●	0
QAM7/10.2	●	●	0
QAM7/11.1	●	●	0
QAM7/11.2	●	●	0
QAM7/12.1	●	●	0
QAM7/12.2	●	●	0

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For Cisco Catalyst switches only, the Ethernet Ports and ASI Port Summary Status Table lists the administrative and link status for Ethernet and ASI ports on the slot—green for up and red for down. (See Figure 4-5.) Double-click on the Ethernet or ASI ports to access the Ethernet or ASI port views.

Figure 4-5 Slot View Ethernet Ports and ASI Port Summary Status

**Ethernet Ports and ASI Port Summary Status**

Port	Admin status	Link status
GigabitEthernet7/13	●	●
GigabitEthernet7/14	●	●
ASI7/15	●	●

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**Note**

For the Cisco uMG9820, double-click on a processor card in the navigation tree to access ASI and Ethernet ports.

# QAM Channel Summary View

The QAM Summary View (see [Figure 4-6 on page 4-5](#)) shows on one screen the current configurations for all QAMs in a slot for the following parameters:

- Administrative status
- RF frequency
- Power
- Modulation format
- Interleaver level
- Interleaver mode
- TSID
- PAT interval
- PMT interval

**Figure 4-6** QAM Channel Summary View

QAM Channel	Admin Status	RF Freq (Mhz)	Power ... (dBmV)	Modulation Format	Interleaver Level	Interleaver Mode	TS ID	PAT Interval	PMT Interval
QAM7/1.1	up	100.0	50	qam256	level2	FEC-I-128-J-4	700	100	100
QAM7/1.2	up	106.0	50	qam256	level2	FEC-I-128-J-4	701	100	100
QAM7/2.1	down	112.0	50	qam256	level2	FEC-I-128-J-4	703	100	100
QAM7/2.2	down	118.0	50	qam256	level2	FEC-I-128-J-4	704	100	100
QAM7/3.1	down	124.0	50	qam256	level2	FEC-I-128-J-4	706	100	100
QAM7/3.2	down	130.0	50	qam256	level2	FEC-I-128-J-4	707	100	100
QAM7/4.1	down	136.0	50	qam256	level2	FEC-I-128-J-4	709	100	100
QAM7/4.2	down	142.0	50	qam256	level2	FEC-I-128-J-4	710	100	100
QAM7/5.1	down	148.0	50	qam256	level2	FEC-I-128-J-4	712	100	100
QAM7/5.2	down	154.0	50	qam256	level2	FEC-I-128-J-4	713	100	100
QAM7/6.1	down	160.0	50	qam256	level2	FEC-I-128-J-4	715	100	100
QAM7/6.2	down	166.0	50	qam256	level2	FEC-I-128-J-4	716	100	100
QAM7/7.1	down	172.0	50	qam256	level2	FEC-I-128-J-4	718	100	100
QAM7/7.2	down	178.0	50	qam256	level2	FEC-I-128-J-4	719	100	100
QAM7/8.1	down	184.0	50	qam256	level2	FEC-I-128-J-4	721	100	100
QAM7/8.2	down	190.0	50	qam256	level2	FEC-I-128-J-4	722	100	100
QAM7/9.1	down	196.0	50	qam256	level2	FEC-I-128-J-4	724	100	100
QAM7/9.2	down	202.0	50	qam256	level2	FEC-I-128-J-4	725	100	100
QAM7/10.1	down	208.0	50	qam256	level2	FEC-I-128-J-4	727	100	100
QAM7/10.2	down	214.0	50	qam256	level2	FEC-I-128-J-4	728	100	100
QAM7/11.1	down	220.0	50	qam256	level2	FEC-I-128-J-4	730	100	100



**Note**

This view also can be used to configure these parameters.



**Tip**

Right-click on a field to copy a value to all other fields in that column.

## Telnet - CLI show commands

A variety of **show** commands provides additional information about the configuration and operation of the devices managed by Cisco QAM Gateway Manager. These commands can be entered using the CLI in the Telnet window. For instructions on how to use the Telnet window, see the [“Using the Telnet Window” section on page 3-17](#). For further information regarding the command-line interface and the commands themselves, including sample output, refer to *Configuring the uMG9850 QAM Module*, Cisco Catalyst switch documentation listed in the [“Related Documentation” section on page ix](#), or the *Cisco uMG9820 QAM Gateway Installation and Configuration Guide*.

## Cisco Catalyst Switches

[Table 4-1](#) describes common **show** commands for the Cisco Catalyst switch that can be useful for determining status of the switch related to video configuration and operation.

**Table 4-1 Cisco Catalyst Switch Show Commands**

Show Command	Description
<b>show interface asi <i>interface</i> video</b>	View information about a single QAM channel routed to the output ASI interface: <ul style="list-style-type: none"> <li>• Port status</li> <li>• QAM channel routed to the ASI interface</li> <li>• Program details (if available).</li> </ul>
<b>show interface qam <i>interface</i> video</b>	View video information about both channels on an output QAM interface: <ul style="list-style-type: none"> <li>• Number of active QAMs and QAM status (up/down)</li> <li>• QAM modulator group number</li> <li>• TSID, NIT PID, and PSI interface values</li> <li>• Upconverter frequency and power, and QAM modulation type</li> <li>• Port error status</li> </ul>
<b>show interface qam <i>interface.qam</i> video</b>	View video information about a single QAM channel: <ul style="list-style-type: none"> <li>• Number of programs and active sessions</li> <li>• TSID and NIT-PID information</li> <li>• Packets per second and bit rate through the channel</li> <li>• Active trick modes</li> <li>• Video and audio format for each session</li> <li>• QAM error status (such as oversubscribed, underflow)</li> </ul>
<b>show interface qam <i>interface.qam</i> video portmap</b>	View information about the UDP portmaps on an output QAM interface: <ul style="list-style-type: none"> <li>• UDP port number, in decimal and hexadecimal</li> <li>• Output program number</li> </ul>

Table 4-1 Cisco Catalyst Switch Show Commands (continued)

Show Command	Description
<b>show video slot</b>	View information related to the modulator groups, including frequency and power: <ul style="list-style-type: none"> <li>• Active modulator groups</li> <li>• Upconverter frequency and power for each channel</li> </ul>
<b>show video slot psi session</b>	View program-specific information (PSI) related to the input for a selected Cisco uMG9850: <ul style="list-style-type: none"> <li>• UDP port number and session status</li> <li>• PSI parameters</li> <li>• Source program</li> <li>• Streams and stream types</li> </ul>
<b>show video slot route</b>	View video route information related to the input for a selected Cisco uMG9850: <ul style="list-style-type: none"> <li>• VLAN number and ip-address</li> </ul>
<b>show video slot session</b>	View a variety of video details related to sessions for a selected Cisco uMG9850: <ul style="list-style-type: none"> <li>• For all sessions: <ul style="list-style-type: none"> <li>– All session information</li> <li>– Input errors</li> <li>– CC errors</li> <li>– Sync loss</li> <li>– Sender information (source IP address and UDP for each session)</li> </ul> </li> <li>• For a specified session: <ul style="list-style-type: none"> <li>– Session start time</li> <li>– Source IP address</li> <li>– Input CC errors</li> <li>– Jitter (peak, average)</li> <li>– Source data rate</li> </ul> </li> </ul>
<b>show video slot ts_table</b>	View the transport stream ID (TSID) table for each QAM channel for a selected Cisco uMG9850: <ul style="list-style-type: none"> <li>• TSID for each QAM channel</li> </ul>
<b>show video slot version</b>	View software and hardware version information for a selected Cisco uMG9850: <ul style="list-style-type: none"> <li>• Hardware details</li> <li>• Software details</li> </ul>
<b>show { running-config   startup-config }</b>	View running configuration or startup configuration for the device.

## Cisco uMG9820 QAM Gateway

Table 4-2 describes common **show** commands for the Cisco uMG9820 QAM Gateway that can be useful for determining configuration and status of the uMG9820.

**Table 4-2 Cisco uMG9820 QAM Gateway Show Commands**

Show Command	Description
<b>show interface asi</b> <i>slot/port</i>	View interface statistics for the ASI port: <ul style="list-style-type: none"> <li>• Port status</li> <li>• Input packets</li> <li>• Input bytes</li> </ul>
<b>show interface gigabitethernet</b> <i>slot/port</i>	View packet and buffer statistics for the specified GE port: <ul style="list-style-type: none"> <li>• Port status</li> <li>• Hardware address</li> <li>• MTU</li> <li>• Bandwidth</li> <li>• Encapsulation</li> <li>• Duplex</li> <li>• Flow control status</li> <li>• ARP type</li> <li>• Input and output rate</li> </ul>
<b>show ip interface gigabitethernet</b> <i>slot/port</i>	View the status of the specified GE port: <ul style="list-style-type: none"> <li>• Link status (up or down)</li> <li>• Packet and buffer counters</li> </ul>
<b>show interface gigabitethernet</b> <i>slot/port video</i> [ <b>session</b> <i>UDP-port-number</i> ]	View all session information: <ul style="list-style-type: none"> <li>• User-defined session parameters</li> <li>• Session status (inactive, active, invalid program specific information (PSI))</li> <li>• Jitter buffer status (underflow and overflow count) and average fullness</li> <li>• Continuity count errors</li> </ul>
<b>show interface gigabitethernet</b> <i>slot/port video psi</i> [ <b>session</b> <i>UDP-port-number</i> ]	View all PSI information: <ul style="list-style-type: none"> <li>• Program number</li> <li>• elementary stream ID</li> <li>• PIDs</li> </ul>
<b>show interface fastethernet</b> <i>slot/port</i>	View statistics for the specified FE port: <ul style="list-style-type: none"> <li>• Packet statistics</li> <li>• Buffer statistics</li> </ul>

Table 4-2 Cisco uMG9820 QAM Gateway Show Commands (continued)

Show Command	Description
<b>show ip interface fastethernet</b> <i>slot/port</i>	View port status: <ul style="list-style-type: none"> <li>• Link status (up or down)</li> <li>• Packet and buffer counters</li> </ul>
<b>show interface qam</b> <i>slot/port.qam</i>	View QAM statistics for a specified QAM channel: <ul style="list-style-type: none"> <li>• Output frequency</li> <li>• Output RF power level</li> <li>• QAM mode</li> <li>• Interleaver depth</li> <li>• Alarm codes</li> </ul>
<b>show interface qam</b> <i>slot/port.qam video</i>	View video program data for a specified QAM channel: <ul style="list-style-type: none"> <li>• Transport stream ID (TSID) and NIT PID</li> <li>• PAT and PMT interval</li> <li>• Bitrate through this QAM</li> <li>• PSI data for each program</li> </ul>
<b>show video session</b> { <b>active</b>   <b>all</b> <i>UDP-port-number</i> }	View video session information for all active sessions, for all sessions (active and inactive) or a specified UDP session: <ul style="list-style-type: none"> <li>• State</li> <li>• Source IP</li> <li>• Destination UDP</li> <li>• Maps to QAM</li> </ul>
<b>show</b> { <b>running-config</b>   <b>startup-config</b> }	View running configuration or startup configuration for the device.
<b>show env temperature</b>	View environmental statistics related to temperature <ul style="list-style-type: none"> <li>• PCB temperature</li> <li>• CPU temperature</li> <li>• GE temperature</li> <li>• Midplane temperature</li> <li>• PCR FPGA temperature</li> </ul>
<b>show env fan</b>	View environmental statistics related to the fan: <ul style="list-style-type: none"> <li>• RPM for each fan</li> </ul>
<b>show env power</b>	View environmental statistics related to the power: <ul style="list-style-type: none"> <li>• Processor card voltage</li> <li>• CPU voltage</li> <li>• FPGA voltage</li> <li>• Battery voltage</li> </ul>
<b>show env all</b>	View all environmental statistics for temperature, fan, and power.
<b>show env alarms</b>	View environmental alarms (if any).

Table 4-2 Cisco uMG9820 QAM Gateway Show Commands (continued)

Show Command	Description
show version	View software component version numbers.
Show umg9820	View hardware component statistics, including: <ul style="list-style-type: none"> <li>• Hardware revision numbers</li> <li>• System serial numbers, model numbers and part numbers</li> <li>• MAC addresses</li> <li>• Component model numbers, CLEI numbers, serial numbers, and part numbers</li> </ul>

## Configuring the ASI Port for QAM Channel Routing

Using the Asynchronous serial interface (ASI) port, you can set or change the gap spacing of data bytes in the ASI port output and route the input of a single QAM channel to the ASI port to monitor the channel.


**Note**

Routing the input of a QAM channel to the ASI port does not disrupt the RF output.

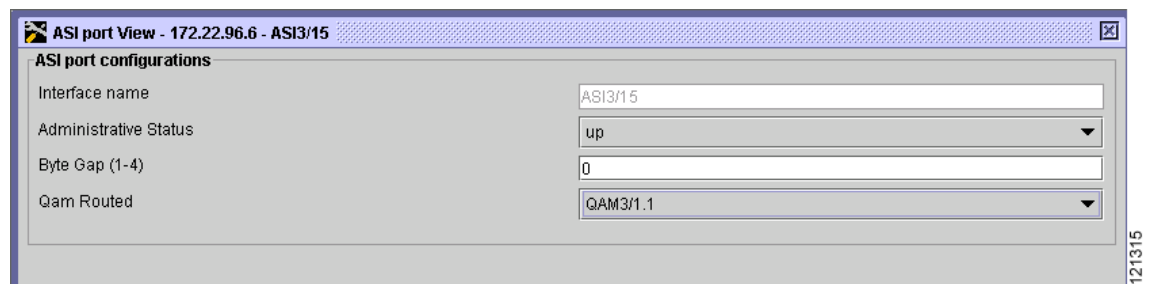
## Setting the Byte-Gap Value (S-Rate) of the ASI Port

(Cisco Catalyst switches only) You can change the gap spacing of the data bytes in the output of the ASI port. The S-rate is the spacing of data bytes (the number of ASI transport null bytes between the data bytes) within the output transport stream. If there is not a sufficient number of data bytes in the stream, padding the stream with null bytes maintains the signal voltage and integrity.

To set byte gap:

- Step 1** Go to ASI Port View. (See [Figure 4-7](#).)

**Figure 4-7** Setting the Byte-Gap Value



- Step 2** Enter a value for byte gap.



- Step 3** Click **Apply** to save all changes and keep the window open. Click **OK** to save the changes and close the window. Click **Cancel** to close the window without any changes.

## Routing the Output of a QAM Channel to the ASI Port

You can route the output of a QAM channel (a single program) to the asynchronous serial interface (ASI) port (in ASI signaling format), to monitor the output of the channel. Use a video decoder to view the selected program.



**Note** For Cisco uMG9850 QAM modules, the ASI port is always addressed as *slot/15*.

To configure this parameter:

- Step 1** Go to ASI Port View (see [Figure 4-7](#)).
- Step 2** In the QAM Routed menu, choose the QAM whose output you want directed to the ASI port.
- Step 3** Click **Apply** to save all changes and keep the window open. Click **OK** to save the changes and close the window. Click **Cancel** to close the window without any changes.

## Notification History Table

### Setting and Monitoring Utilization Thresholds

It is possible that a given QAM channel can be either overwhelmed or underutilized. To monitor and correct for this, you can set both minimum and maximum bandwidth-utilization thresholds for video streams over a QAM channel. If the percentage of QAM bandwidth being used is below the value for the low utilization threshold, then the QAM channel is being underutilized. If the percentage of QAM bandwidth being used is above the value for high utilization threshold, then the QAM channel is being overutilized.



**Note** The high utilization threshold must be greater than the low utilization threshold.

To specify the high and low utilization thresholds for video streams, do the following:

- Step 1** Go to QAM Channel Configuration View, Utilization section (see [Figure 4-8](#)).

**Figure 4-8 Low and High Threshold Utilization Settings**

Utilization	
Bandwidth Utilization (%)	123
Low Utilization Threshold (0-95)%	0
High Utilization Threshold (5-95)%	75

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Notification History Table

- Step 2** Set the Low Utilization Threshold. The range of values is 0 to 95%. The default value is 0%.
- Step 3** Set the high Utilization Threshold. The range of values is 5 to 95%. The default value is 75%.
- Step 4** Click **Apply** to save all changes and keep the window open. Click **OK** to close the window and save all changes. Click **Cancel** to close the window and discard all changes.

If the percentage of QAM bandwidth being used drops below the low threshold or climbs above the high threshold, an entry appears in the Notification History table (see Figure 4-9).

Figure 4-9 Notification History Table

Notification History - 172.22.96.6

Notification Details : Showing 1 to 25 of 86

Entity name	Message	Time since reload	Status
Linecard(slot 3)	The video session 49194 has invalid PSI data	10 hr(s) 47 min(s) 33 sec(s) sinc...	warning
Linecard(slot 3)	The video session 49232 has invalid PSI data	10 hr(s) 47 min(s) 33 sec(s) sinc...	warning
Linecard(slot 3)	The video session 49229 has invalid PSI data	10 hr(s) 47 min(s) 33 sec(s) sinc...	warning
Linecard(slot 3)	The video session 49272 has invalid PSI data	10 hr(s) 47 min(s) 33 sec(s) sinc...	warning
QAM3/6.1	Utilization has gone above the higher threshold value	0 hr(s) 2 min(s) 35 sec(s) since s...	warning
QAM3/6.2	Utilization has gone above the higher threshold value	0 hr(s) 2 min(s) 35 sec(s) since s...	warning
QAM3/12.1	Utilization has gone above the higher threshold value	0 hr(s) 2 min(s) 35 sec(s) since s...	warning
QAM3/12.2	Utilization has gone above the higher threshold value	0 hr(s) 2 min(s) 35 sec(s) since s...	warning
QAM3/1.1	Utilization has gone above the higher threshold value	0 hr(s) 2 min(s) 51 sec(s) since s...	warning
QAM3/1.2	Utilization has gone above the higher threshold value	0 hr(s) 2 min(s) 51 sec(s) since s...	warning
QAM3/2.1	Utilization has gone above the higher threshold value	0 hr(s) 2 min(s) 51 sec(s) since s...	warning
QAM3/2.2	Utilization has gone above the higher threshold value	0 hr(s) 2 min(s) 51 sec(s) since s...	warning
QAM3/3.1	Utilization has gone above the higher threshold value	0 hr(s) 2 min(s) 51 sec(s) since s...	warning
QAM3/3.2	Utilization has gone above the higher threshold value	0 hr(s) 2 min(s) 51 sec(s) since s...	warning
QAM3/4.1	Utilization has gone above the higher threshold value	0 hr(s) 2 min(s) 51 sec(s) since s...	warning
QAM3/4.2	Utilization has gone above the higher threshold value	0 hr(s) 2 min(s) 51 sec(s) since s...	warning
QAM3/5.1	Utilization has gone above the higher threshold value	0 hr(s) 2 min(s) 51 sec(s) since s...	warning
QAM3/5.2	Utilization has gone above the higher threshold value	0 hr(s) 2 min(s) 51 sec(s) since s...	warning
QAM3/7.1	Utilization has gone above the higher threshold value	0 hr(s) 2 min(s) 51 sec(s) since s...	warning
QAM3/7.2	Utilization has gone above the higher threshold value	0 hr(s) 2 min(s) 51 sec(s) since s...	warning
QAM3/8.1	Utilization has gone above the higher threshold value	0 hr(s) 2 min(s) 51 sec(s) since s...	warning
QAM3/8.2	Utilization has gone above the higher threshold value	0 hr(s) 2 min(s) 51 sec(s) since s...	warning
QAM3/9.1	Utilization has gone above the higher threshold value	0 hr(s) 2 min(s) 51 sec(s) since s...	warning
QAM3/9.2	Utilization has gone above the higher threshold value	0 hr(s) 2 min(s) 51 sec(s) since s...	warning
QAM3/10.1	Utilization has gone above the higher threshold value	0 hr(s) 2 min(s) 51 sec(s) since s...	warning

Buttons: Previous, Next, Cancel, Help

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## Warning Messages in Notification History Table

**Error Message** The video session *nnnn* has invalid PSI data

**Explanation** Data arriving at a VoD-enabled port does not conform to standard MPEG data. MPEG data must have PSI tables embedded within it for a receiver to correctly map the contents.

**Error Message** Utilization has gone above the higher threshold value

**Explanation** The QAM channel is being overutilized.

**Error Message** Utilization has fallen below the lower threshold value.

**Explanation** The QAM channel is being underutilized.

**Recommended Action** TBD

## Application Display Messages

**Cisco QAM Gateway Manager is already running.**

You have launched more than one instance of the application. Ensure that all but one instance has been closed.

**Apply changes?**

Configuration changes have been made. Do you want to copy them to the running configuration?

**Configuration successful.**

The configuration has been copied to the running configuration of the device.

**Configuration loaded to device at *ip-address* from TFTP server *tftp-server-ip-address*.**

The configuration from the specified TFTP server has successfully loaded to the device at the specified IP address.

**Startup configuration of device at *ip-address* saved to TFTP server *ip-address*.**

The startup configuration of the specified device was successfully saved to the specified TFTP server.

**Running configuration of device at *ip-address* saved.**

The running configuration of the specified device was successfully saved to a TFTP server.

**Running configuration saved to startup configuration for device at *ip-address*.**

The running configuration of the specified device was successfully saved to the device's startup configuration.

**Too many views open. Please close unneeded views.**

The maximum number of simultaneously open views has been reached. In order to open additional views, some of the currently unneeded views must be closed.

**Number of active sessions in device at *ip-address* has changed. Sessions will be rediscovered.**

The number of active sessions has changed in the device at the specified address. The sessions will be re-evaluated.

**Enter value between *lower value* and *upper value*.**

An out of range value has been entered. Enter a new value between these two.

**SNMP error occurred while configuring parameter on device at *ip-address*. Reason: *reason***

An SNMP error has occurred during configuration. Possible reasons are:

- Request timed out.
- SNMP response exceeds size limitation.
- Variable name not found in MIB.
- MIB object/instance is read-only.
- Object value cannot be retrieved.
- Invalid community string or access credentials.
- Value/type mismatch.
- Value length exceeded.
- Wrong encoding for object.
- Value not compatible with MIB.
- Trying to create or set a nonexistent variable.
- MIB variable may be in inconsistent state, not accepting set requests.
- System resources unavailable for set/get operations.
- Set commit has failed.
- Set operation has failed, agent unable to roll back.
- SNMP command cannot be authenticated, or incorrect community string found.
- MIB object not responding to set operations: read-only access or incorrect community string.
- Set operation failed: variable in inconsistent state.

**SNMP Error: Unknown host.**

The host is not recognized.

**Select Cisco QAM Gateway Manager or QAM gateway from navigation tree.**

Attempting to configure SNMP parameters, but neither the root (Cisco QAM Gateway Manager) nor a device is selected in the navigation tree. Select the root to configure polling interval or the device to configure SNMP parameters IP address and community string.

**Invalid IP address/ host name or community string.**

Device is being added and Cisco QAM Gateway Manager cannot make an SNMP query to the device.

**Select a QAM gateway from the navigation tree.**

**View > Chassis** was chosen before a device was selected in the navigation tree.

**Select a uMG9850 slot or a uMG9820 QAM card slot.**

**View > Slot** or **View > Sessions** was chosen before a slot was selected in the navigation tree.

**All Sessions view not supported for uMG9820.**

**View > All Sessions** is chosen for the uMG9820 slot. Either select **View > Sessions**, or select a uMG9850 slot.

**Select a device.**

**File > Load Configuration** or **File > Save Configuration** was chosen before a device was selected in the navigation tree.

**Unable to load configuration from TFTP server at *ip-address*. Please enter file name.**

There was an error while loading a configuration from the TFTP server. File name is required.

**Unknown error occurred while refreshing device at *ip-address*. Continue refreshing?**

An undetermined error occurred while refreshing the named device. Do you want to keep trying to refresh this device?

**Device at *ip-address* inaccessible. Continue refreshing?**

A device in the history file is not accessible, or the device is not reachable during a refresh. Do you want to keep trying to refresh this device?

**Device at *ip-address* has timed out. Continue refreshing?**

The device has timed out during a refresh. Do you want to keep trying to refresh this device?

**ASI byte-gap value out of range.**

The value entered is out of range. Enter a value from 1 to 4.

**VLANs not applicable to uMG9820.**

Configure VLAN has been chosen while a uMG9820 is selected in the navigation tree. VLANs only can be configured for Cisco Catalyst switches.

**Select a Cisco Catalyst switch in navigation tree.**

This function requires selection of a Cisco Catalyst Switch.

**uMG9850 is in emulation mode; sessions cannot be mapped.**

The uMG9850 is running in emulation mode. Video sessions mapping cannot be done in emulation mode.

