Release Notes for Cisco uMG9820 QAM Gateway, Release 1.3

April 14, 2004

These release notes described the features and hardware and software requirements for Release 1.3 of the Cisco uMG9820 QAM Gateway.

These release notes include the following topics:

Tip   Use this document online. This document provides hyperlinks to related documents and websites.

Document History

| Document Version	Date	Notes
1	02/25/2004	This document was first published for Release 1.0.
2	04/14/2004	This document was updated to include Release 1.3 information.

CISCO SYSTEMS

Product Description

The Cisco uMG9820 QAM Gateway receives MPEG-2 Single Program Transport Streams (SPTSs) encapsulated in UDP/IP datagrams over Gigabit Ethernet (GE). The MPEG-2 SPTS packets are processed and remultiplexing into MPEG-2 Multi Program Transport Streams (MPTSs). The MPTS packets are in turn routed to QAM/RF cards for distribution over the CATV network to downstream connected set-top boxes (STB). (See Figure 1.) The QAM cards accept up to four MPTSs, and output up to four QAM-modulated and RF-upconverted signals. The modulation is 256QAM; there are two RF ports per QAM card, and two QAM channels per port.

Figure 1   Typical VOD Network using the Cisco uMG9820 QAM Gateway
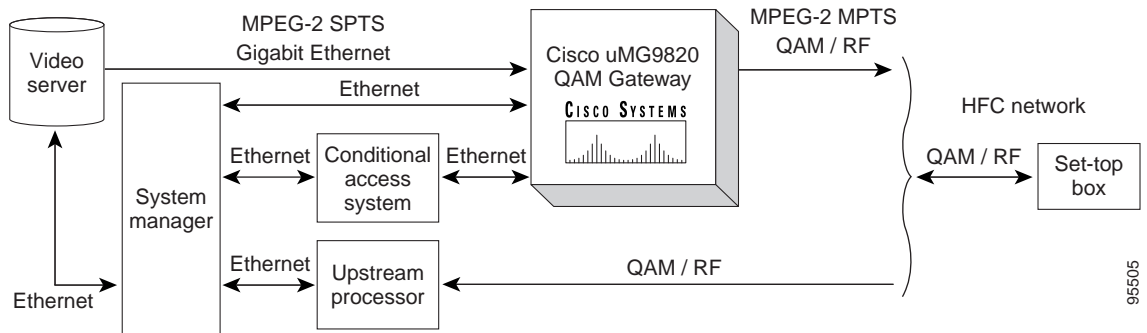
The Cisco uMG9820 incorporates a number of standard network protocols for management and control, including SNMP for management and configuration, TFTP for firmware upgrades, DHCP for dynamic address assignment, and Telnet for command-line configuration options.

System Requirements

This section describes system requirements for the Cisco uMG9820 QAM Gateway, Release 1.3.

Hardware Supported

Table 1 shows hardware compatible with the Cisco uMG9820 QAM Gateway.

Table 1 Hardware Compatibility

	Product Number	Description	Notes
Cisco uMG9820 QAM Gateway	uMG9820-SYS-AC	Minimum Configuration	• 2 QAM cards • 1 processor card • 2 power supplies • 1 chassis
QAM Card	uMG9820-QC42B	Cisco uMG9820 QAM Gateway QAM Card	2 additional QAM cards can be added to the minimum configuration.
	uMG9820-QC42B=	Cisco uMG9820 QAM Gateway QAM Card (spare)	
Processor Card	uMG9820-PROC=	Cisco uMG9820 QAM Gateway Processor Card (spare)	
Power Supply	PWR-uMG9820-AC=	Cisco uMG9820 QAM Gateway Power Supply (spare)	
Fan Assembly	uMG9820-FAN=	Cisco uMG9820 QAM Gateway Fan Assembly (spare)	
SFPs	GLC-SX-MM=	1000BASE-SX SFP	
	GLC-LX-SM=	1000BASE-LX SFP	
	CWDM-SFP-XXXX=	Cisco CWDM SFP	XXXX=wavelength

Software Supported

The Cisco uMG9820 QAM Gateway now supports software version 1.3. The image for this release is posted on Cisco.com at the following URL:

http://www.cisco.com/cgi-bin/tablebuild.pl/umg9820

Determining the Software Version

To determine the version of software running on a Cisco uMG9820, log in to the QAM Gateway and enter the **show version** EXEC command:

```
umg9820> show version

Shell v1.3
Compiled 30-Mar-04 17:53 by root on beren 2.4.18-3 unknown
```

New and Changed Information

This section describes new or changed information in Release 1.3.

Emulation Mode

With this release, the user can emulate the UDP port mapping and IP address assignment of already-installed third-party QAM gateways. This emulation also applies to the UDP port mapping scheme used by the Cisco uMG9850 QAM Module.

Conditions

Note the following conditions:

- The Cisco uMG9820 QAM Gateway has two emulation modes: default (normal) and bitwise. Each mode is mutually exclusive.
- Before emulation modes are changed, all preexisting mapping must be removed.
- Before emulation modes are changed, the GE port must also be shut down momentarily.

Default/Normal Operation

In the default emulation mode, the Cisco uMG9820 operates with a single IP address assigned to the GE port. The UDP mapping scheme is as described in the *Cisco uMG9820 QAM Gateway Installation and Configuration Guide*, at the following URL:

http://www.cisco.com/univercd/cc/td/doc/product/cable/vod/umg9820/9820icg/index.htm

Bitwise Emulation

When this mode is enabled by the interface command **video emulation-mode bitwise**, the Cisco uMG9820 can emulate up to three eight-channel QAM groups supported by third-party gateways, and respond to up to three IP addresses. All addresses share the same MAC address. The addresses are assigned sequentially, starting with the user-defined address assigned to the GE port. For example, if the GE port is assigned address 192.168.0.2, and **number-ip-address** is set to 3, the remaining two QAM gateways are automatically assigned 192.168.0.3 and 192.168.0.4, respectively — one for each eight-channel group, as shown in Table 2. Although there are three input IP addresses, only the first address receives video streams.

Table 2   IP Addresses and QAM Assignments for Eight-Channel QAM Groups

Number of 8-QAM Groups	IP Address	QAM Assignment
1	1	1–8
2	2	9–16
3	3	17–24

Each QAM gateway includes eight channels per QAM group, and all channels within each group use adjacent interface numbers. However, it is not necessary for the QAM channels within a group to be adjacent in frequency. (See the *Cisco uMG9820 QAM Gateway Installation and Configuration Guide* for hardware restrictions.) All QAM groups use the same UDP port map.

The port map uses the low byte of the UDP port number to indicate the output program number. The high byte of the UDP port number is used as a bit mask to indicate the desired output QAM channel. Each bit maps to a specific QAM channel within the QAM group, referenced by the corresponding IP address. Table 3 illustrates the bit mapping scheme.

Table 3   Mapping Scheme for UDP Port Numbers

Bit	7	6	5	4	3	2	1	0
QAM Channel	8	7	6	5	4	3	2	1

Note the following restrictions:

- In emulation mode, the manual mapping of UDP ports to QAM channels is not permitted.

- The Cisco uMG9820 does not support the setting of multiple bits in the high byte of the UDP port number. If multiple bits are detected, only one of the valid output QAM channels is mapped.

- This version does not support session cloning to multiple QAM channels. Only one bit in the high byte of the UDP port can be set.

Configuration Examples

The syntax of the command is as follows:

[no] video emulation-mode bitwise [number-ip-address *number* **]**

where **number-ip-address** enables the selection of the number of IP addresses to assign, and *number* is 1, 2, or 3.

Examples

The following shows how to enter bitwise emulation mode and assign three IP addresses to Gigabit Ethernet interface 0/1:

```
uMG9820# conf t
uMH9820(config)# int g 0/1
uMH9820(config-if)# video emulation-mode bitwise number-ip-address 3
```

By default, the number of IP addresses assigned in emulation mode is three. The following shows how to assign three IP interfaces automatically:

```
uMH9820(config-if)# video emulation-mode bitwise
```

To return to default UDP port mapping, use the **no** form of this command:

```
uMH9820(config-if)# no video emulation-mode
```

New MIBs

There are no new MIBs in this release.

Limitations and Restrictions

This section lists limitations or restrictions on the functionality of this release.

Gigabit Ethernet and Fast Ethernet Ports

- GE ports do not respond to a request to start a Telnet session. However, the Fast Ethernet (FE) network management system (NMS) port, Fast Ethernet 0/1, is fully functional and will respond.

- Subnetting is not currently supported on GE and FE interfaces.

CAS (Conditional Access System)

The CAS port (FastEthernet 0/2) is not fully functional. It only supports only pings and ARP requests.

Ping Packet Size and Buffer Size

When issuing a ping command from Microsoft Windows to the Cisco uMG9820 GE port, the total packet size must be 64 bytes or less. Ensure that the payload size is approximately 10, by setting the buffer length to 10. For example,

```
ping -l 10 192.168.1.30
```

where the -l option specifies the length of the buffer that should be used.

Caveats

The following are the key caveats for the Cisco uMG9820 QAM Gateway. Workarounds are provided where applicable.

Open Caveats

This section describes possible unexpected behavior by Software Release 1.3 of the Cisco uMG9820.

- CSCec12631

  It is not possible to set the severity of messages logged to the console.

- CSCec51044

  The user can set the logging severity level, but the result of the command is not displayed in the running configuration and is therefore not remembered following a power cycle.

- CSCec54541

  SNMP: When the CLI is used to set the "systemName" parameter, the hostname is not updated.

- CSCec57857

  SNMP: After the trap configuration is changed to version 1, the Cisco uMG9820 still reports version 2c traps until the system is reloaded.

- CSCec57963

  SNMP: The RFC 1213 interface index entry "ifLastChange" currently is not supported.

- CSCec57973

  SNMP: The RFC 1213 interface index entry "ifInUnknownprotos"currently is not supported.

- CSCec61294

  Network jitter above 70 milliseconds causes audio/video anomalies.

- CSCec84636, CSCec87430

  In VoD trick mode, the audio may be garbled for the first 5–10 seconds when a stream starts. It may also be garbled for 5–10 seconds after returning to normal play mode from pause, fast-forward, and rewind.

- CSCed01156

  The inactive timeout is used to indicate that no IP packets for a given session have been received for the timeout period (the default is 100 milliseconds). This is the first timeout that occurs when IP packets for a session are stopped. This timeout currently is not configurable by the user.

- CSCed01480

  TSID numbers are limited to the range 1–32767. The range should be 1–65535. The TSID is a two-byte unsigned integer that uniquely identifies an MPEG-2 transport stream. It is included in the PAT (program association table).

- CSCed53967

  When dropping an incoming audio stream using the **video udp** command, the correct stream is dropped, but one of the remaining stream types is changed in the output PMT. This causes the stream to fail to be decoded.

- CSCed68004

  After being changed, the telnet login password is not displayed in the running-configuration file.

- CSCed74690

  Under some circumstances, the message "QAM 1 oversubscription" is displayed in error.

- CSCed75433

  When a user-defined UDP port is removed from the QAM interface, the output video is not stopped until the chassis is reloaded.

- CSCed75469

  No valid power range is shown in the command description for the **video power** subinterface configuration command.

- CSCed75495

  Bitwise mode configuration does not display completely in the running-configuration file. For example, if you configure your Cisco uMG9820 as "video emulation bitwise number-ip-address 3," the running configuration shows it only as "video emulation-mode bitwise."

- CSCed76018

  GE and FE interfaces are listed twice in configuration files. GE and FE configuration commands are divided between both instances. However, while cosmetically incorrect, this does not affect operation. All the configuration commands for the GE and FE ports are listed in the configuration files before the QAM interface configurations are listed.

- CSCed76020

  The current maximum network jitter limit is not stored in the running configuration, and is therefore not remembered following a power cycle. The default is 100 milliseconds. If network jitter for the specified session exceeds this limit, an error message is generated. To see this limit, use the command **show int g0/1 video**.

- CSCed79795

  In VoD trick mode, occasionally when a video stream is resumed after a rewind, the stream will have a large number of PCR errors, and no audio will be played on the Motorola DCT2000. Also, occasionally during trick mode, video is not displayed on some monitors.

- CSCed79828

  Counters for "Continuity Errors," "Jitter Underflow," and "Jitter Overflow," as displayed by the command **show int g0/1 video session** *UDP_port_number*, are not operational.

- CSCed86041

  When the command **video udp** is used and the least significant bit of the port and the program number are the same, the command is not reflected in the configuration file. However, the QAM channel to which the command is applied is reflected. This means if the Cisco uMG9820 is reloaded (rebooted) because of a power failure or intentionally, the port mapping is lost.

  However, if the streams are started after the commands are entered, the ports are mapped correctly, even though this is not displayed in the configuration file.

- CSCed86783

  Each time the command **video udp** *UDP-port number* is used, two lines are added to the running-configuration file. The first line reflects the QAM channel slot and port, while the second is the actual command.

- CSCed96158

  For maximum compatibility with older models of the Motorola DCT2000, the default interleaver mode should be 128,4.

- CSCee18522

  When VoD trick mode is used, audio is dropped when exiting from fast-forward or fast-reverse to a normal play mode.

- CSCee18531

  When VoD trick mode is used, and the video stream is in fast-forward mode, the video flips twice within 2 seconds, then once between 5 and 10 seconds after that.

- CSCee18577

  When **no video udp** *UDP-port-number* is used to remove the mapping of a UDP port, an incorrect confirmation message is displayed. This does not affect the proper completion of the command.

- CSCee23523

  The picture flips once vertically when entering or exiting VoD trick mode (fast-forward, rewind, or pause).

- CSCee23535

  When VoD trick mode is used (fast-forward and fast-rewind), the picture flips sideways to the right between 2 and 4 times a minute.

- CSCee23639

    When using an SDTV stream, after an access list is disabled, the picture flips vertically about 2 seconds after the stream starts.

Resolved Caveats

This section lists caveats resolved in Release 1.3.

- CSCec12620

    Currently, it is not possible to copy a configuration file directly into the startup config from a TFTP server. The following message appears:

    ```
    % Importing to startup-config not supported.
     % Try importing to running-config and then copying
     % running-config to startup-config.
    ```

- CSCec55016

    Alarms indicating link loss on Gigabit Ethernet 2 are not reported to the command line.

- CSCec55019

    Following a short (about one second) loss of a link on Gigabit Ethernet 1, it takes about 30 seconds to recover.

- CSCec84570

    The MPEG analyzer indicates that each audio stream in a program is missing a packet when the stream starts. These continuity count errors occur within the first second only.

- CSCed01458

    The current configuration of the session timeouts ("inactive," "active," and "queued") is not stored in the running configuration, and is therefore not remembered following a power cycle. To see these timeouts, use the command **show int g0/1 video psi**.

- CSCed15566

    When using a Kasenna VoD server, a QAM channel is oversubscribed with only 10 3.7224 Mbps streams. The maximum bandwidth for 256QAM is limited to 37.6 Mbps in the Cisco uMG9820 QAM Gateway. The bursty streams from a Kasenna server cause an error in the bit-rate calculation, which results in a "QAM is oversubscribed" error. If a Kasenna server is used, do not use more than nine 3.75-Mbps streams per QAM channel.

- CSCed29522

    When the **enable password** command is used, a password does not appear in the running configuration, and a password is not required to enter enable mode.

- CSCed66558

    Currently, UDP port mapping is constrained to the default UDP port mapping.

- CSCed72975

    When using the TAB key to complete **running-config** or **startup-config** in a **copy** command, the TAB key does not autocomplete the name of the first configuration file. This does not affect normal operation.

- CSCed79801

    On some monitors, when a session starts up (either initially or following a link failure), the video loses color or colors shift for the first 10–15 seconds. This does not happen with all video monitors.

Related Documentation

Platform-Specific Documents

Following are documents containing information specific to the Cisco uMG9820 QAM Gateway. You can access the URLs listed for each document on Cisco.com on the World Wide Web.

- *Quick Start Guide—Rack-Mounting the Cisco uMG9820 QAM Gateway*

  http://www.cisco.com/univercd/cc/td/doc/product/cable/vod/umg9820/9820rkmt.htm

- *Cisco uMG9820 QAM Gateway Installation and Configuration Guide*

  http://www.cisco.com/univercd/cc/td/doc/product/cable/vod/umg9820/9820icg/index.htm

- *Cisco uMG9820 QAM Gateway Regulatory Compliance and Safety Information*

  http://www.cisco.com/univercd/cc/td/doc/product/cable/vod/umg9820/9820rcsi.htm

- *Removing and Replacing a Processor Card in the Cisco uMG9820 QAM Gateway*

  http://www.cisco.com/univercd/cc/td/doc/product/cable/vod/umg9820/20profru.htm

- *Removing and Replacing a QAM in the Cisco uMG9820 QAM Gateway*

  http://www.cisco.com/univercd/cc/td/doc/product/cable/vod/umg9820/20qamfru.htm

- *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.htm

- *Removing and Replacing a Power Supply in the Cisco uMG9820 QAM Gateway*

  http://www.cisco.com/univercd/cc/td/doc/product/cable/vod/umg9820/20profru.htm

Solution Documentation

This document, and *Cisco Gigabit-Ethernet Optimized VoD Solution Design and Implementation Guide* are available under Cisco Gigabit-Ethernet Optimized VoD Solution, Release 1.1, at the following URL:

http://www.cisco.com/univercd/cc/td/doc/solution/voodoos/geopt1_1/index.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 on the World Wide Web at this URL:

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

You can access the Cisco website at this URL:

http://www.cisco.com

International Cisco websites can be accessed from this URL:

http://www.cisco.com/public/countries_languages.shtml

Ordering Documentation

You can find instructions for ordering documentation at this URL:

http://www.cisco.com/univercd/cc/td/doc/sunblock/pdi.htm

You can order Cisco documentation in these ways:

- Registered Cisco.com users (Cisco direct customers) can order Cisco product documentation from the Ordering tool:

  http://www.cisco.com/en/US/partner/ordering/index.shtml

- 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).

Documentation Feedback

You can submit e-mail comments about technical documentation to bug-doc@cisco.com.

You can submit comments by using the response card (if present) behind the front cover of your document or by writing to the following address:

Cisco Systems
Attn: Customer Document Ordering
170 West Tasman Drive
San Jose, CA 95134-9883

We appreciate your comments.

Obtaining Technical Assistance

For all customers, partners, resellers, and distributors who hold valid Cisco service contracts, the Cisco Technical Assistance Center (TAC) provides 24-hour-a-day, award-winning technical support services, online and over the phone. Cisco.com features the Cisco TAC website as an online starting point for technical assistance. If you do not hold a valid Cisco service contract, please contact your reseller.

Cisco TAC Website

The Cisco TAC website provides online documents and tools for troubleshooting and resolving technical issues with Cisco products and technologies. The Cisco TAC website is available 24 hours a day, 365 days a year. The Cisco TAC website is located at this URL:

http://www.cisco.com/tac

Accessing all the tools on the Cisco TAC website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a login ID or password, register at this URL:

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

Opening a TAC Case

Using the online TAC Case Open Tool is the fastest way to open P3 and P4 cases. (P3 and P4 cases are those in which your network is minimally impaired or for which you require product information.) After you describe your situation, the TAC Case Open Tool automatically recommends resources for an immediate solution. If your issue is not resolved using the recommended resources, your case will be assigned to a Cisco TAC engineer. The online TAC Case Open Tool is located at this URL:

http://www.cisco.com/tac/caseopen

For P1 or P2 cases (P1 and P2 cases are those in which your production network is down or severely degraded) or if you do not have Internet access, contact Cisco TAC by telephone. Cisco TAC engineers are assigned immediately to P1 and P2 cases to help keep your business operations running smoothly.

To open a case 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 listing of Cisco TAC contacts, go to this URL:

http://www.cisco.com/warp/public/687/Directory/DirTAC.shtml

TAC Case Priority Definitions

To ensure that all cases are reported in a standard format, Cisco has established case priority definitions.

Priority 1 (P1)—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.

Priority 2 (P2)—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.

Priority 3 (P3)—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.

Priority 4 (P4)—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. Go to this URL to visit the company store:

  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/pact/

- *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 online at this URL:

  http://www.ciscopress.com

- *Packet* magazine is the Cisco quarterly publication that provides the latest networking trends, technology breakthroughs, and Cisco products and solutions to help industry professionals get the most from their networking investment. Included are networking deployment and troubleshooting tips, configuration examples, customer case studies, tutorials and training, certification information, and links to numerous in-depth online resources. You can access Packet magazine at this URL:

  http://www.cisco.com/packet

- *iQ Magazine* is the Cisco bimonthly publication that delivers the latest information about Internet business strategies for executives. 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/apt

- Training—Cisco offers world-class networking training. Current offerings in network training are listed at this URL:

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

This document is to be used in conjunction with the documents listed in Related Documentation, page 10.

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