QAM Modulator Software Version 2.3.5

Release Notes and Installation Instructions

Please Read

Important

Please read this entire guide. If this guide provides installation or operation instructions, give particular attention to all safety statements included in this guide.

Notices

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Contents

Preface

About This Guide

Introduction

This document provides the following information:

- Instructions for upgrading the Model D9476 Quadrature Amplitude Modulation (QAM) Modulator with QAM software version 2.3.5
- A brief description of benefits the software provides
- Instructions for rolling back to earlier versions of QAM software in the unlikely event that a site encounters problems after upgrading to QAM software version 2.3.5

Purpose

This document enables system operators to perform the following tasks:

- Upgrade the Model D9476 QAM Modulator with QAM software version 2.3.5.
- Roll back to earlier versions of QAM software in the unlikely event that a site encounters problems after upgrading the software.

Audience

This document is written for the following audiences:

- System administrators of the Digital Broadband Delivery System (DBDS)
- Operators of the Digital Network Control System (DNCS)
- Cisco's on-site and field service engineers who support sites that use Cisco or other resident applications

Scope

This document provides instructions for upgrading the Model D9476 QAM Modulator with QAM software version 2.3.5. It does not provide instructions for installing a QAM modulator in your headend.

Note: For instructions on installing a QAM modulator in your headend or for a complete description of QAM features, refer to *QAM Modulator Model D9476 Installation and Operation Guide*. For the part number for this document, see **Related Publications**, next in this Preface.

Related Publications

You may find the following publications useful as you implement the procedures in this document. The publish dates for these documents are valid as of this printing. However, some of these documents may have since been revised.

- *Digital Network Control System Online Help (PC) Version 3.5.0.3* (part number 4002881)
- *SR 2.2 /SR 3.2 Service Pack 3 Release Notes and Installation Instructions* (part number 4001702)
- *System Release 2.5 Release Notes* (part number 749253)
- *System Release 3.5 Release Notes* (part number 4001159)
- *DBDS Utilities Installation Instructions and DNCS Utilities User's Guide* (part number 740020)
- *Tearing Down Sessions Before Deleting a QAM or an MQAM Modulator Technical Bulletin* (part number 749641)
- *QAM Modulator Model D9476 Installation and Operation Guide* (part number 568251)

***** The *Digital Network Control System Online Help (UNIX) Version 3.5.0.0 for System Release 2.5/3.5* should already be installed on your DNCS. The PC version is a separate CD that allows you to view the same online Help on a PC separate from the DNCS workstation.

Document Version

This is the second release of this document.

Chapter 1
Introducing QAM Software Version 2.3.5

Overview

Introduction

This chapter lists the requirements for upgrading the Model D9476 QAM Modulator with QAM software version 2.3.5. In addition, this chapter lists the change requests (CRs) implemented in this release.

In This Chapter

This chapter contains the following topics.

About QAM Software Version 2.3.5

Introduction

QAM software version 2.3.5 is designed to be installed on a QAM modulator. After the software is installed and the modulator is active, it provides additional support for sites that deploy video-on-demand (VOD), *anything*-on-demand (xOD), and other interactive broadcast services.

Note: For a complete description of the QAM modulator, refer to the *QAM Modulator Model D9476Installation and Operation Guide.*

This section includes the system release configuration, application platform release dependencies, software requirements, and hardware requirements for installing QAM software version 2.3.5. This section also includes the CRs implemented in this release of QAM software.

System Release Compatibility and Prerequisites

Your DNCS *must* be running the required system release version *prior* to installing QAM 2.3.5. Contact Cisco Services to arrange for upgrading your DNCS to the correct version. QAM software version 2.3.5 can be installed on a DBDS that is running the following software release versions:

- System Release (SR) 2.2/SR 3.2 with Service Pack 3 (SP 3)
- SR 2.5/SR 3.5
- SR 4.0

For a complete configuration listing, please contact Cisco Services.

Application Platform Release Dependencies

The following table shows the application platform release dependencies for QAM software version 2.3.5. You must have the correct application platform software installed on your system *prior* to installing QAM software version 2.3.5.

Important: Failure to have the correct application platform software *or later* installed on your system *prior* to installing QAM software version 2.3.5 can result in video freezing and black screens when using VOD or xOD applications.

Set-top Platform	Operating System (OS)	SARA	PowerKEY Version
Explorer® 8300 DVR v. 1.2.6a25g	OS 6.8.9.4	1.85.17.3	3.7.5
Explorer 8300 DVR v. 1.3.1a10	OS 6.14.5	1.87.3.1	3.7.5
Explorer 8000/8010 DVR v. 1.3.1a10	OS 6.12.5	1.87.3.1	3.7.5
Explorer 3250HD MR4 P1	OS 3.12.8.1	1.57.8.1	3.7.5
Epoch 2xxx, 31xx, 3200, 3100HD	OS 3.10.9	1.54.23.1	1.0.6.20 (Explorer 2000s) 1.0.7 (all others)
Pace	Pace to provide OS build	N/A	2.0.4.11
Pioneer	Pioneer to provide OS build	N/A	2.0.4.11

Software

QAM software version 2.3.5 includes the following codes:

- QAM Host Application code 2.3.5
- QAM Host Boot code 2.1.0

Hardware

QAM software version 2.3.5 supports only the Model D9476 QAM Modulator.

When to Perform the Upgrade

To reduce the impact of service interruptions, perform the upgrade during a scheduled maintenance window.

Implemented Change Requests for QAM Software Version 2.3.5

Introduction

The following matrix lists the implemented change requests (CRs) addressed by QAM software version 2.3.5. Additionally, this matrix lists the following attributes associated with the implemented CRs:

- The CR number
- A brief description of the CR appears in the Subscriber column if the subscriber is affected by the CR
- A brief description of the CR appears in the Cable Service Provider column if the cable service provider is affected by the CR
- The process most affected by the CR

Note: If you would like to review these CRs in more detail, go to **Want to Know More?**, next in this chapter.

Quick Reference Matrix for CRs

CR Number	Subscriber	Cable Service Provider	Process Affected
16953	No impact	Corrected an issue where the QAM would not boot up correctly when set in boot mode 0 or boot mode 1	CAQAM Application
42369	Unable to purchase VOD when using session-based menus	Previously, the conditional access (CA) descriptor was inserted into all video streams. Now the CA descriptor is inserted only into encrypted video streams. This allows the PowerTV® operating system (OS) to correctly detect the encryption status of the stream.	CAQAM Application, PowerTV OS, and PowerKEY®
43519	Temporary loss of services	Corrected a reboot issue that occurred when a QAM received a large number of entitlement control message (ECMs) for an encrypted session	CAQAM Application
44845	No impact	Corrected a condition where the response to a delivered ECM can be corrupted	CAQAM Application

CR Number	Subscriber	Cable Service Provider	Process Affected
44846	No impact	The QAM now correctly recognizes program map table (PMT) updates when the program IDs (PIDs) of a session are changed	CAQAM Application
44847	Unable to view VOD purchases	Corrected an intermittent VOD session creation issue	CAQAM Application and PowerKEY
44850	Temporary loss of services	PMT updates no longer cause a loss of CA buffers which could result in a loss of video or a QAM reboot	CAQAM Application
44851	Temporary loss of services	PMT updates on sessions without ECMs no longer cause QAM reboots or other corruption of the output	CAQAM Application
47328-02	Temporary loss of services	Corrected an issue that caused QAMs to reboot when subscribers performed a large number of pause, fast-forward, and rewind functions using their remote controls	CAQAM Application
47550-02	Black screens on digital channels when using the 1394 port	Program identifiers (PIDs) that are less than 30 are no longer used	CAQAM Application
48330	Temporary loss of services	Updated the software to correct an issue that caused QAMs to occasionally reboot during the initialization process	CAQAM Application
51276	Temporary loss of services	QAMs no longer reboot unexpectedly when encrypted video-on-demand is enabled	CAQAM Application
51436	Temporary loss of services	When the DNCS sends a large number of invalid system information (SI) packets during a DNCS stop and restart, QAMs are now able to process the packets and do not reboot	CAQAM Application

Want To Know More?

Introduction

This section provides additional detail on each change for QAM software version 2.3.5. The changes described in this section appear in numerical order, like the quick reference table earlier in this chapter.

QAMs Boot Up Correctly When Set to Either Boot Mode 0 or Boot Mode 1

Previously, when a QAM was set to boot mode 0 (zero), the QAM would not fully boot up. Then, when the QAM was placed in boot mode 1 (one), the QAM would not download code on the first attempt. Now, the QAM boots up correctly when set to either boot mode 0 or boot mode 1. **CR 16953** corrects this issue.

CA Descriptor Now Inserted Only Into Encrypted Video Streams

Previously, the QAM inserted the CA descriptor into the PMT, whether the stream was encrypted or not. This would prevent the PowerKEY decryptor from processing entitlement management messages (EMMs) or other secure micro requests. Now, the QAM software has been modified to insert the CA descriptor only for encrypted sessions, including those which will be encrypted after interactive session key (ISK) setup. Consequently, the DHCT OS can now correctly detect the encryption status of the stream, enabling sessions, including VOD and Multi-Room DVR (MR-DVR) sessions, to be established correctly. **CR 42369** corrects this issue.

Note: For more information on the CA descriptor, go to **CA Descriptor and VOD Sessions,** next in this chapter.

QAMs No Longer Reboot After Receiving an ECM for an Encrypted Session

Previously, when a session was encrypted in a QAM, the encrypted session caused the QAM to reboot after receiving a large number of ECMs for that session. Now, when sessions are changed from clear to encrypted and the QAM receives an ECM for that session for the first time, the QAM does not reboot. **CR 43519** corrects this issue.

QAMs No Longer Lose ECMs

Previously, when the DNCS sent multiple ECMs in quick succession for the same session, the QAM would lose some of these ECMs and subsequently lose communication with the DNCS. Now, the DNCS does not send multiple ECMs to the QAM for the same session in quick succession. **CR 44845** corrects this issue.

QAMs Do Not Require a Reboot to Recognize PMT Updates

Previously, when PMT updates were processed, changes to certain output program IDs (PIDs) could occur on a session already in progress. The QAM would have to rebooted in order for the QAM to correctly process the PMT update. Now, QAMs receive and correctly process PMT updates. **CR 44846** corrects this issue.

VOD Session Creation Issue Now Corrected

In earlier releases, QAMs were losing 256-byte buffers which prevented the system from creating sessions. **CR 44847** prevents this buffer loss.

PMT Updates No Longer Cause a Loss of CA Buffers

Previously, PMT updates resulted in a loss of some CA private buffers. This buffer loss could result in a loss of video, or could cause the QAM to reboot. **CR 44850** prevents this buffer loss.

PMT Updates on Sessions Without ECMs No Longer Cause QAM Reboots

Previously, when a PMT update occurred on a session with no ECMs, the CA code would write invalid pointers and corrupt other data. These invalid pointers could result in QAM reboots or corruption of the output. Now, PMT updates on sessions with no ECMs function correctly. **CR 44851** corrects this issue.

QAMs No Longer Reboot When Subscribers Perform a Large Number of VOD Trick Modes

Previously, some QAMs at a customer site experienced constant reboots after receiving a large number of VOD trick mode requests from subscribers using their remote controls. Trick modes are pause, fast forward, and rewind functions on the remote control. Now, QAMs do not reboot under this scenario. **CR 47328-02** corrects this issue.

PIDs Less Than 30 Are No Longer Used

Previously, when PIDs greater than 30 were used, subscribers would experience black screens on digital channels when connecting certain TV models to the set-top using the 1394 port. According to a new Moving Picture Experts Group (MPEG) specification, PIDs that are less than 30 can no longer be used. **CR 47550-02** implements this specification.

QAMs No Longer Reboot During the Initialization Process

Previously, the watchdog timer on the QAM would occasionally expire during the initialization process causing the QAM to reboot. To prevent these reboots from occurring, the software was updated to increase the value of the watchdog timer. Now, the watchdog timer does not expire during initialization. **CR 48330** corrects this issue.

QAMs No Longer Reboot When Encrypted Video-on-Demand is Enabled

Previously, when encrypted VOD was enabled on a QAM, the QAM would reboot within 2 hours after the creation of the session. Now, QAMs do not reboot under this scenario. **CR 51276** corrects this issue.

QAMs No Longer Reboot During a DNCS Stop and Restart

Previously, after a DNCS stop and restart when the QAMs would receive a large number of invalid SI packets, the QAM was unable to process these packets and would reboot. Now QAMs are able to process these packets and do not reboot. **CR 51436** corrects this issue.

The BFS QAM No Longer Reboots Continuously

Previously, the BFS QAM would experience continuous reboots. The QAM software has now been modified to prevent the BFS QAM from rebooting continuously. **CR 51538** corrects this issue.

CA Descriptor and VOD Sessions

Overview

Previous versions of QAM software inserted the PowerKEY CA descriptor into the PMT for unencrypted on-demand content. If the DHCT OS found the CA descriptor in the PMT, the OS started the PowerKEY decryptor.

The PowerKEY scheduler within the DHCT then prioritized ECMs by waiting until an ECM was processed before allowing any other CA messages or requests to be processed.

Background

During this waiting period, when no ECMs were delivered, non-ECM requests (for example, a request for an MR-DVR session), remained in the queue, and were not processed until the PowerKEY decryptor was stopped. Therefore, no MR-DVR sessions could be established while the MR-DVR server was streaming unencrypted VOD.

Solution

QAM software version 2.3.5 has been modified to insert the CA descriptor only for encrypted sessions, including those which will be encrypted after ISK setup. Consequently, the OS now correctly detects the encryption status of the stream, enabling sessions, including VOD and MR-DVR sessions, to be established correctly on a multi-room server.

Chapter 2
Upgrading the QAM Modulator With QAM Software Version 2.3.5

Overview

Introduction

This chapter describes how to upgrade the Model D9476 QAM Modulator with QAM software version 2.3.5.

In This Chapter

This chapter contains the following topics.

Upgrade Process Overview

Introduction

This section provides a brief overview of the tasks you must complete to upgrade the Model D9476 QAM Modulator with QAM software version 2.3.5.

Before You Begin

Before you upgrade to QAM 2.3.5, be sure that your system meets the configuration specified in **About QAM Software Version 2.3.5** in Chapter 1.

If you will not download QAM 2.3.5 from a File Transfer Protocol (FTP) site, make sure that you have obtained the CD **QAM V2.3.5**, part number 4009791.

Important: Do not proceed with installing QAM software version 2.3.5 until you have read and followed the directives in the **About QAM Software Version 2.3.5** section of Chapter 1.

Time To Complete

When upgrading QAM modulators with QAM software version 2.3.5, consider the following tasks and the amount of time required for each:

- Completing pre-upgrade tasks takes from 35 to 50 minutes.
- If you are upgrading from an FTP site, allow an additional 10 to 15 minutes to download QAM software from the FTP site. The speed of the connection and the size of the files determine the download time.
- Downloading QAM software version 2.3.5 to a QAM modulator takes approximately 5 minutes for each QAM modulator**.**
- Verifying the functionality of a QAM modulator depends on the number of sessions that the modulator carries and typically takes approximately 5 to 10 minutes.

Note: It is not necessary to rebuild non-VOD sessions on the QAM modulators that you upgrade. The non-VOD sessions are rebuilt automatically after QAM version 2.3.5 is downloaded to a QAM modulator.

Subscriber Impact

When QAM modulators are reset (rebooted) during the upgrade, the services they carry are interrupted. DHCTs will show a frozen picture or black screen until the upgrade is complete and the DNCS has restarted all of the active sessions on the QAM modulator.

Impact of TVs With QAM Tuners

When upgrading QAMs to new releases of software, you must reset the QAMs in order for the devices to download the new software from the DNCS. When the software download is complete, the DNCS then recreates any broadcast sessions that were active on the QAMs. The DNCS also activates encryption for any secure services that were running on the QAMs.

An increasing number of TVs are being manufactured and sold with QAM tuners that can access services which are not properly encrypted. Therefore, as a part of the upgrade process, we encourage you to verify that the DNCS re-establishes encryption for *all* secure services on the upgraded QAMs. This extra step ensures that no potentially objectionable content can be viewed inadvertently when using a TV that is equipped with a QAM tuner. For further assistance, refer to the following procedures found later in this chapter:

- **Verifying the Functionality of QAM Modulators That Carry Broadcast Sessions** in the **Download QAM Software Version 2.3.5 to QAM Modulators** section
- **Verifying the Functionality of QAM Modulators That Carry xOD or VOD Sessions** in the **Download QAM Software Version 2.3.5 to QAM Modulators** section

Process Overview

This section provides an overview of the process required to upgrade to QAM software version 2.3.5.

> ⚠ **CAUTION:**
>
> **If upgrading more than one QAM modulator, download QAM software version 2.3.5 to one modulator group and verify its functionality before attempting to download QAM software to another modulator group. Verifying the functionality of one QAM modulator group at a time enables you to better isolate any failures that may occur and enables you to minimize service interruptions.**

Pre-Upgrade Tasks

1. If you are installing from a CD, verify the integrity of the installation CD. For further instructions, refer to the installation and upgrade documentation for your system release.
2. Generate a Doctor Report using the **–av** option to verify system stability and functionality.

   Important: If new or unexpected errors appear in the Doctor Report, contact Cisco Services before upgrading your QAMs.

   Note: For further instructions on running the Doctor Report, refer to Chapter 5, **Analyze System Configuration With the Doctor Report**, in the *DBDS Utilities Installation Instructions and DNCS Utilities User's Guide*.
3. Perform the System Validation Tests found in the installation and upgrade documentation for your system release version to verify the functionality and performance of the set-tops in your system.

   Important: If new or unexpected errors occur, contact Cisco Services before upgrading your QAMs.
4. Verify the current QAM software version running on your DNCS.
5. Make a copy of the *current* QAM configuration file. In the unlikely event of a failure, you can use this backup copy to restore your system to the previous version of QAM software.
6. Install QAM software version 2.3.5 onto the DNCS.
7. If you are upgrading more than one QAM modulator, establish an order for upgrading the modulators.
8. If the QAM modulators you are upgrading currently carry broadcast sessions, determine the sessions that are running on the modulators you plan to upgrade so that you can verify that these sessions are rebuilt after the new software is downloaded to the modulators.

   Note: If your QAM modulator will carry VOD sessions, documenting current sessions is not necessary. VOD sessions are set up as needed when a DHCT requests a session.

Upgrade Tasks

1. **CAUTION:**

   All active sessions on the QAM modulator will be interrupted when the modulator is reset. DHCTs downstream of the modulator will lose their ability to display services until sessions are reestablished.

   Upgrade QAM modulators with QAM software version 2.3.5 by resetting the modulator. Resetting the modulator causes it to reboot, update the software, and re-establish existing sessions. Follow the instructions found in **Download QAM Software Version 2.3.5 to the QAM Modulators**, later in this chapter.

   Note: If resetting the modulator does not cause it to reboot and load QAM software version 2.3.5, turn power to the modulator off and on again. For assistance cycling power to the modulator, refer to *QAM Modulator Model D9476 Installation and Operation Guide*. For the part number of this guide, see **Related Publications** in the Preface of this document.

2. Verify that the QAM modulator is functioning properly following the upgrade.

   Important: Read and follow the directives contained in **Impact of TVs With QAM Tuners**, earlier in this section.

3. To upgrade another QAM modulator, repeat steps 1 and 2. Then, go to step 4.

4. After you have upgrade all of the QAM modulators, generate a Doctor Report using the **–av** option to verify system stability and functionality.

   Important: If new or unexpected errors appear in the Doctor Report, contact Cisco Services.

   Note: For further instructions on running the Doctor Report, refer to Chapter 5, **Analyze System Configuration With the Doctor Report**, in the *DBDS Utilities Installation Instructions and DNCS Utilities User's Guide*.

5. After the upgrade is complete, perform the System Validation Tests found in the installation and upgrade documentation for your system release version to verify the functionality and performance of the set-tops in your system.

   Important: If new or unexpected errors occur, contact Cisco Services.

6. Check the individual modulators to verify that they received the new code.

Verify the Current QAM Software Version on the DNCS

Introduction

Before attempting to upgrade to QAM software version 2.3.5, verify the current QAM software version installed on your DNCS. This section describes how to verify the QAM software version installed on your DNCS.

Verifying the Current QAM Software Version on the DNCS

Complete these steps to verify the current QAM software version installed on your DNCS.

1. Open an xterm window on the DNCS.
2. Type **cd /tftpboot** and press **Enter**.

   Result: The tftpboot directory becomes the working directory.
3. Type **grep qam_app qam.config** and press **Enter**.

   Result: The system displays a result similar to the following:

   ApplCodePath = caqam_app226.bin

   Note: The preceding result indicates that QAM software version 2.2.6 is installed on the DNCS.
4. Does the information indicate that QAM software version 2.3.5 has been installed?
   - If **yes**, you do not need to install QAM software version 2.3.5 onto the DNCS. You may ignore the remainder of these instructions.
   - If **no**, before installing QAM 2.3.5 on the DNCS, backup the QAM configuration file currently installed on your DNCS. Go to **Back Up the Current QAM Configuration File**, next in this chapter.

Back Up the Current QAM Configuration File

Introduction

Before installing QAM software version 2.3.5 to a QAM modulator, copy the configuration file of the version of QAM software currently installed. In the unlikely event of a failure, you can use the copy to restore the current version of QAM software to your system. This section provides instructions for copying the configuration file of your current QAM software version.

> ⚠ **CAUTION:**
>
> **Do not proceed with installing QAM software version 2.3.5 until you have created a backup of the current configuration file of the QAM software installed on your system. Otherwise, you will be unable to restore the previous version of QAM software to your system in the unlikely event of a failure.**
>
> **Restore the previous version of QAM software to your system only when recommended by Cisco Services.**

Backing Up the Current QAM Configuration File

Follow these steps to back up the current QAM configuration file on your system.

1. Open an xterm window on the DNCS.

   Result: The system displays a dncs user prompt.

2. Type **su –** and press **Enter.**

   Result: The system prompts you to enter the password for the root user.

3. Type the password for the root user and press **Enter**.

   Result: The system logs you in as the root user and displays a root user prompt.

4. Type **cd /tftpboot** and then press **Enter**.

   Result: The root prompt appears.

5. Type **pwd** and then press **Enter**.

   Result: The /tftpboot directory name appears. This name indicates you are in the correct directory.

6. Type **cp –p qam.config qam.config.bakxxx** and then press **Enter.**

   Result: A copy of the configuration file qam.config, which contains QAM configuration settings, is saved to a configuration file named qam.config.bakxxx.

   Note: In this example, xxx represents your current QAM software version. For example, if your current QAM software version is 2.2.6, name the file **qam.config.bak226.**

7. Type **exit** and then press **Enter** to exit from the root user.
8. Type **exit** and press **Enter** again to close the xterm window.
9. Now that you have made a copy of the current QAM configuration file on your DNCS, you are ready to install QAM software version 2.3.5 on your DNCS. Go to **Install QAM Software Version 2.3.5 Onto the DNCS**, next in this chapter.

Install QAM Software Version 2.3.5 Onto the DNCS

Introduction

This section describes how to install QAM software version 2.3.5 onto the DNCS using either of the following methods:

- From the CD **QAM V2.3.5**, part number 4009791
- From Cisco's FTP server

Installing the QAM Software From a CD

Follow these steps to install QAM software version 2.3.5 from a CD.

1. Open an xterm window on the DNCS.

   Result: The system displays a dncs user prompt.

2. Type **su –** and press **Enter.**

   Result: The system prompts you to enter the password for the root user.

3. Type the password for the root user and press **Enter**.

   Result: The system logs you in as the root user and displays a root user prompt.

4. Insert the CD **QAM V2.3.5** into the CD-ROM drive of the DNCS.

5. Wait approximately 30 seconds for the system to mount the **CD** before continuing to step 6.

   Note: Shortly after inserting the CD, a File Manager window opens. When it does, it may block the xterm window. If this occurs, click the xterm window to bring the xterm window to the forefront.

6. From the xterm window, type **df –n** and then press **Enter** to confirm that the system mounted the CD successfully.

   Result: A list of the mounted and unmounted file systems appears.

   Note: The presence of **/cdrom/dvsg** in the list confirms that the system correctly mounted the CD.

7. Type **cd /cdrom/cdrom0** and press **Enter.**

   Result: The /cdrom/cdrom0 directory becomes the working directory.

8. Type **./install_pkg** and then press **Enter.**

   Important: Be sure to type a period in front of /install_pkg.

   Results:

   - The system lists the packages that will be installed.
   - A confirmation message appears asking you to confirm that you want to proceed with the installation.

9. Type **y** and press **Enter** to start the installation.

   Result: When the installation is complete, the system displays a message stating that the installation was successful and a prompt for the root user appears.

   Note: The installation should take a minute or less.

10. Was the installation successful?

    - If **yes**, type **exit** and press **Enter** to log out as root user. Then go to step 11.
    - If **no**, contact Cisco Services.

11. Type **exit** and press **Enter** to close the xterm window.

    Result: The xterm window closes and the File Manager window is now visible.

12. From the File Manager window, click **File** and select **Eject**.

    Result: The CD ejects and the File Manager window closes.

13. Remove the CD from the CD drive and store it in a safe location. Go to **Establish a Download Sequence**, later in this chapter.

Installing the QAM Software From Cisco's FTP Server

In this section, you will create a directory on the DNCS into which you will load the QAM software version 2.3.5 file. Then, you will use the FTP file transfer utility to obtain the file from Cisco's FTP server and load it into the newly created directory. Next, you will decompress and extract the compressed file. Finally, you will install QAM software version 2.3.5 from the file you created at the beginning of this procedure.

Creating the Directory

Follow these steps to create a directory on the DNCS into which you will load the file containing QAM software version 2.3.5.

1. Open an xterm window on the DNCS.

   Result: The system displays a dncs user prompt.

2. Type **su –** and press **Enter**.

   Result: The system prompts you to enter the password for the root user.

3. Type the password for the root user and press **Enter.**

   Result: The system logs you in as the root user and displays a root user prompt.

4. Type **cd /export/home/dncs/download** and then press **Enter**.

   Result: The /export/home/dncs/download directory becomes the working directory.

   Important: If the directory does *not* exist, use the mkdir command to create the /export/home/dncs/download directory. Then, repeat this step.

5. Go to **Obtaining the QAM Software File**, next in this procedure.

Obtaining the QAM Software File

Follow these guidelines to obtain the file containing QAM software version 2.3.5 from Cisco's FTP server.

1. Log on to Cisco's FTP server.

   Notes:

   - The address of the server is **ftp.sciatl.com** or **192.168.43.143**.
   - The username is **anonymous**.
   - The password is the email address of the person logging in.

2. Choose one of the following options to navigate to the directory in which the file is located:

   - If you are outside the firewall, type **cd /pub/scicare/RELEASED/CAQAM** to navigate to the correct directory**.**
   - If you are inside the firewall, type **cd /external_pub/scicare/RELEASED/CAQAM** to navigate to the correct directory**.**

3. Type **bin** and then press **Enter**.

   Result: The system sets the ftp transfer mode to binary.

4. Type **hash** and then press **Enter**.

   Result: The system configures itself to display hash marks that show file-transfer progress.

5. Type **get CAQAM235.tar.gz** and press **Enter**.

   Result: The system begins copying files into the /export/home/dncs/download/ directory on your DNCS.

6. Type **bye** and press **Enter**.

   Result: The system logs you out of the FTP server.

7. Go to **Decompressing and Extracting the File**, next in this procedure.

Decompressing and Extracting the File

In this procedure, you will use the gzip and tar file-processing utilities to decompress and extract the file you just loaded onto your system.

1. Type **gzip -d CAQAM235.tar.gz** and then press **Enter**.

   Result: The system decompresses the QAM software file.

2. Type **tar xvf CAQAM235.tar** and then press **Enter**.

   Result: The system extracts the individual files.

3. Go to **Installing QAM 2.3.5 on the DNCS**, next in this procedure.

Installing QAM 2.3.5 on the DNCS

Follow these instructions to install QAM software version 2.3.5 from the directory you created at the beginning of this procedure.

1. Type **./install_pkg** and press **Enter.**

   Important: Be sure to type a period in front of /install_pkg.

   Results:

   - The system lists the packages that will be installed.
   - A confirmation message appears asking you to confirm that you want to proceed with the installation.

2. Type **y** and press **Enter** to start the installation.

   Result: When the installation is complete, the system displays a message stating that the installation was successful and a prompt for the root user appears.

   Note: The installation should take a minute or less.

3. Was the installation successful?

   - If **yes**, type **exit** and press **Enter** to log out as root user. Then, go to step 4.
   - If **no**, contact Cisco Services.

4. Use the UNIX **rm -rfi** command to remove the following files and directory:

   - install_pkg (file)
   - CAQAM235.tar (file)
   - SAIqam (directory)

   Example: Type **rm –rfi install_pkg** and press **Enter**.

   Result: A confirmation question message appears asking you to confirm the removal.

5. Type **Yes** and press **Enter** when prompted to remove the install_pkg and CAQAM235.tar files and the contents of the SAIqam directory.

6. Type **exit** and press **Enter** to close the xterm window. You are ready to determine a sequence for downloading QAM software version 2.3.5 to the QAM modulators in your system. Go to **Establish a Download Sequence**, next in this chapter.

   Result: The xterm window closes.

Establish a Download Sequence

Introduction

This section provides guidelines for establishing a sequence to follow when downloading QAM software version 2.3.5 onto more than one QAM modulator.

Note: For more information about the DNCS and operating the DNCS software, refer to the *DNCS Online Help* for your system.

Establishing a Sequence for Downloading QAM Software Version 2.3.5 Onto Each QAM Modulator

> ⚠ **CAUTION:**
>
> **If downloading QAM software version 2.3.5 to more than one QAM modulator group, download the software to one modulator group and verify its functionality before attempting to download software to another modulator group. Verifying the functionality of one modulator group at a time enables you to better isolate any failures that may occur.**

The order in which you download QAM software onto QAM modulators allows you to verify that the download is successful before proceeding. Follow these guidelines to establish an order in which to download QAM software version 2.3.5 to QAM modulators. The method that you follow depends on the type of sessions that the QAM modulator carries (xOD/VOD sessions or broadcast sessions).

xOD/VOD Sessions

When upgrading QAM modulators that carry xOD or VOD sessions, we suggest that you upgrade all modulators in one hub and verify the functionality of those modulators before upgrading modulators in another hub.

Use the following guidelines to determine the order in which to upgrade modulators within a hub:

- If any QAM modulators act as spares, start by downloading QAM software version 2.3.5 on these modulators.
- If your system does not have a spare QAM modulator, download QAM software version 2.3.5 on the modulator carrying the fewest number of sessions.
- Continue downloading the software to modulators by working your way up to the modulator carrying the most sessions.

Broadcast Sessions

When upgrading QAM modulators that carry broadcast sessions, upgrade the modulators in one hub, four modulators at a time, and verify their functionality before proceeding to other QAM modulators in the hub.

Use the following guidelines to determine the order in which to upgrade modulators:

- If any QAM modulators act as spares, start by downloading QAM software version 2.3.5 on these modulators.
- If your system does not have a spare QAM modulator, download QAM software version 2.3.5 on the modulator carrying sessions that are least viewed.
- Download QAM software version 2.3.5 to the BFS QAM.
- Continue downloading the software to modulators in this hub by working your way up to the modulator carrying sessions that are most frequently viewed.

What's Next?

After you have established an order for downloading QAM software version 2.3.5 onto the QAM modulators in your system, the next step depends on the type of sessions your QAM modulators carry (xOD/VOD sessions or broadcast sessions).

xOD/VOD Sessions

If all of your QAM modulators carry xOD or VOD sessions, you are ready to begin downloading QAM software version 2.3.5 to QAM modulators. Go to **Download QAM Software Version 2.3.5 to the QAM Modulators**, later in this chapter.

Note: Because xOD and VOD sessions are not pre-configured, but are set up as needed when a subscriber requests them, generating a list of existing sessions is not necessary.

Broadcast Sessions

If you have QAM modulators that carry broadcast sessions, first generate a list of the existing sessions that each modulator currently carries. Generating this list helps you to verify that these sessions are successfully rebuilt after QAM 2.3.5 is downloaded to the modulator. Go to **Determine Existing Broadcast Sessions**, next in this chapter.

Determine Existing Broadcast Sessions

Introduction

By using Cisco's Report Writer, you can generate a report that lists the existing broadcast sessions in your system along with the channels and sources in your system. This section describes how to generate, save, and print the Channels, Sources & Sessions Report, which lists this information.

Note: If your QAM modulator will carry VOD sessions, you do not need to generate the Channels, Sources & Sessions Report. VOD sessions are set up as needed when a subscriber requests a session.

Description

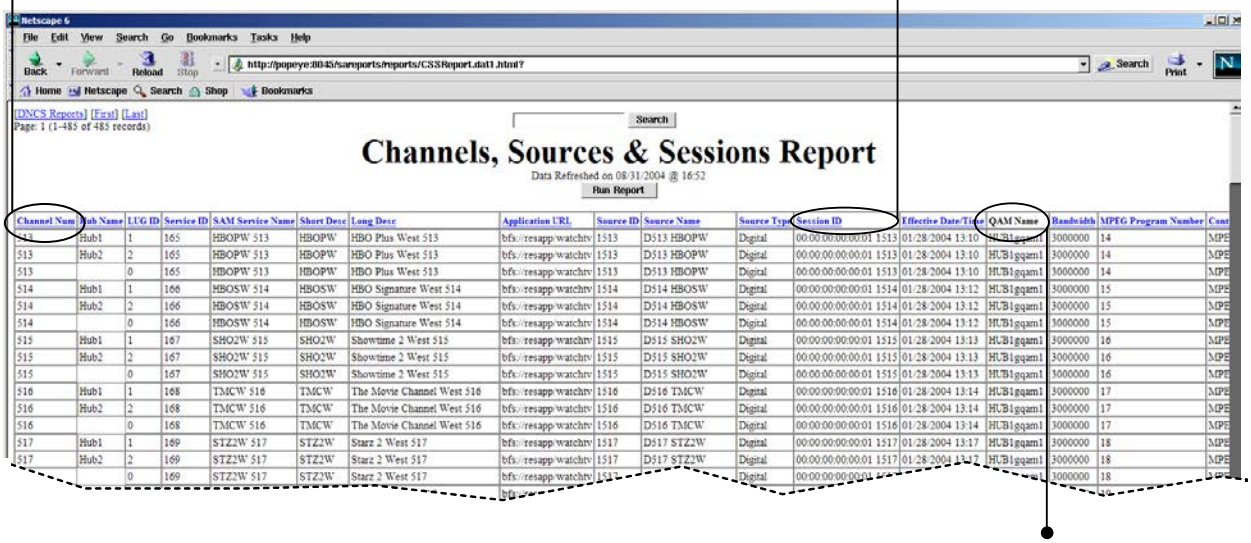
The Channels, Sources & Sessions Report lists each *display channel* (channel number) in the system. It also displays information about the *carriage* of each channel (how the channel is transmitted on the DBDS), starting from each source in your system, and ending with each QAM modulator in your system.

Channels, Sources & Sessions Report Information

The following screen shows an example of the Channels, Sources & Sessions Report, and highlights information helpful in verifying a successful upgrade.

The **Channel Num** column lists the display channels in your system. Display channels are those to which you can tune the DHCT to receive each service.

The **Session ID** column lists the sessions that a QAM modulator carries.



The **QAM Name** column lists the name of each QAM modulator, uniquely identifying each QAM modulator in the system.

Generating the Channels, Sources & Sessions Report

Follow these steps to generate a Channels, Sources & Sessions Report.

> ⚠ **CAUTION:**
>
> **Before running Report Writer, you must exit all instances of Netscape associated with your UNIX user ID. When you try to run Report Writer with more than one instance of Netscape associated with your UNIX user ID, a message appears on the screen stating that Netscape has "detected a lock file." Do not continue. If you attempt to continue, Report Writer may exhibit unpredictable behavior.**

1. On the DNCS Administrative Console, click the **Utilities** tab.

   Result: The Utilities tab moves to the forefront.

2. Click **Reports.**

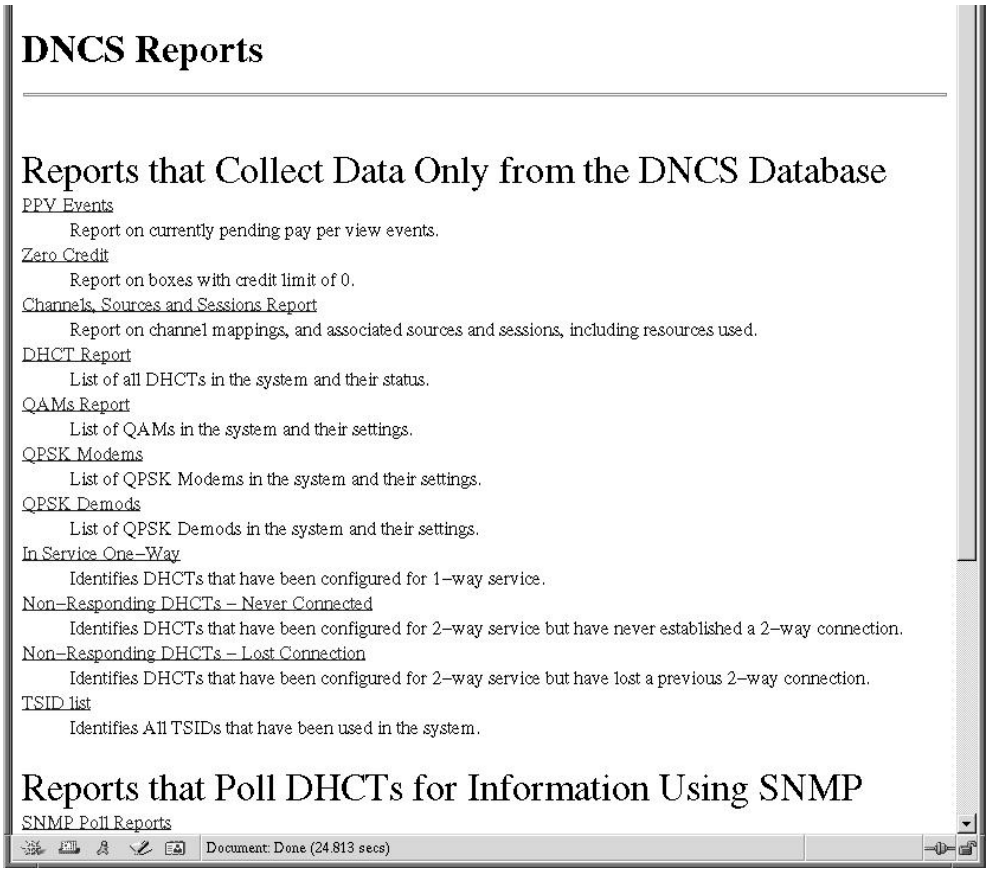
   Result: A Web browser opens and displays the DNCS Web Server welcome message.

3. Click **DNCS Report Manager**.

   Result: A prompt for the user ID and password appears for the DNCS server where Report Writer software is located.

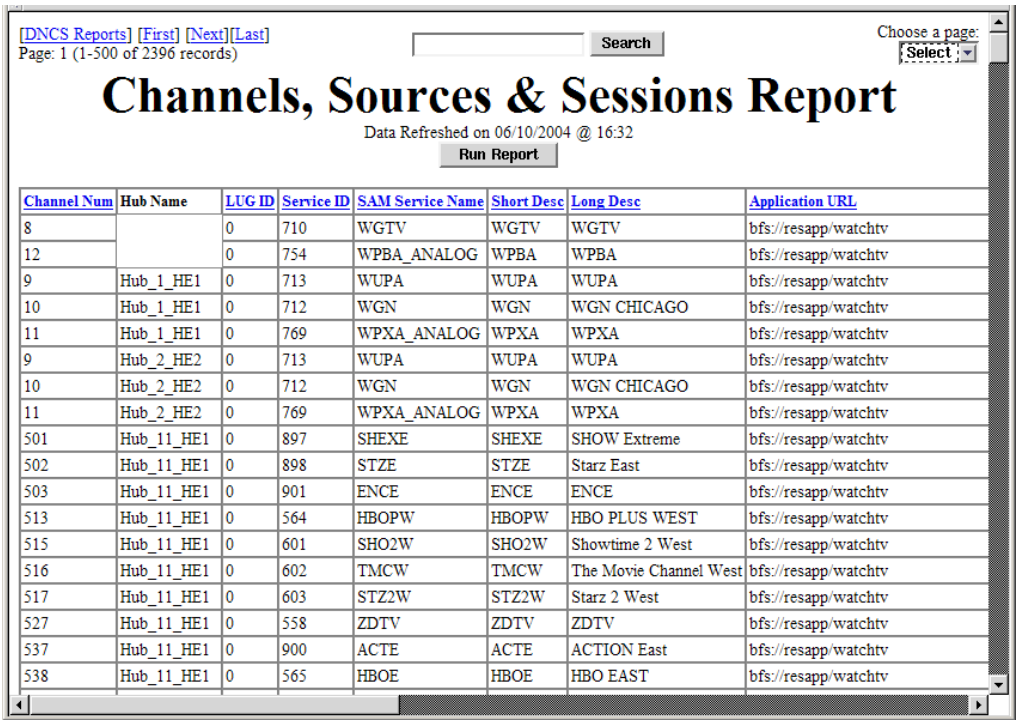
4. Type your user ID and password and then click **OK**. The default user name is **sareports** and the default password is **report.**

   Result: The Web browser displays the following page.



5. Under **Reports that Collect Data Only from the DNCS Database**, click the **Channels, Sources and Sessions Report** link.

   Result: A page similar to the following opens.



[DNCS Reports] [First] [Next][Last]
Page: 1 (1-500 of 2396 records)

Search

Choose a page: Select

Channels, Sources & Sessions Report

Data Refreshed on 06/10/2004 @ 16:32

Run Report

Channel Num	Hub Name	LUG ID	Service ID	SAM Service Name	Short Desc	Long Desc	Application URL
8		0	710	WGTV	WGTV	WGTV	bfs://resapp/watchtv
12		0	754	WPBA_ANALOG	WPBA	WPBA	bfs://resapp/watchtv
9	Hub_1_HE1	0	713	WUPA	WUPA	WUPA	bfs://resapp/watchtv
10	Hub_1_HE1	0	712	WGN	WGN	WGN CHICAGO	bfs://resapp/watchtv
11	Hub_1_HE1	0	769	WPXA_ANALOG	WPXA	WPXA	bfs://resapp/watchtv
9	Hub_2_HE2	0	713	WUPA	WUPA	WUPA	bfs://resapp/watchtv
10	Hub_2_HE2	0	712	WGN	WGN	WGN CHICAGO	bfs://resapp/watchtv
11	Hub_2_HE2	0	769	WPXA_ANALOG	WPXA	WPXA	bfs://resapp/watchtv
501	Hub_11_HE1	0	897	SHEXE	SHEXE	SHOW Extreme	bfs://resapp/watchtv
502	Hub_11_HE1	0	898	STZE	STZE	Starz East	bfs://resapp/watchtv
503	Hub_11_HE1	0	901	ENCE	ENCE	ENCE	bfs://resapp/watchtv
513	Hub_11_HE1	0	564	HBOPW	HBOPW	HBO PLUS WEST	bfs://resapp/watchtv
515	Hub_11_HE1	0	601	SHO2W	SHO2W	Showtime 2 West	bfs://resapp/watchtv
516	Hub_11_HE1	0	602	TMCW	TMCW	The Movie Channel West	bfs://resapp/watchtv
517	Hub_11_HE1	0	603	STZ2W	STZ2W	Starz 2 West	bfs://resapp/watchtv
527	Hub_11_HE1	0	558	ZDTV	ZDTV	ZDTV	bfs://resapp/watchtv
537	Hub_11_HE1	0	900	ACTE	ACTE	ACTION East	bfs://resapp/watchtv
538	Hub_11_HE1	0	565	HBOE	HBOE	HBO EAST	bfs://resapp/watchtv

6. To generate the report click **Run Report**.

   Results:

   - The **Running** message displays to let you know that the system is generating the report.
   - When the report has been generated, the **Click on button below to display report data** message displays.

7. Click **Display Data.**

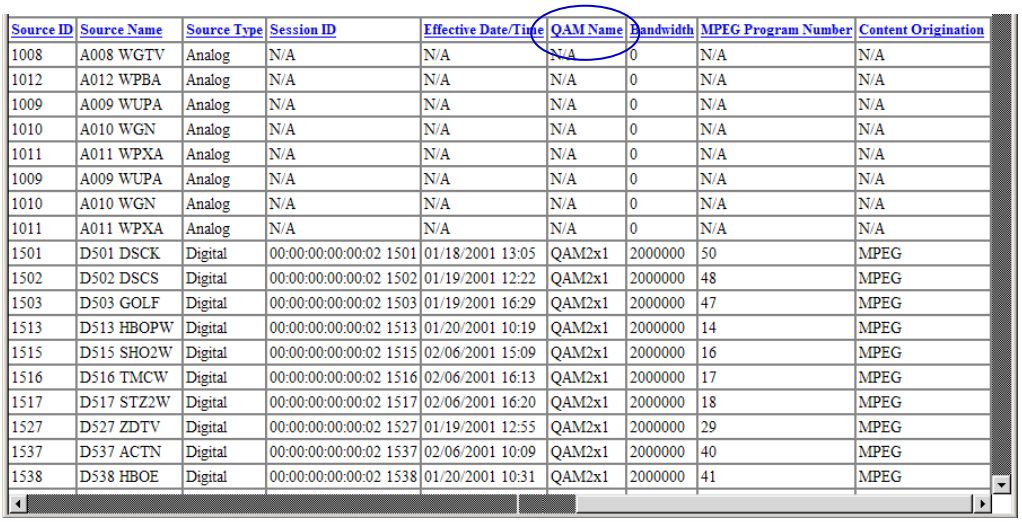
   Result: The Channels, Sources & Sessions Report page opens.

8. Scroll to the right until the **QAM Name** column appears. Then, click the **QAM Name**.

   Result: The system begins re-generating the report so that the session list is sorted according to each QAM, MQAM, or GQAM modulator in your system.

9. When the **Data Refreshed** message appears, click **Display Data.**

   Result: The Channels, Sources & Sessions Report page displays again with the session list sorted according to each QAM, MQAM, or GQAM modulator in your system.



Source ID	Source Name	Source Type	Session ID	Effective Date/Time	QAM Name	Bandwidth	MPEG Program Number	Content Origination
1008	A008 WGTV	Analog	N/A	N/A	N/A	0	N/A	N/A
1012	A012 WPBA	Analog	N/A	N/A	N/A	0	N/A	N/A
1009	A009 WUPA	Analog	N/A	N/A	N/A	0	N/A	N/A
1010	A010 WGN	Analog	N/A	N/A	N/A	0	N/A	N/A
1011	A011 WPXA	Analog	N/A	N/A	N/A	0	N/A	N/A
1009	A009 WUPA	Analog	N/A	N/A	N/A	0	N/A	N/A
1010	A010 WGN	Analog	N/A	N/A	N/A	0	N/A	N/A
1011	A011 WPXA	Analog	N/A	N/A	N/A	0	N/A	N/A
1501	D501 DSCK	Digital	00:00:00:00:00:02 1501	01/18/2001 13:05	QAM2x1	2000000	50	MPEG
1502	D502 DSCS	Digital	00:00:00:00:00:02 1502	01/19/2001 12:22	QAM2x1	2000000	48	MPEG
1503	D503 GOLF	Digital	00:00:00:00:00:02 1503	01/19/2001 16:29	QAM2x1	2000000	47	MPEG
1513	D513 HBOPW	Digital	00:00:00:00:00:02 1513	01/20/2001 10:19	QAM2x1	2000000	14	MPEG
1515	D515 SHO2W	Digital	00:00:00:00:00:02 1515	02/06/2001 15:09	QAM2x1	2000000	16	MPEG
1516	D516 TMCW	Digital	00:00:00:00:00:02 1516	02/06/2001 16:13	QAM2x1	2000000	17	MPEG
1517	D517 STZ2W	Digital	00:00:00:00:00:02 1517	02/06/2001 16:20	QAM2x1	2000000	18	MPEG
1527	D527 ZDTV	Digital	00:00:00:00:00:02 1527	01/19/2001 12:55	QAM2x1	2000000	29	MPEG
1537	D537 ACTN	Digital	00:00:00:00:00:02 1537	02/06/2001 10:09	QAM2x1	2000000	40	MPEG
1538	D538 HBOE	Digital	00:00:00:00:00:02 1538	01/20/2001 10:31	QAM2x1	2000000	41	MPEG

10. Now that you have a list of the channels and sessions that are running on the QAM modulators that you are upgrading, you are ready to begin the upgrade process. Keep the Channels, Sources & Sessions Report open on the screen and go to **Download QAM Software Version 2.3.5 to the QAM** Modulators, next in this chapter.

Download QAM Software Version 2.3.5 to the QAM Modulators

Introduction

To download QAM software 2.3.5 (Host Application code 2.3.5 and Host Boot code 2.1.0) to a QAM modulator that carries broadcast sessions, you must reset the QAM modulator. After the modulator reboots, QAM software version 2.3.5 is downloaded from the DNCS to the modulator.

Important: Read and follow the directives contained in **Impact of TVs With QAM Tuners** in the **Upgrade Process Overview** section, earlier in this chapter.

You have the following methods available when you reset QAM modulators:

- You can reset the modulators through the DNCS GUI.
- You can reset the modulators from the back panel of the QAM.
- You can use the new auditQam utility to reset the modulators through the command line of the DNCS.

Which Reset Method to Use

Resetting QAM modulators from the DNCS GUI or from the front panel can be time-consuming. If you have many modulators to reset, consider using the new auditQam utility. The auditQam utility takes, as an argument, the IP address of the modulator that you want to reset. While the auditQam utility script runs, you are free to complete other upgrade-related tasks.

Notes:

- Instructions for resetting modulators through the DNCS GUI are found in **Resetting the QAM Modulator Through the DNCS GUI**, next in this section.
- Instructions for resetting modulators through the front panel are found in **Resetting the QAM Modulator From the Back Panel**, later in this section
- Instructions for resetting modulators through the auditQam utility are found in **Resetting the QAM Modulator Through the auditQam Utility**, also later in this section.

Resetting the QAM Modulator Through the DNCS GUI

> **CAUTION:**
>
> **All active sessions on the QAM modulator will be interrupted when the modulator is reset. DHCTs downstream of the modulator will lose their ability to display services until sessions are reestablished.**

Follow these steps to reboot the modulator by resetting it from the DNCS.

1. If you have not already done so, provision the modulator on the DNCS.

   Note: For instructions on provisioning the QAM modulator, refer to *QAM Modulator Model D9476 Installation and Operation Guide*.

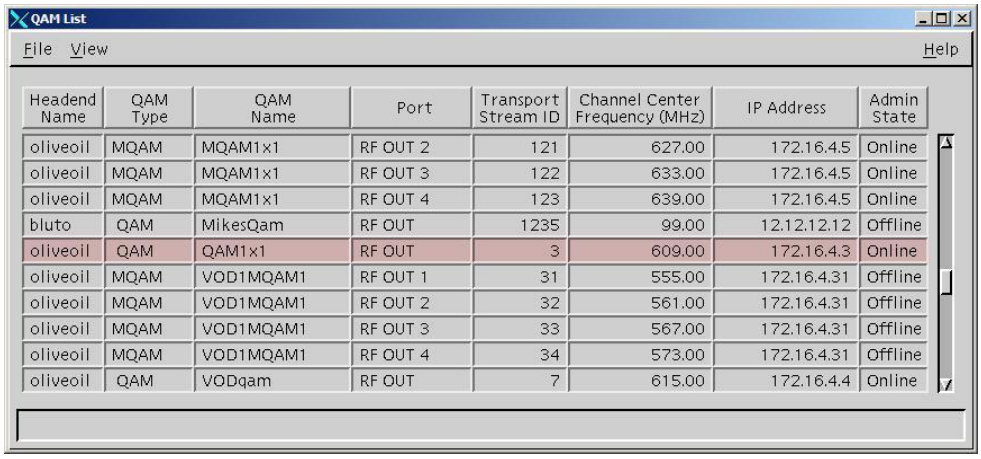
2. From the DNCS Administrative Console, click the **DNCS** tab, click the **Element Provisioning** tab, and then click **QAM**.

   Result: The QAM List window opens.

3. Open an xterm window on the DNCS for use later in this procedure.

4. Based on the order you determined earlier, select the QAM modulator that you want to reset by highlighting it in the QAM List window.

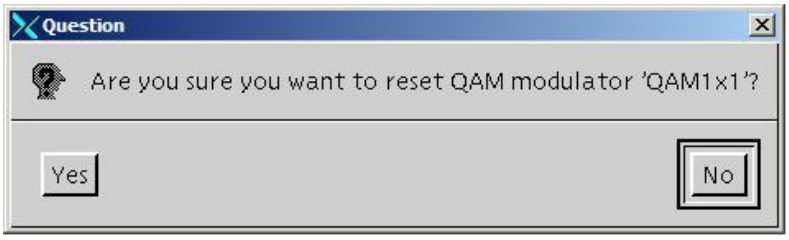
   Important: The following diagram shows an example of a QAM modulator selected in the QAM List window.



5. Click **File** and then select **Reset**.

   Result: The Question window appears with the name of the selected QAM modulator inside the quotation marks (‘… ‘).

   Example: The following diagram shows an example of the Question window.



6. Click **Yes**.

   Result: The QAM List window displays the following message:
   The reset request has been received by QAM modulator <Name of QAM>

   Note: The <Name of QAM> represents the name of the modulator you just reset.

7. Repeat steps 4 through 6 for up to three additional modulators, and then go to step 8.

   Important: Never reset more than four modulators at once, or you may overload the DNCS.

   Note: In step 10, you will have the opportunity to reset additional modulators.

8. Wait a few minutes and then, in the xterm window you opened earlier, type **ping [IP address]** and press **Enter** to ping each modulator you just reset.

   Example: ping 172.16.4.3

   Result: The ping command displays a message similar to **Device is alive** when the modulator has been reset.

   Important: If the ping fails, wait a few minutes and retry the ping. If the ping fails an additional time, contact Cisco Services.

   Note: It may take up to 5 minutes for each modulator to reset.

9. Go to **Verifying the Functionality of QAM Modulators That Carry Broadcast Sessions**, later in this section, and verify the functionality of the QAMs you just reset. Then, return to step 10 of this procedure.

10. Do you have additional modulators to reset?

    - If **yes**, repeat steps 4 through 9 as many times as necessary until all of your modulators have been reset, and then go to step 11.
    - If **no**, go to step 11.

11. Click **File** and then select **Close** to close the QAM List window.
12. In the xterm window, type **exit** and press **Enter** to close the xterm window.

Resetting the QAM Modulator From the Back Panel

Follow these instructions to reset the modulators from the back panel.

1. Follow these instructions to record the Session Count, the Program Count, and the IP address of your QAM modulators.

   Note: Skip this step for any QAM modulator that is used for video-on-demand (VOD).

   a) Press the **Options** button on the front panel until the **Session Count** total appears.
   b) Record the Session Count on a piece of paper.
   c) Press the **Options** button on the front panel until the **Program Count** total appears.
   d) Record the Program Count on a piece of paper.
   e) Repeat steps a) through d) for all of your QAM modulators.
2. To reset a QAM modulator, turn off the power switch on the back of the QAM modulator, wait a few seconds, and then turn it back on.
3. Repeat step 2 for up to three additional modulators, and then go to step 4.

   Important: Never reset more than four modulators at once, or you may overload the DNCS.

   Note: In step 6, you will have the opportunity to reset additional modulators.
4. Verify the Program and Session Count totals for each modulator not used for VOD that you just reset, using the totals you recording in step 1 of this procedure.
5. Do the Program and Session Count totals match?
   - If **yes**, go to **Verifying the Functionality of QAM Modulators That Carry Broadcast Sessions**, later in this section. Then, return to step 6 of this procedure.
   - If **no,** contact Cisco Services.
6. Do you have additional modulators to reset?
   - If **yes**, repeat steps 2 through 5 as many times as necessary until all of your modulators have been reset, and then go to step 7.
   - If **no**, go to step 7.
7. Go to **Verifying the Functionality of QAM Modulators That Carry xOD or VOD Sessions**, later in this section.

Resetting QAM Modulators Through the auditQam Utility

The *reset* option of the auditQam utility allows you to reset a QAM modulator from the command line of the DNCS, a process that is usually quicker than resetting the modulator through the DNCS GUI or modulator panel. If you have only a few modulators to reset, you can just type the IP address of the modulator as an argument to the **auditQam -reset** command. If you have many modulators to reset, consider creating a script. Instructions and guidelines for both situations follow next in this section.

Resetting a Few QAM Modulators

If you want to reset only a few modulators, complete this procedure for each modulator.

1. If necessary, open an xterm window on the DNCS.
2. Type the following command and press **Enter**:

   auditQam -reset [qam ip address]

   Result: The system shuts down and reinitializes the modulator.

   Note: The system also performs an audit to ensure that the session list for the modulator matches the session list from the DNCS.
3. Select one of the following options:
   - For QAM modulators that carry broadcast sessions, go to **Verifying the Functionality of QAM Modulators That Carry Broadcast Sessions**, later in this section.
   - For QAM modulators that carry xOD or VOD sessions, go to **Verifying the Functionality of QAM Modulators That Carry xOD or VOD Sessions**, also later in this section.

Resetting Many QAM Modulators

When performing an upgrade, you often do not want to manually reset hundreds of modulators from the DNCS GUI. To save time, you can create a script that resets the QAMs. Refer to the following example for a sample script:

Note: You can save and re-use this script each time you need to reboot your QAMs.

```
auditQam -reset 123.123.123.123
sleep 1
auditQam -reset 123.123.123.124
sleep 1
auditQam -reset 123.123.123.125
sleep 1
auditQam -reset 123.123.123.126
sleep 300
ping 123.123.123.123
sleep 1
ping 123.123.123.124
sleep 1
ping 123.123.123.125
sleep 1
ping 123.123.123.126
sleep 60
auditQam -reset 123.123.123.127
sleep 1
auditQam -reset 123.123.123.128
sleep 1
auditQam -reset 123.123.123.129
sleep 1
auditQam -reset 123.123.123.130
sleep 300
ping 123.123.123.127
sleep 1
ping 123.123.123.128
sleep 1
ping 123.123.123.129
sleep 1
ping 123.123.123.130
sleep 60
```

Important: Resetting a QAM interrupts all active sessions on the QAM for up to 10 minutes. Complete this task during a maintenance period whenever possible.

Note: After resetting the QAMs, select one of the following options:

- For QAM modulators that carry broadcast sessions, go to **Verifying the Functionality of QAM Modulators That Carry Broadcast Sessions**, next in this section.
- For QAM modulators that carry xOD or VOD sessions, go to **Verifying the Functionality of QAM Modulators That Carry xOD or VOD Sessions**, later in this section.

Verifying the Functionality of QAM Modulators That Carry Broadcast Sessions

Follow these steps to confirm that a DHCT downstream of the QAM modulator can tune to authorized channels.

> ⚠ **CAUTION:**
> **Verify the functionality of one QAM modulator group at a time. In the unlikely event of a failure, you can better isolate that failure without interrupting service for the remaining QAM modulators and their associated DHCTs.**

1. Access a DHCT that is connected downstream of one QAM modulator.
2. Refer to the Channels, Sources & Sessions Report that you generated and saved in the **Determine Existing Broadcast Sessions** section, earlier in this chapter, to verify restored QAM channels and sessions.
3. Tune the DHCT to each channel listed in the report for each QAM that you reset and upgraded.
4. Are all channels listed for the reset QAMs accessible from the DHCT?
   - If **yes**, go to step 5.
   - If **no**, *do not* attempt to upgrade the software of any additional QAM modulators, contact Cisco Services.
5. For those QAMs that carry objectionable material, Cisco recommends that you verify encryption with one of the following methods:
   - Using a set-top that does not contain subscription service packages, tune to the respective channels and verify content is not viewable.
   - Verify that the program count is correct on the QAMs that carry objectionable material.
   - Using a QAM tuner television, tune to the respective channels and verify that objectionable content is not viewable.

6. Is the content viewable?
   - If **yes**, stop and then restart (bounce) the qamManager process on the DNCS, and repeat step 5. If the content continues to be viewable, contact Cisco Services. Then, go to step 7.
   - If **no**, go to step 7.
7. Have you completed resetting your QAMs?
   - If **yes**, go to step 8.
   - If **no,** return to the procedure you are using to reset your QAMs.
8. After the upgrade is complete, generate a Doctor Report using the **–av** option to verify system stability and functionality. If new or unexpected errors appear in the Doctor Report, contact Cisco Services.

   Note: For further instructions on running the Doctor Report, refer to Chapter 5, **Analyze System Configuration With the Doctor Report**, in the *DBDS Utilities Installation Instructions and DNCS Utilities User's Guide*.
9. After the upgrade is complete, perform the System Validation Tests found in the installation and upgrade documentation for your system release version to verify the functionality and performance of the set-tops in your system.If new or unexpected errors occur, contact Cisco Services.
10. Over the next few days, check the individual modulators to verify that they received the new code.

Verifying the Functionality of QAM Modulators That Carry xOD or VOD Sessions

Sessions that exist on xOD or VOD QAMs that were upgraded will be interrupted and, in most cases, will recover. If the sessions do not recover, exit the xOD or VOD application (stop the xOD or VOD program or change to a different channel and then back to the previous channel) and restart the application and the xOD or VOD stream by resuming the playback of the "in progress" purchase. This process will vary depending the application you are using.

Important: Due to load balancing and traffic, it is difficult to determine with absolute certainty that all QAM modulators are functioning properly. For this reason, you should monitor these modulators for a few days following this upgrade to verify that Session and Program Counts are increasing and/or decreasing (whichever is applicable) as new xOD or VOD sessions are created.

Notes:

- After the upgrade is complete, perform the System Validation Tests found in the installation and upgrade documentation for your system release version to verify the functionality and performance of the set-tops in your system. If new or unexpected errors occur, contact Cisco Services.
- Over the next few days, check the individual modulators to verify that they received the new code.

Chapter 3
Customer Information

If You Have Questions

If you have technical questions, call Cisco Services for assistance. Follow the menu options to speak with a service engineer.

Access your company's extranet site to view or order additional technical publications. For accessing instructions, contact the representative who handles your account. Check your extranet site often as the information is updated frequently.

Appendix A
Roll Back to the Previous Version of QAM Software

Overview

Introduction

This appendix contains instructions for restoring the previous version of QAM software should you encounter problems after upgrading to QAM software version 2.3.5. Follow the instructions in this section only after Cisco Services directs you to restore the previous version of software.

Important: If after downloading QAM software version 2.3.5 you encounter problems, contact Cisco Services for assistance. In the event that Cisco Services directs you to download the previous version of software to QAM modulators, follow the procedures in this appendix while working with Cisco Services.

In This Appendix

This appendix contains the following topics.

Restore the Previous Version of QAM Software

Introduction

Contact Cisco Services if you notice that the system is reacting adversely after installing or upgrading to QAM software version 2.3.5. If Cisco Services recommends restoring the previous QAM software version, use the instructions in this section to assist you as you work with a Cisco Services engineer to restore the previous QAM software version.

> ⚠ **CAUTION:**
>
> **Contact Cisco Services before attempting to restore the previous QAM software version.**

Restoring the Previous QAM Software Version

Follow these steps to restore the previous version of QAM software in the unlikely event that you encounter problems after upgrading to QAM software 2.3.5.

Note: To restore the previous QAM executable files, restore the configuration backup file that you saved in **Back Up the Current QAM Software Version** in Chapter 2.

1. Open an xterm window on the DNCS and log on as the **root** user.

   Result: The root prompt appears.

2. Type **cd /tftpboot** and then press **Enter**.

   Result: The root prompt appears.

3. Type **pwd** and then press **Enter**.

   Result: The text /tftpboot appears at the prompt. This text indicates you are in the correct directory.

4. Type **cp –p qam.config qam.config.235** and then press **Enter**.

   Result: The configuration file named QAM.config, which contains QAM version 2.3.5 configuration settings, is saved to a file named qam.config.235.

5. Type **cp –p qam.config.bakxxx qam.config** and then press **Enter.**

   Note: The xxx represents the original QAM software version number.

   Result: The configuration file named qam.config.bakxxx, which contains the previous list of QAM configuration files, is copied to a configuration file named qam.config.

6. Type **ls -l** and then press **Enter**.

   Note: The **l** used in "ls" and "-l" is the lowercase of the letter L, not the number 1.

   Result: A list of files displays. The files **qamconfig.bakxxx**, **qam.config**, and **qam.config.235** appear in the list.

7. Confirm that the date and size of **qam.config** matches those of **qam.config.bakxxx**.

8. Type **exit** and then press **Enter.**

9. You are now ready to download the previous version of QAM software to QAM modulators by rebooting the modulators. For detailed procedures, go to the **Download QAM Software Version 2.3.5 to the QAM Modulators** section of Chapter 2.

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