



MQAM Modulator Software Version 2.4.10

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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About This Guide

Introduction

This document provides the following information:

- Instructions for upgrading the Model D9477 Multiple Quadrature Amplitude Modulation (MQAM) Modulator with MQAM software version 2.4.10
- A brief description of benefits the software provides
- Instructions for rolling back to earlier versions of MQAM software in the unlikely event that a site encounters problems after upgrading to MQAM software version 2.4.10

Purpose

This document enables system operators to perform the following tasks:

- Upgrade the Model D9477 MQAM Modulator with MQAM software version 2.4.10.
- Roll back to earlier versions of MQAM 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 D9477 MQAM Modulator with MQAM software version 2.4.10. It does not provide instructions for installing a MQAM modulator in your headend.

Note: For instructions on installing a MQAM modulator in your headend or for a complete description of MQAM features, refer to *MQAM Modulator Models D9477-1, D9477-2, D9477-3 Installation and Operation Guide*. For the part number for this document, see **Related Publications** later in this Preface.

About This Guide, Continued

Related Publications

You may find the following Cisco publications useful:

- *DBDS Utilities Installation Instructions and DNCS Utilities User's Guide*, part number 740020
- *Digital Network Control System Online Help (PC) Version 3.2.0.3 for SR 2.2/3.2*, part number 4003403*
- *Digital Network Control System Online Help (PC) Version 3.4.0.1 for System Release 2.4/3.4*, part number 4003350**
- *Digital Network Control System Online Help (PC) Version 3.5.0.0 for System Release 2.5/3.5*, part number 4002881***
- *MQAM Modulator Models D9477-1, D9477-2, and D9477-3 Installation and Operation Guide*, part number 717866
- *System Release 2.2 Release Notes*, part number 4004065
- *System Release 3.2 Release Notes*, part number 4004066
- *SR 2.2 and SR 3.2 Service Pack 1 Release Notes and Installation Instructions*, part number 4000917
- *SR 2.2 and SR 3.2 Service Pack 2 Release Notes and Installation Instructions*, part number 4001158
- *SR 2.2 and SR 3.2 Service Pack 3 Release Notes and Installation Instructions*, part number 4001702
- *System Release 2.4 Release Notes*, part number 4002527
- *System Release 3.4 Release Notes*, part number 749246
- *System Release 2.5 Release Notes*, part number 749253
- *System Release 3.5 Release Notes*, part number 4001159
- *Tearing Down Sessions Before Deleting a QAM or an MQAM Modulator Technical Bulletin*, part number 749641
- *Troubleshooting and Resetting QAMs and MQAMs With auditQAM Instruction Sheet*, part number 4005744

* The *Digital Network Control System Online Help (UNIX) Version 3.2.0.3 for SR 2.2/3.2* 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.

** The *Digital Network Control System Online Help (UNIX) Version 3.4.0.1 for System Release 2.4/3.4* 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.

*** 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 MQAM Software Version 2.4.10

Introduction

This chapter lists the requirements for upgrading the Model D9477 MQAM Modulator with MQAM software version 2.4.10. It also lists implemented change requests (CRs) and any known issues that are currently being resolved.

In This Chapter

This chapter contains the following topics.

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About MQAM Software Version 2.4.10

Introduction

MQAM software version 2.4.10 is designed to be installed on an MQAM 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 MQAM modulator, refer to the *MQAM Modulator Models D9477-1, D9477-2, and D9477-3 Installation and Operation Guide*.

This section includes the system release configuration, software requirements, and hardware requirements for installing MQAM software version 2.4.10. This section also includes known issues for this release of MQAM software.

System Release Compatibility and Prerequisites

MQAM software version 2.4.10 can be installed on a DBDS that is running one of the following system releases and DNCS application versions *prior* to installing MQAM software version 2.4.10:

- System Release (SR) 2.2 and later, or SR 3.2 and later, as well as any Service Packs associated with these system releases
- SR 2.5/3.5, SR 4.0, or CV 3.3
- DNCS Application version 3.0.1.16px.x, or later

For a complete configuration listing, or to upgrade your system, contact Cisco Services.

Upgrade Paths

The following table shows the DNCS version required for your current system release before you install MQAM 2.4.10.

Important: Your DNCS *must* be running the required version *prior* to installing MQAM 2.4.10. Contact Cisco Services to arrange for upgrading your DNCS to the correct version.

Current System Release	Required DNCS Version
SR 2.2/3.2 Service Pack 1 (SP1)	DNCS 3.0.1.16p1.3, or later
SR 2.2/3.2 Service Pack 2 (SP2)	DNCS 3.0.1.16p7.4b, or later

About MQAM Software Version 2.4.10, Continued

Software

MQAM software version 2.4.10 includes the following codes:

- MQAM Host Application code 2.4.10
- MQAM Host Boot code 1.2.2

Hardware

MQAM software version 2.4.10 supports only the Model D9477 MQAM 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 MQAM Software Version 2.4.10

Introduction

The following quick reference matrix lists the implemented change requests (CRs) addressed by MQAM software version 2.4.10. Additionally, this matrix lists the following attributes associated with the implemented CRs:

- A high-level description of the issue addressed by the CR

Note: 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
39949	Temporary loss of service	MQAM no longer reboots when performing cycles of adding and deleting CVT downloads through the DNCS GUI	MultiQAM Application, PowerTV OS, and PowerKEY®
39951	Temporary loss of service	Corrected an occasional issue where inserted program specific information (PSI) packets caused the PowerKEY MQAM to reboot when the Open Cable Compliant option is selected	MultiQAM Application and PowerKEY
41589	No impact	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	MultiQAM Application, PowerTV OS, and PowerKEY

Implemented Change Requests for MQAM Software Version 2.4.10, Continued

CR Number	Subscriber	Cable Service Provider	Process Affected
44279	Unable to view VOD purchases	Corrects an intermittent VOD session creation issue	MultiQAM Application and PowerKEY
44351	Loss of video	Corrects a reboot issue that occurred when an MQAM received a large number of entitlement control messages (ECMs) for an encrypted session	MultiQAM Application and PowerKEY
47724	Wrong content may appear in VOD	The MQAM now chooses the same output PIDs for a given program as a result of a PMT update, and VOD content broadcasts correctly	MultiQAM Application

Want To Know More?

Introduction

This section provides additional detail on each change for MQAM software version 2.4.10. The changes described in this section appear in numerical order, like the quick reference table earlier in this chapter.

CVT Downloads No Longer Cause PowerKEY MQAM Reboots

Previously the PowerKEY MQAM would reboot when performing continuous cycles of adding and deleting CVT downloads through the DNCS GUI. This continuous cycle would cause one of the task queues to overflow and eventually cause a reboot.

CR 39949 corrects this issue.

Inserted PSI Packets Cause PowerKEY MQAM Reboots

In earlier releases, when the DNCS was in ATSC mode with Open Cable Compliance selected, the PowerKEY MQAM would occasionally reboot. These reboots did not occur when the DNCS was in DVB-SI mode or when Open Cable Compliance was not selected. When Open Cable Compliance is selected, PSIP packets are inserted into the MQAM. **CR 39951** corrects this issue.

CA Descriptor Now Inserted Only Into Encrypted Video Streams

Previously, the MQAM 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 MQAM software has been modified to insert the CA descriptor only for encrypted sessions, including those that 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 41589** corrects this issue.

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

VOD Session Creation Issue Now Corrected

In earlier releases, MQAMs were losing 256-byte buffers which prevented the system from creating sessions. **CR 44279** prevents this buffer loss.

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

Previously, when a session was encrypted in an MQAM, the encrypted session caused the MQAM to reboot after receiving a large number of ECMs for that session. Now, when sessions are changed from clear to encrypted and the MQAM receives an ECM for that session for the first time, the MQAM does not reboot. **CR 44351** corrects this issue.

Content Broadcasts Correctly on VOD Sessions

Previously, when PMT updates were processed, changes to certain output program IDs (PIDs) on a program already in progress could occur. This could potentially lead to cross streaming, and ultimately cause incorrect content to be broadcast on VOD sessions. Now, the MQAM chooses the same output PIDs for a given program as a result of a PMT update, and VOD content broadcasts correctly. **CR 47724** corrects this issue.

CA Descriptor and VOD Sessions

Overview

The MQAM inserts the PowerKEY CA descriptor into the PMT for unencrypted on-demand content. If the DHCT OS finds the CA descriptor in the PMT, the OS starts the PowerKEY decryptor.

The PowerKEY scheduler then prioritizes ECMs by waiting until an ECM is processed before allowing any other CA messages or requests to be processed. During this waiting period, when no ECMs are delivered, non-ECM requests, (for example, a request for an MR-DVR session), remain in the queue, and are not processed until the PowerKEY decryptor is stopped.

Therefore, no MR-DVR session can be established while the MR-DVR server is streaming unencrypted VOD.

Solution

Now, the MQAM software 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.

Known Issues

Open Issues

The following matrix lists the CRs for issues that are known to exist in MQAM software version 2.4.10. A resolution for the following CRs is currently being investigated at Cisco

CR Number	Subscriber	Cable Service Provider	Process Affected
32257	No impact	A non-service affecting minor session data error alarm occurs when sessions are created or deleted.	MultiQAM Application and PowerKEY
39657	No impact	Bandwidth utilization for a channel is not reported properly when no sessions are set up on that channel.	MultiQAM Application and PowerKEY
46686	Temporary service interruption	MQAMs reboot after printing the PID blocking list.	MultiQAM Application
46677	No impact	Remove the “Adj” display from domestic MQAM front panel LED Bandwidth display to prevent confusion since the bandwidth cannot be adjusted from the front panel.	MultiQAM Application

Chapter 2

Upgrading the MQAM Modulator With MQAM Software Version 2.4.10

Introduction

This chapter describes how to upgrade the Model D9477 MQAM Modulator with MQAM software version 2.4.10.

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Upgrade Process Overview

Introduction

This section provides a brief overview of the tasks you must complete to upgrade the Model D9477 MQAM Modulator with MQAM software version 2.4.10.

Before You Begin

Before you upgrade to MQAM 2.4.10, be sure that your system meets the configuration requirements specified in **About MQAM Software Version 2.4.10** in Chapter 1.

If you will not download MQAM 2.4.10 from a File Transfer Protocol (FTP) site, make sure that you have obtained the CD **MQAM Software V2.4.10**, part number 4009792.

Important: Do *not* proceed with installing MQAM software version 2.4.10 until you have read and followed the directives in the **About MQAM Software Version 2.4.10** section of Chapter 1.

Time To Complete

When upgrading MQAM modulators with MQAM software version 2.4.10, consider the following tasks and the amount of time required for each:

- Completing pre-upgrade tasks takes from 30 to 45 minutes.

Note: If you are upgrading from an FTP site, allow an additional 10 to 15 minutes to download MQAM software from the FTP site. The speed of the connection and the size of the files determine the download time.

- Downloading MQAM software version 2.4.10 to a MQAM modulator takes about 5 minutes for each MQAM modulator.
- Verifying the functionality of a MQAM modulator depends on the number of sessions that the modulator carries and typically takes about 5 to 10 minutes.

Note: It is not necessary to build sessions on the MQAM modulators that you upgrade. The sessions are rebuilt automatically after MQAM version 2.4.10 is downloaded to a MQAM modulator.

Subscriber Impact

When MQAM 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 MQAM modulator.

Upgrade Process Overview, Continued

Impact of TVs With QAM Tuners

When upgrading MQAMs to new releases of software, you must reset the MQAMs 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 MQAMs. The DNCS also activates encryption for any secure services that were running on the MQAMs.

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 MQAMs. 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 MQAM Modulators That Carry Broadcast Sessions in the Download MQAM Software Version 2.4.10 to MQAM Modulators That Carry Broadcast Sessions** section
- **Verifying the Functionality of MQAM Modulators That Carry xOD or VOD Sessions in the Download MQAM Software Version 2.4.10 to MQAM Modulators That Carry xOD or VOD Sessions** section

Upgrade Process Overview, Continued

Process Overview

This page provides an overview of the process required to upgrade to MQAM software version 2.4.10.



CAUTION:

If upgrading more than one MQAM modulator, download MQAM software version 2.4.10 to one modulator and verify its functionality before attempting to download MQAM software to another modulator. Verifying the functionality of one MQAM modulator at a time enables you to better isolate any failures that may occur and enables you to minimize service interruptions.

Pre-Upgrade Tasks

1. 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 MQAMs.
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*.
2. 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 MQAMs.
3. Verify the current MQAM software version running on your DNCS and MQAM modulators.
4. Make a copy of the current MQAM software version. In the unlikely event of a failure, you can use this backup copy to restore your system to the previous version of MQAM software.
5. Install MQAM software version 2.4.10 onto the DNCS.
6. If you are upgrading more than one MQAM modulator, establish an order for upgrading the modulators.
7. If the MQAM 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 these sessions are rebuilt after the new software is downloaded to the modulators.
Note: If your MQAM 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 Process Overview, Continued

Upgrade Tasks

1.



CAUTION:

All active sessions on the MQAM 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 MQAM modulators with MQAM software version 2.4.10 by resetting the modulator from the DNCS or by cycling power to the modulator. Resetting the modulator causes it to reboot, update the software, and re-establish existing sessions.

Note: If resetting the modulator does not cause it to reboot and load MQAM software version 2.4.10, turn power to the modulator off and on again. For assistance cycling power to the modulator, refer to *MQAM Modulator Models D9477-1, D9477-2, D9477-3 Installation and Operation Guide*. For the part number of this guide, see **Related Publications** in the Preface of this document.

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

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

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

4. After the upgrade is complete, 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.

Verify the Current MQAM Software Version on the DNCS

Introduction

Before attempting to upgrade to MQAM software version 2.4.10, verify the current MQAM software version installed on your DNCS. This section describes how to verify the MQAM software version installed on your DNCS.

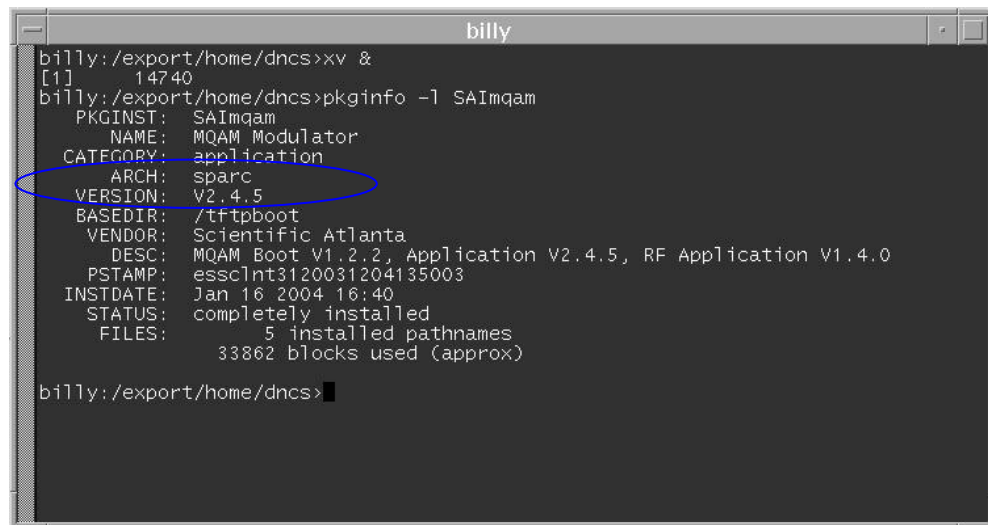
Verifying the Current MQAM Software Version on the DNCS

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

1. Open an xterm window on the DNCS.
2. Log on as the **dncs** user.
3. Type **pkginfo -l SAImqam** and then press **Enter**.

Note: The **l** used in “-l” is the lowercase of the letter L.

Result: Information about the software package appears in the xterm window similar to the following example. The **version** line indicates the current version of MQAM software installed on the DNCS.



```
billy:/export/home/dncs>xv &
[1] 14740
billy:/export/home/dncs>pkginfo -l SAImqam
PKGINST: SAImqam
NAME: MQAM Modulator
CATEGORY: application
ARCH: sparc
VERSION: V2.4.5
BASEDIR: /tftpboot
VENDOR: Scientific Atlanta
DESC: MQAM Boot V1.2.2, Application V2.4.5, RF Application V1.4.0
PSTAMP: essclnt3120031204135003
INSTDATE: Jan 16 2004 16:40
STATUS: completely installed
FILES: 5 installed pathnames
       33862 blocks used (approx)

billy:/export/home/dncs>
```

Verify the Current MQAM Software Version on the DNCS, Continued

4. Does the information indicate that MQAM software version 2.4.10 has been installed?
 - If **yes**, you do not need to install MQAM software version 2.4.10 onto the DNCS, and may not need to upgrade MQAM modulators with MQAM 2.4.10. Go to **Verify the Current Software on MQAM Modulators**, next in this chapter.
 - If **no**, before installing MQAM 2.4.10 on the DNCS, backup the MQAM software currently installed on your DNCS. Go to **Back Up the Current MQAM Software Version**, later in this chapter.

Verify the Current Software on MQAM Modulators

Introduction

Before attempting to upgrade MQAM modulators with MQAM 2.4.10 (Host Application code 2.4.10 and Host Boot code 1.2.2), verify the current MQAM software version currently installed on your MQAM modulators.

Verifying the Current Software on MQAM Modulators

Complete these steps to verify the current version of MQAM software installed on the MQAM modulators in your system.

1. On the front panel of the MQAM modulator, press the **OPTIONS** button 8 times.

Result: The **I/O Software Revision** screen appears in the display and lists the current MQAM application code and boot code, as shown in the following example.

I/O Software Revision App: 2.4.10 Boot: 1.2.2

2. Does the App: field display 2.4.10 and the Boot: field display 1.2.2?
 - If **yes**, MQAM software version 2.4.10 is already installed on this modulator. You do not need to upgrade this modulator with MQAM software version 2.4.10.
 - If **no**, MQAM software version 2.4.10 is not installed on this modulator.
3. Press **Enter** to return to the default front panel message.
4. Does your system contain other MQAM modulators?
 - If **yes**, repeat steps 1 to 3 to verify the version of software that is installed on each modulator.
 - If **no**, go to step 5.
5. Did you determine that one or more MQAM modulators do not have MQAM software version 2.4.10 installed?
 - If **yes**, you are ready to download software to the appropriate MQAM modulators. For assistance downloading to modulators that carry *xOD* or VOD sessions, see **Download MQAM Software Version 2.4.10 to MQAM Modulators That Carry *xOD* or VOD Sessions**, later in this chapter.
 - If **no**, you do not need to upgrade MQAM modulators with MQAM 2.4.10 and can ignore the remainder of these instructions.

Back Up the Current MQAM Software Version

Introduction

Before downloading MQAM software version 2.4.10 to a MQAM modulator, copy the configuration file of the version of MQAM software currently installed. In the unlikely event of a failure, you can use the copy to restore the current version of MQAM software to your system. This section provides instructions for copying the configuration file of your current MQAM software version.



CAUTION:

Do not proceed with downloading MQAM software version 2.4.10 until you have created a backup of the current configuration file of the MQAM software installed on your system. Otherwise, you will be unable to restore the previous version of MQAM software to your system in the unlikely event of a failure.

Restore the previous version of MQAM software to your system only when recommended by Cisco Services.

Backing Up the Current MQAM Software Version

Follow these steps to back up the current version of MQAM software 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 MQAM.config MQAM.config.bakxxx** and then press **Enter**.
Result: A copy of the configuration file MQAM.config, which contains MQAM configuration settings, is saved to a configuration file named MQAM.config.bakxxx.
Note: In this example, xxx represents your current MQAM software version. For example, if your current MQAM software version is 2.4.5, name the file **MQAM.config.bak245**.

Back Up the Current MQAM Software Version, Continued

7. 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 appears. The file MQAM.config.bakxxx appears in the list.

8. Type **exit** and then press **Enter** to exit from the root user.
9. Type **exit** and press **Enter** to close the xterm window.
10. Now that you have made a copy of the current version of MQAM software installed on your DNCS, you are ready to install MQAM software version 2.4.10 on your DNCS. Go to **Install MQAM Software Version 2.4.10 Onto the DNCS**, next in this chapter.

Install MQAM Software Version 2.4.10 Onto the DNCS

Introduction

This section describes how to install MQAM software version 2.4.10 onto the DNCS using either of the following methods:

- From the CD, **MQAM Software V2.4.10**, part number 4009792
- From Cisco's FTP server

Installing the MQAM Software From a CD

Follow these steps to install MQAM software version 2.4.10 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 **MQAM Software V2.4.10** 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 will display. 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/dvsg** and press **Enter**.
Result: The **/cdrom/dvsg** directory becomes the working directory.

Install MQAM Software Version 2.4.10 Onto the DNCS, Continued

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 about a minute.

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 so that 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 secure location. Go to **Establish a Download Sequence**, later in this chapter.

Installing the MQAM Software From Cisco's FTP Server

In this section, you will create a directory on the DNCS into which you will load the MQAM software version 2.4.10 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 MQAM software version 2.4.10 from the file you created at the beginning of this procedure.

Install MQAM Software Version 2.4.10 Onto the DNCS, Continued

Creating the Directory

Follow these steps to create a directory on the DNCS into which you will load the file containing MQAM software version 2.4.10.

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** and then press **Enter**.
Result: The /export/home/dncs directory becomes the working directory.
5. Type **mkdir MQAM2410** and then press **Enter**.
Result: The system creates a subdirectory called MQAM2410 in the /export/home/dncs directory.
6. Type **cd MQAM2410** and then press **Enter**.
Result: The /export/home/dncs/MQAM2410 directory becomes the working directory.
7. Go to **Obtaining the MQAM Software File**, next in this procedure.

Obtaining the MQAM Software File

Follow these general guidelines in order to obtain the file containing MQAM software version 2.4.10 from Cisco's FTP server.

1. Type **pwd** and press **Enter** to verify that you are in the correct working directory.
Result: The system displays the current working directory.
2. Did the system display **/export/home/dncs/CAQAM229** as the current working directory?
 - If **yes**, go to step 3.
 - If **no**, type **cd /export/home/dncs/CAQAM229** and press **Enter**.
3. Log on to Cisco's FTP server.

Notes:

- The address of the server is ftp.sciatl.com or **172.18.45.203**.
- The username is **anonymous**.
- The password is the email address of the person logging in.

Install MQAM Software Version 2.4.10 Onto the DNCS, Continued

4. 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/MQAM** to navigate to the correct directory.
 - If you are inside the firewall, type **cd /external_pub/scicare/RELEASED/MQAM** to navigate to the correct directory.
5. Type **bin** and then press **Enter**.

Result: The system sets the ftp transfer mode to binary.
6. Type **hash** and then press **Enter**.

Result: The system configures itself to display hash marks that show file-transfer progress.
7. Type **get MQAM2410.tar.Z** and press **Enter**.

Result: The system begins copying files into the /export/home/dncs/MQAM2410 directory on your DNCS.
8. Type **bye** and press **Enter**.

Result: The system logs you out of the FTP server.
9. 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 MQAM2410.tar.Z** and then press **Enter**.

Result: The system decompresses the MQAM software file.
2. Type **tar xvf MQAM2410.tar** and then press **Enter**.

Result: The system extracts the individual files.
3. Go to **Installing MQAM 2.4.10 on the DNCS**, next in this procedure.

Install MQAM Software Version 2.4.10 Onto the DNCS, Continued

Installing MQAM 2.4.10 on the DNCS

Follow these instructions to install MQAM software version 2.4.10 from the directory you created at the beginning of this procedure.

1. Type **pwd** and press **Enter** to verify that the directory containing MQAM software version 2.4.10 is the working directory.

Result: The system displays the current working directory.

2. Did the system display **/export/home/dncs/MQAM2410** as the current working directory?

- If **yes**, go to step 3.
- If **no**, type **cd /export/home/dncs/MQAM2410** and press **Enter**.

3. 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.

4. 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 about a minute.

5. Was the installation successful?

- If **yes**, type **exit** and press **Enter** to log out as root user. Then go to step 6.
- If **no**, contact Cisco Services.

6. Type **exit** and press **Enter** to close the xterm window. You are ready to determine a sequence for downloading MQAM software version 2.4.10 to the MQAM modulators in your system. Go to **Establish a Download Sequence**, next in this chapter.

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

Establish a Download Sequence

Introduction

This section provides guidance for establishing a sequence to follow when downloading MQAM software version 2.4.10 onto more than one MQAM 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 MQAM Software Version 2.4.10 Onto Each MQAM Modulator



CAUTION:

If downloading MQAM software version 2.4.10 to more than one MQAM modulator, download the software to one modulator and verify its functionality before attempting to download software to another modulator. Verifying the functionality of one modulator at a time enables you to better isolate any failures that may occur.

The order in which you download MQAM software onto MQAM modulators allows you to verify that the download is successful before proceeding. Follow these guidelines to establish an order in which to download MQAM software version 2.4.10 to MQAM modulators. The method that you follow depends on the type of sessions that the MQAM modulator carries (xOD/VOD sessions or broadcast sessions).

xOD/VOD Sessions

When upgrading MQAM 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 MQAM modulators act as spares, start by downloading MQAM software version 2.4.10 on these modulators.
- If your system does not have a spare MQAM modulator, download MQAM software version 2.4.10 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.

Establish a Download Sequence, Continued

Broadcast Sessions

When upgrading MQAM modulators that carry broadcast sessions, upgrade the modulators in one hub, one modulator at a time, and verify its functionality before proceeding to the next modulator in the hub.

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

- If any MQAM modulators act as spares, start by downloading MQAM software version 2.4.10 on these modulators.
- If your system does not have a spare MQAM modulator, download MQAM software version 2.4.10 on the modulator carrying sessions that are least viewed.
- 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 MQAM software version 2.4.10 onto the MQAM modulators in your system, the next step depends on the type of sessions your MQAM modulators carry (xOD/VOD sessions or broadcast sessions).

xOD/VOD Sessions

If all of your MQAM modulators carry xOD or VOD sessions, you are ready to begin downloading MQAM software version 2.4.10 to MQAM modulators. Go to **Download MQAM Software Version 2.4.10 to MQAM Modulators That Carry xOD or VOD Sessions**, 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 MQAM 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 MQAM 2.4.10 is downloaded to the modulator. Go to **Determine Existing Broadcast Sessions**, next in this chapter.

Determine Existing Broadcast Sessions

Introduction

By using 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 MQAM 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 MQAM modulator in your system.

Channels, Sources & Sessions Report Information

The following 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 an MQAM modulator carries.

The screenshot shows a Netscape browser window with the address bar displaying 'http://poppye3043/samports/reports/CSSReport.html?'. The page title is 'Channels, Sources & Sessions Report' and it indicates 'Data Refreshed on 08/31/2004 @ 16:52'. Below the title is a 'Run Report' button. The table below lists broadcast sessions with columns for Channel Num, Hub Name, LUG ID, Service ID, SAM Service Name, Short Desc, Long Desc, Application URL, Source ID, Source Name, Source Type, Session ID, Effective Date/Time, QAM Name, Bandwidth, MPEG Program Number, and Cost. The first few rows are circled to highlight the Channel Num, Session ID, and QAM Name columns.

Channel Num	Hub Name	LUG ID	Service ID	SAM Service Name	Short Desc	Long Desc	Application URL	Source ID	Source Name	Source Type	Session ID	Effective Date/Time	QAM Name	Bandwidth	MPEG Program Number	Cost
513	Hub1	1	165	HBOPW 513	HBOPW	HBO Plus West 513	bfs://resapp/watchtv	1513	D513 HBOPW	Digital	00:00:00:00:00:01 1513	01/28/2004 13:10	HUB1gqam1	3000000	14	MPE
513	Hub2	2	165	HBOPW 513	HBOPW	HBO Plus West 513	bfs://resapp/watchtv	1513	D513 HBOPW	Digital	00:00:00:00:00:01 1513	01/28/2004 13:10	HUB1gqam1	3000000	14	MPE
513	Hub1	1	165	HBOPW 513	HBOPW	HBO Plus West 513	bfs://resapp/watchtv	1513	D513 HBOPW	Digital	00:00:00:00:00:01 1513	01/28/2004 13:10	HUB1gqam1	3000000	14	MPE
514	Hub1	1	166	HBOSW 514	HBOSW	HBO Signature West 514	bfs://resapp/watchtv	1514	D514 HBOSW	Digital	00:00:00:00:00:01 1514	01/28/2004 13:12	HUB1gqam1	3000000	15	MPE
514	Hub2	2	166	HBOSW 514	HBOSW	HBO Signature West 514	bfs://resapp/watchtv	1514	D514 HBOSW	Digital	00:00:00:00:00:01 1514	01/28/2004 13:12	HUB1gqam1	3000000	15	MPE
514	Hub1	1	167	SHO2W 515	SHO2W	Showtime 2 West 515	bfs://resapp/watchtv	1515	D515 SHO2W	Digital	00:00:00:00:00:01 1515	01/28/2004 13:13	HUB1gqam1	3000000	16	MPE
515	Hub2	2	167	SHO2W 515	SHO2W	Showtime 2 West 515	bfs://resapp/watchtv	1515	D515 SHO2W	Digital	00:00:00:00:00:01 1515	01/28/2004 13:13	HUB1gqam1	3000000	16	MPE
515	Hub1	1	168	TMCW 516	TMCW	The Movie Channel West 516	bfs://resapp/watchtv	1516	D516 TMCW	Digital	00:00:00:00:00:01 1516	01/28/2004 13:14	HUB1gqam1	3000000	17	MPE
516	Hub2	2	168	TMCW 516	TMCW	The Movie Channel West 516	bfs://resapp/watchtv	1516	D516 TMCW	Digital	00:00:00:00:00:01 1516	01/28/2004 13:14	HUB1gqam1	3000000	17	MPE
516	Hub1	1	169	ST22W 517	ST22W	Starz 2 West 517	bfs://resapp/watchtv	1517	D517 ST22W	Digital	00:00:00:00:00:01 1517	01/28/2004 13:17	HUB1gqam1	3000000	18	MPE
517	Hub2	2	169	ST22W 517	ST22W	Starz 2 West 517	bfs://resapp/watchtv	1517	D517 ST22W	Digital	00:00:00:00:00:01 1517	01/28/2004 13:17	HUB1gqam1	3000000	18	MPE
517	Hub1	1	169	ST22W 517	ST22W	Starz 2 West 517	bfs://resapp/watchtv	1517	D517 ST22W	Digital	00:00:00:00:00:01 1517	01/28/2004 13:17	HUB1gqam1	3000000	18	MPE

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

Determine Existing Broadcast Sessions, Continued

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 displays.
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 name and password appear for the DNCS server where Report Writer software is located.

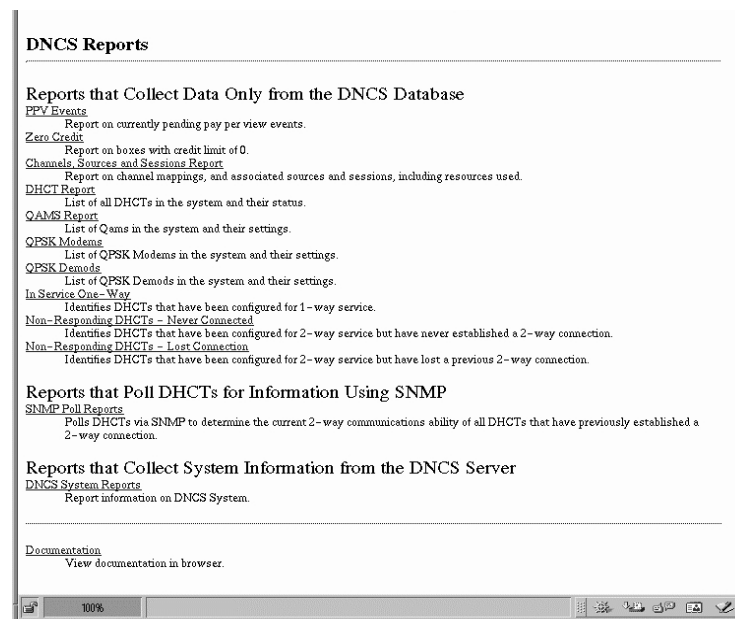
Determine Existing Broadcast Sessions, Continued

4. Type your user name and password and then click **OK**.

Notes:

- The <hostname> represents the host name of the DNCS server where Report Writer software is located.
- You can enter the host name or the IP address of the server.
- The default user name is **sareports** and the default password is **report**.

Result: The Web browser displays the following page.



Determine Existing Broadcast Sessions, Continued

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

Result: The following page 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	WGTW	WGTW	WGTW	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

- 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.

- Click **Display Data**.

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

Determine Existing Broadcast Sessions, Continued

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.

Source ID	Source Name	Source Type	Session ID	Effective Date/Time	QAM Name	Bandwidth	MPEG Program Number	Content Origination
1008	A008 WGTW	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

9. When the **Data Refreshed** message displays, 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
10. Save the report for later use. Go to **Saving the Channels, Sources & Sessions Report**, next in this section.

Determine Existing Broadcast Sessions, Continued

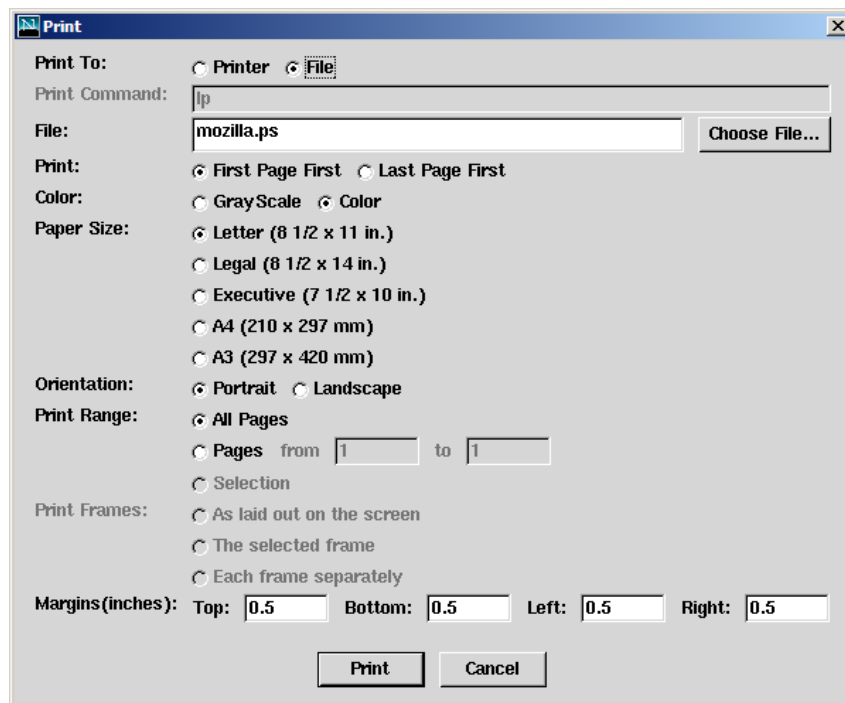
Saving the Channels, Sources & Sessions Report

Follow these steps to save the Channels, Sources & Sessions Report.

Note: You must save the Channels, Sources & Sessions Report to your hard drive.

1. From your Web browser window click **File**, and then click **Print**.

Result: The Print page opens.



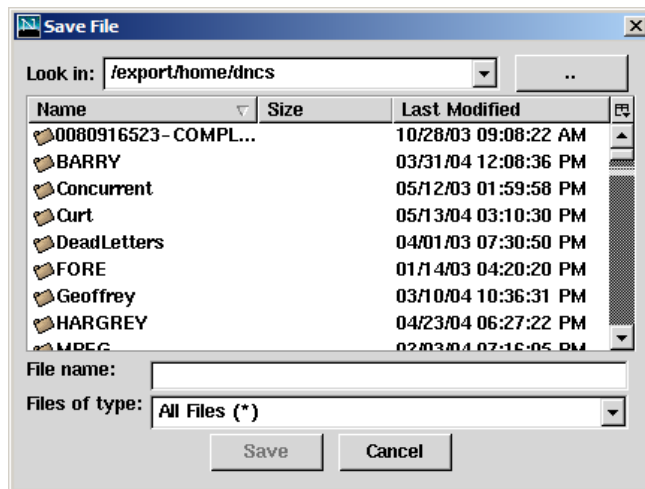
2. From the Print To section of the Print window, select the **File** option.

Result: The **File** option is highlighted.

Determine Existing Broadcast Sessions, Continued

3. Click **Choose File**.

Result: The Save File window opens.



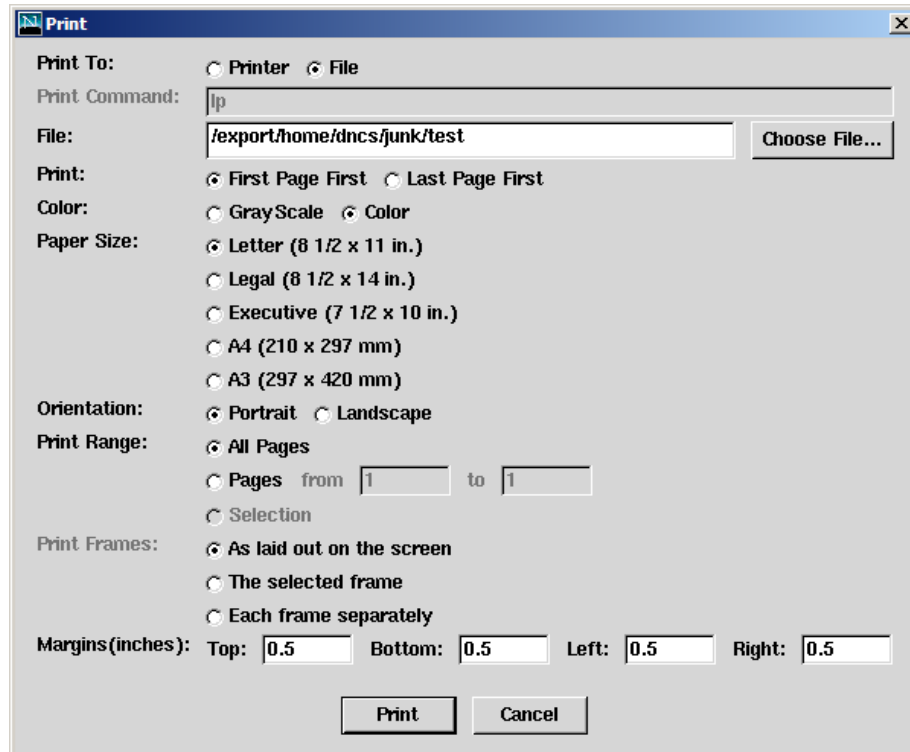
4. Choose one of the following methods to navigate to the directory in which you want to save the file:
 - Double-click the .. (double-dot) symbol in the Directories panel to navigate to a higher-level directory.
 - Double-click the directory name to navigate to a subdirectory.

Note: You must save the Channels, Sources & Sessions Report to your hard drive.

Determine Existing Broadcast Sessions, Continued

5. Click in the **File Name** field and type a name for the file. Then click **Save**.

Result: The Save File window closes to show the Print window, which updates the File field to include the file you named in step 4.



6. Print a copy of this report for later use in verifying a successful upgrade. Go to **Printing the Channels, Sources & Sessions Report**, next in this section.

Determine Existing Broadcast Sessions, Continued

Printing the Channels, Sources & Sessions Report

Important: To print the report from the DNCS, you must have a printer configured for the DNCS.

Follow these steps to print the Channels, Sources & Sessions Report.

1. In the Print To section of the window, click the **Printer** option.

Result: The **Printer** option is highlighted.

2. Click in the **Print Command** field and type the correct printer name. Then click **Print**.

Result:

- The Print window closes to show the Channels, Sources & Sessions Report page.
- The report is sent to your printer.

3. Click **File** and choose **Close** or **Quit**.

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

4. Now that you have a list of the sessions that are running on the MQAM modulators that you are upgrading, you are ready to begin the upgrade process. Go to **Download MQAM Software Version 2.4.10 to MQAM Modulators That Carry Broadcast Sessions**, next in this chapter.

Download MQAM Software Version 2.4.10 to MQAM Modulators That Carry Broadcast Sessions

Introduction

To download MQAM software 2.4.10 (Host Application code 2.4.10 and Host Boot code 1.2.2) to a MQAM modulator that carries broadcast sessions, reboot the MQAM modulator by resetting it from the DNCS or by cycling power to the modulator. After the modulator reboots, MQAM software version 2.4.10 is downloaded from the DNCS to the modulator.

Important: You can also reset an MQAM using the auditQAM command. Refer to the *Troubleshooting and Resetting QAMs and MQAMs With auditQAM Instruction Sheet* for detailed instructions on using the auditQAM command.

Note: Be sure to read and follow the directives contained in **Impact of TVs With QAM Tuners**, earlier in this chapter.

Important: You need to verify the session and program count on the QAM both *before* and *after* you reboot the QAM.

Rebooting the MQAM Modulator From the DNCS



CAUTION:

All active sessions on the MQAM 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 MQAM modulator, refer to *MQAM Modulator Models D9477-1, D9477-2, D9477-3 Installation and Operation Guide*.

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

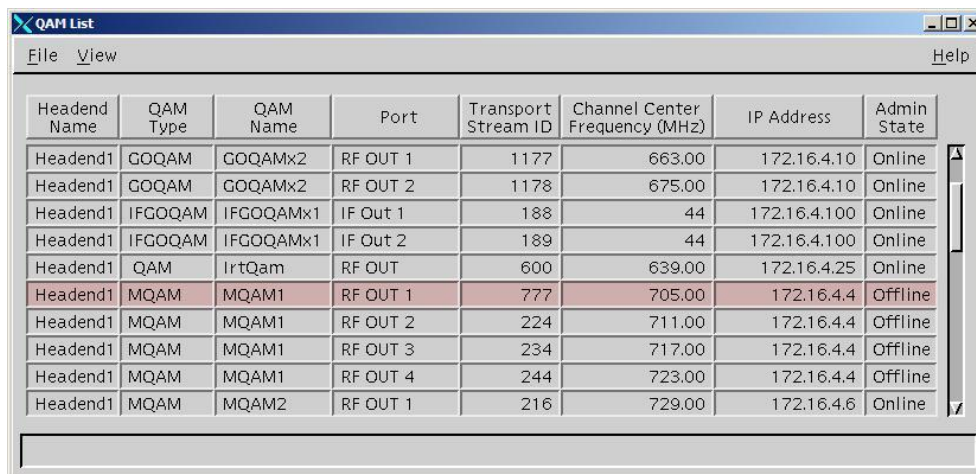
Result: The QAM List window opens.

Download MQAM Software Version 2.4.10 to MQAM Modulators That Carry Broadcast Sessions, Continued

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

Important: Although each MQAM modulator that has been provisioned is listed four times, select only one of the four modulators listed.

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

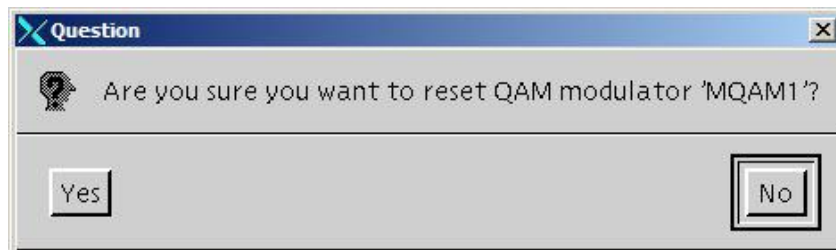


Headend Name	QAM Type	QAM Name	Port	Transport Stream ID	Channel Center Frequency (MHz)	IP Address	Admin State
Headend1	GOQAM	GOQAMx2	RF OUT 1	1177	663.00	172.16.4.10	Online
Headend1	GOQAM	GOQAMx2	RF OUT 2	1178	675.00	172.16.4.10	Online
Headend1	IFGOQAM	IFGOQAMx1	IF Out 1	188	44	172.16.4.100	Online
Headend1	IFGOQAM	IFGOQAMx1	IF Out 2	189	44	172.16.4.100	Online
Headend1	QAM	IrtQam	RF OUT	600	639.00	172.16.4.25	Online
Headend1	MQAM	MQAM1	RF OUT 1	777	705.00	172.16.4.4	Offline
Headend1	MQAM	MQAM1	RF OUT 2	224	711.00	172.16.4.4	Offline
Headend1	MQAM	MQAM1	RF OUT 3	234	717.00	172.16.4.4	Offline
Headend1	MQAM	MQAM1	RF OUT 4	244	723.00	172.16.4.4	Offline
Headend1	MQAM	MQAM2	RF OUT 1	216	729.00	172.16.4.6	Online

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

Result: The Question window appears with the name of the selected MQAM modulator inside the quotation marks ('...').

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



- Click **Yes**.

Result: The QAM List window displays the following message:

The reset request has been received by QAM modulator <Name of MQAM>.

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

Download MQAM Software Version 2.4.10 to MQAM Modulators That Carry Broadcast Sessions, Continued

6. On the front panel of the modulator, wait for the Downloading message to appear and for alarms to end.

Result: When the download is complete, the default status message appears, as shown in the following example.

RF 1 300.00Mz	50.0 dBmV
ITUB 256QAM	Alarm 0

Notes:

- It may take up to 5 minutes for the message to appear and the alarms to end.
 - For a complete description of the messages that display during a code download, refer to *MQAM Modulator Models D9477-1, D9477-2, D9477-3 Installation and Operation Guide*.
7. On the front panel of the MQAM modulator, press the **OPTIONS** button 8 times.

Result: The **I/O Software Revision** screen appears in the display and lists the current MQAM application code and boot code, as shown in the following example.

I/O Software Revision
App: 2.4.10 Boot: 1.2.2

8. Does the App: field display 2.4.10 and the Boot: field display 1.2.2?
 - If **yes**, press **Enter** to return to the default front panel message. Then go to step 9.
 - If **no**, try turning power to the modulator off and on again to force the modulator to reboot. Then wait for the default status message to appear as described earlier in step 6. For assistance cycling power to the modulator, refer to *MQAM Modulator Models D9477-1, D9477-2, D9477-3 Installation and Operation Guide*.

Note: If turning power to the modulator off and on again does not cause the modulator to reboot and load MQAM software version 2.4.10, contact Cisco Services.

Download MQAM Software Version 2.4.10 to MQAM Modulators That Carry Broadcast Sessions, Continued

9. Now that you have downloaded MQAM software version 2.4.10 to this modulator verify its functionality. For assistance, see **Verifying the Functionality of a MQAM Modulator That Carries Broadcast Sessions**, next in this section.

Verifying the Functionality of a MQAM Modulator That Carries Broadcast Sessions

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



CAUTION:

Verify the functionality of one MQAM modulator at a time. In the unlikely event of a failure, you can better isolate that failure without interrupting service for the remaining MQAM modulators and their associated DHCTs.

1. Access a DHCT that is connected downstream of one MQAM modulator.
2. Refer to the Channels, Sources & Sessions Report that you generated earlier.
3. Tune the DHCT to each channel carried on the MQAM that you upgraded.
4. Are all channels accessible from the DHCT?
 - If **yes**, go to step 5.
 - If **no**, do not attempt to upgrade the software of any additional MQAM modulators, contact Cisco Services.
5. Do you need to download MQAM software version 2.4.10 to another MQAM modulator?
 - If **yes**, use the sequence you determined earlier to select the next modulator to upgrade, and download MQAM software version 2.4.10 to this modulator. For assistance, see **Rebooting the MQAM Modulator from the DNCS**, earlier in this section.
 - If **no**, you have upgraded all the xOD and VOD MQAM modulators in your system with MQAM software version 2.4.10.

Download MQAM Software Version 2.4.10 to MQAM Modulators That Carry xOD or VOD Sessions

Introduction

To download MQAM software 2.4.10 (Host Application code 2.4.10 and Host Boot code 1.2.2) to a MQAM modulator that carries xOD or VOD sessions, reboot the MQAM modulator by resetting it from the DNCS or cycling power to the modulator. After the modulator reboots, MQAM software version 2.4.10 is downloaded from the DNCS to the modulator.

Important: You can also reset an MQAM using the auditQAM command. Refer to the *Troubleshooting and Resetting QAMs and MQAMs With auditQAM Instruction Sheet* for detailed instructions on using the auditQAM command.

Note: Be sure to read and follow the directives contained in **Impact of TVs With QAM Tuners**, earlier in this chapter.

Note: You need to verify the session and program count on the QAM both *before* and *after* you reboot the QAM.

Rebooting the MQAM Modulator From the DNCS



CAUTION:

All active sessions on the MQAM 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.

Note: Repeat this procedure for each hub that has been upgraded with MQAM software version 2.4.10 and is carrying xOD or VOD sessions.

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

Note: For instructions on provisioning the MQAM modulator, refer to *MQAM Modulator Models D9477-1, D9477-2, D9477-3 Installation and Operation Guide*.

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

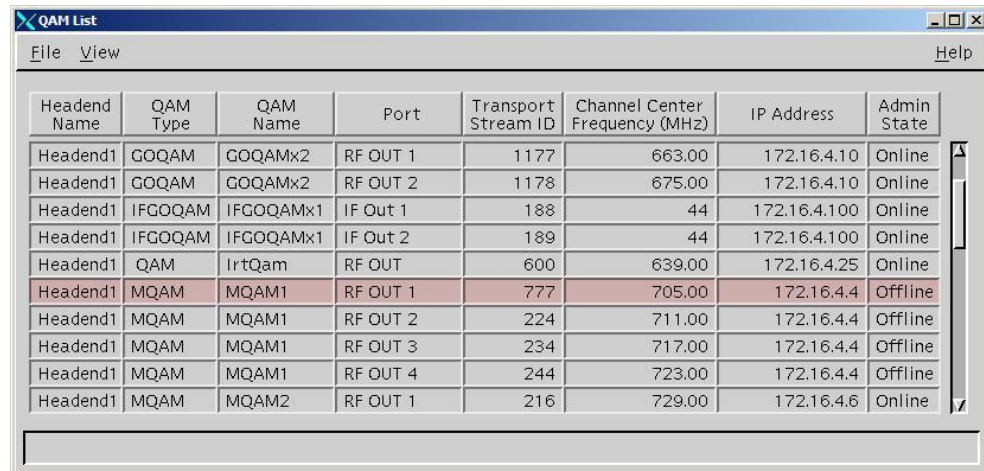
Result: The QAM List window opens.

Download MQAM Software Version 2.4.10 to MQAM Modulators That Carry xOD or VOD Sessions, Continued

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

Important: Although each MQAM modulator that has been provisioned is listed four times, select only one of the four modulators listed.

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

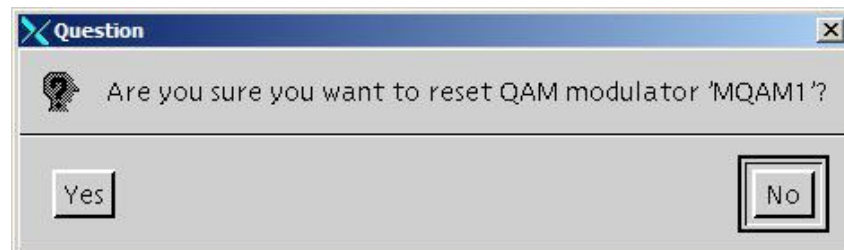


Headend Name	QAM Type	QAM Name	Port	Transport Stream ID	Channel Center Frequency (MHz)	IP Address	Admin State
Headend1	GOQAM	GOQAMx2	RF OUT 1	1177	663.00	172.16.4.10	Online
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Headend1	IFGOQAM	IFGOQAMx1	IF Out 2	189	44	172.16.4.100	Online
Headend1	QAM	IrtQam	RF OUT	600	639.00	172.16.4.25	Online
Headend1	MQAM	MQAM1	RF OUT 1	777	705.00	172.16.4.4	Offline
Headend1	MQAM	MQAM1	RF OUT 2	224	711.00	172.16.4.4	Offline
Headend1	MQAM	MQAM1	RF OUT 3	234	717.00	172.16.4.4	Offline
Headend1	MQAM	MQAM1	RF OUT 4	244	723.00	172.16.4.4	Offline
Headend1	MQAM	MQAM2	RF OUT 1	216	729.00	172.16.4.6	Online

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

Result: The Question window appears with the name of the selected MQAM modulator inside the quotation marks ('...').

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



- Click **Yes**.

Result: The QAM List window displays the following message:

The reset request has been received by QAM modulator <Name of MQAM>.

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

Download MQAM Software Version 2.4.10 to MQAM Modulators That Carry xOD or VOD Sessions, Continued

6. On the front panel of the modulator, wait for the Downloading message to appear and for alarms to end.

Result: When the download is complete, the default status message appears, as shown in the following example.

RF 1 300.00Mz	50.0 dBmV
ITUB 256QAM	Alarm 0

Notes:

- It may take up to 5 minutes for the message to appear and the alarms to end.
 - For a complete description of the messages that display during a code download, refer to *MQAM Modulator Models D9477-1, D9477-2, D9477-3 Installation and Operation Guide*.
7. On the front panel of the MQAM modulator, press the **OPTIONS** button 10 times.

Result: The **I/O Software Revision** screen appears in the display and lists the current MQAM application code and boot code, as shown in the following example.

I/O Software Revision App: 2.4.10 Boot: 1.2.2

8. Does the App: field display 2.4.10 and the Boot: field display 1.2.2?
 - If **yes**, press **Enter** to return to the default front panel message. Then go to step 9.
 - If **no**, try turning power to the modulator off and on again to force the modulator to reboot. Then wait for the default status message to appear as described earlier in step 6. For assistance cycling power to the modulator, refer to *MQAM Modulator Models D9477-1, D9477-2, D9477-3 Installation and Operation Guide*.

Note: If turning power to the modulator off and on again does not cause the modulator to reboot and load MQAM software version 2.4.10, contact Cisco Services.

Download MQAM Software Version 2.4.10 to MQAM Modulators That Carry xOD or VOD Sessions, Continued

9. Does this hub contain another xOD or VOD MQAM modulator that you need to upgrade?
 - If **yes**, repeat steps 3 to 8 to download MQAM software version 2.4.10 to another modulator.
 - If **no**, you have downloaded MQAM software version 2.4.10 to all MQAM modulators in this hub, and are ready to verify the functionality of these modulators. For assistance, see **Verifying the Functionality of MQAM Modulators That Carry xOD or VOD Sessions**, next in this section.

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

Follow these steps to confirm that an active session is being carried by any one of the modulators that you have upgraded with MQAM software version 2.4.10.

Important: Due to load balancing and traffic, it is difficult to determine with absolute certainty that all MQAM modulators are functioning properly. For this reason, after completing the following verification, also monitor these modulators for a few days following this upgrade.

1. On the front panel of the MQAM modulator, press the **OPTIONS** button until you display the Session Count screen.

Result: The Session Count reflects the number of sessions on each RF output.

RF 1 Session Count
7

Note: For more information on using the screens of the front panel, refer to *MQAM Modulator Models D9477-1, D9477-2, D9477-3 Installation and Operation Guide*.

Download MQAM Software Version 2.4.10 to MQAM Modulators That Carry xOD or VOD Sessions, Continued

2. Does the Session Count screen indicate that the modulator has at least one active session?
 - If **yes**, you have upgraded the MQAM modulators in this hub with MQAM software version 2.4.10. Press **ENTER** to return to the default screen. Then go to step 6.
 - If **no**, press **RF SEL** to scroll through each of the channels and determine if any is carrying an active session.

Note: Each time you press RF SEL from the Session Count screen, another MQAM channel appears with the number of active sessions carried on the channel.
3. Did you find an active session on any of the channels?
 - If **yes**, you have upgraded the MQAM modulators in this hub with MQAM software version 2.4.10. Press **ENTER** to return to the default screen. Then go to step 6
 - If **no**, go to step 4.
4. Is there another MQAM modulator in this hub that has been upgraded with MQAM software version 2.4.10 and is carrying xOD or VOD sessions?
 - If **yes**, from another modulator, repeat steps 1 to 3 to determine if there is an active session on this modulator.
 - If **no**, purchase an xOD or VOD event from the local DHCT. Then go to step 5.
5. Does the DHCT display the session, and does a Session Count screen on any of the upgraded modulators indicate that an active session was built for the event you purchased in step 4?
 - If **yes**, you have successfully upgraded the MQAM modulators in this hub with MQAM software version 2.4.10. Press **ENTER** to return to the default screen. Then go to step 6.
 - If **no**, contact Cisco Services.

Download MQAM Software Version 2.4.10 to MQAM Modulators That Carry xOD or VOD Sessions, Continued

6. Do you need to download MQAM software version 2.4.10 to xOD or VOD MQAM modulators in another hub?
 - If **yes**, download software to the MQAM modulators in another hub. For assistance, see **Rebooting the MQAM Modulator From the DNCS**, earlier in this section.
 - If **no**, you have upgraded all the MQAM modulators in your system. Go to step 7.

7. After the upgrade is complete, 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*.

8. 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.

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 MQAM Software

Introduction

This appendix contains instructions for restoring the previous version of MQAM software should you encounter problems after upgrading to MQAM software version 2.4.10. Follow the instructions in this section only after Cisco Services directs you to restore the previous version of software.

Important: If after downloading MQAM software version 2.4.10 you encounter problems, contact Cisco Services for assistance. In the event that Cisco Services directs you to download the previous version of software to MQAM modulators, follow the procedures in this appendix while working with Cisco Services.

In This Appendix

This appendix contains the following topics.

Topic	See Page
Restore the Previous Version of MQAM Software	A-2

Restore the Previous Version of MQAM Software

Introduction

Contact Cisco Services if you notice that the system is reacting adversely after installing or upgrading to MQAM software version 2.4.10. If Cisco Services recommends restoring the previous MQAM software version, use the instructions in this section to assist you as you work with a Cisco Services engineer to restore the previous MQAM software version.



CAUTION:

Contact Cisco Services before attempting to restore the previous MQAM software version.

Restoring the Previous MQAM Software Version

Follow these steps to restore the previous version of MQAM software in the unlikely event that you encounter problems after upgrading to MQAM software 2.4.10.

Note: To restore the previous MQAM executable files, restore the configuration backup file that you saved in **Back Up the Current MQAM 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 MQAM.config MQAM.config.2410** and then press **Enter**.

Result: The configuration file named `MQAM.config`, which contains MQAM version 2.4.10 configuration settings, is saved to a file named `MQAM.config.2410`.

5. Type **cp -p MQAM.config.bakxxx MQAM.config** and then press **Enter**.

Note: The `xxx` represents the original MQAM software version number.

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

Restore the Previous Version of MQAM Software, Continued

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 **MQAM.config.bakxxx**, **MQAM.config**, and **MQAM.config.2410** appear in the list.

7. Confirm that the date and size of **MQAM.config** matches those of **MQAM.config.bakxxx**.
8. Type **exit** and then press **Enter**.
9. You are now ready to download the previous version of MQAM software to MQAM modulators by rebooting the modulators.



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