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MQAM Software Version 2.4.3 Installation Instructions and Release Notes

Overview

Introduction

Cisco® announces the release of software version 2.4.3 for the Multiple Quadrature Amplitude Modulation modulator (MQAM). This software release provides support for Digital Video Broadcast (DVB) Common Scrambling along with DVB to Advanced Television Systems Committee (ATSC) Dolby Labs Digital Audio Compression – 3 (AC-3) conversion.

Purpose

These installation instructions provide enhancements and known issues for MQAM software version 2.4.3. These installation instructions also provide procedures for verifying and backing up the current MQAM software, installing the version 2.4.3 software, verifying the installation, resetting the MQAM, and restoring the previous MQAM software version in the unlikely event of a failure. In addition, these instructions provide procedures for enabling DVB Common Scrambling, reverting to PowerKEY® encryption, and enabling and disabling (if necessary) DVB to ATSC AC-3 digital audio conversion.

Audience

These installation instructions are 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 assist at sites that support Cisco or other resident applications

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Overview, Continued

Document Version

This is the second formal release of these installation instructions.

In These Instructions

These installation instructions contain the following topics.

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About This Version

Implemented Change Requests

The following matrix lists the implemented change requests (CRs) addressed by MQAM software version 2.4.3. 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 most-affected by the CR; a brief description of the CR appears in the Cable Service Provider column if the cable service provider is most-affected by the CR.
- The process most affected by the CR

CR Number	Subscriber	Cable Service Provider	Process Affected
17438	No impact	Provide procedures to enable and disable (if necessary) DVB to ATSC AC-3 digital audio conversion on the MQAM.	MultiQAM Application

System Release Configuration

These installation instructions describe the MQAM software version 2.4.3. This version consists of the MQAM Application Code version 2.4.3 and the MQAM boot code version 1.2.2.

The MQAM software version 2.4.3 was tested and released as part of System Release (SR) 2.1 SP1 and SR 3.0. The MQAM software version 2.4.3 can be installed on a DBDS with the following configuration:

- DNCS Application version 3.0.0.13p1
- Application Server version 3.0.1.27p1

For a complete configuration listing for SR 2.1 SP1 or SR 3.0, please contact Cisco Services.

The MQAM software version 2.4.3 is available for DBDS upgrading to SR 2.1 SP1 or SR 3.0.

Note: Due to database and message format changes, MQAM software version 2.4.3 is not compatible with DNCS software version 1.x; and MQAM software version 1.x is not compatible with DNCS software version 2.x or 3.x. Therefore, any system upgrades to DNCS software version 2.x or later must upgrade to MQAM software version 2.4.3 at the same time.

Verify the Current MQAM Software Version

Introduction

Before you attempt to install MQAM software version 2.4.3, you should verify the current MQAM software version installed on your DNCS to make certain that you need to upgrade. This section provides instructions for verifying the version of MQAM code installed on the DNCS.

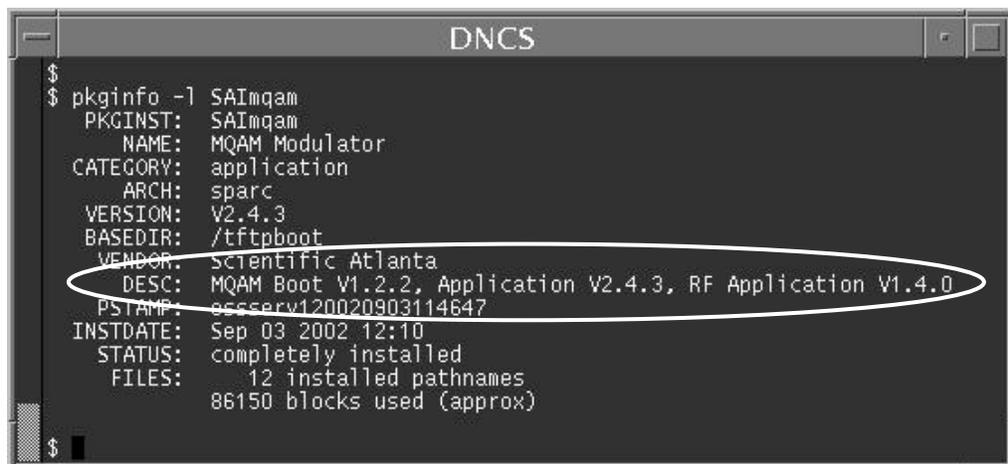
Verifying the Current MQAM Software Version

Follow 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: The following MQAM information appears.



```
$
$ pkginfo -l SAImqam
  PKGINST: SAImqam
    NAME:  MQAM Modulator
  CATEGORY: application
    ARCH:  sparc
  VERSION: V2.4.3
  BASEDIR: /tftpboot
  VENDOR:  Scientific Atlanta
  DESC:    MQAM Boot V1.2.2, Application V2.4.3, RF Application V1.4.0
  PSTAMP:  000000120020903114647
  INSTDATE: Sep 03 2002 12:10
  STATUS:  completely installed
  FILES:   12 installed pathnames
           86150 blocks used (approx)
$
```

Important: If MQAM information does not appear, go to **Install the MQAM Software Onto the DNCS**, later in these instructions.

4. Is the MQAM Application version 2.4.3 and the MQAM Boot version 1.2.2 or higher?
 - If **yes**, you do not need to install the MQAM software version 2.4.3, and you can ignore the remainder of these instructions.
 - If **no**, then your next step is to verify the current channels, sources, and sessions on the MQAM. Go to **Use the Channels, Sources and Sessions Report**, next in these instructions.

Use the Channels, Sources and Sessions Report

Introduction

This section describes the Channels, Sources and Sessions Report. Use this report to compare and verify that all current channels and sessions are restored after you load the MQAM software version 2.4.3 and reset the MQAM from the DNCS. This section also provides instructions to display, save, and print the Channels, Sources and Sessions Report.

Description

The Channels, Sources and Sessions Report lists each *display channel* in the system, along with all information about *carriage* (how the channel is transmitted on the DBDS) of that channel starting from the Service to the MQAM. The Channels, Sources and Sessions Report information is collected from the database of the DNCS and is a function of Cisco's Report Writer software.

Channels, Sources and Sessions Report Diagram

The following diagram shows an example of the Channel, Sources and Sessions Report.

Note: Additional MQAM information also appears in the QAM Name column of the Channels, Sources and Sessions Report.

Channel Name	LUUG ID	Service ID	S/M Service Name	Short Desc	Long Desc	Application URL	Source ID	Source Name	Source Type	Session ID	Effective Date/Time	QAM Name	Bondwidth
3	0	271	PPV-01	ppv	Paid per view	ppv	1903	D303 GOLF	Digital	00 00 00 00 00 00 1903	03/21/01 09:23	HE1 qam1	3000000
503	0	159	Golf Channel	GOLF	GOLF	watchtv	1903	D303 GOLF	Digital	00 00 00 00 00 00 1903	03/21/01 09:23	HE1 qam1	3000000
703	0	274	IPPV03	VO03	IPPV Service 03	ppv	1703	D703 IPPV03	Digital	00 00 00 00 00 00 1703	01/25/01 14:05	HE1 qam2	3000000
113	0	269	TV Land	TVLAND	TV Land	watchtv	1113	D113 TVLAND	Digital	00 00 00 00 00 00 1113	04/23/01 15:35	HE1 qam4	3000000
116	0	264	Food TV	FOOD	Food TV	watchtv	1116	D116 FOOD	Digital	00 00 00 00 00 00 1116	04/23/01 15:39	HE1 qam4	3000000
117	0	265	Speed Vision	SPDVN	Speed Vision	watchtv	1117	D117 SPDVN	Digital	00 00 00 00 00 00 1117	04/23/01 15:39	HE1 qam4	3000000
120	0	114	CNNFN	CNNFN	CNNFN	watchtv	1120	D120 CNNFN	Digital	00 00 00 00 00 00 1120	04/23/01 16:19	HE1 qam4	3000000
127	0	245	Discovery Wings	DSCW	Discovery Wings	watchtv	1127	D127 DSCW	Digital	00 00 00 00 00 00 1127	04/23/01 16:23	HE1 qam4	3000000
128	0	266	Disney Toons	TOON	Disney Toons	watchtv	1128	D128 TOON	Digital	00 00 00 00 00 00 1128	04/23/01 16:24	HE1 qam4	3000000
103	0	261	Sci Fi	SCIFI	Science Fiction	watchtv	1103	D103 SCIFI	Digital	00 00 00 00 00 00 1103	04/23/01 15:10	HE1 qam4	3000000
104	0	207	ESPN2	ESPN2	ESPN2	watchtv	1104	D104 ESPN2	Digital	00 00 00 00 00 00 1104	04/23/01 16:13	HE1 qam4	3000000
109	0	238	Country Music TV	CMT	Country Music TV	watchtv	1109	D109 CMT	Digital	00 00 00 00 00 00 1109	04/23/01 16:13	HE1 qam4	3000000
105	0	262	ESPN2 Alternative	ESPN2	ESPN2 Alternative	watchtv	1105	N/A	N/A	N/A	N/A	N/A	0
107	0	176	ESPN2 Classics	ESPN2	ESPN2 Classics	watchtv	1107	N/A	N/A	N/A	N/A	N/A	0
110	0	250	Comedy Channel	COM	Comedy Channel	watchtv	1110	N/A	N/A	N/A	N/A	N/A	0
118	0	248	Disney Channel East	DISN	Disney Channel East	watchtv	1118	N/A	N/A	N/A	N/A	N/A	0
119	0	247	Disney Channel West	DISNW	Disney Channel West	watchtv	1119	N/A	N/A	N/A	N/A	N/A	0
121	0	246	Discovery Eye People	DSCP	Discovery Eye on People	watchtv	1121	N/A	N/A	N/A	N/A	N/A	0

Continued on next page

Use the Channels, Sources and Sessions Report, Continued

Referencing the Channel, Sources and Sessions Report

The following table defines the **Channel Num**, **Session ID**, and **QAM Name** columns of the Channels, Sources and Sessions Report. When you are ready to reset an MQAM from the DNCS you must refer to these specific columns in the report to verify that the MQAM channels and sessions have been restored.

Channel Num	The Channel Num column lists the channels to which you can tune the DHCT to receive each service. If you can tune a DHCT downstream of a reset MQAM to all channels carried by the reset MQAM, you can be certain that the MQAM sessions have been restored.
Session ID	The Sessions ID column identifies the number of sessions carried or transmitted by an MQAM. Verify that the number of sessions generated on the Channels, Sources and Sessions Report are the same before and after you reset an MQAM.
QAM Name	The QAM Name column lists the names of the MQAMs associated with each channel or session. If you reset an MQAM, the corresponding channels listed in the Channel Num column will be unavailable to DHCTs downstream of the MQAM. The channels associated with the MQAM will be available after the MQAM has completed its upgrade and has successfully established sessions again with the DNCS.

Continued on next page

Use the Channels, Sources and Sessions Report, Continued

Displaying the Channels, Sources and Sessions Report

Follow these steps to display the Channels, Sources and 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. Start your Web browser and then type the following URL in the Address bar:

<http://<hostname>/sareports>

Notes:

- The <hostname> represents the host name of the DNCS server where Cisco's Report Writer software is located.
- You may enter the host name or the IP address of the DNCS server.

Result: The user name and password window appears.

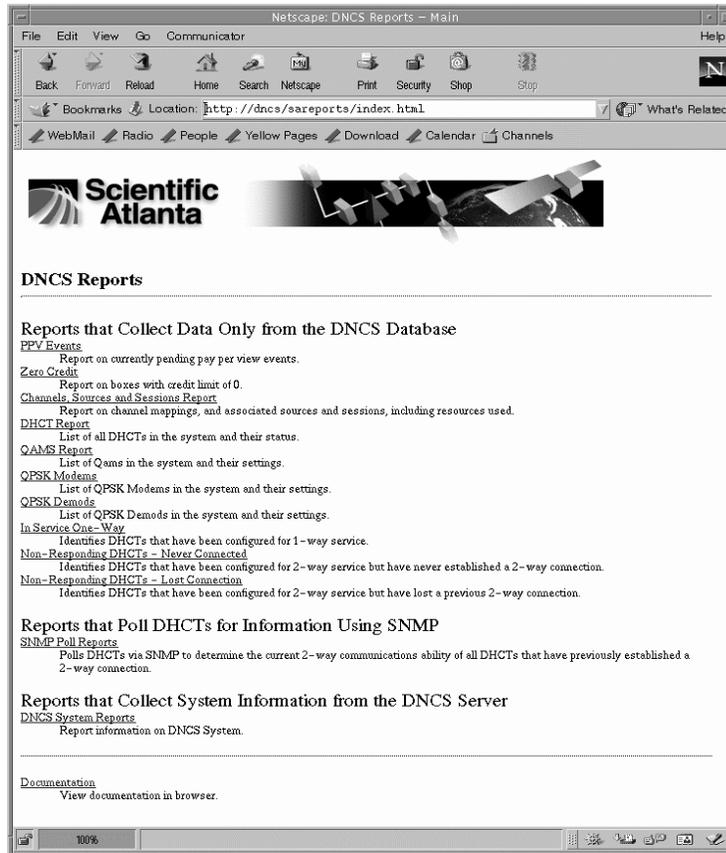
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Use the Channels, Sources and Sessions Report, Continued

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

Note: The default user name is **sareports** and the default password is **report**.

Result: The Web browser displays the following page.

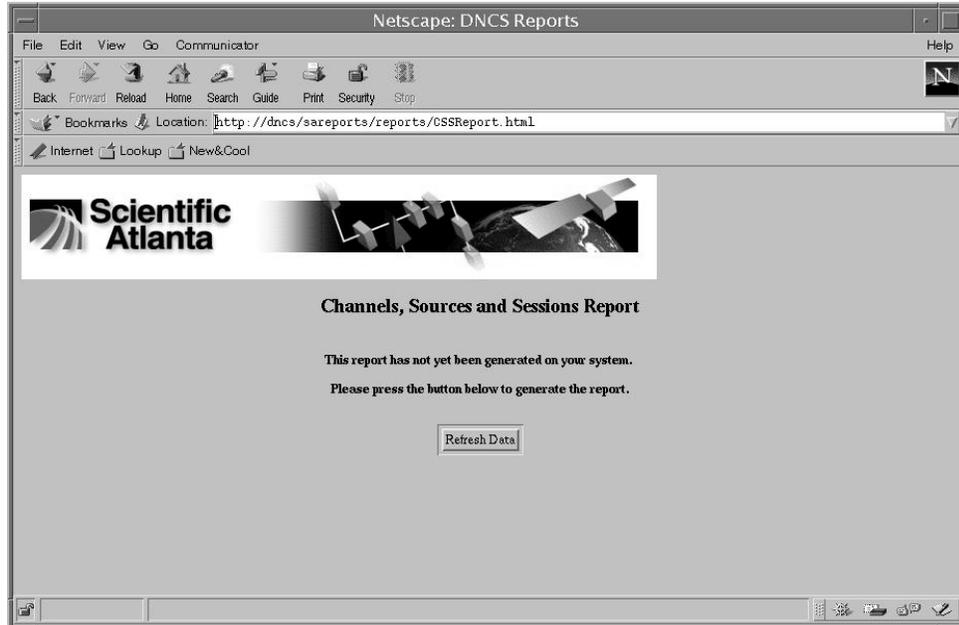


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Use the Channels, Sources and Sessions Report, Continued

3. Click the **Channels, Sources and Sessions Report** link.

Result: The following screen appears.



4. To regenerate the report click **Refresh Data**.

Results:

- If the report was not previously accessed, a message appears on the screen indicating the report has not yet been generated.
- If the report was previously accessed, the most current data appears on the Channels, Sources and Sessions Report.

Continued on next page

Use the Channels, Sources and Sessions Report, Continued

- Click the **QAM Name** column heading.

Result: The system sorts the list according to each QAM and MQAM on your system.

Channel 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
503	0	159	Golf Channel	GOLF	GOLF	watcher	1503	D303 GOLF	Digital	00 00 00 00 00 00 1503	03/21/01 09:23	HE1 qam1	3000000
703	0	274	IPPV03	VOCS	IPPV Service 03	ppv	1703	D703 IPPV03	Digital	00 00 00 00 00 00 1703	01/25/01 14:05	HE1 qam2	2000000
113	0	263	TV Lead	TVLND	TV Lead	watcher	1113	D113 TVLND	Digital	00 00 00 00 00 00 1113	04/23/01 15:35	HE1 qam4	2000000
116	0	264	Food TV	FOOD	Food TV	watcher	1116	D116 FOOD	Digital	00 00 00 00 00 00 1116	04/23/01 15:35	HE1 qam4	2000000
117	0	265	Speed Vision	SPDVN	Speed Vision	watcher	1117	D117 SPDVN	Digital	00 00 00 00 00 00 1117	04/23/01 15:39	HE1 qam4	2000000
120	0	114	CNNFN	CNNFN	CNNFN	watcher	1120	D120 CNNFN	Digital	00 00 00 00 00 00 1120	04/23/01 16:19	HE1 qam4	2000000
127	0	245	Discovery Wings	DSCW	Discovery Wings	watcher	1127	D127 DSCW	Digital	00 00 00 00 00 00 1127	04/23/01 16:23	HE1 qam4	2000000
128	0	266	Disney Toons	TOON	Disney Toons	watcher	1128	D128 TOON	Digital	00 00 00 00 00 00 1128	04/23/01 16:24	HE1 qam4	2000000
103	0	261	Sci Fi	SCIFI	Science Fiction	watcher	1103	D103 SCIFI	Digital	00 00 00 00 00 00 1103	04/23/01 15:10	HE1 qam4	2000000
104	0	207	ESPN2	ESPN2	ESPN2	watcher	1104	D104 ESPN2	Digital	00 00 00 00 00 00 1104	04/23/01 16:13	HE1 qam4	2000000
109	0	238	Country Music TV	CMT	Country Music TV	watcher	1109	D109 CMT	Digital	00 00 00 00 00 00 1109	04/23/01 16:45	HE1 qam4	2000000
105	0	262	ESPN2 Alternative	ESPN2a	ESPN2 Alternative	watcher	1105	N/A	N/A	N/A	N/A	N/A	0
107	0	176	ESPN Classics	ESPNc	ESPN Classics	watcher	1107	N/A	N/A	N/A	N/A	N/A	0
110	0	230	Comedy Channel	COM	Comedy Channel	watcher	1110	N/A	N/A	N/A	N/A	N/A	0
118	0	248	Disney Channel East	DISN	Disney Channel East	watcher	1118	N/A	N/A	N/A	N/A	N/A	0
119	0	247	Disney Channel West	DISNW	Disney Channel West	watcher	1119	N/A	N/A	N/A	N/A	N/A	0
121	0	246	Discovery Eye People	DSCP	Discovery Eye on People	watcher	1121	N/A	N/A	N/A	N/A	N/A	0

- Go to **Saving the Channels, Sources and Sessions Report**, next in this section.

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Use the Channels, Sources and Sessions Report, Continued

Saving the Channels, Sources and Sessions Report

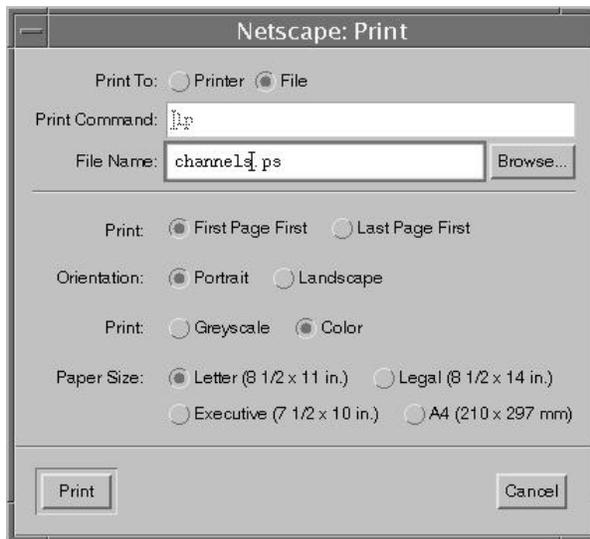
This section provides instructions to save the Channels, Sources and Sessions Report. This report can be used in **Reset an MQAM From the DNCS** section later in these instructions.

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

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

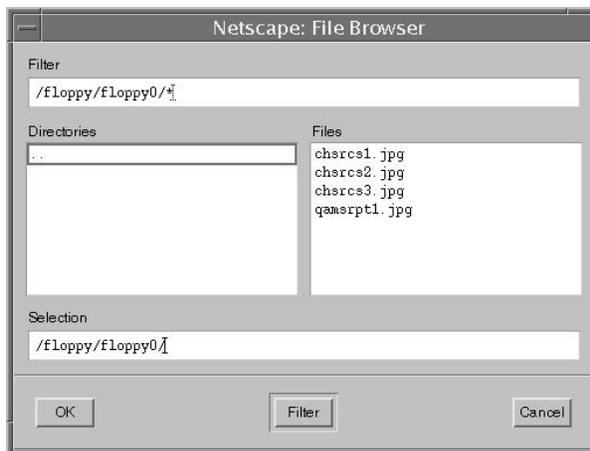
1. From your Web browser window click **File**, and then click **Print**.

Result: The Netscape: Print window appears.



2. Select **File** from the Print To section in the Netscape: Print window.
3. Click **Browse**.

Result: The Netscape: File Browser appears.



Continued on next page

Use the Channels, Sources and Sessions Report, Continued

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 and Sessions Report to your hard drive.
5. Click **OK**.

Result: The Netscape: Print window reappears.
6. Type a file name in the File Name field.
7. Click **Print**.

Result: The system saves the Channels, Sources and Sessions Report.

Note: You can refer to the report after you reset an MQAM from the DNCS. The instructions for resetting an MQAM appear in **Reset an MQAM From the DNCS**, later in these instructions.
8. Go to **Printing the Channels, Sources and Sessions Report**, next in this section.

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Use the Channels, Sources and Sessions Report, Continued

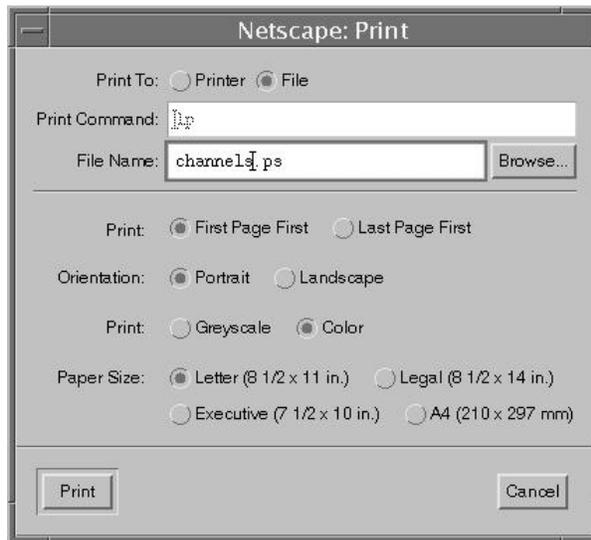
Printing the Channels, Sources and Sessions Report

This section provides instructions to print the Channels, Sources and Sessions Report. The Channels, Sources and Sessions Report can be used in **Reset an MQAM From the DNCS** section later in these instructions.

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

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

Result: The Netscape: Print window appears.



2. Select **Printer** in the Print To section of the Netscape: Print window.
3. Type the correct printer name in the Print Command field and then click **Print**.

Result: The report has been sent to your printer.

Note: You can refer to the report after you reset an MQAM modulator. The instructions for resetting the MQAM appear in **Reset an MQAM From the DNCS**, later in these instructions.

4. Go to **Back Up the Current MQAM Software Version**, next in these instructions.

Back Up the Current MQAM Software Version

Introduction

You must back up the current version of MQAM software before you install the MQAM software version 2.4.3. This section provides instructions to help you back up the current MQAM software version.

Important: If MQAM code was not found on your system when you performed the **Verifying the Current MQAM Software Version** procedure, earlier in these instructions, go to **Install the MQAM Software Onto the DNCS**, next in these instructions.



CAUTION:

Do not proceed with installing the MQAM software version 2.4.3 until you have created a backup of the current version of MQAM software running on your system. In case of difficulty, you may need to call Cisco Services and, if they recommend it, restore the original MQAM software running on your system.

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 onto the DNCS and log on as the **root** user.
2. Type **cd /tftpboot** and then press **Enter**.
Result: The root prompt appears.
3. Type **pwd** and then press **Enter**.
Result: The /tftpboot directory name appears. This name indicates you are in the correct directory.
4. Type **cp -p mqam.config mqam.bakxxx** and then press **Enter**.
Result: A copy of the MQAM configuration is saved to a file named mqam.bakxxx.
Note: In this example, *xxx* represents your current MQAM software version.
Example: If your current MQAM software version is 1.2.7, name the file **mqam.bak127**.
5. Type **ls -l** and then press **Enter**.
Note: The **l** used in “ls” and “-l” is the lowercase of the letter L.
Result: A list of files appears with the mqam.bak file listed.
6. Type **exit** and then press **Enter**.
7. Go to **Install the MQAM Software Onto the DNCS**, next in these instructions.

Install the MQAM Software Onto the DNCS

Introduction

This section provides instructions for installing the MQAM software version 2.4.3 using the MQAM App v2.4.3 CD.

Use the procedures in this section to do the following tasks:

- Load the CD software onto the DNCS
- Save the log file

Installing the MQAM Software

Follow these steps to install the MQAM software onto the DNCS.

1. Open an xterm window on the DNCS and log in as **root** user.
2. Insert the **MQAM App v2.4.3 CD** into the CD-ROM drive of the DNCS.

Note: The label of the MQAM CD lists the following software versions:

- **MQAM APP v2.4.3**
- **MQAM BOOT v1.2.2**
- **MQAM RF 1.40**

3. Wait approximately 30 seconds for the system to mount the **CD** before continuing to step 4.
4. Type **df** and then press **Enter** to confirm that the system mounted the CD successfully.

Result: The last line of the df command output lists the number of free disk blocks on the CD.

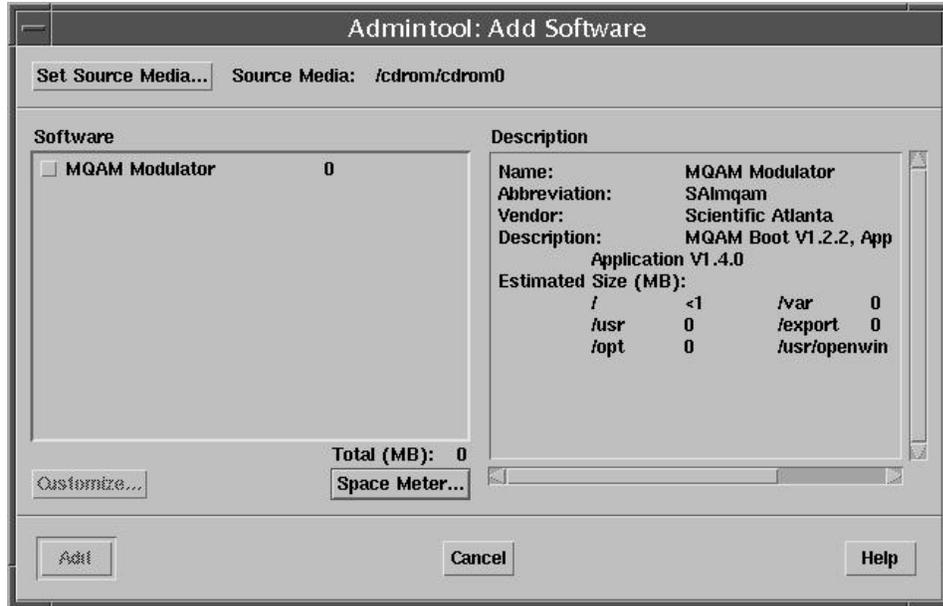
Note: The number of free disk blocks existing on the CD does not matter. The fact that the CD is listed in the df command output indicates that the system successfully mounted the CD.

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Install the MQAM Software Onto the DNCS, Continued

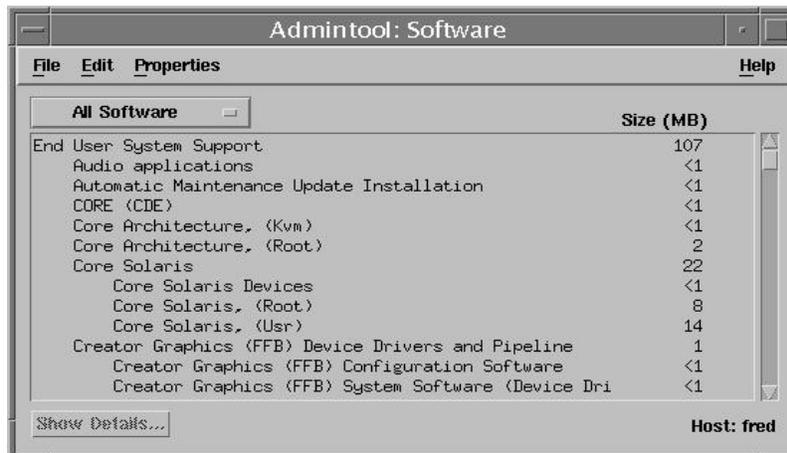
5. Type `swmtool -d /cdrom/cdrom0` and then press **Enter**.

Result: The Admintool: Add Software window appears.



6. Click **Cancel** on the Admintool: Add Software window.

Result: The Admintool: Software window appears.



7. Select **Properties** and then choose **Package Administration**.

Result: The Admintool: Package Administration window appears.

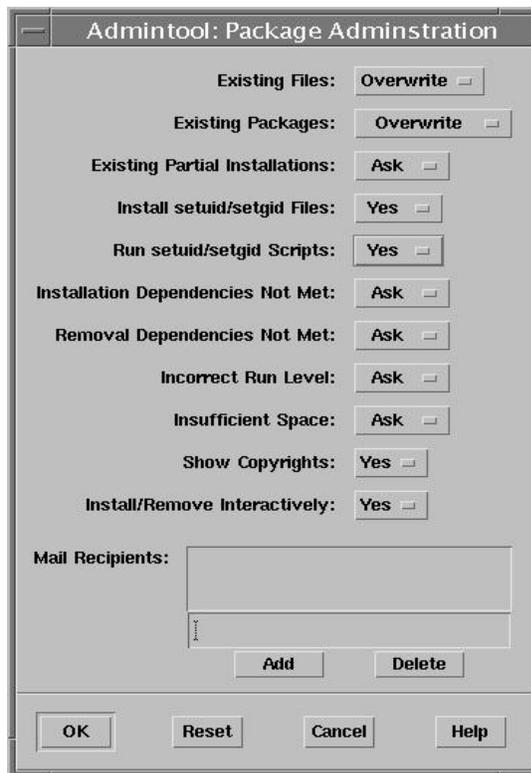
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Install the MQAM Software Onto the DNCS, Continued

8. Set the fields on the Admintool: Package Administration window to the following values:
 - Existing Files – **Overwrite**
 - Existing Packages – **Overwrite**
 - Existing Partial Installations – **Ask**
 - Install setuid/setgid Files – **Yes**
 - Run setuid/setgid Scripts – **Yes**

Note: Leave the remaining fields at their default values.

Example: The following diagram shows an example of the Admintool: Package Administration window.



9. Select **OK** on the Admintool: Package Administration window.

Result: The system saves the values and the Admintool: Software window appears.

10. From the Admintool: Software window, select **Edit** and then choose **Add** from the menu.

Result: The Admintool: Add Software window appears.

Continued on next page

Install the MQAM Software Onto the DNCS, Continued

11. Click the **MQAM Modulator** option.

Result: A check mark appears next to the MQAM Modulator.

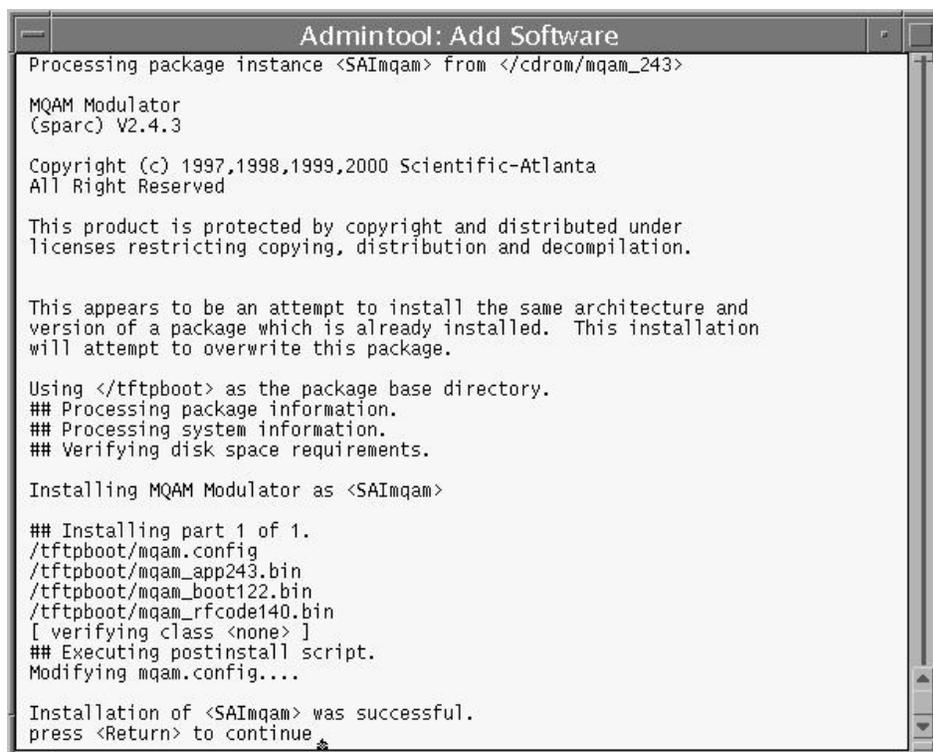
12. Click **Add** on the Admintool: Add Software window.

Results:

- A copyright message appears.
- The MQAM software installation begins.

13. Wait for the MQAM software installation to complete.

Result: The **Installation of <SAImqam> was successful** message appears when installation is complete.



```
Admintool: Add Software
Processing package instance <SAImqam> from </cdrom/mqam_243>

MQAM Modulator
(sparc) V2.4.3

Copyright (c) 1997,1998,1999,2000 Scientific-Atlanta
All Right Reserved

This product is protected by copyright and distributed under
licenses restricting copying, distribution and decompilation.

This appears to be an attempt to install the same architecture and
version of a package which is already installed. This installation
will attempt to overwrite this package.

Using </tftpboot> as the package base directory.
## Processing package information.
## Processing system information.
## Verifying disk space requirements.

Installing MQAM Modulator as <SAImqam>

## Installing part 1 of 1.
/tftpboot/mqam.config
/tftpboot/mqam_app243.bin
/tftpboot/mqam_boot122.bin
/tftpboot/mqam_rfcode140.bin
[ verifying class <none> ]
## Executing postinstall script.
Modifying mqam.config....

Installation of <SAImqam> was successful.
press <Return> to continue
```



CAUTION:

Do not press Return or Enter at this time, or you will not be able to save the log file.

14. Place the pointer within the Admintool: Add Software window and then press the right mouse button.

Result: The Term Pane window appears.

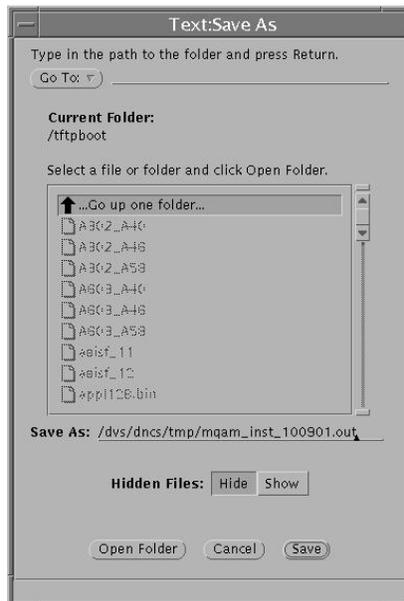
15. Place the pointer within the Term Pane window and then click the right mouse button.

Continued on next page

Install the MQAM Software Onto the DNCS, Continued

16. Select **History** from the menu.
17. Select **Store log as new file**.

Result: The Text: Save As window appears.



18. Save the file as **/dvs/dnscs/tmp/mqam_inst_<Date>.out**.
Note: Replace **<Date>** with today's date in mmddyy format.
19. Click **Save** or press **Enter** to exit the Text: Save As window.

Result: The Admintool: Software window appears.

20. Select **File** and then choose **Exit**.

Result: The Admintool: Software window closes.

21. Type **eject** and then press **Enter**.

Result: The MQAM App v2.4.3 CD ejects.

22. Your next step is to reset the MQAM. Go to **Reset an MQAM From the Back Panel**, next in these instructions, or go to **Reset an MQAM From the DNCS**, later in these instructions.

Reset an MQAM From the Back Panel

Introduction

To enable each MQAM to receive the new MQAM software version 2.4.3, you must reset the MQAM by rebooting the MQAM from the back panel or from the DNCS. This section provides instructions for determining the current number of sessions and programs, and instructions for resetting local MQAMs from the back panel.

Note: To reset MQAMs in remote hubs or other, distant locations, refer to **Reset an MQAM From the DNCS**, next in these instructions.



CAUTION:

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

Determining the Current Number of Session and Program Counts

You can confirm a successful upgrade by comparing the number of sessions and programs running on the MQAM before and after downloading the MQAM software version 2.4.3. Follow these steps to determine the number of sessions and program IDs that are running on the MQAM.

1. Press the **OPTIONS** button on the front panel of the MQAM to cycle through the MQAM menu screens until you see the RF1 Session Count screen.

RF1 Session Count 7

2. Press the **RF SEL** button to scroll through the outputs, and write the number of sessions for each of the four RF outputs in the spaces provided.

RF OUT 1 Sessions: _____
RF OUT 2 Sessions: _____
RF OUT 3 Sessions: _____
RF OUT 4 Sessions: _____

3. Press the **OPTIONS** button again to view the RF1 Program Count screen.

Note: The Program Count reflects the number of encrypted sessions on each RF output

RF1 Program Count 6

Continued on next page

Reset an MQAM From the Back Panel, Continued

4. Press the **RF SEL** button to scroll through the outputs, and write the number of programs for each of the four RF outputs in the spaces provided.

RF OUT 1 Programs: _____

RF OUT 2 Programs: _____

RF OUT 3 Programs: _____

RF OUT 4 Programs: _____

5. Go to **Resetting the MQAM From the Back Panel**, next in this section.

Resetting the MQAM From the Back Panel

The order in which you reset the MQAM to download software allows you to verify if an upgrade is successful for each modulator before proceeding to the next MQAM in your system.



CAUTION:

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

If your system uses a Broadband Integrated Gateway (BIG) MQAM, reboot a regular content MQAM and confirm a successful upgrade before you attempt to reset the BIG MQAM. The BFS MQAM is an MQAM that carries data from the BFS BIG. If the BIG MQAM is unable to reset and reestablish MQAM sessions successfully, you will encounter staging failures, DHCTs will not receive future IPG data (beyond 2 days), and DHCTs will not boot.

Follow these steps to reset the MQAM from the back panel.

1. Does your system have a spare MQAM?
 - If **yes**, upgrade the spare modulator with the MQAM software version 2.4.3.
 - If **no**, go to step 2.
2. Locate the MQAM carrying the least number of services or least watched services.
3. On the back panel of the MQAM, press the On/Off switch to the **Off** position, wait 5 seconds, and then press the switch to the **On** position.

Result: The MQAM resets.

Continued on next page

Reset an MQAM From the Back Panel, Continued

4. Wait for the **Downloading** message to appear on the MQAM front panel LCD, and for the major and minor alarms to end.

Result: The Downloading message appears.

Note: It may take up to 5 minutes for the message to appear and the alarms to end.

5. Press the **OPTIONS** button eight times.

Result: The Input/Output (I/O) Software Revision screen appears. The software versions display for the current MQAM application code and boot code.

I/O Software Revision App: 2.4.3 Boot: 1.2.2
--

6. Does the App: field display 2.4.3 *and* the Boot: field display 1.2.2?
 - If **yes**, go to step 7.
 - If **no**, call Cisco Services.
7. Press the **OPTIONS** button 10 more times to cycle through the MQAM menu screens until you see the RF1 Session Count screen.
8. Press the **RF SEL** button to scroll through the outputs, and write the number of sessions for each of the four RF outputs in the spaces provided.

RF OUT 1 Sessions: _____
RF OUT 2 Sessions: _____
RF OUT 3 Sessions: _____
RF OUT 4 Sessions: _____

9. Press the **OPTIONS** button again to view the RF1 Program Count screen.

Continued on next page

Reset an MQAM From the Back Panel, Continued

10. Press the **RF SEL** button to scroll through the outputs, and write the number of programs for each of the four RF outputs in the spaces provided.

RF OUT 1 Programs: _____

RF OUT 2 Programs: _____

RF OUT 3 Programs: _____

RF OUT 4 Programs: _____

11. Do the numbers of sessions and programs recorded in steps 8 and 10 of this section match the numbers you recorded in steps 2 and 4 of **Determining the Current Number of Session and Program Counts**?

- If **yes**, repeat the procedures in this section until you have upgraded every local MQAM.
- If **no**, do not attempt to upgrade any additional MQAMs, call Cisco Services.

Important: Wait until you have verified that all other MQAMs have been upgraded successfully, with sessions reestablished, before you reset the BIG MQAM.



CAUTION:

If the BIG MQAM is unable to reset and reestablish MQAM sessions successfully, you will encounter staging failures, DHCTs will not receive future IPG data (beyond 2 days), and DHCTs will not boot.

12. Go to **Verifying Restored MQAM Channels and Sessions**, later in this section.
-

Reset an MQAM From the DNCS

Introduction

You can reset an MQAM from the DNCS to upgrade and reboot MQAMs in remote locations. This section provides instructions for resetting an MQAM from the DNCS and for verifying that the MQAM channels and sessions have been restored.

Notes:

- Before you reset an MQAM, you should verify the number of sessions and programs running on the MQAM. Doing so will help you confirm that all of the sessions and programs recovered after the MQAM resets. Go back to **Determining the Current Number of Session and Program Counts** earlier in this section for procedures that verify the number of sessions and programs that are running.
- After you reset the MQAMs, you should tune to each session or channel from a DHCT to make sure that the MQAM recovered after the software upgrade.



CAUTION:

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

If your system uses a BIG MQAM, reboot a regular content MQAM and confirm a successful upgrade before you attempt to reset the BIG MQAM. If the BIG MQAM is unable to reset and reestablish MQAM sessions successfully, you will encounter staging failures, DHCTs will not receive future IPG data (beyond 2 days), and DHCTs will not boot.

Continued on next page

Reset an MQAM From the DNCS, Continued

Resetting the MQAM From the DNCS

Follow these steps to reset the MQAM from the DNCS.

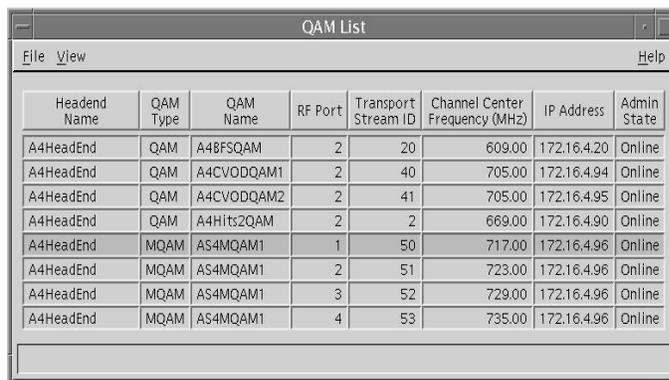
1. From the DNCS Administrative Console, click the **DNCS** tab, the **Element Provisioning** tab, and then click **QAM**.

Result: The QAM List window appears.

2. Select the MQAM you want to reset within the QAM List.

Note: Each MQAM will be listed four times, but select only the first occurrence.

Example: The following diagram shows an example of an MQAM with the first occurrence selected in the QAM List window.

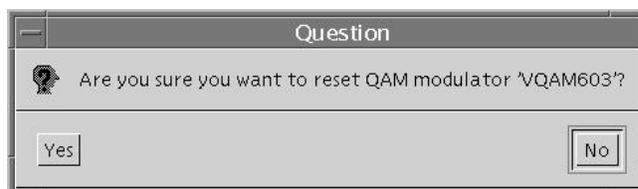


Headend Name	QAM Type	QAM Name	RF Port	Transport Stream ID	Channel Center Frequency (MHz)	IP Address	Admin State
A4HeadEnd	QAM	A4BFSQAM	2	20	609.00	172.16.4.20	Online
A4HeadEnd	QAM	A4CVODQAM1	2	40	705.00	172.16.4.94	Online
A4HeadEnd	QAM	A4CVODQAM2	2	41	705.00	172.16.4.95	Online
A4HeadEnd	QAM	A4Hits2QAM	2	2	669.00	172.16.4.90	Online
A4HeadEnd	MQAM	AS4MQAM1	1	50	717.00	172.16.4.96	Online
A4HeadEnd	MQAM	AS4MQAM1	2	51	723.00	172.16.4.96	Online
A4HeadEnd	MQAM	AS4MQAM1	3	52	729.00	172.16.4.96	Online
A4HeadEnd	MQAM	AS4MQAM1	4	53	735.00	172.16.4.96	Online

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

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

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



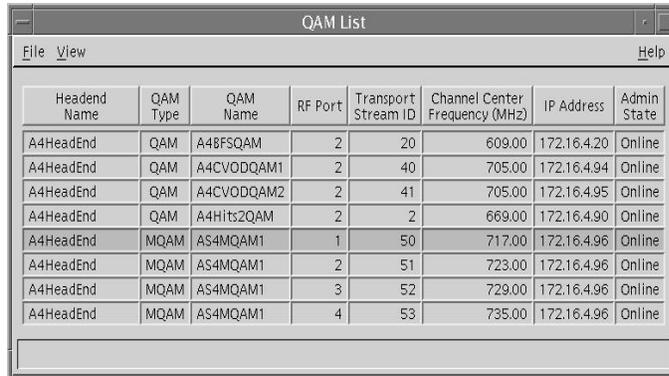
Continued on next page

Reset an MQAM From the DNCS, Continued

4. 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.



The screenshot shows a window titled "QAM List" with a menu bar containing "File", "View", and "Help". Below the menu bar is a table with the following columns: "Headend Name", "QAM Type", "QAM Name", "RF Port", "Transport Stream ID", "Channel Center Frequency (MHz)", "IP Address", and "Admin State". The table contains 10 rows of data.

Headend Name	QAM Type	QAM Name	RF Port	Transport Stream ID	Channel Center Frequency (MHz)	IP Address	Admin State
A4HeadEnd	QAM	A48FSQAM	2	20	609.00	172.16.4.20	Online
A4HeadEnd	QAM	A4CVODQAM1	2	40	705.00	172.16.4.94	Online
A4HeadEnd	QAM	A4CVODQAM2	2	41	705.00	172.16.4.95	Online
A4HeadEnd	QAM	A4Hits2QAM	2	2	669.00	172.16.4.90	Online
A4HeadEnd	MQAM	AS4MQAM1	1	50	717.00	172.16.4.96	Online
A4HeadEnd	MQAM	AS4MQAM1	2	51	723.00	172.16.4.96	Online
A4HeadEnd	MQAM	AS4MQAM1	3	52	729.00	172.16.4.96	Online
A4HeadEnd	MQAM	AS4MQAM1	4	53	735.00	172.16.4.96	Online

5. Go to **Verifying Restored MQAM Channels and Sessions**, next in this section.

Continued on next page

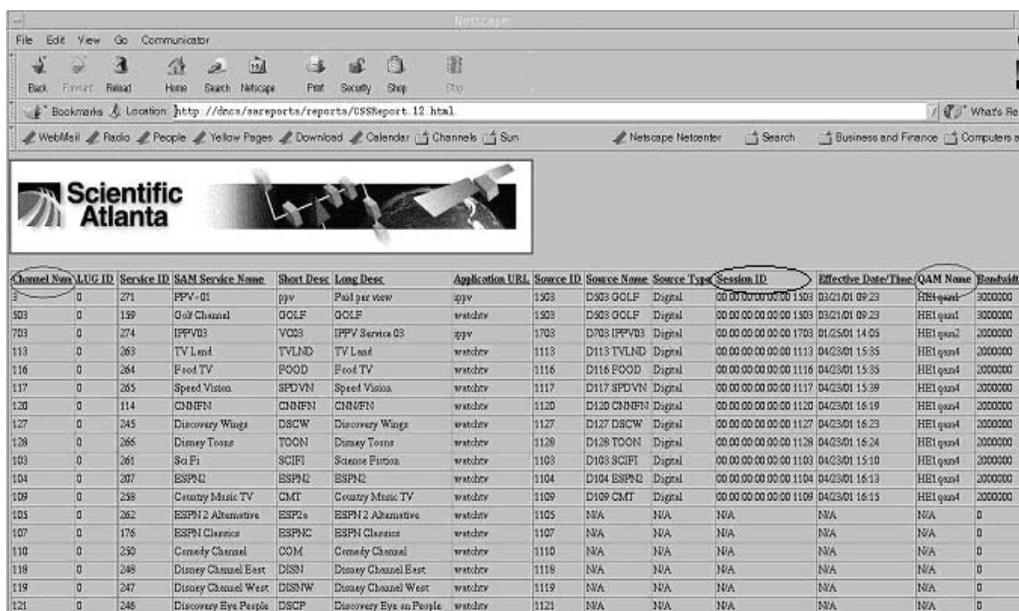
Reset an MQAM From the DNCS, Continued

Verifying Restored MQAM Channels and Sessions

Follow these steps to verify that the MQAM sessions are restored and that a DHCT downstream of a reset MQAM can tune to authorized channels.

1. Access a DHCT that is connected downstream of the MQAM.
2. Refer to the Channels, Sources and Sessions Report, which you printed in the **Channels, Sources and Sessions Report** section earlier in these instructions.

Example: The following diagram is an example of the Channels, Sources and Sessions Report.



Channel Num	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
0	0	271	PPV-01	ppv	Pay per view	ppv	1503	D303 GOLF	Digital	00 00 00 00 00 00 1503	03/21/01 09:23	HE1 qam1	3000000
503	0	159	GOLF Channel	GOLF	GOLF	watchtv	1503	D303 GOLF	Digital	00 00 00 00 00 00 1503	03/21/01 09:23	HE1 qam1	3000000
703	0	274	IPPV03	VO3	IPPV Service 03	ppv	1703	D703 IPPV03	Digital	00 00 00 00 00 00 1703	01/25/01 14:05	HE1 qam2	2000000
113	0	263	TV Land	TVLND	TV Land	watchtv	1113	D113 TVLND	Digital	00 00 00 00 00 00 1113	04/23/01 15:35	HE1 qam4	2000000
116	0	264	Food TV	FOOD	Food TV	watchtv	1116	D116 FOOD	Digital	00 00 00 00 00 00 1116	04/23/01 15:35	HE1 qam4	2000000
117	0	265	Speed Vision	SPDVN	Speed Vision	watchtv	1117	D117 SPDVN	Digital	00 00 00 00 00 00 1117	04/23/01 15:39	HE1 qam4	2000000
120	0	114	CNNFN	CNNFN	CNNFN	watchtv	1120	D120 CNNFN	Digital	00 00 00 00 00 00 1120	04/23/01 16:19	HE1 qam4	2000000
127	0	245	Discovery Wings	DSCW	Discovery Wings	watchtv	1127	D127 DSCW	Digital	00 00 00 00 00 00 1127	04/23/01 16:23	HE1 qam4	2000000
128	0	266	Disney Toons	TOON	Disney Toons	watchtv	1128	D128 TOON	Digital	00 00 00 00 00 00 1128	04/23/01 16:24	HE1 qam4	2000000
103	0	261	Sci Fi	SCIFI	Science Fiction	watchtv	1103	D103 SCIFI	Digital	00 00 00 00 00 00 1103	04/23/01 15:10	HE1 qam4	2000000
104	0	207	ESPN2	ESPN2	ESPN2	watchtv	1104	D104 ESPN2	Digital	00 00 00 00 00 00 1104	04/23/01 16:13	HE1 qam4	2000000
109	0	238	Country Music TV	CMT	Country Music TV	watchtv	1109	D109 CMT	Digital	00 00 00 00 00 00 1109	04/23/01 16:15	HE1 qam4	2000000
105	0	262	ESPN 2 Alternative	ESPN2	ESPN 2 Alternative	watchtv	1105	N/A	N/A	N/A	N/A	N/A	0
107	0	176	ESPN Classics	ESPN2	ESPN Classics	watchtv	1107	N/A	N/A	N/A	N/A	N/A	0
110	0	250	Comedy Channel	COM	Comedy Channel	watchtv	1110	N/A	N/A	N/A	N/A	N/A	0
118	0	248	Disney Channel East	DISN	Disney Channel East	watchtv	1118	N/A	N/A	N/A	N/A	N/A	0
119	0	247	Disney Channel West	DISNW	Disney Channel West	watchtv	1119	N/A	N/A	N/A	N/A	N/A	0
121	0	246	Discovery Eye People	DSCP	Discovery Eye so People	watchtv	1121	N/A	N/A	N/A	N/A	N/A	0

3. Tune the DHCT to each channel listed in the report for each MQAM you reset.
4. Are all channels listed for the reset MQAM accessible from the DHCT?
 - If **yes**, go to step 5.
 - If **no**, do not attempt to upgrade any additional MQAMs, call Cisco Services.

Continued on next page

Reset an MQAM From the DNCS, Continued

5. For each subsequent MQAM in your system, complete the instructions in **Resetting the MQAM From the DNCS**, earlier in this section, for the next MQAM you plan to upgrade.

Important: It is best to make sure you have successfully upgraded and verified functionality for one MQAM at a time. In the unlikely event of a failure, you can better isolate that failure without interrupting service for the remaining MQAMs and their associated DHCTs.

6. On the QAM List window, click **File** and then select **Close**.
-

Restore Previous MQAM Software Version

Introduction

You must contact Cisco Services if you notice that the system is reacting adversely after installing MQAM software version 2.4.3. If Cisco Services recommends that you restore the previous MQAM software version, follow the instructions in this section to restore the previous MQAM software version.

Important: Do not forget that MQAM software version 1.x is not compatible with DNCS software version 2.x or 3.x, and MQAM software version 2.x is not compatible with DNCS software version 1.x. Therefore, if you restore a previous MQAM software version, you may also need to restore a previous DNCS version. You must contact Cisco Services before attempting to complete this section.

Restoring the Previous Version of MQAM Software

To restore the original MQAM executable files, you must load the previous version of MQAM software onto the DNCS using the configuration back-up file saved in **Back Up the Current MQAM Software Version**, earlier in these installation instructions.

Follow these steps to restore the previous MQAM software version.

1. Open an xterm window on the DNCS and log on as the **root** user.
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.243** and then press **Enter**.
Result: A copy of the MQAM configuration is saved to a file named mqam.243
5. Type **cp -p mqam.bakxxx mqam.config** and then press **Enter**.
Result: The file named mqam.bakxxx, which contains the original list of MQAM configuration files, is copied to the MQAM configuration file named mqam.config.
Note: The xxx represents the original MQAM software version number.
6. Type **ls -l** and then press **Enter**.
Note: The l used in “ls” and “-l” is the lowercase of the letter L.
Result: A list of files display with mqam.config, mqam.243, and mqam.bakxxx listed.

Continued on next page

Restore Previous MQAM Software Version, Continued

7. Confirm that the date and size of **mqam.config** matches **mqam.bakxxx**.
 8. Type **exit** and then press **Enter**.
 9. Choose one of the following options to reset the MQAMs and download the original MQAM software:
 - For instructions on how to reset an MQAM from the back panel, see **Reset an MQAM From the Back Panel**, earlier in these instructions.
 - For instructions on how to reset an MQAM from the DNCS, see **Reset an MQAM From the DNCS**, earlier in these instructions.
-

Enable DVB Common Scrambling

Introduction

Digital Video Broadcasting (DVB) Common Scrambling is an encryption algorithm developed and supported by the DVB Group. This section provides procedures to enable and disable (if necessary), the DVB Common Scrambling algorithm on MQAM modulators.

MQAMs use PowerKEY native core encryption by default. Beginning with SR 3.0 and MQAM software version 2.3.7, you can use DVB Common Scrambling instead of PowerKEY encryption. To set up your MQAM to use DVB Common Scrambling, you must edit the `mqam.config` file. You cannot change this setting from the MQAM front panel.

Note: The D9476 Quadrature Amplitude Modulation modulator (QAM) does not support DVB Common Scrambling. Do *not* attempt to set up a QAM to use DVB Common Scrambling.

When you set up the `mqam.config` file to support DVB Common Scrambling, the DNCS automatically adjusts the DHCTs for the change. You do not need to change any DHCT settings.

Working with Multiple `mqam.config` Files

If your site uses multiple `mqam.config` files, you must edit each file to support DVB Common Scrambling. Cisco recommends that you set *all* MQAMs to use the same type of encryption, either DVB Common Scrambling or PowerKEY. You should *not* set various MQAMs to use different types of encryption.

Continued on next page

Enable DVB Common Scrambling, Continued

Backing Up the mqam.config File

Before you edit your mqam.config file, you should make a backup of this file. Follow these steps to back up the current version of MQAM software on your system.

1. Open an xterm window onto the DNCS and log on as the **root** user.
2. Type **cd /tftpboot** and then press **Enter**.
Result: The root prompt appears.
3. Type **pwd** and then press **Enter**.
Result: The /tftpboot directory name appears. This name indicates you are in the correct directory.
4. Type **cp -p mqam.config mqam.config.dvbbak** and then press **Enter**.
Result: A copy of the MQAM configuration is saved to a file named mqam.config.dvbbak.
5. Type **ls -l** and then press **Enter**.
Note: The **l** in “ls” -l” is the lowercase of the letter L.
Result: A list of files appears with the mqam.config and the mqam.config.dvbbak files listed.
6. Confirm that the date and size of mqam.config matches mqam.config.dvbbak.
7. Type **exit** and then press **Enter**.
8. Your next step is to modify the mqam.config file to use DVB Common Scrambling. Go to **Editing the mqam.config File**, next in this section.

Continued on next page

Enable DVB Common Scrambling, Continued

Editing the mqam.config File

Follow these steps to set up your MQAM to use DVB Common Scrambling.

1. Use the editor of your choice to open /tftpboot/mqam.config.
2. Add the line **CoreEncryptionMode = DVB_Common_Scr** to any blank line at the end of the file.

Note: Be sure to type a space before and after the = in this line.

3. Save and close the file.
4. Reboot the MQAM.

Note: You can reboot the MQAM from the front panel or from the DNCS.

5. After the MQAM reboots, verify that DVB Common Scrambling is enabled by pressing the **OPTIONS** button on the front panel of the MQAM to cycle through the menu screens until you see the Encryption Mode screen.



Result: The Encryption Mode screen displays **DVB Common Scr** to indicate that DVB Common Scrambling is enabled.

Revert to PowerKEY Encryption

Introduction

After enabling DVB Common Scrambling on your MQAMs, you can disable DVB Common Scrambling and set the MQAMs to use PowerKEY encryption again, if you choose. To do this, you must edit the `mqam.config` file and change the `CoreEncryptionMode` line in the `mqam.config` file to specify PowerKEY encryption. This section provides procedures for editing the `mqam.config` file to revert to PowerKEY encryption.

Note: If you set up an MQAM to use DVB Common Scrambling, and you later delete the `CoreEncryptionMode` line from the `mqam.config` file, the MQAM does *not* automatically revert to PowerKEY encryption. You must specify PowerKEY encryption in the `mqam.config` file.

Editing the `mqam.config` File

Before you edit your `mqam.config` file, you should make a backup of this file. For instructions on backing up the `mqam.config` file, see **Backing Up the `mqam.config` File**, in the **Enable DVB Scrambling on the MQAM Modulator** section, earlier in these instructions.

After you back up your `mqam.config` file, follow these steps to set up your MQAM to use PowerKEY encryption.

1. Use the editor of your choice to open `/tftpboot/mqam.config`.
2. Locate the line `CoreEncryptionMode = DVB_Common_Scr` in the file.
3. Change the line to **`CoreEncryptionMode = PowerKey`**.

Note: Be sure to capitalize *PowerKey* exactly as shown in this step. Also, type a space before and after the `=` in this line.

4. Save and close the file.
5. Reboot the MQAM.

Note: You can reboot the MQAM from the front panel or from the DNCS.

6. After the MQAM reboots, verify that PowerKEY is enabled by pressing the **OPTIONS** button on the front panel of the MQAM to cycle through the menu screens until you see the Encryption Mode screen.



Result: The Encryption Mode screen displays **PowerKEY** to indicate that PowerKEY encryption is enabled.

Enable DVB to ATSC AC-3 Conversion

Introduction

When you first load MQAM software version 2.4.3 onto an MQAM, the DVB to ATSC AC-3 digital audio conversion will be disabled. Because of this situation, Explorer DHCTs connected to that MQAM will not have audio if the program contains DVB AC-3 audio. You must enable DVB to ATSC AC-3 audio on all of your MQAMs in order for DVB AC-3 digital audio to function correctly on Explorer DHCTs.

Note: All other digital audio is unaffected.

This section includes procedures for enabling and disabling DVB to ATSC to AC-3 digital audio conversion on your MQAMs after installing MQAM software version 2.4.3.

Important: Please note the following important information that applies to this procedure:

- DVB to ATSC AC-3 digital audio conversion is only performed when a session is created. You must recreate the sessions for this conversion to take effect.

Note: The most efficient way to recreate sessions on the MQAM is to reboot the MQAM. The DNCS then re-provisions and recreates the sessions on the MQAM.

- DVB to ATSC AC-3 digital audio conversion is performed on all sessions.
- DVB to ATSC AC-3 digital audio conversion settings are stored in non-volatile memory (NVM), and these conversion settings remain even after an MQAM is rebooted.

Enabling DVB AC-3 Conversion

Performing the following procedure sets up a filter on your MQAMs to perform the following actions:

- Remap stream type 0x06 (private PES data) to type 0x81 (user private, ATSC AC-3), if the DVB AC-3 descriptor (0x6A) is present
- Remove the DVB AC-3 descriptor (0x6A)

Follow these steps to enable DVB to ATSC AC-3 digital audio conversion.

1. Connect a terminal to the craft port (CA SYNC port) on the MQAM. The terminal should be set up for 9600, N, 8, 1.

Result: A terminal window with a **D9477 MQAM>** prompt opens.

Note: If the **D9477 MQAM>** prompt does not appear, press **Enter**.

Important: Type all commands at the **D9477 MQAM>** prompt.

2. Type **pfsetdefault** and press **Enter** to set all filters to **OFF**.

Continued on next page

Enable DVB to ATSC AC-3 Conversion, Continued

3. Type **pfsettarget 0x01 0x0f 0x06 0x6a 0x00** and press **Enter** to set target values for filter 1.

Result: The following text indicating the Original and Current target values (state) for filter 1 appears in the terminal window.

```
D9477 MQAM>pfsettarget 0x01 0x0f 0x06 0x6a 0x00
```

```
Original state:
```

```
                Handle: 0x3BF630
                filterIndex: 0x01
                mode: 0x00
                disabled
                target stream type: 0x06
                target descriptor tag: 0x6A
                target descriptor length: 0x00
target descriptor payload:
                new stream type: 0x81
                new descriptor tag: 0x05
                new descriptor length: 0x04
                new descriptor payload: 41 43 2D 33
                                     A C - 3
```

```
Current state:
```

```
                handle: 0x3BF630
                filterIndex: 0x01
                mode: 0x0F
                Require target stream type match
                Change target stream type
                Require target descriptor match
                Remove target descriptor
                target stream type: 0x06
                target descriptor tag: 0x6A
                target descriptor length: 0x00
target descriptor payload:
                new stream type: 0x81
                new descriptor tag: 0x05
                new descriptor length: 0x04
                new descriptor payload: 41 43 2D 33
                                     A C - 3
```

```
D9477 MQAM>
```

Continued on next page

Enable DVB to ATSC AC-3 Conversion, Continued

4. Type **pfshow 0x01** and press **Enter** to verify the value settings for filter 1.

Result: The following target values listing appears in the terminal window.

```
        handle: 0x3BF630
        filterIndex: 0x01
        mode: 0x0F
            Require target stream type match
            Change target stream type
            Require target descriptor match
            Remove target descriptor
        target stream type: 0x06
        target descriptor tag: 0x6A
        target descriptor length: 0x00
target descriptor payload:
        new stream type: 0x81
        new descriptor tag: 0x05
        new descriptor length: 0x04
        new descriptor payload: 41 43 2D 33
                               A C - 3
```

Important: The DVB to ATSC AC-3 digital audio conversion settings are saved in NVM and remain in NVM until intentionally changed by a system operator.

Note: These conversion settings remain even if the MQAM is rebooted.

5. Reset the MQAM to re-create the sessions on the MQAM in order to verify that the AC-3 audio is functioning correctly.

Note: Refer to **Reset an MQAM From the Back Panel** or **Reset an MQAM From the DNCS**, earlier in these instructions.

6. Tune a DHCT connected to the MQAM you just configured to a program that has DVB AC-3 audio.

Important: The DHCT must be connected to a TV that is powered on.

7. Is the audio functioning correctly?
 - If **yes**, you have completed this procedure.
 - If **no**, repeat this procedure from step 2. If the audio *still* does not function correctly, contact Cisco Services.

Disable DVB to ATSC AC-3 Conversion

Introduction

If the DVB to ATSC AC-3 digital audio conversion is not needed on your system, you can disable this feature. This section includes a procedure for disabling the DVB to ATSC AC-3 digital audio conversion feature.

Follow these steps to disable the DVB to ATSC AC-3 digital audio conversion.

1. Connect a terminal to the craft port (CA SYNC port) on the MQAM. The terminal should be set up for 9600, N, 8, 1.

Result: A terminal window with a **D9477 MQAM>** prompt opens.

Note: If the **D9477 MQAM>** prompt does not appear, press **Enter**.

Important: Type all commands at the **D9477 MQAM>** prompt.

2. To disable only filter 1 type **pfsettarget 0x1 0x00 0x00 0x00 0x00** and press **Enter**.

Important: The DVB to ATSC AC-3 digital audio conversion settings are saved in NVM and remain in NVM until intentionally changed by a system operator.

Note: These conversion settings remain even if the MQAM is rebooted.

3. Type **pfshow 0x01** to verify that the DVB to ATSC AC-3 audio conversion is disabled.

Result: The following target values listing appears in the terminal window.

```
Handle: 0x3BF630
filterIndex: 0x01
mode: 0x00
disabled
target stream type: 0x00
target descriptor tag: 0x00
target descriptor length: 0x00
target descriptor payload:
new stream type: 0x81
new descriptor tag: 0x05
new descriptor length: 0x04
new descriptor payload: 41 43 2D 33
                        A C - 3
```

4. Reset the MQAM to disable the DVB to ATSC AC-3 audio conversion.

Refer to **Reset an MQAM From the Back Panel** or **Reset an MQAM From the DNCS**, earlier in these instructions.

For 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.



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