



# QAM Software Installation Guide



# 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

## Trademark Acknowledgments

Cisco and the Cisco logo are trademarks or registered trademarks of Cisco and/or its affiliates in the U.S. and other countries. A listing of Cisco's trademarks can be found at [www.cisco.com/go/trademarks](http://www.cisco.com/go/trademarks).

Third party trademarks mentioned are the property of their respective owners.

The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1009R)

## Publication Disclaimer

Cisco Systems, Inc. assumes no responsibility for errors or omissions that may appear in this publication. We reserve the right to change this publication at any time without notice. This document is not to be construed as conferring by implication, estoppel, or otherwise any license or right under any copyright or patent, whether or not the use of any information in this document employs an invention claimed in any existing or later issued patent.

## Copyright

© 2009, 2012 Cisco Systems, Inc. and/or its affiliates All rights reserved. Printed in the United States of America.

Information in this publication is subject to change without notice. No part of this publication may be reproduced or transmitted in any form, by photocopy, microfilm, xerography, or any other means, or incorporated into any information retrieval system, electronic or mechanical, for any purpose, without the express permission of Cisco Systems, Inc.

# Contents

<b>About This Guide</b>	<b>v</b>
<b>Chapter 1 Preparing to Upgrade the Software</b>	<b>1</b>
Upgrade Process Overview .....	2
Verify the Current Software Version on the DNCS .....	5
Back Up the Current QAM Configuration File.....	8
Install QAM Software onto the DNCS.....	9
Establish a Download Sequence .....	11
<b>Chapter 2 Upgrading the Software</b>	<b>13</b>
Download Software to the QAM Modulators .....	14
<b>Chapter 3 Customer Information</b>	<b>23</b>
<b>Appendix A Verify the Install Package Exists on the DNCS</b>	<b>25</b>
Check for the Install Tool on the DNCS .....	26
<b>Appendix B Load Multiple Versions of QAM Code</b>	<b>27</b>
Loading Multiple Versions of QAM Code .....	28
<b>Appendix C Roll Back to the Previous Version of QAM Software</b>	<b>31</b>
Introduction .....	32
<b>Index</b>	<b>33</b>



# About This Guide

## Introduction

This document provides instructions for installing software on the Cisco QAM devices listed below.

- QAM
- GQAM
- IF GoQAM
- RF GoQAM
- MQAM

Note: For the purposes of this document, all models will be referred to as QAMs.

This document also provides instructions for restoring the previous software version in the unlikely event that the upgrade is not successful.

Important: Use this document in conjunction with the release notes for the software version that you are installing. The release notes provide information about the software such as new features, compatibility with system releases, and the installation media and tools.

## Scope

This document provides instructions for installing software on a QAM. It does not provide instructions for installing a QAM in your headend.

**Note:** For headend installation instructions, refer to the appropriate Installation and Operation Guide for your QAM.

## Audience

This document is written for installers, operators and technicians, and for field service engineers.

## Document Version

This is the second formal release of this document. In addition to minor text and graphic changes, the following table provides the technical changes to this document.

Description	See Topic
Updated the guide in general and the QAM Modulator reset procedure in particular to make the text and screen captures compatible with the conversion of the Administrative Console to a web browser-based user interface.	<i>Resetting the QAM Modulator Through the DNCS UI</i> (on page 16)





# 1

---

## Preparing to Upgrade the Software

### Introduction

Before installing the software, there are several tasks that you must complete to ensure a successful installation. This chapter provides instructions on how to complete those tasks.

### In This Chapter

- Upgrade Process Overview ..... 2
- Verify the Current Software Version on the DNCS ..... 5
- Back Up the Current QAM Configuration File ..... 8
- Install QAM Software onto the DNCS ..... 9
- Establish a Download Sequence ..... 11

## Upgrade Process Overview

This section provides an overview of upgrade tasks. It also provides information that is critical to a successful upgrade, such as how the upgrade impacts subscribers and ways to minimize its impact on subscribers. Read this section before attempting to upgrade the software.

### Before You Begin

Before you upgrade the software, be sure that your system meets the criteria specified in the QAM software release notes.

If you will not be downloading the software from our File Transfer Protocol (FTP) site, make sure that you have obtained the CD that contains the appropriate software.

**Note:** For the CD title and part number, refer to the software release note for this product.

### Time to Complete

When upgrading QAMs with new software, consider the following tasks and the amount of time required for each:

- Completing pre-upgrade tasks takes from 30 to 45 minutes.
- If you are upgrading from an FTP site, allow an additional 10 to 15 minutes to download the software from the FTP site. The speed of the connection and the size of the files will determine the actual download time.
- Downloading new software to a QAM takes approximately 5 to 10 minutes for each device.
- For QAMs that encrypt broadcast sessions, the DNCS will restart the sessions after the QAMs load new software.
- For QAM devices that encrypt VOD sessions, only those sessions determined to be active will be restarted. Since subscribers may tune away when the QAM reboots, the total number of recovered sessions may not match the original number of sessions on the QAMs.

**Note:** It is not necessary to rebuild non-VOD sessions on the QAMs that you upgrade. The non-VOD sessions are rebuilt automatically after the new software is downloaded to the QAM.

## Subscriber Impact

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

## The Impact of TVs with QAM Tuners

When upgrading QAMs to new releases of software, you must reset the QAMs in order for the devices to download the new software from the DNCS.

An increasing number of TVs are being manufactured and sold with QAM tuners that can access services that 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 modulators that receive sessions from upgraded QAM devices. This extra step ensures that no modulator that may be carrying content inappropriate for children can be viewed inadvertently when using a TV that is equipped with a QAM tuner.

## Process Overview

This section provides an overview of the software upgrade process.

**Important:** You should only upgrade to new releases of software if your network is running in a healthy state (for example, a system can boot and stage set-tops). If your network is not in a healthy state, you should not upgrade to the new release of software unless the new release contains a remedy to your system issue.



### CAUTION:

If you are upgrading more than one QAM, download the new software to one group of devices (for example, all of the devices in a single rack or hub) and verify the functionality before attempting to download the software to another group of devices. Verifying the functionality of one group of devices at a time enables you to better isolate any failures that may occur and enables you to minimize service interruptions.

### Pre-Upgrade Tasks

**Important:** Performing the pre-upgrade tasks will not impact system performance.

- 1 Verify that the install tool (install\_pkg) exists on the DNCS.  
**Note:** For procedures on how to check for the install\_pkg tool, see *Verify the Install Package Exists on the DNCS* (on page 25).
- 2 Determine the configuration (config) files currently in use on your system.
- 3 Verify the software version associated with the configuration files.
- 4 Make a backup copy of the *current* QAM configuration file.

## Chapter 1 Preparing to Upgrade the Software

- 5 If you are upgrading more than one QAM, establish an upgrading order.
- 6 Install the software onto the DNCS.

### Upgrade Tasks

**Important:** Performing the upgrade tasks will result in a temporary loss of service as QAMs are reset.

- 1 Download the new software to the QAMs.
- 2 If the QAMs you are upgrading currently carry broadcast sessions, determine the sessions that are running on those QAMs you plan to upgrade. This will allow you to verify that these sessions are rebuilt after the new software is downloaded.
- 3 Verify that the upgraded QAM is functioning properly.

**Important:** Read and follow the appropriate directions contained in Impact of TVs with QAM Tuners.

- 4 After the upgrade is complete, generate a Doctor Report using the **-av** option to verify system stability and functionality.
- 5 Perform system validation tests for your system release version.

# Verify the Current Software Version on the DNCS

## Introduction

Before attempting to upgrade the software, verify the number of configuration files in use and what software version is associated with each configuration file.

On occasion, the configuration file for a test device or a set of test devices is changed and given a non-standard name (for example, qam111.config instead of qam.config). If your site has been involved in this type of testing (and you are now ready to use the released code again), you must update the configuration file setting for your test units to reflect the default values.

### Notes:

- The qam.config file might be named differently based on the type of QAM device you are using. For example, the MQAM filename is mqam.config, and the GQAM filename is gqam.config. For purposes of this document, we will refer to these config files as *qam.config*.
- The default configuration file for the Uniqam is **/tftpboot/qam.config**.

If you fail to correct a unit with a non-standard file name, the unit will not load the new code and it will continue to load the code specified in the non-standard configuration file.

In extremely rare cases, the configuration file may have been specified or may need to be specified in the /etc/bootptab file. In the event that a headend device fails to load the code you intended it to receive, you should check to see if a unique file was specified either through the DNCS UI or in the /etc/bootptab file before contacting Cisco® Services for assistance.

## Checking for Multiple Config Files

- 1 From the DNCS Administrative Console, click **Utilities** and click **xterm**. The xterm window opens.
- 2 Type **dbaccess dnscsdb <<%** and press **Enter**.
- 3 Type **unload to [name of QAM]data select qam\_name, configfile from pdcaqam where modeltype=X;** and press **Enter**.

**Notes:** In this command, depending on the type of QAM device, insert one of the following numbers in place of the "X" that follows "modeltype=":

- For QAMs, the modeltype is **1**
- For MQAMs, the modeltype is **2**
- For GQAMs, the modeltype is **3**

## Chapter 1 Preparing to Upgrade the Software

- For RF GoQAMs, the modeltype is **4**
  - For IF GoQAMs, the modeltype is **5**
- 4 Type **%** and press **Enter**. A result similar to the following output appears.

```
Database selected.  
5 row(s) unloaded.  
Database closed.
```

- 5 Type **more [name of QAM]data** and press **Enter**. A result similar to the following output appears.

```
> more qamdata  
  
BCASTQAM1|qam.config  
VODQAM1|qam.config|  
BCASTQAM2|qam.config|  
BCASTQAM3|qam.config|  
VODQAM|qam.test|
```

Notice that two different config files exist

- 6 Did more than one config file appear?
- If **yes**, keep the xterm window open and go to step 7.
  - If **no**, go to *Checking the Software Version Associated with the config File* (on page 7).
- 7 Do you need to continue to run different versions of software on some QAMs in your network?
- If **yes**, refer to the instructions contained in the software installation instructions for your version of QAM code.
  - If **no**, go to step 8.
- 8 Update the QAMs to use the same config file by performing the following steps:
- a From the DNCS Administrative Console, click the **DNCS** tab, and then select one of the following tabs:
    - For SR 2.7/3.7/4.2 and later, click **Network Element Provisioning**.
    - For SR 2.5/3.5/4.0 and earlier, click **Element Provisioning**.
  - b Click **QAM**. The QAM List window opens.
  - c Select the QAM device, click **File** and select **Open**. The Set Up [Name of QAM] window opens.
  - d Click **Advanced Parameters** and modify the configuration file, as needed.
- 9 Go to *Checking the Software Version Associated with the config File* (on page 7).

## Checking the Software Version Associated with the config File

- 1 From the xterm window, type `cd /tftpboot` and press **Enter**. The tftpboot directory becomes the working directory.
- 2 For each unique config file identified in *Checking for Multiple Config Files* (on page 5), type `grep Appl <config file name>` and press **Enter**.

**Example:** `grep Appl qam.config`

**Note:** The qam.config file might be named differently based on the type of QAM device you are using. For example, the MQAM filename is mqam.config, and the GQAM filename is gqam.config. For purposes of this document, we will refer to these config files as *qam.config*.

**Result:** A result similar to the following output appears.

```
flame:/export/home/dnCS$ >cd /tftpboot
flame:/tftpboot$ >grep Appl qam.config
# if the file path/name in ApplCodePath is different than it was
# ApplCodePath should contain a string indicating the path and
# Example: ApplCodePath = [pathname/filename]
AppCodePath = caqam_app250.bin
flame:/tftpboot$ >
```

Indicates v2.5.0 code is in use  
with the qam.config file

- 3 Is the proper version of software installed?
  - If **yes**, type `exit` and press **Enter**.
  - If **no**, go to the release note and installation instructions document for the version of software you want to install.

## Back Up the Current QAM Configuration File

### Introduction

Before installing the new QAM software, make a backup file of the config file currently installed on the DNCS by completing the following steps.



**CAUTION:**

Do not install new software until you have created a backup of the configuration file currently installed on your system. Having a backup file will enable you to restore the previous version of QAM software in the unlikely event of a failure.

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

### Backing Up the Current QAM Configuration File

- 1 Complete the following steps to log on to the xterm window as **root** user.
  - a Type **su -** and press **Enter**. The password prompt appears.
  - b Type the root password and press **Enter**.
- 2 Type **cd /tftpboot** and press **Enter** to access the tftpboot directory.
- 3 Type **pwd** and press **Enter**. The /tftpboot directory name appears and indicates that you are in the correct directory.
- 4 Type **cp -p qam.config qam.config<\_software version number>** to copy the current configuration file to a backup file, and then press **Enter**.

**Example:** Type **cp -p qam.config qam.config\_1\_1\_3** and press **Enter**.

**Notes:**

- The qam.config file might be named differently based on the type of QAM device you are using. For example, the MQAM filename is mqam.config, and the GQAM filename is gqam.config. For purposes of this document, we will refer to these config files as *qam.config*.
- If you are using a non-standard config file (for example, qam.test), substitute that config file name for qam.config.

**Result:** A copy of the qam.config file (or the file name you specified), which contains configuration settings, is saved to a configuration file named qam.config.old.

- 5 Remain logged in as root user and go to *Install QAM Software onto the DNCS* (on page 9).



# Install QAM Software onto the DNCS

## Installing the QAM Software from Our FTP Server

### Creating the Directory

- 1 From the xterm window where you are logged in as root, type **cd /export/home/dncls/download** and press **Enter**. The /export/home/dncls/download directory becomes the working directory.  
**Important:** If this directory does *not* exist, use the **mkdir** command to create it. Then, repeat step 1.
- 2 Type **mkdir QAMxx** (where *xx* represents the software version number) and press **Enter**. The system creates a subdirectory called QAMxx in the /export/home/dncls/download directory.  
**Example:** If you are installing software version 2.5.7, type **mkdir QAM257**
- 3 Type **cd QAMxx** (where *xx* represents the software version number) and press **Enter** to access the QAMxx directory.  
**Example:** If you are installing software version 2.5.7, type **cd QAM257**
- 4 Go to *Obtaining the QAM Software File* (on page 9).

### Obtaining the QAM Software File

- Log on to our FTP server at **192.133.243.133**.  
**Important:** Our FTP server address is subject to change. If you are unable to reach the FTP server, please contact Cisco® Services for the latest address.
  - The username is **anonymous**.
  - The password is the e-mail address of the person logging in.
- 1 Choose one of the following options to navigate to the directory in which the file is located:
    - If you are *outside* our firewall, type **cd /external\_pub/scicare/TOOLS/scripts**
    - If you are *inside* our firewall, type **cd /external\_pub/scicare/RELEASED/CAQAM**
  - 2 Type **bin** and press **Enter**. The system sets the ftp transfer mode to binary.
  - 3 Type **hash** and press **Enter**. The system configures itself to display hash marks that show file-transfer progress.
  - 4 Type **prompt** and press **Enter**. The system indicates that interactive mode is off.
  - 5 Type **get qam** and press **Enter**. The system begins copying the file (or files) from the FTP site to the current directory on your DNCS.  
**Note:** Please see the release note for your software version to find the correct QAM software file name.

**Example:** If you are installing QAM software version number 2.5.7, type **get QAM\_257.tar.gz** and press **Enter**.

- 6 Type **bye** and press **Enter** to log out of our FTP server.

### Decompressing and Extracting the File

- 1 From the xterm window, type **gzip -d QAMxx.tar.gz** (where *xx* represents the software version number) and press **Enter**. The system decompresses the software file.

**Example:** If you are installing QAM software version 2.5.7, type **gzip -d QAM\_257.tar.gz**.

- 2 Type **tar xvf qam** and press **Enter**. The system extracts the individual files.

**Note:** Please see the release note for your software version to find the correct QAM software file name.

**Example:** If you are installing QAM software version 2.5.7, type **tar xvf QAM\_257.tar**

- 3 Go to *Installing QAM Software* (on page 10).

### Installing QAM Software

- 1 From the xterm window where you are logged in as root, type **/usr/sbin/install\_pkg** and press **Enter**.

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

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

**Note:** The installation should take less than 30 seconds.

- 3 Did a message appear indicating that the installation was successful?

- If **yes**, go to step 4.
- If **no**, contact Cisco® Services.

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

QAMxxtar (file)

QAMxx (directory)

**Note:** Where *xx* represents the software version number.

**Note:** Please see the release note for your software version to find the correct QAM software file name.

**Example:** If you are installing QAM software version 2.5.7, Type **rm -rf QAM257 QAM257.tar** and press **Enter**.

- 5 A confirmation question message appears asking you to confirm the removal. Go ahead and confirm the removal.
- 6 Type **exit** and press **Enter** to log out as root user.
- 7 Type **exit** and press **Enter** to close the xterm window.

## Establish a Download Sequence

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



### CAUTION:

**If you are downloading new software to more than one QAM group, download the software to one group (for example, all modulators in a single rack or hub) and verify its functionality before attempting to download software to another group. Verifying the functionality of one modulator group at a time enables you to better isolate any failures that may occur.**

### xOD/VOD Sessions

When upgrading QAMs 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:

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

### Broadcast Sessions

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

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

- 1 If any QAMs act as spares, download the software on these modulators first.
- 2 If your system does not have a spare QAM, download the software on the modulator carrying sessions that are least viewed.
- 3 If you have QAMs that carry BFS sessions, download the software to the BFS QAM first.
- 4 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?

### xOD/VOD Sessions

If all of your QAMs carry xOD or VOD sessions, you are ready to begin downloading the new software to the QAMs. Go to *Download Software to the QAM Modulators* (on page 14).

**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 QAMs that carry broadcast sessions, use our DNCS Report Writer to view the Channels, Sources & Sessions Report. This report lists the existing broadcast sessions in your system along with the channels and sources in your system that each modulator currently carries.

The Channels, Sources & Sessions Report lists each *display channel* (channel number) in the system. The report also displays information about the *carriage* of each channel (how the channel is transmitted on the DBDS). The report maps each source to the transport device used to deliver the source (analog frequency on QAMs).

Generating this report helps you to determine which sessions/services are carried by each QAM. This report also helps you to verify that these sessions are successfully rebuilt after the new software is downloaded to the QAM.

You can also use the DNCS Session List to determine the existing broadcast sessions in your system.

**Important:** For further assistance, refer to the Report Writer User Guide or the Online Help for your DNCS or ISDS.

# 2

---

## Upgrading the Software

### Introduction

This chapter describes how to upgrade the QAM device with this version of QAM software.

### In This Chapter

- Download Software to the QAM Modulators ..... 14

## Download Software to the QAM Modulators

### Introduction

To download the new software to QAMs, you must first reset (reboot) the modulators using one of the following methods:

- DNCS UI
- auditQam utility
- Front panel of the QAM



**CAUTION:**

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

**Important:** Use the procedure for *Preparing to Monitor Remote QAM Resets* (on page 15) when resetting QAMs from the DNCS UI or when using an auditQam script to reset multiple QAMs.

After the modulators reset, the software is downloaded from the DNCS to the modulators and existing sessions are reestablished.

### Choose a Reset Method

Choose one of the following methods to reset your QAMs:

- To reset modulators through the DNCS UI or using the auditQam utility, go to *Preparing to Monitor Remote QAM Resets* (on page 15).
- To reset modulators through the front panel, go to *Physically Resetting the QAM Modulator* (on page 20).

**Note:** Resetting QAMs from the DNCS UI or from the front panel can be time-consuming. If you have a number of modulators to reset, consider using the auditQam utility.

## Preparing to Monitor Remote QAM Resets

- 1 From the xterm window, type **cd /dvs/dnacs/tmp** and press **Enter** to access the TMP directory.
- 2 Type **ls -ltr boot\*** and press **Enter**. A list of files starting with "boot" appears in the xterm window.
- 3 Locate the current bootpd.xxx file name.  
**Note:** This will be the bootpd.xxx file with the highest number and/or the most recent date.
- 4 Type **tail -f bootpd.xxx | awk '/QAM device/'** to show the last QAM to reboot.
- 5 As you reset QAMs (in the QAM List window or using the auditqam utility), monitor the bootpd file to verify that each QAM reset.  
**Note:** The bootpd file will roll over to the next log as it grows. If logging stops, repeat steps 2 through 4 to see if a new log file is being used.
- 6 Go to one of the following sections, as desired:
  - *Resetting the QAM Modulator Through the DNCS UI* (on page 16)
  - *Resetting QAM Modulators Through the auditQam Utility* (on page 15)

## Resetting QAM Modulators Through the auditQam Utility

The *reset* option of the auditQam utility allows you to reset the QAM from the command line of the DNCS, a process that is usually quicker than resetting the modulator through the DNCS GUI or modulator panel.

You can use one of the following two methods to reset the QAM using auditQam:

- Reset a single QAM by typing the IP address of the modulator as an argument to the **auditQam -reset** command
- Reset more than one QAM by creating a script that includes a reset command for each modulator. The script includes a delay value that resets each QAM over a period of time.

**Note:** Instructions and guidelines for both situations are provided in this section.

### Resetting One QAM

- 1 If necessary, open an xterm window on the DNCS.
- 2 Type the following command and press **Enter**:  
**auditQam -reset [QAM ip address]**

**Result:** The system shuts down and reinitializes the modulator.

**Note:** The system also performs an audit to ensure that the session list for the modulator matches the session list from the DNCS.

- 3 Do you see the IP address for the QAM you reset in the bootpd log file?
  - If **yes**, continue with this procedure.
  - If **no**, call Cisco Services.
- 4 Select one of the following options:
  - For QAMs that carry broadcast sessions, go to *Verifying the Functionality of QAM Modulators That Carry Broadcast Sessions* (on page 21).
  - For QAMs that carry xOD or VOD sessions, go to *Verifying the Functionality of QAM Modulators That Carry xOD or VOD Sessions* (on page 22).

### Resetting the QAM Modulator Through the DNCS UI

This section describes how to reset QAMs in order to load new software. Use the *Preparing to Monitor Remote QAM Resets* (on page 15) procedure before resetting QAMs through the DNCS UI.



#### CAUTION:

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

- 1 If you have not already done so, provision the QAM on the DNCS.  
**Note:** For instructions to provision the QAM, refer to the DNCS online help.
- 2 From the DNCS Administrative Console, click the **DNCS** tab, and then click **Network Element Provisioning**.
- 3 Click **QAM**. The QAM List window opens.
- 4 Based on the order you determined earlier, select a QAM to reset by highlighting it in the QAM List window.

**Important:** Although each QAM that has been provisioned is listed multiple times, select only up to four of the devices listed. The following diagram shows an example of a QAM selected in the QAM List window.

**Note:** For SR 5.0, the DNCS Administration Console and all of the sub-windows have been converted from GUI to WUI. To maintain forward and backward compatibility, examples from the Pre-SR 5.0 GUI and the SR 5.0 WUI have been provided.



■ GUI Example: Pre-SR 5.0

Headend Name	QAM Type	QAM Name	Port	Transport Stream ID	Channel Center Frequency (MHz)	IP Address	Admin State
oliveoil	MQAM	MQAM1x1	RF OUT 2	121	627.00	172.16.4.5	Online
oliveoil	MQAM	MQAM1x1	RF OUT 3	122	633.00	172.16.4.5	Online
oliveoil	MQAM	MQAM1x1	RF OUT 4	123	639.00	172.16.4.5	Online
bluto	QAM	MikesQam	RF OUT	1235	99.00	12.12.12.12	Offline
oliveoil	QAM	QAM1x1	RF OUT	3	609.00	172.16.4.3	Online
oliveoil	MQAM	VOD1MQAM1	RF OUT 1	31	555.00	172.16.4.31	Offline
oliveoil	MQAM	VOD1MQAM1	RF OUT 2	32	561.00	172.16.4.31	Offline
oliveoil	MQAM	VOD1MQAM1	RF OUT 3	33	567.00	172.16.4.31	Offline
oliveoil	MQAM	VOD1MQAM1	RF OUT 4	34	573.00	172.16.4.31	Offline
oliveoil	QAM	VODqam	RF OUT	7	615.00	172.16.4.4	Online

■ WUI Example: SR 5.0 and later

QAM List (localhost:80) - Mozilla Firefox

http://localhost/dnscs/unifiedqam/qamTable.do

**DNCS/QAM List**

Connectivity Help Exit

**Filter**

By Field: ALL

By Value:

Show

**QAM List**

Total Row(s): 19 Rows per page: 10 Page 1 of 2 Search

<input type="checkbox"/>	Name	Headend	Type	IP Address	TSID	Frequency	Admin State
<input checked="" type="checkbox"/>	BFSQAM1	BERT_HE	UniQAM	172.16.4.11	111	645.0	Online
<input type="checkbox"/>	TestQgam (+)	BERT_HE	GQAM	172.16.4.14	10010	567.0	Online
<input type="checkbox"/>	DnscsMQAM1 (+)	BERT_HE	MQAM	172.16.4.12	1112	579.0	Online
<input type="checkbox"/>	Lionn2BfsMQAM (+)	OSCAR_HE	MQAM	172.17.4.19	2210	603.0	Online
<input type="checkbox"/>	Lionn2IFGOQAMx1 (+)	OSCAR_HE	IFGOQAM	172.17.4.21	2223	44.0	Online
<input type="checkbox"/>	Lionn3IFGOQAMx1 (+)	COOKIE_HE	IFGOQAM	172.18.4.20	3030	44.0	Online
<input type="checkbox"/>	Lionn3BfsQam	COOKIE_HE	UniQAM	172.18.4.21	1421	627.0	Online
<input type="checkbox"/>	Lionn2BfsQAM	OSCAR_HE	UniQAM	172.17.4.23	251	567.0	Online
<input type="checkbox"/>	Lionn3MQAM1	COOKIE_HE	MQAM	172.18.4.23	304	651.0	Online

QAM list retrieved successfully (19 elements).

Add Edit Delete Reset

5 Select a QAM name.

- **Pre-SR 5.0:** Click **File > Reset**. The Question window opens and asks you to confirm the reset of the QAM.
- **SR 5.0 and later:** Select the QAM and click **Reset**. The Question window opens and asks you to confirm the reset command.

- 6 Click **OK**.
  - **Pre-SR 5.0:** The QAM List window displays the following message:  
**The reset request has been received by QAM modulator <Name of QAM>**  
**Notes:**
    - <Name> represents the name of the device you just reset.
    - It may take up to 5 minutes for each device to reset.
  - **SR 5.0 and later:** The QAM List window displays the following message in the bottom left corner:  
**Reset Successfully (<Name>)**  
**Notes:**
    - <Name> represents the name of the device you just reset.
    - It may take up to 5 minutes for each device to reset.
- 7 Do you see the IP address for the QAM you reset in the bootpd log file?
  - If **yes**, continue with this procedure.
  - If **no**, call Cisco® Services.

**Note:** For details about IP addresses in the bootpd log file, go to *Preparing to Monitor Remote QAM Resets* (on page 15).
- 8 Do you need to reset another QAM?
  - If **yes**, repeat this procedure from step 4 for up to three additional devices. Go to the next step.  
**Important:** Never reset more than four devices at once, or you may cause QAMs to have to retry downloads due to traffic congestion on the network.
  - If **no**, go to the next step.
- 9 Choose one of the following options.  
**Important:** After following one of these options, return to Step 10 of this procedure.
  - For QAMs that carry broadcast sessions, go to *Verifying the Functionality of QAM Modulators That Carry Broadcast Sessions* (on page 21).
  - For QAMs that carry xOD or VOD sessions, go to *Verifying the Functionality of QAM Modulators That Carry xOD or VOD Sessions* (on page 22).
- 10 Do you have additional devices to reset?
  - If **yes**, repeat this procedure from step 4.
  - If **no**, go to the next step.
- 11 Click **File** and select **Close** to close the QAM List window.

### Resetting More Than One QAM

When performing an upgrade, you may not want to manually reset hundreds of modulators from the DNCS UI. To save time, you can create a script that resets the QAMs. The following sample script executes these functions:

- Reset four QAMs
- After 5 minutes (300 seconds), reset another set of four QAMs

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

```
auditQam -reset 123.123.123.123
sleep 1
auditQam -reset 123.123.123.124
sleep 1
auditQam -reset 123.123.123.125
sleep 1
auditQam -reset 123.123.123.126
sleep 300
# end of first set
auditQam -reset 123.123.123.127
sleep 1
auditQam -reset 123.123.123.128
sleep 1
auditQam -reset 123.123.123.129
sleep 1
auditQam -reset 123.123.123.130
sleep 300
# end of second set
```

### Important:

- Resetting the QAM interrupts all active sessions for up to 10 minutes. Complete this task during a maintenance period whenever possible.
- Use the procedure for *Preparing to Monitor Remote QAM Resets* (on page 15) when using an auditQam script to reset multiple QAMs.

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

- For QAMs that carry broadcast sessions, go to *Verifying the Functionality of QAM Modulators That Carry Broadcast Sessions* (on page 21).
- For QAMs that carry xOD or VOD sessions, go to *Verifying the Functionality of QAM Modulators That Carry xOD or VOD Sessions* (on page 22).

## Physically Resetting the QAM Modulator

- 1 Record the Session Count and the Program Count for your QAMs by completing the following steps.
  - Note:** Skip this step for any QAM that is used for video-on-demand (VOD).
  - a Press the **Options** button on the front panel until the **Session Count** total appears.
  - b Record the Session Count on a piece of paper.
  - c Press the **Options** button on the front panel until the **Program Count** total appears.
  - d Record the Program Count on a piece of paper.
  - e Repeat steps a) through d) for each QAM in your system.
- 2 Reset the QAM by turning off and then back on the power switch located on the back panel.
- 3 Repeat steps 1 and 2 for up to three additional modulators.
  - Important:** Never reset more than four modulators at once, or you may overload the DNCS.
- 4 Repeat step 1 to record the current Session and Program Count totals for each modulator that you reset. Then, go to step 5.
  - Note:** You may skip step 5 for any QAM that is used for video-on-demand (VOD).
- 5 Does the Session Count and Program Count recorded in step 1 and step 4 match?
  - If **yes**, complete the following procedure and then return to step 6.
    - **Important:** Remember to return to step 6 after completing the following procedure.
    - *Verifying the Functionality of QAM Modulators That Carry Broadcast Sessions* (on page 21).
  - If **no**, contact Cisco® Services.
- 6 Do you have additional modulators to reset?
  - If **yes**, repeat steps 1 through 5 until each modulator has been reset, and then go to *Verifying the Functionality of QAM Modulators That Carry xOD or VOD Sessions* (on page 22).
  - If **no**, go to *Verifying the Functionality of QAM Modulators That Carry xOD or VOD Sessions* (on page 22).

## Verifying the Functionality of QAM Modulators That Carry Broadcast Sessions

- 1 Access a DHCT that is connected downstream to one QAM.
- 2 Refer to the Channels, Sources & Sessions Report that you generated and saved in *Broadcast Sessions* (on page 12) to verify restored QAM channels and sessions.
- 3 Tune the DHCT to each channel listed in the report for each QAM that you reset and upgraded.
- 4 Are all channels listed for the QAMs that you reset accessible from the DHCT?
  - If **yes**, go to step 5.
  - If **no**, do *not* attempt to upgrade the software for any additional QAM. Call Cisco Services at 1-800-283-2636.
- 5 For those QAMs that carry content inappropriate for children, we recommend that you verify encryption using one of the following methods:
  - Using a set-top that is authorized for all services, tune one by one to each service and check the PowerKEY Information diagnostic screen. If the Prog Stat and Prog Entitle fields are zero (0x00), then the program is in the clear. If these fields are non-zero, then the program is encrypted.
  - Verify that the program count is correct on the QAMs that carry inappropriate content before and after the reset.
  - Using a QAM tuner television, tune to the respective channels and verify that inappropriate content is not viewable.
- 6 Is the content viewable?
  - If **yes**, stop and then restart (bounce) the qamManager process on the DNCS, and repeat step 5. If the content continues to be viewable, contact Cisco Services. Then, go to step 7.
  - If **no**, go to step 7.
- 7 Have you completed resetting your QAMs?
  - If **yes**, go to step 8.
  - If **no**, return to the procedure you are using to reset your QAMs.
- 8 Generate a Doctor Report using the **-av** option to verify system stability and functionality.
 

**Note:** For further instructions on running the Doctor Report, refer to **Analyze System Configuration With the Doctor Report** in the *DBDS Utilities Version 6.3 Installation Instructions and User Guide* (part number 4031374).
- 9 Do new or unexpected errors appear in the Doctor Report?
  - If **yes**, contact Cisco Services.
  - If **no**, go to step 10.

- 10 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.
- 11 Over the next few days, check the individual modulators to verify that they received the new code.
- 12 Are you following these directions in order to reset QAM modulators?
  - If **yes**, return to your original procedure and complete the steps.
  - If **no**, you have completed this procedure.

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

- 1 Sessions that exist on xOD or VOD QAMs that were upgraded will be interrupted and, in most cases, will recover. If the sessions do not recover, choose one of the following options:
  - Exit the xOD or VOD application (stop the xOD or VOD program), and then restart the application and the xOD or VOD stream by resuming the playback of the “in progress” purchase.
  - Change to a different channel, and then back to the previous channel. Restart the application and the xOD or VOD stream by resuming the playback of the “in progress” purchase.

**Note:** This procedure will vary depending on the application you are using.

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

**Note:** After the upgrade is complete, perform the System Validation Tests found in the installation and upgrade documentation for your system release version to verify the functionality and performance of the set-tops in your system. If new or unexpected errors occur, contact Cisco Services.

- 2 Are you following these directions in order to reset QAM modulators through the DNCS UI?
  - If **yes**, and if you have more QAM modulators to reset, return to Step 10 of *Resetting the QAM Modulator through the DNCS UI* (on page 16).
  - If **no**, you have completed this procedure.

# 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.





# A

---

## Verify the Install Package Exists on the DNCS

### Introduction

For system releases that do not include the pre-packaged install tool, we recommend that you verify whether or not the tool exists on your DNCS; because, the tool is required to load new software onto the DNCS. This appendix provides procedures for checking for the install tool, as well as procedures for retrieving it from our FTP site.

### In This Appendix

- Check for the Install Tool on the DNCS ..... 26

## Check for the Install Tool on the DNCS

- 1 From an xterm window, type **cd /usr/sbin** and press **Enter**.
- 2 Type **ls** and press **Enter**.
- 3 Is the `install_pkg` file present on the DNCS?
  - If **yes**, resume your installation procedures.
  - If **no**, go to step 4.
- 4 Log on to our FTP server.

**Notes:**

  - The address of the server is **ftp.sciatl.com** or **192.133.243.133**.  
**Note:** The address for our FTP server is subject to change. If you are unable to reach the FTP server, please contact Cisco® Services for the latest address.
  - The username is **anonymous**.
  - The password is the e-mail address of the person logging in.
- 5 Choose one of the following options to navigate to the directory in which the file is located:
  - If you are *inside* our firewall, type  
**cd /external\_pub/scicare/RELEASED/SR2.2Patches**.
  - If you are *outside* our firewall, type  
**cd /pub/scicare/RELEASED/SR2.2Patches**.
- 6 Type **bin** and press **Enter**. The system sets the ftp transfer mode to binary.
- 7 Type **hash** and press **Enter**. The system configures itself to display hash marks that show file-transfer progress.
- 8 Type **get install\_pkg** and press **Enter**. The system begins copying files into the `/export/home/dnCS/download/` directory on your DNCS.
- 9 Type **get install\_pkg README\_3.0.1.3p2EP1.txt**. The system begins copying files into the `/export/home/dnCS/download/` directory on your DNCS.
- 10 Type **bye** and press **Enter** to log out of our FTP server.
- 11 Continue with the installation procedures.

# B

---

## Load Multiple Versions of QAM Code

### Introduction

The recommended upgrade process for QAMs is based on a goal of getting all the units upgraded within a short period of time (typically one day). In some cases, a site may choose to upgrade the QAMs over time or may desire to load a unique version of code onto a single QAM for extended testing. This appendix describes how to accomplish either of these goals.

### In This Appendix

- Loading Multiple Versions of QAM Code..... 28

## Loading Multiple Versions of QAM Code

**Note:** If you need to determine which config files are being used by each QAM, refer to Checking for Multiple Config Files for details. For this procedure, we will assume that `qam.config` is the current configuration file.

- 1 Go to the `/tftpboot` directory on the DNCS and rename the current `qam.config` file as **qam.current**.

**Note:** The `qam.config` file might be named differently based on the type of QAM device you are using. For example, the MQAM filename is `mqam.config`, and the GQAM filename is `gqam.config`. For purposes of this document, we will refer to these config files as *qam.config*.

- 2 Install the new version of QAM software that you intend to use using Install QAM Software onto the DNCS.
- 3 From the `/tftpboot` directory on the DNCS, rename the new `qam.config` file as **qam.new**.
- 4 From the `/tftpboot` directory on the DNCS, rename the original backup file (for example, rename `qam.current` to `qam.config`).
- 5 From the QAM List window on the DNCS, open the entry for the QAM that should download the new code.
- 6 Click the **Advanced Parameters** tab, and change the configuration file name from `qam.config` to **qam.new**.
- 7 Click **Apply**.
- 8 From the QAM List window on the DNCS, reset the QAM to which you want to download the new code.
- 9 Repeat steps 6 through 8 for each QAM to which you want to download the new code.
- 10 When you are ready to load code to all of your QAMs, perform one of the following approaches:
  - **Preferred Approach**
    - a Go to the `/tftpboot` directory and rename `qam.new` as **qam.config**.
    - b From the QAM List window on the DNCS, reset all the QAMs that are using the `qam.config` file.
    - c From the QAM List window on the DNCS, change the configuration file value for all QAMs that currently use `qam.new` to **qam.config**. These units do not need to be reset.

■ **Alternative Approach**

- a From the QAM List window, change the configuration file value for all modulators using qam.config to use **qam.new**.
- b Reset the changed QAMs.

**Note:** Units that were already using qam.new as their configuration file do not need to be reset.



# C

## Roll Back to the Previous Version of QAM Software

### Introduction

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

**Important:** If after downloading the QAM software you encounter problems, contact Cisco Services at 1-800-283-2636 for assistance. In the event that Cisco Services directs you to download the previous version of software to QAMs, follow the procedures in this appendix while working with Cisco Services.

### In This Appendix

■ Introduction.....	32
---------------------	----

## Introduction

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



**CAUTION:**

Contact Cisco Services at 1-800-283-2636 before attempting to restore the previous QAM software version.

**Note:** To restore the previous QAM executable files, restore the configuration backup file that you saved in *Backing Up the Current QAM Configuration File* (on page 8).

- 1 Open an xterm window on the DNCS and log on as the **root** user. The root prompt appears.
- 2 Type **cd /tftpboot** and press **Enter**. The root prompt appears.
- 3 Type **pwd** and press **Enter**. The text `/tftpboot` appears at the prompt. This text indicates you are in the correct directory.
- 4 Type **cp -p qam.config qam.config.yyy** and press **Enter**. The configuration file named `qam.config`, which contains the latest QAM software version configuration settings, is saved to a file named `qam.config.yyy`.

**Notes:**

- The `yyy` represents the QAM software version number you just installed.
  - The `qam.config` file might be named differently based on the type of QAM device you are using. For example, the MQAM filename is `mqam.config`, and the GQAM filename is `gqam.config`. For purposes of this document, we will refer to these config files as *qam.config*.
- 5 Type **cp -p qam.config.old qam.config** and press **Enter**. The configuration file named `qam.config.old`, which contains the previous list of QAM configuration files, is copied to a configuration file named `qam.config`.
  - 6 Type **ls -l** and press **Enter**. A list of files displays. The files **qam.config.old**, **qam.config**, and **qam.config.bakyyy** appear in the list.

**Note:** The "l" used in **ls** and **-l** is a lowercase letter L.
  - 7 Confirm that the date and size of **qam.config** matches those of **qam.config.old**.
  - 8 Type **exit** and press **Enter**.
  - 9 Download the previous version of software to QAMs by rebooting the modulators. For detailed procedures, go to *Download Software to the QAM Modulators* (on page 14).



# Index

## B

Back Up the Current QAM Configuration File • 8

Backing Up the Current QAM Configuration File • 8

Before You Begin • 2

Broadcast Sessions • 11, 12

## C

Check for the Install Tool on the DNCS • 26

Checking for Multiple Config Files • 5

Checking the Software Version Associated with the config File • 7

Choose a Reset Method • 14

Creating the Directory • 9

Customer Information • 23

## D

Decompressing and Extracting the File • 10

Download Software to the QAM Modulators • 14

## E

Establish a Download Sequence • 11

## I

Install QAM Software onto the DNCS • 9

Installing QAM Software • 10

Installing the QAM Software from Our FTP Server • 9

Introduction • 5, 8, 14, 32

## L

Loading Multiple Versions of QAM Code • 28

## O

Obtaining the QAM Software File • 9

## P

Physically Resetting the QAM Modulator • 20

Preparing to Monitor Remote QAM Resets • 15

Preparing to Upgrade the Software • 1

Pre-Upgrade Tasks • 3

Process Overview • 3

## R

Resetting More Than One QAM • 19

Resetting One QAM • 15

Resetting QAM Modulators Through the auditQam Utility • 15

Resetting the QAM Modulator Through the DNCS UI • 16

## S

Subscriber Impact • 3

## T

The Impact of TVs with QAM Tuners • 3

Time to Complete • 2

## U

Upgrade Process Overview • 2

Upgrade Tasks • 4

Upgrading the Software • 13

## V

Verify the Current Software Version on the DNCS • 5

Verifying the Functionality of QAM Modulators That Carry Broadcast Sessions • 21

Verifying the Functionality of QAM Modulators That Carry xOD or VOD Sessions • 22

## W

What's Next? • 12

## X

xOD/VOD Sessions • 11, 12



Cisco Systems, Inc.  
5030 Sugarloaf Parkway, Box 465447  
Lawrenceville, GA 30042

678 277-1120  
800 722-2009  
[www.cisco.com](http://www.cisco.com)

This document includes various trademarks of Cisco Systems, Inc. Please see the Notices section of this document for a list of the Cisco Systems, Inc. trademarks used in this document.

Product and service availability are subject to change without notice.

© 2009, 2012 Cisco and/or its affiliates. All rights reserved.

January 2012 Printed in United States of America

Part Number 4026030 Rev B