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GQAM Modulator Software Version 4.4.7 Release Note

Overview

Introduction

This document describes the new features and benefits of upgrading a Model D9479 Gigabit Quadrature Amplitude Modulation (GQAM) Modulator to GQAM software version 4.4.7. This document also includes a description of the change requests (CRs) implemented in this release.

Audience

This document is intended for system operators or field service engineers who are responsible for installing the GQAM software onto the GQAM.

Scope

This release note provides an executive overview of GQAM software version 4.4.7. If you have questions about this release or require more detailed information, call Cisco® Services at 1-866-787-3866.

Document Version

This is the first formal release of this document.

Introducing GQAM Software Version 4.4.7

GQAM software version 4.4.7 is designed to be installed on a GQAM. After the software is installed and the modulator is active, it provides additional support for sites that deploy video-on-demand (VOD), *anything*-on-demand (xOD), and other interactive broadcast services.

Note: For a complete description of a GQAM, refer to the following documents:

- *Dual SFP Gigabit QAM Modulator Installation and Operation Guide* (part number 4014102)

- *Gigabit QAM Modulator Model D9479 Hardware Installation and Operation Guide* (part number 745431)

System Release Compatibility and Prerequisites

GQAM software version 4.4.7 can be installed on a Digital Broadband Delivery System (DBDS) that is running one of the following system releases (SR) and Digital Network Control System (DNCS) application versions:

- SR 2.7/3.7/4.2 and associated Service Packs

- SR 2.7.1/3.7.1/4.2.1

- SR 2.8/3.8/4.3

- SR 4.3.1 and SR 4.3.2

- SR 5.0

For a complete configuration listing, or to upgrade your system, contact Cisco Services at 1-866-787-3866.

Software

GQAM 4.4.7 includes the following software code:

- GQAM Host Boot code 4.4.7

- GQAM Host Application code 4.4.7

- GQAM Input Boot code 4.4.7

- GQAM Input App code 4.4.7

- GQAM Output Boot code 4.4.7

- GQAM Output App code 4.4.7

- GQAM RF 2.6

The *QAM Software Installation Instructions* (part number 4026030) provides instructions to obtain the code for this release from an FTP server. Follow the instructions in the *Obtaining the QAM Software File* section to download the following file:

GQAM4.4.7.tar.gz

Hardware

GQAM 4.4.7 supports only the Model D9479 GQAM (both the single GigE Port and dual GigE Port models).

Operational Consideration

There is a limitation in the dual port GQAM that prevents it from supporting both GigE ports and the ASI ports simultaneously. If you are utilizing any of the ASI ports, the second GigE port is automatically disabled. If you want to use both GigE ports, the ASI ports must be empty and contain no sessions. You must tear down any sessions on the ASI ports. Once you enable the second GigE port, you will not be able to add sessions on the ASI ports.

What's New?

This section provides a description of the enhancements implemented in GQAM software version 4.4.7.

CSCzk50583/CR 112633: Add PSIP and EAS Aggregation Support to GQAM

The GQAM needs to support aggregation of input PSIP and EAS (SCTE-18) messages onto its output. This requires the addition of new functionality, including new RPCs and a new RPC version. If PSIP and EAS are provided in-band (as opposed to coming from the DNCS), this new QAM feature will aggregate the PSIP and EAS onto the QAM output.

CSCzk50587/CR 115451 - PID Route Conflict Detection for PSIP/EAS Aggregation

If misconfigured, DNCS/DTACS operators could request both PSIP/EAS aggregation and PID routes on PID 0x1FFB. This would most likely disrupt PSIP services. The new implementation detects conflicting requests and rejects whichever comes second.

CSCzk56020/CR 117112 - SMDG Craft Command Printout is Confusing

The print_statmux printout displays information on disabled SMDGs (statmux dejitter groups). Disabled entries now display as n/a on the printout.

What's Fixed?

This section provides a description of the fixes implemented in GQAM software version 4.4.7.

CSCzk42846/CR 118779: GQAM DTA ACM Insert Rate Too High when Multi-Packet ECMs Are Necessary

When a segment is added to more than twelve packages, the number of ECMs needed to support all of the entitlement IDs (EIDs) spans multiple MPEG packets.

When this happens, the ECM insert rate is increased to account for the extra packets. However, when DTA Simple Content Protection (SCP) is also being used, the ACM insert rate is inadvertently increased as well. The ACM insert rate should remain correct for a single packet insert.

CSCzk42848/CR 118778: GQAM ECMs Sometimes Have Adaptation_Control Field Set to 00

When a segment is added to more than twelve packages, the number of ECMs needed to support all of the entitlement IDs (EIDs) spans multiple MPEG packets. Sometimes the adaptation_control bits in this second packet get corrupted and are set to 00 instead of 01. When this happens, downstream devices may or may not be able to use this ECM. It was observed in the field that TiVo boxes exhibit a repeating pattern of four seconds of video followed by four seconds of freeze-frame. It has also been reported that some Pace set-tops show this behavior.

Workaround: Deleting and rebuilding the affected session on the DNCS will temporarily clear this condition.

CSCzk44420/CR 113330 - GQAM Sends Unwarranted RPC Error on TSR Query

The GQAM was sending an unwarranted RPC error on a TSR query. Now, if the list is empty, the code returns a GQAM_NO_ERROR result.

CSCzk50579/CR113274 - GQAM Does Not Pass CAT Table Out Multiple Ports

When a single CAT route is set up, the CAT passes data. However, when a CAT is configured to pass out of multiple GQAM outputs, it does not pass data and causes all CATs to stop working.

CSCzk50591/CR 117114 - e2prom_settings can Lock up the Craft Port if Given Invalid Input

When prompted for an item to change, if the user types in text instead of a line number, the GQAM craft port can lock up, but the GQAM continues to function normally. The line entered is now validated.

Known Issues

Introduction

This section provides a list of known system issues identified during testing of GQAM software version 4.4.7. Resolutions to these issues are currently under investigation or in development.

For More Information

The list in this section is not intended to be comprehensive. If you have questions about a particular change request, contact your account representative.

CSCzk50588/CR 116385 - Add the ability to persist PSIP/EAS data

This issue occurs if a PSIP or EAS aggregation is set up on a GQAM and the GQAM is subsequently rebooted. The data for the aggregation is stored in the GQAM's non-volatile RAM memory (NVRAM) and must be restored using a command.

Impact: This issue will cause the aggregations set up in a GQAM to be temporarily undone until the operator enters the aggregationLoad command. This command loads the last recorded settings from the NVRAM back into the GQAM.

Workaround: Follow these instructions to load the aggregation data stored in the NVRAM.

1　Wait until the **D9479 GQAM>** prompt appears after the GQAM has booted.
2　Type aggregationLoad and press **Enter**. The aggregation data loads.

CSCzk61292/CR 117494: A GQAM Could Inadvertently Change All of the Multicast Source IP Addresses Per Output Frequency

This issue occurs if an incorrect source IP address is entered when creating a multicast session and there are currently other sessions built on the same GQAM output frequency. The GQAM will change all of the correct source IP addresses on the sessions streaming video to the incorrect source IP address.

Impact: This issue will cause all of the existing multicast sessions on the same GQAM output frequency to stop streaming video. This would cause the loss of video to the end user.

Configuring PSIP and EAS Aggregation on the GQAM

This section details the steps required to configure the PSIP/EAS aggregation on the GQAM modulator.

Note: All of these procedures require that you connect directly to the GQAM using the GQAM craft port.

Important: The aggregation data is stored in the GQAM's NVRAM. If the GQAM is rebooted, you must reload this data into the GQAM. See *CSCzk50588/CR 116385 - Add the ability to persist PSIP/EAS data* (on page 7) for more information.

Verify that the Correct GQAM Software is Loaded

Follow these instructions to verify that the correct software is loaded onto the GQAM modulator. Software versions earlier than GQAM 4.4.7 do not support PSIP/EAS aggregation.

1 Connect to the craft port using a serial interface at 9600 baud.
2 At the **D9479 GQAM>** prompt, type `vers` and press **Enter**.
3 Verify that the version listed for all processors is 4.4.7.

Verify that the GQAM Sessions are Active

Follow these instructions to verify that all sessions on the GQAM modulator are active.

1 At the **D9479 GQAM>** prompt, type `session` and press **Enter**.
2 Verify that all GQAM sessions are active. If any sessions are not active, use the instructions in the DNCS online help to activate the sessions.

Enable PSIP Aggregation

Follow these instructions to enable PSIP Aggregation for the desired GQAM output transport streams (ports).

1 At the **D9479 GQAM>** prompt, type the following command and press **Enter**:
   `aggregationEnable [0xID] 0 [OUT_PORT]`
   Notes:
   - Do **not** type the brackets in the command.
   - **[0xID]** is a unique ID number in hexadecimal, prefaced by **0x**.
   - **[OUT_PORT]** is the 0-based output QAM channel number.
2 Repeat the command for each of the sixteen output transport streams that require PSIP, changing [0xID] and [OUT_PORT] as appropriate.

Enable EAS Aggregation

Follow these instructions to enable EAS Aggregation for the desired GQAM output transport streams (ports).

1 At the **D9479 GQAM>** prompt, type the following command and press **Enter**:

```
aggregationEnable [0xID] 1 [OUT_PORT] 5 1 [MCAST_IP]
[SRC_IP]
```

Notes:

- Do **not** type the brackets in the command.
- **[ID]** is a unique ID number in hexadecimal, prefaced by **0x**.
- **[OUT_PORT]** is the 0-based output QAM channel number.
- **[MCAST_IP]** is the multicast IP address of the GQAM of the source, in this case, the DM. The input port is 0-3 for ASI and 4 for GigE.
- **[SRC_IP]** is the IP addresses of the GQAM's source; in this case, the DM. The input port is 0-3 for ASI and 4 for GigE.
- Enter **0** for the UDP.

Example:

```
aggregationEnable 0x15 1 15 4 1 232.23.255.99 10.253.0.138
0
```

2 Repeat the command for each of the sixteen output transport streams that require EAS, changing [0xID] and [OUT_PORT] as appropriate.

Verify that PSIP and EAS Aggregation are Enabled

Follow these instructions to verify that PSIP and EAS are enabled on the desired ports.

1 At the **D9479 GQAM>** promp, type `print_aggregation` and press **Enter**.

2 Verify that PSIP and EAS are enabled on the desired ports, and that the aggregation data is correct.

Disabling PSIP/EAS Aggregation

Follow these instructions to disable aggregation for the desired aggregation ID.

1 At the **D9479 GQAM>** prompt, type the following command and press **Enter** to view a list of aggregation IDs:

```
print_aggregation
```

2 Find the hexadecimal equivalent [0xnnn] of the ID that you want to disable.

3 At the **D9479 GQAM>** prompt, type the following command and press **Enter**:

```
aggregationDisable [0xnnn]
```

Notes:

- Do **not** type the brackets in the command.
- **[0xnnn]** is the unique aggregation ID number in hexadecimal, prefaced by **0x**.

4   Repeat the command for each of the aggregation IDs that you want to disable, changing [0xnnn] as appropriate.

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.