Understanding Web-Based Diagnostic Screens

for GQAM Modulators

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.

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About This Guide

Introduction

This guide describes how to use the device monitoring tool hosted on Gigabit Quadrature Amplitude Modulators (GQAMs). The web-based interface provides performance statistics and status information that allow you to monitor GQAM operation in real-time. The tool also aids problem area diagnosis and troubleshooting by site operators and Cisco® Systems support engineers.

Purpose

After reading this guide, you will be able to use these diagnostic screens to help identify and evaluate status and performance information for GQAMs. The following list includes some of the tasks you can perform using the diagnostic screens:

- Determine the data rate for a specific session
- Determine the software version for the GQAM, and other software components
- Determine the operating status for each active port on the GQAM
- Monitor the amount of bandwidth that is being used on each output port
- Determine if the GQAM is in an alarm state
- Evaluate error counters on a per-session basis
- Verify the current status of the video stream
- Determine the overall session data for a specific GQAM

Scope

The content of this document applies to sites that are using the following software releases:

- DNCS System Release (SR) 4.2 SP2 and later
- GQAM Software Version 4.2 and later

Audience

This guide is written for network operators and internal personnel who have experience monitoring the performance of GQAMs.

Document Version

This is the first formal release of this document.

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Understanding Diagnostic Screens

Introduction

The web interface tool captures data from the GQAM and then reports the data in the appropriate diagnostic screens. The diagnostic screens are automatically refreshed every five seconds and allow you to quickly confirm the current software versions, radio frequency (RF) levels, number of active sessions, current bandwidth usage, and more. For example, if a customer has macroblocking issues, the diagnostic screens can verify the software version running on the GQAM, the data rate for the GQAM device session, the modulation mode, or the number of active sessions; all of which can impact the video quality.

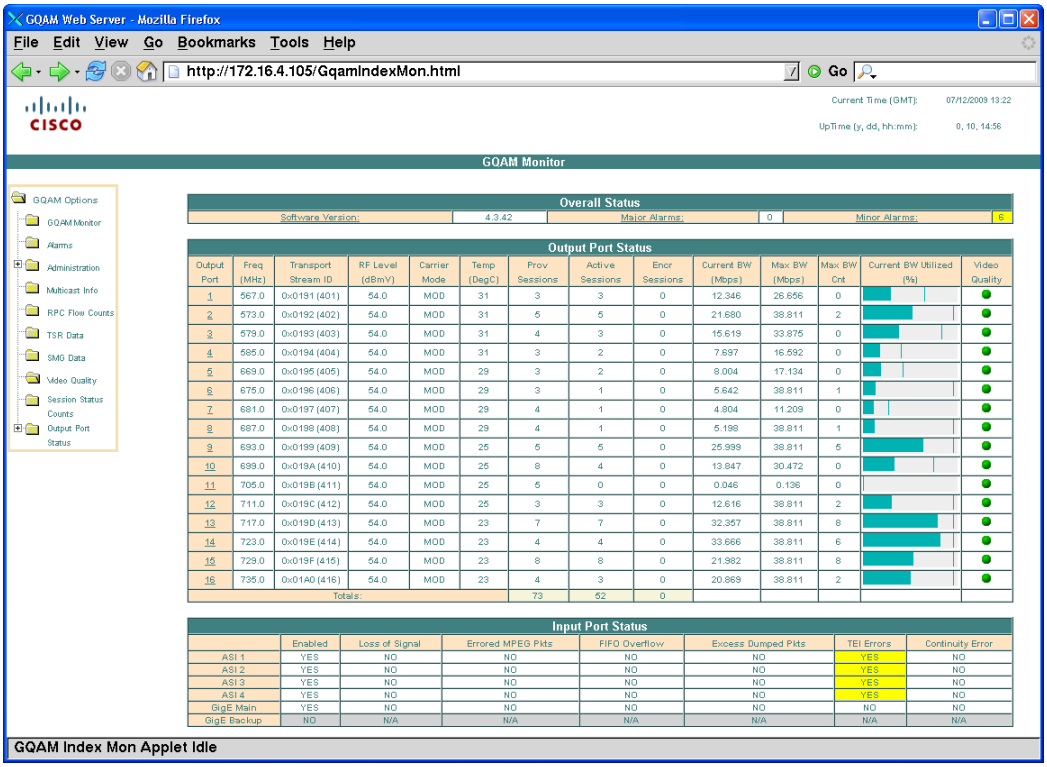
To successfully view the information within the diagnostic screens, you must know how to access them. This section provides instructions to help you access and navigate the diagnostic screens.

In This Chapter

Access the Diagnostic Screens

1. To access the GQAM diagnostic screens, first open a web browser:
   a. For system releases prior to SR 4.2.1, click the web browser button on the Digital Network Control System (DNCS) administrative console.
   b. For SR 4.2.1 and later, open an xterm window, enter **firefox** and press **Enter**.
2. In the Address field, type the IP address for the GQAM you want to monitor and press **Enter**. The web browser displays the GQAM Monitor diagnostic screen (the main screen) for the GQAM you are using.

   Example: http://172.16.4.105



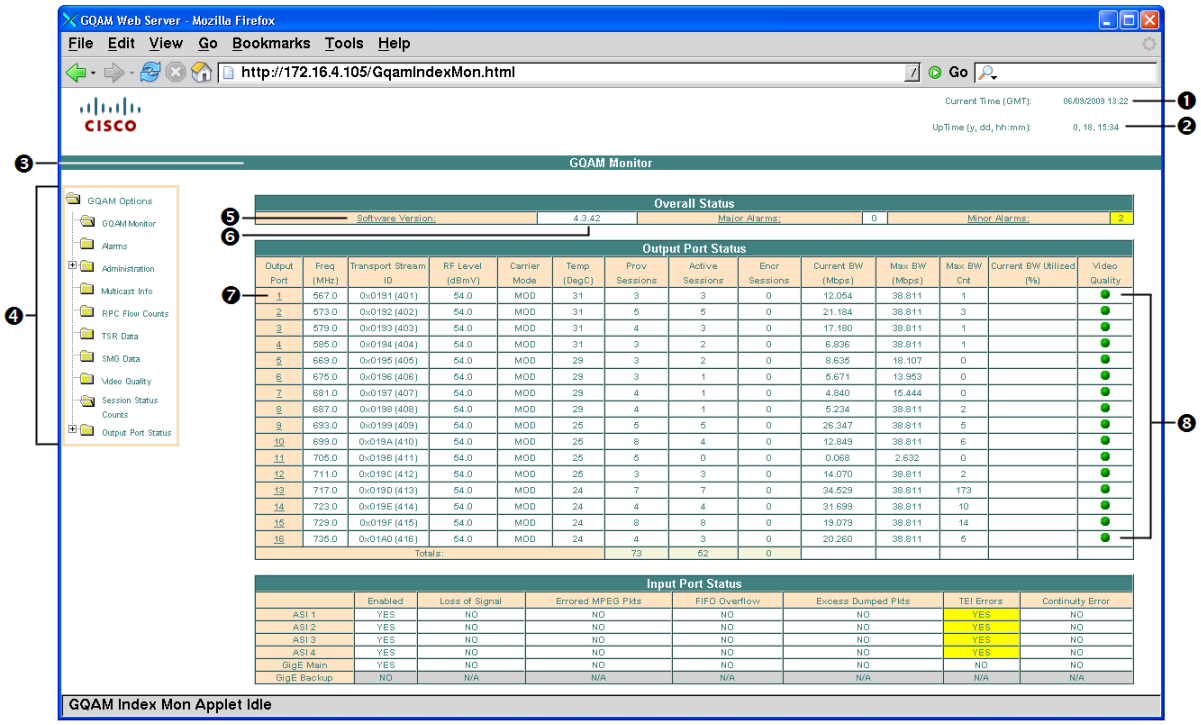
3. To navigate to different diagnostic screens, click a hyperlink from the GQAM Options area of the window.

   Important: The TSR Data hyperlink in the GQAM Options directory tree is not active in this release.

   Note: The indicators in the Video Quality column and the underlined text within the window are hyperlinks; therefore, you can click these items to access different diagnostic screens as well.

Identify Information Within Diagnostic Screens

The following example of the main diagnostic screen illustrates the basic components of a GQAM diagnostic window.



Legend

1. Current Date and Time
2. Time Since GQAM has been Booted
3. Title of Diagnostic Screen
4. Navigation to Other Diagnostic Screens
5. Field Name (beige shading)
6. Field Data (no shading)
7. Links (underlined) to Specific Data for Sessions on this Output Port
8. Links to Specific Data About Video Quality

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GQAM Diagnostic Screens

Introduction

This chapter describes each diagnostic screen, providing status and performance information for GQAM modulators deployed on your DNCS system. These screens accumulate data that relate to the software version, input and output ports, multicast information, and video quality.

In This Chapter

GQAM Monitor Diagnostic Screen

Information

This section provides a sample of the GQAM Monitor diagnostic screen along with field descriptions. You can view this screen to obtain information concerning the overall status of a GQAM modulator.

To access this screen, click **GQAM Monitor** from the GQAM Options area of any diagnostic screen.

Note: The GQAM Monitor diagnostic screen is the initial screen that is opened when you access the GQAM diagnostic application.

Performing Tasks

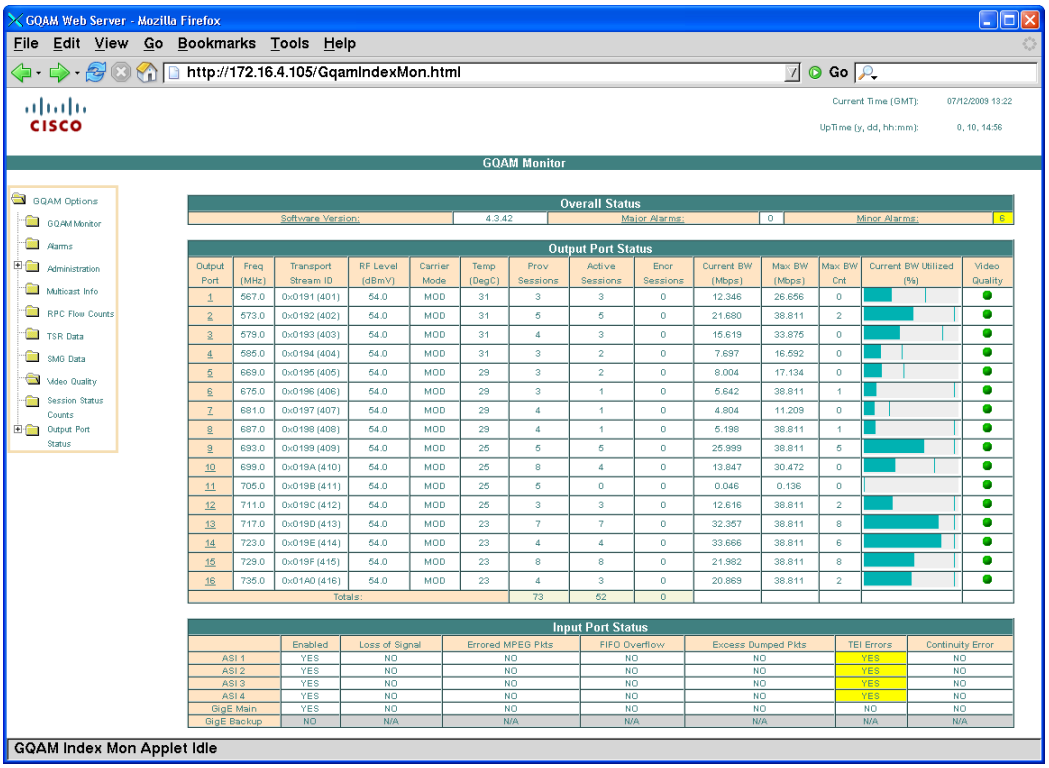
By accessing this diagnostic screen, you can perform the following tasks:

- Verify the software version running on the GQAM
- Check for alarms
- Verify the amount of bandwidth that is currently being used on each output port

Screen Components

- Overall Status
- Output Port Status
- Input Port Status

Example:



Screen Fields and Values

The following tables describe the fields and possible values that can appear on this screen.

Overall Status

Field Name	Description	Possible Values
Software Version	Indicates the version of software currently running on the GQAM **Note:** Click **Software Version** to go to the ***SW Version Diagnostic Screen*** (on page 19).	■ **[Software-dependent]**

Field Name	Description	Possible Values
Major Alarms	Indicates the number of current major alarms that are causing a fatal error (complete loss of functionality) **Notes:** ■ A major alarm occurs for hardware or software conditions that indicate a serious disruption of service or the malfunctioning or failure of important circuits. ■ Click **Major Alarms** to go to the ***Alarms Diagnostic Screen*** (on page 12).	■ **0—**no major alarms exist ■ **[Integer > 0]—**number of major alarms that are occurring **Note:** The background appears in red when 1 or more major alarms are present.
Minor Alarms	Indicates the number of active minor alarms that are causing non-fatal error conditions **Notes:** ■ A minor alarm indicates a less critical error condition in which the GQAM may continue to operate with some loss of functionality. ■ Click **Minor Alarms** to go to the ***Alarms Diagnostic Screen*** (on page 12).	■ **0—**no minor alarms exist ■ **[Integer > 0]—**number of minor alarms that are occurring **Note:** The background appears in yellow when 1 or more minor alarms are present.

Output Port Status

Field Name	Description	Possible Values
Output Port	Exact output port on the GQAM **Note:** Click a specific output port to view specific details about that port. See ***Session Data List Diagnostic Screen*** (on page 37) for details.	■ **[Port-dependent]** — 1 to 16

Field Name	Description	Possible Values
Freq (MHz)	The channel frequency for each port **Note:** This value is defined on the DNCS.	■ **[91.0 ≤ Integer ≥ 1000.0]**—for 1 GHz boards ■ **[91.0 ≤ Integer ≥ 869.0]**—for 870 MHz boards **Notes:** • These values are provisioned on the DNCS in 0.25 MHz increments. • Each frequency (1-4, 5-8, 9-12, and 13-16) within each output converter group is spaced 6 MHz apart.
Transport Stream ID	The transport stream identifier (ID) for each port **Note:** This value is provisioned on the DNCS.	■ **[4-byte Hexadecimal value]** **Note:** The 2-byte decimal equivalent is shown in parentheses.
RF Level (dBmV)	The configured RF output level for each port **Note:** This value is provisioned on the DNCS.	■ **[42 ≤ Integer ≥ 56]** **Note:** These values should change in 0.1 dBmV increments. ■ **MUTE**—RF output is muted
Carrier Mode	The type of RF carrier that the GQAM modulator uses **Note:** This value is provisioned on the DNCS.	■ **CW—**Continuous wave ■ **MOD—**Modulated
Temp (DegC)	The internal temperature for the radio frequency (RF) output ports on the GQAM modulator **Note:** The temperature should be the same for each modulated channel for the same RF output converter.	■ **[Temperature ≤ 70C]**—ideal temperature range ■ **[Temperature > 70C]**—causes alarm
Prov Sessions	The number of provisioned sessions on a port **Note:** This value is provisioned on the DNCS.	■ **[Integer ≥ 0]**
Active Sessions	The number of active sessions on a port	■ **[Integer ≥ 0]**
Encr Sessions	The number of encrypted sessions on a port	■ **[Integer ≥ 0]**
Current BW (Mbps)	The current bandwidth that is being used on this port	■ **[Integer ≥ 0]** **Note:** The limit for this value is 38.811 Mbps.

Field Name	Description	Possible Values
Max BW (Mbps)	The maximum bandwidth that has been reached on this port	■ **[Integer ≥ 0]** **Note:** The limit for this value is 38.811 Mbps.
Max BW Cnt	The number of times the maximum allowable bandwidth value has been exceeded	■ **[Integer ≥ 0]**
Current BW Utilized (%)	A color-specific indicator that identifies how much bandwidth is currently in use on each port **Note:** A thin vertical line appears for each value. This indicates the maximum bandwidth that has been reached for each port.	■ **Turquoise/blue indicator—** desired value; bandwidth in use is below 95% ■ **Yellow indicator—**95% to 99% bandwidth is in use ■ **Red indicator—**bandwidth use is at 100%
Video Quality	A color-specific indicator that identifies whether the video quality is good or is degraded based on a configurable threshold over a configurable period of time **Note:** Click any indicator to view detailed information about the video quality for each port. See ***Video Quality Diagnostic Screen*** (on page 32) for more details.	■ **Green indicator—**video quality is OK ■ **Red indicator—**video quality is degraded

Input Port Status

Notes:

- Only the primary or backup GigE port is active at one time.
- The values for the inactive port will be N/A and highlighted in gray.
- If the GQAM is not a dual port GigE device, the values for the backup port indicators will be N/A and highlighted in gray.

Field Name	Description	Possible Values
Enabled	Indicates if the port is enabled	■ **YES—**the port is enabled ■ **NO—**the port is not enabled

Field Name	Description	Possible Values
Loss of Signal	Indicates if a loss of signal has occurred; causes a major alarm	■ **YES—**upstream device provisioning input to the GQAM has failed or is offline or cable may be disconnected (highlighted in red) ■ **NO—**desired value ■ **N/A—**input port is not enabled (highlighted in gray)
Errored MPEG Pkts	Indicates if any Moving Pictures Experts Group (MPEG) transport errors exist; causes a minor alarm	■ **YES—**errored MPEG packets (highlighted in yellow) ■ **NO—**desired value ■ **N/A—**input port is not enabled (highlighted in gray)
FIFO Overflow	Indicates if a First In First Out (FIFO) overflow has occurred	■ **YES—**packet data is lost, incorrect modulation mode, too many sessions defined for the GQAM, or data rate for the GQAM is too low (highlighted in yellow) ■ **NO—**desired value ■ **N/A—**input port is not enabled (highlighted in gray)
Excess Dumped Pkts	Indicates if a FIFO overflow occurred in which packets were lost; causes a minor alarm	■ **YES—**incorrect modulation mode, too many sessions defined for the GQAM, data rate for the GQAM is too low, or hardware issue (highlighted in yellow) ■ **NO—**desired value ■ **N/A—**input port is not enabled (highlighted in gray)
TEI Errors	Indicates if any transmission error indicator (TEI) errors exist	■ **YES—**errored MPEG packets and/or transmission errors exist (highlighted in yellow) ■ **NO—**desired value ■ **N/A—**input port is not enabled (highlighted in gray)
Continuity Error	Indicates if any MPEG continuity counter errors exist; causes a minor alarm	■ **YES—**MPEG packet sequence problem (highlighted in yellow) ■ **NO—**desired value ■ **N/A—**input port is not enabled (highlighted in gray)

Alarms Diagnostic Screen

Information

This section provides a sample of the GQAM Alarms diagnostic screen along with field descriptions. You can view this screen to obtain information concerning the existence of any major or minor alarm.

To access this screen, perform one of the following actions:

- Click **Alarms** from the GQAM Options area of any diagnostic screen.
- Click the **Major Alarms** or **Minor Alarms** link from the Overall Status section of the ***GQAM Monitor Diagnostic Screen*** (on page 6).

Performing Tasks

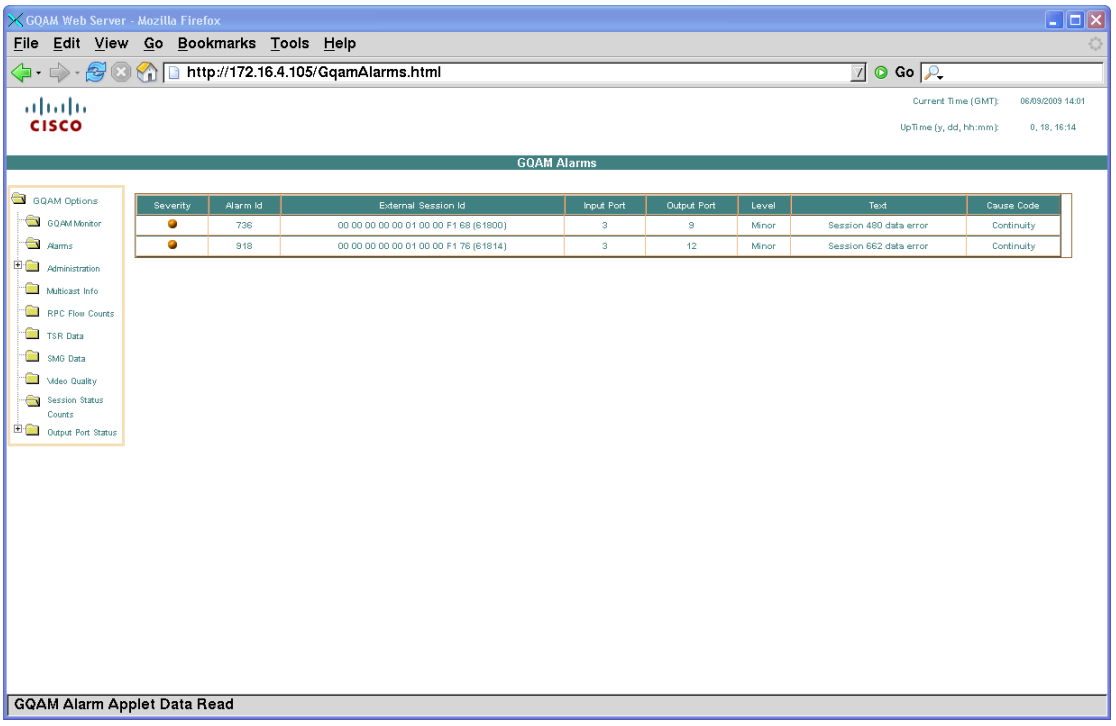
By accessing this diagnostic screen, you can perform the following tasks:

- Verify which port an error is occurring on
- View a brief description of the error
- Determine which external session ID, assigned by the DNCS, the error is occurring on

Screen Components

Important: The alarms are sorted by severity and then by alarm ID.

Example:



Screen Fields and Values

The following table describes the fields and possible values that can appear on this screen.

Field Name	Description	Possible Values
Severity	Provides a graphical indication to the severity level of each alarm	■ **Red indicator—**major alarm ■ **Orange indicator—**minor alarm
Alarm Id	Identifies each individual alarm	■ **[Integer > 0]**
External Session Id	Identifies the session identifier assigned by the DNCS	■ **[10-byte Hexadecimal value]** **Note:** The 2-byte decimal equivalent is shown in parentheses.
Input Port	Identifies which input port the alarm is present on	■ **[1 ≤ Integer ≥ 5]**
Output Port	Identifies which output port the alarm is present on	■ **[1 ≤ Integer ≥ 16]**
Level	Indicates the level of alarm	■ **Major** ■ **Minor**
Text	Provides a brief description of what is causing the alarm	■ **[set of text]**

Field Name	Description	Possible Values
Cause Code	Describes the type of data error	■ **Non-specific** ■ **Underflow—**the data rate for this session dropped to 0 or is less than expected ■ **Overflow—**the data rate for this session exceeds the provisioned data rate ■ **PID Enable—**a PID that should be enabled is not enabled on the GQAM ■ **Continuity—**an input continuity error has occurred on a specific port ■ **PLL Unlock—**the phase lock loop is unlocked for the given session ■ **Glue Frame—**the output port is receiving too much data (GigE only)

Configuration Diagnostic Screen

Information

This section provides a sample of the GQAM Configuration diagnostic screen along with field descriptions. You can view this screen to obtain information about the 10/100 Ethernet port of any or the GigE ports.

To access this screen, click (open) the **Administration** folder from the GQAM Options area of the window and then click **Configuration**.

Performing Tasks

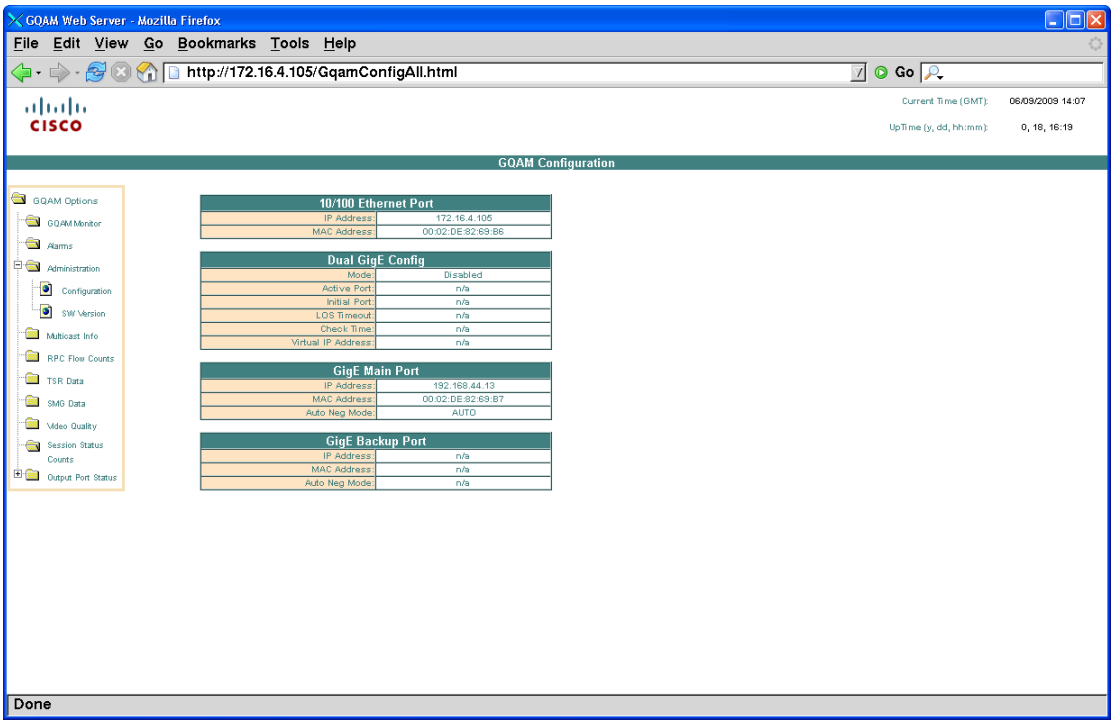
By accessing this diagnostic screen, you can perform the following tasks:

- Verify the IP and MAC address for the 10/100 Ethernet port and all GigE ports
- Determine the active port for the dual GigE GQAM (if in use)

Screen Components

- 10/100 Ethernet Port
- Dual GigE Config
- GigE Main Port
- GigE Backup Port

Example:



Screen Fields and Values

The following tables describe the fields and possible values that can appear on this screen.

10/100 Ethernet Port

Field Name	Description	Possible Values
IP Address	The IP address of the control port	■ **[Unique per GQAM]** **Note:** This value is provisioned on the DNCS.
MAC Address	The MAC address of the control port	■ **[Unique per GQAM]**

Dual GigE Config

Field Name	Description	Possible Values
Mode	Defines the current mode for the dual GigE port	■ **ASI/GIGE** ■ **GIGE only, Auto Switch** ■ **GIGE only, No Auto Switch** ■ **Disabled** **Note:** This value is provisioned on the DNCS.

Field Name	Description	Possible Values
Active Port	Indicates which port (main or backup) is currently the active port	■ **Main** ■ **Backup** ■ **n/a—**dual GigE GQAM is not in use **Note:** This value is provisioned on the DNCS.
Initial Port	Indicates which port (main or backup) is active at bootup	■ **Main** ■ **Backup** ■ **n/a—**dual GigE GQAM is not in use **Note:** This value is provisioned on the DNCS.
LOS Timeout (msec)	Indicates the amount of time that that the GQAM will wait before it switches from the active GigE port to the inactive GigE port when a loss of signal (LOS) is detected on the active GigE port	■ **[Integer > 1]** ■ **n/a—**dual GigE GQAM is not in use **Note:** This value is provisioned on the DNCS.
Check Time (sec)	Indicates the amount of time that will expire before informing the system that the backup port is now the active port	■ **[Integer ≥ 0]** ■ **n/a—**dual GigE GQAM is not in use
Virtual IP Address	Identifies the IP address for the dual GigE port that is advertised to the external equipment	■ **[Unique per GQAM]** ■ **n/a—**dual GigE GQAM is not in use **Note:** This value is provisioned on the DNCS.

GigE Main Port

Field Name	Description	Possible Values
IP Address	The IP address for the main GigE port	■ **[Unique per GQAM]** **Note:** This value is provisioned on the DNCS.
MAC Address	The MAC address for the main GigE port	■ **[Unique per GQAM]** **Note:** This value is provisioned on the DNCS.

Field Name	Description	Possible Values
Auto Neg Mode	Indicates the mode in which the auto negotiation feature is configured for the main GigE port	■ **OFF—**auto-negotiate mode is turned off ■ **ON—**auto-negotiate mode is turned on ■ **AUTO—**ON or OFF mode is based on the internal table of defaults for the inserted small form-factor pluggable (SFP) converter **Note:** This value is provisioned on the DNCS.

GigE Backup Port

Field Name	Description	Possible Values
IP Address	The IP address for the backup GigE port	■ **n/a—**dual GigE GQAM is not in use ■ **[Unique per GQAM]** **Note:** This value is provisioned on the DNCS.
MAC Address	The MAC address for the backup GigE port	■ **n/a—**dual GigE GQAM is not in use ■ **[Unique per GQAM]** **Note:** This value is provisioned on the DNCS.
Auto Neg Mode	Indicates the mode in which the auto negotiation feature is configured for the backup GigE port	■ **n/a—**dual GigE GQAM is not in use ■ **OFF—**auto-negotiate mode is turned off ■ **ON—**auto-negotiate mode is turned on ■ **AUTO—**ON or OFF mode is based on the internal table of defaults for the inserted small form-factor pluggable (SFP) converter **Note:** This value is provisioned on the DNCS.

SW Version Diagnostic Screen

Information

This section provides a sample of the GQAM Software Versions diagnostic screen along with field descriptions. You can view this screen to determine the software version that is currently running on the GQAM, as well as for each component related to the GQAM.

To access this screen, click (open) the **Administration** folder from the GQAM Options area of the window and then click **SW Version**.

Performing Tasks

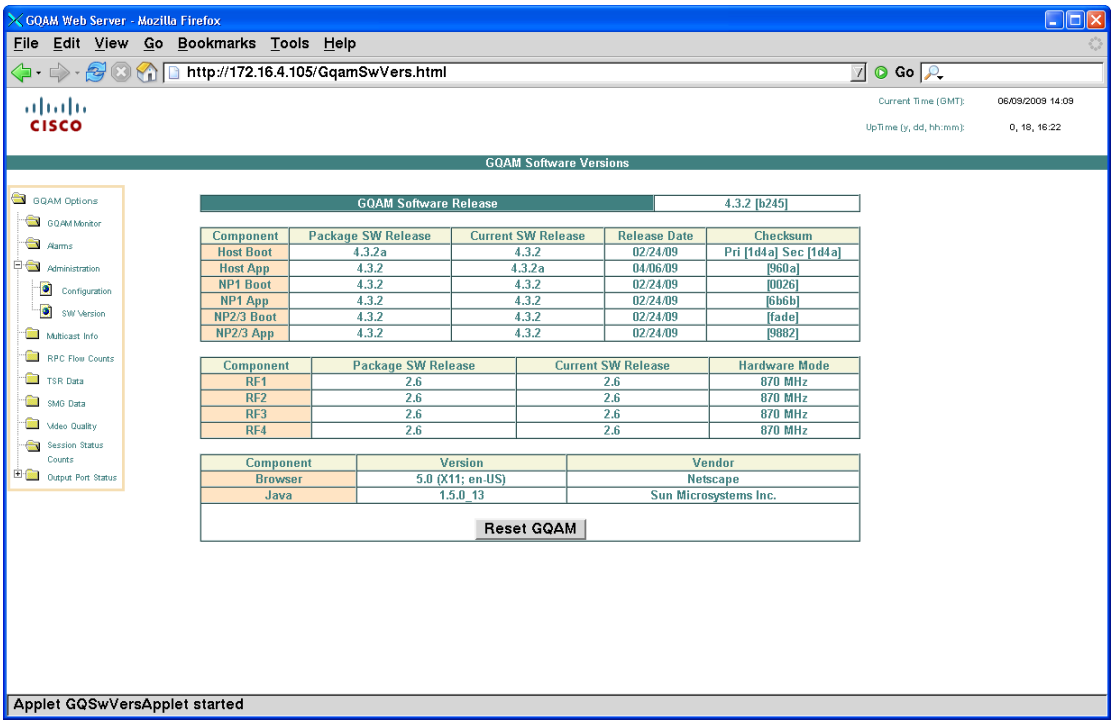
By accessing this diagnostic screen, you can perform the following tasks:

- Verify the software versions
- Verify the release date for each software version

Screen Components

- GQAM Software Release
- Software Component Release Version

Example:



Screen Fields and Values

The following tables describe the fields and possible values that can appear on this screen.

GQAM Software Release

Field Name	Description	Possible Values
GQAM Software Release	Indicates the software version for the overall GQAM device	■ **[GQAM software-dependent]**

Software Component Release Version

Field Name	Description	Possible Values
Component	Specifies the software component	■ **Host Boot—**boot code for the host device ■ **Host App—**application code for the host device ■ **NP1 Boot—**boot code for the NP1 software ■ **NP1 App—**application code for the NP1 device ■ **NP2/3 Boot—**boot code for the NP2 and NP3 device ■ **NP2/3 App—**applications code for the NP2 and NP3 device ■ **RF1—**application code for RF output converter 1 (output ports 1-4) ■ **RF2—**application code for RF output converter 2 (output ports 5-8) ■ **RF3—**application code for RF output converter 3 (output ports 9-12) ■ **RF4—**application code for RF output converter 4 (output ports 13-16) ■ **Browser—**version for your Internet browser ■ **Java—**version for the Java component
Package SW Release	Defines the version for each component in the software package	■ **[Software-dependent]**
Current SW Release	Identifies the current version for each software component	■ **[Software-dependent]**
Release Date	Identifies the release date for each software component	■ **[Software-dependent]**
Checksum	Defines the checksum value for each component	■ **[Software-dependent]**
Hardware Mode	Indicates the revision number for the hardware board	■ **0—**870 MHz RF board ■ **1—**1 GHz RF board

Field Name	Description	Possible Values
Version	Defines the current software version for the Internet or Java browser that is in use	■ **[Software-dependent]**
Vendor	Identifies the vendor who manages the Internet or Java browser software	■ **Microsoft Internet Explorer** ■ **Sun Microsystems, Inc.** ■ **Netscape** ■ **Mozilla** ■ **Firefox**
Reset GQAM	Allows you to reboot the GQAM **Important:** Do not reset the GQAM unless requested by Cisco Services.	**N/A**

Multicast Info Diagnostic Screen

Information

This section provides a sample of the GQAM Multicast Info diagnostic screen along with field descriptions. You can view this screen to determine the multicast address and information about multicast groups.

To access this screen, click **Multicast Info** from the GQAM Options area of any diagnostic screen.

Performing Tasks

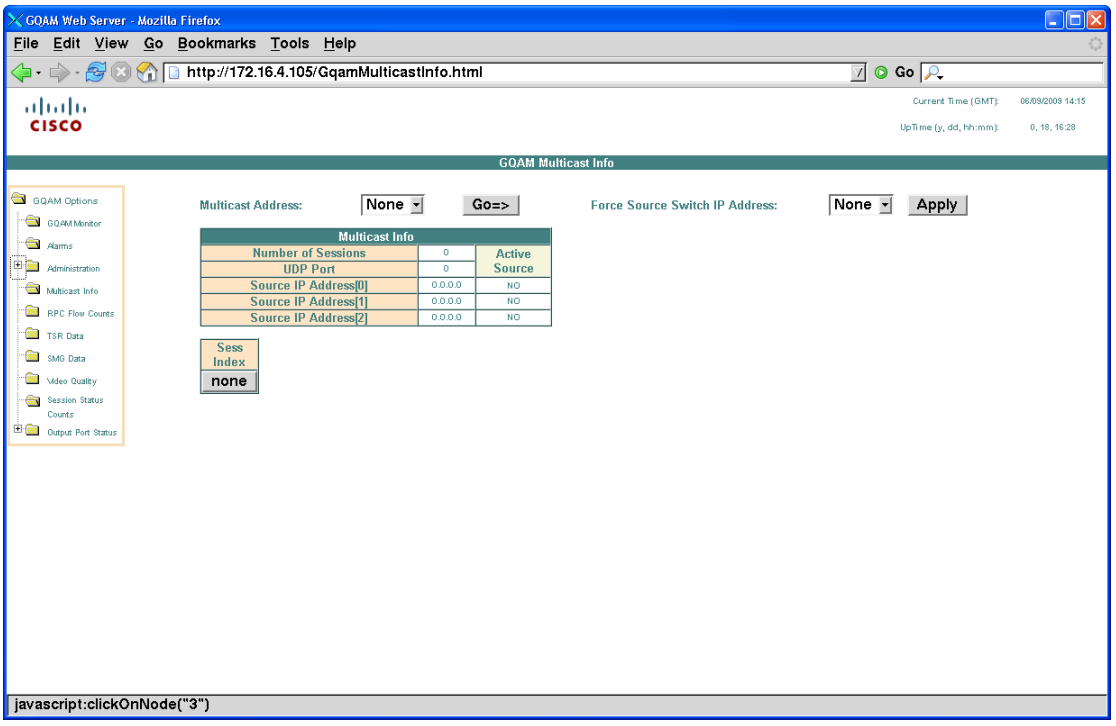
By accessing this diagnostic screen, you can perform the following tasks:

- Verify the multicast address for the multicast group
- Determine how many sessions are bound to a multicast group
- Determine the IP addresses for each source in the multicast group
- Manually force source switch IP address for selected multicast address

Screen Components

- Multicast Address
- Multicast Info
- Force Source Switch IP Address

Example:



Screen Fields and Values

The following tables describe the fields and possible values that can appear on this screen.

Multicast Address

Field Name	Description	Possible Values
Multicast Address	Allows you to select a multicast address and link to data specific to this multicast group **Note:** After selecting a multicast address from the menu, click **Go**.	■ **[Address-dependent]** **Note**: This value is provisioned on the DNCS.

Multicast Info

Field Name	Description	Possible Values
Number of Sessions	Indicates the number of sessions that are bound to this multicast group	■ **[Integer ≥ 0]**
UDP Port	Identifies the User Datagram Protocol (UDP) port on the GQAM	■ **[UDP port-dependent]** **Note**: This value is provisioned on the DNCS.

Field Name	Description	Possible Values
Source IP Address[0]	Displays the IP address of the first source device	■ **[IP address-dependent]** **Note**: This value is provisioned on the DNCS.
Source IP Address[1]	Displays the IP address of the second source device (if used)	■ **[IP address-dependent]** **Note**: This value is provisioned on the DNCS.
Source IP Address[2]	Displays the IP address of the third source device (if used)	■ **[IP address-dependent]** **Note**: This value is provisioned on the DNCS.
Sess Index	Lists the identifier for each session bound to the multicast group **Important:** Click a session index value to view more information about a session. See ***GQAM Session Data Diagnostic Screen*** (on page 42) for details.	■ **[Integer ≥ 0]** **Note**: This value is provisioned on the DNCS.

Force Source Switch IP Address

Field Name	Description	Possible Values
Force Source Switch IP Address	Allows you to manually pick the source IP address to assign for a given multicast address **Note:** After selecting a source IP address from the menu, click **Apply**.	■ **[Address-dependent]** **Note**: The address will be one of three listed in the Multicast Info box, or **NEXT**, which will advance to the next address in the list.

RPC Flow Counts Diagnostic Screen

Information

This section provides a sample of the GQAM RPC Data diagnostic screen along with field descriptions. You can view this screen to view information about remote procedure calls (RPCs) for a specific GQAM.

To access this screen, click **RPC Flow Counts** from the GQAM Options area of any diagnostic screen.

Performing Tasks

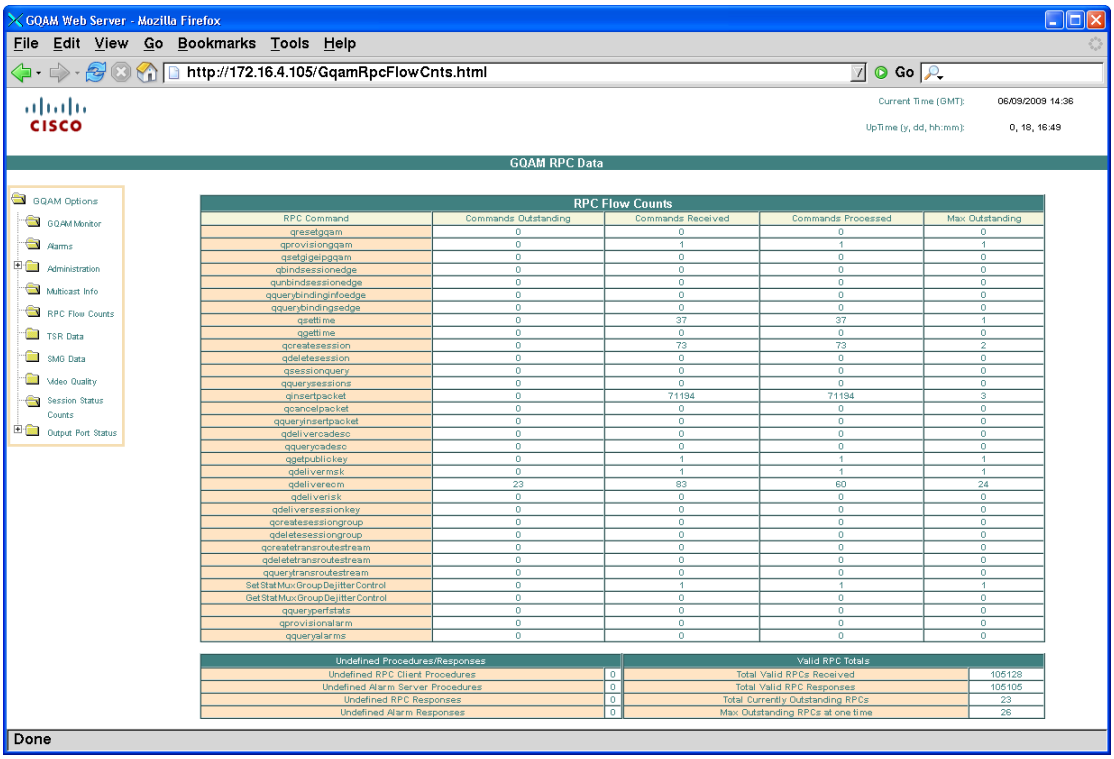
By accessing this diagnostic screen, you can perform the following tasks:

- Identify the number of flow counts for each RPC command
- Review valid RPC statistics
- Review unidentified RPC procedures

Screen Components

- RPC Flow Counts
- Undefined Procedures/Responses
- Valid RPC Totals

Example:



Screen Fields and Values

The following tables describe the fields and possible values that can appear on this screen.

RPC Flow Counts

Field Name	Description	Possible Values
RPC Command	Lists each RPC command type	■ **[Command-dependent]**
Commands Outstanding	The total count of the RPC commands received but not yet processed	■ **[Integer ≥ 0]**
Commands Received	The number of RPC commands received	■ **[Integer ≥ 0]**
Commands Processed	The number of RPC commands received and processed	■ **[Integer ≥ 0]**
Max Outstanding	The maximum number of commands that are outstanding	■ **[Integer ≥ 0]**

Undefined Procedures/Reponses

Field Name	Description	Possible Values
Undefined RPC Client Procedures	The number of undefined RPC procedures sent from the client	■ **[Integer ≥ 0]**
Undefined Alarm Server Procedures	The number of unknown procedures sent from the alarm server	■ **[Integer ≥ 0]**
Undefined RPC Responses	The number of unknown RPC responses	■ **[Integer ≥ 0]**
Undefined Alarm Responses	The number of unknown alarm responses	■ **[Integer ≥ 0]**

Valid RPC Totals

Field Name	Description	Possible Values
Total Valid RPCs Received	The total number of valid RPCs received from the DNCS	■ **[Integer ≥ 0]**
Total Valid RPC Responses	The total number of valid RPC responses sent to the DNCS	■ **[Integer ≥ 0]**
Total Currently Outstanding RPCs	The total number of RPCs that have not been processed	■ **[Integer ≥ 0]**
Max Outstanding RPCs at one time	The maximum number of outstanding RPCs that have been seen during a given period	■ **[Integer ≥ 0]**

GQAM Stat Mux Group Diagnostic Screen

Information

This section provides a sample of the GQAM Stat Mux Group (SMG) diagnostic screen along with field descriptions. You can view this screen to see information about a specific Stat Mux Group for a specific GQAM.

To access this screen, click **SMG Data** from the GQAM Options area of any diagnostic screen.

Note: The screen must be manually refreshed.

Performing Tasks

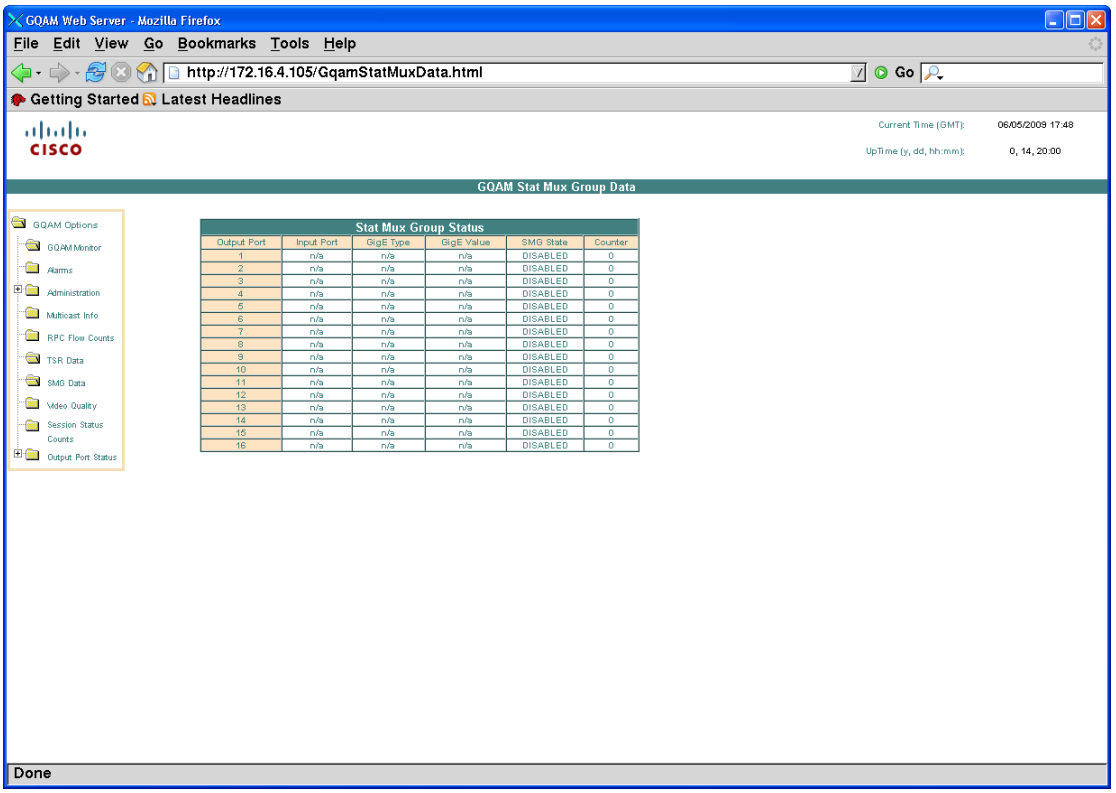
By accessing this diagnostic screen, you can perform the following tasks:

- Verify the input port, GigE type and value, Stat Mux Group state, and the number of sessions for a given output.

Screen Components

- Output Port
- Input Port
- GigE Type
- GigE Value
- SMG State
- Counter

Example:



Screen Fields and Values

The following table describes the fields and possible values that can appear on this screen.

Overal Status

Field Name	Description	Possible Values
Output Port	Provides quick links to view data about the specific output port in this window	**N/A**
Input Port	Identifies the port number that is used to receive the session	■ **1 < Integer < 5**
GigE Type	Defines the type of GigE session	See the ***Gigabit Ethernet Type to Value Table*** (on page 41) for values as they are dependent upon the -Giga Eth Type value.
GigE Value	Identifies a specific value based upon the GigE type	See the ***Gigabit Ethernet Type to Value Table*** (on page 41) for values as they are dependent upon the -Giga Eth Type value.

Field Name	Description	Possible Values
SMG State	Defines the current state of the stat mux group for this port	■ ENABLED – Stat mux dejitter groups are enabled for this port ■ DISABLED – Stat mux dejitter groups are disabled for this port
Counter	Indicates the number of sessions controlled by this SMG	■ **Integer > 0**

Video Quality Diagnostic Screen

Information

This section provides a sample of the GQAM Degraded Video Stats diagnostic screen along with field descriptions. You can view this screen to view information about the current status of a degraded video stream.

To access this screen, perform one of the following actions:

- Click **Video Quality** from the GQAM Options area of any diagnostic screen.
- Click a video indicator for a port on the GQAM Monitor diagnostic screen.

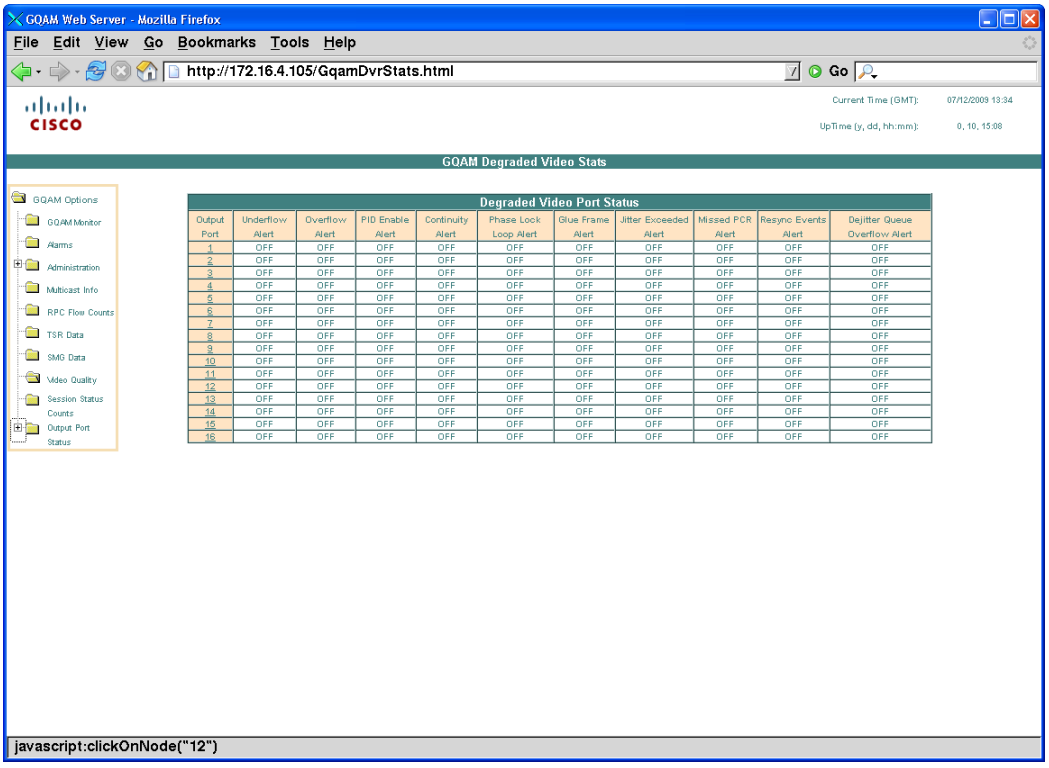
Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Evaluate the video quality for each port on the GQAM
- Link to more details about a specific port

Screen Components

Example:



Screen Fields and Values

The following table describes the fields and possible values that can appear on this screen.

Important: The state of each alert is based upon exceeding a configurable threshold over a configurable period of time.

Field Name	Description	Possible Values
Output Port	Exact output port on the GQAM **Note:** Click a specific output port to view specific details about that port. See ***Session Data List Diagnostic Screen*** (on page 37) for details.	■ **[Port-dependent]**—integer from 1-16
Underflow Alert	Defines the state of the underflow alert	■ **OFF** ■ **ON** (highlighted in yellow)
Overflow Alert	Defines the state of the overflow alert	■ **OFF** ■ **ON** (highlighted in yellow)
PID Enable Alert	Defines the state of the PID enable alert	■ **OFF** ■ **ON** (highlighted in yellow)
Continuity Alert	Defines the state of the continuity alert	■ **OFF** ■ **ON** (highlighted in yellow)
Phase Lock Loop Alert	Defines the state of the phase lock loop alert	■ **OFF** ■ **ON** (highlighted in yellow)
Glue Frame Alert	Defines the state of the glue frame alert	■ **OFF** ■ **ON** (highlighted in yellow)
Jitter Exceeded Alert	Defines the state of the jitter exceeded alert	■ **OFF** ■ **ON** (highlighted in yellow)
Missed PCR Alert	Defines the state of the missed PCR alert	■ **OFF** ■ **ON** (highlighted in yellow)
Resync Events Alert	Defines the state of the resync events alert	■ **OFF** ■ **ON** (highlighted in yellow)
Dejitter Queue Overflow Alert	Defines the state of the dejitter queue overflow alert	■ **OFF** ■ **ON** (highlighted in yellow)

GQAM Session Status Counts Diagnostic Screen

Information

This section provides a sample of the GQAM Session Status Counts diagnostic screen along with field descriptions. You can view this screen to see session status count information for a specific GQAM.

To access this screen, click **Session Status Counts** from the GQAM Options area of any diagnostic screen.

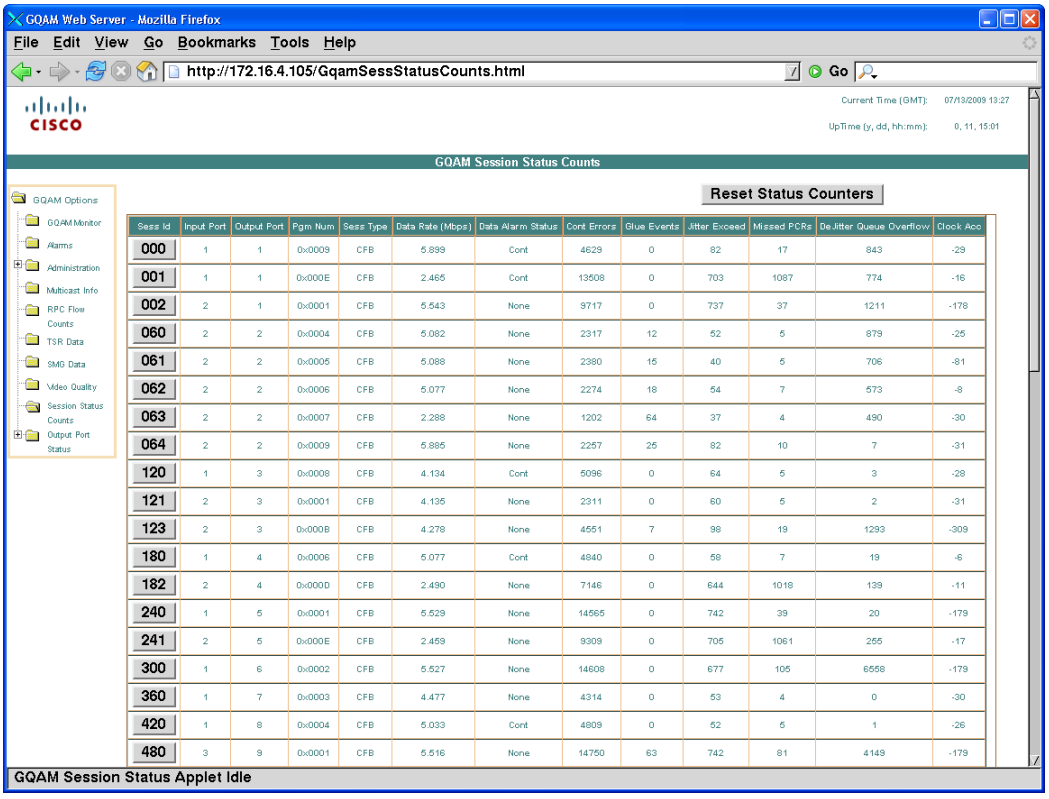
Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Verify the input and output port numbers for each session
- Verify the session type and pgm number for each session
- Verify the status counts and alarm status for each session

Screen Components

Example:



Screen Fields and Values

The following table describes the fields and possible values that can appear on this screen.

Field Name	Description	
Reset Status Counters	Allows you to reset all errors to zero	N/A
Session ID	Identifies each session on this port **Important:** Click a session ID value to view more detailed information about that session. See ***GQAM Session Data Diagnostic Screen*** (on page 42) for more details.	■ **[Integer > 0]** **Note:** The limit for this value is 960.
Input Port	Identifies the port number that is used to receive the session	■ **1 ≤ Integer ≤ 5**
Output Port	Identifies the port number that is used to output the session	■ **1 ≤ Integer ≤ 16**
Pgm Num	Displays the number for the MPEG program that the session carries	■ **[Hexadecimal value]**
Sess Type	Identifies the type of session	■ **CFB—**continuous feed broadcast session ■ **SDV—**switched digital video session ■ **VOD—**video-on-demand session ■ **MVM**—multicast video-on-demand ■ **VIP**—virtual IP video-on-demand
Data Rate (Mbps)	Displays the data rate that is being used for this session	■ **[Data rate-dependent]** ■ **0—**session is not active

Field Name	Description	
Data Alarm Status	Defines the current alarm status for this session	■ **None—**desired value ■ **Underflow—**the data rate for this session dropped to 0 or is less than expected ■ **Overflow—**the data rate for this session is greater than expected ■ **PID Enable—**a PID that should be enabled is not enabled for this session ■ **Continuity—**an input continuity error has occurred on a specific input port for this session ■ **PLL Unlock—**the phase lock loop is unlocked for the given session ■ **Glue Frame—**the output port is receiving too much data
Cont Errors	Displays the number of continuity errors for this session	■ **[Integer ≥ 0]**
Glue Events	Displays the number of glue event errors for this session	■ **[Integer ≥ 0]**
Jitter Exceed	Displays the number of jitter exceeded error counts	■ **[Integer ≥ 0]**
Missed PCRs	Displays the number of missed PCR event counts	■ **[Integer ≥ 0]**
DeJitter Queue Overflow	Displays the number of dejitter queue overflow event counts	■ **[Integer ≥ 0]**
Clock Acc	Clock accuracy in Hz	■ **[Signed Integer]** **Note:** Values greater than +/- 100 are displayed in red

Session Data List Diagnostic Screen

Information

This section provides a sample of the GQAM Session Data List diagnostic screen along with field descriptions. You can view this screen to view information about each session on a specific output port for the GQAM modulator.

To access this screen, perform one of the following actions:

- Click an output port link from the Output Port Status section of the GQAM Options area of any diagnostic screen.
- Click a specific port number from the Output Port column of the GQAM Monitor diagnostic screen.
- Click a specific port number from the Output Port column of the Degraded Video diagnostic screen.

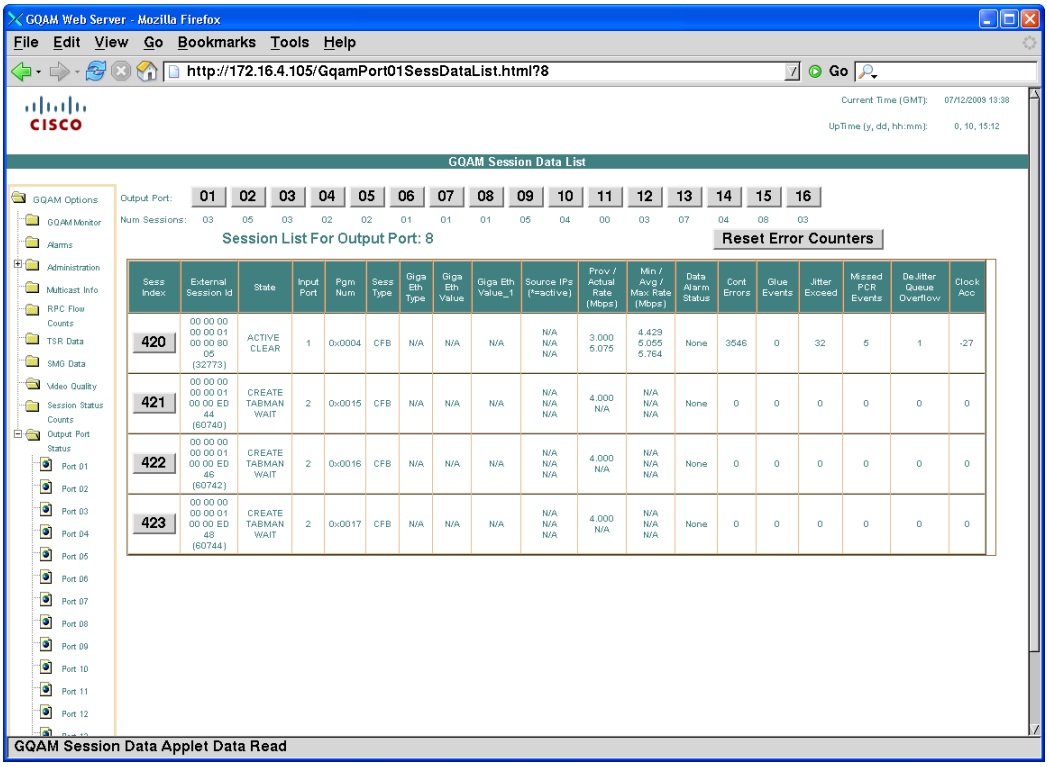
Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Verify the active sessions on a specific output port
- Verify the types of sessions that exist on the output port
- Determine if any session is in an alarm state

Screen Components

Example:



Screen Fields and Values

The following tables describe the fields and possible values that can appear on this screen.

Field Name	Description	Possible Values
Output Port	Provides quick links to view data about specific output port in this window	**N/A**
Num Sessions	Indicates the number of active sessions on this port	■ **[Integer ≥ 0]**
Reset Error Counters	Allows you to reset all errors to zero	**N/A**
Sess Index	Identifies each session on this port **Important:** Click a session index value you to view more detailed information about that session. See ***GQAM Session Data Diagnostic Screen*** (on page 42) for more details.	■ **[Integer > 0]** **Note:** The limit for this value is 960.

Field Name	Description	Possible Values
External Session Id	Indicates the value that the DNCS uses to define a session	■ **[10-byte hexadecimal value]** **Note:** The 2-byte decimal equivalent is shown in parentheses.
State	Defines the current state of the session	■ **CR_TAB_WAIT—**create tabman waiting ■ **CR_CA_WAIT—**create caman waiting ■ **CR_PERF_WAIT—**create perfmon waiting ■ **ACTIVE - NO ECMS—**no ECMs received; session is in the clear ■ **ACTIVE - CLEAR—**received clear ECMs; session is in the clear ■ **ACTIVE - ENCRYPTED—**received encrypted ECMs; session is encrypted ■ **DEL_CA_WAIT—**delete caman waiting ■ **DEL_TAB_WAIT—**delete tabman waiting ■ **DEL_PERF_WAIT—**delete perfmon waiting ■ **SDB_ALLOCATED—**is connected and shell setup session exists; is not yet bound
Input Port	Identifies the port number that is used to receive the session	■ **1 ≤ Integer ≤ 5**
Pgm Num	Displays the number for the MPEG program that the session carries	■ **[Hexadecimal value]**
Sess Type	Identifies the type of session	■ **CFB—**continuous feed broadcast session ■ **SDV—**switched digital video session ■ **VOD—**video-on-demand session ■ **MVM**—multicast video on demand ■ **VIP**—virtual IP video on demand
Giga Eth Type	Defines the type of GigE session	See the ***Gigabit Ethernet Type to Value Table*** (on page 41) for values as they are dependent upon the -Giga Eth Type value.

Field Name	Description	Possible Values
Giga Eth Value	Identifies a specific value based upon the GigE type	See the ***Gigabit Ethernet Type to Value Table*** (on page 41) for values as they are dependent upon the -Giga Eth Type value.
Giga Eth Value_1	Identifies a specific value based upon the GigE type and GigE value	See the ***Gigabit Ethernet Type to Value Table*** (on page 41) for values as they are dependent upon the -Giga Eth Type value.
Source IPs (*=active)	Indicates the source IP addresses available for this session **Notes:** ■ The session must be included in a multicast group ■ If the session is active, an asterisk (*) appears next to it	■ **[Source IP address-dependent]** ■ **N/A—**non-GigE; non-IGMPv3 protocol
Prov/Actual Rate (Mbps)	Displays the data rate that was provisioned on the DNCS and identifies the actual data rate that is being used for this session	■ **[Data rate-dependent]** ■ **0—**session is not active
Min/Avg/Max Rate (Mbps)	Identifies the data rate statistics over time	■ **[Data rate-dependent]** ■ **0—**session is not active **Note:** The maximum data rate cannot exceed 38.811 Mbps for each port.
Data Alarm Status	Defines the current alarm status for this session	■ **None—**desired value ■ **Underflow—**the data rate for this session dropped to 0 or is less than expected ■ **Overflow—**the data rate for this session is greater than expected ■ **PID Enable—**a PID that should be enabled is not enabled for this session ■ **Continuity—**an input continuity error has occurred on a specific input port for this session ■ **PLL Unlock—**the phase lock loop is unlocked for the given session ■ **Glue Frame—**the output port is receiving too much data

Field Name	Description	Possible Values
Cont Errors	Displays the number of continuity errors for this session	■ **[Integer ≥ 0]**
Glue Events	Displays the number of glue event errors for this session	■ **[Integer ≥ 0]**
Jitter Exceed	Displays the number of jitter exceeded error counts	■ **[Integer ≥ 0]**
Missed PCR Events	Displays the number of missed PCR event counts	■ **[Integer ≥ 0]**
DeJitter Queue Overflow	Displays the number of dejitter queue overflow event counts	■ **[Integer ≥ 0]**
Clock Acc	Clock accuracy in Hz	■ **[Signed Integer]** **Note:** Values greater than +/- 100 are displayed in red

Gigabit Ethernet Type to Value Table

Giga Eth Type	Giga Eth Value	Giga Eth Value_1
N/A	N/A	N/A
IP_ADDR	Unicast IP Address	N/A
VIP_ADDR_UDP_PORT	Virtual Unicast IP Address	UDP Port Number
UDP_PORT	UDP Port Number	N/A
IP_ADDR_UDP_PORT	Multicast IP Address	UDP Port Number

GQAM Session Data Diagnostic Screen

Information

This section provides a sample of the GQAM Session Data diagnostic screen along with field descriptions. You can view this screen to see information about a specific session on a specific output port.

To access this diagnostic screen, click the **Sess Index** button for the desired session in the Session Data List diagnostic screen.

Performing Tasks

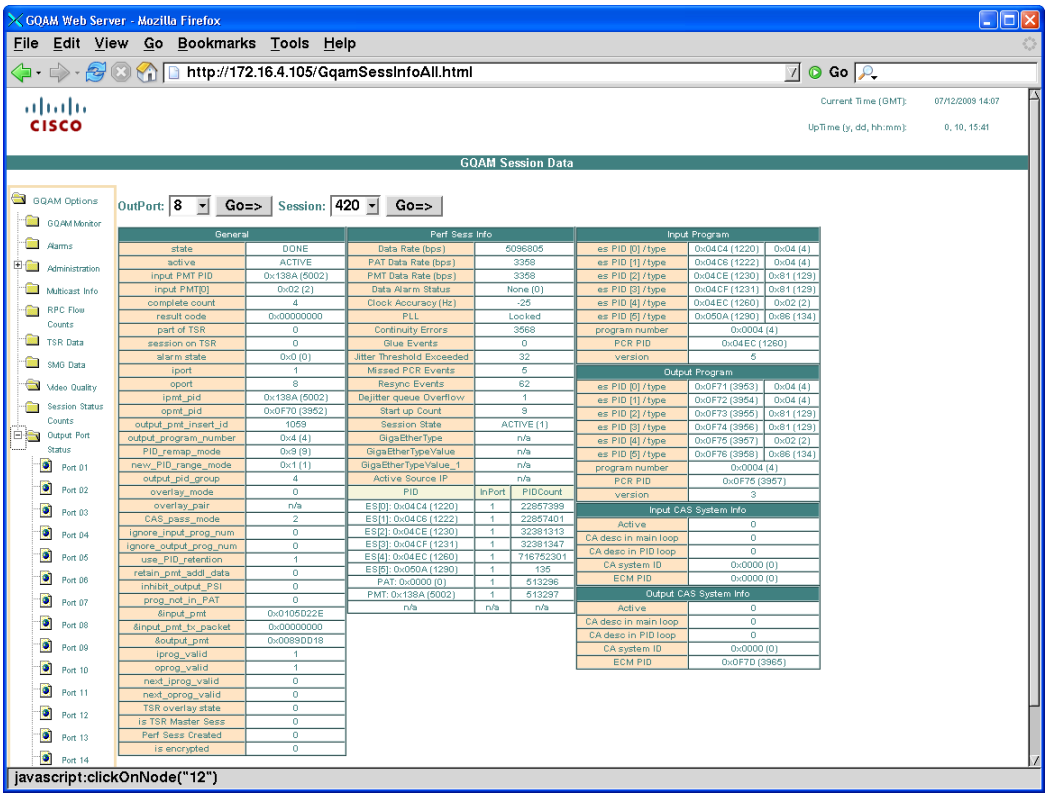
By accessing this diagnostic screen, you can perform the following tasks:

- Verify information about the internal state of the session
- Determine the current packet identifier (PID) remapping mode
- Determine the range for the PIDs for a session

Screen Components

- Output Port
- Session
- General
- Perf Sess Info
- Input Program
- Output Program
- Input CAS System Info
- Output CAS System Info

Example:



Screen Fields and Values

The following tables describe the fields and possible values that can appear on this screen.

Output Port

Field Name	Description	Possible Values
OutPort	Allows you to quickly display session data for a specific output port **Note:** After selecting an output port from the menu, click **Go**.	■ **[Integer: 1–16]**

Session

Field Name	Description	Possible Values
Session	Allows you to quickly display session data for specific session on the selected output port **Note:** After selecting a session from the menu, click **Go**.	■ **[Port-dependent]**

General

Field Name	Description	Possible Values
state	Defines the state of the internal session	■ **FREE** ■ **INIT** ■ **STOP** ■ **W_PAT** ■ **W_PMT** ■ **W_COM** ■ **DONE** ■ **UNDEF**
active	Indicates if the internal session is active	■ **ACTIVE** ■ **NOT_ACTIVE**
input PMT PID	Displays the value for the input PMT PID	■ **[Hexadecimal value]** **Note:** The decimal equivalent is shown in parentheses.
input PMT[0]	Displays the value for the first byte for the input PMT PID (table ID)	■ **0x02—**valid PMT found ■ **0x00—**no valid PMT found
complete count	Indicates the number of times the program map table (PMT) has been processed	■ **[Integer ≥ 0]**
result code	Defines the program map table (PMT) processing result code	■ **[Hexadecimal value]**
part of TSR	Indicates whether the session is part of a transport stream route (TSR)	■ **0—**No ■ **1—**Yes
session on TSR	Indicates if the session is built on top of an existing TSR session	■ **0—**No ■ **1—**Yes

Field Name	Description	Possible Values
alarm state	Defines if this session is in a current alarm state	■ **[Hexadecimal value]** **Notes:** • The decimal equivalent is shown in parentheses. • Go to ***Perf Sess Info*** (on page 47) for details about the alarm state.
iport	Defines the virtual input port number	■ **[1 ≤ Integer ≤ 5]**
oport	Defines the virtual output port number	■ **ASI: [1 ≤ Integer ≤ 4]** ■ **GigE: [Integer ≥ 5]**
ipmt_pid	Defines the virtual input PMT PID value	■ **[Hexadecimal value]** **Note:** The decimal equivalent is shown in parentheses.
opmt_pid	Defines the virtual output PMT PID value	■ **[Hexadecimal value]** **Note:** The decimal equivalent is shown in parentheses.
output_pmt_ insert_id	Defines the insert identifier for the output PMT value	■ **[Hexadecimal value]**
output_program_ number	Defines the remapped output program number for the session	■ **[Hexadecimal value]** **Note:** The decimal equivalent is shown in parentheses.
PID_remap_ mode	Defines the PID remapping mode that is in use	■ **1—**No Remap ■ **2—**Defined ■ **3—**Bv Block ■ **4—**GbE Table ■ **5—**Overlay ■ **6—**RRG ■ **7—**Penalty Box ■ **8—**No Remap in Range ■ **9—**Program Priority ■ **other—**Invalid
new_PID_range_ mode	Defines the new PID range mode that is in use	■ **1—**Fixed ■ **2—**Snoop ■ **3—**TSR ■ **other—**Invalid

Field Name	Description	Possible Values
output_pid_ group	Defines the internal output PID group that is in use	■ **[Integer ≥ 0]**
overlay_mode	Indicates whether this session is paired with another session	■ **0—**Off ■ **1—**Clr to PID B ■ **2—**Enc to PID A ■ **other—**Invalid
overlay_pair	Identifies the session number for the paired overlay session	■ **[Integer ≥ 0]** ■ **n/a**
CAS_pass_mode	Defines the internal CA system pass mode	■ **0—**None ■ **1—**All ■ **2—**Specified ■ **other—**Invalid
ignore_input_ program_number	Indicates whether the input program number is in use or is ignored	■ **0—**Use ■ **1—**Ignore
ignore_output_ program number	Indicates whether the output program number is in use or is ignored	■ **0—**Use ■ **1—**Ignore
use_PID_ retention	Defines if PID retention (PR) is in use	■ **0—**Don't use PR ■ **1—**Use PR
retain_PMT_addl _data	Indicates if additional data for the PMT should be retained	■ **0—**Don't retain ■ **1—**Retain
inhibit_output_ PSI	Indicates if program specific information (PSI) should be sent out	■ **0—**Don't inhibit ■ **1—**Inhibit
prog_not_in_PAT	Indicates that the program is not in the program association table (PAT)	■ **0—**in PAT ■ **1—**Not in PAT
&input_pmt	Defines the address of the input PMT	■ **[Hexadecimal value]**
&input_pmt_tx_ packet	Defines the address of the PMT transmit packet	■ **[Hexadecimal value]**
&output_pmt	Defines the address of the output PMT	■ **[Hexadecimal value]**
iprog_valid	Indicates if the virtual input program is valid	■ **0—**Not valid ■ **1—**Valid
oprog_valid	Indicates if the virtual output program is valid	■ **0—**Not valid ■ **1—**Valid

Field Name	Description	Possible Values
next_iprog_valid	Indicates if the next virtual input program is valid	■ **0**—Not valid ■ **1**—Valid
next_oprog_valid	Indicates if the next virtual output program is valid	■ **0**—Not valid ■ **1**—Valid
TSR overlay state	Defines the current state of the overlay session	■ **0**—PM_TSR_INIT ■ **1**—PM_TSR_ROUTES_SET
is TSR Master Sess	Indicates if this is a TSR master session	■ **0**—No ■ **1**—Yes
Perf Sess Created	Indicates if the session was created in the Performance Manager	■ **0**—No ■ **1**—Yes
is encrypted	Identifies if the session is encrypted **Note:** This field is only valid for continuous feed broadcast (CFB) sessions.	■ **0**—No ■ **1**—Yes

Perf Sess Info

Field Name	Description	Possible Values
Data Rate (bps)	Defines the current data rate of the session	■ **[Data rate-dependent]**
PAT Data Rate (bps)	Defines the current data rate of the program association table (PAT)	■ **[Data rate-dependent]**
PMT Data Rate (bps)	Defines the current data rate of the PMT	■ **[Data rate-dependent]**
Data Alarm Status	Defines the current state of the alarm for this session	■ **None (0)** ■ **Underflow (1)** ■ **Overflow (2)** ■ **PID Enable (3)** ■ **N/A (4)** ■ **N/A (5)** ■ **Continuity (6)** ■ **PLL Unlock (7)** ■ **Glue Frame (8)**
Clock Accuracy (Hz)	Indicates the accuracy of the hardware clock	■ **[Integer]**

Field Name	Description	Possible Values
PLL	Defines the current state of the phase lock loop (PLL)	■ **Locked** ■ **Unlocked**
Continuity Errors	Indicates the cumulative total of continuity errors	■ **[Integer ≥ 0]**
Glue Events	Indicates the cumulative total of glue events	■ **[Integer ≥ 0]**
Jitter Threshold Exceeded	Indicate the cumulative number of times the jitter threshold has been exceeded	■ **[Integer ≥ 0]**
Missed PCR Events	Indicates the cumulative number of missed program clock reference (PCR) events	■ **[Integer ≥ 0]**
Resync Events	Indicate the cumulative number of resync events	■ **[Integer ≥ 0]**
Dejitter queue Overflow	Indicate the cumulative number of dejitter queue overflow events for this session	■ **[Integer ≥ 0]**
Start up Count	Indicate the cumulative number of start ups for this session	■ **[Integer ≥ 0]**
Session State	Describes the current state of the session	■ **INACTIVE** ■ **ACTIVE** ■ **ZOMBIE**
GigaEtherType	Defines the gigabit Ethernet session type	See the ***Gigabit Ethernet Type to Value Table*** (on page 41) for values as they are dependent upon the Giga Eth Type value.
GigaEtherTypeValue	Indicates the value for the gigabit Ethernet session type	See the ***Gigabit Ethernet Type to Value Table*** (on page 41) for values as they are dependent upon the Giga Eth Type value.
GigaEtherTypeValue_1	Defines the value for the GigE session type value_1	See the ***Gigabit Ethernet Type to Value Table*** (on page 41) for values as they are dependent upon the Giga Eth Type value.
Active Source IP	Defines the active multicast source IP address	■ **[IP address-dependent]** ■ **n/a**—non GigE; non-IGMPv3

Field Name	Description	Possible Values
PID	Lists each type of input PID and its respective value	■ **ES**—elementary stream ■ **PAT** ■ **PMT** ■ **[Hexadecimal value]** **Note:** The decimal equivalent is shown in parentheses. ■ **n/a**
InPort	Defines the value for the input port	■ **[1 ≤ Integer ≤ 5]** ■ **n/a**
PIDCount	Provides the cumulative number of PIDs received for each input PID	■ **[Integer ≥ 0]** ■ **n/a**

Input/Output Program

Field Name	Description	Possible Values
es PID [n] / type	Defines the value for the input and output elementary stream along with the type of stream	■ **[Hexadecimal value] / [Hexadecimal value]** **Note:** The decimal equivalent is shown in parentheses. ■ **n/a**
program number	Defines the value for the program number	■ **[Hexadecimal value]** **Note:** The decimal equivalent is shown in parentheses. ■ **n/a**
PCR PID	Defines the value for the PCR PID	■ **[Hexadecimal value]** **Note:** The decimal equivalent is shown in parentheses. ■ **n/a**
version	Defines the version number for the program map table	■ **[Version-dependent]** **Note:** The decimal equivalent is shown in parentheses. ■ **n/a**

Input/Output CAS System Info

Field Name	Description	Possible Values
Active	Defines the current state of the CA system is active	■ **0—**Not active ■ **1—**Active ■ **n/a**
CA desc in main loop	Displays the CA descriptor that is referenced once for all PIDs of this program	■ **0—**No ■ **1—**Yes ■ **n/a**
CA desc in PID loop	Displays the CA descriptor that is referenced in each PID descriptor for this program	■ **0—**No ■ **1—**Yes ■ **n/a**
CA system ID	Defines the identifier for the CA system	■ **[Hexadecimal value]** **Note:** The decimal equivalent is shown in parentheses. ■ **n/a**
ECM PID	Defines the value for the entitlement control message (ECM) PID	■ **[Hexadecimal value]** **Note:** The decimal equivalent is shown in parentheses. ■ **n/a**

3

Customer Information

Introduction

This chapter provides contact information to obtain product support and return products for service.

A

Software Installation Note for GQAM v4.2 and Later

Introduction

After installing or upgrading a GQAM with software version 4.2 or later, the browser's Java cache must be cleared. A Java update failure is usually evidenced by a small error icon in the lower left corner of the page, and a substandard page render.

This appendix provides instructions for clearing the Java cache.

In This Appendix

Instructions for Clearing the Java Cache

Below are instructions for clearing the Java cache on an Internet Explorer web browser and on a Mozilla Firefox web browser.

Internet Explorer

- Navigate to Tools/Internet Options/General, click **Delete Files…**, then click **OK**. Click **OK** in each open window until all such windows are closed.
- In the Control Panel, double-click the **Java** icon, click **Settings…**, then **Delete Files…**. Select **Applications and Applets** and then click **OK**. Click **OK** in each open window until all such windows are closed.
- It may be necessary to close and reopen the browser to achieve full usage of the new Java implementation.

Mozilla Firefox

- Navigate to Tools/Clear Private Data…, make sure Cache is selected, and click **Clear Private Data Now**.
- Locate the Java Control Panel application (sometimes located in export/home/<username>/jdk<vers>/bin) and execute the Control Panel application.
- On the General tab, click **Delete Files...**, then click **OK**. Click **OK** in each open window until all such windows are closed.

- It may be necessary to close and reopen the browser to achieve full usage of the new Java implementation.

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