July 2004

Preventing the Miscalculation of Bandwidth on the BFS QAMs

Overview

Introduction

Cisco® engineers have discovered that the qamManager is miscalculating the bandwidth associated with inband system information (SI) on System Release (SR) 2.x/3.x. The miscalculation is reserving more bandwidth than is needed. In instances where there are a large number of hubs in the network, the bandwidth numbers are significantly high compared with the actual bandwidth being used on the distinguished quadrature amplitude modulation (QAM) modulator.

Note: The distinguished QAM is typically the BFS QAM.

When large amounts of bandwidth are reported and the system believes that the QAMs are nearing their maximum limits, data cannot be added to the BFS carousels. Although we have determined the cause of this miscalculation, the updated software has not yet been released. In the interim, we encourage all sites using SR 2.x/3.x that are experiencing problems adding new BFS carousels to disable inband SI, and therefore eliminate the miscalculation of bandwidth on the BFS QAMs.

When inband distribution of SI is turned off, out-of-band SI is automatically used by the Digital Home Communications Terminal (DHCT). Using out-of-band distribution of SI does not adversely affect your system because the DNCS sends both inband and out-of-band SI. Therefore, turning off inband SI actually reduces the amount of work imposed on the DNCS.

Purpose

This technical bulletin assists system operators who are having difficulty adding data to the BFS carousels as a result of an inaccurate bandwidth calculation.

Scope

The instructions in this technical bulletin pertain to sites that are using SR 2.x/3.x, or later.

Audience

This technical bulletin is intended for system operators of Cisco's Digital Broadband Delivery System (DBDS). Cisco field service engineers who help system operators manage their systems may also find the contents of this technical bulletin useful.

Document Version

This is the second release of this technical bulletin.

In This Technical Bulletin

This technical bulletin contains the following topics.

Before You Begin

Introduction

If you were unable to add a new BFS carousel, Cisco recommends that you check the digital resource manager (DRM) log file. If there is not enough bandwidth available for the data you want to add, the DRM log file includes a message stating: **Bandwidth is NOT available**

To check the DRM log file for this message, go to **Checking the DRM Log Files**, next in this section.

Checking the DRM Log Files

Complete these steps to view the DRM log file and determine if a bandwidth issue exists on the system.

1. From the DNCS Administrative Console, click the **Utilities** tab and then click **xterm** from the System Utilities section.
2. Type **cd /dvs/dncs/tmp** and then press **Enter**.
3. Type **grep –i "Bandwidth is NOT available" drm.*** and then press **Enter**.

   Result: If the text string is found, each appearance of the string is shown in the window.
4. Did the **Bandwidth is NOT available** text string appear in the log file?
   - If **yes**, open the most recent drm log file to look at the two lines above this message and to verify that the session number related to this message is the session you are trying to build and *not* a video-on-demand (VOD) session. If this is the session you are trying to build, your system is currently miscalculating the amount of bandwidth needed for SI and BFS. You will be unable to create new inband BFS sessions and must turn off inband SI in order to free bandwidth for the new session.
   - If **no**, your system is currently operating acceptably and you may be able to create new inband BFS sessions (depending on the required bandwidth). However, Cisco recommends that you turn off inband SI before attempting to create new inband BFS sessions as it provides a more stable and efficient system environment.
5. Go to **Disable Inband SI Signaling**, next in this bulletin.

Disable Inband SI Signaling

Introduction

These procedures provide the solution recommended by Cisco for disabling the inband SI signal. Disabling the generation of inband SI stops the qamManager from miscalculating bandwidth on the BFS.

To disable inband SI, you must complete the following procedures in the order shown. For detailed instructions on these procedures, refer to the appropriate procedures, later in this section.

1. Disable inband SI.
2. Ensure that at least one BFS QAM is set to enable SI.
3. Stop and start the siManager and the qamManager.
4. Reboot the distinguished QAM (identified in step 2).

Note: The procedure takes one hour to complete and *will* interrupt BFS operation; therefore, it is recommended that you perform these procedures during non-peak hours.

Disabling Inband SI

Complete the following steps to disable inband SI.

Important: Even though the DNCS will not send inband SI data (to QAMs), at least one QAM must be configured to send SI. This setting impacts other aspects of the system and failure to configure this setting can cause DHCTs to reboot or not boot at all.

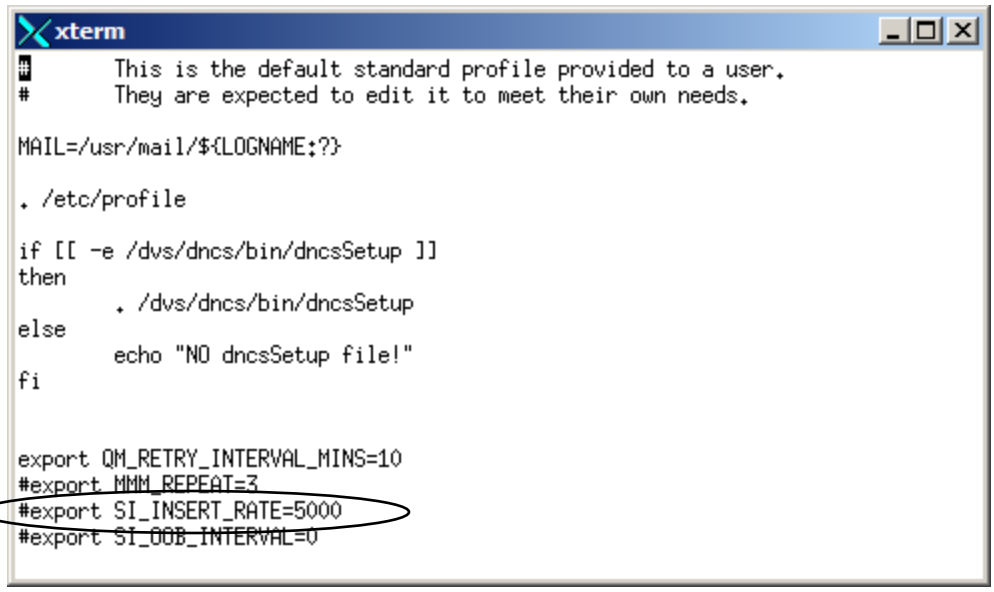
1. From the DNCS Administrative Console, click the **Utilities** tab and then click **xterm** from the System Utilities section.

   Result: An xterm window opens.

2. Type **echo $SI_INSERT_RATE** and then press **Enter**.
3. Which of the following results for SI_INSERT_RATE appears?
   - If a **non-zero** number (for example, 2500), go to step 4.
   - If **nothing** appears, go to step 4.
   - If **0**, you must confirm that at least one BFS QAM is carrying SI. Go to **Ensuring That a BFS QAM is Configured for SI**, later in this section.

4. Using the text editor you prefer, open the file: **.profile** (located in the **/export/home/dncs** directory).

   Result: The contents of the .profile file appear.



5. Is there a line in .profile where the SI_INSERT_RATE variable is set to a specific value?

   - If **yes**, edit the entry so that the SI_INSERT_RATE is set to 0 (zero).
   - If **no**, add the following line to set the rate to zero:
     export SI_INSERT_RATE=0

     Note: Setting the SI_INSERT_RATE to zero prevents the siManager from generating SI data for inband use.

   Important: If a line is preceded with a # symbol, it is *commented out* and, as a result, has no impact in the file.

6. Save the changes to the .profile file and go to **Ensuring That a BFS QAM is Configured for SI**, next in this section.

Ensuring That a BFS QAM is Configured for SI

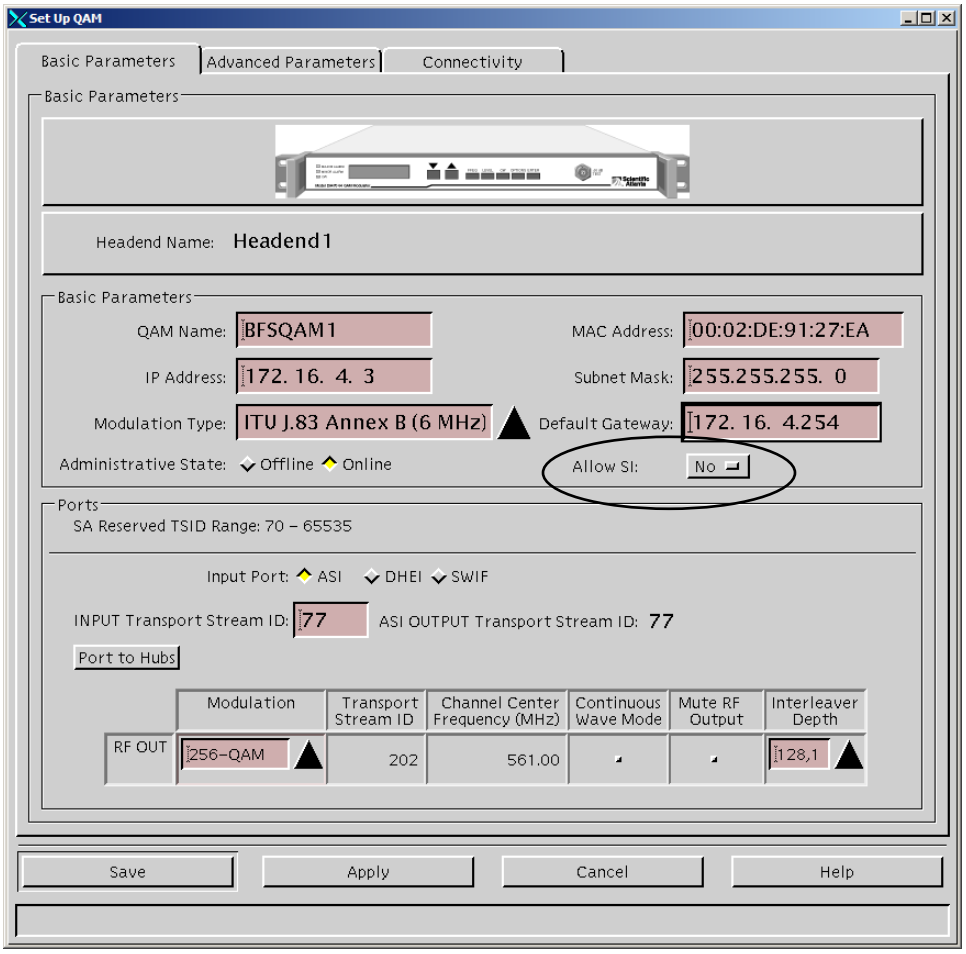
Complete the following steps to ensure that at least one QAM is configured for SI.

1. Click the **Element Provisioning** tab and then click **QAM**.

   Result: The QAM List window appears.

2. Select a BFS QAM, click **File**, and select **Open**.

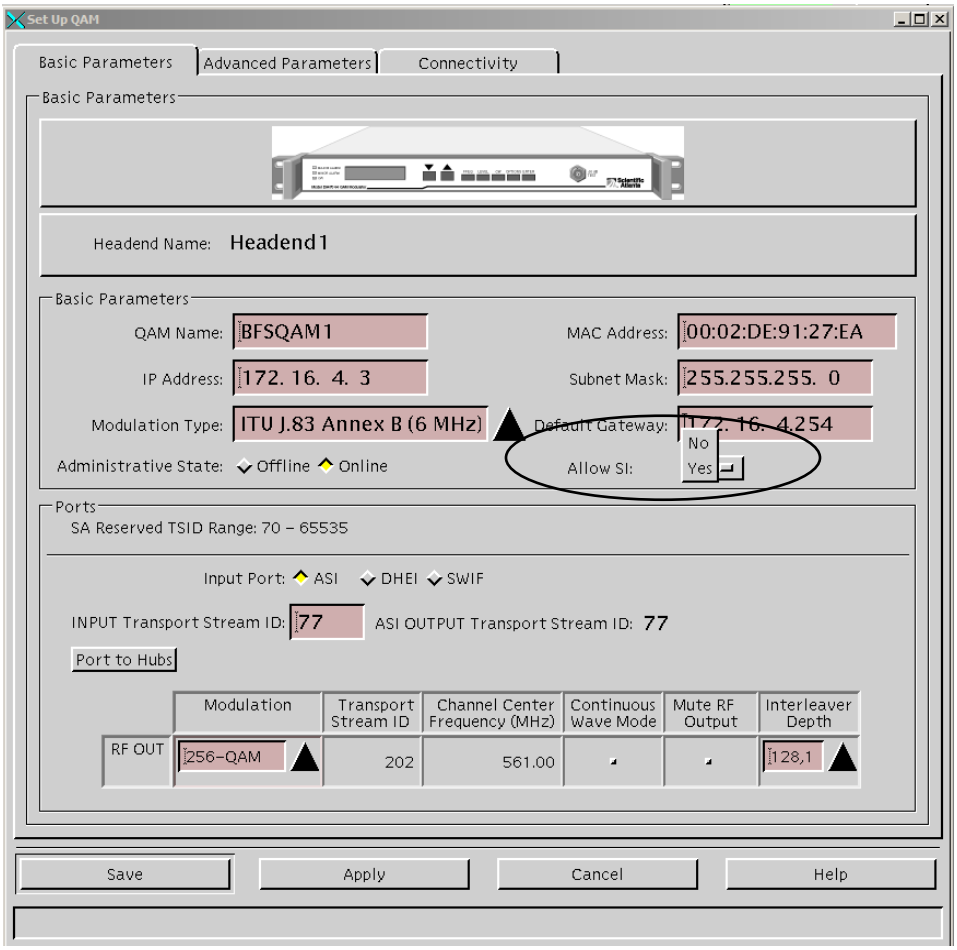
   Result: The Set Up QAM window appears.



3. Is **Allow SI** enabled?
   - If **yes**, click **Cancel** and go to step 7.
   - If **no**, go to step 4.

4. Click the button to the right of **Allow SI**.

   Result: A selection menu appears.



5. Select **Yes**.

6. Click **Apply** and then click **Save**.

7. If you have more than one QAM carrying BFS, repeat steps 1 through 6 for each BFS QAM.

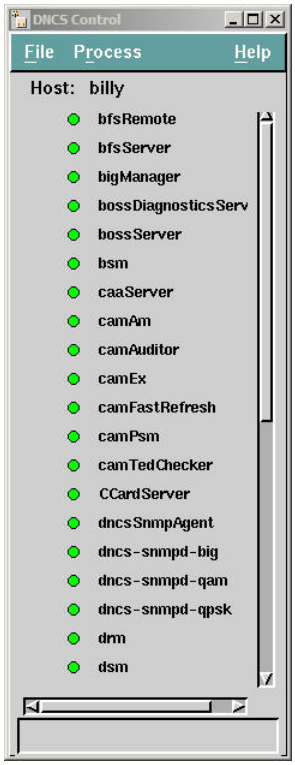
8. Go to **Restarting siManager and qamManager**, next in this section.

Restarting siManager and qamManager

Complete the following steps to restart the siManager and the qamManager.

1. From the DNCS Administrative Console Status window, click **Control** from the **DNCS** section.

   Result: The DNCS Control window opens.



2. Select **siManager**, click **Process**, and then select **Stop Process**.

   Result: A confirmation window opens.

3. Click **Yes** to stop the siManager.

   Result: A red icon appears next to the siManager that indicates the process has stopped running.

4. Select **siManager**, click **Process**, and then select **Start Process**.

   Result: A green icon appears next to siManager that indicates the process is now running.

5. Repeat steps 2 through 4 to stop and start the **qamManager**.

6. Go to **Rebooting the BFS QAMs**, next in this section.

Rebooting the BFS QAMs

Complete the following steps to reboot each BFS QAM in your system.

1. Check the number of sessions connected on the BIG QAM.

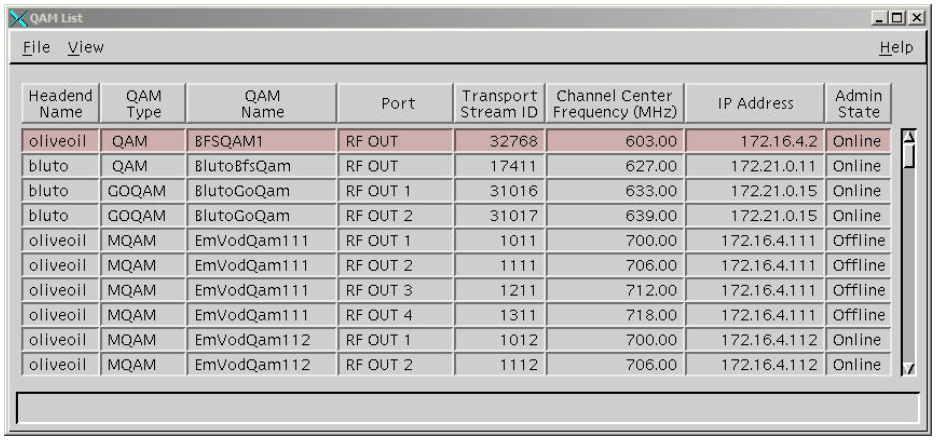
   Note: Refer to *Troubleshooting and Resetting QAMs and MQAMs With auditQAM* for detailed instructions.

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

   Result: The QAM List window appears.

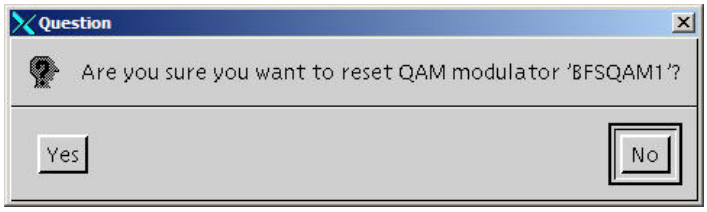
3. Select the **BFS QAM**.

   Result: The row for the BFS QAM becomes highlighted.



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

   Result: A confirmation window appears.



5. Click **Yes**.

   Result: The following message appears in the QAM List window:
   The reset request has been received by QAM '<Name of QAM>

   Note: The <Name of QAM> represents the name of the BFS QAM modulator that you just reset.

6. If you have multiple QAMs carrying inband SI (distributed BFS configuration), repeat steps 2 through 5 to reboot each BFS QAM.
7. Click **File** and then select **Close**.
8. Recheck the number of sessions that are active on the BFS QAM.

   Result: The number of sessions should be the same or greater than the number received in step 1. If this number is higher than the initial number (typically is *value+1*), it indicates that the new BFS session has started.
9. If you have more than one QAM carrying BFS, repeat steps 1 through 8 for each BFS QAM.

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.

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April 2012 Printed in USA Part Number 4003478 Rev B