CVT and Generic QAM Technical Reference

Overview

Introduction

Our engineers are aware of a condition that can result in excessive set-top reboots after channel or frequency changes associated with generic QAMs that support Switched Digital Video (SDV) and Video On-Demand (VOD). This condition, commonly referred to as "stale CVT," occurs when the CVT on a QAM does not match the Digital Network Control System (DNCS). If your site uses generic QAMs for SDV or VOD, you can set up the DNCS to stop sending RPC CVT insert packets to the generic QAMS to prevent this condition from occurring.

Purpose

This technical reference provides instructions to configure DNCS to exclude generic QAMS from receiving RPC CVT insert packets.

Audience

This document is indended for DNCS operators of networks as described below:

- Operating DBDS System Release 4.3.0 or higher

- Using SDV and/or VOD

- Using generic QAMs

Support engineers who help system operators troubleshoot and maintain systems will also find this document useful.

Acronyms

CVT	Code Version Table. The CVT is a message sent periodically by the DNCS (network controller) that is used to trigger code image downloads for set-tops.
DBDS	Digital Broadband Delivery System. The entire network architecture of our digital system that ultimately provides signal to and from a subscriber's DHCT. The DBDS consists of five areas: sources, headend, transport network, hub, and access network.
DNCS	Digital Network Control System. A computer server that monitors and controls the DBDS network elements; located at the DBDS headend or at a remote site.
drm	Digital Resource Manager. Manages the allocation of DBDS resources for setting up sessions. The drm process was part of the dsm process in system releases prior to 1.4.
dsm	Digital Session Manager. Manages digital video sessions (broadcast and exclusive) on the DNCS. When using Overlay technology, the DSM manages sessions for only our DHCTs.
osm	Operating System (OS) Manager. Allows you to load image files into the BFS that can then be distributed to DHCTs. **Examples:** OS images, resident application images, and other application images.
QAM	Quadrature Amplitude Modulation. A frequency modulation technique primarily used for program audio and video. QAM supports data rates from 27 Mbps to 36 Mbps.
qamManager	Quadrature Amplitude Modulation (QAM) Manager. Delivers setup information to QAM, MQAM, and GQAM modulators.
pkeManager	PowerKEY Element Manager. Facilitates the management of PowerKEY Control Gateways and Netcrypt Bulk Encryptors.
RPC	Remote Procedure Call. A message sent by a client device to a remote server requesting the server to executre a specific procedure. The message includes applicable parameters.

SDV	Switched Digital Video. SDV is a technology that allows cable operators to recover bandwidth from infrequently-viewed channels, by making these channels "on-demand." Instead of sending all channels to the set-tops, lightly viewed channels are put into a switching pool and are only sent to the set-tops when viewers tune to them.
VOD	Video-on-Demand. The ability of a subscriber to select a program event and watch it within moments of selection. VOD allows pausing and rewinding of the event.

Document Version

This is the first formal release of this document.

Prevent Stale CVT Condition

Perform all the procedures in this section to prevent the stale CVT condition from occurring on your network.

Edit Blocked QAM List

This process will allow the operator to exclude Generic QAMs by model type from receiving RPC CVT insert packets.

1 Open an xterm window on the DNCS as root.

2 Type `cd /dvs/dncs/etc/` and press **Enter**.

3 Type `Run PopulateGQIBlockList.sh` and press **Enter**.

   Note: This script creates a file named "blockedQamTypes.config" that contains all GQI QAMs model types and model names from the DNCS database.

   Example file:

```
32768|xDQA-24|
32769|NSG9000|
32770|ArrisD5|
```

4 To edit the blockedQamTypes.config file to include only the QAM types that CVT should NOT receive CVT updates, remove any non-SDV or non-VOD QAMS from the list.

5 Save your changes.

Capture CPU Usage

Complete the following steps to capture the current CPU Usage for the impacted processes listed below:

1 From an xterm window, type top and press **Enter** to monitor qamManager, drm, and dsm process activity.

2 Record the CPU utilization for each process below:

   Note: Keep the "top" process running while you perform the stop and restart procedures.

Process	CPU Usage
drm	
dsm	
pkeManager	
qamManager	

Stop DNCS Processes

Complete the following steps to stop the impacted DNCS process.

1   From an xterm window, type dncsControl -stop dsm and press **Enter**.

2   Type `dncsControl -stop drm` and press **Enter**.

3   Type `dncsControl -stop qamManager` and press **Enter**.

4   Type `dncsControl -stop pkeManager` and press **Enter**.

Restart Processes

Complete the following steps to restart impacted processes.

Important! Perform the steps shown in this procedure in the exact order shown.

1   From the DNCS Administrative Console Status window, click **Control** from the DNCS section. The DNCS Control window opens.
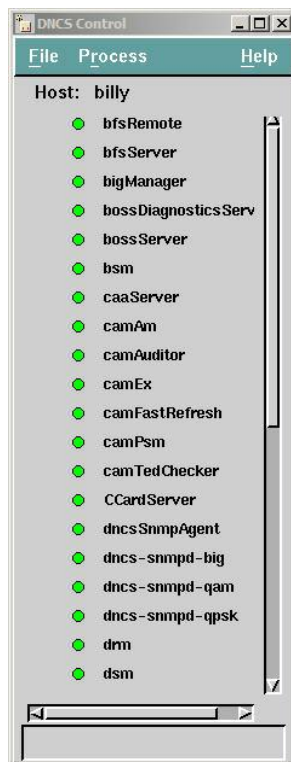
2   Select **pkeManager**, click **Process**, and then select **Start Process**. After a few moments, a green icon appears next to pkeManager that indicates the process is now running.

3   Select **qamManager**, click **Process**, and then select **Start Process**. After a few moments, a green icon appears next to qamManager that indicates the process is now running.

4   Select **drm**, click **Process**, and then select **Start Process**. After a few moments, a green icon appears next to drm that indicates the process is now running.

5   Select **dsm**, click **Process**, and then select **Start Process**. After a few moments, a green icon appears next to dsm that indicates the process is now running.

6   Verify that the elements have resumed their original CPU usage. Refer to the information you recorded in the *Capture CPU Usage* (on page 4).

7   Select **osm**, click **Process**, and then select **Stop Process**. A confirmation window opens.

8   Click **Yes** to stop the pkeManager process. After a few moments, a red icon appears next to the osm that indicates the process has stopped running.

9   Select **osm**, click **Process**, and then select **Start Process**. After a few moments, a green icon appears next to osm that indicates the process is now running.