Operations Alert Bulletin
Revised Procedures to Correct Missing Key Certificates in QAM Modulators

Overview

Background

If a modulator in the QAM modulator family of devices is added to, or replaced in, a network, the Digital Network Control System (DNCS) may initially configure the key certificate associated with the modulator with an invalid value (e.g., 0 or NULL).

Note: The QAM family of modulators includes QAMs, CAQAMs, GoQAMs, GQAMs, and MQAMs.

This condition can go unnoticed because *broadcast* sessions can be built on modulators that have a 0 or NULL certificate. Even if the broadcast session is supposed to be encrypted, the session will still build successfully and unencrypted video will play out of the modulator.

Encrypted video-on-demand (VOD) sessions, however, cannot be built for these modulators unless the correct certificate is known by the DNCS. When encrypted VOD sessions are requested from a modulator having a missing key certificate, each request fails.

Note: These conditions manifest themselves in System Release (SR) 4.2 and later.

Recommendation

In an SR 4.2 or later system, whenever you add or replace a modulator in the network, you must complete the procedures in this document.

Your urgency in completing these procedures can be determined by the severity of the symptoms arising from the missing key certificate. For example, if only one VOD QAM is affected and if it can be disabled until a maintenance window, then it is fine for you to wait until the next maintenance window. If the affected QAM is carrying adult channels, however, and if the content is currently being

broadcast in the clear, you may want to complete the procedures in this document immediately.

Purpose

This document provides instructions for obtaining and running a script (nullkey.sh) to proactively determine whether a modulator has missing key certificates on the DNCS. In the event that the script reveals that a modulator has missing key certificates, this bulletin provides instructions to retrieve the missing certificates.

Retrieve and Install the nullkey Script

Retrieving the nullkey Script

Complete the following steps to retrieve the nullkey script from the Cisco FTP server.

1. In the URL field of a web browser, type **ftp://ftp.sciatl.com** and then press **Enter**. The FTP site window opens.
2. Right-click in the FTP window and select **Login As**. The Log On As window opens.
3. In the **User Name** field, type **anonymous**.
4. In the **Password** field, type your email address.
5. Click **Log On**.
6. Navigate to the **/scicare/TOOLS/scripts** directory.
7. *Get* the nullkey.tar file.

Installing the nullkey Script on the DNCS

Complete the following steps to extract and install the nullkey script on the DNCS.

1. Copy the **nullkey.tar** file to the **/export/home/dncs/scripts** directory of the DNCS.
2. From an xterm window on the DNCS, type **cd /export/home/dncs/scripts** and then press **Enter**.
3. Type **tar xf nullkey.tar** and then press **Enter** to extract the nullkey.sh script.
4. Type **chmod 755 nullkey.sh** and then press **Enter** to set the required file permissions.
5. Type **rm nullkey.tar** and then press **Enter** to delete the nullkey.tar file.

Run the nullkey Script

Complete the following steps to run the nullkey.sh script. Output from the nullkey.sh script reveals whether a device in the QAM family of modulators has a missing key certificate.

1 From an xterm window on the DNCS, type **nullkey.sh** and then press **Enter**. The script runs and displays the name, IP address, and MAC address of any modulator that is missing its key certificate.

Examples:

- Sample output indicates that the following modulators are missing their key certificates:

```
$  nullkey.sh
GQAM002      172.30.26.232   00:02:DE:80:03:00
GQAM003      172.30.26.233   00:02:83:AA:00:0E
GQAM004      172.30.26.234   00:02:83:AA:00:0F
```

- Sample output reveals that there are no modulators missing their key certificates:

```
$ nullkey.sh
$
```

2 Review the output from the nullkey.sh script.

3 Does the output from the nullkey.sh script reveal that a device in the QAM family of modulators has a missing key certificate?

- If **yes**, complete the instructions in ***Reset the QAM*** (on page 5).
- If **no**, you are finished with this procedure and have no further action to take.

Reset the QAM

Follow these general steps to reset the QAM modulator from the DNCS.

CAUTION:
Proceed with caution. Resetting the QAM modulator can impact services.

1. From the DNCS Administrative Console, select the **DNCS** tab.
2. Select the **Element Provisioning** tab.
3. Select **QAM**. The QAM List window opens.
4. Follow these instructions to reset a modulator.
   a. In the QAM List window, select the QAM modulator that you are resetting.
   b. Click **File** and then select **Reset**. A confirmation message appears.
   c. Click **Yes**.

   Results:

   - A message appears stating that the QAM modulator received the reset command.
   - After a few moments, an alarm indicator appears in the **Alarms** area of the of the DNCS Administrative Console Status window.
5. Wait for the alarm indicator to disappear.
6. From an xterm window on the DNCS, type **ping [IP address]** and then press **Enter**. A message similar to **Device is alive** appears.

   Note: [IP address] refers to the IP address of the modulator.
7. Does a message similar to **Device is alive** appear?
   - If **yes**, go to step 8.
   - If **no**, repeat this procedure from step 1.
8. Do you have any other QAM modulators to reboot?
   - If **yes**, repeat these instructions from step 4.
   - If **no**, close the QAM List window.

What's Next?

1. After resetting those modulators that the nullkey script identified as having missing key certificates, repeat the instructions in ***Run the nullkey Script*** (on page 4).
2. Does the output from the nullkey.sh script reveal that there are still modulators that have missing key certificates?
   - If **yes**, you need to bounce the DNCS. Follow these instructions to bounce the DNCS.
     a. As **dncs** user in an xterm window, type **dncsStop** and then press **Enter**.
     b. Wait until the process indicators in the DNCS Control window display red.
     c. Type **dncsStart** and then press **Enter**.
     d. After the process indicators in the DNCS Control window display green, repeat the procedure in ***Reset the QAM*** (on page 5).
   - If **no** (output from the nullkey script reveals no modulators with missing key certificates), you are finished with this procedure and have no further action to take.

About This Bulletin

Audience

This document is written for system operators of the Digital Broadband Delivery System (DBDS) who support system software version SR 4.2 and later. Engineers who help support and maintain the DBDS will also find this document to be useful.

Document Version

This is the second formal release of this document.

For More Information

If you have technical questions, call Cisco Services for assistance. Follow the menu options to speak with a service engineer.

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