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Configuring System Release 4.0 to Support the Copy Protection Man-Machine Interface Screen

Overview

This guide provides procedures for configuring a Digital Broadband Delivery System (DBDS) using System Release 4.0 (SR 4.0) to support the Copy Protection Man-Machine Interface (CP MMI) screen. This guide also provides an example of a typical CP MMI screen.

The CP MMI screen is used to manually authorize one-way and two-way hosts for copy protection features. In this manual process, whenever a Multi-Stream CableCARD™ (M-Card™) module is inserted into a host device, the host device displays the CP MMI screen. The CP MMI screen prompts a subscriber to telephone for service authorization. During authorization, the M-Card module is "bound" to the host. Once bound, the host can use the copy protection features for which the subscriber is authorized.

Alternatively, two-way hosts can be authorized automatically through a process called auto-binding. In this process, the CP MMI screen is not used. Instead, an M-Card module is bound to a host automatically when the M-Card module is inserted into the host device. After the M-Card module is bound to the host, the host can use the copy protection features for which the subscriber is authorized.

To enable a two-way host to display the CP MMI screen when an M-Card module is inserted in the host, systems using SR 4.0 must be configured as described in this document. Otherwise, these systems use their standard configuration and, as a result, use the auto-binding process to authorize two-way hosts for copy protection features without the CP MMI screen.

Important: The configuration described in this guide provides the CP MMI screen system wide and not at the hub level.

Purpose

The purpose of this guide is to enable operators to implement a non-standard configuration for SR 4.0 so that these systems can support the CP MMI screen on a system-wide basis.

Important: Use the procedures in this guide only for sites using SR 4.0. The procedures in this guide should not be used with SR 4.2 and later releases. Otherwise, unexpected results may occur.

Scope

This guide applies to sites using SR 4.0 with PowerKEY® M-Card modules that support M-Card software release 1.0 and later. The procedures in this guide should not be used for SR 4.2 and later releases.

Note: The procedures in this guide can also be used with the lab release of PowerKEY Single-Stream CableCARD (S-Card) software version 1.53.

Audience

This guide is written for DBDS operators and engineers, DNCS operators and engineers, field engineers, and Cisco Services engineers who service CableCARD hosts used in SR 4.0 systems. This guide assumes that users performing the procedures in this guide are proficient in using basic UNIX commands, ftp, and a hex editor.

Related Publications

You may find the following publications useful as resources when you implement the procedures in this document.

■ *Best Practices for Using Multi-Stream CableCARD Modules* (part number 4005658)

■ *Multi-Stream CableCARD 1.1 Software Release Notes* (part number 4011042)

■ *Setting Up the PowerKEY® CableCARD™ and M-Card™ Modules on the DNCS For System Releases 2.5/3.5 and 4.0* (part number 4011765)

Document Version

This is the second release of this document.

Process Overview

This section provides a summary of the process for configuring SR 4.0 to support the CP MMI screen. This section also lists the requirements your system must meet prior to configuring the system to support the CP MMI screen.

Prerequisites

Before you begin completing procedures in this guide, make sure that your system meets the following prerequisites:

- SR 4.0 is currently installed on your system.

- M-Card modules in your system support PowerKEY® M-Card Module software release 1.0 and later.

  Note: The lab release of PowerKEY S-Card software version 1.53 may also be used.

- CableCARD modules are configured according to the instructions described in *Setting Up the PowerKEY® CableCARD™ and M-Card™ Modules on the DNCS For System Releases 2.5/3.5 and 4.0* (part number 4011765).

Important: Use the procedures in this guide only for SR 4.0 systems. Implementing the configuration described by this guide on systems using SR 4.2 and later may cause unexpected results.

Configuration Process

To configure SR 4.0 for the CP MMI screen, refer to the following process overview. For detailed procedures, refer to the remainder of this guide.

1 Download the default CPDefinition.tblo file from the FTP site to the DNCS. For more information, go to *Download the Default CPDefinition.tblo File* (on page 6).

2 Make a backup copy of the default CPDefinition.tblo file. For more information, go to *Make a Backup Copy of the Default CPDefinition.tblo File* (on page 8).

3 Link the CPDefinition.tblo file to the 0 directory on the POD_Data BFS server. For more information, go to *Link the CPDefinition.tblo File to the BFS Directory* (on page 9).

4 Verify that the CP MMI screen displays as expected when an M-Card is inserted into the host device. For more information, go to *Verify Setup of the CP MMI Screen* (on page 11).

The CP MMI Screen

Review this section to learn about the information displayed in the CP MMI screen. This section also describes rules for editing the customizable text that this screen displays.
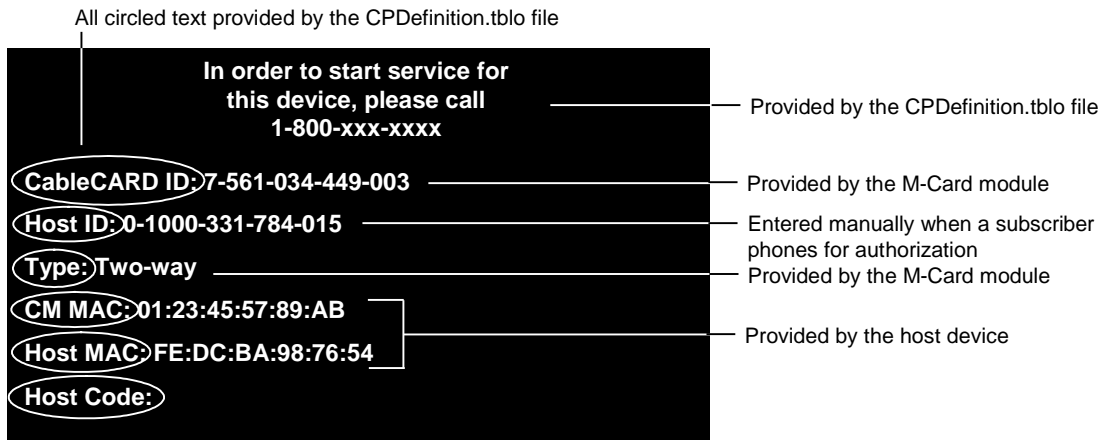
Important: Using the configuration described in this guide provides the CP MMI screen system wide. This screen cannot be controlled at the hub level.

What Information Is Shown in the CP MMI Screen?

The CP MMI screen provides information that is similar to the MMI screen. For example, both the MMI screen and the CP MMI screen display instructional text and a telephone number. However, the CP MMI screen displays the following additional information about the host and M-Card module:

- **CableCARD ID** - the copy protection ID for the M-Card module
- **Host ID** - the copy protection ID for the host device
- **Type** - the type of host (one-way or two-way)
- **CM MAC** - the MAC address of the cable modem
- **Host MAC** - the MAC address of the host device
- **Host Code** - (data for this field is not provided in SR 4.0)

As indicated in the following example, the information displayed by the CP MMI screen is provided from various sources. However, the CPDefinition.tblo file defines the format of this screen by defining the order in which CP MMI information appears. The CPDefinition.tblo file also provides the data labels, such as "CableCARD ID," "Host ID," and "Type." The first three lines of text shown in this example are straight text. You can customize this straight text using a hex editor.

All circled text provided by the CPDefinition.tblo file

**In order to start service for
this device, please call
1-800-xxx-xxxx** — Provided by the CPDefinition.tblo file

CableCARD ID: 7-561-034-449-003 — Provided by the M-Card module

Host ID: 0-1000-331-784-015 — Entered manually when a subscriber phones for authorization

Type: Two-way — Provided by the M-Card module

CM MAC: 01:23:45:57:89:AB

Host MAC: FE:DC:BA:98:76:54 — Provided by the host device

Host Code:

Note: Data shown in this screen are for example only.

Rules for Customizing Straight Text

When using a hex editor to customize the straight text, keep the following in mind:

- The CP MMI screen is limited to 16 lines, including blank lines that contain no text.

- Each line on the CP MMI screen is limited to a maximum of 32 characters, including marks of punctuation.

Download the Default CPDefinition.tblo File

Follow these steps to download the default CPDefinition.tblo file to the DNCS.

Important: Access to the FTP server requires current FTP server site access information. Because many sites do not allow an open Internet connection to the DNCS for security reasons, the following procedure provides generic instructions to access the FTP server and download the software. If you have any questions about this process, contact Cisco Services.

1   Open an xterm window on the DNCS, if necessary.

2   Do you have a directory created for downloaded files?

- If **yes**, go to step 3.

- If **no**, follow this procedure to create a directory.

   a   Type **mkdir /export/home/dncs/download/CableCARD** and press **Enter**.

   b   Type **cd /export/home/dncs/download/CableCARD** and press **Enter**.

   c   Go to step 5.

3   Clear the current contents of the download directory. First, type **pwd** to confirm you are in the correct directory; then, type **rm -rfi *** and press **Enter**.

4   You will be prompted to delete each file in the directory. Press **y** and then press **Enter** to delete each file.

5   Log on to the FTP server.

   Notes:

- The address of the server is **ftp.sciatl.com** or **192.133.243.133**. (This address is subject to change. If you are unable to reach the FTP server, please contact Cisco Services for the latest address.)

- The username is **anonymous**.

- The password is the email address of the person logging in.

6   Choose one of the following options to navigate to the directory in which the file is located on the FTP server:

- If you are *outside* of the firewall, type the following:

   cd /pub/scicare/RELEASED/CableCARD and press **Enter** to navigate to the directory.

- If you are *inside* of the firewall, type the following:

   cd /external_pub/scicare/RELEASED/CableCARD and press **Enter** to navigate to the directory.

7   Type **bin** and press **Enter**. The system sets the ftp transfer mode to binary.

8   Type **hash** and press **Enter**. The system configures itself to display hash marks that show the file-transfer progress.

9   Type **get CPDefinition.tblo** and press **Enter**. The system begins copying the file into the /export/home/dncs/download/CableCARD directory on your DNCS.

10 Type **bye** and press **Enter**. The system logs you out of the FTP server.

11 Now that you have downloaded the default CPDefinition.tblo file, create a backup copy of the file. Go to *Make a Backup Copy of the Default CPDefinition.tblo File* (on page 8).

Make a Backup Copy of the Default CPDefinition.tblo File

After downloading the CPDefinition.tblo file to the DNCS, follow these instructions to make a backup copy of the file.

1   Open an xterm window on the DNCS.

2   Type **cd /export/home/dncs/download/CableCARD** and press **Enter**.

3   Type **pwd** and then press **Enter**. The system displays the /export/home/dncs directory and verifies that you are in the correct directory.

4   Type **cp -p CPDefinition.tblo CPDefinition.bakxxx** and press **Enter**. A copy of the default CPDefinition.tblo file is saved to a file named CPDefinition.bakxxx, where xxx represents the current month, day, and year in MMDDYYYY format.

5   Type **exit** and press **Enter** to close the xterm window.

6   Do you want to edit the customizable text in the CPDefinition.tblo file?

    ■   If **yes**, edit this text now using a hex editor. When you are done, go to *Link the CPDefinition.tblo File to the BFS Directory* (on page 9).

    ■   If **no**, you are ready to continue configuring your DBDS to support the CP MMI screen by linking the CPDefinition.tblo file to the BFS directory. Go to *Link the CPDefinition.tblo File to the BFS Directory* (on page 9).

Link the CPDefinition.tblo File to the BFS Directory

This section contains instructions for linking the CPDefinition.tblo file that is now on the DNCS to the 0 directory on the POD_Data BFS server. Linking the file to this directory makes the file available to M-Card modules system wide.

Follow these instructions to link the CPDefinition.tblo file to the 0 directory on the POD_Data BFS server.

1 From the DNCS Administrative Console, click the **Application Interface Modules** tab and click **BFS Client**. Depending upon your system configuration, the following occurs:

  ■ If your DBDS uses a Regional Control System (RCS), the Please Select a Site window opens.

  ■ If your DBDS does not use an RCS, the Broadcast File Server List window opens.

2 Did the Please Select a Site window open?

  ■ If **yes**, click **File** and select **All Sites**. The Site AllSites Broadcast File Server List window opens.

    Important: Linking the CPDefinition.tblo file to a directory in the Site AllSites BFS List window causes the file (and the telephone number contained in the file) to be used by all sites in your system.

  ■ If **no**, continue with the next step in this procedure.

3 Double-click the **POD_Data** server icon to display the directories that are on the server.

4 Select the **0** directory on the **POD_Data** server, then click **File** and select **New Link**. The Set Up Link window opens.

5 Type **CPDefinition.tblo** in the **Link Name** field.

6 Select **POD_CHANNELS** from the **Source Name** list.

7 Click in the **Linked Path** field and type **/export/home/dncs/download/CableCARD/CPDefinition.tblo**.

8 Click **Save**. The Set Up Link window closes and a link to the CPDefinition.tblo file is added to the 0 directory on the POD_Data BFS server.

9 Update the Broadcast File Server List window by clicking **View** and selecting **Refresh**.

10 Double-click the POD_Data server to display its contents. Then double-click the 0 directory to display its contents and verify that the new link for CPDefinition.tblo exists.

11 Click **File** and select **Close** to close the Broadcast File Server List window.

12 Now that you have added the CPDefinition.tblo link to the BFS directory, the BFS carousel broadcasts the CPDefinition.tblo file to M-Card modules system wide. Verify that the CP MMI screen displays when expected. Go to *Verify Setup of the CP MMI Screen* (on page 11).

Verify Setup of the CP MMI Screen

Follow these instructions to use a host device in your headend to verify that the CP MMI screen displays as expected when an M-Card module is inserted into the host device.

1 If your host is a device with RF output that connects to a TV, then tune the TV to channel 3 or 4.

    Note: If the host is a television set, tune to any channel.

2 Insert the M-Card module into the M-Card module slot on a two-way host device in your headend. The television should display the CP MMI screen. It may take up to one minute for the screen to appear.

    Important: Carefully insert the M-Card module into the host to avoid damage to the card. For instructions on properly inserting an M-Card module into a host, refer to *Best Practices for Using Multi-Stream CableCARD Modules* (part number 4005658).

3 Does the CP MMI screen appear on the television?

    ■ If **yes**, go to step 4.

    ■ If **no**, remove the M-Card and then reinsert it in the host device. If the CP MMI screen does not display after a second attempt, contact Cisco Services.

        Note: If an error message appears instead of the CP MMI screen, note the error message and reboot the host. When the host finishes rebooting, reinsert the M-Card module into the host. If the error screen reappears, note the error message again and contact Cisco Services.

4 Verify that the CP MMI screen displays on the television according to any modifications that you have made. For instructions, refer to **Staging Recommendations** and **Installation Recommendations** in *Best Practices for Using Multi-Stream CableCARD Modules* (part number 4005658).

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.