Operations Alert Bulletin
Preparing for SSC Host DHCT Deployment

Background

Cable operators are currently making system preparations to deploy Separable Security CableCARD™ (SSC) Host Digital Home Communications Terminals (DHCTs) into their networks. As a part of these preparations, service providers need to understand new concepts such as copy protection binding of CableCARDs and host DHCTs, as well as changes that can be made to their network to enhance the staging performance of DHCTs. This operations alert bulletin provides a summary of binding methods, recommended changes to optimize your staging time, and the staging process.

Recommendation

Cisco recommends that you review this document as you begin to prepare for SSC Host DHCT deployments into your network. The information in this document can assist service providers in making decisions about a binding method, improving staging time, and understanding the staging process. Implementing these concepts provides faster software download and staging times for your SSC Host DHCTs.

About This Bulletin

Audience

This document was written for Digital Network Control System (DNCS) operators. Cisco field service engineers and Cisco Services engineers may also find the information in this document helpful.

Related Publications

You may find the following publications useful as resources when you implement the procedures in this document. Check the copyright date on your resources to assure that you have the most current version. The publish dates for the following documents are valid as of this printing. However, some of these documents may have since been revised:

- *Change the CableCARD™ Staging Limit Operations Alert Bulletin* (part number 4020737, expected publish date: mid-year 2007)
- *Downloading New Client Application Platform Installation Instructions* (part number 4003052, published December 2006)
- *Explorer® Digital Home Communications Terminal Staging Guide* (part number 734375, published August 2006)
- *Separable Security Host Staging Guide* (part number 736107, published May 2007)
- *Staging Area Quick Reference Sheet for SSC Settops* (part number 4019477, expected publish date: mid-year 2007)

Document Version

This is the second release of this document.

Binding Methods

Binding is a DNCS function that matches the MAC address of the CableCARD to the host ID of the host. You must bind a CableCARD module to its host before the CableCARD module can receive "high-value" copy-protected services (services with copy protection settings of either *copy one generation* or *copy never*).

Important!

- Until you bind the SSC DHCT and the CableCARD module, the DHCT will not be able to display high-value, copy-protected services—even if the DHCT is authorized to receive these services.
- Services that are copy protected with the copy protection setting of *copy freely* can be viewed by an unbound host.

You can choose to use one of the following copy protection binding methods:

- **Combo binding** occurs when the SSC DHCT downloads EMMs during staging. Sending the EMMs to the SSC DHCT starts a process that adds the CableCARD module/host pair to a file on the BFS. After the pair is added to the file, the SSC DHCT receives the POD_Data file that authorizes the CableCARD module and the DHCT to be bound.
- **Autobinding** matches a CableCARD module and host when the CableCARD module is inserted into the host and the host goes into two-way mode. Autobinding is available for two-way hosts only if all of the following conditions are met:
  - The DNCS is set up for autobinding.
  - The CableCARD module and host can be staged in a one-way or two-way environment.

    Note: To use autobinding, the CableCARD module and host must be bound in a two-way environment to view high value content. Once bound, they can be used in a one-way environment.
  - The host is not on the certificate revocation list (CRL).
- **Manual binding** allows binding of the CableCARD module and host DHCT from either the DNCS or billing system. From the DNCS, the CableCARD module ID and host ID are added to the DNCS through the CableCARD interface on the DNCS. From the billing system, binding occurs from the billing system interface using the **RegisterHost** command. Contact your billing vendor to see if they support this option.

Choose a Binding Method

For SSC host deployments, the following table provides the binding methods available to you, based on the system release version on your DNCS.

Note: The system release versions listed in the following table are the minimum software versions required for each binding method.

System Release	Manual Binding	Auto Binding	Combo Binding
SR 2.2/3.2	√		
SR 2.5/3.5/4.0	√	√	
SR 2.5/3.5/4.0 SP3	√	√	√
SR 2.7/3.7/4.2	√	√	
SR 2.7/3.7/4.2 SP 0.2	√	√	√

Optimize Your Staging Time

To optimize the staging time for new SSC host DHCTs, Cisco recommends the following network changes. These changes provide your staging area with improved efficiency in the staging process:

- Cisco has created patches to address customer concerns about staging time for the SSC DHCTs. The patches deliver the CVT message to the out-of-band carousel once every 30 seconds. This results in the overall staging time being reduced by an average 4-5 minutes per DHCT. To take advantage of this enhancement, your DNCS needs to be upgraded to one of the following releases:
  - SR 2.5/3.5/4.0 Service Pack 3 (Emergency Patch 3)
  - SR 2.7/3.7/4.2 Service Pack 0.2 (Emergency Patch 1)

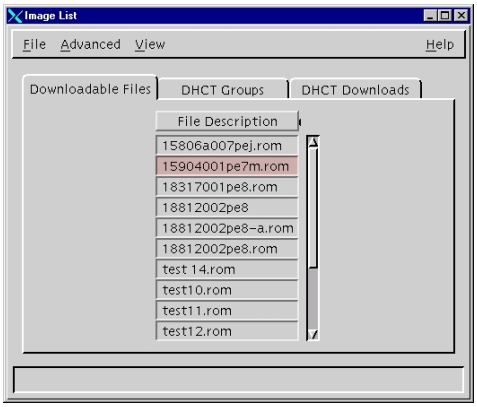
  Note: A patch for SR 2.2/3.2 Service Pack 5 was not developed for this enhancement.
- Changing the data carousel rate to 3 Mbps improves the update time of the BFS carousel and reduces the time it takes for the software download to complete.

  Note: The ability to change the data carousel rate to 3 Mbps is dependent on available bandwidth in the network.
- Using the listCVT utility identifies unused files on the image list that can then be deleted. Removing these unnecessary files from your BFS carousel optimizes the bootloader carousels to include only the necessary CVT files. The following procedure provides instructions to run the utility and remove the files.

Run the listCVT Utility and Remove Unneeded Files

1. Open an xterm window on the DNCS.
2. Type **listCVT -v** and press **Enter**. This command provides the version of listCVT utility that is currently on your network.
3. Compare the version number of the listCVT utility on your DNCS with the version number listed in the ROM to Model Matrix in the *Downloading New Client Application Platform Installation Instructions*.
   - If the version number is same as or later than the one listed in the matrix, go to step 4.
   - If the version number is earlier than the one listed in the matrix, contact Cisco Services to receive the latest utility.
4. Type **cd /export/home/dncs/doctor** and press **Enter**. The current directory is now the doctor directory.

   Note: Be sure to type a space between **cd** and **/**.
5. Type **listCVT > precvt** and press **Enter**.
6. Type **more precvt** and press **Enter**. This command enables you to view the file and verify the current download configuration for each DHCT type that is active in the network.
7. Does the report indicate that there are unused files?
   - If **yes**, go to step 8.
   - If **no**, you have completed this procedure.
8. On the DNCS Administrative Console, select the **DNCS** tab and then select the **Home Element Provisioning** tab.
9. Click **Image**. The Image List window opens.
10. Click the **Downloadable Files** tab.



11 Highlight a software file that is unused in the network, click **File,** and select **Delete**.

Notes:

- The DHCT software files have file extensions of **.rom** (for 4250-series DHCTs) or **.disk** (for 8300-series DHCTs).
- If a download is associated to a group, the operator should delete the download on the **DHCT Downloads** tab, then delete the image from the **Download Files** tab.

12 Repeat step 11 for each file that is unused in the network until all unused software files are deleted.

The SSC Staging Process

1. The DHCT downloads its operating system. This occurs immediately when the DHCT is connected to the network. The software downloaded is specified for each DHCT model and revision combination. When the download is complete, the operating system code is written to the flash memory of the DHCT and the DHCT reboots.
2. The hard disk drive (HDD) of DVR-equipped DHCTs is initialized. After the first reboot, the DHCT performs HDD initialization. When this initialization is complete, the DHCT reboots.

   Note: This step is only applicable to DHCTs with DVRs, such as the Explorer 8300 series.
3. The inserted CableCARD module downloads its operating system. This occurs after a delay while the CableCARD module hunts for and identifies the correct download frequency. When the download is complete, the operating system code is written to the flash memory of the CableCARD module and the DHCT reboots.
4. The staging area sends a ModifyDhctConfig message through the billing system to the DNCS. The DNCS sends out the EMMs. The CableCARD downloads its EMMs.
5. The ModifyDhctConfig message also initiates the DNCS to place a bindAuth record on the BFS carousel. When the DHCT receives the message the binding process occurs.
6. Binding can occur automatically (if your system uses combo binding or autobinding) or it must be performed manually (if your system uses neither of these options). The availability of these binding options is dependent upon the type of DBDS connection that you use, as the following table shows.

Type of CableCARD/Host Combination	Connection Required	Binding Required
CableCARD module, inserted into subscriber's host	One-way	Manual
CableCARD module, inserted into subscriber's host	Two-way	Auto or Manual
SSC combination	Two-way	Combo, Auto, or Manual
SSC combination	One-way	Combo or Manual

Additional Staging Process Improvements

For the staging area, follow the recommendations in the first five chapters of the *Explorer® Digital Home Communications Terminal Staging Guide* regarding the staging process, staging preparations, staging area considerations, obtaining and loading EMM data, and staging non-SSC DHCTs. After completing these chapters, you can make additional preparations in the staging area which are included in the following list. The procedures in the list maximize the efficiency of the staging process. Specific procedures are included in Chapter 2, **Separable Security Host Staging Guide.**

- Verifying the DNCS settings for the CableCARD server allows the DNCS to communicate with the CableCARDs in the network
- Turning off inband system information reduces network traffic
- Configuring a default download image creates a consistent environment for all the CableCARD types in your network
- Deleting unused DHCT types allows you to delete unused files from the DNCS and improves the speed of the download process
- Verifying and cleaning up the download directory ensures the directory contains only the software you plan to test or deploy
- Setting recommended frequencies for CVT downloads optimizes the speed and performance of the initial staging process

For More 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.

Cisco Systems, Inc.
5030 Sugarloaf Parkway, Box 465447
Lawrenceville, GA 30042

678 277-1120
800 722-2009
www.cisco.com

January 2013 Printed in USA Part Number 78-4020566-01 Rev B