



ISDP Set-Top Staging Guide

Please Read

Important

Please read this entire guide. If this guide provides installation or operation instructions, give particular attention to all safety statements included in this guide.

Notices

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About This Guide

Introduction

This guide provides procedures for preparing the IPTV Services Delivery System (ISDS) for staging Cisco® ISDP set-tops for use in the IP television (IPTV) Services Delivery Platform (ISDP). The ISDP service offering enables service providers to deploy set-tops that support the delivery of video over Internet Protocol (IP) that provides users with IPTV. IPTV is a relatively new service offering that has come into existence through the alignment of some key technologies. The ISDP is Cisco's end-to-end IPTV solution.

Important:

- This guide applies only to ISDP networks.
- In this guide, Cisco ISDP set-tops will be referred to as “IP set-tops” or “set-tops.”

Purpose

After reading this guide, you should be able to successfully stage IP set-tops in your ISDP network.

Scope

This guide provides a consistent and reliable method for staging IP set-tops in your ISDP network. This guide also provides an overview of the staging process, all the steps you must take to prepare your site for staging IP set-tops, and the staging procedures. In addition, this guide includes the most common staging processes and presents the best practices based on our staging expertise experience. This guide also includes common troubleshooting steps.

This guide does not include procedures for installing client release software. Refer to *Downloading Client Application Software to ISDP Set-Tops Installation Instructions* (part number 4021172) for detailed procedures for installing client application software.

About This Guide

This guide applies to the following Cisco IP set-top models:

- CIS330
- CIS430
- CIS2000
- CIS2001
- CIS5020
- CIS5100
- CIS5220
- IPN330
- IPN430
- IPN603

Audience

This guide is written for service providers and staging area personnel responsible for staging IP set-tops that use the Cisco ISDP solution. Field service engineers and Cisco Services engineers who help service providers manage and troubleshoot their systems may also find the information in this guide helpful.

To perform the procedures in this guide, you must be proficient in using basic UNIX commands, a UNIX-based text editor, FTP (File Transport Protocol), Secure Copy Protocol (SCP), and Secure FTP (SFTP). You must also have a high level of proficiency with the ISDS. In addition, you should be familiar with the operation of your billing system or subscriber management system, particularly set-top loading and activation.

Document Version

This is the second release of this document.

1

The Staging Process

Introduction

Staging is the process that prepares a set-top to operate correctly on a service provider's network. When a set-top is properly staged, it has all of the software and the authorization information that it needs to display programming and other data in the subscriber's home.

This chapter provides an overview of the method used to download client release software and for installing inventory files.

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■ Authorizing IP Set-Tops For Secure Services	5
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Overview

Staging IP Set-Tops

Set-tops that require staging include the following:

- Brand new units
- Field-return units: set-tops that have been removed from the subscriber's home and returned to the service provider
- Return Material Authorization (RMA) units: set-tops that the service provider has received back from factory repair
- CIS330, CIS430, or IPN603 set-tops that have already loaded the Cisco bootloader

Staging a set-top involves three main tasks:

- Loading set-top inventory files onto the ISDS
- Connecting the set-top to the network so it can download the current operating system software

Note: If your ISDS network is configured properly, the software will download automatically after the set-top is connected to the network.

- Installing security keys and service authorization

What Knowledge and Skills Do You Need?

Before you stage set-tops on the ISDS, you must be familiar with the basic operation of the devices and the features that are available to subscribers.

General Knowledge

Before you stage set-tops, you should be familiar with these processes:

- Operation of the ISDS (particularly set-top loading and activation)
- Configuration of your ISDP network
- Knowledge of basic UNIX commands
- Knowledge of compressed file formats, such as TAR and GZIP files
- Knowledge of File Transfer Protocol (FTP), Secure FTP (SFTP), and Secure Copy Protocol (SCP), and the ability to use these protocols to send files to and from your ISDS
- Operation of your billing system or subscriber management system (particularly set-top loading and activation)

IP Set-Top Staging Knowledge

To stage the set-tops, you should become familiar with the following features:

- Operating the set-tops using the front panel keys
- Connecting the set-tops to a TV or monitor
- Set-top diagnostics
- Remote control operation
- LED indicators that display set-top status

Before You Begin

Before you can stage set-tops you must load the set-top inventory files. For new set-tops and units returned from repair, you will receive either a CD or a link to the FTP server from which you can download the set-top inventory files. For set-tops that are being migrated from non-Cisco middleware, you will create an inventory file using tools provided as part of the client software migration procedure. The procedure for loading the inventory files on the ISDS is described later in this guide. Procedures for loading set-top inventory information into your billing system need to be provided by your selected billing system vendor.

Authorizing IP Set-Tops For Secure Services

There are two methods to trigger the ISDS to request that authorization transactions be sent to a set-top. This section describes each of those methods and describes how to prepare your system to perform each method. The following list provides the methods for requesting authorization inventory files:

- ModifyDhctConfiguration
- DhctInstantHit

Authorization transactions perform the following functions:

- Load the set-top with the configuration parameters necessary to receive and display encrypted content
- Authorize the set-top to receive services as directed by the billing system

This section explains each of these methods. After you read this section, you should work with your billing system provider to determine which of these methods you should use.

ModifyDhctConfiguration

The ModifyDhctConfiguration method (modDhctCfg) enables all configuration parameters of the set-top and authorizes the set-top for services. The first time you stage a set-top and place it into an active inventory status on your billing system, the ModifyDhctConfiguration transaction is sent to the ISDS.

The first time the ISDS receives a request to perform the ModifyDhctConfiguration transaction for a new set-top (or for RMA units, if inventory files are installed as described later in this guide), the ISDS transmits the required authorization transactions to the set-top.

Important: Before a ModifyDhctConfiguration is initiated from the billing system, you must connect the set-top to AC power and let it finish loading software and connecting to the network. This is indicated by the following:

- The **Power** LED is off
- The **Network** LED is illuminated
- No other LEDs are blinking or illuminated
- If the set-top is connected to a TV, the startup screen will no longer be displayed. Instead, the TV screen will be black.

DhctInstantHit

The DhctInstantHit transaction, sometimes called an “instant hit,” initiates the transmission of authorization transactions to the set-top. The ISDS and some billing systems can send an instant hit.

You should send a DhctInstantHit if the ModifyDhctConfiguration transaction was sent before the set-top was ready to receive authorization transactions.

If sending an instant hit does not activate the set-top for service, you will need to use the ModifyDhctConfig transaction to force the ISDS to re-send the full set of staging transactions to the set-top. See *ModifyDhctConfiguration* (on page 5) for more information.

CVT Download Method

The Code Version Table (CVT) is a table that contains the following:

- The multicast address used to broadcast software image files
- Information to map application platform software versions to specific set-tops or groups of set-tops.

The CVT download method is the only method for installing client release software onto set-tops in an ISDS environment.

The ISDS sends the CVT table on the system's Cisco/SA reserved well-known multicast address. As the set-top reboots, it does the following:

- Joins the multicast
- Reads the CVT table
- Checks its installed version to see if it matches the version specified in the CVT table
- If necessary, joins the proper multicast in order to download the new software
- Validates that the software file is complete and was read properly
- Stores the software in flash memory on the set-top
- Reboots the set-top to activate the new software
- Formats the hard drive (if a DVR)

2

Staging Preparations

Introduction

This chapter provides procedures that system operators must complete to prepare the ISDS for staging set-tops.

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Overview

Before system personnel can begin to stage set-tops, there are some tasks that the system operator must perform. The following tasks prepare your ISDS to stage set-tops:

- Verifying your ISDS system configuration settings
- Preparing directories to store and extract set-top inventory files
- Installing the necessary software
- Assuring that your billing system is configured to assign packages to the set-tops

Note: Refer to your billing system documentation to determine the best method for configuring your billing status to support staging.

Verify ISDS System Configuration Settings

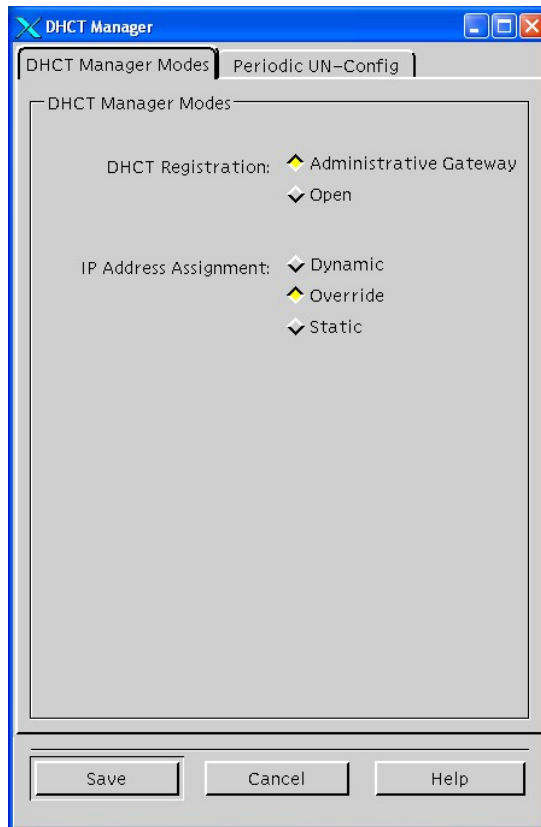
We recommend that you use the default set-top and network signaling parameters in the ISDS System Configuration window when you stage set-tops.

Note: For more information on the ISDS System Configuration window and the recommended parameter settings for that window, refer to the *ISDS Online Help*.

Verify Current ISDS System Configuration Settings

Verifying DHCT Manager Settings

- 1 From the Administrative Console on the ISDS, select **System Provisioning**.
- 2 In the System Management area of the ISDS Administrative Console, select **DHCT Mgr**. The DHCT Manager window opens with the DHCT Manager Modes tab in the forefront.



- 3 Is DHCT Registration set to **Administrative Gateway** and IP Address Assignment set to **Override**?
 - If **yes**, go to step 5.
 - If **no**, set DHCT Registration to **Administrative Gateway** and IP Address Assignment to **Override**.

- 4 Click **Save** and then go to step 5.
- 5 Click **Cancel** to exit the screen.
- 6 Go to *Verify System Configuration Settings* (on page 12).

Verifying System Configuration Settings

- 1 From the Administrative Console on the ISDS, select **System Provisioning**.
- 2 In the System Management area of the ISDS Administrative Console, select **Sys Config**. The ISDS System Configuration window opens with the DSM-CC tab in the forefront.

The screenshot shows the 'ISDS System Configuration' window with the 'DSM-CC' tab selected. The window contains two main sections: 'DHCT Session Signaling Parameters' and 'Network Session Signaling Parameters'. Each section has several configuration fields with spinners and units. At the bottom, there are 'Save', 'Cancel', and 'Help' buttons.

Section	Parameter	Value	Unit
DHCT Session Signaling Parameters	Send 'Session In Progress' Every:	60	minutes
	Retry Requests Up To:	1	times
	Stop Waiting For Network Response After:	60	seconds
Network Session Signaling Parameters	Send 'Setup Proceeding' Every:	25	seconds
	Retry Requests Up To:	1	times
	Stop Waiting For User Response After:	60	seconds
	Highest Program Bandwidth:	25.000	Mbps
	Reuse Expired Session IDs After:	5	seconds

- 3 On the ISDS System Configuration window, click the **ISDS** tab. The ISDS System Configuration window refreshes with the ISDS tab in the forefront.

The screenshot shows the 'ISDS System Configuration' window with the 'ISDS' tab selected. The window contains several configuration fields for the ISDS Service Delivery Server. The fields and their values are as follows:

Field	Value
Controller Host Name or IP:	10.253.1.1
STUN Server Host Name or IP:	10.253.1.1
NMS Server Host Name or IP:	10.253.1.1
DNS Primary IP Address:	10.253. 1. 1
DNS Secondary IP Address:	10.253. 1. 2
STUN Keepalive:	20 seconds
CVT Interval:	10 seconds
UN Passthru Interval:	10 seconds

At the bottom of the window, there are three buttons: 'Save', 'Cancel', and 'Help'.

- 4 Verify that the settings on your system are similar to the settings shown in the previous window.

Important: Be sure that you configure *both* a primary and a secondary DNS IP address. This configuration will provide a backup DNS IP address.

Create Inventory Directories

Creating an Inventory File Directory

Your ISDS must contain a directory for storing the set-top inventory files if you are downloading the files using SCP or secure SFTP. Verify that such a directory exists. If it does not exist, use the following procedure to create the directory.

Note: You do not need to create this directory if you are loading the inventory files from a CD.

- 1 Open an xterm window on the ISDS.
- 2 Verify that an inventory file directory similar to `/dvs/dncs/inventory` exists.
- 3 Does such a directory exist on your system?
 - If **yes**, go to *Creating an Inventory Log Directory* (on page 14).
 - If **no**, go to step 4.
- 4 Type **mkdir /dvs/dncs/inventory** and press **Enter**. The system creates the `/dvs/dncs/inventory` directory.
- 5 Do not close the xterm window.

Creating an Inventory Log Directory

Your ISDS must contain a directory for storing the set-top inventory log files that result from loading the inventory files on the ISDS. Verify that such a directory exists. If it does not exist, use the following procedure to create the directory.

- 1 In the xterm window that is currently open, verify that an inventory log directory similar to `/dvs/dncs/invlogs` exists.
- 2 Does such a directory exist?
 - If **yes**, go to step 4.
 - If **no**, go to step 3.
- 3 In the open xterm window, type **mkdir /dvs/dncs/invlogs** and press **Enter**. The system creates the `/dvs/dncs/invlogs` directory.
- 4 Type **exit** and press **Enter** to close the xterm window.

Install Software

Install the Application Platform Release

The next task that you must complete before you can stage set-tops is to install the current client application platform software onto the ISDS. Client application platform software consists of the operating system and the middleware. The set-top must have both of these components to function properly.

When the software is installed on the ISDS, the staging process then delivers the software to the set-tops. Refer to *Downloading Client Application Software to ISDP Set-Tops Installation Instructions* (part number 4021172) for detailed procedures.

Install the Current Resource File

When you are using the CVT download method to load the client application software onto set-tops, you need to make sure that you are using the most current resource file (**settop.res**). This resource file contains information used by the CVT configuration interface on the ISDS to validate the software for set-tops to prevent loading the wrong software.

Refer to *Downloading Client Application Software to ISDP Set-Tops Installation Instructions* (part number 4021172) for more information about acquiring and installing the most current resource files.

Billing System Preparation

Your billing system must be set up to send authorization requests to the ISDS so that it can then send authorization transactions to the set-tops during staging.

Refer to your billing system documentation to determine the best method for configuring your billing status to support staging.

3

Staging Area Considerations

Introduction

This chapter lists suggested specifications to use for staging set-tops and describes other network and equipment requirements for the staging area.

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Minimum Network Requirements

The staging area must be connected to the network that provides a signal from the ISDS to the set-tops.

Ventilation and Handling

Follow these suggestions to make sure that each set-top receives proper ventilation and are handled properly in the staging area.

The ideal staging area is a shelf or rack where set-tops can be placed side by side with at least 4 to 6 in. of space between each set-top. However, if due to space limitations, you must stack the set-tops in your staging area, our recommendations are as follows:

- You may stack up to four non-DVR set-tops during staging
- To protect the hard drive from excessive heat, only stack DVR set-tops two high during staging

Important: Do not leave set-tops stacked with AC power applied for long periods of time, for example, overnight. If you need to leave the set-tops stacked overnight, or longer, disconnect the set-tops completely from their AC power source.



CAUTION:

Avoid damage to the hard disk drive! The DVR contains an internal hard disk drive. You should take extra care to handle this unit gently. Do not move the unit while it is connected to a power source.

After staging the DVR, wait 15 seconds after power is removed (disconnected at the source) before handling the DVR and removing it from the staging rack.

Do not stand the DVR on its front faceplate while connecting cables to the back panel. Pressing down on the rear panel does not distribute all of the weight across the frame; rather it localizes the pressure onto the navigation buttons. The force can damage the underlying button supports, which renders the buttons unusable.

4

Obtain and Load Inventory Files

Introduction

This chapter contains procedures that ISDS operators and staging area personnel must complete before they stage set-tops.

After preparing the ISDS for staging, the ISDS operator must load the set-top inventory files onto the ISDS.

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Obtain Inventory File Data

To load the inventory files onto the ISDS, you must contact us to obtain the two initial inventory files for each set-top. There are four options for obtaining the inventory file data from us:

- SCP or SFTP download
- Inventory file CD received by mail or shipping service
- Customer Self-Service Serial Number Tracking Application
- Create using tools provided as part of the set-top client software migration procedures

When you order our set-tops, you must specify how you want the inventory files for those set-tops delivered. We can deliver those inventory files to you in one of the following ways:

- Using our secure FTP site— This is the fastest and most economical way to receive the inventory files. See ***FTP Download Option*** (on page 23) for more information.
- Using the mail or another shipping service option— We send a CD to you that contains the inventory files for all set-tops in the shipment. See ***Mail or Shipping Service Option*** (on page 24) for more information.
- Using our customer self-service website— You can request inventory files for individual set-tops or for groups of set-tops. If you use this option, you must download the inventory files from the FTP site. See ***Customer Self-Service Option*** (on page 25) for more information.

FTP Download Option

You can access the FTP site to obtain the inventory files from us when you order your set-tops.

If you choose to load inventory files through the FTP site, we will notify you by e-mail whenever inventory files are available. The e-mail includes a secure link directly to our FTP server. You can click on the link in the e-mail to start downloading inventory files immediately.

Downloading the Inventory File

- 1 From the e-mail message, click the link that references your inventory file on our FTP server.

Example: The link looks similar to the following example:

https://webapps.sciatl.com/Exp2000/Keys/0090387249drtvh.tar

Result: A window opens on your PC that lets you specify the directory on your PC where you want to save the inventory file.

Note: The exact method you use to save the downloaded inventory file varies based upon the e-mail software you use on your PC.

- 2 Click the link in the e-mail that references your inventory file on our FTP server.
- 3 Save the inventory file into a directory of your choice on your PC or to a jump (flash) drive.

Example: You might choose to save the file in the /temp directory.

- 4 Choose one of the following procedures:

- To use a CD recorder to copy the inventory TAR file to a CD, go to *Copying the Inventory File* (on page 26).
- To use a network connection between your PC and the ISDS to FTP the inventory TAR file to the ISDS, go to *Send the Inventory File to the ISDS Using Secure Copy* (on page 28).

Mail or Shipping Service Option

You can request that we mail or ship an inventory file CD to you when you order your set-tops.

Customer Self-Service Option

Our Customer Self-Service Serial Number Tracking Application lets customers retrieve inventory files and determine the warranty status for set-tops purchased directly from us.

Note: Our Customer Self-Service Serial Number Tracking Application is used most often for RMA units or single units that are missing inventory files. The FTP and CD options are the most common way to receive inventory files from us.

For more information on our Customer Self-Service Application, see *Appendix C* (on page 57).

Copy the Inventory File

After you download the inventory file, and before you load the inventory file onto the ISDS, you must first copy the inventory file to a CD or to a flash drive. This section provides a procedure for copying the inventory file to a CD before loading the file onto the ISDS along a procedure for copying the inventory file to the ISDS from either the CD or the flash drive.

Copying the Inventory File

Important: Be sure you know how to use your CD recorder to copy files before starting this procedure.

- 1 Insert a blank CD into the CD recorder of your PC or insert a flash drive into an available USB port.
- 2 Copy the inventory file from the directory where you saved it on your PC to the CD or to the flash drive.

Note: If necessary, refer to the user's guide that accompanied your CD recorder for detailed instructions for copying files.

- 3 Eject the CD or properly remove the flash drive.
- 4 Go to *Copying the Inventory File to the ISDS* (on page 26).

Copying the Inventory File to the ISDS

- 1 Insert the CD or the flash drive into the ISDS server.
- 2 Open an xterm window on the ISDS.
- 3 Change to the directory where you store inventory files.

Example: `cd /dvs/dncs/inventory` and press **Enter**.

Note: We recommend that you store your inventory file in the `/dvs/dncs/inventory` directory on the ISDS.

- 4 If you are copying from a CD, go to step 5. If you are copying from a flash drive, go to step 7.
- 5 Type `cp /cdrom/cdrom0/* .` and press **Enter**. The system copies the inventory TAR file on the CD to the `/dvs/dncs/inventory` directory on the ISDS.

Important: After typing `/cdrom/cdrom0/`, be sure to type the `*` followed by a space and a period (`.`).

- 6 When the system has finished copying the inventory TAR file, type `eject cd` and press **Enter** to eject the CD. Then, go to step 10.
- 7 Use the **mount** command to find where the flash drive was mounted on the ISDS.

- 8 Type **cp [mount location]/*** . The system copies the inventory TAR file on the flash drive to the /dvs/dncls/inventory directory on the ISDS.

Important: After typing **/cp [mount location]/**, be sure to type the * followed by a space and a period (.).

- 9 Remove the flash drive.

Alternate Methods:

The ISDS can be configured to support FTP. A better option is to use SCP. Details on using these tools are beyond the scope of this guide, but are readily available from numerous online resources.

- 10 After placing the Inventory File on the ISDS, proceed with *Extracting the Inventory File* (on page 28).

Extract the Inventory File

If you have properly followed the instructions in this section, the inventory TAR file has been copied to the **/dvs/dncs/inventory** directory on your ISDS.

Extracting the Inventory File

Follow these steps to extract the inventory file on your ISDS.

- 1 Open an xterm window on the ISDS.
- 2 Type **cd /dvs/dncs/inventory** and press **Enter**. The **/dvs/dncs/inventory** directory becomes the working directory.
- 3 Type **tar -xvf [inventory file name]** and press **Enter**.

Example: If your inventory file is named 0090387249drtvh.tar, as indicated in previous examples, you would type **tar -xvf 0090387249drtvh.tar**.

Results:

- The system creates a subdirectory in the **/dvs/dncs/inventory** directory. The name of the subdirectory is the name of the inventory file without the TAR extension, but with COMPLETE suffix.

Example: OL00272729-COMPLETE

- Within this subdirectory is the following directory and file:
 - An **ISDS** subdirectory that contains the inventory file data in directories and files that the ISDS uses when you load the inventory file data
 - The **TOC** file

Important: If any of these are missing, contact Cisco Services.

- 4 Extract the individual components of your inventory TAR file to a directory on the ISDS. Record the path and directory of these individual components here:
-
- 5 Go to *Copy the TOC File* (on page 29).

Copy the TOC File

You need to supply your billing system vendor with the TOC file that you extracted from the inventory file. To do this, you need to copy the TOC file to a CD or a flash drive and install it on your billing system. Refer to your billing system documentation for instructions and specific information.

Load Inventory File Data

After you obtain your inventory files, you must load the inventory files onto the ISDS. This section provides procedures for loading inventory data into the ISDS database.

During this procedure, two directories on your ISDS are used. If you followed the instructions contained in this guide for creating these directories, those directories are named as follows:

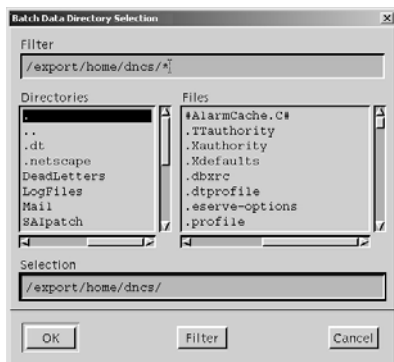
- **/dvs/dnscs/tmp/inventory** – Stores the downloaded inventory file CD images
- **/dvs/dnscs/tmp/invlogs** – Stores the log files created during the loading of inventory files

However, if you chose other names for these directories, use the directories that you created on your system.

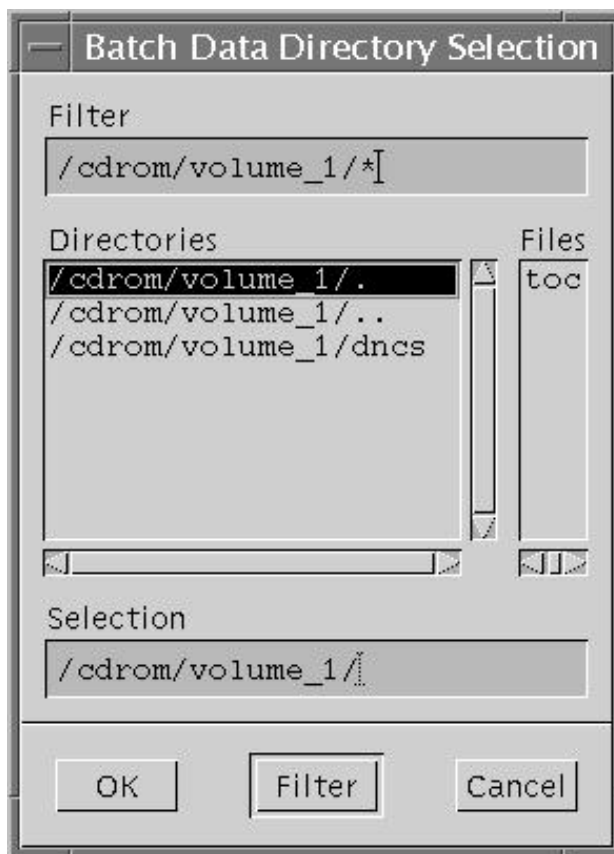
Loading Inventory File Data

Follow these steps to load inventory file data into the ISDS database.

- 1 Are you loading inventory file data from CD?
 - If **yes**, make sure that the inventory file CD is placed in the CD-ROM drive of the ISDS.
 - Note:** The ISDS GUI might launch when the system mounts the CD.
 - If **no**, go to step 2.
- 2 On the **ISDS** Administrative Console, click the **ISDS** tab and select the **Home Element Provisioning** tab.
- 3 Click **DHCT** to open the DHCT Provisioning window.
- 4 Select **New** and choose **Batch Install**.
- 5 Click **Select**. The Batch Data Directory Selection window opens.



- 6 Search for the TOC file by replacing the existing `/export/home/dncs` filter in the Filter field with the following text:
 - If you are loading inventory files from a CD, replace the `/export/home/dncs` filter with `/cdrom/cdrom0/*` and press **Enter**.
 - If you obtained inventory files through the FTP site, replace the `/export/home/dncs` filter with the path you recorded after extracting the inventory file. If necessary, return to *Extracting the Inventory File* (on page 28) to obtain this path.
- 7 In the Directories panel, select and double-click **volume_1**. The Batch Data Directory Selection window refreshes and lists the TOC file.

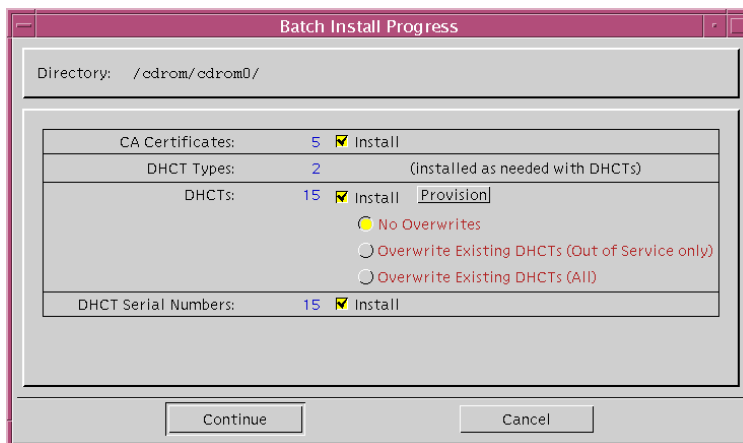


Note: The volume_1 directory may contain additional characters.

Example: volume_1#3

- 8 Locate the **TOC** file, and verify that **TOC** is *not* selected. Click **OK**. The DHCT Provisioning window opens.

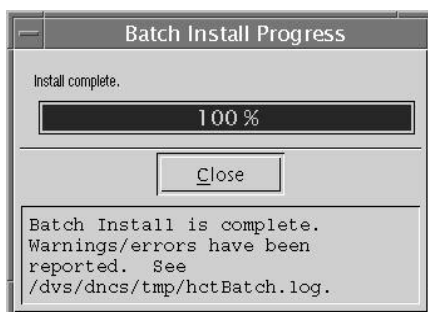
- 9 Click **Continue** to open the Batch Install Progress window.



- 10 Select one of the following options:

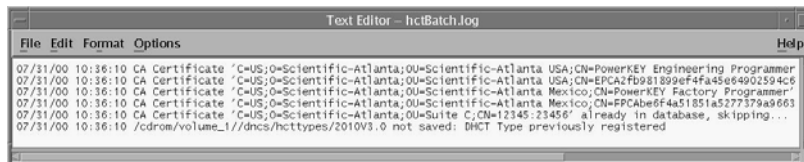
- If you are loading inventory files for RMA units only, select **Overwrite Existing DHCTs (All)**.
- If you are loading inventory files for new units only, select **No Overwrites**.
- If you are loading inventory files for both RMA units and new units, select **Overwrite Existing DHCTs (Out of Service only)**.

- 11 On the Batch Install Progress window, click **Continue**. A window displays the status of the install process.



- 12 After the **Batch Install is Complete** message appears, click **Close** on the Batch Install Progress window.

- 13 From the Solaris toolbar, open the Text Editor to check the `hctBatch.log` and complete the following steps:
 - a Right-click the background area of the ISDS screen to open the **Workspace Menu** window.
 - b Click the **Programs** option from the Workspace Menu window.
 - c From the Personal Applications menu, select the **Text Editor** option.
 - d From the Text Editor **File** menu, choose **Open**.
 - e In the Text Editor – Open a File window, type `/dvs/dncs/tmp/` in the Enter a Path or folder name field, and press **Enter**.
 - f Scroll through the file list that appears in the Files panel, highlight the **hctBatch.log** file, and click **OK**. The Text Editor displays the contents of the **hctBatch.log** file.



Notes: Please note that the following messages are normal.

- If the message **DHCT type already exists in the database**, the **HctType record with version <type revision> and model <modeltype> already existed in cache** message also appears.
 - If a DHCT type is not added to the database for any reason, the **HctType record with version <type revision> and model <modeltype> could not be inserted into the database** message appears.
- 14 Select **Copy to File** from the File menu. The Text Editor – Copy to File window opens.
 - 15 Type a unique log file name for each inventory CD in the **Enter file name** field. The file name typically follows this naming convention:
`/dvs/dncs/tmp/invlogs/<deliverynumber>.log`
Example: Type `/dvs/dncs/tmp/invlogs/OL00251237-5618.log` for the file name. `OL00251237-5618` is the delivery number of the inventory file CD.
Note: You might want to use the following alternate naming convention on your system:
`/dvs/dncs/tmp/invlogs/<deliverynumber>_date_time.log`
 - 16 Click **OK**. The system saves the log file with the new name.

- 17 Does the ISDS indicate that a new device type was added?
 - If **yes**, you need to make sure a download is configured for the new device type. Refer to *Downloading Client Application Software to ISDP Set-Tops Installation Instructions* (part number 4021172) for more information; then continue with step 18 of this procedure.
 - If **no**, go to step 18.
- 18 From the **File** menu of the Text Editor window, select **Close**.
- 19 Are you loading inventory file data from a CD?
 - If **yes**, open an xterm window and type **eject** and press **Enter** to eject the CD (or, if the GUI is open, you can eject the CD from the GUI).
 - If **no**, go to step 20.
- 20 Repeat steps 1 through 18 for each additional inventory file CD.
- 21 Go to *How to Stage IP Set-Tops* (on page 35).

5

How to Stage IP Set-Tops

Introduction

This chapter provides procedures for staging set-tops along with procedures for verifying the staging process.

In This Chapter

■ Overview	36
■ IP Set-Top Staging Flowchart.....	37
■ Staging IP Set-Tops with Services	38

Overview

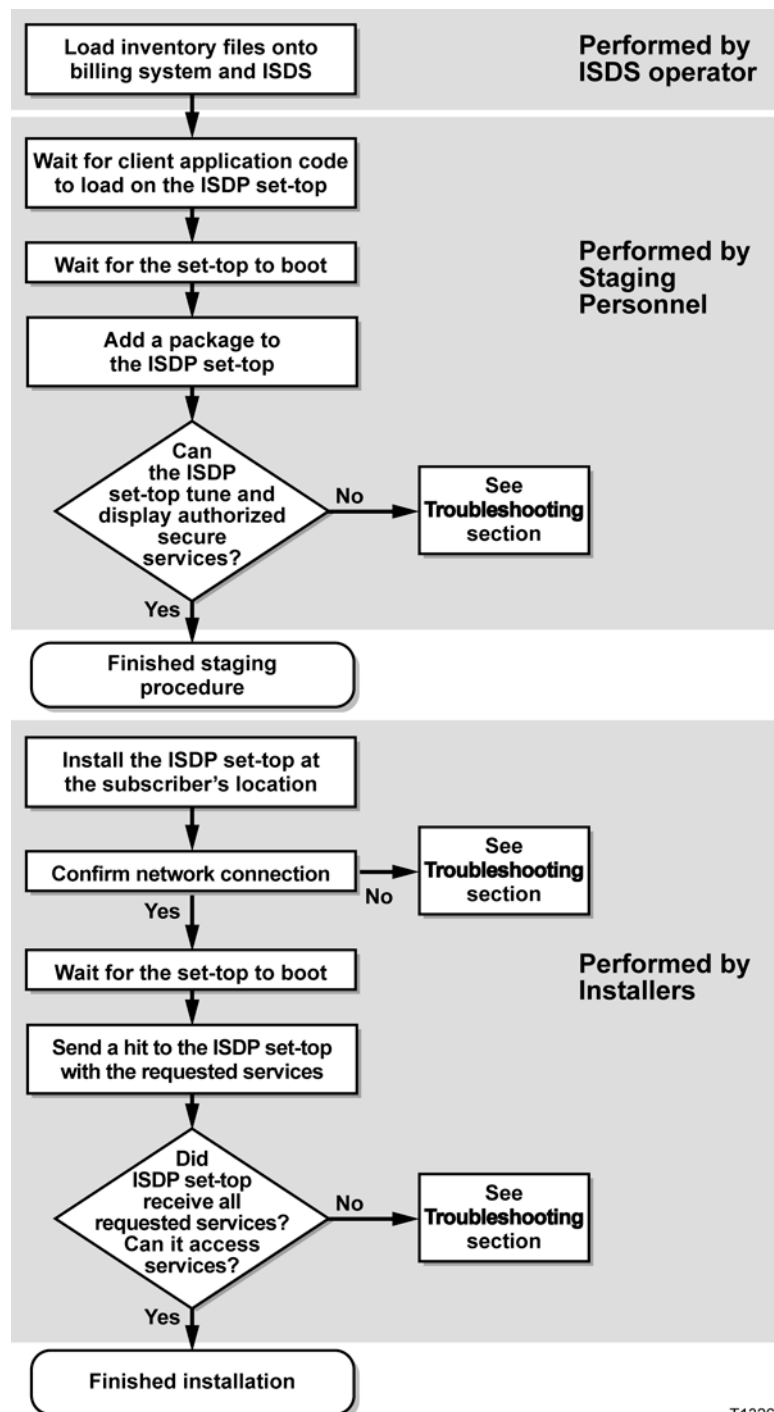
This section contains procedures for staging area personnel to stage set-tops.

When staging area personnel stage a set-top, the result is a fully-staged set-top that is set up with the current client software and some level of authorization for services. See *Staging IP Set-Tops with Services* (on page 38) for more information on fully staging a set-top.

Important: Some billing systems automatically send authorization transactions (hits) to set-tops when you scan the bar code and/or when you move the set-top from inventory to a technician's account in the billing system. If your billing system sends authorization transactions to set-tops when you scan the bar code, make sure that the set-tops are connected to the ISDS network and have already downloaded software before you scan the set-tops into the billing system.

IP Set-Top Staging Flowchart

The following flowchart illustrates the set-top staging process.



T13263

Staging IP Set-Tops with Services

Follow these steps to stage new or RMA set-tops.

- 1 Unpack the set-tops you want to stage.
- 2 Place the set-tops on the staging rack.
- 3 Connect the **Network** port to the network.
- 4 Connect the set-tops to AC power. The set-top downloads the client application software from the ISDS.
- 5 Wait for the set-tops to indicate that the download is complete. (Network LED is lit and the power LED is not flashing.)

Note: The set-top may reboot 2 or 3 times before it is ready for us.

- 6 Scan the set-tops into the billing system using the appropriate procedures authorized by your billing system vendor.
- 7 From the billing system, send a “hit” to the ISDS to place the set-tops in service with at least one package and with DIS and DMS enabled.
- 8 Connect each set-top to a TV monitor and verify the following:
 - Receipt of authorized channels
 - DVR functionality (if applicable)
- 9 Does your business process require inventory set-tops to be authorized for service?
 - If **yes**, go to step 10.
 - If **no**, downgrade (disable) the set-tops in accordance with your site’s process; then, go to step 10.
- 10 Disconnect the set-tops and either return them as staged inventory to your warehouse or give them to technicians to install at the subscribers’ locations.

6

Returning IP Set-Tops to Service

Introduction

This chapter contains procedures that staging area personnel must perform to stage set-tops that have already been returned from service (RMA and field-return set-tops). These procedures are necessary for a set-top to be returned successfully to the field. These procedures also include procedures for clearing previously stored information from the set-top.

In This Chapter

- Clear User Settings..... 40

Clear User Settings

Before a returned set-top can be given to a new customer, the user settings on the set-top should be returned to factory defaults. This section provides two procedures for accomplishing this task. One procedure is done in the staging area and requires access to the ISDS. The other procedure can be performed from the billing system as long as the set-top is connected to the network.

ISDS-Based NVM Reset

- 1 Connect the set-tops to the network and then to AC power.
- 2 Create a text file on the ISDS with the MAC address of each set-top that you want to reset. The file format is simply one MAC address per set-top.

Example:

00:22:CE:91:00:01

00:22:CE:91:00:02

- 3 From an xterm window on the ISDS, type in the following command where {filename} is the name of the text file containing the MAC addresses you want to reset:

IIH -r {filename}

Note: To reset a single set-top, type the following command:

IIH -r [MAC address of set-top]

Billing System Initiated Reset

- 1 Connect the set-top to the network and allow it to fully boot. The link LED will be illuminated and all other LEDs will be off.
- 2 From the billing system, send a **ResetClientNVM** transaction command.

7

Troubleshooting

Introduction

This chapter provides suggestions for troubleshooting set-tops that fail the staging process. It also contains general troubleshooting guidelines.

Suggested solutions are also included; however, in some instances, it may be necessary to contact the representative who handles your account. Refer to *Customer Information* (on page 45) for contact information.

In This Chapter

- Staging Failures..... 42
- Send an Instant Hit 43

Staging Failures

In the unlikely event that a set-top fails to stage, the tables in this chapter provide the following troubleshooting information:

- The source of the staging failure, including symptoms
- Possible solutions for the failure

Refer to the tables in this chapter to troubleshoot problems before returning a set-top to us. Identify the problem or symptom and try the possible solutions offered.

If the condition persists, or if the symptom is not identified in this chapter, see *Customer Information* (on page 45) for information on returning products for repair.

General Guidelines

Follow these general guidelines as you troubleshoot set-tops.

- Compare the performance of a suspected failed set-top to a known good set-top of the same type and revision using the same network connection.
- Always make sure that the set-tops are connected correctly before you determine whether the set-top is defective.
- Make sure that you use the correct download method for your site's frequency plan and for the set-tops that your subscribers use.
- If you must return a set-top for repair, always use a repair tag to properly identify the problem. You can fill out and submit a repair tag (RMA form) on our customer self-service website. See *Customer Information* (on page 45) for instructions to access the customer self-service website.
- When staging IPN603 set-tops, make sure that the antenna for the RF remotes is connected and that the TV is connect to the **To Wall** output.

Send an Instant Hit

Sometimes, when you stage a set-top, it may fail to stage correctly. When this occurs, you might need to send an instant hit to the set-top. This section provides the procedure for sending an instant hit to a set-top.

Important: This procedure only applies to set-tops using PowerKEY® conditional access.

Sending an Instant Hit to a Set-Top

- 1 From the ISDS Administrative Console, click the **ISDS** tab, and then select **Home Element Provisioning**.
- 2 Click **DHCT**. The DHCT Provisioning Screen opens.
- 3 On the DHCT Provisioning screen, select **Open**.
- 4 Enter the **MAC Address** or **serial number** of the set-top and click **Continue**. The Set Up DHCT screen opens.
- 5 From the Set Up DHCT screen, click the **Secure Services** tab.
- 6 Click **DHCT Instant Hit**.

8

Customer 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.

Access your company's extranet site to view or order additional technical publications. For accessing instructions, contact the representative who handles your account. Check your extranet site often as the information is updated frequently.

A

Download LED Indicators

Introduction

This appendix contains explanations of what the front panel LED displays on the Cisco IP set-tops mean. It also contains examples of the front panel LED displays, TV screen sequences, and POWER LED flash codes that might appear during set-top software downloads.

In This Appendix

■ LED Indicators.....	48
■ LED Indicators Displayed During Boot Sequence	52
■ Boot Sequence Error Display Codes.....	53
■ LED Indicators Displayed During 2 nd Stage Bootloader.....	54

LED Indicators

The LED indicators on Cisco IP set-tops display blinking patterns associated with downloading, installing, and booting into the client application software.

Cisco set-tops with front-panel LED indicators display the blinking patterns associated with downloading, installing, and booting into the client application software. You must observe these blinking patterns carefully.

CIS330HD



CIS430



CIS2000



CIS5xxx



IPN603MCG



LED Indicators Displayed During Boot Sequence

The following table shows an example of front panel LED boot sequence blinking patterns that appear after AC power is applied to the set-top or after the set-top is rebooted.

Note: Times are approximate and vary based on image size and download rate.

●=On ○=Off ◎=Fast Blink ⊙= Blink

Time Elapsed (Approx)	Pwr LED	Link LED	HD LED	REC LED	Status
2 sec	○	○	○	○	Power on / reset
1 sec	◎	●	●	●	All on
< 1 sec	◎	○	○	○	Begin bootloader startup
5 sec	◎	○	○	○	Power-on self-test / check flash CRCs
2 sec	◎	○	○	○	Begin DHCP / network activity
1 sec	◎	●	○	○	IP address acquired
1 sec	◎	●	○		Downloading directory
Typically 5 to 10 minutes	◎	●	○	◎	Downloading update image
10 sec	◎	●	○	◎	Integrity and authentication check
10 sec	◎	●	○	◎	Erasing flash
20 sec	◎	●	○	◎	Writing flash
n/a	◎	●	○	○	Flash write complete
20 sec	●	●	○	○	Authentication check
n/a	○	●	○	○	Control passing to next stage (Link LED is actual link state)
n/a	◎	◎	◎	◎	Hard-error (non-recoverable)
n/a	◎	◎	◎	●	Soft-error (recoverable, will reboot)

Notes:

- When complete, the **Power** LED goes off for a long period of time.
- The stages shown in the shaded rows are only performed when downloading updates.

Boot Sequence Error Display Codes

When the Stage 1 bootloader fails, a blink pattern is displayed on the LEDs.

For hard errors, which are non-recoverable errors (e.g. DRAM test fail, flash write fail), all LEDs blink.

For soft errors, which are recoverable with a new download, all LEDs blink except the REC LED which remains on.

The following table shows the various errors and corresponding codes:

●=On ⊙= Blinking

Blink-Pattern				Failure
Pwr	Link	HD	REC	
⊙	⊙	⊙	●	Internal bootloader error
⊙	⊙	⊙	●	Could not find next-stage image to launch
⊙	⊙	⊙	●	Next-stage image is corrupt
⊙	⊙	⊙	⊙	DRAM test failed
⊙	⊙	⊙	⊙	Locked-Objects table corrupt (should be R/O)
⊙	⊙	⊙	⊙	KeyCerts table corrupt (should be R/O)
⊙	⊙	⊙	⊙	Platform section corrupt (should be R/O)
⊙	⊙	⊙	⊙	Identity section corrupt (should be R/O)
⊙	⊙	⊙	⊙	Flash write failure
⊙	⊙	⊙	⊙	Flash type incompatible

LED Indicators Displayed During 2nd Stage Bootloader

The following table shows an example of front panel LED boot sequence blinking patterns that appear during 2nd stage bootloader.

Note: Times are approximate and vary based on image size and download rate.

●=On ○=Off ◎=Fast Blink ◉=Blink

Approx Elapsed	Pwr LED	Link LED	HD LED	REC LED	Status
2 sec	○	○	○	○	Power on / reset
1 sec	◉	●	●	●	All on
< 1 sec	◉	○	○	○	Begin bootloader startup
5 sec	◉	○	○	○	Power-on self-test / check flash CRCs
1 sec	◉	●	○	○	IP address acquired
1 sec	◉	●	○		Downloading directory
? sec	◉	●	○	◉	Downloading update image
? sec	◉	●	○	◉	Integrity and authentication check
? sec	◉	●	○	◎	Erasing flash
? sec	◉	●	○	◎	Writing flash
n/a	◉	●	○	○	Flash write complete
? sec	●	●	○	○	Authentication check
n/a	○	●	○	○	Control passing to next stage (Link LED is actual link state)
n/a	◉	◉	◉	◉	Hard-error (non-recoverable)
n/a	◉	◉	◉	●	Soft-error (recoverable, will reboot)

Note: When complete, the **Power** LED goes off for a long period of time.

B

Button Sequence for IP Set-Top Functions

Introduction

Cisco set-tops have button sequences you can use to force behavior in certain situations. The table in this appendix details several of these button sequences in alphanumeric LED-equipped set-tops.

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■ Button Sequences	54
--------------------------	----

Button Sequences

The following table details the button sequences you can use on set-tops to force certain behavior.

Function	Action
Temporarily stop the set-top from 'hunting'	Press the POWER button during the hunt
Force a hunt when the set-top boots	Press the POWER and SELECT buttons at the same time until the hunt begins.
Show diagnostic screens	Press the OK button until the HD LED blinks and then press the down arrow.



Accessing the Customer Self-Service Application

Introduction

Our Customer Self-Service Application lets customers retrieve inventory files and determine the warranty status for set-tops purchased directly from us.

This appendix details the process of accessing our Customer Self-Service Application and downloading the appropriate set-top inventory files from the application.

In This Appendix

- Access Customer Self-Service 56

Access Customer Self-Service

Our Customer Self-Service Application at www.cisco.com is an e-business website that allows 24-hour access to order information, and much more.

The Serial Number Tracking Module of our Customer Self-Service Application lets you retrieve IP set-top inventory files for recent set-top shipments and also to find the warranty status for set-tops. This application is based on units associated with the established Ship-To identity of the customer representative. This linkage prevents unauthorized personnel from accessing data about your purchases.

Before You Begin

You must obtain the following from us before you can access the Customer Self-Service Application:

- UserID
- Password
- Sold-To identity
- Ship-To identity

In addition, you must have at least *one* of the following items available:

- Sales Document Number
- Delivery Document Number
- Customer Purchase Order Number
- Pallet Identity for the set-top(s)
- Serial Number of the set-top

What Data is Available

The following data is available from the Customer Self-Service application:

- Set-top inventory files from production shipments
- Set-top inventory files from RMA shipments

Available set-top inventory data includes recent inventory files for Cisco set-tops. The data consists of TAR files (the UNIX equivalent of a ZIP file). These files are the archived copies of inventory file distribution CDs or electronic distribution files. The inventory files included in the TAR file are the same as inventory files included with the original distribution of the delivery.

Notes:

- Information is currently available for *all* deliveries of Cisco set-tops after July 1, 2002
- Some data is available for inventory files delivered after January 1, 2001
- Information is not available for deliveries prior to January 1, 2002
- Current warranty status is available for each Cisco set-top serial number
- On-Demand Inventory File Generation–Inventory TAR files can be created “on-demand” for those Cisco set-tops for which the inventory file is already available in the Cisco inventory file database. For most Cisco set-tops shipped after January 1, 2002, those that have been shipped to the customer are available.
Note: While a Cisco set-top is in the factory for repair, the inventory for that set-top will not be available for download. When the set-top is shipped back to the customer, the inventory file is available for download. Inventory files are *only* available for the customer (service provider) to which the set-top was shipped.
- Set-Top Warranty Data–Set-top warranty information may also be retrieved using this application. The information is available by referencing the serial number of the set-top.

What Data is Not Available

Data is not available if a unit is registered to another service provider, to a Ship-To location not within the profile of the requester, or if the unit is not manufactured by us.

Accessing the Site

Access the Customer Self-Service Application through our website (www.cisco.com). Access the site through the Service Provider Support section, within the menu system under Customer Self-Service Suite.

Note: The screen shots in this section are based on a Windows environment.

Follow these steps to log in to Customer Self-Service.

- 1 Log on to www.cisco.com using your web browser.
- 2 In the **Service Provider Support** section, click **Customer Self Service Suite**. The Customer Self-Service page opens.

Note: If your web browser is set to block pop-up windows, you will not be able to access the Customer Self-Service login screen. Change your Internet Options settings to allow pop-up windows, close your web browser, and launch it again. You should be able to access the site after allowing pop-up windows.

Appendix C

Accessing the Customer Self-Service Application

CISCO Service Provider Video Technology Group Customer Self-Service

With Scientific-Atlanta's Customer Self-Service Suite, customers can access the information they want and need on a real-time basis!

- **Order Tracker** - Provides real-time status of your orders, packing slips, proof of delivery and invoices.
- **Account Tracker** - Displays your account status, identifies open invoices and lets you view and print billing documents.
- **On-Line Pricing** - Includes all the pricing information you need for purchase requisitions, allows you to search for pricing by part number or browse full product line price lists.
- **Serial Number Tracker** - Streamlines set-top authorization and helps protect your valuable programming from unauthorized access.

Scientific-Atlanta's Customer Self-Service Suite is available to qualified Customers.

[Sign Up Today!](#)
[RMA Request Form](#) [Request Repair Exchange Report](#)
[Order Repair Tags](#) [Request Repair Statistics Report](#)

If you already have a customer userID and password, type below to enter the self-serve area.

User ID:
 Password:
* Password is case-sensitive

Scientific-Atlanta's Customer Self Service Suite is unavailable every Saturday and Sunday from 2:00 a.m. to 6:00 a.m. for scheduled maintenance.

- 3 In the Customer Self-Service login window, enter the UserID and Password you received from us and click **Login**. The Sales Document Selection window opens.

Important: Based upon your specific user profile, other applications may be available to you. This procedure focuses only on the Serial Number Tracking module.

CISCO Service Provider Video Technology Group Customer Self-Service

Order Tracker **Account Tracker** **On-Line Pricing** **Serial Number Tracking** **Security** **Contact Us** **Logoff**

Sales Document Selection

Sold To: *

Ship To: *

*Required Fields (You must make a selection in at least one of the customer lists above.)

Sales Doc No: * Purchase Order No: *

Deliv Doc No: * Material No: *

Date From: Date To:

* Input required in at least one of these fields.

Date must be entered in format: MM/DD/YYYY

- 4 In the Sales Document Selection window, click **Serial Number Tracking**. The Serial Number Selection window opens.

Software Version: 1.0.3181.4

CISCO Service Provider Video Technology Group Customer Self-Service

Order Tracker Account Tracker On-Line Pricing **Serial Number Tracking** Security Contact Us Logoff

Search Create File Third Party/SA EMM-Key

Serial Number Selection

Sold To: *

*Required Fields

Purchase Order No: *

Sales Document: *

Deliv Doc No: *

*Input required in at least one of these fields.

Pallet ID: *

Serial Number: *

Browse...

Please make your inquiry as specific as possible by using Pallet ID or Serial Number. Less specific inquiries may time-out due to the large amount of data which must be retrieved. **Go**

Please enter a single serial no or upload a text file with multiple serial nos, one serial no per line, and click the warranty icon to retrieve the warranty info. **Warranty**

- 5 Click **Search** to begin a search for available inventory files. The Serial Number Selection window opens displaying fields for typing input search criteria.

Software Version: 1.0.3181.4

CISCO Service Provider Video Technology Group Customer Self-Service

Order Tracker Account Tracker On-Line Pricing **Serial Number Tracking** Security Contact Us Logoff

Search Create File Third Party/SA EMM-Key

Serial Number Selection

Sold To: *

*Required Fields

Purchase Order No: *

Sales Document: *

Deliv Doc No: *

*Input required in at least one of these fields.

Pallet ID: *

Serial Number: *

Browse...

Please make your inquiry as specific as possible by using Pallet ID or Serial Number. Less specific inquiries may time-out due to the large amount of data which must be retrieved. **Go**

Please enter a single serial no or upload a text file with multiple serial nos, one serial no per line, and click the warranty icon to retrieve the warranty info. **Warranty**

- 6 Enter the correct information in the “required” fields [fields marked with an asterisk (*)].

Important: For each inventory file information retrieval requested, you *must* enter the required information.

Note: To retrieve inventory file information, you must enter a *minimum* of *two* data elements in the appropriate fields of the Input Search Criteria area of the Serial Number Selection window.

- 7 Next, you must enter at least *one* of the secondary criteria for inventory file selection. These identification criteria apply to the set-top shipment within which the set-top was delivered to the customer. These items are described as follows:
 - Purchase Order Number: Customer Purchase Order Number
 - Sales Doc No: Cisco Sales Document
 - Deliv Doc No: Cisco Delivery Document Number
 - Pallet ID: Cisco Pallet Identity for the set-tops (Only one Pallet ID may be entered as a search criteria)
 - Serial Number: The set-top Serial Number

Important: Only one serial number may be entered as search criteria.
 - 8 After entering the necessary selection criteria, click **Go**. If your User ID is authorized to review the data associated with the request criteria, a window opens identifying any inventory file deliveries that may be available to you online.
- Note:** If you are not authorized to view inventory file data for units satisfying your request criteria, a NOTHING_FOUND dialog box displays.



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