Understanding Diagnostic Screens for Cisco Videoscape Voyager Vantage

Implementation Design 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.

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About This Guide

Introduction

We understand the need for providing quick and accurate responses to network users, and we strive to provide tools to make this task easier. The diagnostic screens for Cisco Videoscape™ Voyager Vantage set-tops are a quick way that you can monitor and diagnose performance relative to the system.

This guide describes the diagnostic screens included with the software for these set-tops when they are operating in a Videoscape Voyager Vantage environment.

Important: The diagnostic screens associated with the CableCARD™ module (if used) are not described in this document. If you are using an CableCARD module, please consult the documentation associated with that card for further information.

Purpose

After reading this guide, you will be able to use the diagnostic screens to help identify and evaluate status and information for the set-tops in your system. The following list includes some of the tasks you can perform using the diagnostic screens:

- Determine the Vantage software version that is currently installed and running
- Confirm the tuning mode
- Verify encrypted and unencrypted modes
- View the Host Bootloader Information diagnostic screen to help determine the status of the Bootloader upgrade
- Examine the software components installed on your set-top
- Verify the host ID number
- Verify the ECM and EMM counts
- Determine if there has been a decryption failure, and if so, when it occurred

Audience

This guide is written for network operators and personnel who have experience with accessing the diagnostic screens for Vantage set-tops.

Document Version

This is the first formal release of this document.

1

Understanding Diagnostic Screens in the Vantage Environment

Introduction

Cisco set-tops include diagnostic screens based on the Vantage middleware.

To view the information within the diagnostic screens, you must know how to access them. This section provides instructions to help you access and navigate the diagnostic screens.

In This Chapter

View Diagnostic Screens

Accessing Vantage Diagnostic Screens

You can access the diagnostic screens using either the front panel buttons or the remote control.

Using the Front Panel Buttons

1. Press and hold the **VOL+** and **INFO** buttons (on the set-top) simultaneously until the first page in the series of diagnostic screens appears.
2. To navigate to the next diagnostic screen, press the **VOL+** button on the set-top front panel. To navigate to the previous screen, press the **VOL–** button on the set-top front panel.
3. To change menu categories, press the **CH+** button (next) or the **CH–** button (previous) on the set-top front panel.
4. To return to the previous menu, press the **INFO** button on the set-top front panel.

Using the Remote Control

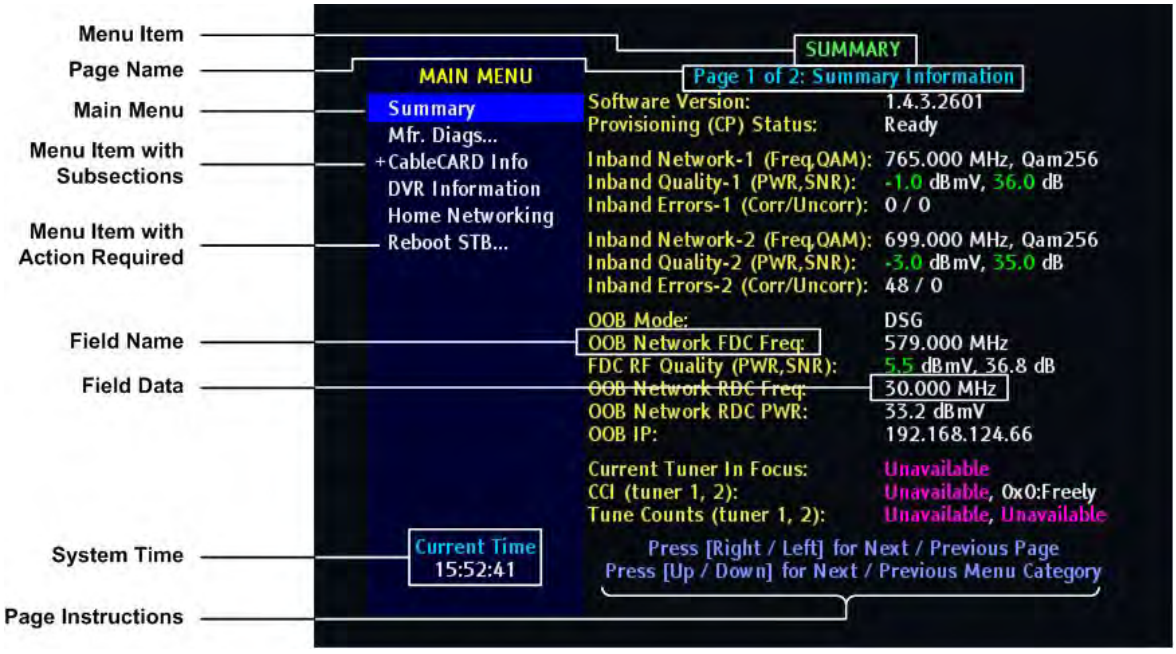
Complete these steps to access the diagnostic screens using the remote control.

1. Press and hold the **EXIT** key for about two seconds until the POWER LED on the front panel of the set-top blinks.
2. In a rapid succession, press the **DOWN** button twice, then press the number **2**. The diagnostic screens appear on the screen.
3. To navigate to the next diagnostic screen, press the **RIGHT ARROW** button on the remote control. To navigate to the previous screen, press the **LEFT ARROW** button on the remote control.
4. To change menu categories, press the **DOWN ARROW** button (next) or the **UP ARROW** button (previous) on the remote control.
5. To return to the previous menu, press the **BACK/LAST** button on the remote control.

Identifying Information in Vantage Diagnostic Screens

This section helps you to locate information within the Vantage diagnostic screens. The following example shows the components of an Vantage diagnostic screen.

Note: This screen is for illustrative purposes only.



Vantage Diagnostic Page Transparency

You can set the transparency level of the diagnostic pages so that you can still see the video behind the diagnostic page displayed. This can be helpful when you troubleshoot.

You can change the transparency level of the video using either the set-top front panel or the remote control.

Press the **Guide** button to toggle between the different transparency levels (0%, 25%, 50%, 100%).

Exit Diagnostic Screens

To exit the diagnostic screens, press the **Exit** button on the front panel of the set-top or on the remote. The diagnostic screens also will time out after about five minutes if there is no user action.

Reboot the Set-Top

Follow these instructions to reboot the set-top. It is not necessary to have the diagnostic pages open to reboot the set-top.

Press the **POWER**, **SELECT**, and **GUIDE** buttons on the front panel of the set-top at the same time.

Note: You can also reboot the set-top from the diagnostics pages. See ***Rebooting the Set-Top from the Screen*** (on page 207) for more information.

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Summary Screens

Introduction

This chapter provides an overview of the Summary Information and Error Summary diagnostic screens.

In This Chapter

Summary Information Screen

This section provides an overview diagram and field descriptions of the Summary Information diagnostic screen. You can view this screen to obtain information concerning the status of the system initialization, system description, and boot status.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Determine the current middleware software version and provisioning status
- Verify the inband (IB) and out-of-band (OOB) network parameters
- Determine the current tuner in focus
- Determine whether the inband PAT, PMT, and OC are experiencing timeouts
- Determine whether the OOB OC is experiencing timeouts
- Determine whether inband tuner failures exist

Screen Components

Main Menu > Summary > Page 1

Note: Some of the field values might change based on the middleware displaying the field.

Field Names	Description	Possible Values
Firmware Version, Date	The version for the set-top firmware and date it was installed	■ **[Device-dependent]** **Example:** 3.0.6.118 Fri Apr 8 2011, 7:41:54 PM GMT
CP Status	The current status of the CableCARD/host authentication (binding)	■ **Ready**—authorization has been received from the headend by the card/Host pair and the authentication and binding are complete ■ **Not Ready**—waiting for authorization or authorization failed ■ **n/a**—failure or no CableCARD module detected
CA Status	Status of the conditional access for the set-top	Displays one of the following values: ■ **OK** ■ **Not Staged** ■ **Not Initialized** ■ **Not Authorized** ■ **CA Comm Error** ■ **Channel Error** ■ **Other CA Error** ■ **CA Unknown Error**
InBand Network		
Tuner-1/Tuner-2	Displays the Frequency, Modulation, Power levels, SNR (Signal-to-Noise ratio), and whether the carrier is locked for tuner 1 and tuner 2 as described below **Note:** If there is not a second tuner in the device, the screen displays **n/a** for all Tuner-2 fields	
Frequency (MHz)	The frequency (freq) in which each inband tuner is tuned (MHz)	■ **[Dependent upon setting]**
Modulation	The current QAM modulation mode of each inband tuner	■ **[QAM-dependent]** **Example:** ■ **QAM-64** ■ **QAM-256** ■ **Analog** ■ **Other**

Field Names	Description	Possible Values
Power (dBmV)	The approximate received signal level (PWR, in dBmV) at each tuner	■ **[Hardware-specific]** • **value displayed in white**—signal level is nominal • **value displayed in amber**—signal level is between –12 and –15dBmV or between +12 and +15dBmV • **value displayed in red**—signal level is either lower than –15dBmV or higher than +15dBmV ■ **n/a**—not applicable on this set-top
SNR (dB)	The signal-to-noise ratio (SNR, in dB) for applicable QAM data channels for each tuner	■ **[Hardware-specific]** • **value displayed in white**—signal level is nominal • **value displayed in red**—signal level is unacceptably too high or too low: – **64 QAM**—signal level is lower than 25dB – **256 QAM**—power level is either between –10 and –15dBmV and SNR is less than 36dB or power level is between –10 and +15dBmV and SNR is less than 33dB ■ **n/a**—not applicable on this DHCT
Carrier Lock	Displays whether the tuner is locked to a QAM carrier	■ **Locked**—tuner is locked to a carrier ■ **Unlocked**—tuner is not locked to a carrier
Power Status	Not applicable for Vantage	■ **n/a**
Boot Status	Not applicable for Vantage	■ **n/a**

Field Names	Description	Possible Values
Firmware D/L Status	The status of the firmware download process	■ **Succeeded—**the download process succeeded ■ **Failed**—the set-top was unable to complete the download ■ **MaxRetry Reached**—the maximum number of retries was reached in the download process ■ **None**—the download process is not active ■ **Deferred**—the set-top acknowledges that the download is deferred ■ **InProgress**—the download is in progress ■ **Cancelled**—the set-top acknowledges that the download was canceled ■ **Aborted**—the set-top acknowledges that the download was aborted ■ **Complete**—the set-top acknowledges that the download is complete ■ **Deferred Expired**—the set-top notifies DLSS that the deferral period has expired

Error Summary Screen

This section provides an overview diagram and field descriptions of the Error Summary diagnostic screen.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Determine whether the inband PAT, PMT, and OC are experiencing timeouts
- Determine whether the OOB OC is experiencing timeouts
- Determine whether inband tuner failures exist

Screen Components

Main Menu > Summary > Page 2

Field Names	Description	Possible Values
Application Signaling	Not applicable for Vantage	■ **n/a**
PAT, PMT Timeouts	Displays errors resulting from reading the Program Association Table (PAT) and the Program Map Table (PMT)	■ **Integer ≥ 0, Integer ≥ 0** **Example: 0,0**
IB, OOB OC Timeouts	Displays the number of inband object carousel (IB) and out-of-band object carousel (OOB) timeouts	■ **Integer ≥ 0, Integer ≥ 0** **Example: 0,0**
InBand Network	Displays the Failed Tune Count and Last Failed Frequency for each of the two set-top tuners	
Failed Tune Count	Displays the number of tuning errors that have occurred since the last host boot cycle for each of the tuners	■ **Integer ≥ 0**
Last Failed Freq	The last frequency (in MHz) that each InBand tuner failed to tune	Possible values: ■ **[Integer > 0] MHz**—the last frequency that failed to tune since the last host boot cycle ■ **N/A**—a tuning error has not occurred since the last host boot cycle

3

Manufacturer Diagnostics

Introduction

This chapter provides an overview of the Manufacturer Diags diagnostic screens.

In This Chapter

Host Status Summary Diagnostic Screen

This section provides an overview diagram and field descriptions of the Host Status Summary diagnostic screen. You can view this screen to obtain information concerning the status of the system initialization, system description, boot status, and clocks.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Verify the current status of the boot process
- Verify the system information
- Check the amount of available memory
- Check when the DHCT was last booted and if it is receiving the correct time

Screen Components

Main Menu > Manufacturer Diag > Summary

Field Name	Description	Possible Values
Initialization		
HOST SN	The serial number of the host	■ **Hardware-dependent value**
CableCARD	The status of the CableCARD module	■ **AmsReady**—The CableCARD module has completed the boot process. ■ **AmsNotReady**—The CableCARD module has not completed the boot process. ■ **AmsReset**—The CableCARD module has been reset. ■ **AmsRemoved**—The CableCARD module has been removed from the host. ■ **AmsFailed**—The CableCARD host has failed. ■ **UnknownHoming**—If you see this indicator, contact Cisco Services.
UNConfig	The boot process for the User-to-Network configuration (UNconfig)	■ **B'cast only**—global broadcast message received and DHCT is in one-way mode. ■ **Ready**—an individually addressed configuration message received. ■ **Searching**—no UNCfg message received.
OOB Mode	The out-of-band (OOB) mode	■ **DAVIC** ■ **DOCISIS** ■ **UNCONFIG**
System Description		
HW Rev	The version of hardware for the host	■ **[Hardware-dependent value]**
SW Rev	The version of the resident application	■ **[Hardware-dependent value]**
BOOTR	The version of the host bootloader	■ **[Software-dependent]** ■ **Example:** 2.5
Model	The model number of the host	■ **[Hardware-dependent value]**

Field Name	Description	Possible Values
Memory Usage (KB)		
System Heap	Overall memory available to the porting layer	■ **[Hardware-dependent values]**
Video Heap	Memory that is initialized when video begins streaming	■ **[Hardware-dependent values]**
Total	The total amount of memory assigned	■ **[Integer ≥ 0]**
Free	The amount of free memory available	■ **[Integer ≥ 0]**
Clocks		
SysUpTime	The amount of time elapsed since the tru2way system last booted **Note:** The hexadecimal format for the time is shown in parenthesis	■ **[Days, Hours, Minutes, Seconds]**
Booted	The date and time that the Explorer DHCT last booted **Note:** The hexadecimal format for the date and time is shown in parenthesis	■ **[Date, Time]**
Current	The current date and time **Note:** The hexadecimal format for the date and time is shown in parenthesis	■ **[Date, Time]**
RcvdSysTime		■
UpdTime/Delta		■
CPU/Bus Speed	The speed, in megahertz (MHz), at which the microprocessor and data bus are running	■ **[Hardware-dependent]**
Ev Pool	The number events available in the event pool of the OS	■ **[Integer > 0]**

Host Bootloader Information Diagnostic Screen

This section provides an overview diagram and field descriptions of the Host Bootloader Information diagnostic screen. Bootloader is a factory program loaded into the DHCTs to ensure reliable upgrades. You can view this screen to confirm the status of the Bootloader.

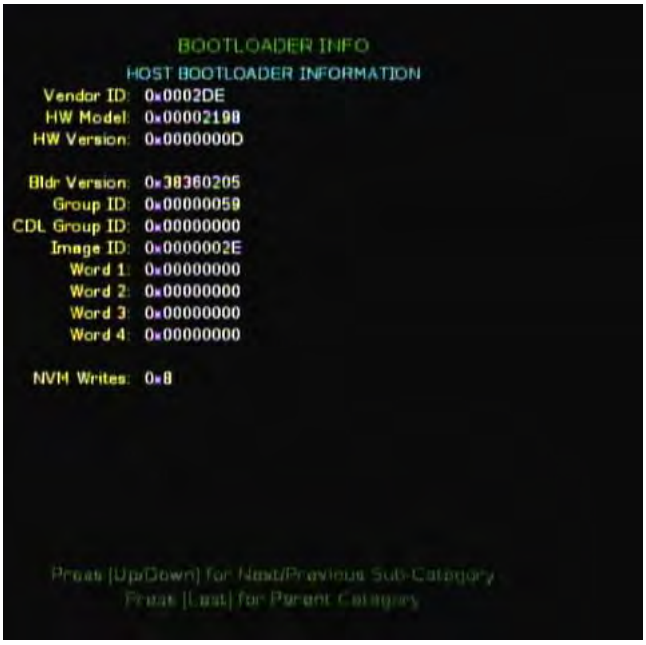
Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Determine the version number of the PowerTV Bootloader
- Verify the vendor ID for the manufacturer of the DHCT
- Determine the identification number of the FLASH ROM image
- Determine the code version table (CVT) download group for the DHCT

Screen Components

Main Menu > Manufacturer Diag > Bootloader Info



Notes:

- If **na** appears in all of the fields, then the Bootloader application has not been loaded on that set-top.
- The Bldr Version Group ID, Image ID, Word, and NVM Writes fields are CVT-only fields.
- In the Word fields, resource descriptors are used to validate that new software can be used by the set-top and, therefore, help prevent bad code from being loaded onto the set-top.

Field Name	Description	Possible Values
Vendor ID	The vendor number defined by the manufacturer for the DHCT (hexadecimal format)	■ **[Manufacturer-dependent]—**the first 6 digits of the set-top MAC address ■ **na—**Bootloader not loaded
HW Model	The hardware model for the DHCT (hexadecimal format)	■ **[Hardware model-dependent]** ■ **na—**Bootloader not loaded
HW Version	The version number of the hardware model (hexadecimal format)	■ **[Hardware model-dependent]** ■ **na—**Bootloader not loaded
Bldr Version	The software version for the PowerTV Bootloader (hexadecimal format)	■ **[Software-dependent]** ■ **na—**Bootloader not loaded
Group ID	The CVT group to which the DHCT belongs	■ **0x00000000—**default group ID ■ **0x00000xxx—**"xxx" are three numeric values ■ **na—**DHCT does not support CVT download
CDL Group ID	The Common Download Group to which the DHCT belongs	■ **0x00000000—**default group ID ■ **0x000000xx—**"xx" are two numeric values ■ **na—**DHCT does not support CVT download
Image ID	The bootloader image ID	■ **[Hexadecimal Image ID]** ■ **0x00000000—**default image ID ■ **0x000000xx—**"xx" are two numeric values ■ **na—**Bootloader image not loaded
Word 1	The first word of the resource descriptor	■ **[Text]—**hexadecimal format

Field Name	Description	Possible Values
Word 2	The second word of the resource descriptor	■ **[Text]—**hexadecimal format
Word 3	The third word of the resource descriptor	■ **[Text]—**hexadecimal format
Word 4	The fourth word of the resource descriptor	■ **[Text]—**hexadecimal format
NVM Writes	The number of writes to the non-volatile memory (NVM) since the DHCT last booted	■ **[Integer > 0]** ■ **n/a—**Bootloader not loaded

Host Component Information Diagnostic Screen

This section provides an overview diagram and field descriptions of the Host Component Information diagnostic screen. You can view this screen to verify the software and driver versions installed on the DHCT.

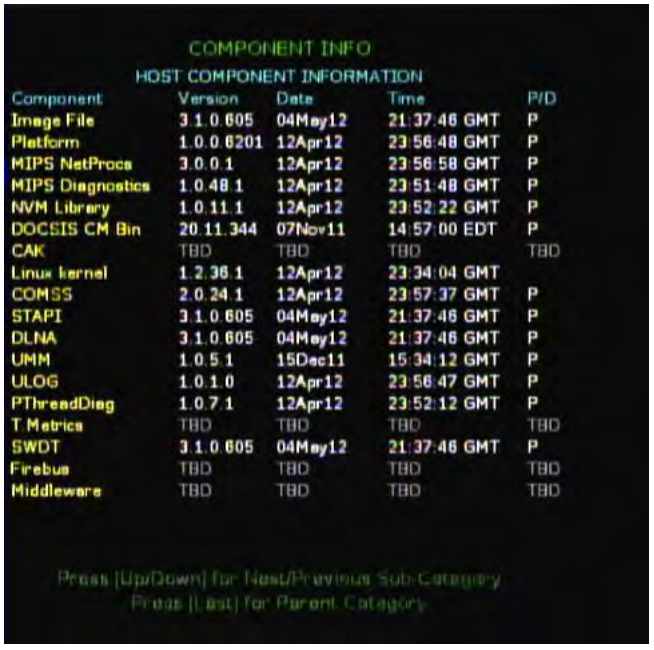
Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Verify the software and software version for each component installed on the DHCT
- Verify release status for software and driver components installed on the DHCT
- Determine when a component was created

Screen Components

Main Menu > Manufacturer Diag > Component Info



Field Name	Description	Possible Values
Component	The name of each component installed on the set-top	■ **[Component-dependent]**
Version	The version of each software component installed on the set-top	■ **[Software-dependent]** **Example:** 1.0.15.01
Date	The date each component was created	■ **[Date]** **Example:** 07Sept09
Time	The time that each component was created (GMT)	■ **[Software-dependent]** **Example:** 20:37:03 GMT
P/D	Defines the state of the software code	■ **P**—production code ■ **D**—debug code

Host QAM Status Diagnostic Screen

This section provides an overview diagram and field descriptions of the Host QAM Status diagnostic screen. You can view this screen to obtain diagnostic information for each QAM tuner.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Check the integrity of the QAM signal
- Determine the current capacity of QAM buffer
- Verify the total number of packets received since the QAM channel became active
- Determine the status of a QAM channel

Screen Components

Main Menu > Manufacturer Diag > QAM Status

Note: The following table includes the status parameters for both QAM 1 and QAM 2 because the fields, descriptions, and values are similar in definition.

Field Name	Description	Possible Values
Status	The status that indicates whether a QAM is locked or unlocked on a valid analog or QAM channel	■ **Locked**—tuner is locked ■ **Unlocked**—tuner is not locked
Frequency	The frequency (freq) in which the inband tuner is tuned (MHz)	■ **[Dependent upon setting]**
Tuning Mode	The current mode of the inband tuner	■ **QAM-64** ■ **QAM-128** ■ **QAM-256** ■ **Analog** ■ **N/A**
Level	The approximate received signal level	■ **Refer to specific hardware specifications** • **value displayed in white**—signal level is nominal • **value displayed in amber**—signal level is marginally too high or too low • **value displayed in red**—signal level is unacceptably too high or too low ■ **n/a**—not applicable on this DHCT
S/N	The signal-to-noise ratio in dBmV **Note:** This parameter is only applicable on QAM data channels	■ **Refer to specific hardware specifications** • **value displayed in white**—signal level is nominal • **value displayed in amber**—signal level is marginally too high or too low • **value displayed in red**—signal level is unacceptably too high or too low ■ **n/a**—not applicable on this DHCT
Seconds	The number of seconds that the tuner has been locked on the current frequency	■ **[Integer ≥ 0]**
Corr Bytes	The number of bytes received in error that have been successfully corrected by the FEC code	■ **[Integer ≥ 0]** **Important:** If incrementing rapidly, macroblocking or picture freezing may be present. **n/a**—not applicable on this DHCT

Field Name	Description	Possible Values
Uncor Blks	The number of data blocks received in error that were not successfully corrected by the FEC code	■ **[Integer ≥ 0]** **Important:** If incrementing rapidly, macroblocking or picture freezing may be present. **n/a**—not applicable on this DHCT
EQ Gain	The QAM equalizer gain (EQ Gain) on QAM data channel **Note:** This parameter is only applicable on QAM data channels.	■ **0.9 to 1.0** (value displayed in white)—signal level is nominal ■ **0.8 and 1.1** (value displayed in amber)—signal level is marginally too high or too low and requires you to correct the signal problem ■ **<0.8 or >1.1** (value displayed in red)—serious signal problem that needs immediate attention ■ **n/a**—not applicable on this DHCT
Err Avg/Inst	Two unique numbers that describe data errors **First Number**: the average number of errors during the time the frequency was locked **Second Number**: the number of errors since the last time the screen was refreshed	■ **[Integer ≥ 0 / Integer ≥ 0]**

Host DAVIC Status Diagnostic Screen

This section provides an overview diagram and field descriptions of the Host DAVIC Status diagnostic screen. You can view this screen to obtain statistical information about the radio frequency (RF) channels and network on your system in real-time.

Note: If the set-top is in DOCSIS mode, then the DAVIC fields will show n/a. These fields will only show content if the set-top is in DAVIC mode.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Confirm the power levels and frequencies of the FDC and the RDC
- Confirm the network parameters for the Ethernet
- Confirm the network parameters for the RF network

Screen Components

Main Menu > Manufacturer Diag > DAVIC Status

Field Name	Description	Possible Values
FDC	Shows levels in reference to the Forward Data Channel as described below	
RDC	Shows levels in reference to the Reverse Data Channel as described below	
Frequency	The frequency (Freq) of the tuned QPSK receiver	■ **[Network-dependent]** **FDC Range:** 70–130 MHz **RDC Range:** 8 to 26.5 MHz
Status	The status of the receiver in regards to receiving valid data	■ **Locked**—Receiver is locked onto a frequency with valid QPSK data ■ **Unlocked**—Receiver is not locked onto a frequency with valid QPSK data
Level	The approximate received signal level in dBmV	■ **Refer to specific hardware specifications** • **value displayed in white**—signal level is nominal • **value displayed in amber**—signal level is marginally too high or too low • **value displayed in red**—signal level is unacceptably too high or too low
Data Rate	Current data rate of the FDC/RDC in Kbps	■ **[Integer ≥ 0]**
S/N	The signal-to-noise ratio in dB	■ **Refer to specific hardware specifications** • **value displayed in white**—signal level is nominal • **value displayed in amber**—signal level is marginally too high or too low • **value displayed in red**—signal level is unacceptably too high or too low ■ **n/a**—not applicable for this DHCT
Corr Bytes	The number of corrected bytes sent or received	■ **[Integer ≥ 0]**
Un Cor Bytes	The number of uncorrected bytes sent or received	■ **[Integer ≥ 0]**
Seconds	The number of seconds that the frequency has been locked	■ **[Integer ≥ 0]**
Total Bytes	The total number of data bytes successfully read since the frequency was locked	■ **[Integer ≥ 0]**

Field Name	Description	Possible Values
Retransmission	The total number of data bytes requiring retransmission since the frequency was locked	■ **[Integer ≥ 0]**
Err Avg/Inst	Two unique numbers that describe data errors ■ **First Number**—the average number of errors during the time the frequency was locked ■ **Second Number**—the number of errors since the last time the screen was refreshed	■ **[Integer ≥ 0 / Integer ≥ 0]**
Ethernet		
MAC	The MAC address assigned to the Ethernet adapter	■ **[Hardware-dependent, unique for each Ethernet network interface]** **Example:** 00:40:7B:C0:EE:C1
IP	The IP address assigned to the Ethernet adapter	■ **[Network-dependent]** **Example:** 10.1.0.1
Subnet Mask	The IP subnet mask assigned to the Ethernet adapter	■ **[Network-dependent]** **Example:** 255.255.255.0
RF Network		
MAC	The MAC address assigned to the RF network adapter	■ **[Hardware-dependent, unique for each Ethernet network interface]** **Example:** 00:40:7B:C0:EE:C1
IP	The IP address assigned to the RF network adapter	■ **[Network-dependent]** **Example:** 10.1.0.1
Subnet Mask	The IP subnet mask assigned to the RF network	■ **[Network-dependent]** **Example:** 255.255.255.0
HUB ID	The hub to which this host is assigned	■ **[Hub-dependent]** ■ **N/A**
SNMP Mgr	Indicates if the IP address of the network management system in which it can then send Simple Network Management Protocol (SNMP) traps	■ **[Network-dependent]** **Example:** 10.1.0.1

DOCSIS Status Screens

This section provides an overview of the DOCSIS® Status diagnostic screens for DHCTs in Basic or Advanced DSG mode, including the fields and parameters that are included in the screens.

Host DOCSIS Status Diagnostic Screen

This section provides an overview diagram and field descriptions of the Host DOCSIS Status diagnostic screen.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Verify the status of the DOCSIS network operations on your system
- Verify if the DHCT is running in DSG mode
- Verify the DNCS MAC and IP addresses

Screen Components

Main Menu > Manufacturer Diag > DOCSIS Status > Host DOCSIS Status (Pages 1 & 2)

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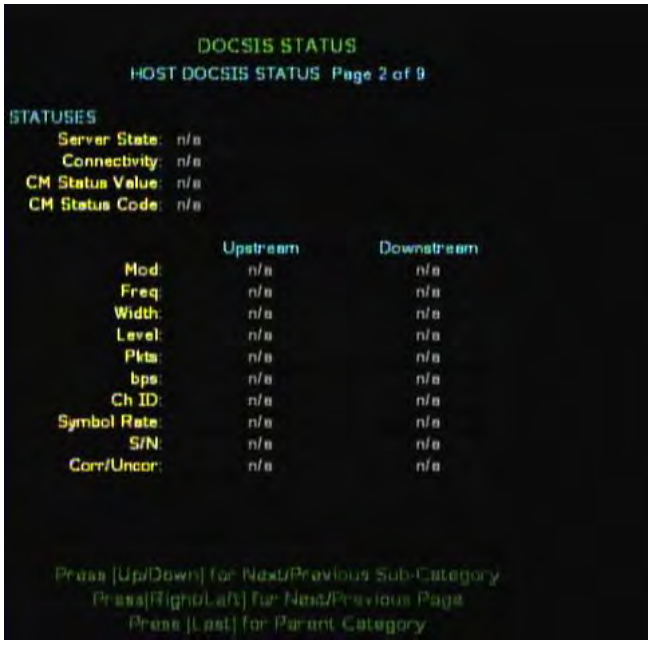


Host DOCSIS Configuration

Field Name	Description	Possible Values
Configuration		
UNConfig DCM	The status of the DHCT cable modem (DCM)	■ **DODA** ■ **DAVIC** ■ **TelcoReturn** ■ **DOCSIS** ■ **Ethernet** ■ **Unknown** ■ **DOCSISONLY** ■ **DAVICONLY** ■ **DODAONLY** ■ **EthernetOnly** ■ **DavicExpress** ■ **TelcoReturnOnly** ■ **DavicExpressOnly**
Config File	The file name that represents the configuration file	■ **[Network-dependent]**

Field Name	Description	Possible Values
OOB Source	The out-of-band source information	■ **DODA** ■ **DAVIC** ■ **TELCO** ■ **DOCSIS** ■ **DOCSISONLY** ■ **DAVICONLY** ■ **DODAONLY** ■ **Unknown**
CPE Mod ID	The identification number for the QPSK modulator	■ **[Integer > 1]**
Max CPE MACs	The maximum number of external Ethernet MAC addresses the cable modem can support plus one	■ **[Integer > 1]**
CM Bpi Privacy	Cable Modem Baseline Privacy Interface. Determines the status of privacy between the cable modem and the CMTS	■ **Enabled: 1** ■ **Enabled: 2** ■ **Enabled: 1,2** ■ **Disabled: 1** ■ **Disabled: 2** ■ **Disabled: 1,2**
Addresses		
CPE MAC	The MAC address for the cable modem host	■ **[Hardware-dependent]**
CPE IPv4	The IPv4 address for the PowerTV CPE	■ **[Network-dependent]**
CPE Lease Exp v4	The expiration date for the lease on the PowerTV CPE	■ **[Time]** YYMMDD.hhmmss format
CM MAC	The MAC address for the cable modem	■ **[Hardware-dependent]**
CM IPv4	The IPv4 address for the cable modem host	■ **[Network-dependent]**
CM IPv6	The IPv6 address for the cable modem host	■ **[Network-dependent]**

Host DOCSIS Status

Field Name	Description	Possible Values
Statuses		
Server State	The operational state of DOCSIS	■ **EstablishTOD** ■ **ImageDwnload** ■ **Inactive** ■ **ObtainingIP** ■ **Operational** ■ **Ranging** ■ **ReadingUCD** ■ **Registering** ■ **Scanning** ■ **SendingaParams** ■ **Unauthorized** ■ **Unavailable**: displays in red
Connectivity	The status of the network connectivity	■ **Inactive** ■ **Scanning** ■ **Reading UCD** ■ **Ranging** ■ **Obtaining IP** ■ **EstablishToD** ■ **SendingParams** ■ **Registering** ■ **Operational** ■ **ImageDwnLoad** ■ **Unauthorized** ■ **Other** ■ **1WayOperational** ■ **2WayUpDisabled** ■ **Unknown—**Contact Cisco Services

Field Name	Description	Possible Values
CM Status Value	The status of the embedded cable modem	■ **Other** ■ **NotReady** ■ **NotSynchronized** ■ **PhySynchronized** ■ **UsParametersAcquired** ■ **RangingComplete** ■ **IpComplete** ■ **TodEstablished** ■ **SecurityEstablished** ■ **ParamTransferComplete** ■ **RegistrationComplete** ■ **Operational** ■ **Access Denied** ■ **Unknown—**Contact Cisco Services
CM Status Code	These values are defined by the DOCSIS standard	■ Refer to Annex D of the DOCSIS 2.0 OSSI specification for details
Upstream	Displays information about the upstream signal as described below	
Downstream	Displays information about the downstream signal as described below	
Mod	A downstream and upstream mode for the inband tuner	■ **Downstream** • **QAM-64** • **QAM-256** • **Other** • **Unknown** ■ **Upstream** • **QAM16** • **QPSK** • **Other**
Frequency	The downstream and upstream frequency (MHz)	■ **[Dependent on frequency]**
Width	The upstream and downstream signal bandwidth	■ **6 MHz**: downstream for DOCSIS ■ **8 MHz**: downstream for Euro-DOCSIS ■ **Variable**: bandwidth for upstream signal
Level	The downstream and upstream power levels relative to 1 millivolt (dBmV)	■ **[Integer]**

Field Name	Description	Possible Values
Pkts	The cumulative number of packets received downstream and transmitted upstream	■ **[Integer ≥ 0]**
bps	The downstream and upstream transmission rates in bits per second (bps)	■ **[Integer ≥ 0]**
CH ID	The upstream channel ID (UCID) identification value that is associated with a DSG rule	■ **[Integer ≥ 0]**
Symbol Rate	The upstream baud rate in kilosymbols per second (ksps)	■ **[Network-dependent]**
S/N	The approximate downstream/upstream signal-to-noise S/N ratio (dB)	■ **[Integer ≥ 0]**
Corr/Uncorr	The number of correctable errors/The number of uncorrectable errors	■ **[Integer ≥ 0] / [Integer ≥ 0]**

DOCSIS Events Diagnostic Screen

This section provides an overview diagram and field descriptions of the DOCSIS Events diagnostic screens. The information within the screens provides information about DOCSIS events, including the level of event, when they last occurred, and how often they have occurred.

Note: Several separate DOCSIS Events diagnostic screens exist; one for events 1-5, one for events 6-10, etc. Each screen contains the same fields which are described in this section.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Determine the level of the events listed
- Determine the most recent occurrence of DOCSIS events
- Determine how often the events occur

Screen Components

Main Menu > Manufacturer Diag > DOCSIS Status > Pages 3 - 7

Note: You may see multiple pages of information, based on the number of entries available. If multiple pages appear, use the Left and Right arrows (**<** and **>**) to navigate through the subpages.

Field Name	Description	Possible Values
Level	The DOCSIS level of the event	■ **Debug** ■ **Information** ■ **Notice** ■ **Warning** ■ **Error** ■ **Critical** ■ **Alert** ■ **Emergency**
Last	The most recent occurence of the event	■ **YYMMDD at hhmmss.d** (where d is tenths of seconds)**, -/+ UTC time differential** **Example:** **091012 at 120105.2, -5.0** translates to October 12, 2009 at 12:01:05:02, UTC - 5 hours (west of UTC)
Count	The number of times the event has occurred	■ **[Integer ≥ 1]**
ID	The event ID	■ **[Integer > 0]**
First	The first occurrence of the event	■ **[YYMMDD at hhmmss.d]** (where d is tenths of seconds)**, -/+ UTC time differential** **Example:** **091012 at 120105.2, -5.0** translates to October 12, 2009 at 12:01:05:02, UTC - 5 hours (west of UTC)

DSG Filters Diagnostic Screen

This section provides an overview diagram and field descriptions of the DSG Filters diagnostic screens. The information within the screens provides forwarding and filtering statistics for each DSG tunnel filter.

Note: Several separate DSG Filters diagnostic screens exist; one for filters 1 and 2, one for filters 3 and 4, etc. Each screen contains the same fields which are described in this section.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Determine the destination MAC and IP address for a DSG tunnel
- Determine the number of packets that have been filtered through a tunnel

Screen Components

Main Menu > Manufacturer Diag > DOCSIS Status > Pages 8 & 9

Note: You may see multiple pages of information, based on the number of entries available. If multiple pages appear, use the Left and Right arrows (**<** and **>**) to navigate through the subpages.

Field Name	Description	Possible Values
Tunnel ID	The ID associated with this tunnel	■ **[Integer ≥ 1**
IP Addr Type	The type of IP configuration in use	■ **IPv4** ■ **IPv6**
Start Port	The start UDP port value that is associated with the DSG tunnel	■ **[Integer ≥ 0 and ≤ 65535]**
End Port	The end UDP port values that is associated with the DSG tunnel	■ **[Integer ≥ 0 and ≤ 65535]**
Dest IP	The destination IP address that is associated with the DSG tunnel and used with the DSG eCM filtering and forwarding process	■ **[Network-dependent]** ■ **0**—indicates that the destination IP address does not apply
Source IP	The source IP address that is associated with the DSG tunnel and is used with the DSG eCM filtering and forwarding process.	■ **[Network-dependent]** ■ **0**—indicates that the source IP filtering does not apply
Source Mask	The source IP subnet mask for the DSG stream that is used to filter and forward DSG traffic	■ **[Network-dependent]**
Time Active	The amount of time the tunnel has been active	■ **[Hours, Minutes, Seconds]**
Client ID Type	The client type as defined by the DSG specification	■ **CableCARD** ■ **Broadcast ID** ■ **MAC Address** ■ **CA System ID** ■ **Application ID**
Client ID Value	The value or address associated with the Client ID Type	■ **[Client ID Type field-dependent]**
MAC	The destination MAC address associated with the DSG tunnel entry	■ **[Hardware-dependent]**
Num Pkts	The total number of packets that are being classified and filtered for the DSG tunnel entry since the entry was created	■ **[Integer ≥ 0**
Num Octets	The total number of octets that are being classified and filtered for the DSG tunnel entry since the entry was created	■ **[Integer ≥ 0**

DVR Information Screen

This section contains information on the DVR Information diagnostic screens, including the Physical Drive Information diagnostic screen and the Partition Information diagnostic screen.

Physical Drive Information Diagnostic Screen

This section provides an overview diagram and field descriptions of the DVR HDD Info diagnostic screen. This screen contains information regarding the hard disk drive on the DHCT that is used to store digitally recorded video programs.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Determine the model and serial number of the hard drive
- Verify the amount of available free space
- Determine the size and capacity of the ITFS (Information Technology File System) and the AVFS (Audio/Video File System) file systems
- Verify statistical information about the DVR hard disk in the DHCT

Screen Components

Main Menu > Manufacturer Diag > DVR Information > Page 1

Important: If any of the fields display "Unavailable," then there is a failure to communicate with the drive. This is a critical situation. Contact Cisco Services for further assistance.

Field Name	Description	Possible Values
Model Number	The model type for the DVR HDD	■ **[Model-dependent]**
Serial Number	The serial number for the DVR HDD	■ **[Model-dependent]**
Firmware Version	The firmware identification number	■ **[Software-dependent]**
Removable	Displays whether the hard drive is removable	■ **Yes**—the hard drive is removable ■ **No**—the hard drive is not removable
Capacity	The size of the sectors for the HDD	■ **[Hard drive-dependent]**
Internal Temp	The internal operating temperature of the hard drive	■ **[Integer > 0]**
Last scan status	Time of the last scan	■ **Time value**
Remapped sector count	Remapped sector count of HDD S.M.A.R.T. data	■ **0**—desired value ■ **[Integer > 0]**—could indicate an issue

Partition Information Diagnostic Screen

This section provides an overview diagram and field descriptions of the Partition Info diagnostic screen. This screen contains information about the partition that exists on the hard drive.

Important: This diagnostic screen only exists on set-top models that include a DVR.

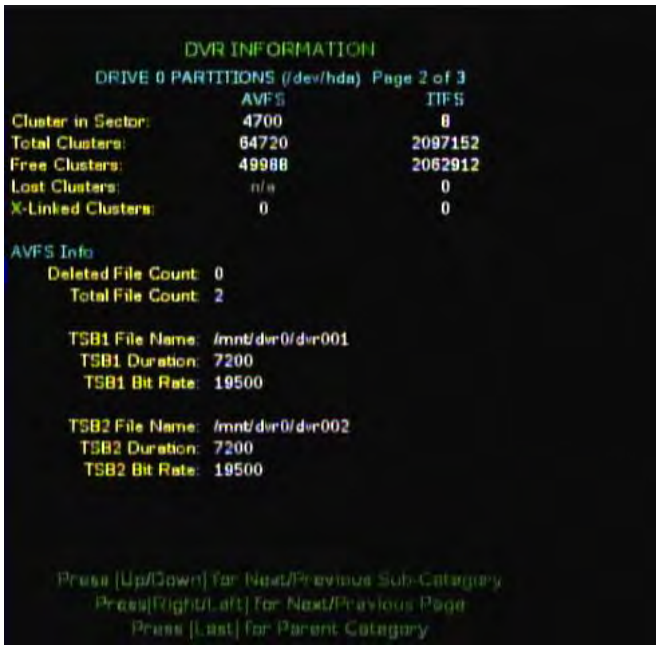
Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Verify the capacity for the partition
- Verify the amount of available space that remains in the partition
- Determine if any lost or bad clusters exist in the partition

Screen Components

Main Menu > Manufacturer Diag > DVR Information > Pages 2 & 3



Important:

- A second Partition Info diagnostic screen exists in the diagnostic screen sequence. Both Partition Info screens contain the same parameters; however, the data reflects a different partition.
- If an external drive is attached to the set-top, a third Partition Info diagnostic screen will appear in the diagnostic screen sequence. This screen contains the same parameters as the other two; however, it reflects the partition on the external drive.

Field Name	Description	Possible Values
Cluster in Sector	The number of bytes per cluster	■ **[Integer > 0]**
Total Clusters	The total number of clusters in the partition	■ **[Integer > 0]**
Free Clusters	The total number of free clusters (not written to) in the partition	■ **[Integer > 0]**
Lost Clusters	The number of lost clusters (data fragment that does not associate with any files) within the partition	
x-Linked Clusters	The number of crosslinked files that exist within the partition.	
AVFS Info	Displays information about the Audio/Video File System (AVFS) on the disk as described below	
Deleted file count	The number of files deleted from this partition	■ **[Integer ≥ 0]**
Total file count	The total number of files on the partition	■ **[Integer ≥ 0]**
TSB1 File Name	Actual TSB1 file name of the internal HDD	■ **[Hardware dependent]**
TSB1 Duration	TSB duration of the internal HDD (in seconds)	■ **[1 ≤ Integer ≤ 18000]**
TSB1 Bit rate	TSB bit rate of the internal HDD (in kbps) given by the application	■ **[Integer > 0]**
TSB2 File Name	Actual TSB1 file name of the external HDD	■ **[Hardware dependent]**
TSB2 Duration	TSB duration of the external HDD (in seconds)	■ **[1 ≤ Integer ≤ 18000]**
TSB2 Bit rate	TSB bit rate of the external HDD (in kbps) given by the application	■ **[Integer > 0]**

Linux Memory Information Diagnostic Screen

This section provides an overview diagram and field descriptions of the Linux Memory Information diagnostic screen, and includes details on the various kinds of RAM in use and available for use.

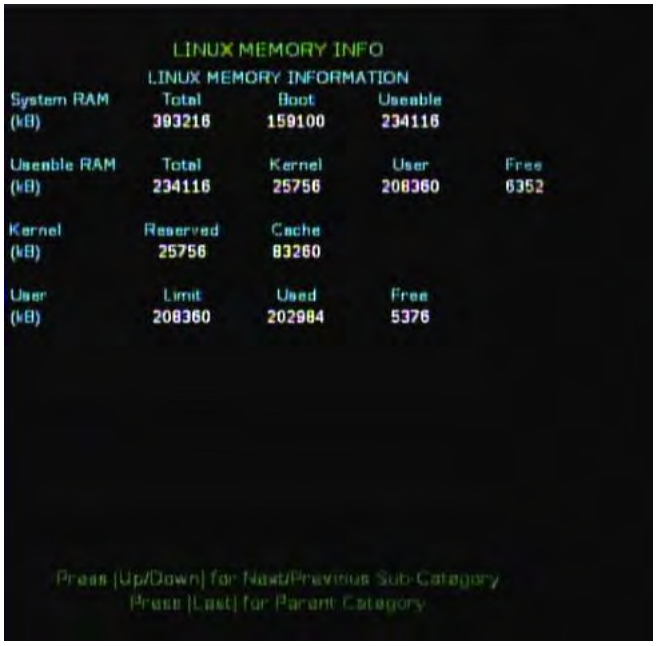
Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Verify the total RAM capability for the system
- Determine the total RAM available for use
- Determine the kernel reserve memory size
- Determine whether there is a memory leak in your system

Screen Components

Main Menu > Manufacturer Diag > Linux Memory Info



Note: All memory values are given in kilobytes.

Field Name	Description	Possible Values
System RAM		
Total	The total physical system RAM visible to Linux (in kB). This will be the actual RAM size minus a small amount reserved for use by the bootloader (around 1MB).	■ **[Integer ≥ 0]**
Boot	The amount of RAM (in kB) required to boot the Linux kernel. This includes all static device allocations in kernel space.	■ **[Integer ≥ 0]**
Useable	The total free usable RAM (kB) available after booting the kernel. This is reported by Linux as "memTotal".	■ **[Integer ≥ 0]**
Useable RAM		
Total	The total free usable RAM (kB) available after booting the kernel. This is reported by Linux as "memTotal".	■ **[Integer ≥ 0]**
Kernel	The amount of RAM (kB) reserved for use by the Linux kernel.	■ **[Integer ≥ 0]**
User	The maximum amount of RAM (kB) available to user processes. Reported by Linux as CommitLimit.	■ **[Integer ≥ 0]**
Free	The total amount of free RAM (kB) currently available to the system. This is reported by Linux as "MemFree".	■ **[Integer ≥ 0]**
Kernal		
Reserved	The amount of RAM (kB) reserved for use by the Linux kernel.	■ **[Integer ≥ 0]**
Cache	The amount of RAM (kB) used in Linux cache. Reported by Linux as "Cached". This disposable cache may cause kernel memory usage to exceed the specified limit reserved for the kernel.	■ **[Integer ≥ 0]**

Field Name	Description	Possible Values
User		
Limit	The maximum amount of RAM (kB) available to user processes. Reported by Linux as CommitLimit.	■ **[Integer ≥ 0]**
Used	The total address space (kB) currently committed to user space (including the PTV heap). Reported by Linux as CommittedAS.	■ **[Integer ≥ 0]**
Free	The total free address space (kB) currently available to user space processes.	■ **[Integer ≥ 0]**

CA Info Diagnostic Screen

This section provides an overview diagram and field descriptions of the Conditional Access Information diagnostic screen. This screen contains information about the conditional access system in your network.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- View the mode and status of the conditional access system
- Verify the serial number, version, and entitlement agent of the ISE
- Verify the system ID of the CP/CA

Screen Components

Main Menu > Manufacturer Diag > CA Info

Field Name	Description	Possible Values
CA Mode	Displays whether the CA information is coming from an ISE (internal secure element) or from an ESE (external secure element)	■ **Embedded** - ISE ■ **CableCARD** - ESE
CA Status	Displays whether the CableCARD module has requested the host authentication key for binding	Possible values: ■ **Ready**—the host authentication key has been requested ■ **Not Ready**—the host authentication key has not been requested
ISE Serial Number	Displays the serial number of the ISE	■ **[Hardware-dependent]** ■ **N/A**—The device does not have an ISE
ISE Ver	Displays the serial number of the ESE	■ **[Hardware-dependent]** ■ **N/A**—Either no CableCARD module is inserted into the set-top or the DHCT has an ISE
CP / CA System ID	Displays the system ID of the copy protection system (CP) and of the conditional access system (CA)	**CP System ID** Possible values: ■ **0**—invalid value ■ **1**—invalid value ■ **2**—CableCARD CP system; valid value ■ **3**—invalid value ■ **4**—invalid value **CA System ID** ■ **[Hardware-dependent]**
ISE Entitlement Agent	The Internal Secure Element (ISE) component serial number	■ **[Hardware-dependent]**

Common Download Screen

This section provides an overview diagram and field descriptions of the Common Download diagnostic screen.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Verify the status of the current download
- Verify the path that the current download is using
- Verify the percentage of download completion

Screen Components

Main Menu > Manufacturer Diag > Common Download

Field Name	Description	Possible Values
Status	Status of the download	■ **No Trigger**—No valid trigger received ■ **Current**—CVT received, image on set-top is current ■ **Required**—CVT received, download required ■ **Downloading**—Download in progress ■ **Complete**—Download complete, reboot imminent
Path	Path of the download	■ **None**—No download in progress ■ **FAT**—In-Band FAT channel DSM-CC data carousel ■ **OOB**—DSG application tunnel DSM-CC data carousel ■ **TFTP**—DOCSIS TFTP
Hardware ID	Hardware ID of the platform	■ **[Platform-dependent]**
Group ID	Common download group ID stored in the bootloader	■ **[Integer ≥ 0]**
Current Image	Current image name stored in bootloader	■ **[File-dependent]**
Pending Image	Pending image name, from CVT	■ **[File-dependent]**
Written	Displays size of file (in kB) written to persistent memory (HDD or flash)	■ **[File-dependent]**
Complete	Percentage of download completed	■ **[0 ≤ Integer ≤ 100]**

Field Name	Description	Possible Values
Error	Last error detected	**Important:** The errors displayed can include some or all of the following errors: ■ **None**—Desired result ■ **Trigger Status Invalid_CVT** ■ **Trigger Status Damaged_CVT** ■ **Trigger Status Invalid_CVT_CVC** ■ **Trigger Status CVT_No_CVC** ■ **Trigger Status CVT_Mismatch_VendorID** ■ **Trigger Status CVT_Mismatch_HardwareVersionID** ■ **Trigger Status CVT_Mismatch_HostMACAddress** ■ **Trigger Status CVT_Mismatch_HostID** ■ **Trigger Status CVT_Mismatch_GroupID** ■ **Image Status Invalid_CodeImage** ■ **Image Status Invalid_CodeImage_CVC** ■ **Image Status Mismatch_MessageDigest** ■ **Image Status Mismatch_CodeImageCRC** ■ **Download Status Download_Failed** ■ **Download Status Download_MaxRetry_Reached** ■ **Download Status Download_Cancelled** ■ **Download Status Download_Aborted** ■ **Upgrade Status Upgrade_Failed** ■ **Upgrade Status Damaged_CodeImage** ■ **Upgrade Status Reboot_MaxRetry_Reached** ■ **Upgrade Status Certificate_Failure**

Platform Status Screens

This section provides an overview diagram and field descriptions of the Platform Status diagnostic screens. These screens contain information regarding the video and audio transmission, tuner status, DMA channel status, and display status of the stream.

RP Media Main Status Diagnostic Screen

The RP Media Main Status screen allows you to view the status of the media manager handle.

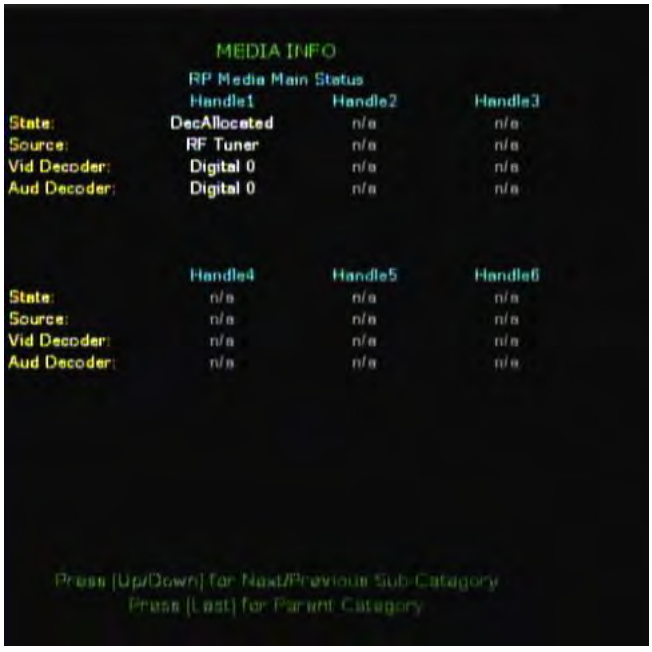
Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- View the state of the media manager handle
- View the source, video decoder, and audio decoder to which the media manager handle is attached

Screen Components

Main Menu > Manufacturer Diag > Platform Status > Media Info



Field Name	Description	Possible Values
State	The current state of the media manager handle	■ **MediaOpened**—a media handle has been opened ■ **DsiOpened**—a media handle was opened and the PID table set for the media handle, but currently no AV decoder(s) is allocated to it ■ **DecAllocated**—a media handle was opened, the PID table is set, and an AV decoder(s) has been allocated and started
Source	The source to which this media manager handle is attached	■ **RF Tuner** ■ **IP Tuner** ■ **Play File**—local DVR file playback ■ **HTTP Source**—playback fof video from an HTTP server ■ **Memory Source**—playback from local memory buffers
Vid Decoder	Indicates the video decoder allocated to this media manager handle	■ **Digital 0**—digital decoder (main) ■ **Digital 1**—digital decoder (PIP) ■ **Analog 0**—analog decoder (main) ■ **Analog 1**—analog Decoder (PIP)
Aud Decoder	Indicates the audio decoder allocated to this media manager handle	■ **Digital 0**—digital decoder (primary) ■ **Digital 1**—digital decoder (secondary) ■ **Analog 0**—analog decoder (primary) ■ **Analog 1**—analog Decoder (secondar)

MPEG Decoder/Encoder Status Diagnostic Screen

This section provides an overview diagram and field descriptions of the MPEG Decoder Status diagnostic screen. This screen contains information about the MPEG stream.

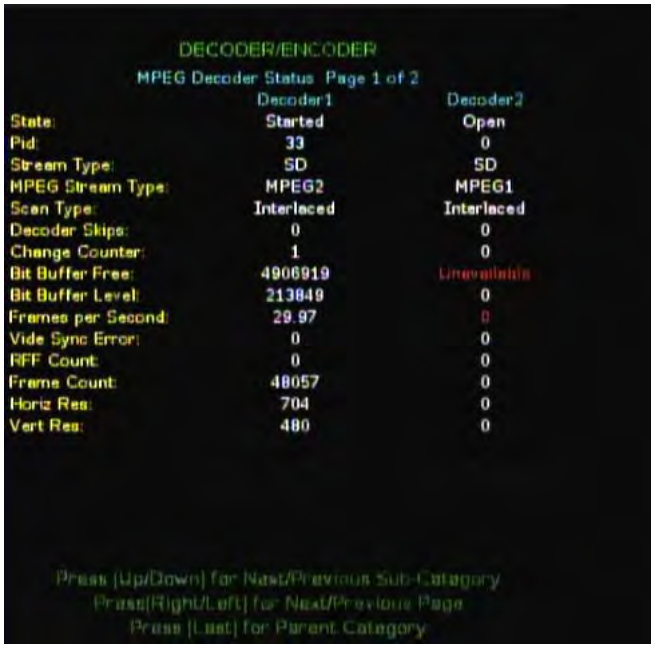
Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Determine the MPEG Transport PID for each decoder
- Verify whether the MPEG stream is progressive or interlaced for each decoder
- Determine the number of frames that have been decoded on the current channel

Screen Components - Decoder Status

Main Menu > Manufacturer Diag > Platform Status > Decoder/Encoder > Page 1



Field Name	Description	Possible Values
State	The current state of the MPEG channel	■ **Connected** ■ **Initialized** ■ **Open** ■ **Pre-initialized** ■ **Started**
Pid	The MPEG transport PID used to encapsulate IHP PDUs within MPEG-PS sections in order to transmit them to the client	■ **0**—no PID is assigned or it is not known ■ **[Integer > 0]**
Stream Type	The type of stream being sent	■ **HD**—high definition ■ **SD**—standard definition
MPEG Stream Type	The type of stream being decoded	■ **MPEG1** ■ **MPEG2**
Scan Type	Indicates whether the stream is progressive or interlaced	■ **Progressive** ■ **Interlaced**
Decoder Skips	The number of times the decoder has *skipped* since tuning to this channel	■ **[Integer ≥ 0]**
Change Counter	The number of times that the stream has changed since tuning to this channel	■ **[Integer ≥ 0]**
Bit Buffer Free	The available buffer memory not currently being used	■ **[Integer ≥ 0]**
Bit Buffer Level	The number of bits being held in the buffer	■ **[Integer ≥ 0]**
Frames per Second	The frame rate of the stream	■ **[Integer ≥ 0]**
Vide Sync Error	The difference between the PTS value and the PCR value	■ **[Integer ≥ 0]**
RFF Count	The number of times that the Repeat First Field flag has occurred	■ **[Integer ≥ 0]**
Frame Count	The number of frames that have been decoded since the DHCT was booted	■ **[Integer ≥ 0]**
Horiz Res	The horizontal resolution of the decoded video	■ **[Stream-dependent]**
Vert Res	The vertical resolution of the decoded video	■ **[Stream-dependent]**

Screen Components - Encoder Status

Main Menu > Manufacturer Diag > Platform Status > Decoder/Encoder > Page 2

Field Name	Description	Possible Values
Encoding	The encoding status condition **Note:** The encoder is in use when the analog channel is being recorded.	■ **OFF**—encoder is not in use ■ **ON**—encoder is in use
Horiz Res	The horizontal resolution of the encoded video	■ **[Stream-dependent]**
Vert Res	The vertical resolution of the encoded video	■ **[Stream-dependent]**
Rate Control	A rate control code that Indicates if the source is encoded at a constant or variable rate	■ **CBR**—constant bit rate ■ **VBR**—variable bit rate
Video BitRate	The bit rate at which the source is encoded	■ **[Integer > 0]**
Video Pid	The PID in which the video is encoded	■ **[Hexadecimal number > 0]**—streaming ■ **[Hexadecimal number = 0]**—not streaming
Audio BitRate	The bit rate at which the audio is encoded	■ **Mpeg_128** ■ **Mpeg_64**

Field Name	Description	Possible Values
Audio Pid	The PID in which the audio is encoded	■ **[Hexadecimal number > 0]**—streaming ■ **[Hexadecimal number = 0]**—not streaming
Audio Fmt	The type of audio encoding format	■ **MpegLayer1** ■ **MpegLayer2** ■ **MpegLayer3** ■ **Dolby AC3** ■ **PCM**
Audio Mode	The type of audio mode	■ **Mono** ■ **Stereo**
Audio Freq	The audio encoding sampling rate (MHz)	■ **[Integer > 0]**

Audio Channel Status Diagnostic Screen

This section provides an overview diagram and field descriptions of the of the Audio Channel Status diagnostic screen. You can view this screen to obtain information about the audio channel, the High-Definition Multimedia Interface (HDMI™), the High-bandwidth Digital Copy Protection (HDCP) status, and the digital closed caption status.

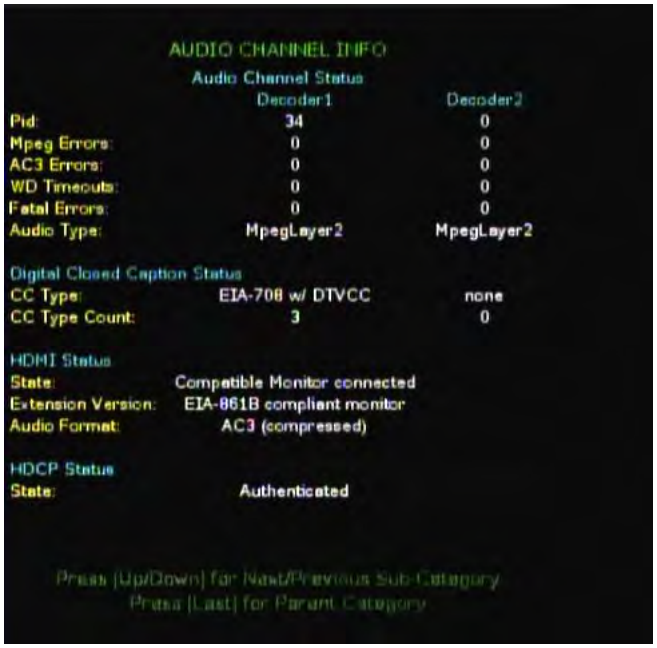
Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Identify if any errors have occurred that relate to MPEG or AC3 decoding (during playback)
- Determine the type of audio format being sent through the HDMI port
- Verify the type of closed captioning being decoded

Screen Components

Main Menu > Manufacturer Diag > Platform Status > Audio Channel Info



Note: There are two possible decoder entries.

Field Name	Description	Possible Values
Decoder Status		
Decoder 1 / Decoder 2	Displays the status of the audio decoders 1 and 2 as described below	
Pid	The Pid of the audio stream	■ **[Integer ≥ 0]**
Mpeg Errors	The number of MPEG decoding errors detected by the audio DSP since the playback began	■ **[Integer ≥ 0]**
AC3 Errors	The number of AC3 decoding errors detected by the audio DSP since the playback began	■ **[Integer ≥ 0]**
WD Timeouts	The number of times the audio DSP has reset because of a Watch Dog timeout	■ **[Integer ≥ 0]**
Fatal Errors	The number of times the audio DSP has reset count because of a fatal error	■ **[Integer ≥ 0]**
Audio Type	The type of audio encoding format	■ **MpegLayer1** ■ **MpegLayer2** ■ **MpegLayer3** ■ **Dolby AC3** ■ **PCM**
Digital Closed Caption Status		
CC Type	The type of closed captioning being decoded	■ **DVS-157** (Digicypher) ■ **EIA-708 w/ DTVCC** (EIA-708 with Digital Television Closed Captioning) ■ **EIA-708 w/o DTVCC** (EIA-708 without Digital Television Closed Captioning) ■ **None** ■ **SA type 0**
CC Type Count	The number of Closed Captioning formats currently available in the stream	■ **[Integer ≥ 0]**

Field Name	Description	Possible Values
HDMI Status		
State	The current state of the HDMI port	■ **Compatible Monitor connected** ■ **Incompatible Monitor connected** ■ **Initialized** ■ **Pre-Initialized** ■ **Revoked Monitor connected**
Extension Version	The Electronic Industries Alliance (EIA) standard to which this television complies	■ **EDID** ■ **EIA-861** ■ **EIA-861A** ■ **EIA-861B** ■ **Unknown**
Audio Format	The type of audio being sent out through the HDMI port	■ **AC3 (compressed)** ■ **Linear Pulse Code Modulation (LCPM; uncompressed)** ■ **No Audio**
HDCP Status		
State	The current state of the HDCP process	■ **Initialized** ■ **Authenticated** ■ **In process/Incompatible** ■ **Initialized Key Exchange** ■ **Pre-initialized**

Host Tuner Status Diagnostic Screen

This section provides an overview diagram and field descriptions of the HostTuner Status diagnostic screen. This screen contains information that allows you to verify the status of the QAM tuners and MPEG decoders that exist in the set-top.

Important: If only one tuner exists in the set-top, the Tuner 2 section of the screen will show all zeros (0).

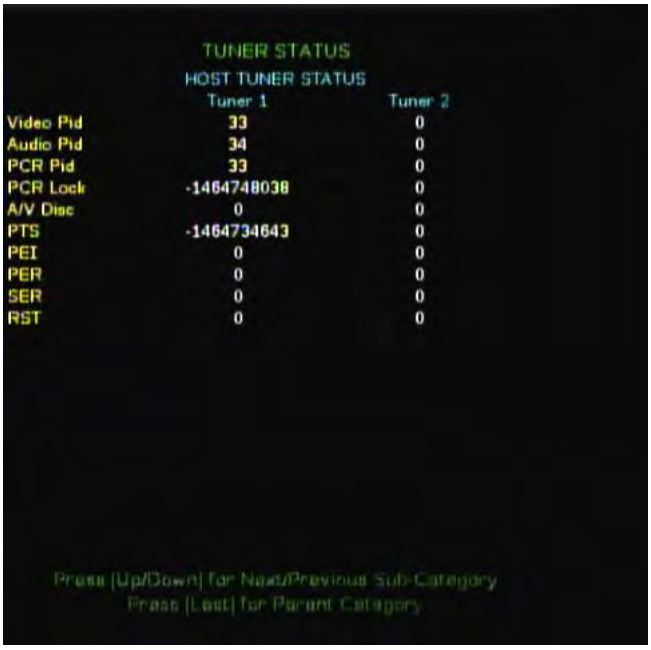
Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Verify the working status of the QAMs and MPEG decoders
- Determine if the tuners are picking up sufficient frequency
- Verify the tuning mode of the QAMs

Screen Components

Main Menu > Manufacturer Diag > Platform Status > Tuner Status



Note: There are two possible tuner entries.

Field Name	Description	Possible Values
Tuner 1 / Tuner 2	Displays the status of the video decoders 1 and 2 as described below	
Video Pid	The video PID number in the MPEG stream that contains the video information being decoded	■ **[Decimal number > 0]—** streaming ■ **[Decimal number = 0]—**not streaming
Audio Pid	The audio PID number in the MPEG stream that contains the audio information being decoded	■ **[Decimal number > 0]—** streaming ■ **[Decimal number = 0]—**not streaming
PCR Pid	The PID number in the stream that refers to the PCR time stamp	■ **[Decimal number > 0]—** streaming ■ **[Decimal number = 0]—**not streaming
PCR Lock	The time stamp of the last PCR synchronization lock	■ **[Integer > 0]**—number should change each time the screen refreshes; otherwise video may be lost.
A/V Disc	The sum of the discontinuity errors encountered on either the audio or video streams that have occurred since the current stream was tuned **Note:** Discontinuity errors indicate that packets were transmitted out of order or with a gap between them, and indicate data loss.	■ **0**—desired value ■ **[Integer > 0]**—indicates an issue ■ **n/a**—tuned to an analog channel
PTS	A presentation time stamp that changes each time the screen refreshes	■ **n/a**—tuned to an analog channel ■ **UNIX format**—number should change each time the screen refreshes **Important:** If this number does not change each time the screen refreshes, then video may have been lost.
PEI	The number of errors in the MPEG stream before reaching the BIP	■ **0**—desired value ■ **[Integer > 0]**—indicates an issue ■ **n/a**—tuned to an analog channel

Field Name	Description	Possible Values
PER	The number of PERs reported by the MPEG decoder chip (MMDD.hhmmss)	■ **0**—desired value ■ **[Integer > 0]** ■ **n/a**—tuned to an analog channel
SER	The number of SERs reported by the MPEG decoder chip	■ **Digital**—0 ■ **n/a**—tuned to an analog channel
RST	The number of times the software driver has restarted the MPEG decoding process	■ **0**—desired value ■ **[Integer > 0]** **Note:** If the RST value is incrementing, then a possible source issue may exist. Please contact Cisco Services for assistance. ■ **n/a**—tuned to an analog channel

DMA Channel Info Diagnostic Screen

This section provides an overview diagram and field descriptions of the DMA Channel Status diagnostic screen. You can view this screen to review the status of various Direct Memory Access (DMA) channels for these set-tops.

Some DMA channels you might see on this screen include:

- RDMA QAM Channel Information
- TDMA QAM Channel Information
- RDMA Buf Channel Information
- TDMA Buf Channel Information
- MDMA Channel Information

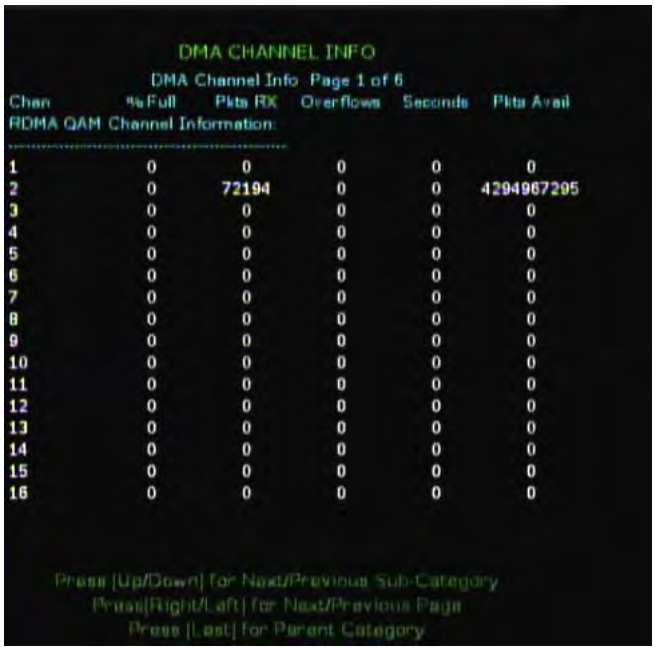
Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Check the integrity of the signals
- Determine the current capacity of the DMA buffer
- Verify the total number of packets received since a DMA channel became active
- Determine the status of a DMA channel

Screen Components

Main Menu > Manufacturer Diag > Platform Status > DMA Channel Info



Note: There are multiple screens associated with this diagnostic based on the number of DMA channels in use. For example, in addition to the DMA channels, you might see TDMA QAM, RDMA buffer, and MDMA channel information in subsequent screens. However, all screens display the same data regarding that channel.

Field Name	Description	Possible Values
Chan	The DMA channel number	■ **[Integer > 0]**
%Full	The percentage of the current DMA buffer that has already been filled	■ **[Integer ≥ 0]**—expressed as a percentage
Pkts RX	The total number of packets received since the channel became active	■ **[Integer > 0]**
OverFlows	The total number of DMA buffer overflows that have occurred since the channel became active	■ **0 [or a very low value]—**desired value ■ **[Large value]—**call Cisco Services
Seconds	The number of seconds the channel has been active	■ **[Integer > 0]**
Pkts Avail	The total number of packets that passed all filtering and were made available since the channel became active	■ **[Integer > 0]**

DirectFB Info Diagnostic Screens

This section provides an overview diagram and field descriptions of the DirectFB diagnostic screens.

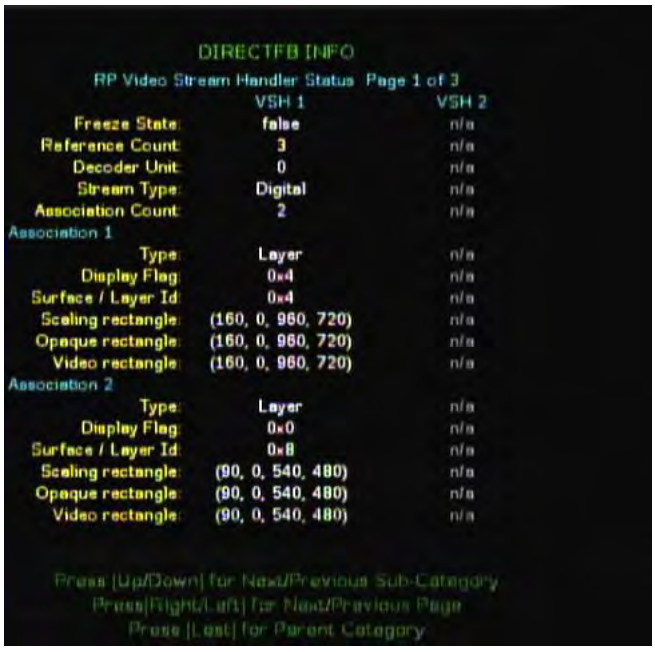
Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- View the associations, associated types, and display options for the video stream handler
- View the freeze state and decoder being used
- View the ID, capabilities, size, and configuration of the screen
- View the status, ID, capabilities, and configuration of the layers

Screen Components - RP Video Stream Handler

Main Menu > Manufacturer Diag > Platform Status > DirectFB Info > Page 1

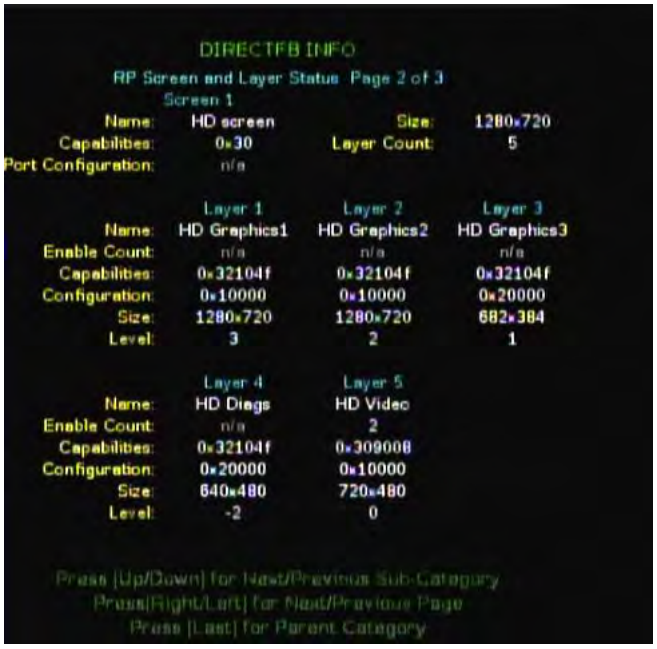


Field Name	Description	Possible Values
VSH 1 / VSH 2	Displays the status of the video screen handler 1 and 2 as described below	
Freeze State	Freeze mode (no frame update on screen) status	■ **true**—freeze mode ■ **false**—not in freeze mode
Reference Count	Reference count data for VSH data structure. Value changes on displaying/stopping content on various outputs	■ **[Integer > 0]**
Decoder Unit	Decoder providing frames to this VSH unit	■ **[Integer 0 to n-1]**—decoder unit where **n** represents the total number of decoders in the set-top
Stream Type	Source stream types	■ **Analog** ■ **Digital**
Association Count	Total number of associations handled from this VSH	■ **[Integer > 0]**—equals the number of "Display To Layer" plus the number of "Display to Surface"
Associations		
Type	Type of association	■ **Layer**—video content sent to a video layer ■ **Surface**—video content sent to a graphics surface (PIP)
Display Flag	Flags based on which middleware frame callback would be invoked	Sum of flag (hexadecimal) values: ■ **0**—no callback ■ **2**—callback invoked on AFD change ■ **4**—callback invoked on Aspect ratio change ■ **8**—callback invoked on frame size change ■ **10**—callback invoked for all frames ■ **10000**—populate frame surface in callback ■ **20000**—provide decimated frame surface in callback
Suface / Layer Id	Surface or layer ID	Llayer id for layer: ■ **4**—HD screen ■ **8**—SD screen DFB surface pointer for surface

Field Name	Description	Possible Values
Scaling rectangle	Coordinates for the scaling rectangle	These coordinates are relative to the screen rectangle = (size of layer [based on scan rates] for layer rendering/size of surface for surface rendering) ■ **Rectangular coordinates** (can have top left values and bottom right values can cross screen size)
Opaque rectangle	Coordinates for the opaque rectangle (deprecated)	■ **Rectangular coordinates** (rectangle within screen/surface area)
Video rectangle	Coordinates for the video rectangle	The video rectangle is the position on the screen where video is seen ■ **Rectangular coordinates** (rectangle within screen/surface area)

Screen Components - RP Screen and Layer Status

Main Menu > Manufacturer Diag > Platform Status > DirectFB Info > Page 2



Note: This screen is repeated for each existing layer.

Field Name	Description	Possible Values
Screen Statuses		
Name	Name of the screen	■ **HD screen** ■ **SD screen**
Capabilities	Capabilities of the screen	Sum of hexadecimal value: ■ **1**—Vsync suport ■ **2**—power management support ■ **10**—mixer support ■ **20**—encoder support ■ **40**—Output support
Port Configuration	Provides details about the output ports connected	Sum of hexadecimal value: ■ **1**—VGA ■ **2**—SCART ■ **4**—Y/C ■ **8**—CVBS ■ **10**—2nd SCART ■ **20**—Component ■ **40**—HDMI ■ **80**—DVO
Size	Resolution of the screen	Resolution (based on scan rate): ■ **720x480** ■ **1280x720** ■ **1920x1080**
Layer Count	Number of layers in the screen	■ **[1 ≥ Integer ≥ 5]**
Layer Statuses		
Name	Name of the layer	■ **HD Graphics1/2/3** ■ **SD Graphics1/2** ■ **HD Video** ■ **SD Video**
Enable Count	The number of entities that have requested to enable the video layer. Video layer would be enabled only if the count is greater than or equal to 2	■ **[Integer > 1]**

Field Name	Description	Possible Values
Capabilities	Capabilities of the layer	Sum of hex values: ■ **1**—layer has drawable surface ■ **2**—global alpha support ■ **4**—pixel alpha support ■ **8**—movable layer ■ **10**—flikker filtering support ■ **20**—deinterlace support ■ **40**—source colorkey support ■ **80**—destination color key support ■ **100**—brightness support ■ **200**—contrast support ■ **400**—hue support ■ **800**—saturation support ■ **1000**—z order support ■ **2000**—field parity support ■ **4000**—hardware window support ■ **8000**—selectable sources ■ **10000**—alpha ramp support ■ **20000**—premulitplied alpha support ■ **100000**—positionable layer ■ **200000**—resizeable layer ■ ——clip region support

Field Name	Description	Possible Values
Configuration	Configuration of the layer	Sum of hex values: ■ **1**—alpha channel ■ **2**—flicker filtering ■ **4**—deinterlacing ■ **8**—source color key ■ **10**—destination color key ■ **20**—global alpha factor ■ **40**—field parity ■ **1000**—front buffer only ■ **2000**—back buffer in video memory ■ **4000**—back buffer in system memory ■ **8000**—triple buffering ■ **10000**—no layer buffer
Size	Dimensions of the screen	■ **[width x height]**
Level	Z-order level of the layer	■ **[Integer > 0]**

InBand SEC Filter Diagnostic Screen

This section provides an overview diagram and field descriptions of the Inband SEC information screen. This screen allows you to identify and compare values for the section filter.

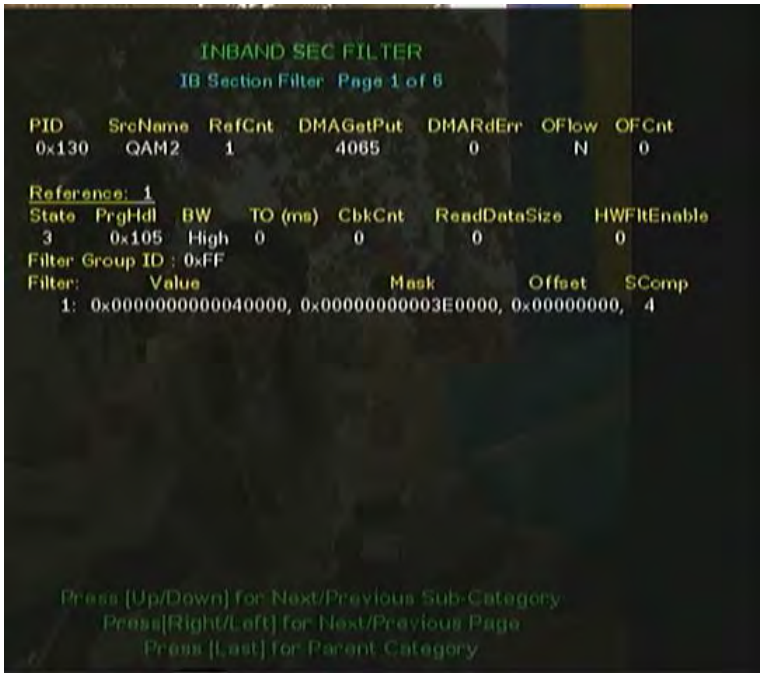
Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Identify the section and source being filtered
- Identify the state of the filter
- Compare the filter results with other values

Screen Components

Main Menu > Manufacturer Diag > Platform Status > InBand SEC Filter



Field Name	Description	Possible Values
PID	Packet identifier of the section being filtered for	■ **16-bit value**—as defined by ISO 13818-1
SrcName	Source being monitored for incoming sections	■ **QAM [1-3]**—QAM tuner 1 through 3 ■ **FIFO [1-11]**—FIFO inputs 1 through 11
RefCount	Number of unique section filters currently filtering on this given PID	■ **[Integer ≥ 0]**
DMAGetPut	Number of DMA ring buffer reads	■ **[Integer ≥ 0]**
DMAReadErr	Number of DMA ring buffer read errors	■ **[Integer ≥ 0]**
OFLow	The DMA buffer overflow status.	■ **True**—buffer overflow occurred ■ **False**—no buffer overflow occurred
OFCnt	The number of times the DMA buffer overflow occurred.	■ **[Integer ≥ 0]**

Field Name	Description	Possible Values
Reference		
State	Current state of the section filter	■ **0**—invalid State ■ **1**—initialized ■ **2**—idle ■ **3**—reading
PrgHdl	Program handle associated with this section filter	■ **[variable]**
BW	Bandwidth of data expected on this section filter	■ **Low**—low bandwidth data ■ **High**—high bandwidth data
TO (ms)	Timeout (in milliseconds) while waiting for sections	■ **–1**—infinite timeout ■ **[Integer > 0]**
CbkCnt	Number of callbacks made to MW by this section filter	■ **[Integer ≥ 0]**
ReadDataSize	The total number of bytes read by this section filter and passed to the MW during its lifetime	■ **[Integer ≥ 0]**
HWFltEnable	Indicates whether the HW filter is enabled for this section filter	■ **0**—HW Filter not enabled ■ **1**—HW filter enabled
Filter Group		
ID	Fileter group ID of the first group of this section filter	■ **[variable]**
Filter	Number to be compared against Value and Mask operation	■ **[64-bit filter number]**
Value	Value for the filter	■ **[64-bit number]**
Mask	Mask for the filter	■ **[64-bit number]**
Offset	Offset on which to test the Value/Mask combination	■ **[32-bit number]**
Scomp	Comparison rule to use on the Value	■ **1**—'Equal to' comparison ■ **2**—'Not Equal To' comparison ■ **3**—'Less Than' Comparison ■ **4**—'Greater Than' comparison

1394 Information Diagnostic Screen

This section provides an overview diagram and field descriptions of the 1394 Information diagnostic screen. This screen includes information that reports copy protection data about the 1394 port and for any device connected to the 1394 port.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Identify devices connected to the 1394 port
- Verifies the status of the port
- Verify the level of copy protection for devices connected to the 1394 port
- Verify encryption mode indicator (EMI) and copy control information (CCI) values

Screen Components

Main Menu > Manufacturer Diag > Platform Status > 1394 Info

Field Name	Description	Possible Values
Program	The MPEG program number assigned to the video stream	■ **[Hexadecimal number]** (dependent on current video stream)
Src EMI	If streaming, the current source encryption mode setting (SRC EMI) being encoded into the 1394 stream will appear	■ **free—**unlimited copying of content ■ **never—**content cannot be copied ■ **no more—**content cannot be copied ■ **once—**content can be copied once ■ **undefined—**no EMI value
Src CCI	If streaming, the source copy control information (SRC CCI) value being encoded into the program map table (PMT) will appear	■ **free—**unlimited copying of content ■ **never—**content cannot be copied ■ **no more—**content cannot be copied ■ **once—**content can be copied once ■ **undefined—**no CCI value
Box EID	The serial number of the DHCT	■ **[Dependent upon version]**
Video Pid	The video PID number in the MPEG stream that contains the video information being decoded	■ **[Hexadecimal number > 0]—** streaming ■ **[Hexadecimal number = 0]—**not streaming
Audio Pid	The audio PID number in the MPEG stream that contains the audio information being decoded	■ **[Hexadecimal number > 0]—** streaming ■ **[Hexadecimal number = 0]—**not streaming
PCR Pid	The PID number in the stream that refers to the PCR time stamp	■ **[Hexadecimal number > 0]—** streaming ■ **[Hexadecimal number = 0]—**not streaming
SRM Gen Version	A system renewability message that lists devices that are no longer authorized to play copy protected content	■ **[List of devices]** ■ **Unavailable**
Storage Activation	The location of where the SRM data is stored	■ **local—**stored on local hard drive ■ **network—**stored on the network ■ **Unavailable**
	The activation time when the device began using the SRM data (MMDD.hhmmss)	■ **[Date.Time]** ■ **Unavailable**
Dev Id	A number that identifies the connected device	■ **[Hexadecimal number > 0]—** (dependent upon connected device)

Field Name	Description	Possible Values
Plug Id	The unique plug identification of the 1394 port	■ **[Hexadecimal number > 0]—** (dependent upon 1394 device)
Status When Connected	The status of the port when it is connected / The date and time when a device was connected to the 1394 port (YYMMDD.hhmmss)	■ **not compliant—**connected port not compliant with 1394 ■ **supported**-**—**connected port supported by 1394 ■ **[Time]**
Device Analog Switch	The device number for the connected device / Indication of whether or not analog switching is supported for the video plug	■ **[Integer > 0]** (dependent on number of none connected devices) ■ **none** ■ **supported**
Plug Type	The plug type associated with the connection device	■ **input** ■ **output**
Plug State	The current state of the 1394 port	■ **active** ■ **idle** ■ **ready** ■ **suspended**
Name	The brand name of the connected device **Note:** There may be more than one connected device.	■ **[Device-dependent]**
Model	The model number for the connected device **Note:** There may be more than one connected device.	■ **[Device-dependent]**
Dev Auth	The current authorization level of the connected device	■ **full**-can access all content protected programs after successful authentication ■ **none**-can access *copy freely* protected content ■ **restricted**-can access *once* and *no more* copy protected programs after successful authentication

MPEG Display Status Diagnostic Screen

This section provides an overview diagram and field descriptions of the MPEG Display Status diagnostic screen. This screen contains information about the MPEG configuration.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Determine the current resolution of each stream that is being displayed
- Identify the horizontal and vertical size of the frame
- Determine if any frames were discarded
- Identify if the deinterlacer is activated for either stream

Screen Components

Main Menu > Manufacturer Diag > Platform Status > MPEG Disp Status

Field Name	Description	Possible Values
Display 1 / Display 2	Shows the status of displays 1 and 2 as described below	
Display Config	The current output configuration of the display	■ **480i** ■ **480p** ■ **720p** ■ **1080i**
Deinterlacer ON	An indication of whether the Deinterlacer is turned on or off	■ **False** (Off) ■ **True** (On)
Low Delay	Indicates whether or not the stream is low delay video encoding capable	■ **False** (Not capable) ■ **True** (Capable)
Horz Res	The horizontal resolution of the frame	■ **[Frame-dependent integer value]**
Vert Res	The vertical resolution of the frame	■ **[Frame-dependent integer value]**
Discarded Frame	The number of late frames that were discarded	■ **[Integer ≥ 0]**

Home Networking Status Screen

This section provides an overview diagram and field descriptions of the Home Network diagnostic screen.

- Verify whether UPnP Devices are available on the network and review the services offered by them
- Verify the status of the home network playback being rendered
- Verify the Media Server name of this set-top and its status
- Verify the list of clients that are currently being streamed by this server and the filenames that are being served

UpNP Diagnostic Screen

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Verify whether UPnP Devices are available on the network
- Review the services offered by UPnP devices

Screen Components

Main Menu > Manufacturer Diag > Home Networking > Page 1

Field Name	Description	Possible Values
Servers	Lists the Universal Plug and Play (UPnP) media servers and their schemas available in this network	■ **[Network-dependent]**

Streaming (Client) Diagnostic Screen

This section provides an overview diagram and field descriptions of the Streaming (Client) diagnostic screen.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Verify the status of the home network playback being rendered

Screen Components - Streaming (Client)

Main Menu > Manufacturer Diag > Home Networking > Page 2

Field Name	Description	Possible Values
URL	The URL of the file being played back	■ **[File dependent]**
Player ID	The ID of the current playback	■ **[File dependent]** **Note:** The ID displayed is a hexadecimal integer.
Server IP	The IP address of the server that is streaming to the client	■ **[Network dependent]**
State	The current state of the remote playback	■ **Playing** ■ **Paused** ■ **Stopped**
Length	The duration of the item being played back	■ **[File dependent]** **Note:** The number displayed is in seconds.
Play Speed	The play speed information for verifying trick modes	■ **[Mode dependent]** **Note:** The play speed is displayed as a fraction of the non-trick play speed.
Play Position	The current playback position	■ **[Integer < Length of file]**
Title	Title of the file being played back	■ **[File dependent]**
Object ID	The ID of the object being played back	■ **[File dependent]**
Content Type	The type of content being played back	■ **[File dependent]**

Screen Components - Failed Streaming Requests

Main Menu > Manufacturer Diag > Home Networking > Page 3

Field Name	Description	Possible Values
URL	The URL of the file requested	■ **[File dependent]**
Player ID	ID of the player requested	■ **[File dependent]** **Note:** The ID displayed is a hexadecimal integer.
Server IP	IP address of the server requested	■ **[Network dependent]**
HTTP Code	HTTP code that reflects the status of the HTTP request sent between the Client and the Server	■ **[Status dependent]**
Status	Status of the media	■ **Playing** ■ **Stopped** ■ **Paused**

Streaming (Server) Diagnostic Screen

This section provides an overview diagram and field descriptions of the Streaming (Server) diagnostic screen.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Verify the list of clients that are currently being streamed by this server
- Verify the filenames that are being served

Screen Components

Main Menu > Manufacturer Diag > Home Networking > Page 6

Field Name	Description	Possible Values
Active Clients	Number of streaming clients active in the network	■ **[Integer ≥ 0]**
Server ID	ID of the server streaming the video	■ **[Network-dependent]**
Client IPs	IP addresses of the clients streaming the video	■ **[Network-dependent]**
Client MAC	MAC addresses of the clients streaming the video	■ **[Hardware-dependent]**
URLs	List of the URLs of the files being streamed	■ **[Network-dependent]**

Media Server Diagnostic Screen

This section provides an overview diagram and field descriptions of the Media Server diagnostic screen.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Verify the Media Server name of this set-top
- Verify the status of the Media Server

Screen Components

Main Menu > Manufacturer Diag > Home Networking > Page 7

Field Name	Description	Possible Values
Friendly Name	Name of the media server in use	■ **[Product-dependent]**
Server State	State of the media server	■ **[Product-dependent]**

4

System Diagnostics

Introduction

This section details the information on the System Diagnostic screens.

In This Chapter

In-Band Network Diagnostic Screen

This section provides an overview diagram and field descriptions of the In-Band Network diagnostic screen. You can view this screen to obtain statistical information about the in-band channels on your system in real-time.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Confirm the number of successful and unsuccessful tuning requests
- Confirm the number of correctable and uncorrectable data blocks received
- Verify the program number and CCI of the MPEG stream

Screen Components

Main Menu > System > Page 1

Field Name	Description	Possible Values
Tuner 1 / Tuner 2	Displays the status of the tuners 1 and 2 as described below	
Success Tune Count	The number of successful tuning requests	■ **[Integer > 0]**
Failed Tune Count	The number of unsuccessful tuning requests	■ **[Integer ≥ 0]**
Last Failed Freq	The last frequency (in MHz) that the InBand tuner failed to tune	■ **[Integer > 0] MHz**—the last frequency that failed to tune since the last host boot cycle ■ **N/A**—a tuning error has not occurred since the last host boot cycle
Correctable	The number of bytes received in error that have been successfully corrected by the forward error correction (FEC) code	■ **[Integer ≥ 0]** **Important:** If incrementing rapidly, picture freezing or macroblocking may be present.
Uncorrectable	The number of data blocks received in error that were not successfully corrected by the FEC code	■ **[Integer ≥ 0]** **Important:** If incrementing rapidly, picture freezing or macroblocking may be present
PCR Lock	The time stamp of the last PCR synchronization lock	■ **[Integer > 0]**—number should change each time the screen refreshes; otherwise video may be lost.
MPEG Program	The MPEG program number assigned to the video stream	■ **[Hexadecimal number]** (dependent on current video stream)
CCI	If streaming, the source copy control information (SRC CCI) value being encoded into the program map table (PMT) will appear	■ **free—**unlimited copying of content ■ **never—**content cannot be copied ■ **no more—**content cannot be copied ■ **once—**content can be copied once ■ **undefined—**no CCI value

OOB Network Diagnostic Screen

This section provides an overview diagram and field descriptions of the OOB Network Info diagnostic screen. You can view this screen to obtain statistical information about the out-of-band network on your system in real-time.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Confirm the power levels and frequencies of the OOB network
- Monitor the signal lock, signal-to-noise ratio, and error correction in the OOB network
- Monitor the round-trip delay of the RDC

Screen Components

Main Menu > System > Page 2

Field Name	Description	Possible Values
FDC / RDC	Shows the frequency and power of the Forward Data Channel (FDC) and the Reverse Data Channel (RDC) as described below	
Frequency (MHz)	The frequency (Freq) of the tuned QPSK receiver in MHz	■ **[Network-dependent]**

Field Name	Description	Possible Values
Power (dBmV)	The approximate received signal level	■ **Refer to specific hardware specifications** • **value displayed in white**—signal level is nominal • **value displayed in amber**—signal level is marginally too high or too low • **value displayed in red**—signal level is unacceptably too high or too low
RDC Data Rate (kbps)	Current data rate of the RDC	■ **[Integer ≥ 0]**
FDC Lock	QPSK receiver (Rx) tuner lock status	■ **Locked**—desired value ■ **Not Locked**
FDC SNR (dB)	The signal-to-noise ratio	■ **Refer to specific hardware specifications** • **value displayed in white**—signal level is nominal • **value displayed in amber**—signal level is marginally too high or too low • **value displayed in red**—signal level is unacceptably too high or too low ■ **n/a**—not applicable for this DHCT
FDC FEC Corr (/Sec)	The number of bytes received in error that have been successfully corrected by the forward error correction (FEC) code	■ **[Integer ≥ 0]** **Important:** If incrementing rapidly, picture freezing or macroblocking may be present.
RDC Delay (µSec)	The round-trip delay, in microseconds, between the set-top and the modem at the headend or hub that is used to determine when to transmit the slotted-aloha packets **Note:** Slotted-aloha packets are used to assign periods of time or slots when the set-top can transmit without interfering with other set-tops on the same hub	■ **[Integer ≥ 0]**

DOCSIS Diagnostic Screen

This section provides an overview diagram and field descriptions of the DOCSIS Information diagnostic screen for set-tops in Basic or Advanced DSG mode.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Verify the status of the DOCSIS network operations on your system

Screen Components

Main Menu > System > Page 3

Field Name	Description	Possible Values
Downstream Center Freq	The center frequency of the downstream channel (MHz)	■ **[Dependent on frequency]**
Downstream Rcvd Power	The downstream power level relative to 1 millivolt (dBmV)	■ **[Integer ≥ 0]**
Downstream Carrier Lock	Displays whether the downstream carrier has locked onto a frequency	■ **Locked** ■ **Unlocked**
Downstream SNR	The approximate downstream signal-to-noise ration (in dB)	■ **[Integer ≥ 0]**
Upstream Center Freq	The center frequency of the upstream channel (MHz)	■ **[Dependent on frequency]**
Upstream Power	The upstream power level relative to 1 millivolt (dBmV)	■ **[Integer ≥ 0]**

Device Address Diagnostic Screen

This section provides an overview diagram and field descriptions of the Device Address Information diagnostic screen. This screen allows you to view network information about the interfaces on the set-top.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- View the network and MAC addresses of the various interfaces on the set-top

Screen Components

Main Menu > System > Page 4

Field Name	Description	Possible Values
Device Address	The various interfaces on the set-top	■ **[Device-dependent]** **Examples:** ■ **eSTB—**set-top ■ **eCM—**set-top cable modem ■ **Card—**CableCARD module
MAC	The MAC address of the interface referred to in 'Device Address'	■ **[Device-dependent]** **Example:** 00:01:e6:68:9b:e5
IP	The IP address assigned to the Ethernet adapter associated with the device	■ **[Network-dependent]** **Example:** 10.1.0.1

HDMI Diagnostic Screen

This section provides an overview diagram and field descriptions of the HDMI™ diagnostic screen.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Determine the HDMI connection status of the set-top
- Determine the type of audio format being sent through the HDMI port
- Verify the streaming format and HDCP status of the HDMI port

Screen Components

Main Menu > System > Page 5

Field Name	Description	Possible Values
HDMI	Displays the HDMI ports available on the device	■ **[Hardware dependent]**
Connection Status	The current state of the HDMI connection	■ **Compatible Monitor connected** ■ **Incompatible Monitor connected** ■ **Initialized** ■ **Pre-Initialized** ■ **Revoked Monitor connected**
Connected Device Type	The type of device connected to the HDMI port	■ **[Device dependent]**
HDCP Status	The current state of the HDCP process	■ **Initialized** ■ **Authenticated** ■ **In process/Incompatible** ■ **Initialized Key Exchange** ■ **Pre-initialized**
# Horizontal Lines	The number of horizontal lines in the video stream	■ **[Stream dependent]**
# Vertical Lines	The number of vertical lines in the video stream	■ **[Stream dependent]**
Frame Rate	The frame rate of the video stream	■ **[Stream dependent]**
Aspect Ratio	The aspect ratio of the video stream	■ **[Stream dependent]**
Streaming Format	The format of the streaming video	■ **[Stream dependent]**

5

DVR Diagnostics

Introduction

This section describes the information on the DVR Diagnostics screens.

In This Chapter

Physical Drive Diagnostics Screen

This section provides an overview diagram and field descriptions of the Physical Drive diagnostic screen. This screen contains information regarding the hard disk drive on the set-top that is used to store digitally recorded video programs.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Determine the model and serial number of the hard drive
- Verify the amount of available free space
- Determine the size and capacity of the ITFS (Information Technology File System) and the AVFS (Audio/Video File System) file systems
- Verify statistical information about the DVR hard disk in the DHCT

Screen Components

Main Menu > DVR Information > Page 1

Field Name	Description	Possible Values
Model Number	The model number of the hard drive	■ **[Model-dependent]** ■ **Unavailable**
Serial Number	The serial number of the hard drive	■ **[Model-dependent]** ■ **Unavailable**
Firmware Version	The firmware identification number	■ **[Software-dependent]**
Removable	A confirmation that indicates if the hard disk is removable	■ **No** ■ **Yes** ■ **Unavailable**
Capacity	The total amount of disk space available on the hard drive	■ **[Model-dependent]** ■ **Unavailable**
Internal Temp	The internal operating temperature of the hard drive	■ **[Integer > 0]**
Last scan status	Time of the last scan	■ **Time value**
Remapped sector count	Remapped sector count of HDD S.M.A.R.T. data	■ **0**—desired value ■ **[Integer > 0]**—could indicate an issue

Partition Information Diagnostic Screen

This section provides an overview diagram and field descriptions of the Partition Info diagnostic screen. This screen contains information about the partition that exists on the hard drive.

Important: This diagnostic screen only exists on set-top models that include a DVR.

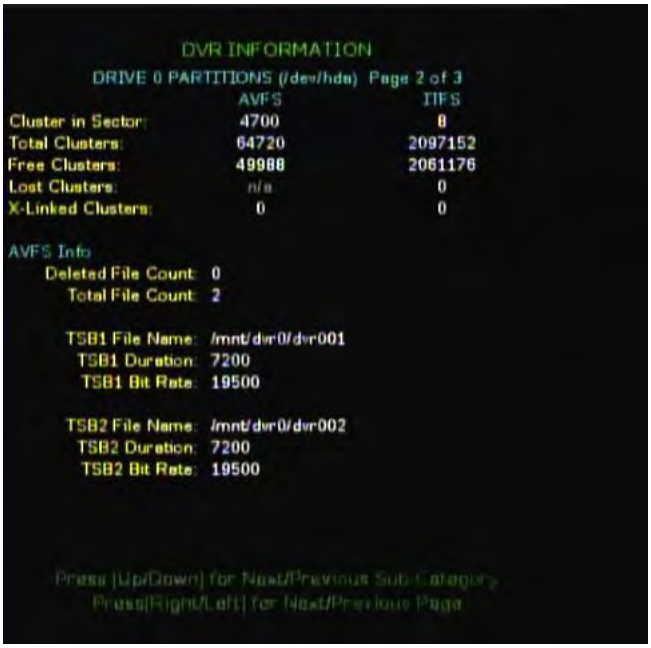
Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Verify the capacity for the partition
- Verify the amount of available space that remains in the partition
- Determine if any lost or bad clusters exist in the partition

Screen Components

Main Menu > DVR Information > Pages 2 & 3



Important:

- A second Partition Info diagnostic screen exists in the diagnostic screen sequence. Both Partition Info screens contain the same parameters; however, the data reflects a different partition.
- If an external drive is attached to the set-top, a third Partition Info diagnostic screen will appear in the diagnostic screen sequence. This screen contains the same parameters as the other two; however, it reflects the partition on the external drive.

Field Name	Description	Possible Values
Cluster in Sector	The number of bytes per cluster	■ **[Integer > 0]**
Total Clusters	The total number of clusters in the partition	■ **[Integer > 0]**
Free Clusters	The total number of free clusters (not written to) in the partition	■ **[Integer > 0]**
Lost Clusters	The number of lost clusters (data fragment that does not associate with any files) within the partition	
x-Linked Clusters	The number of crosslinked files that exist within the partition.	
AVFS Info	Displays information about the Audio/Video File System (AVFS) on the disk as described below	
Deleted file count	The number of files deleted from this partition	■ **[Integer ≥ 0]**
Total file count	The total number of files on the partition	■ **[Integer ≥ 0]**
TSB1 File Name	Actual TSB1 file name of the internal HDD	■ **[Hardware dependent]**
TSB1 Duration	TSB duration of the internal HDD (in seconds)	■ **[1 ≤ Integer ≤ 18000]**
TSB1 Bit rate	TSB bit rate of the internal HDD (in kbps) given by the application	■ **[Integer > 0]**
TSB2 File Name	Actual TSB1 file name of the external HDD	■ **[Hardware dependent]**
TSB2 Duration	TSB duration of the external HDD (in seconds)	■ **[1 ≤ Integer ≤ 18000]**
TSB2 Bit rate	TSB bit rate of the external HDD (in kbps) given by the application	■ **[Integer > 0]**

6

Home Networking Diagnostics

Introduction

This section details the information found on the Home Networking Diagnostics screens.

In This Chapter

Host Status Diagnostic Screen

This section provides an overview diagram and field descriptions of the Host Status diagnostic screen.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Verify the maximum number of clients allowed to connect to the network
- Determine the current number of clients connected to the network
- Verify the client IP, MAC, and DRM
- Verify the host DRM

Screen Components

Main Menu > Home Networking > Page 1

Field Name	Description	Possible Values
Max Clients	The maximum number of clients the host can support	■ **0**—host does not support home networking clients ■ **[Integer > 0]**
# Clients	Number of connected clients	■ **[Integer ≥ 0]**
Client IP	The IP address of connected clients	■ **0**—no IP address assigned ■ **[network-dependent]**
Host DRM	Status of the host DRM (Digital Rights Management)	■ **0x00—**host has no DRM capability ■ **0x01**—host supports DRM but not for home networked clients ■ **0x02**—host supports DRM for itself and for home networked clients
Client MAC	MAC address of connected clients	■ **[Hardware-dependent]**
Client DRM	Status of the client DRM	■ **0x00**—client has no DRM capability ■ **0x01**—DRM trust not established in client

MoCA Summary Diagnostics Screen

This section provides an overview diagram and field descriptions of the MoCA™ Summary Information diagnostic screen.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Verify the MoCA network levels
- Verify transmit and receive data rates for the nodes in the network
- Verify the number of nodes in the network

Screen Components

Main Menu > Home Networking > Page 2

Field Name	Description	Possible Values
Node ID	The local node ID	■ **[Integer 0 ≤ (N-1)]** where **N** = 8 for MoCA 1.0 and **N** = 16 for MoCA 1.1
Version	Version of the MoCA standard used to form the network	■ **1.0** ■ **1.1** ■ **2.0**

Field Name	Description	Possible Values
Link Status	Status of the MoCA network	■ **Link Up**—preferred value ■ **No Link** ■ **Disabled**
LOF (MHz)	Last Operational Frequency (in MHz)	■ **[Integer > 0]** **Note:** This is typically equal to the channel.
Link Privacy	Indicates the status of Link Privacy	■ **Enabled** ■ **Disabled**
MAC	MAC address of the MoCA interface	■ **[Hardware-dependent]** **Example:** If the STB RF MAC of the set-top is 00:1E:6B:D2:4D:4C, the MoCA interface MAC is 20:1E:6B:D2:4D:4C.
Preferred NC	Determines whether the set-top is configured to be a preferred network coordinator	■ **True**—The set-top is configured as a preferred network coordinator ■ **False**—The set-top is not configured as a network coordinator **Note:** Configuring a set-top as a preferred NC means that the set-top (node) has an advantage in the dynamic NC selection process. An NC will still be selected if all the nodes on the network are set to 'False'.
Interface	Indicates whether the MoCA interface is Enabled or Disabled	■ **Enabled** ■ **Disabled**
RF Channel (MHz)	Channel center frequency of the MoCA network (in MHz)	■ **[825 ≥ Integer ≤ 1525]** **Important:** A changing value indicates that the set-top is hunting for the correct frequency.
Up Time	Length of time that the Status has been at Link Up	■ **[Time]** **Example:** 3h 10m 6s
Brdcst Phy Rate	Data rate used for packets broadcast to all other nodes	■ **[Integer > 0]**

Field Name	Description	Possible Values
LP CRC	Link Privacy Checksum value	■ **[Integer > 0]** **Important:** For two or more devices to form a MoCA network, their LP checksums must match.
# nodes	Number of remote nodes present on the MoCA network	■ **[Integer 0 ≤ (N-1)]** where **N** = 8 for MoCA 1.0 and **N** = 16 for MoCA 1.1.
NC Node Id	Node ID of the network coordinator	■ **[Integer 0 ≤ (N-1)]** where **N** = 8 for MoCA 1.0 and **N** = 16 for MoCA 1.1.
IF Summary		
IP	IP address acquired using HHCP or IPv4 Link-Local Protocol	■ **[Network-dependent]** **Note:** After Link Up, the set-top automatically acquires an IP address from a DHCP server in a MoCA device. If none of the MoCA Devices have DHCP enabled, the set-top will acquire an IP address using IPv4 Link-Local Protocol.
#Tx Pckts	Number of Ethernet packets transmitted by this node since MoCA link up	■ **[Integer ≥ 0]**
# Rx Pckts	Number of Ethernet packets received by this node since MoCA link up	■ **[Integer ≥ 0]**
# Rx Drops	Number of Ethernet packets with errors dropped by this node since MoCA link up	■ **[Integer ≥ 0]**
Mask	Subnet mask of the MoCA IF IP	■ **[Network-dependent]**
Tx Pckts drop	Number of transmitted Ethernet packets dropped by this node since MoCA link up	■ **[Integer ≥ 0]**
Rx Pcts correction	Number of Ethernet packets with errors corrected by this node since MoCA link up	■ **[Integer ≥ 0]**

MoCA Node Rate Table Diagnostic Screen

This section provides an overview diagram and field descriptions of the MoCA Node Rate diagnostic screen. This screen allows you to determine the relative data rates within the MoCA network.

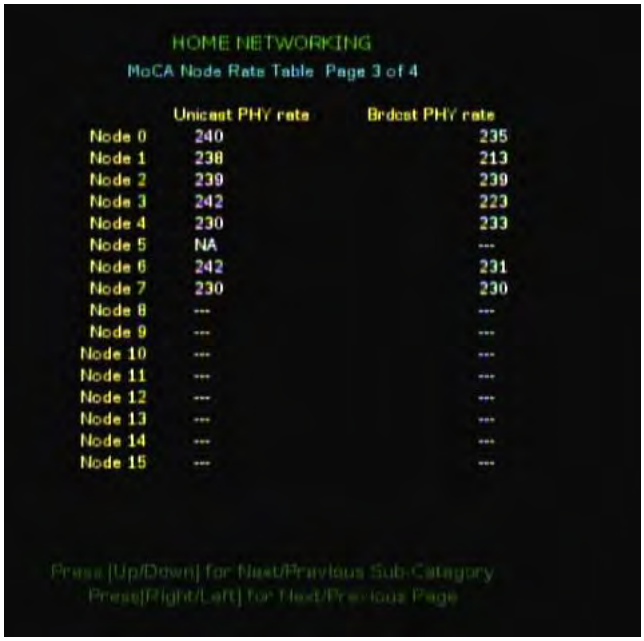
Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Determine the transmit rate from the local node
- Determine the data rate used for packets to all other nodes

Screen Components

Main Menu > Home Networking > Page 3



Field Name	Description	Possible Values
Unicast PHY Rate	Transmit rate from the local node to each other node in the network (in Mbps)	■ **[Integer > 0]**
Brdcst PHY Rate	Data rate used for packets broadcast to all other nodes (in Mbps)	■ **[Integer > 0]**

MoCA Node Power Level Table Diagnostic Screen

This section provides an overview diagram and field descriptions of the MoCA Node Power Level diagnostic screen. This screen allows you to view the relative power levels within the local MoCA network.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Determine the receive level from the other nodes in the network to the local node
- Determine the path loss from each node to the local node

Screen Components

Main Menu > Home Networking > Page 4

Field Name	Description	Possible Values
Rx Power (dBm)	Receive level from each other node to the local node (in dBm)	■ **[Integer ≤ 0]**
Path Loss (dBm)	Approximate loss from each node to the local node (in dB)	■ **[Integer ≥ 0]** **Important:** Losses greater than 54 dB can indicate a problem with the home wiring.

7

Cisco CAS Diagnostics

Introduction

This chapter provides information about the Cisco CA Kernel Information diagnostic screen, the CAM Status diagnostic screen, and the IPPV Information diagnostic screen.

In This Chapter

Cisco Conditional Access Kernel Information Diagnostic Screen

This section provides an overview diagram and field descriptions of the Cisco CA Kernel Information diagnostic screen. You can view this screen to obtain information about the Cisco CA encryption.

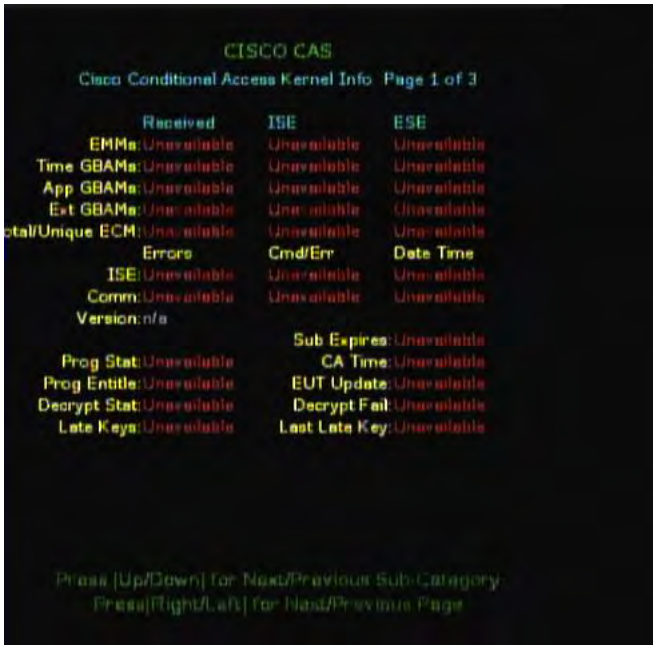
Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Verify the total number of messages and type of messages received by the set-top
- View the number of messages validated by the ISE and the ESE components
- Verify if the Sub Expires date is at least 30 days ahead of the current date
- Determine the encryption status for a program

Screen Components

Main Menu > Cisco CAS > Page 1



Field Name	Description	Possible Values
Received/ISE /ESE	Shows the information for Received, ISE, and ESE as described below.	
EMMs	Indicates the number of EMMs processed	■ **[Integer ≥ 0]** **Note:** Increments when authorization is sent to the set-top.
Time GBAMs	Indicates the number of Time GBAM messages processed	■ **[Integer ≥ 1]** ■ **0**—time GBAMs not yet processed
App GBAMs	Indicates the number of Application GBAM messages received	■ **[Integer ≥ 1]** ■ **0**—application GBAMs not yet processed
Ext GBAMs	Indicates the number of extend event GBAMs received	■ **[Integer ≥ 0]** **Note:** Changes when an event (PPV/IPPV [interactive PPV]) is extended.
Total/Unique ECM	Indicates the total number and number of unique entitlement control messages (ECMs) received	■ **[Integer ≥ 0]** **Note:** Increments when ECMs are received.
Errors	This section contains error statistics for the secure microprocessor. Error statistics are accumulated and displayed for the following categories: ■ **Errors**—the number of errors that have occurred with the ISE (secure micro), Comm (Communication with the secure microprocessor), or the version ■ **CMD/Err**—the last error that occurred with the ISE, Communication with the secure microprocessor, or the version. If no errors have occurred, then these values are zero ■ **Date.Time**—the date and time when the last error occurred for the ISE, Comm, or the version. Never appears if there are no errors	
	ISE	Statistics for the ISE: ■ **0**—no errors present ■ **[non-0]**—indicates EMMs have expired
	Comm	Statistics for the communications with the secure microprocessor ■ **0**—no errors present ■ **[non-0]**—indicates secure element detected on error

Field Name	Description	Possible Values
	Version	PowerKEY software version: ■ **[Software-dependent]** **Example:** PKEY_3.9.9.2-p +dvrs3, 09:29:29 Nov 20 2007
Prog Stat	Digital PID on which ECMs associated with the current program are received (hexadecimal number)	■ **0**—program is not encrypted or scrambled (in the clear) ■ **[non-0]**—encryption issue has occurred
Prog Entitle	Current entitlement ID for which the current program is authorized (hexadecimal number)	■ **0**—program is not encrypted or scrambled (in the clear) ■ **[non-0]**—encryption issue has occurred
Decrypt Stat	Status of the decryption	■ **Blacked Out**—DHCT is authorized to receive program, but program is blacked out in geographical area ■ **ECM Strm Err**—internal error condition occurred within the QAM broadcasting the current program ■ **No Longer Auth**—DHCT is no longer authorized for program ■ **Okay**—current decryption status is okay (decrypting) or program is in the clear (see Prog Stat above)
Late Keys	Number of times that a program key decryption operation occurred after the DHCT received the program data **Note:** MPEG decoding artifacts (macroblocks) seen concurrent with these errors may be attributed to this condition.	■ **0**—encryption is OK ■ **[non-0]**—encryption issue has occurred
Sub Expires	Date and time that the subscription authorizations expire (MMDD.hhmmss)	■ **[Time]** **Notes:** • Subscription authorizations generally expire 20 to 30 days from the previous renewal date. • A date less than 20 days into the future indicates a problem. ■ **Expired**: subscription is expired

Field Name	Description	Possible Values
CA Time	Current authenticated time received through the GBAM (MMDD.hhmmss)	■ **[Time]** **Note:** This value matches the current time to the nearest minute.
EUT Update	Last time the set-top received an update to the entitlement unit table (EUT Update)	■ **[Time]** **Notes:** • Time is updated according to system activity (typically a few times a day). • All set-tops should reflect the same time.
Decrypt Fail	Time of the last program decryption failure (MMDD.hhmmss)	■ **[Time]** ■ **Never**—no decryption failures
Last Late Key	Time that the last late key occurred (MMDD.hhmmss)	■ **[Time]** ■ **Never**—no late keys

CAM Status Diagnostic Screen

This section provides an overview diagram and field descriptions of the Cisco CAM Status diagnostic screen. You can access this screen to verify the status of conditional access management (CAM).

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Verify the status of conditional access management (CAM)
- Verify that a valid ECM PID has been received
- Verify that total number of ECMs that have been received
- Determine which package IDs have authorized a program

Screen Components

Main Menu > Cisco CAS > Page 2

Important: The CAM Status diagnostic screen only displays when a set-top is tuned to an encrypted channel.

Field Name	Description	Possible Values
Primary/Secondary	Shows the information for the primary and secondary CAM as described below.	
Source Id	The source ID for the CAM	■ **Source ID Number** (integer and hexadecimal format) ■ **Unavailable**—not tuned to an encrypted channel
Device Id	The authorization information about the secure micro	■ **Internal** ■ **External** ■ **Unavailable**—not tuned to an encrypted channel
Mode	The type of encryption format	■ **PowerKEY**—Cisco encryption format ■ **Harmony**—Cisco/Motorola cooperative encryption format ■ **Scrambled Analog** ■ **Unavailable**—not tuned to an encrypted channel
ECM Pid	The PID number of the PID that is carrying the ECM stream	■ **[PID number]** (hexadecimal format) ■ **Unavailable**—not tuned to an encrypted channel
ECM Count	The total number of ECMs received for this program	■ **[Integer ≥ 0]** ■ **Unavailable**—not tuned to an encrypted channel
Valid Count	The number of unique (key-change) ECMs processed	■ **[Integer ≥ 0]** ■ **Unavailable**—not tuned to an encrypted channel
ECM Delay	The worst-case timing between received ECM packets (in ms) **Note:** QAM transmission timing is set to 100 ms	■ **[Integer ≥ 0]** ■ **Unavailable**—not tuned to an encrypted channel

Field Name	Description	Possible Values
ECM Started	The date and time when the program originally started (MMDD:hhmmss)	■ **[Time]** ■ **Unavailable**—not tuned to an encrypted channel
EUIDs	The list of package IDs that are authorizing the program (hexadecimal format)	■ **[Package ID]** ■ **Unavailable**—not tuned to an encrypted channel

IPPV Information Diagnostic Screen

This section provides an overview diagram and field descriptions of the IPPV Information diagnostic screen. You can view this screen to obtain information about IPPV purchases.

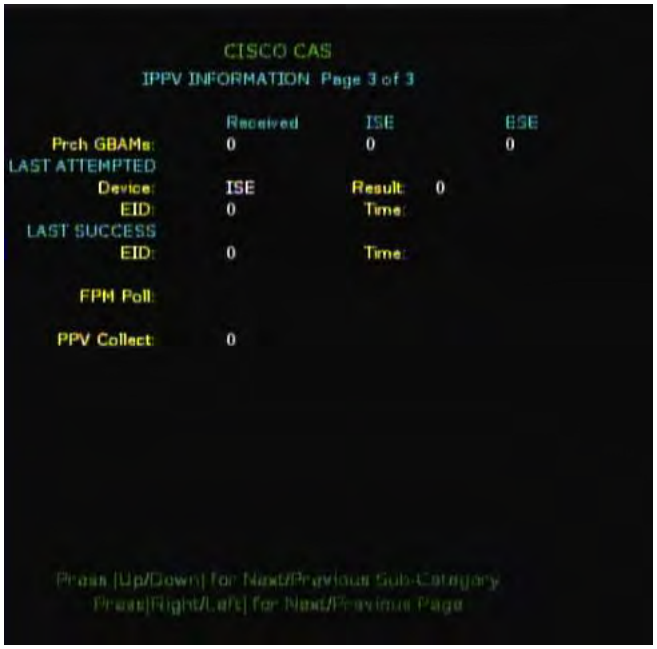
Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Verify the total number of Purchase GBAMs received and accepted by the set-top
- Verify status information about the IPPV purchases
- Confirm the last *attempted* and *successful* IPPV purchase
- Verify if the set-top has been polled

Screen Components

Main Menu > Cisco CAS > Page 3



Field Name	Description	Possible Values
Prch GBAMS		
Received	The total number of purchase GBAMs received by the DHCT	■ **0**—issue with GBAMs ■ **[Integer > 0]**
ISE	The number of purchase GBAMs accepted by the ISE	■ **0**—issue with GBAMs ■ **[Integer > 0]**
ESE	The number of purchase GBAMs accepted by the ESE (smart card)	■ **0**—unless using a secure card
Last Attempted		
Device	The purchase device used for last purchase attempt	■ **ESE** ■ **ISE**
Result	The result code for the purchase attempt	■ **[Hexadecimal number]**
EID	The entitlement identification of the attempted purchase	■ **[Hexadecimal number]**
Time	The date and time of attempted purchase (MMDD.hhmmss)	■ **[Time]** ■ **Never**—no attempted purchase
Last Success		
EID	The EID value for the last successful purchased event	■ **[Hexadecimal number]**
Time	Date and time of purchase (MMDD.hhmmss) **Note: Never** will appear in the Time field if there are no purchases	■ **[Time]** ■ **Never**—no purchases
FPM Poll	The date and time of the last forward purchase message poll (FPM Poll) request (MMDD.hhmmss)	■ **[Time]** ■ **Never**—no request sent

Field Name	Description	Possible Values
PPV Collect	The status of the PPV event collection (Indicates the time for the last and next FPM poll, as well as the number of EIDs)	**[Timestamp, Reply@, EIDs=x]** ■ **Timestamp**—last time DHCT was polled to collect PPV purchases; displays either: • **[MMDD.hhmmss]**—date and time of collection • **Never**—no collection made ■ **Reply@**—time the DHCT replied to the poll • **[MMDD.hhmmss]**—date and time of reply • **[Empty Field]**—no reply ■ **EIDs=x**—number of EIDs (x) for uncollected purchase events • **[EIDs=0]**—all purchase events collected • **EIDs=[Integer > 0]**—only lists up to 20 EID values for events **Note:** If the EID value is greater than 20, additional purchased events are stored and not displayed

8

Services Diagnostics

Introduction

This chapter provides an overview of the Services Diagnostics screens.

In This Chapter

Status Summary Diagnostic Screen

This section provides an overview diagram and field descriptions of the Host Status Summary diagnostic screen. You can view this screen to obtain information concerning the status of the system initialization, system description, boot status, and clocks.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Verify the current status of the boot process
- Verify the system information
- Check the amount of available memory
- Check when the DHCT was last booted and if it is receiving the correct time

Screen Components

Main Menu > Services > Status Summary

Field Name	Description	Possible Values
Initializations		
Status	The status of the overall boot process	■ **Host Ready:** The DHCT has completed the boot process and is in two-way mode.
CPU/Bus	The speed, in megahertz (MHz), at which the microprocessor and data bus are running	■ **[Hardware-dependent]**
Memory		
System Heap	Overall memory available to the porting layer	■ **[Hardware-dependent]**
SARA Heap	Memory available to the SARA middleware	■ **[Hardware-dependent]**
Video Heap	Memory that is initialized when video begins streaming	■ **[Hardware-dependent]**
Total	The total amount of memory assigned	■ **[Integer > 0]**
Free	The amount of free memory available	■ **[Integer > 0]**
Largest	The largest contiguous, free block of memory available	■ **[Integer > 0]**
Chunks	The number of memory chunks available.	■ **[Integer > 0]**
RF Parameters		
Tuner 1	Describes the following frequency data at the center of the channel of the inband tuner ■ If tuned to a *digital* channel, this field displays the frequency, the current *approximate* signal level, and the average errors per second ■ If tuned to an *analog* channel, this field displays the frequency and the analog channel	■ **Frequency**: Dependent upon setting (MHz) ■ **Signal Level** • **Acceptable Range**[1]: **–**16 to +15 dBmV • **Recommended Range: –**8 to +8 dBmV ■ **Average Errors per Second:** Integer close to 0 that is not changing

[1] If the dBmV falls outside of the specified ranges, the system and DHCTs may continue to operate, but plant or system maintenance may be required. Perform an analysis using a spectrum analyzer on the incoming signal.

Field Name	Description	Possible Values
FDC	Provides information about the forward data channel (FDC)	■ **Frequency**: Dependent upon the setting in which out-of-band receiver is tuned (MHz) ■ **Signal Level** (approximate) • **Acceptable Range: –**16 to +15 dBmV • **Recommended Range: –**10 to +10 dBmV ■ **Average Errors per Second**: Integer close to 0 that is not changing
RDC	The information about the reverse data channel (RDC)	■ **Frequency**: Dependent upon the setting to which RDC transmitter is broadcasting (MHz) ■ **Signal Level of Transmitter** • **Acceptable Range:** +25 to +55 dBmV • **Recommended Range:** +27 to +53 dBmV ■ **Round Trip Delay**: delay between the DHCT and quadrature phase shift keying (QPSK) modem at the headend or hub (µsec)
Clocks		
Booted	The date and time that the DHCT last booted **Note:** The hexadecimal format for the date and time is shown in parenthesis	■ **[Date, Time]**
Current	The current date and time **Note:** The hexadecimal format for the date and time is shown in parenthesis	■ **[Date, Time]**

N/W and Tuning Status Diagnostic Screen

This section provides an overview diagram and field descriptions of the N/W and Tuning Status diagnostic screen. You can view this screen to identify real-time status information and network parameters.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Confirm the tuning mode
- Verify MPEG information for the current stream
- Confirm that the DHCT displays an RF network Internet protocol (IP) address, a subnet mask, and a hub ID

Screen Components

Main Menu > Services > N/W and Tuner Status

Field Name	Description	Possible Values
Statuses		
Tuning Mode	The current mode of the inband tuner	■ **Analog**: if sap or stereo are detected on the current analog channel, one of the following modes appear: • **Analog (sap)** • **Analog (sap, stereo)** • **Analog (stereo)** ■ **QAM-64** ■ **QAM-128**
Tuner 1 State	The state of the tuner according to the TV manager component of the middleware	■ **Found QAM**: Tuner successfully tuned to a digital channel ■ **Found Sync**: Tuner successfully tuned to an analog channel ■ **Idle/Available**: Tuner is not in use by an application; tuner is available for use ■ **Waiting QAM**: TV Manager is waiting for the tuner to tune to the desired QAM frequency and lock onto valid data ■ **Waiting Sync**: TV Manager is waiting for the tuner to find the signal on an analog channel

Field Name	Description	Possible Values
TV Mgr	The state of the TV tuner resource in the resident application according to the TV Manager component of the PowerTV OS **Note:** If the resident application is not using the tuner, the TV Manager displays the state of the active resource using the tuner (if any).	■ **Active**: the resource of the resident application is currently active (in use/tuned) ■ **Denied**: the tuning request for the resource was denied ■ **Inactive**: TV Manager is not in use and is available to process requests ■ **Notified**: TV Manager has instructed the resident application to release the resource not the tuner so the TV Manager can use the tuner for a different request ■ **Suspended**: the tuner resource for the resident application is suspended ■ **Suspending**: TV Manager has notified the owner of the currently active resource to suspend so that it can use the tuner for another request ■ **Unknown**: TV Manager received an unknown state ■ **Waiting PAT**: TV Manager is waiting for the Program Association Table (PAT) to arrive on a QAM channel before the tuning request can complete ■ **Waiting PMT**: TV Manager is waiting for the program Map Table (PMT) to arrive on a QAM channel before the tuning request can complete
Tx Res Err	The last resource denied error code received by the ResApp from the TV manager when trying to tune (if any)	■ **0x00000000**: no resource errors ■ **0x[non-zero hexagonal number]**: indicates an error was received
Tuning Tbl	The most recent tuning table activation date and time (MMDD.hhmm) received by the DHCT	■ **[Time]** **Example**: 0507.1500

Field Name	Description	Possible Values
Channel	The channel number and the status for the tuned channel	■ **Clear to Air** (unencrypted) ■ **Free Preview** ■ **Purchased** (for pay-per-view) ■ **Subscription** ■ **Unauthorized** **Note:** An unauthorized channel may display **unauthorized** for a few seconds and then it changes to n/a when the unauthorized barker appears.
Source Id	The source identification number for the tuned channel	■ **[Channel-dependent]** (hexadecimal format)
BFS Dir	The date and time (MMDD.hhmmss) that the BFS directory was last read	■ **[Time]** **Example**: 0507.150027
MPEG Stats		
Video	The program identifier (PID) number within the MPEG stream that contains the video information being decoded	■ **[Channel-dependent]** ■ **n/a**: tuned to an analog channel
Audio	The PID number within the MPEG stream that contains the audio information being decoded	■ **[Channel-dependent]** ■ **n/a**: tuned to an analog channel
PCR	The PID number that is used to decode the program clock reference (PCR) information **Note:** The PCR PID is typically the same as the video PID.	■ **[Channel-dependent]** ■ **n/a**: tuned to an analog channel
PCR Lock	The time stamp of the last PCR synchronization lock	■ **[Integer > 0]**: number should change each time the screen refreshes; otherwise video may be lost ■ **n/a**: tuned to an analog channel
A/V Disc	The sum of the discontinuity errors encountered on either the audio or video streams (A/V Disc) that have occurred since the current stream was tuned **Note:** Discontinuity errors indicate that packets were transmitted out of order or with a gap between them, which indicates data loss.	■ **0**: no discontinuity errors ■ **[Integer > 0]**: could indicate a problem **Note:** If A/V Disc is high, an issue such as macroblocking may be present. ■ **n/a**: tuned to an analog channel

Field Name	Description	Possible Values
PTS	A presentation time stamp (PTS) that changes each time the screen refreshes	■ **UNIX format**: number should change each time the screen refreshes; otherwise video may be lost **Important:** If this number does *not* change each time the screen refreshes, then video may have been lost. ■ **n/a**: tuned to an analog channel
PEI	The number of errors (packet error indication [PEI]) in the MPEG stream before reaching the broadband interface processor (BIP)	■ **0**: no errors in MPEG stream ■ **[Integer > 0]**: errors exist and may cause an issue ■ **n/a**: tuned to an analog channel
PER	The PERs reported by the MPEG decoder chip	■ **0**: no errors in pipeline stream ■ **[Integer > 0]**: errors exist and may cause an issue **Note:** Some errors may be normal depending on the MPEG stream being decoded.
SER	Displays the number of SERs reported by the MPEG decoder chip	■ **0**: no server errors ■ **[Integer > 0]**: errors exist and may cause an issue **Note:** Some errors may be normal depending on the MPEG stream being decoded. ■ **n/a**: tuned to an analog channel
RST	Displays the number of times the software driver has restarted (RST) the MPEG decoding process	■ **0**: no errors in MPEG stream ■ **[Integer > 0]**: errors exist and may cause an issue ■ **n/a**: tuned to an analog channel
Ethernet		
IP	The IP address assigned to the Ethernet adapter	■ **[Network-dependent]**
Subnet Mask	The IP subnet mask assigned to the Ethernet adapter	■ **[Network-dependent]**

Field Name	Description	Possible Values
RF Networks		
IP	The IP address that the controller assigned to the RF network	■ **[Network/DHCT configuration-dependent]** ■ **Unavailable**—DHCT is not authorized for two-way communications or is unable to establish a two-way connection with the network
Subnet Mask	The IP subnet mask that is assigned to the RF network adapter by the controller	■ **[Network-dependent]**
Hub ID	The hub number to which the DHCT is connected when booted	■ **[Network-dependent]**
SNMP Mgr	Indicates if the IP address of the network management system in which it can then send Simple Network Management Protocol (SNMP) traps	■ **[Network-dependent]**
Entitlement Agents	The entitlement agent ID (EAID) that was installed on the ISE or ESE (also known as a smart card) and inserted in to the DHCT	■ **0x00000001** **Note:** The number within the brackets is an index number. The hexadecimal number that follows the index number displays the EAID. ■ **ESE[1]** ■ **ISE[1]**

Second Tuner Status Diagnostic Screen

This section provides an overview diagram and field descriptions of the Second Tuner Status diagnostic screen.

Important: This diagnostic screen only exists on DHCT models that include a DVR.

This section provides the current status and detailed specifications for the additional tuner included with your DHCT, including the fields and parameters that are included in the diagnostic screen. This screen allows you to verify the status of the second QAM tuner and MPEG decoder that exist in the Home Entertainment Server.

Important:

- The information displayed in the Second QAM section of the Second Tuner Status diagnostic screen always refers to the Second Tuner.
- The information displayed in the Second MPEG Decoder section of the Second Tuner Status diagnostic screen always displays PIP video data.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Verify the working status of the second QAM and second MPEG decoder
- Determine if the second tuner is picking up sufficient frequency
- Verify the tuning mode of the second QAM

Screen Components

Main Menu > Services > Second Tuner Status

Field Name	Description	Possible Values
Second QAM		
Status	The status of the second QAM	■ **Locked**—receiver is locked onto a valid analog or QAM channel ■ **Unlocked**—valid data is not being received
S/N	The approximate signal-to-noise ratio (dB)	■ **[Integer ≥ 0]** ■ **n/a**
EQ Gain	The QAM equalizer gain on the QAM data channel	■ **Amber**—marginal signal problem exists and needs to be corrected ■ **Red**—serious signal problem exists and needs to be corrected ■ **White**—no signal problems exist
Seconds	The number of seconds the tuner has been locked on current frequency	■ **[Integer ≥ 0]**
Freq	The frequency to which the inband tuner is tuned (MHz)	■ **[Dependent upon tuned frequency]**
Tuning Mode	The tuning mode of the inband tuner	■ **Analog** ■ **QAM-64** ■ **QAM-128** ■ **QAM-256**

Field Name	Description	Possible Values
Level	The approximate signal level	■ **Amber**—level is marginally too high or too low ■ **Red**—level is too high or too low ■ **White**—level is normal
Corr Bytes	The number of bytes received in error that were successfully corrected by the FEC code	■ **[Integer ≥ 0]**
Uncorr Bytes	The number of data bytes received in error that were not successfully corrected by FEC code	■ **[Integer ≥ 0]**
Errs Avg/Inst	Two unique numbers that describe data errors **First Number**—the average number of errors during the time the frequency was locked **Second Number**—the number of errors since the last time the screen was refreshed	■ **[Integer ≥ 0]/[Integer ≥ 0]**
Second MPEG Decoder		
A/V Disc	The sum of the discontinuity errors encountered on either the audio or video streams that have occurred since the current stream was tuned **Note:** Discontinuity errors indicate that packets were transmitted out of order or with a gap between them. This indicates data loss.	■ **0**—desired value ■ **[Integer > 0]**—indicates an issue
PCR Lock	The time stamp of the last PCR synchronization lock	■ **[Integer > 0]**—number should change each time the screen refreshes; otherwise video may be lost.
Video	The video PID number in the MPEG stream that contains the video information being decoded	■ **[Hexadecimal value > 0]**—streaming ■ **[Hexadecimal value =0]**—not streaming
Audio	The audio PID number in the MPEG stream that contains the audio information being decoded	■ **[Hexadecimal value > 0]**—streaming ■ **[Hexadecimal value =0]**—not streaming

Field Name	Description	Possible Values
PCR	The PID number used to decode the PCR information **Note:** The PCR PID is typically the same as the Video PID.	■ **[Channel-dependent]**
PTS	A presentation time stamp that changes each time the screen refreshes	■ **[UNIX format]**—number should change each time the screen refreshes **Important:** If this number does *not* change each time the screen refreshes, then video may have been lost.
PEI	The number of errors in the MPEG stream before reaching the broadband interface processor (BIP)	■ **0**—desired value ■ **[Integer > 0]**—indicates an issue
PER	The PERs reported by the MPEG decoder chip	■ **Digital**—0 ■ **Analog**—0
SER	The number of server errors reported by the MPEG decoder chip	■ **Digital**—0 ■ **Analog**—n/a
RST	The number of times the software driver has restarted the MPEG decoding process	■ **0**—desired value ■ **[Integer > 0]** **Note:** If the RST value is incrementing, a source issue could exist. Please call Cisco Services.

Digital Video Status Diagnostic Screen

This section provides an overview of the Digital Video Status diagnostic screen, including the fields and parameters that are included in the screen. This screen contains all of the status information applicable to decoding digital video on a single screen.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Verify the decoding of digital video on a single screen
- Record this screen and then replay the recording later to determine the cause of any decoding issues

Screen Components

Main Menu > Services > Digital Video Status

Field Name	Description	Possible Values
Freq	The frequency to which the QAM is tuned (MHz)	■ **[Integer > 0]**
Tuning Mode	The tuning mode of the inband tuner	■ **Analog** **Note:** If "sap" or "stereo" is detected, one of the following displays in the Tuning Mode field of the diagnostic screen: • **Analog (sap)** • **Analog (stereo)** • **Analog (sap,stereo)** ■ **QAM-64** ■ **QAM-128** ■ **QAM-256**
TV Mgr	The state of the resident application's TV tuner resource according to the TV Manager component of the PTV OS. If the resident application is not using the tuner, the TV Mgr refers to the state of the active resource using the tuner (if any).	■ **Active**—resident application's resource is currently active (in use/tuned) ■ **Denied**—tuning request for the resource was denied ■ **Inactive**—TV Mgr is not in use; TV Manager is available to process requests ■ **Notified**—TV Mgr has instructed the resident application to release the resource on the tuner so that the TV Manager can use the tuner for a different request ■ **Suspended**—resident application's tuner resource has been suspended ■ **Suspending**—TV Mgr has notified the owner of the currently active resource to suspend so that it can use the tuner for another request ■ **Unknown**—received an unknown state from the TV Manager ■ **Waiting PAT**—TV Mgr is waiting for the PAT to arrive on a QAM channel before tuning request can complete ■ **Waiting PMT**—TV Mgr is waiting for the PMT to arrive on a QAM channel before tuning request can complete

Field Name	Description	Possible Values
Uncorr Blks	The number of data blocks received in error that were not successfully corrected by the FEC code	■ **[Integer ≥ 0]** **Note:** This value should increment slowly. **Important:** If incrementing rapidly, the picture is freezing or Macroblocking may be present. ■ **n/a**—tuned to an analog channel
Seconds	The number of seconds that the frequency has been locked	■ **[Integer ≥ 0]** ■ **n/a**—tuned to an analog channel
Level	The approximate received signal level (dBmV)	■ **-8 to +8 (value displayed in white)**—signal level is nominal ■ **>+8 or <-8 (value displayed in amber)**—signal level is marginally too high or too low; you should correct the signal problem ■ **<Range or >Range (value displayed in red)**—signal level is too high or too low ■ **n/a**—tuned to an analog channel
Channel	The channel number and, optionally, a status for the tuned channel	■ **[Channel]=Clear to Air-Unencrypted** ■ **[Channel]=Free Preview** ■ **[Channel]=n/a** (if tuned to a PPV channel) ■ **[Channel]=Purchased-Pay-per-view** ■ **[Channel]=Subscription** ■ **[Channel]=Unauthorized**
BFS Dir	The date and time that the BFS directory was last read (MMDD.hhmmss)	■ **[Time]**
System Heap	The amount of memory available to the system	■ **[Integer ≥ 0]**
Video Heap	The amount of memory available for video	■ **[Integer ≥ 0]**
Errors	Total number of errors that have occurred	■ **[Hexadecimal number = 0]**—no errors occurred ■ **[Hexadecimal number > 0]**—errors have occurred

Field Name	Description	Possible Values
Cmd/Err	The last error that occurred	■ **[Hexadecimal number = 0]**—no errors occurred ■ **[Hexadecimal number > 0]**—errors have occurred
Date Time	The time when the last error occurred (MMDD.hhmmss)	■ **[Date.Time]** ■ **Never**—no errors occurred
ISE	The number of PowerKEY errors that have occurred	■ **0**—expected value ■ **[Integer > 0]**—issue with encryption on channel
Sub Expires	The date and time that the subscription authorizations expire (MMDD.hhmmss)	■ **Expired**—subscription has already expired ■ **[Time]** **Notes:** • Time less than 20 to 30 days into the future indicates a problem. • Subscription authorizations generally expire 30 days from the last time they were renewed.
Late Keys	The number of times that a program key decryption operation occurred after the DHCT received the program data	■ **0**—desired value ■ **[Integer > 0]**—issue with decryption
Last Late Keys	The time that the last late key occurred (MMDD.hhmmss)	■ **[Date.Time]** ■ **Never**—no late key
FPM Poll	The date and time of the last FPM request (MMDD.hhmmss)	■ **[Date.Time]** ■ **Never**—no request was sent
Decrypt Fail	The time of the last program decryption failure (MMDD.hhmmss)	■ **[Date.Time]** ■ **Never**—no decryption failure
A/V Disc	The sum of the discontinuity errors encountered on either the audio or video streams that have occurred since the current stream was tuned **Note:** Discontinuity errors indicate that packets were transmitted out of order or with a gap between them, and indicate data loss.	■ **0**—desired value ■ **[Integer > 0]**—indicates an issue ■ **n/a**—tuned to an analog channel

Field Name	Description	Possible Values
PER	The number of PERs reported by the MPEG decoder chip (MMDD.hhmmss)	■ **0**—desired value ■ **[Integer > 0]** ■ **n/a**—tuned to an analog channel
PTS	A presentation time stamp that changes each time the screen refreshes	■ **[UNIX format**—number should change each time the screen refreshes **Important:** If this number does not change each time the screen refreshes, then video may have been lost. ■ **n/a**—tuned to an analog channel
PEI	The number of errors in the MPEG stream before reaching the BIP	■ **0**—desired value ■ **[Integer > 0]**—indicates an issue ■ **n/a**—tuned to an analog channel
SER	The number of server errors reported by the MPEG decoder chip	■ **Digital**—0 ■ **n/a**—tuned to an analog channel
RST	The number of times the software driver has restarted the MPEG decoding process	■ **0**—desired value ■ **[Integer > 0]** **Note:** If the RST value is incrementing, then a possible source issue may exist. Please contact Cisco Services for assistance. ■ **n/a**—tuned to an analog channel

Copy Protection Diagnostic Screen

This section provides an overview diagram and field descriptions of the Copy Protection diagnostic screen. This screen includes information related to the copy protection settings for the current video stream and output ports.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Determine copy protection settings associated with the content stream that is currently playing
- Determine the copy protection schemes and policies that are currently applied to particular output ports

Screen Components

Main Menu > Services > Copy Protection

Field Name	Description	Possible Values	
Outputs			
	Protection Type	**Enabled**	**Constrained**
DVI/HDMI	■ **HDCP**—high bandwidth digital content protection ■ **none**	■ **no** ■ **yes**	■ **no** ■ **yes**
YPrPb	■ **none**	■ **no** ■ **yes**	■ **no** ■ **yes**
1394	■ **disabled**—not supported by hardware ■ **DTCP**—digital transmission content protection ■ **unavailable—**not available in this configuration ■ **none**	■ **disabled**—not supported by hardware ■ **no** ■ **yes**	**N/A**
Composite	■ **Macrovision (Rovi)** ■ **none**	**N/A**	**N/A**
Policies			
HDMI	The group and version number for the copy control policy relating to HDMI ports **Note:** The possible values for the policy bits only apply to version 1 of the policy format.	**Format:8-bit value** [HDMI policy] [policy format version] ■ **[Bit 0]** **1**—disable (block) HDMI port at all times ■ **[Bit 1]** **1**—output a constrained image to HDMI port when HDCP authentication fails ■ **[Bit 2]** **1**—block output to HDMI port when HDCP authentication fails ■ **[Bit 3-4]** **00**—use HDCP if EMI is NOT 'copy freely', or if CIT bit is set; **01**—always use HDCP **10**—never use HDCP ■ **[Bits 5-7]—**Reserved ■ **[v1]—**version number of policy format	

Field Name	Description	Possible Values
YPrPb	The group and version number for the copy control policy relating to YPrPb ports **Note:** The possible values for the policy bits only apply to version 1 of the policy format.	**Format:8-bit value** [YPrPb policy] [policy format version] ■ **[Bit 0]** **1**—disable (block) YPrPb port at all times ■ **[Bit 1]** **1**—output a constrained image to YPrPb port when CIT bit is set ■ **[Bit 2]** **1**—block output to YPrPb port when CIT bit is set ■ **[Bit 3]** **1**—enable Macrovision for YPrPb port when enabled on composite outputs **Note:** This is not currently supported. **[Bits 4-7]—**Reserved ■ **[v1]—**version number of policy format
1394	The group and version number for the copy control policy relating to 1394 ports **Note:** The possible values for the policy bits only apply to version 1 of the policy format.	**Format:8-bit value** [1394 policy] [policy format version] ■ **[Bit 0]** **1**—disable (block) 1394 port at all times ■ **[Bit 1-7]** **1**—reserved ■ **[v1]—**version number of policy format
Composite	The group and version number for the copy control policy relating to composite outputs **Note:** The possible values for the policy bits only apply to version 1 of the policy format.	**Format:8-bit value** [Composite policy] [policy format version] ■ **[Bit 0-7]**—reserved ■ **[v1]—**version number of policy format

Field Name	Description	Possible Values
VOD	The group and version number for the copy control policy relating to VOD **Note:** The possible values for the policy bits only apply to version 1 of the policy format.	**Format:8-bit value** [1VOD policy] [policy format version] ■ **[Bit 0]** **0**—do not override CCI settings for VOD content **1**—override CCI settings for VOD content ■ **[Bit 1-7]**—reserved ■ **[v1]—**version number of policy format
CCI Events		
Source	The type of source that is carrying the input video stream	■ **Disk** ■ **Ext Video** ■ **Memory** ■ **RF**
Destination	The type of destination of the output stream	■ **Aux Video Out** ■ **Disk** ■ **In Home Net** ■ **Memory** ■ **Video Output**
CIT	The indicator that identifies whether the constrained image trigger was set for the input content **Note:** This bit does not necessarily cause the output to be constrained or blocked (policy-dependent).	■ **no**—CIT is not set ■ **yes**—CIT is set
EPN	An indicator that identifies if encryption plus non-assertion (EPN) exists for the 1394 port **Note:** The EPN copy control bit is directly related to controlling content delivered via the IEEE 1394 port. Currently, the default state of the EPN is set to "no" in accordance to FCC en-coding rules.	■ **no**—does not exist (default) ■ **yes**—exists

Field Name	Description	Possible Values
EMI	The copy protection (encryption mode indicator [EMI]) mode	■ **freely**—unlimited copying of content ■ **never**—content cannot be copied ■ **no more**—content cannot be copied ■ **once**—content can be copied once
BF	An indicator that is embedded in programs that identifies the restriction rules for content	■ **yes**—content distribution is restricted ■ **no**—content distribution is not restricted (copy freely)
APS	A descriptor that identifies how the analog protection system (APS) is defined. APS will control how the Macrovision circuit is driven	■ **2 line**—Rovi™ (Macrovision) circuit enabled with AGC Process On, 2 Line Split Burst On ■ **disabled**—no analog protection system (macrovision is disabled)

VOD Information Diagnostic Screen

This section provides an overview diagram and field descriptions of the VOD Information diagnostic screen. You can view this screen to verify status information applicable to VOD services and sessions.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Confirm the status of the internal and external VOD services
- Verify the status of the VOD sessions
- Determine if SI data is inband or out-of-band
- Verify that there is an EID associated with the VOD session
- Confirm the status of the internal and external VOD services
- Verify the status of the VOD sessions
- Determine if SI data is inband or out-of-band
- Verify that there is an EID associated with the VOD session

Screen Components

Main Menu > Services > VOD Info

Field Name	Description	Possible Values
Service Group	The service group and mapfile version from the BFS	■ **Available**—service group ID is available ■ **Unavailable**—service group ID is not available **Note:** The OS is not responsible for reporting service group data.
SI Received	The indicator that describes how SI data is received	■ **OOB**—out-of-band (QPSK)
DMS	The status of the digital multicast services (DMS) enabled flag from the DNCS	■ **DMS**—enabled ■ **dms**—not enabled **Note:** Enable "dms" to view secure digital services.
DIS	The status of the digital interactive services (DIS) enabled flag (VOD)	■ **DIS**—enabled ■ **dis**—not enabled **Note:** Enable "dis" for VOD and xOD to function.
EAID	The EIADs that have been installed for the ISE or ESE into the DHCT	■ **EAID <ID number of agent>**—EAID received ■ **eaid**—EAID not received
Int		
IPPV cells	A bit map representation of the number of non-volatile storage cells available for PPV events	■ **FFFFFF00**—desired value **Note:** If FFFFFF00 does not appear, restage the set-top.
VOD cells	The bit map representation of the number of non-volatile storage cells available for VOD events	■ **FC000000**—has type 8 EMMs needed for encryption ■ **00000000**—does not have type 8 EMMs needed for encryption
DMS	The status of the digital multicast services (DMS) enabled flag from the DNCS	■ **DMS**—enabled ■ **dms**—not enabled **Note:** Enable "dms" to view secure digital services.
DIS	The status of the digital interactive services (DIS) enabled flag (VOD)	■ **DIS**—enabled ■ **dis**—not enabled **Note:** Enable "dis" for VOD and xOD to function.
EAID	The EIADs that have been installed for the ISE or ESE into the DHCT	■ **EAID <ID number of agent>**—EAID received ■ **eaid**—EAID not received

Field Name	Description	Possible Values
Ext		
IPPV cells	A bit map representation of the number of non-volatile storage cells available for PPV events	■ **FFFFFF00**—desired value **Note:** If FFFFFF00 does not appear, restage the set-top.
VOD cells	The bit map representation of the number of non-volatile storage cells available for VOD events	■ **FC000000**—has type 8 EMMs needed for encryption ■ **00000000**—does not have type 8 EMMs needed for encryption
State	The status of the VOD session	■ **Active** ■ **Failed** ■ **Inactive** ■ **Terminated**
Session	The OS session ID number	■ **[Session ID]** (hexadecimal format)
Entitlement	The corresponding EAID and EID pair for the active VOD session	■ **[Entitlement ID]** (hexadecimal format)
Stat	The response code from the secure micro when it processes the authorization	■ **0x45**—active VOD session (hexadecimal format) ■ **0x00**—inactive VOD session (hexadecimal format)
Activated	The date and time when the session became active (YYMMDD@hhmmss or yymmdd@50000)	■ **[Time]** **Example:** 211230@190000 ■ **[Time, Inactive]** **Example:** 960101@-50000

VOD Diag Diagnostic Screen

This section provides an overview diagram and field descriptions of the VOD Diag Diagnostic screen. You can view this screen to verify status information applicable to the VOD server and database.

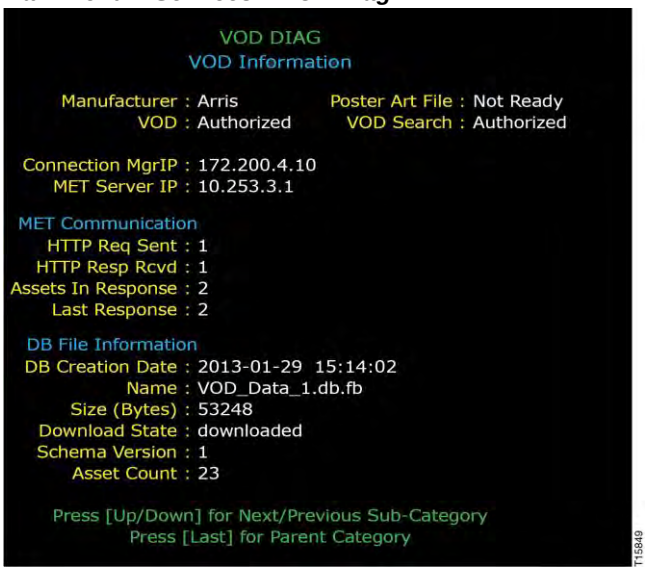
Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Confirm the status of the VOD package and VOD search package
- Verify the IP addresses of the connection manager and MET (Arris only)
- Verify the status of the VOD database

Screen Components

Main Menu > Services > VOD Diag



Field Name	Description	Possible Values
Manufacturer	Manufacturer of the VOD server	■ **[network-dependent]**
Poster Art File	Graphic file used when identifying the VOD file	■ **Ready** ■ **Not Ready**
VOD	VOD authorization	■ **Authorized** ■ **Not Authorized**
VOD Search	VOD search authorization	■ **Authorized** ■ **Not Authorized**
Connection Mgr IP	IP address of the connection manager	■ **[network-dependent]** ■ **n/a**
MET Server IP	IP address of the Media Extraction Tool (Arris only)	■ **[network-dependent]** ■ **unavailable** ■ **n/a**
MET Communication		
HTTP Req Sent	Number of HTTP requests sent (Arris only)	■ **[numeric value]** ■ **unavailable** ■ **n/a**
HTTP Resp Rcvd	Number of HTTP requests received (Arris only)	■ **[numeric value]** ■ **unavailable** ■ **n/a**
Assets in Response	Number of purchased assets within the HTTP response received (Arris only)	■ **[numeric value]** ■ **unavailable** ■ **n/a**
Last Response	Date stamp of the last response (Arris only)	■ **[date]** ■ **unavailable** ■ **n/a**
DB File Information		
DB Creation Date	Date the database was created	■ **[date]** ■ **unavailable** ■ **n/a**
Name	Name of the database	■ **[network-dependent]** ■ **unavailable** ■ **n/a**

Field Name	Description	Possible Values
Size (Bytes)	Size of the database	■ **[file size in bytes]** ■ **unavailable** ■ **n/a**
Download State	Download state of the database	■ **Downloading** ■ **Downloaded** ■ **unavailable** ■ **n/a**
Schema Version	Version of the database schema	■ **[network-dependent]** ■ **unavailable** ■ **n/a**
Asset Count	Number of assets in the database	■ **[numeric value]** ■ **unavailable** ■ **n/a**

SAM Information Diagnostic Screen

This section provides an overview diagram and field descriptions of the SAM Information diagnostic screen. You can view this screen to determine which downloaded applications are present in memory and currently active.

Important: Data will only appear in this screen when third-party applications are implemented.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Verify the name of downloaded applications
- Determine what services are currently running
- Verify the EID required to run an application

Screen Components

Main Menu > Services > SAM Information

Field Name	Description	Possible Values
Downloaded Apps	Lists the downloaded applications available	■ **[Software-dependent]**
Active Services	Lists the active services available	■ **[Software-dependent]**

SAM EDCT Info Diagnostic Screen

This section provides an overview diagram and field descriptions of the SAM EDCT Information diagnostic screen. When the EDCT feature is installed, the channel lineup can be customized for individual DHCTs. The SAM EDCT Information diagnostic screen provides information about the EDCT feature.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Identify information about the currently loaded and currently assigned display channel table (DCT)
- Determine the physical hub or bouquet ID assignment for the DHCT
- Evaluate possible errors that the DHCT experienced while attempting to load the Group Definitions File (GDF) from BFS.

Screen Components

Main Menu > Services > SAM EDCT Info

Field Name	Description	Possible Values
Current DCT	The display channel table information including the channel table selection mode and identifier (hub, virtual hub, bouquet, or lineup group) **Format:** <selection mode>=<id>, Version: <DCT version>, Change Time: <MMDD.hhmmss>	■ **[Selection mode=Integer > 0], [Version: Integer > 0], [Time]** ■ **Unavailable**: DCT is not loaded
Physical Hub ID	The unique ID of the physical hub that the DHCT belongs to	■ **[Integer ≥ 0]** ■ **Unavailable**: DHCT is in a DVB-SI system environment using NDS conditional access
Virtual Hub ID	The unique identifier for the virtual hub that the DHCT belongs to	■ **[Integer ≥ 0]** ■ **Unavailable**: DHCT is in a DVB-SI system environment using NDS conditional access
Bouquet ID	The unique identifier assigned to the DHCT that is used when applying the default channel table selection strategy	■ **[Integer ≥ 0]** ■ **Unavailable**: DHCT is not in a DVB-SI system environment. The Physical Hub ID should be used for the default channel table selection
LUG ID	The unique identifier of the lineup group (LUG) that is assigned to the DHCT **Notes:** ■ The LUG ID will override the Hub ID if it is defined. ■ The LUG is a group of hubs that use the same DCT.	■ **[Integer ≥ 0]** ■ **Unavailable**: no lineup ID is assigned
Group Def Info		
LoadTime	The date and time that the GDF was loaded on the DHCT (MMDD.hhmmss)	■ **[Time]** ■ **Not Loaded**: no GDF is currently loaded
Size	The size of the currently loaded, uncompressed GDF (bytes)	■ **[Integer > 1]** ■ **0**: no GDF file is currently loaded

Field Name	Description	Possible Values
Last Load Err	The last error experienced by the DHCT when the DHCT attempted to load the GDF from BFS	■ **NoErr**: no load errors occurred ■ **PathNotFound**: the GDF does not exist on BFS ■ **OutOfMemory**: not enough memory to load the GDF ■ **ReadErr**: failed to read the file from BFS ■ **ExceededMaxLength**: the GDF exceeded the maximum allowable length ■ **FileChanged**: the GDF was modified on BFS while attempting to load on the DHCT ■ **UnknownErr**: unknown error
Err Time	The date and time when the last error occurred when the DHCT attempted to load GDF from BFS (MMDD.hhmmss)	■ **[Time]**
Active GDF Statement		
Line Num	The line number of the active GDF statement in the currently loaded GDF	■ **[Integer > 1]** ■ **n/a**: no active GDF statement exists
GDF Syntax Errors		
Count	The total number of lines with syntax errors in the currently loaded GDF	■ **[Integer ≥ 0]** **Note:** A count of zero indicates that there are no syntax errors.

RF Statistics Diagnostic Screen

This section provides an overview diagram and field descriptions of the RF Statistics diagnostic screen.

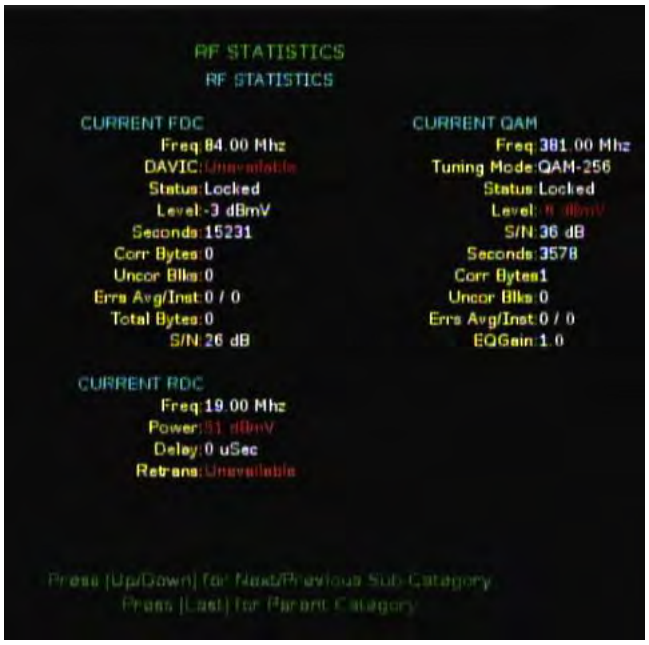
Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Confirm the power levels and frequencies of the FDC and the RDC
- Confirm the power levels and frequencies of the QAM modulator
- Monitor the average and instantaneous errors of the FDC and the QAM

Screen Components

Main Menu > Services > RF STATISTICS



Field Name	Description	Possible Values
Current FDC		
Freq	The frequency (Freq) of the tuned QPSK receiver in MHz	■ **[Network-dependent]**
DAVIC	Shows whether the DHCT is connected to a DAVIC network	■ **Connected** ■ **n/a**
Status	The status of the receiver in regards to receiving valid data	■ **Locked**—Receiver is locked onto a frequency with valid QPSK data ■ **Unlocked**—Receiver is not locked onto a frequency with valid QPSK data
Level	The approximate received signal level (dBmV)	■ **Refer to hardware specifications** • **value displayed in white**—signal level is nominal • **value displayed in amber**—signal level is marginally too high or too low • **value displayed in red**—signal level is unacceptably too high or too low
Seconds	The number of seconds that the frequency has been locked	■ **[Integer ≥ 0]**
Corr Bytes	The number of corrected bytes sent or received	■ **[Integer ≥ 0]**
Uncor Blks	The number of uncorrected bytes sent or received	■ **[Integer ≥ 0]**
Errs Avg/Inst	Two unique numbers that describe data errors ■ **First Number**—the average number of errors during the time the frequency was locked ■ **Second Number**—the number of errors since the last time the screen was refreshed	■ **[Integer ≥ 0 / Integer ≥ 0]**
Total Bytes	The total number of data bytes successfully read since the frequency was locked	■ **[Integer ≥ 0]**

Field Name	Description	Possible Values
S/N	The signal-to-noise ratio	■ **Refer to hardware specifications** • **value displayed in white**—signal level is nominal • **value displayed in amber**—signal level is marginally too high or too low • **value displayed in red**—signal level is unacceptably too high or too low ■ **n/a**—not applicable for this DHCT
Current RDC		
Freq	The frequency (Freq) of the tuned QPSK receiver in MHz	■ **[Network-dependent]**
Power	The approximate received signal level (dBmV)	■ **Refer to hardware specifications** • **value displayed in white**—signal level is nominal • **value displayed in amber**—signal level is marginally too high or too low • **value displayed in red**—signal level is unacceptably too high or too low
Delay	The round-trip delay, in microseconds (µSec), between the set-top and the modem at the headend or hub that is used to determine when to transmit the slotted-aloha packets **Note:** Slotted-aloha packets are used to assign periods of time or slots when the set-top can transmit without interfering with other set-tops on the same hub	■ **[Integer ≥ 0]**
Retrans	The total number of data bytes requiring retransmission since the frequency was locked	■ **[Integer ≥ 0]**
Current QAM		
Freq	The frequency (Freq) of the tuned QAM	■ **[Network-dependent]**
Tuning Mode	The tuning mode of the QAM	■ **QAM-64** ■ **QAM-128** ■ **QAM-256**

Field Name	Description	Possible Values
Status	The status of the receiver in regards to receiving valid data	■ **Locked**—Receiver is locked onto a frequency with valid QAM data ■ **Unlocked**—Receiver is not locked onto a frequency with valid QAM data
Level	The approximate received signal level (dBmV)	■ **Refer to hardware specifications** • **value displayed in white**—signal level is nominal • **value displayed in amber**—signal level is marginally too high or too low • **value displayed in red**—signal level is unacceptably too high or too low
S/N	The signal-to-noise ratio in dB	■ **Refer to hardware specifications** • **value displayed in white**—signal level is nominal • **value displayed in amber**—signal level is marginally too high or too low • **value displayed in red**—signal level is unacceptably too high or too low ■ **n/a**—not applicable for this DHCT
Seconds	The number of seconds that the frequency has been locked	■ **[Integer ≥ 0]**
Corr Bytes	The number of corrected bytes sent or received	■ **[Integer ≥ 0]**
Uncor Blks	The number of uncorrected bytes sent or received	■ **[Integer ≥ 0]**
Errs Avg/Inst	Two unique numbers that describe data errors ■ **First Number**—the average number of errors during the time the frequency was locked ■ **Second Number**—the number of errors since the last time the screen was refreshed	■ **[Integer ≥ 0 / Integer ≥ 0]**
EQGain	QAM equalizer gain	■ **[Integer ≥ 0]**

DVR Status Diagnostic Screen

This section provides an overview diagram and field descriptions of the DVR Status diagnostic screen, including the fields and parameters that are included in the screen. This screen contains information that allows you to verify the status of the DVR.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Determine the current status of the ITFS, WDIDE, and AVFS
- Determine the status of cross links
- Verify whether or not any files are corrupt

Screen Components

Main Menu > Services > DVR Status

Important: The fields within the ITFS section should only change after a loss of power or after a reboot.

Note: After a loss of power or a reboot, it would not be unusual that the "LostClusters" field display number(s) other than 0 (zero). That condition is expected. It indicates that a recording was in progress when the DHCT rebooted, and open files were not closed. The last few seconds of the recording might be lost and would be indicated here as "lost clusters." It is possible for the other fields to display number(s) other than 0 as well, but that would indicate more serious issues.

Field Name	Description	Possible Values
ITFS		
Status	The current working status of the ITFS	■ **Ready**—this value should always appear **Note:** If Ready does not appear, call Cisco Services.
Corrupt Files	The number of corrupt or impaired files within the ITFS	■ **0**—desired value ■ **[non-0]**—call Cisco Services
Cross-Links	The number of cross-links clusters	■ **0**—desired value ■ **[non-0]**—call Cisco Services
LostClusters	The number of allocated clusters not associated with any file	■ **0**—desired value ■ **[non-0]**—call Cisco Services
WDIDE		
Status	The current working status of the IDE device driver	■ **Ready**—desired value **Note:** If Ready does not appear, call Cisco Services.
AVFS		
Status	The current working status of the audio video file system (AVFS) device driver	■ **Drive Asleep**—may appear when the DHCT is powered off ■ **Not Ready** ■ **Ready**—desirable value

PPV Summary Diagnostic Screen

This section provides an overview diagram and field descriptions of the PPV Service Summary diagnostic screen. You can view this screen to verify the status of the PPV service and the PPV event for the currently tuned channel.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Identify if a PPV has been purchased
- Determine if a PPV event is expired
- Identify the status of a barker
- Verify the purchase attempt for a PPV event

Screen Components

Main Menu > Services > PPV Summary

Field Name	Description	Possible Values
PPV Service		
State	The present state of the PPV service on the tuned channel	■ **Countdown**—an event has been purchased and is about to start, and countdown barker is displayed ■ **Expired Event**—event purchase window has closed ■ **Interstitial**—no advertised event and interstitial event is displaying ■ **Invalid Event**—current event definition is invalid (for example, DNCS DHCT error) ■ **No Event Barker**—no event advertised, no interstitial service defined, and no barker displayed ■ **Not Active**—inactive PPV service ■ **Preview Barker**—event has not been purchased and the free preview period is in effect ■ **Preview Ended**—no event purchased; free preview period has ended ■ **Problem Barker**—problem with the PPV service (problem number displayed on the barker) ■ **Purchase Barker**—event can be purchased and barker for that event is displayed ■ **Subscription**—program is a subscription PPV service ■ **Thank You**—event has been purchased and the Thank You for Purchasing barker appears ■ **Waiting for Data**—DHCT is waiting for data about the PPV service to arrive from DNCS ■ **Watching Event**—current event is purchased and active
Svc Index	A representation of the service internally as an index number **Note:** This field should match the Svc Index in the PPV Event section.	■ **[Hexadecimal value]** ■ **n/a**—PPV event not showing **Note:** This value is used for Cisco troubleshooting purposes.
PPV Svc	The service associated with the PPV channel	■ **[Channel-dependent]** ■ **n/a**

Field Name	Description	Possible Values
Interstitial	The service that is shown when no event can be advertised	■ **None** ■ **n/a**—not applicable
Index Ver	The version of the PPV index file that the set-top has in memory	■ **[Index version-dependent]** **Note:** All set-tops should display the same version of the PPV index file.
Immed Ver	The version of the PPV immediate file that the set-top has in memory	■ **[PPV immediate file-dependent]** **Note:** All set-tops should display the same version of the PPV index file.
Event Svc	The service associated with the PPV event	■ **[Channel-dependent]** ■ **n/a**—not tuned to PPV event
PPV Event		
Title	The title of the PPV event	■ **[Channel-dependent]** ■ **n/a**—PPV event not showing
Svc Index	A representation of the service internally as an index number **Note:** This field should match the Svc Index in the PPV Service section.	■ **[Channel-dependent]** ■ **n/a**
EID	The EID associated with the purchase of an event	■ **[Hexadecimal value]** ■ **n/a**—PPV event not showing
GBAM	The time that GBAMs for the PPV event appear on the network (hh:mm am/pm)	■ **[Time]** (12-hour time format) ■ **n/a—**PPV event not showing
Secure Buy	The purchase state for the PPV event	■ **n/a**—PPV event not showing ■ **Pending**—purchase is not allowed because buy window is not yet opened ■ **Problem PPV#**—problem occurred when attempting to purchase event; # is the error number associated with the error ■ **Processing**—purchase attempt is being processed ■ **Ready**—purchase is accepted and event is viewable

Field Name	Description	Possible Values
Event	The window of time the PPV event is shown (hh:mm-hh:mm am/pm)	■ **n/a**—PPV event not showing ■ **[Time]** **Example:** (1:00-3:30pm)
Advertise	The window of time the PPV event is advertised to those who have not yet purchased the event (hh:mm-hh:mm)	■ **n/a**—PPV event not showing ■ **[Time]** **Example:** 1:00-3:30pm
Preview	The window of time the PPV event is appearing free (hh:mm-hh:mm	■ **n/a**—PPV event not showing ■ **[Time]** **Example:** 1:00-3:30pm
Cancel End	The time after which PPV event cancellations are no longer accepted (hh:mm am/pm)	■ **[Time]** (12-hour time format) ■ **n/a**—PPV event not showing

SDV Diagnostic Screens

This section provides an overview diagram and field descriptions of the Switched Digital Video diagnostic screen.

- **Page 1** includes information that describes the SDV client and server, including the number of SDV channels that have been authorized for this service. Detailed statistics about the SDV protocol are also included in this diagnostic screen.
- **Page 2** provides an overview of the SDV Mini Carousel diagnostic screen, and includes information that describes the Mini Carousel (MC) Discovery Files, as well as details about the MC data.
- **Page 3** provides an overview of the SDV Session Info diagnostic screen, and includes information that describe the details of SDV-related sessions, including the current SDV and tuner status.

Performing Tasks

By accessing these diagnostic screens, you can perform the following tasks:

- Determine if the client (DHCT) is authorized for SDV services
- Identify the status of the SDV server
- Verify details about the transmission of data for the SDV service
- Determine the date and time that the mini carousel (MC) was last loaded in cache
- Determine the current status for the mini carousel
- Identify the version for the mini carousel
- Determine the current status of an SDV session
- Determine the current status of the tuner
- Verify the name of the current SDV session

Screen Components Page 1

Main Menu > Services > SDV > Page 1

Field Name	Description	Possible Values
Client		
Authorized	Indicates whether or not the client is authorized for SDV service (_SASD service) or the_SASD service does not exist	■ Yesservice is authorized ■ **No**—service is not authorized ■ **n/a**—service does not exist
Service Gp	The ID of the service group to which this client belongs	■ **[Integer ≥ 1]** ■ **n/a**—service does not exist
RF Id Addr	The IP address for the RF network	■ **[Network-dependent]**
SDV Channels	The number of SDV channels (WatchSDV services) in the channel lineup	■ **[Integer ≥ 0]**
Server		
Status	The current status of the client communications with the SDV server (init request and receiving a response)	■ **Ready**—(desired value) init request is successfully confirmed and accepted by the SDV server ■ **Pending**—the set-top is in the process of establishing communications with the SDV server ■ **Unavailable**—init request failed ■ **Unknown**—init request not yet initiated

Field Name	Description	Possible Values
Time	The time of the last successful initial request confirmed by the server	■ **[month/day@hh:mm:sec]**
Pri Ip-Port	The IP address and port number (IP address-Port number) for the primary SDV server	■ **0.0.0.0-n/a**: primary SDV server is not available ■ **[Network-dependent]** **Example**: 192.168.99.5-2300
Sec Ip-Port	The IP address and port number (IP address-Port number) for the secondary SDV server	■ **0.0.0.0-n/a**: secondary SDV server is not available ■ **[Network-dependent]** **Example**: 192.168.99.5-23000
SDV Protocol Statistics		
SelInd Rx	The number of Select Indications received	■ **[Integer ≥ 0]**
Total Tx/Rx	The total number of requests sent and received	■ **[Integer ≥ 0]/[Integer ≥ 0]**
SelResp Tx	The number of Select Responses sent	■ **[Integer ≥ 0]**
InitReq Tx	The total number of init requests sent, excluding retransmissions	■ **[Integer ≥ 0]**
QryReq Rx	The number of Query Requests received	■ **[Integer ≥ 0]**
Init Conf Rx	Total number of initial confirm messages received from SDV server that indicate success or failure	■ **[Integer ≥ 0]**
Qry Conf Tx	The number of confirmed Query Responses sent	■ **[Integer ≥ 0]**
InitConfFails Rx	Total number of initial confirms received from the SDV server that indicate failure	■ **[Integer ≥ 0]**
EvInd Rx	The number of Event Indications received	■ **[Integer ≥ 0]**
SelReq Tx	The total number of select requests sent for SDV and non-SDV services, excluding retransmissions	■ **[Integer ≥ 0]**
SelResp Tx	The number of Select Responses sent	■ **[Integer ≥ 0]**
SDV SelReq Tx	The total number of select requests sent for SDV, excluding retransmissions	■ **[Integer ≥ 0]**

Field Name	Description	Possible Values
EvInd TX	The number of Event Indications sent	■ **[Integer ≥ 0]**
SelConf Rx	The total number of select confirm messages received from SDV server that indicate success or failure	■ **[Integer ≥ 0]**
LUA Rep Tx	The number of LUA (Last User Activity) reports sent	■ **[Integer ≥ 0]**
SelConfFails Rx	The total number of select confirms received from the SDV server that indicate failure	■ **[Integer ≥ 0]**

Screen Components Page 2

Main Menu > Services > SDV > Page 2

Field Name	Description	Possible Values
Mini Carousel Info		
Status	The current status of the information from the mini carousel	■ **Init**—initial state at boot time prior to loading mini carousel data. Also the state reported when the set-top is not authorized for SDV ■ **SgDiscovery**—client is performing or waiting to perform the service group discovery process ■ **McpDiscFileRead**—client is reading or waiting to read the BFS file to obtain a list of SDV QAM frequencies to scan for mini carousel data ■ **McpDiscovery**—client is scanning or waiting to scan SDV QAM frequencies in search of mini carousel data ■ **CacheReady**—(desired value) mini carousel loaded and data acquired to allow viewing of SDV channels
Def Freq	The default or home SDV frequency in MHz. The client will tune to this frequency to read the mini carousel data if not already tuned to another SDV frequency	■ **[Integer ≥ 0]**
Tvp/Tv Id	The internal identifier of the logical hardware resource assigned or allocated for loading inband mini carousel data	■ **[Integer ≥ 0]** ■ **n/a**—logical tuner resource is currently assigned or allocated for loading the inband mini carousel
Load Time	The time when the mini carousel information was loaded into cache	■ **[month/day@hh:mm:sec]**
Version	The version number for the mini carousel cached file	■ **[0 ≥ Integer ≤ 31]**
Size	The size of the mini carousel data (in bytes)	■ **[Integer ≥ 0]**
Num Entries	The number of programs (channels) in the mini carousel data	■ **[Integer ≥ 0]**

Field Name	Description	Possible Values
Cache Hits	The number of times requested tuning parameters were successfully received from the mini carousel cache **Notes:** ■ This includes cache hits after forcing a reload of the mini carousel ■ This value is only reset to zero when it rolls over or the agent is reset	■ **[Integer ≥ 0]**
Cache Misses	The number of times requested tuning parameters were not found in the mini carousel cache even after reloading mini carousel data **Note:** This value is only reset to zero when it rolls over or the agent is reset	■ **[Integer ≥ 0]**
Cache Overrides	The number of times the cached tuning parameters from the mini carousel have been overridden by fresh tuning parameters received from the SDV server via CCP (Channel Change Protocol) **Note:** This value is only reset to zero when it rolls over or the agent is reset	■ **[Integer ≥ 0]**
Load Count	The number of times the mini carousel data has successfully been read (or loaded) by the client **Note:** This value is only reset to zero when it rolls over or the agent is reset	■ **[Integer ≥ 0]**

Field Name	Description	Possible Values
Load Failures	The number of times the client has failed to read the mini carousel data **Note:** This value is only reset to zero when it rolls over or the agent is reset	■ **[Integer ≥ 0]**
Last Load Err	The type of error for the last load (read) of the mini carousel	■ **NoErr**—last load was successful ■ **ReadErr**—read of last load failed ■ **MemFull**—not enough memory for last load ■ **Aborted**—last load attempt was aborted ■ **TuningErr**—tuning failure during last load ■ **SGMismatch**—service group identified in the mini carousel data does not match the set-top's service group found during service group discovery ■ **UnknownErr**—an unknown error occurred during load
Err Time	The time when the last error occurred in loading	■ **[month/day@hh:mm:sec]** ■ **n/a**: no load errors have occurred since reset
Last Load Attempt	The time when the last load was attempted on the set-top	■ **[month/day@hh:mm:sec]** ■ **00/00@00:00:00**: no load errors have occurred since reset
MC Discovery File Info		
Load Time	The time when the MC Discovery file was loaded on the DHCT during discovery	■ **[month/day@hh:mm:sec]** ■ **n/a**—file is not loaded
Version	The current version of the MC Discovery File, expressed as a timestamp of when the file contents were generated	■ **[month/day@hh:mm:sec]**
Size	The size of the MC Discovery File in bytes	■ **[Integer ≥ 0]**
Num Entries	The total number of tuning parameter entries in the MC Discovery File	■ **[Integer ≥ 1]** ■ **0**—no entries

Field Name	Description	Possible Values
Service Gp	The service group of the currently loaded MC Discovery File **Note:** In systems with no parent/child service groups, this should match the service group identified on the VOD Information and the Switched Digital Video diagnostic pages	■ **[Integer ≥ 1]** ■ **n/a**—MC Discovery file not loaded
Parent Svc Gp	The next higher-level parent service group in the hierarchy above the child service group	■ **[Integer ≥ 1]** ■ **n/a**—MC Discovery File not loaded or there is no parent service group above the child service group
Last Load Err	The error status from the last load of the mini-carousel data (MCD) in discovery. The status reflects the last error type after a successful load of the MCD	■ **NoErr**—successful load ■ **BadParamErr**—bad parameters specified ■ **OutOfStateErr**—load request denied due to inappropriate state ■ **FileNotFoundErr**—MCD file does not exist on BFS for this service group ■ **OutOfMemoryErr**—insufficient memory to process request ■ **ReadErr**—failed to read MCD file from BFS ■ **TunerConflictErr**—could not load MCD file due to higher priority tuner request ■ **FileChangedErr**—MCD file changed on BFS during read ■ **TimeoutErr**—request timed out ■ **AbortedErr**—request was intentionally aborted ■ **BadDataErr**—the data was loaded successfully but is invalid ■ **UnknownErr**—unknown error occurred during load attempt
Err Time	The time at which the last discovery file load error was reported	■ **[month/day@hh:mm:sec]** ■ **n/a**—no file load has occurred

Screen Components Page 3

Main Menu > Services > SDV > Page 3

Field Name	Description	Possible Values
Name-Status	The name and current status of the session	■ **[Name of Session]** and one of the following: • **Ready**—tuning parameters have been acquired • **Idle**—no service is selected for this session • **Pending**—Session Manager is waiting for tuning parameters from either the cache manager or the SDV server • **Unavailable**—failed to acquire tuning parameters for the selected SDV service
SessionId	The 10-byte session ID that uniquely identifies the SDV client/server session within the system	■ **[Session-dependent]**
SamSvcId/Type	The SAM service ID identifying the program and type of service defined for that session	■ **[Integer ≥ 0]** and one of the following: • **Switched**—switched digital service • **Broadcast**—broadcast service • **n/a**

Field Name	Description	Possible Values
Source Id	The ATSC source ID	■ **[Integer ≥ 0]**
Act Time	The time of activation for the session	■ **[month/day@hh:mm:sec]**
Retries/Resends	The number of times a select request has been resent due to timeout or user initiated retry, or due to a resend request for the currently selected service	■ **[Integer ≥ 0]/[Integer ≥ 0]**
Retunes	The number of times the client has received updated tuning parameters for currently selected service requiring a retune	■ **[Integer ≥ 0]**
Tuner Status	The tuner status from an SDV perspective	■ **Active**—successfully tuned ■ **Inactive**—not using a tuner ■ **n/a**—session has not yet requested a tuner
Tuner Use	An indication of how the tuner is being used	■ **Main**—tuner is being used for main TV display ■ **Rec**—tuner is being used for a scheduled recording ■ **PPV**—tuner is being used for pay-per-view (PPV) content ■ **PIP**—tuner is being used for picture-in-picture (PIP) ■ **n/a**—no tuner is in use for this session
Tv/Rec Rare	The internal identifiers for the logical hardware resources allocated for presenting and recording the SDV service	■ **[Integer > 0]**—current service to viewer is either on main TV, PIP, or AUX OUT ■ **0**—current service to viewer is not on main TV, PIP, or AUX OUT
SDV Freq	The frequency (in MHz) used by the agent to tune to the currently selected SDV service	■ **[Integer ≥ 0]**
LUA Tx Time	The time when the last user action was reported to the SDV server	■ **[month/day@hh:mm:sec]** ■ **n/a**

Field Name	Description	Possible Values
Last CCP Err	The last error from the CCP (Channel Change Protocol) for this session	■ **NoErr**—no error was reported ■ **Timeout**—timeout waiting on response from server ■ **OutOfService**—program is no longer available ■ **FormatErr**—invalid format in CCP sent to server ■ **Redirect**—force tune indication from server ■ **InvalidSG**—server cannot identify service group from its topology ■ **UnknownClient**—agent has not registered with server ■ **NoResource**— resource is unavailable ■ **BWNotAvail**—bind on edge device failed ■ **ExceedsCapacity**—server capacity of agents has exceeded ■ **VerNotSupported**—agent version is not supported ■ **unknownErr**—unknown error ■ **n/a**: CCP was not initiated
Err Time	The time that the last error was reported from the CCP for this session	■ **[month/day@hh:mm:sec]** ■ **n/a**— errors reported

EAS Diagnostic Screen

This section provides an overview diagram and field descriptions of the EAS diagnostic screen. This screen allows you to view how many emergency alert system messages that have passed to the DHCT.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- View the number of text EAS messages that the DHCT has received
- View the number of force-tune EAS messages that the DHCT has received

Screen Components

Main Menu > Services > EAS

Field Name	Description	Possible Values
Text Alerts		
Total	The total number of text-based EAS alert messages that the DHCT has received	■ **[Integer ≥ 0]**
Last Time	Timestamp of the last time that the DHCT received a text-based EAS alert message	■ **[month/day@hh:mm:sec]** ■ **n/a**
Last Duration	The duration of the last text-based EAS alert message	■ **[Integer ≥ 0]**
Force Tune Alerts		
Total	The total number of force-tune EAS alert messages that the DHCT has received	■ **[Integer ≥ 0]**
Last Time	Timestamp of the last time that the DHCT received a force-tune EAS alert message	■ **[month/day@hh:mm:sec]** ■ **n/a**

EPG Info Diagnostic Screen

This section provides an overview diagram and field descriptions of the EPG diagnostic screen. This screen allows you to view information regarding the local EPG database.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- View the status of EPG search
- View the status of the EPG local database
- View the status of the EPG data in the local database

Screen Components

Main Menu > Services > EPG Info

Field Name	Description	Possible Values
EPG Search Authorized	Shows whether EPG search is authorized	■ **Authorized** ■ **Not Authorized**
Number of Programs	Number of programs in the database	■ **[number]**
DB Name	Name of the database	■ **[network-dependent]**
DB Schema Version	Schema version of the database	■ **[network-dependent]** ■ **n/a**
Last Updated	Date of the latest database update	■ **[date/time]** ■ **n/a**
Last Pruned	Date the database was last pruned	■ **[date/time]** ■ **n/a**
Last Audited	Date the database was last audited	■ **[date/time]** ■ **n/a**
DB Size	Size of the database	■ **[size in bytes]**
State of Database	From the last 14 days, shows which days have data for the guide information (GI). If n/a, then all zeros. **Note:** The screen example above shows the dates starting on the 19th of the month, in a 31-day month.	■ **0 - not started** ■ **– - partial (in progress)** ■ **1 - complete**

9

Post & Boot Result Diagnostics

Introduction

This section provides an overview of the POST (Power On Self Test) and Boot Status diagnostic screen. The POST Results section includes the results of the self-test performed on each hardware component within the set-top at the beginning of the boot process.

In This Chapter

Post & Boot Result Diagnostic Screen

This section provides an overview diagram and field descriptions of the Post & Boot diagnostic screen. You can view the POST Results section to confirm that all hardware components have a status of "passed."

The Boot Status section includes the results of the boot process performed by the set-top. You can view the Boot Status section to confirm whether or not the set-top is ready to receive data.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Ensure that all hardware is present on the system
- Ensure that all hardware components are functioning properly
- Check the boot status of the set-top
- Determine if the set-top is ready to receive data

Screen Components

Main Menu > Post & Boot Result

Note: When a subscriber plugs the set-top into an AC power outlet, the set-top performs a self-test on each component within the set-top. The POST results are not updated automatically. You must reboot the set-top to run another self-test.

Field Name	Description	Possible Values
All fields in Post Results section (for example, UNcfg, BFS, SI, SAM, IPG, etc.)	The working status of each component within the set-top	■ **Failed**—self-test failed and the DHCT may be defective. For assistance, contact your system administrator. You may need a new DHCT ■ **n/a**—DHCT does not use the module tested in this field ■ **Passed**—component is installed and functioning correctly ■ **Unavailable**—component is not installed (optional components) or is not functioning correctly

10

Version and Macs Diagnostics

Introduction

This chapter provides information on the diagram and field descriptions of the Software Versions and Serial Numbers diagnostic screen.

In This Chapter

Version and Macs Diagnostic Screen

This section provides an overview diagram and field descriptions of the Software Versions and Serial Numbers diagnostic screen. You can view this screen to verify the version numbers and serial numbers for all applicable hardware and software modules.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Confirm the software version
- Confirm the hardware modules

Screen Components

Main Menu > Version and Macs

Field Name	Description	Possible Values
Software Versions		
PTV OS	The version for the PowerTV OS	■ **[Software-dependent]**
FLASH	The version for the resident application	■ **[Software-dependent]**
App(s)	The names and version numbers of the applications available for execution	■ **[Software-dependent]**

Field Name	Description	Possible Values
Hardware Modules		
HWConfig	The version of the hardware configuration (HWConfig) module	■ **[Hardware module-dependent]** **Note**: This value should match the revision number (without decimals, for example 5.9 will appear as 59) printed on the set-top
BIP	Not applicable to Vantage	
AC3	Not applicable to Vantage	
BGATE	Not applicable to Vantage	
BCM	Not applicable to Vantage	
TVP	Not applicable to Vantage	
RF Modem	Not applicable to Vantage	
MAC	Not applicable to Vantage	
QPSKRX	Not applicable to Vantage	
QPSKTX	Not applicable to Vantage	
ISE	Not applicable to Vantage	
ESE	Not applicable to Vantage	
DDS	Not applicable to Vantage	
Serial Number		
E-MAC	The Ethernet media access control (E-MAC) adapter MAC address, if installed	■ **[Hardware-dependent]** **Example**: 00:18:68:BF:46:32
RF-MAC	The RF network adapter MAC address	■ **[Hardware-dependent]** **Example**: 00:26:A4:BF:64:2F
ISE	The ISE component serial number	■ **[Hardware-dependent]** **Example**: 00:40:7B:BF:46:3D
ESE	The serial number of the ESE smart card (optional component)	■ **[Hardware-dependent]** **Example**: smart card is not currently in use

11

HDD Information Diagnostics

Introduction

This chapter includes information on the diagnostic screens related to the hard drive of a DVR set-top.

In This Chapter

HDD Info Screen

This section provides an overview diagram and field descriptions of the HDD Info diagnostic screen.

Important: This diagnostic screen only exists on set-top models that include a DVR.

This section provides a diagram and field descriptions of the HDD Info diagnostic screen, including the fields and parameters that are included in the screen. This screen contains information about the hard drive included within your set-top.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Verify the storage capacity of the hard drive
- Determine if the hard drive is removable

Screen Components

Main Menu > HDD Info > Page 1

Field Name	Description	Possible Values
DeviceID	The ID of the hardware device	■ **1** ■ **2**
Model	The model type for the hard drive	■ **[Device-dependent]** ■ **Unavailable**
Serial	The serial number associated with the hard drive	■ **[Device-dependent]** ■ **Unavailable**
Capacity	The total amount of disk space available on the hard drive	■ **[Device-dependent]** ■ **Unavailable**
Removable	A confirmation that indicates if the hard disk is removable	■ **No** ■ **Yes** ■ **Unavailable**

Partition Information Screen

This section provides an overview diagram and field descriptions of the Partition Info diagnostic screen. This screen contains information about the partition that exists on the hard drive.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Verify the capacity for the partition
- Verify the amount of available space that remains in the partition
- Determine if any lost or bad clusters exist in the partition

Screen Components

Main Menu > HDD Info > Pages 2 & 3

Field Name	Description	Possible Values
DeviceID	The ID hardware device	■ **1** ■ **2**
FS Type	The type of file system present within the partition	■ **AVFS** ■ **ITFS** ■ **Reserved**
Parttin Size	The total size of this partition within the hard drive	■ **[Integer > 0]**
Free Space	The amount of available space within this partition	■ **[Integer > 0]**
Del. Files	The number of files deleted from this partition	■ **[Integer ≥ 0]**
X-Linked	The number of crosslinked files that exist within the partition.	■ **0**—desired value **Note:** If this is a large value, call Cisco Services.
LostClusters	The number of lost clusters (data fragment that does not associate with any files) within the partition	■ **0**—desired value **Note:** If this is a large value, call Cisco Services.
BadClusters	The number of bad clusters (clusters having a physical flaw) on the hard disk.	■ **0**—desired value **Note:** If this is a large value, call Cisco Services.

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CableCARD MMI Diagnostics

Introduction

This chapter includes information on the diagnostic screens related to the CableCARD module MMI.

In This Chapter

CableCARD MMI Diagnostic Screen

The CableCARD MMI diagnostic screen allows you to view the current MMI screen displayed by the CableCARD module.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- View the current CableCARD module MMI screen

Screen Components

Main Menu > CableCARD MMI

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Card Diagnostics

Introduction

This chapter provides a summary of the Card diagnostic screen.

In This Chapter

Card Diagnostic Screen

The Card Screen allows you to launch the manufacturer CableCARD Module diagnostic screens.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Launch the manufacturer CableCARD module diagnostic screens

Screen Components

Main Menu > CableCARD

Launching the CableCARD Module Diagnostic Screens

To launch the CableCARD module diagnostic screens from this diagnostic screen, press and hold the **SELECT** button on the set-top or on the remote control. The manufacturer CableCARD module diagnostic screens open.

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Screen&Clean

Introduction

This chapter describes the Screen&Clean process available on Vantage set-tops.

In This Chapter

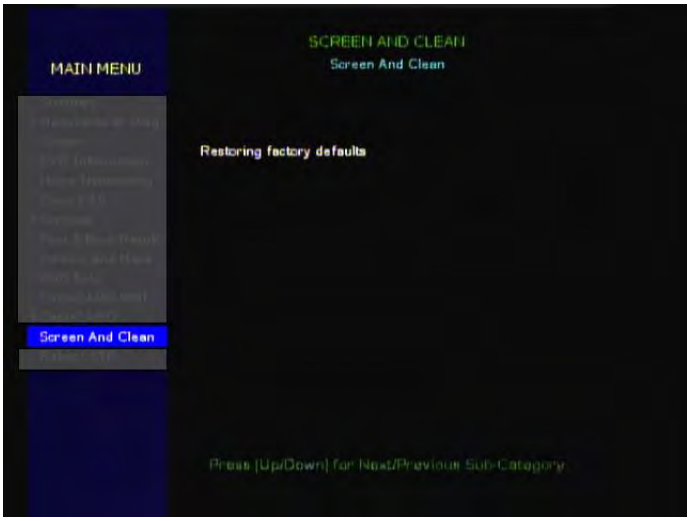
Launching the Vantage Screen&Clean

1. Screen&Clean allows you to clear the data on the set-top, set the set-top back to factory settings, and resets the client NVM. This process also removes all PPV data and reformats the hard drive (if applicable).
2. Follow these instructions to launch the Vantage Screen&Clean.
3. Is the set-top in brick mode?
   - If **yes**, continue with the next step.
   - If **no**, you must put the set-top in brick mode to access Screen&Clean. Follow your site's procedures for placing the set-top into brick mode before continuing.
4. Open the set-top diagnostic screens as described in ***Accessing Vantage Diagnostic Screens*** (on page 2).
5. Navigate to the Post & Boot Result diagnostic screen.

6 Using the remote control, enter the clearing access code (728469).

Note: There is no feedback to you that shows whether you entered the code correctly.

Results: If you enter the code correctly, a new category (Screen And Clean) appears on the screen and the Screen&Clean action starts. The complete action takes about one minute and causes a set-top reboot. If the set-top contains a hard drive, a second reboot follows shortly.



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Reboot STB Screen

Introduction

This chapter provides a summary of the Reboot STB diagnostic screen.

In This Chapter

Reboot STB Diagnostic Screen

This section provides the instructions on how to use the Reboot STB diagnostic screen.

Performing Tasks

By accessing this diagnostic screen, you can perform the following tasks:

- Reboot the set-top from the diagnostic screen

Screen Components

Main Menu > Reboot STB

Rebooting the Set-Top from the Screen

To reboot the set-top from this diagnostic screen:

Press and hold the **SELECT** button on the set-top or on the remote control for 5 seconds. The set-top will reboot.

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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.

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