



# DVR Hard Disk Drive Diagnostic Tool Technical Reference

## Overview

### Introduction

Explorer® set-tops with DVR capability\* contain a hard disk drive (HDD). The DVR set-top firmware contains a comprehensive set of tests, also known as the HDD Diagnostic Tool (HDT), to help you repair error conditions and identify defective drives in the field.

**\*Note:** Explorer 8300 embedded, 8300 CableCARD™ host products, and all latter DVR set-top products are supported. Explorer set-top models 8000 and 8010 are not supported.



#### **WARNING:**

**HDD Diagnostics are destructive and result in loss of subscriber recordings.**

### Purpose

The HDT identifies drive problems and repairs errors if possible. Bad sectors are remapped and other error conditions are cleared if the drive can be returned to service. Set-tops with irreparable drive errors need to be returned to Cisco® Services.

For HDD Diagnostics, you can consider drives as having two areas:

- AVFS— The audio-visual file system, which holds recorded programs.
- ITFS— The IT file system, which holds data to manage recorded programs.

There are two phases of testing in HDD Diagnostics:

- Phase 1 tests the ITFS area and is expected to run less than 10 minutes.
- Phase 2 tests the AVFS area and is expected to run from 1 hour to 3 hours and 40 minutes.

The time required for each phase is dependent on disk size. Larger disks and drives with many correctable errors can take more time.

### Audience

This document is written for staging area personnel responsible for staging set-tops, set-top installation personnel, and system operators of the DNCS.

## Document Version

This is the second formal release of this document. In addition to minor text and graphic changes, the following table provides the technical changes to this document.

Description	See Topic
Document updated to reflect that all DVR Explorer set-tops, with the exception of models 8000 and 8010, are now supported.	N/A
Updated AVFS total run time to reflect that tests may take as long as 3 hours and 40 minutes due to larger hard drives in recent set-top models.	See <i>Purpose</i> on page 1.

## Using the HDT

This section provides information about using the tests in the HDT. These tests include activating and aborting HDD Diagnostics, monitoring progress indicators, and restarting the set-top when testing is completed.

### Activating HDD Diagnostics

To activate HDD Diagnostics, you will press the **SELECT** and **VOLUME UP/+** front panel buttons simultaneously on hard power up until *dISC* is displayed on the front panel LEDs.

#### Steps:

- Install set-tops on racks
- Apply RF
- While holding VOLUME UP/+ and SELECT simultaneously, apply power (see note below)

**Tip:** For some set-tops, you may need to hold SELECT and VOLUME UP/+ for 15 seconds before *dISC* appears.

**Note:** Set-top power can be reset using any of these methods:

- Press the Volume Up, Volume Down, and Info buttons simultaneously.
- Plug the set-top into a power strip. Click the power strip switch off and on.
- Unplug and reinsert the power cord on the back panel of the set-top.

If a drive cannot be accessed, HDD Diagnostics are not activated and the front panel briefly displays an error (ER50 through ER55) during a boot. The set-top goes into hunt mode and attempts to download new software. Set-tops with these errors need to be returned to Cisco Services.

### Aborting HDD Diagnostics

To abort, press any front panel button during the 15-second period when *dISC* is flashing on the front panel LEDs.

**Result:** HDD Diagnostics stop and PowerTV® OS starts.

**Important:** Once the test has progressed to Ph1, interrupting the test is not recommended.

### Progress Indicators

Unless interrupted, once started, HDD Diagnostics run to completion. The following table provides a list of progress indicators that display on the front panel LEDs for HDD Diagnostics.

Indicator	Description
boot	The set-top is rebooting.
dISC	This indicator appears as follows: <ul style="list-style-type: none"> <li>■ Displays for at least two seconds when HDD Diagnostics starts running.</li> <li>■ Flashes for 15 seconds when HDD Diagnostics starts running. While dISC is flashing, HDD Diagnostics can be terminated by pressing any front panel button.</li> </ul>
Err	HDD Diagnostics cannot start. For example, no drive is detected.
Ph1	Short tests are running.
Ph2	Long tests are running.
PASS	HDD Diagnostics are finished. The set-top passes testing and is functional.
FAIL	HDD Diagnostics are finished. The set-top fails testing and needs to be returned to Cisco Services.

When finished, HDD Diagnostics displays either PASS or FAIL on the front panel LEDs. If neither PASS nor FAIL is displayed, as in the case of a power interruption that terminates HDD Diagnostics and reboots the set-top, you need to reactivate HDD Diagnostics on hard power up.

## Restarting the DHCT

At the end of the HDT, if you see PASS on the front panel LED display, you will then need to retest the set-top using the following steps.

- 1 Power cycle the set-top.
- 2 Test DVR functionality by performing one of the following tasks:
  - Pause Live TV  
OR
  - Press the Record button to ensure that the Record light appears

**Important:** If you Record content as part of the retest, remember to "erase" all recorded content off of the hard disk drive before redeploying the set-top.

**Note:** If you are still unable to Pause live TV or Record video after power cycling the set-top the first time, it may be necessary to power cycle the set-top a second time in order for the drive to function properly.

## For Information

### **If You Have Questions**

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



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