Setting Up the DREDD Proxy Server

For System Release 4.3

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

The Data Reduction and Delivery Design (DREDD) proxy server on the DNCS platform enables set-tops and CableCARD™ hosts to run the GuideWorks *iGuide* navigator system.

The *iGuide* navigator system is an electronic programming guide (EPG) that provides a user interface to the set-top box with basic functionality such as scrolling, selecting, and reviewing program information. It also provides a seamless interface to Pay-Per-View (PPV) and Video-On-Demand (VOD) capabilities and enhances the user viewing experience with Parental Control and Favorites capabilities.

System Impact

Due to the system impact of configuring the DREDD proxy server, you must perform the configuration during a maintenance window.

Important: Make appropriate arrangements to configure the DREDD proxy server during a maintenance window.

Purpose

The purpose of this document is to identify and explain procedures that should be used to prepare, configure, and to troubleshoot very basic issues regarding the DREDD proxy server resident on the DNCS platform.

Scope

This document focuses on the preparation, configuration, and failure response for new installations of the DREDD proxy server on the DNCS.

Important: Since this feature is intended only for MSOs using the GuideWorks IPG, it is not automatically enabled on the DNCS. We recommend you contact the representative who handles your account to have the DREDD proxy server enabled on your DNCS.

Audience

This document is written for system operators who configure interactive services, our applications, and third-party applications onto the DNCS and our DBDS. This guide assumes the operator has experience using the UNIX operating system.

Document Version

This is the fourth 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
Clarified instructions for synchronizing source IDs by referring readers to *DBDS Utilities Version 6.3 Installation Instructions and User Guide* (part number 4031374).	***Configure the DREDD Proxy Server*** (on page 5).

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Introducing the DREDD Proxy Server

Introduction

The DREDD proxy server enables our set-tops and CableCARD Hosts to run the GuideWorks iGuide IPG navigator. This requires a number of new components on the DNCS platform including:

- DREDDProxy Server
- DREDDConfig
- iGuideFiles

These components work together to achieve the DREDD Data Transport Process.

This chapter defines the three key components and explains how they are used in the DREDD Data Transport process.

Important: Contact the representative who handles your account to have the DREDD proxy server enabled on your DNCS.

In This Chapter

DREDD Process Required Components

This section identifies three key components of the DREDD process: DREDD proxy server, DREDDConfig, and iGuideFiles.

DREDD Proxy Server

The DREDD proxy server facilitates secure iGuide navigation. The DBDS is modified to accommodate the DREDD proxy server on the DNCS as shown in the following DNCS Control panel illustration.

The DNCS process retrieves EPG data files via FTP from DREDD, which processes the files and uses standard Broadcast File System (BFS) server APIs to populate files on the appropriate carousel.

DREDDConfig

The DREDDConfig file enables the DREDD proxy server to communicate with the GuideWorks server supplying EPG data.

iGuideFiles

These files provide filtering data used by the DREDD process to create our unique software version of the hardware EPG filter.

DREDD Data Transport

Introduction

Various data transport mechanisms are used to provide set-tops with network and server security.

Trickle-Feed Filtering

One approach to set-top security is to sort EPG data using a "trickle-feed" filtering strategy by maintaining filter values in hardware registers. Data that matches the filter values is kept and the remaining data is discarded.

File-Based Filtering

Instead of using the trickle-feed strategy, our set-tops use a file-based filtering mechanism. The DREDD process aggregates the EPG data stream into a file format that can be placed on the BFS carousel subsystem for consumption by set-tops and CableCARD hosts running GuideWorks' iGuide client application.

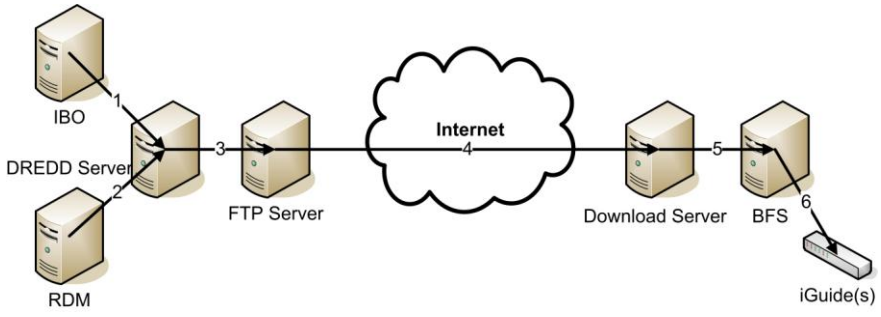
This enables us to provide iGuide support on our set-top boxes. Depending on the available bandwidth of the BFS carousel, we can support both the SA Resident Application interactive program guide (IPG) and the GuideWorks electronic programming guide (EPG) at the same time on the ISDS or DNCS.

DREDD Data Transport Process

The DREDD proxy server transfers TV Guide Interactive Back Office (IBO) data including reduction, configuration, and hardware filter values from the TV Guide Reduction Data Management (RDM) System to a TV Guide-managed FTP server.

Download servers take the data from the FTP server to the BFS, which distributes hardware filter values to set-tops. The filter values are used to sort and accept or discard EPG data.

The DREDD transport scenario is illustrated below in the following illustration of the DREDD File-based Filtering Process.



Interface Number	Description
1	The TV Guide IBO places data sets on the DREDD server
2	RDM populates the contents of the /lfg/sa_dredd directory
3	DREDD transfers FileGroups and HWFilter files to the FTP Server
4	Download servers pull (get) needed files (tarballs) from the FTP Server
5	Download servers extract FileGroup and hwfilter data from the tarballs and place extracted files on the BFS for carouseling
6	The iGuides read the carouseled files

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Configure the DREDD Proxy Server

Introduction

The DNCS must be properly prepared before you can enable the DREDD proxy server. This chapter provides information about preparing the DNCS and configuring the DREDD proxy server after it has been enabled.

Important:

- Before enabling the DREDD proxy server, you must use the mvsrcid utility to synchronize the source IDs on the DNCS with the iGuide source IDs (TVGuide source IDs) on the DREDD proxy server. This will enable iGuide EPG data to be shown on the set-top client navigator. See *DBDS Utilities Version 6.3 Installation Instructions and User Guide* (part number 4031374) for a detailed description of the how to use the mvsrcid utility to complete the synchronization process.

  Note: The iGuide source IDs and the TVGuide source IDs are the same.

- After you synchronize the DNCS and iGuide source IDs, enable DREDD on the DNCS. (You may have to contact the representative who handles your account to have the DREDD proxy server enabled on your DNCS.)

System Impact

Due to the system impact of configuring the DREDD proxy server, you must perform the configuration during a maintenance window.

Important: Make appropriate arrangements to configure the DREDD proxy server during a maintenance window.

In This Chapter

Configure the DREDDConfig File

The DREDDConfig file stores the defaults particular to your DREDD proxy server installation, including system settings and file configurations. Consult with TV Guide to determine the correct settings for your installation.

Note: When a change is made to the DREDDConfig file, the DREDD proxy server must be bounced (stopped and restarted) for the change to take effect.

To configure the DREDDConfig file, complete the following steps.

1. Open an xterm window.
2. Type **cd /dvs/dvsFiles/iGuide** and press **Enter**. The /dvs/dvsFiles/iGuide directory is now the working directory.
3. Type **cp DREDDConfig.default DREDDConfig** and press **Enter**.
4. Type **vi DREDDConfig** and press **Enter.** The vi editor opens the DREDDConfig file for editing.
5. Use the appropriate vi commands to edit the file.
6. Type **wq!** to close the vi editor and save the updates to the file.
7. Compare your file with the following example file and use it as a guideline to correct any errors.

   Note: For HOSTNAME, USER, and PASSWD information, contact your TV Guide representative.

   Example of a DREDDConfig File:

```
# config file for DREDDProxyServer
# values are colon-separated, no spaces
# hash mark starts a comment, until end-of-line
HOSTNAME:<xxx.xxx.xxx.xxx>                      # FTP server machine
USER:<User_Name>                                # user for FTP
PASSWD:<Password>                               # password for FTP
FTPDIR:/dvs/dvsFiles/iGuide/ftpServer           # directory on FTP server
LOCALFTPBASEDIR:/dvs/dvsFiles/iGuide/incoming   # where to FTP files to
LOCALBFSBASEDIR:/dvs/dvsFiles/iGuide/working    # directory for BFS copies
FILEDICT:iGuideFiles                            # file with list of files to
                                                copy and manage
TIMER:600                                       # how often to check (in
                                                seconds)
PASSIVEMODE:0                                   # A non-zero number will use
                                                passive FTP
```

Add FTP DREDD Proxy Server Route to File

To ensure that the route is added during DNCS reboots, you must add the FTP proxy server route to the /etc/rc2.d/S82atminit file.

Important: You must direct your internal network support representatives to add a public IP address that will allow external access to the DREDD Service. If you have any questions, contact the representative who handles your account.

Complete the following steps:

1. Open an xterm window.
2. At the prompt, type **su -** and press **Enter**. A password prompt appears.
3. Type the root user password and press **Enter**. A prompt for the root user appears.
4. Type **/usr/sbin/route add xxx.xxx.xxx.xxx yyy.yyy.yyy.yyy 1** and press **Enter**.

   Note:

   - xxx.xxx.xxx.xxx represents the public IP address of the DREDD Server
   - yyy.yyy.yyy.yyy represents the IP address of the gateway used to reach the DREDD Server
   - 1 is the hop count value that specifies a "gateway" route
5. To make these route changes permanent, add them to /etc/rc2.d/S82atminit as shown in the following example:

```
/usr/sbin/route add xxx.xxx.xxx.xxx yyy.yyy.yyy.yyy  1 #  DREDDProxy Server
```

Enable the BFS Admin Sources

To enable the BFS Admin sources, complete the following steps:

1. Open the BFS Admin GUI.
2. Select the **Sources** tab.
3. Click **File** and **New** to create a new BFS Source.
4. Create a BFS Source with the recommended data shown below. If the Source IDs 9001 - 9004 are already in use, choose four unused, consecutive numbers.

```
DREDD1      9001        Data Rate 10000    Block Size=1024
```

5. Click **Save** to save the setting and close the GUI.
6. Repeat steps 3 to 5 to create three more BFS Sources.

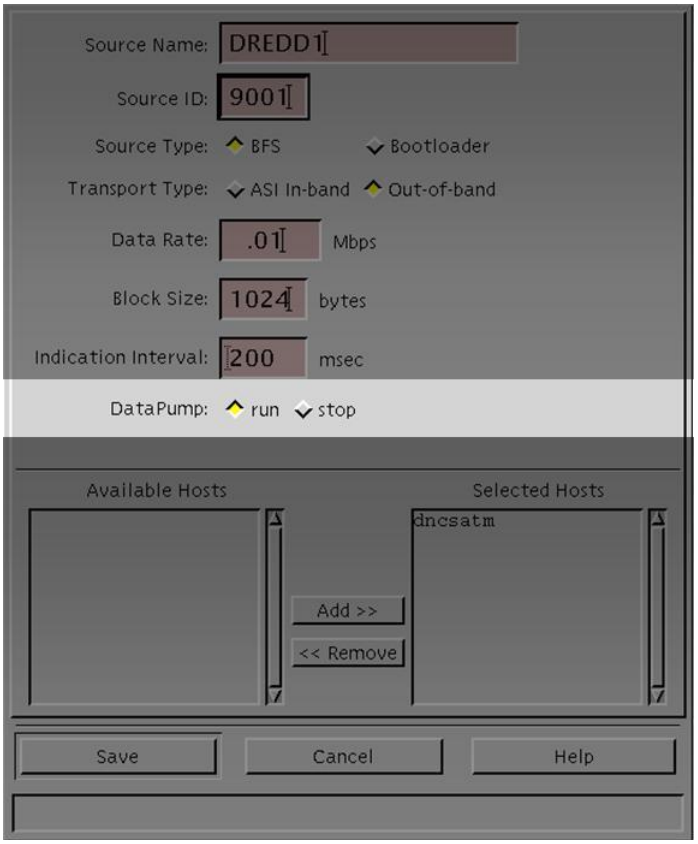
```
DREDD1      9001        Data Rate 10000    Block Size=1024

DREDD2      9002        Data Rate 40000    Block Size=1024

DREDD3      9003        Data Rate 80000    Block Size=1024

DREDD4      9004        Data Rate 120000   Block Size=1024
```

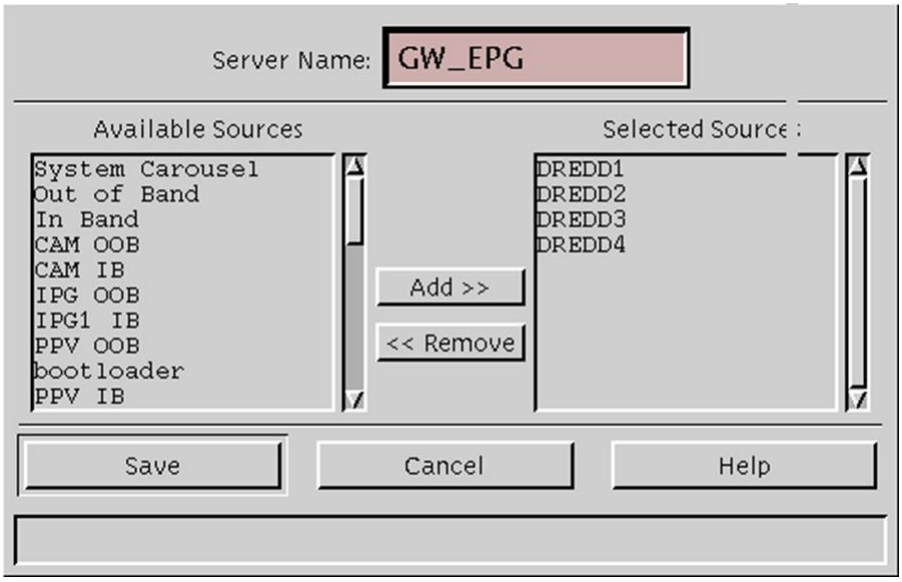
Important: The DataPump must be set to **run** (see below) in order for you to use these sources.



7 On the BFS Admin GUI, select the **Servers** tab.

8 Click **File** and **New** to create a new BFS Server.

9 In the **Server Name** field, type **GW_EPG**.



10 From the **Available Sources** section, select the four DREDDProxy Sources that you created in Step 6 and click **Add** to move them to the **Selected Sources** section.

11 Click **Save** to save the settings. Close the GUI.

Configure the iGuide File

The iGuide files provide filtering data used by the DREDD process to secure the EPG data stream.

Important: Before you configure the iGuide file you must verify that the Source IDs are unique and have not been assigned on your system.

To configure the iGuide file, complete the following steps.

1. Open an xterm window.
2. Type **cd /dvs/dvsFiles/iGuide** and press **Enter**.
3. Type **cp iGuideFiles.default iGuideFiles** and press **Enter**.
4. Compare your file with the following example file and use it as a guideline to correct any errors.

   Example of an iGuide File:

```
# list of files the DREDD proxy server must manage from the FTP server
# checksum file name, data file name, subdirectory for data file, bfs source
# (cont) last access timestamp
hwfilters.SuC:hwfilters.tar.gz:reduction/:9001:0
filegroup.SuC:filegroup.dta:brd/:9001:0
A.SuC:A.tar.gz:brd/A/:9002:0
C.SuC:C.tar.gz:brd/C/:9002:0
E.SuC:E.tar.gz:brd/E/:9002:0
G.SuC:G.tar.gz:brd/G/:9003:0
I.SuC:I.tar.gz:brd/I/:9004:0
K.SuC:K.tar.gz:brd/K/:9004:0
```

5. Are corrections needed?
   a. If **no,** the iGuide file configuration is complete.
   b. If **yes,** continue to step 6.
6. Type **vi iGuideFiles** and press **Enter**.
7. Use the appropriate vi editor commands to edit the file.
8. Type **wq!** to close the vi editor and save the updates to the file.

Start the DREDD Proxy Server

Follow these instructions to start the DREDD proxy server process.

1 From the DNCS Control window, click to highlight the DREDDProxyServer process.

2 Click **Process** and then select **Stop Process**. In a few minutes, the indicator for the DREDDProxyServer process changes to red.

3 Click **Process** again and then select **Start Process**. In a few minutes, the indicator for the DREDDProxyServer process changes to green.

Download the iGuide Client Code to the Set-Top

Important: Have the iGuide code on hand before you attempt to complete this step.

Download the current client software applicable or compatible with the native iGuide solution to 2010, 3250HD, 8300 and 8300HD set-tops. This can be found on our FTP site at **ftp.sciatl.com** and the files are in the iGuide directory.

Important: Individual customers may approve different software versions for a particular model of set-top. If you are downloading application platform software for a set-top model, you need to choose the software version that is approved by your management team. You should not decide which software files to download from the server based on date or release number. Testing the software before planning a system-wide deployment is critical to minimizing disruption to your subscribers.

If you have any questions, contact Cisco Services for assistance.

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Troubleshooting the DREDD Proxy Server

Introduction

This chapter explains how to approach three common questions about the DREDD proxy server.

Important: When troubleshooting the DREDD proxy server, use the /dvs/dncs/tmp/DREDDProxyServer.xxx log file.

In This Chapter

Cannot Establish a Connection

If the DREDDProxy process cannot establish a connection with the remote iGuide EPG server, the process status on the DNCS Control GUI will appear yellow. The next time the DREDDProxy process runs (usually every 10 minutes, depending on the configuration) and file retrieval is successful, the process will return to a green status.

If the process does not return to a green status in the next 30 minutes (after the DREDDProxy process has run three more times), contact Cisco Services for assistance.

Timestamp Is 0

If the DREDDProxy server cannot read the files on the remote FTP server during file retrieval, the timestamp will be shown as 0 in the DREDDProxyServer log file. This generally indicates that communication has not been established or the files are not available.

Note: The following examples display only one example of the many DREDDProxy files that are updated. Contact Cisco Services for assistance.

Example of a correctly-read file:

```
Tue Apr 29 15:51:21 2008|DEBUG|DREDDProxyServer.pl(213)|: checkFile
Tue Apr 29 15:51:21 2008|DEBUG|DREDDProxyServer.pl(215)|: ftpserverdir ./
Tue Apr 29 15:51:21 2008|DEBUG|DREDDProxyServer.pl(216)|: filename hwfilters.SuC
Tue Apr 29 15:51:21 2008|DEBUG|DREDDProxyServer.pl(219)|: File: hwfilters.SuC
last modified:1209491445
Tue Apr 29 15:51:21 2008|DEBUG|DREDDProxyServer.pl(225)|: checkFile done

Tue Apr 29 15:51:21 2008|DEBUG|DREDDProxyServer.pl(180)|: self-
>lastTimestamp : self->latestTimestamp = 1209491445:1209491445
Tue Apr 29 15:51:21 2008|DEBUG|DREDDProxyServer.pl(245)|: file  was NOT modified
```

Example of an unread file:

```
Tue Apr 15 07:38:36 2008|DEBUG|DREDDProxyServer.pl(210)|: checkFile
Tue Apr 15 07:38:36 2008|DEBUG|DREDDProxyServer.pl(212)|: ftpserverdir /
Tue Apr 15 07:38:36 2008|DEBUG|DREDDProxyServer.pl(213)|: filename hwfilters.SuC
Tue Apr 15 07:38:36 2008|DEBUG|DREDDProxyServer.pl(216)|: File: hwfilters.SuC
last modified:
Tue Apr 15 07:38:36 2008|DEBUG|DREDDProxyServer.pl(222)|: checkFile done

Tue Apr 15 07:38:36 2008|DEBUG|DREDDProxyServer.pl(177)|: self-
>lastTimestamp : self->latestTimestamp = 0:
Tue Apr 15 07:38:36 2008|DEBUG|DREDDProxyServer.pl(242)|: file  was NOT modified
```

Invalid File

If there is a mismatch in the checksum values when comparing the tar file and the value contained in the SuC file, DREDDProxy considers the file invalid and will not download the new file. This generates a message in the /dvs/dncs/tmp/DREDDProxyServer.xxx log file. A checksum mismatch generally indicates a difficulty with the file on the remote DREDD server, but a DREDDProxyServer file update will include a new download, which should resolve the problem. If the problem persists, we encourage you to contact GuideWorks for assistance.

Example of a file when the checksums of a transferred file do NOT match:

```
11:56:11 2008|DEBUG|DREDDProxyServer.pl(227)|: filename E.SuC

11:56:11 2008|DEBUG|DREDDProxyServer.pl(230)|: File: E.SuC last
modified:1173456459

11:56:11 2008|DEBUG|DREDDProxyServer.pl(236)|: checkFile done

11:56:11 2008|DEBUG|DREDDProxyServer.pl(191)|: self->lastTimestamp : self-
>latestTimestamp = 0:1173456459

11:56:11 2008|INFO|DREDDProxyServer.pl(268)|: file E.SuC was modified

11:56:11 2008|DEBUG|DREDDProxyServer.pl(270)|: now, self=
DreddFileInfo=HASH(0x3286dc)

11:56:11 2008|DEBUG|DREDDProxyServer.pl(200)|: getfile

11:56:11 2008|DEBUG|DREDDProxyServer.pl(202)|: getFile cwd /test/

11:56:11 2008|DEBUG|DREDDProxyServer.pl(206)|: getFile
os.chdir/dvs/dvsFiles/iGuide/incoming/

11:56:11 2008|DEBUG|DREDDProxyServer.pl(208)|: getFile
os.chdir/dvs/dvsFiles/iGuide/incoming/ done

11:56:11 2008|DEBUG|DREDDProxyServer.pl(209)|: getFile retrbinary E.SuC

11:56:11 2008|DEBUG|DREDDProxyServer.pl(200)|: getfile

11:56:11 2008|DEBUG|DREDDProxyServer.pl(202)|: getFile cwd /test/

11:56:11 2008|DEBUG|DREDDProxyServer.pl(206)|: getFile os.chdir
/dvs/dvsFiles/iGuide/incoming/brd/E/

11:56:11 2008|DEBUG|DREDDProxyServer.pl(208)|: getFile os.chdir
/dvs/dvsFiles/iGuide/incoming/brd/E/ done

11:56:11 2008|DEBUG|DREDDProxyServer.pl(209)|: getFile retrbinary E.tar.gz

11:56:11 2008|DEBUG|DREDDProxyServer.pl(241)|: runChecksum(filename=
/dvs/dvsFiles/iGuide/incoming/brd/E/E.tar.gz)

11:56:11 2008|DEBUG|DREDDProxyServer.pl(244)|: output= 2246183411

11:56:11 2008|DEBUG|DREDDProxyServer.pl(294)|: checksumFilePath =
/dvs/dvsFiles/iGuide/incoming/E.SuC

11:56:11 2008|DEBUG|DREDDProxyServer.pl(300)|: checksum file line: 3121620076
4351 E.tar.gz

11:56:11 2008|DEBUG|DREDDProxyServer.pl(301)|: cksum: 3121620076
```

11:56:11 2008|DEBUG|DREDDProxyServer.pl(276)|: calcChecksum=:2246183411: transferChecksum=:3121620076

11:56:11 2008|ERROR|DREDDProxyServer.pl(280)|: checksums differ, removing data file: E.tar.gz

11:56:11 2008|ERROR|DREDDProxyServer.pl(283)|: Removed file: /dvs/dvsFiles/iGuide/incoming/brd/E/E.tar.gz

Example of a file when the checksums of a transferred file do match:

```
14:01:30 2008|DEBUG|DREDDProxyServer.pl(227)|: filename E.SuC

14:01:30 2008|DEBUG|DREDDProxyServer.pl(230)|: File: E.SuC last
modified:1190379361

14:01:30 2008|DEBUG|DREDDProxyServer.pl(236)|: checkFile done

14:01:30 2008|DEBUG|DREDDProxyServer.pl(191)|: self->lastTimestamp : self-
>latestTimestamp = 0:1190379361

14:01:30 2008|INFO|DREDDProxyServer.pl(268)|: file E.SuC was modified

14:01:30 2008|DEBUG|DREDDProxyServer.pl(270)|: now, self=
DreddFileInfo=HASH(0x3286dc)

14:01:30 2008|DEBUG|DREDDProxyServer.pl(200)|: getfile

14:01:30 2008|DEBUG|DREDDProxyServer.pl(202)|: getFile cwd /test/

14:01:30 2008|DEBUG|DREDDProxyServer.pl(206)|: getFile os.chdir
/dvs/dvsFiles/iGuide/incoming/

14:01:30 2008|DEBUG|DREDDProxyServer.pl(208)|: getFile os.chdir
/dvs/dvsFiles/iGuide/incoming/ done

14:01:30 2008|DEBUG|DREDDProxyServer.pl(209)|: getFile retrbinary E.SuC

14:01:31 2008|DEBUG|DREDDProxyServer.pl(200)|: getfile

14:01:31 2008|DEBUG|DREDDProxyServer.pl(202)|: getFile cwd /test/

14:01:31 2008|DEBUG|DREDDProxyServer.pl(206)|: getFile os.chdir
/dvs/dvsFiles/iGuide/incoming/brd/E/

14:01:31 2008|DEBUG|DREDDProxyServer.pl(208)|: getFile os.chdir
/dvs/dvsFiles/iGuide/incoming/brd/E/ done

14:01:31 2008|DEBUG|DREDDProxyServer.pl(209)|: getFile retrbinary E.tar.gz

14:01:31 2008|DEBUG|DREDDProxyServer.pl(241)|: runChecksum(filename=
/dvs/dvsFiles/iGuide/incoming/brd/E/E.tar.gz)

Thu Sep  4 14:01:31 2008|DEBUG|DREDDProxyServer.pl(244)|: output= 2119557721

Thu Sep  4 14:01:31 2008|DEBUG|DREDDProxyServer.pl(294)|: checksumFilePath =
/dvs/dvsFiles/iGuide/incoming/E.SuC

Thu Sep  4 14:01:31 2008|DEBUG|DREDDProxyServer.pl(300)|: checksum file line:
2119557721 8054 E.tar.gz

Thu Sep  4 14:01:31 2008|DEBUG|DREDDProxyServer.pl(301)|: cksum: 2119557721

Thu Sep  4 14:01:31 2008|DEBUG|DREDDProxyServer.pl(276)|:
calcChecksum=:2119557721: transferChecksum=:2119557721

Thu Sep  4 14:01:31 2008|DEBUG|DREDDProxyServer.pl(489)|: timerHandler i =
DreddFileInfo=HASH(0x93058)

Thu Sep  4 14:01:31 2008|DEBUG|DREDDProxyServer.pl(183)|: fileIsModified
```

4

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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