Seagate Barracuda HHD Replacement

Version 1.0
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Purpose

This document addresses customer's concerns related to a recent increase in SATA disk failure frequency observed in the live production environment. It provides customers with a Method Of Procedure (MOP) to determine the process for replacement of these drives, and order of execution to follow when replacing the Seagate Barracuda HDD models with Seagate Constellation or Western Digital RE4 disks. It normally takes approximately 45-60 minutes per device to complete this operation.

Note Please read the whole document before attempting this operation.

Before going onsite, gather the following items:

1. USB DVD drive
2. Keyboard
3. Mouse
4. Monitor with cable
5. CDS-IS 2.5.11.11 Rescue CD
6. Software
7. Seagate ST500NM0011 or Western Digital WD5003ABYX disk, 12 per device (some SR and CDSM models only have three disks). This document assumes the disks are new formatted and blank. If you are pulling disks from some other source, you may need to erase old data or format drive.

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Identifying a Drive

Customers have been experiencing a recent increase in SATA disk failure frequency observed in their live Internet Streamer CDS production network (CDD). These disk failures are specifically related to the Barracuda HDD model type (Seagate Part Number ST3500320NS). Table 1 shows the different HDD model types.

Table 1 HDD Motel Types

Manufacture	Part Number	Product Name	Cisco Part Number	Firmware Version	Approximate Introduction	Status
Seagate	ST3500320NS	Barracuda	74-5720-01	SN06	2010	EOL
Seagate	ST3500514NS	Constellation	74-5720-02	SN11	2011	EOL
Seagate	ST500NM0011	Constellation	74-5720-03	SN33	2012	Available
Western Digital	WD5003ABYX	RE4	74-5720-03	1S02	2012	Available

The Root Cause Analysis Cisco has received from Seagate indicated degraded heads because of interactions with thermal asperities that manifest themselves as read errors. Read/write issues caused by head interactions with buried defects resulted in degraded heads.

Run the **show disk SMART-info** to see both Model and Firmware Versions:

```
ServiceEngine# show disk SMART-info
=== disk00 ===
smartctl version 5.38 [i686-spcdn-linux-gnu] Copyright (C) 2002-8 Bruce Allen
Home page is http://smartmontools.sourceforge.net/

=== START OF INFORMATION SECTION ===
Device Model:     ST3500320NS
Serial Number:    9QMCJGAT
Firmware Version: SN06
User Capacity:    500,107,862,016 bytes
Device is:        Not in smartctl database [for details use: -P showall]
ATA Version is:   8
ATA Standard is:  ATA-8-ACS revision 4
Local Time is:    Mon Aug 22 04:04:04 2011 UTC
SMART support is: Available - device has SMART capability.
SMART support is: Enabled

=== disk01 ===
smartctl version 5.38 [i686-spcdn-linux-gnu] Copyright (C) 2002-8 Bruce Allen
Home page is http://smartmontools.sourceforge.net/

=== START OF INFORMATION SECTION ===
Device Model:     ST3500320NS
Serial Number:    9QMCJKNQ
Firmware Version: SN06
User Capacity:    500,107,862,016 bytes
Device is:        Not in smartctl database [for details use: -P showall]
ATA Version is:   8
ATA Standard is:  ATA-8-ACS revision 4
Local Time is:    Mon Aug 22 04:04:04 2011 UTC
SMART support is: Available - device has SMART capability.
SMART support is: Enabled

=== disk02 ===
smartctl version 5.38 [i686-spcdn-linux-gnu] Copyright (C) 2002-8 Bruce Allen
Home page is http://smartmontools.sourceforge.net/
```

```
=== START OF INFORMATION SECTION ===
Device Model:     ST3500320NS
Serial Number:    9QMCJL81
Firmware Version: SN06
User Capacity:    500,107,862,016 bytes
Device is:        Not in smartctl database [for details use: -P showall]
ATA Version is:   8
ATA Standard is:  ATA-8-ACS revision 4
Local Time is:    Mon Aug 22 04:04:04 2011 UTC
SMART support is: Available - device has SMART capability.
SMART support is: Enabled
…
```

The top of the drive label clearly states either Barracuda or Constellation and the Cisco Part number (see Figure 1.

Figure 1 Drive Label

Physical Drive Position and Disk Numbering

Figure 2 shows the physical drive position and disk numbering on a SE 205.

Figure 2 SE 205 Drives and Disk Numbering

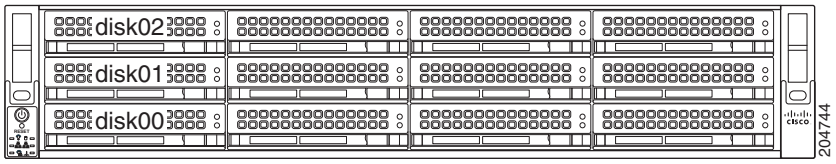
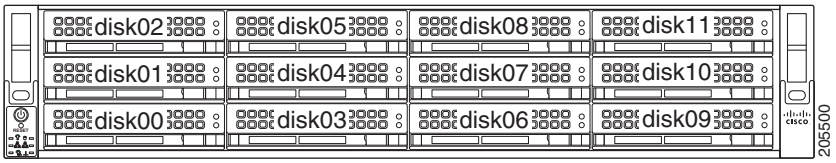


Figure 3 shows the physical drive position and disk numbering on a SE 220.

Figure 3 SE 200 Drives and Disk Numbering



Sequence of Replacements

This is the standard sequence of replacements:

1. Standby CDSMs (disk replace before primary when using the GUI only.)
2. Primary CDSM
3. Service Router
4. Proximity Engine
5. Content Acquirers
6. Middle tier SEs in each delivery service. The middle tier SEs are disk replace and the content is redistributed from the upstream SEs or the Content Acquirer.
7. Edge SEs in each delivery service. The edge SEs are disk replace and the content is redistributed from the upstream SEs.

This is the optional sequence of replacements:

1. Standby CDSMs (disk replace before primary when using the GUI only.)
2. Primary CDSM
3. Edge SEs in each delivery service. The edge SEs are disk replace and the content is redistributed from the upstream SEs.
4. Middle tier SEs in each delivery service. The middle tier SEs are disk replace and the content is redistributed from the upstream SEs or the Content Acquirer.
5. Content Acquirers
6. Service Router
7. Proximity Engine

Replacement Procedure

Do the following to replace a drive:

Step 1 Before replacing drives:

a. Copy the “globedrvreplmnt.sh.signed” and “recover-cdnfs utility” scripts to the “/local1/” directory on all devices. See Appendix B: Replacement Scripts, page 25 for these scripts.

b. Check if the system raid is fully synced by verifying the two SYSTEM drives (typically disk00 and disk01) are fully synced, see example:

```
ServiceEngine# show disks raid-state
SYSFS : RAID-1
        Status: Normal
        Partitions: disk00/05 disk01/05
SYSTEM: RAID-1
        Status: Normal
        Partitions: disk00/01 disk01/01
SYSTEM: RAID-1
        Status: Normal
        Partitions: disk00/02 disk01/02
SYSTEM: RAID-1
        Status: Normal
        Partitions: disk00/04 disk01/04
```

c. Use **show alarm detail** command to ensure there are no outstanding alarms against either SYSTEM drive.

d. If the above preconditions are not met, do not continue with this procedure. Your system may have a catastrophic hardware issue. Please contact Cisco TAC for further assistance.

e. Offload the device. There are two methods:

i. In the CDSM GUI, choose **Devices > Devices > Device Activation**, check the **Server Offload** check box, and click **Submit**.

ii. To prevent problems with memory fragmentation on the SRs, the offloading of streamers and acquirers should be performed by setting the memory threshold to one; either via the device CLI, or from the CDSM.

```
ServiceEngine(config)# service-router service-monitor threshold memory 1
ServiceEngine(config)# exit
ServiceEngine# copy running-config startup-config
```

Note You cannot offload the CDSM itself, because CDSM does not active service request, it is a configuration and monitor tool.

Step 2 Confirm all active connections have completed, with the following command and examples:

a. Check Web Cache with the following command:

```
ServiceEngine# show stat web detail | i Active
Active HTTPSession      :        0
…
b.  Check WMT with the following command:
ServiceEngine# show stat wmt usage
Usage Summary
=============
Concurrent Unicast Client Sessions
----------------------------------
        Current:         0
```

Step 3 Determine where the system disk located and on which disk does the “Key CDNFS data” exist.

a. Run the “globedrvreplmnt.sh.signed” script using the following command:

```
ServiceEngine# script execute globedrvreplmnt.sh.signed
================================================================
Information
Disk Model and Firmware Version
=== disk00 ===
Device Model:     ST3500514NS
Firmware Version: SN11
=== disk01 ===
Device Model:     ST3500514NS
Firmware Version: SN11
=== disk02 ===
Device Model:     ST3500514NS
Firmware Version: SN11
…
=== disk11 ===
Device Model:     ST3500514NS
Firmware Version: SN11

Key CDNFS data location: /disk00-06/uns-symlink-tree
Key CDNFS data location as dev: disk00  sda
System Drive -  First: disk00 or sda
System Drive - Second: sdisk 01 or sdb
Device Mode: service-engine

RAID status:
SYSFS : RAID-1
        Status: Normal
        Partitions: disk00/05 disk01/05
SYSTEM: RAID-1
        Status: Normal
        Partitions: disk00/01 disk01/01
SYSTEM: RAID-1
        Status: Normal
        Partitions: disk00/02 disk01/02
SYSTEM: RAID-1
        Status: Normal
        Partitions: disk00/04 disk01/04

================================================================
================================================================

*** Procedure 20 - The Key CDNFS data  exist on a disk00 ***
*** Procedure 20 - The Key CDNFS data  exist on a disk00 ***
*** Procedure 20 - The Key CDNFS data  exist on a disk00 ***
================================================================
================================================================
Script globedrvreplmnt.sh.signed exited with return code 0
```

Note If you run the **disk unuse disk {disk number 00-11]** command and the command *does* give this message “disk [disk number 00-11} has key CDNFS data and cannot be unused!”, then that disk has the “Key CDNFS data”.

Step 4 The “globedrvreplmnt.sh.signed” script tells you which procedure to run to deal with system drive and “Key CDNFS data”:

a. Procedure 10 - The “Key CDNFS data” exist on a non-system drive.

i. If disk00 is a Constellation disk, skip steps 'ii' to 'vii', and proceed to step 'viii'.

ii. If the drive is mounted, enter the **disk unuse disk00** command to fully unuse the drive.

iii. Remove the disk 00 and insert the new disk.

iv. As a precaution, run the **disk erase disk00** command to place the drive in the unformatted state.

v. Enter the **disk policy apply** command to format and mount the drive, examine all disks and RAID volumes, and make any necessary changes.

vi. Enter the **show disk details** command to see if the drive was added as a SYSTEM drive.

vii. If so, enter the **show disk raid** command to verify that the RAID volumes have been completely resynchronized. See the section “Checking RAID Synchronization”.

viii. Enter the **shutdown poweroff** command to shutdown the SE.

ix. Go to Step 5.

b. Procedure 20 - The “Key CDNFS data” exist on a disk00.

i. If disk01 is a Constellation disk, skip steps 'ii' to 'vii', and proceed to step 'viii'.

Note In step 'x', you are move the old disk01 to disk 00 location.

ii. If the drive is mounted, enter the **disk unusedisk01** command to fully unuse the drive.

iii. Remove the disk 01 and insert the new disk.

iv. As a precaution, run the **disk erase disk01** command to place the drive in the unformatted state.

v. Enter the **disk policy apply** command to format and mount the drive, examine all disks and RAID volumes, and make any necessary changes.

vi. Enter the **show disk details** command to see if the drive was added as a SYSTEM drive.

vii. If so, enter the **show disk raid** command to verify that the RAID volumes have been completely resynchronized. See the “Checking RAID Synchronization” section on page 11.

viii. Enter the **shutdown poweroff** command to shutdown the SE.

ix. Remove Disk 00 and discard.

x. Move Disk 01(new disk) to Disk 00 empty location.

xi. Go to Step 5.

c. Procedure 30 - The “Key CDNFS data” exist on a disk01.

i. If disk00 is a Constellation disk, skip steps 'ii' to 'vii', and proceed to step 'viii'

ii. If the drive is mounted, enter the **disk unuse disk00** command to fully unuse the drive.

iii. Remove the disk 00 and insert the new disk.

iv. As a precaution, run the **disk erase disk00** command to place the drive in the unformatted state.

v. Enter the **disk policy apply** command to format and mount the drive, examine all disks and RAID volumes, and make any necessary changes.

vi. Enter the **show disk details** command to see if the drive was added as a SYSTEM drive.

vii. If so, enter the **show disk raid** command to verify that the RAID volumes have been completely resynchronized. See the “Checking RAID Synchronization” section on page 11.

viii. Enter the shutdown poweroff command to shutdown the SE.

ix. Go to Step 5.

d. Procedure 40 - The system drives are not disk00 and disk01, but do not have “Key CDNFS data”.

i. Choose which system drive will become your primary system disk, that will be disk {x} in the below procedure.

ii. If disk {x} is a Constellation disk, skip steps 'iii' to 'viii', and proceed to step 'ix'.

Note In step 'xi', you are to move the old disk {x} to disk 00 location.

iii. If the drive is mounted, enter the **disk unuse disk {x}** command to fully unuse the drive.

iv. Remove the disk {x} and insert the new disk.

v. As a precaution, run the **disk erase disk {x}** command to place the drive in the unformatted state.

vi. Enter the **disk policy apply** command to format and mount the drive, examine all disks and RAID volumes, and make any necessary changes.

vii. Enter the **show disk details** command to see if the drive was added as a SYSTEM drive.

viii. If so, enter the **show disk raid** command to verify that the RAID volumes have been completely resynchronized. See the "Checking RAID Synchronization" section on page 11.

ix. Enter the shutdown poweroff command to shutdown the SE.

x. Remove Disk 00 and discard.

xi. Move Disk {x} (new disk) to Disk 00 empty location.

xii. Go to Step 5.

e. Procedure 50- The system drives are not disk00 and disk01, but does have "Key CDNFS data".

i. Choose which drive will become your primary system disk that does not have the "Key CDNFS data", that will be disk {x} in the below procedure.

ii. If disk{x} is a Constellation disk, skip steps 'iii' to 'viii', and proceed to step 'ix'.

Note In step 'xi', you are to move the old disks} to disk 00 location.

iii. If the drive is mounted, enter the disk unuse disk{x} command to fully unuse the drive.

iv. Remove the disk{x} and insert the new disk.

v. As a precaution, run the disk erase disk{x} command to place the drive in the unformatted state.

vi. Enter the disk policy apply command to format and mount the drive, examine all disks and RAID volumes, and make any necessary changes.

vii. Enter the show disk details command to see if the drive was added as a SYSTEM drive.

viii. If so, enter the show disk raid command to verify that the RAID volumes have been completely resynchronized. See the "Checking RAID Synchronization" section on page 11.

ix. Enter the shutdown poweroff command to shutdown the SE.

x. Remove Disk 00 and discard.

xi. Move Disk{x}(new disk) to Disk 00 empty location.

xii. Go to Step 5.

f. Procedure 60 - The device is a Service Router or Content Delivery System Manager (CDSM) and has no "Key CDNFS data".

Service Routers and CDSM's devices normally only have three disks, the others are blank disks.

i. If disk00 is a Constellation disk, skip steps 'ii' to 'vii', and proceed to step 'viii'.

ii. If the drive is mounted, enter the disk unuse disk00 command to fully unuse the drive.

iii. Remove the disk 00 and insert the new disk.

iv. As a precaution, run the **disk erase disk00** command to place the drive in the unformatted state.

v. Enter the **disk policy apply** command to format and mount the drive, examine all disks and RAID volumes, and make any necessary changes.

vi. Enter the **show disk details** command to see if the drive was added as a SYSTEM drive.

vii. If so, enter the **show disk raid** command to verify that the RAID volumes have been completely resynchronized. See the "Checking RAID Synchronization" section on page 11.

viii. Enter the **shutdown poweroff** command to shutdown the SE

ix. Remove Disk 01 through Disk02 according to physical position and discard. So you are removing a total of two physical drives.

Note Some models have 12 drives, but SR and CDSM only use the two system drives for operation

x. Insert 2 new replacement disks. Again, please note, some model have 12 drives, but SR and CDSM only use the two system drives for operation.

xi. Power up the SE.

xii. Enter the **disk policy apply** command to format and mount the drive, examine all disks and RAID volumes, and make any necessary changes.

xiii. Once system is up and running, run "recover-cdnfs utility" script to remove references to old data/content.

xiv. Go to Step 5.

Step 5 Disk 01-11 physical position

a. Remove Disk 01 through Disk11 according to physical position and discard. So you are removing a total of 11 physical drives. If any of these physical disks are Constellation disks, they do not have to be replaced. Also please note, Service Router and CDSM may only have 3 drives.

Note Depending on the previous procedure used, disk01 may already be removed.

b. Insert 11 new replacement disks or less if Constellation disks were already present in the CDE-220 chassis.

c. Power up the SE.

d. Enter the **disk policy apply** command to format and mount the drive, examine all disks and RAID volumes, and make any necessary changes.

e. If the device is SE only, once system is up and running, run "recover-cdnfs utility" script to remove references to old data/content, using the following command: script execute recover-cdnfs utility.

Note This script does not need to be executed on SR or CDSM.

Step 6 Verify that the new disks have the correct size, etc with the **show disks details** command; see sample below:

```
List of all disk drives:
disk00: Normal(h02 c00 i00 l00 -       mptsas)  476940MB(465.8GB)
    disk00/01: SYSTEM         1019MB(  1.0GB) mounted internally
    disk00/02: SYSTEM          509MB(  0.5GB) mounted internally
    disk00/04: SYSTEM         8189MB(  8.0GB) mounted internally
    disk00/05: SYSFS         32765MB( 32.0GB) mounted at /local1
    disk00/06: CDNFS        434445MB(424.3GB) mounted internally
disk01: Normal(h02 c00 i01 l00 -       mptsas)  476940MB(465.8GB)
    disk01/01: SYSTEM         1019MB(  1.0GB) mounted internally
    disk01/02: SYSTEM          509MB(  0.5GB) mounted internally
    disk01/04: SYSTEM         8189MB(  8.0GB) mounted internally
    disk01/05: SYSFS         32765MB( 32.0GB) mounted at /local1
    disk01/06: CDNFS        434445MB(424.3GB) mounted internally
disk02: Normal(h02 c00 i02 l00 -       mptsas)  476940MB(465.8GB)
    disk02/01: CDNFS        476929MB(465.8GB) mounted internally
…
disk11: Normal(h02 c00 i11 l00 -       mptsas)  476940MB(465.8GB)
    disk11/01: CDNFS        476929MB(465.8GB) mounted internally
(*) Disk drive won't be used after reload.
```

Note Disk 00 and Disk 01 should now be “System Disks” in the RAID.

Step 7 Use the **show alarm detail** command to check for disk alarms, all disks should be alarm free.

Step 8 Verify that the disks have the correct device model and firmware version with **show disks SMART-info** command, example below:

```
ServiceEngine# sh disks SMART-info details
=== disk01 ===
smartctl 5.40 2010-10-16 r3189 [i686-pc-linux-gnu] (local build)
Copyright (C) 2002-10 by Bruce Allen, http://smartmontools.sourceforge.net

=== START OF INFORMATION SECTION ===
Device Model:     ST500NM0011
Serial Number:    9QM85DAS
Firmware Version: SN33
User Capacity:    500,107,862,016 bytes
```

Note After inserting the new Constellation replacement disks, the Activity LEDs will be OFF when the disks are idle. This behavior is different from the older Barracuda disks whose Activity LEDs were ON when the disks were idle. This behavior does not apply for the Western Digital drives.

Step 9 Re-run the “globedrvreplmnt.sh.signed” script using the following command to check status:

```
ServiceEngine# script execute globedrvreplmnt.sh.signed
```

Step 10 The procedure that show at the bottom, should be “Procedure 20”. See “Appendix A: Sample Output after Replacing Disks” section on page 20 for sample output.

Step 11 Bring the device back on-line. There are two methods:

a. In the CDSM GUI, choose **Devices > Devices > Device Activation**, clear the **Server Offload** check box, and click **Submit**.

b. To prevent problems with memory fragmentation on the SRs the onloading of streamers and acquirers should be performed by restoring the memory threshold to 90; either via the device CLI, or from the CDSM.

```
ServiceEngine(config)# service-router service-monitor threshold memory 90
ServiceEngine(config)# exit
ServiceEngine# copy running-config startup-config
```

Checking RAID Synchronization

Step 1 Check if Disk 00 and Disk 01 are fully synced. Check if the two SYSTEM drives (typically disk00 and disk01) are fully synced, see example:

```
ServiceEngine# show disks raid-state
SYSFS : RAID-1
Status: Normal
Partitions: disk00/05 disk01/05
SYSTEM: RAID-1
Status: Normal
Partitions: disk00/01 disk01/01
SYSTEM: RAID-1
Status: Normal
Partitions: disk00/02 disk01/02
SYSTEM: RAID-1
Status: Normal
Partitions: disk00/04 disk01/04
```

Step 2 Use **show alarm detail** command to ensure there are no outstanding alarms against either SYSTEM drive. The following alarm(s) may be displayed during the RAID resynchronization process:

```
ServiceEngine# show alarms
Critical Alarms:
----------------
None
Major Alarms:
-------------
 None
Minor Alarms:
-------------
     Alarm ID             Module/Submodule     Instance
     -------------------- -------------------- -------------
   3 SoftRAID_Event       sysmon               md02
   4 SoftRAID_Event       sysmon               md03
   5 SoftRAID_Event       sysmon               md04
   6 SoftRAID_Event       sysmon               md05
```

Note If the **show disks raid-state** command does not eventually show that all SYSTEM drives are re-synchronized OR if any alarms (including the above SoftRAID* alarms) are still pending and do not clear, please do not continue with this procedure. Instead, proceed with the "Emergency Procedures using Rescue CD" section on page 14.

Emergency Procedures using Resident Rescue System Image

The SE, SR and CDSM have a resident rescue system image that is invoked should the image in flash memory be corrupted. A corrupted system image can result from a power failure that occurs while a system image is being written to flash memory. The rescue image can download a system image to the main memory of the device and write it to flash memory.

Note The .sysimg file is located under the images folder on the Recovery CD-ROM. If you have upgraded the CDS software, download the corresponding rescue CD iso image, copy to a CD and use the rescue iso image.

To install a new system image using the rescue image, do the following:

Step 1 Download the system image file (*.sysimg) to a host that is running an FTP server.

Step 2 Establish a console connection to the device and open a terminal session.

Step 3 Reboot the device by toggling the power switch.

The rescue image dialog appears. The following example demonstrates how to interact with the rescue dialog and use a port channel for the network connection (user input is denoted by entries in bold typeface). This example is for the CDE220-2G2, which has 10 gigabit Ethernet interfaces. The CDE110 and CDE205 have two gigabit Ethernet interfaces and the CDE220-2S3i has 14 gigabit Ethernet interfaces.

```
This is the rescue image. The purpose of this software is to let
you download and install a new system image onto your system's
boot flash device. This software has been invoked either manually
(if you entered `***' to the bootloader prompt) or has been
invoked by the bootloader if it discovered that your system image
in flash had been corrupted.
To download an image, this software will request the following
information from you:
- which network interface to use
- IP address and netmask for the selected interface
- default gateway IP address
- FTP server IP address
- username/password on FTP server
- path to system image on server
System Recovery Menu:
1. Configure Network
2. Download and install system image
3. Exit (and reboot)
Choice [1]: 1
Network Configuration Menu:
1. Configure ethernet interface
2. Configure portchannel interface
3. Exit to main menu
Choice [1]: 2
Please enter an interface from the following list:
0. GigabitEthernet 1/0
1. GigabitEthernet 2/0
2. GigabitEthernet 3/0
3. GigabitEthernet 4/0
4. GigabitEthernet 5/0
5. GigabitEthernet 6/0
6. GigabitEthernet 7/0
7. GigabitEthernet 8/0
8. GigabitEthernet 9/0
```

```
9. GigabitEthernet 10/0
10. Done
0
Please select an interface from the list below:
0. GigabitEthernet 1/0 [Use]
1. GigabitEthernet 2/0
2. GigabitEthernet 3/0
3. GigabitEthernet 4/0
4. GigabitEthernet 5/0
5. GigabitEthernet 6/0
6. GigabitEthernet 7/0
7. GigabitEthernet 8/0
8. GigabitEthernet 9/0
9. GigabitEthernet 10/0
10. Done
Choice [1]: 1
Please select an interface from the list below:
0. GigabitEthernet 1/0 [Use]
1. GigabitEthernet 2/0 [Use]
2. GigabitEthernet 3/0
3. GigabitEthernet 4/0
4. GigabitEthernet 5/0
5. GigabitEthernet 6/0
6. GigabitEthernet 7/0
7. GigabitEthernet 8/0
8. GigabitEthernet 9/0
9. GigabitEthernet 10/0
10. Done
Choice [2]: 10
Please enter the local IP address to use for this interface:
[Enter IP Address]: x.x.x.x
Please enter the netmask for this interface:
[Enter Netmask]: 255.255.255.0
Please enter the IP address for the default gateway:
[Enter Gateway IP Address]: x.x.x.x
Network Configuration Menu:
1. Configure ethernet interface
2. Configure portchannel interface (done)
3. Exit to main menu
Choice [3]: 3
System Recovery Menu:
1. Configure Network (done)
2. Download and install system image
3. Exit (and reboot)
Choice [2]: 2
Please enter the IP address for the FTP server where you wish
to obtain the new system image:
[Enter Server IP Address]: x.x.x.x
Please enter your username on the FTP server (or 'anonymous'):
[Enter Username on server (e.g. anonymous)]: anonymous
Please enter the password for username 'anonymous' on FTP server (an email address):
Please enter the directory containing the image file on the FTP server:
[Enter Directory on server (e.g. /)]: /
Please enter the file name of the system image file on the FTP server:
[Enter Filename on server]: CDS25.sysimg
Here is the configuration you have entered:
Current config:
IP Address: x.x.x.x
Netmask: 255.255.255.224
Gateway Address: x.x.x.x
Server Address: x.x.x.x
Username: anonymous
Password:
Image directory: /
```

```
Image filename: CDS-24.sysimg
Attempting download...
Downloaded 34234368 byte image file
A new system image has been downloaded.
You should write it to flash at this time.
Please enter 'yes' below to indicate that this is what you want to do:
[Enter confirmation ('yes' or 'no')]: yes
Ok, writing new image to flash
.....................................................................................Fini
shed
writing image to flash.
Enter 'reboot' to reboot, or 'again' to download and install a new image:
[Enter reboot confirmation ('reboot' or 'again')]: reboot
Restarting system.
Initializing memory. Please wait.
System Recovery Menu:
1. Configure Network (done)
2. Download and install system image (done)
3. Exit (and reboot)
Choice [3]: 3
Restarting system.
```

Step 4 Log in to the device as username admin. Verify that you are running the correct version by entering the **show version** command:

```
Console> enable
Console# show version
Content Delivery System Software (CDS)
Copyright (c) 2007 by Cisco Systems, Inc.
Content Delivery System Software Release 2.4.0 (build b460 July 5 2009)
Version: se507-2.4.0
Compiled 02:34:38 July 15 2009 by (cisco)
Compile Time Options: PP SS
System was restarted on Thu July 15 16:03:51 2009.
The system has been up for 4 weeks, 1 day, 6 hours, 7 minutes, 23 seconds.
```

Emergency Procedures using Rescue CD

The Rescue CD iso file can be found at this URL:

http://www.cisco.com/cisco/software/release.html?mdfid=281150125&catid=268438145&softwareid=281934063&release=2.5(11)&rellifecycle=&relind=AVAILABLE&reltype=all

Instruction on how to use the Rescue CD can be found at this URL:

http://www.cisco.com/en/US/docs/video/cds/cda/is/2_5/configuration_guide/maint.html#wp1253962

Precaution Step

Step 1 Make a copy of your running config (just a precaution).

Step 2 Enter the **show tech** command (just a precaution).

Step 3 Note its location on the CDSM, is it a child of the parent location and what is its location.

Step 4 If it does not belong to a device group, note the device group.

General Process Notes

- This also requires the creation CDS-IS rescue disk, from the ".iso" image found on the Cisco Software Download Center at this URL:

  http://www.cisco.com/cisco/software/release.html?mdfid=281150125&catid=268438145&softwareid=281934063&release=2.5%289%29&relind=AVAILABLE&rellifecycle=&reltype=latest&i=rp
- Ensure you have DVD/CD drive and CDS-IS image media CD/DVD available. Insert the media in the drive and connect the drive using the USB cables to USB port on the server.
- Ensure that you have access to Server through a Terminal Server port.
- Reboot the system.
- At this point system will boot from the CD/DVD, upon boot during Grub load, output is diverted to Console port and you no longer see any activity on the monitor.
- You can follow the next procedure. In case a TS access is not available, prior to rebooting in this step, use a laptop and console cable to perform the next steps locally.
- User prompts or selection steps are highlighted in bold in the output.

CDS- IS image installation

The following IS software installation steps are copied from the *Cisco Content Delivery Engine 205/220/250/420 Hardware Installation Guide*. You can see this guide at the following URL:

http://www.cisco.com/en/US/docs/video/cds/SE/SE205_220_420/installation/guide/SW_Install.html

Step 1 Ensure that the SE is powered off.

Step 2 Attach the USB DVD-ROM drive to any available USB port at the rear of the SE.

Step 3 Attach a power cord, terminal server console, serial port, and keyboard to the SE (assuming already done in the previous correction process).

Step 4 Insert the Internet Streamer CDS rescue image CD in the DVD-ROM drive.

The system boots from the image on the CD. This requires a terminal server to be hooked up to the serial port of the SE205 or SE220. All communication is done through the serial port (see the "Before You Begin" section for terminal server settings).

Note Boot and installation output is directed to the terminal server console and cannot be viewed from a monitor.

Step 5 Power on the external USB DVD-ROM drive.

Step 6 Power on the SE.

Once the CD starts booting, it displays a spinning "|" symbol for approximately five minutes. Allow the booting to proceed and monitor the sequence from a remote terminal provided by the terminal server.

The Installer main menu is displayed at the conclusion of the boot sequence; you should see something similar to this, inputs or options to select has been highlighted in bold:

```
Welcome to the installer. The installer will enable installation
of a new software image onto your system, or recover a previous image
in the event that the hardware was changed.

   MODEL: SE220-XXX
   FLASH: found, directory validated
  COOKIE: model does not match
   IMAGE: NONE
FLASHDEV: /dev/hda

Installer Main Menu:
    1. Configure Network
    2. Manufacture flash
    3. Install flash cookie
    4. Install flash image from network
    5. Install flash image from cdrom
    6. Install flash image from disk
    7. Wipe out disks and install .bin image
    8. Exit (and reboot)
    9. Force manufacturing flash
Choice [0]: 9
WARNING! This will erase everything on flash [n]: y

Read 7427072 byte rescue image file
..................................................... done.
Flash manufactured successfully.
Date= '02/17/10'
Cookie installed successfully.

   MODEL: SE220-XXXX
   FLASH: found, directory validated
  COOKIE: valid
   IMAGE: NONE
FLASHDEV: /dev/hda

Installer Main Menu:
    1. Configure Network
    2. Manufacture flash
    3. Install flash cookie
    4. Install flash image from network
    5. Install flash image from cdrom
    6. Install flash image from disk
    7. Wipe out disks and install .bin image
    8. Exit (and reboot)
    9. Force manufacturing flash
Choice [0]: 5

Please select an image from the following list:
    1. CDS25.sysimg
```

```
    2. Return to Main Menu
Image [1]: 1
Installing CDS25.sysimg
Read 39975936 byte image file

Existing version in flash: NONE
New version to install: 2.5.11.X

Proceed with flash write? [y]: y
.....................................................................
.............................................................. done.
Image was successfully written to flash.

 MODEL: SE220-XXXX
   FLASH: found, directory validated
  COOKIE: valid
   IMAGE: 2.5.11.X
FLASHDEV: /dev/hda

Installer Main Menu:
    1. Configure Network
    2. Manufacture flash
    3. Install flash cookie
    4. Install flash image from network
    5. Install flash image from cdrom
    6. Install flash image from disk
    7. Wipe out disks and install .bin image
    8. Exit (and reboot)
    9. Force manufacturing flash
Choice [0]: 7

Enter full URL of .bin image to install.
   ftp://[user:pass@]ip_addr/path/to/file
  http://[user:pass@]ip_addr/path/to/file
  file:/local/path/to/to/file
URL for .bin image [file:/mnt/mfg/images/CDS25.bin]: just press "Enter " to accept the
default
Continue?  This will wipe out all disks! [n]: y
Erasing disks
[WARNING] disk00 conflicts with the current policy, and will be reclaimed.
[WARNING] disk01 conflicts with the current policy, and will be reclaimed.
[WARNING] disk02 conflicts with the current policy, and will be reclaimed.
[WARNING] disk03 conflicts with the current policy, and will be reclaimed.
[WARNING] disk04 conflicts with the current policy, and will be reclaimed.
[WARNING] disk05 conflicts with the current policy, and will be reclaimed.
[WARNING] disk06 conflicts with the current policy, and will be reclaimed.
[WARNING] disk07 conflicts with the current policy, and will be reclaimed.
[WARNING] disk08 conflicts with the current policy, and will be reclaimed.
[WARNING] disk09 conflicts with the current policy, and will be reclaimed.
[WARNING] disk10 conflicts with the current policy, and will be reclaimed.
[WARNING] disk11 conflicts with the current policy, and will be reclaimed.
[WARNING] disk12 conflicts with the current policy, and will be reclaimed.
[WARNING] disk13 conflicts with the current policy, and will be reclaimed.
[WARNING] Provisioning disk00 as a new CDNFS drive.
[WARNING] Provisioning disk01 as a new CDNFS drive.
[WARNING] Provisioning disk02 as a new CDNFS drive.
[WARNING] Provisioning disk03 as a new CDNFS drive.
[WARNING] Provisioning disk04 as a new CDNFS drive.
[WARNING] Provisioning disk05 as a new CDNFS drive.
[WARNING] Provisioning disk06 as a new CDNFS drive.
[WARNING] Provisioning disk07 as a new CDNFS drive.
[WARNING] Provisioning disk08 as a new CDNFS drive.
[WARNING] Provisioning disk09 as a new CDNFS drive.
[WARNING] Provisioning disk10 as a new CDNFS drive.
```

```
[WARNING] Provisioning disk11 as a new CDNFS drive.
[WARNING] Provisioning disk12 as a new SYSTEM drive.
[WARNING] Provisioning disk13 as a new SYSTEM drive.
Reading and installing image, it may take a few minutes, please wait...
remote size / mtime: 300113254 / 1266207424
cookie_check: Skip supported platform check for Model:SE220-XXXX
Reclaiming unused flash safe state sectors ... Done.
################################################################################
##############################################
300113254 bytes transferred in 81.8 seconds (3.50 MBps)

Installing phase3 bootloader...
Installing system image to flash:  done.
cat: /etc/PERSONALITY: No such file or directory
Installing application components...[ap] [di] [jr] [li] [me] [pe] [to] [un]
Running post-install hooks...
Syncing filesystems...
/ruby/bin/install-to-sw: DONE.
Successfully installed product image.

MODEL: SE220-XXXX
   FLASH: found, directory validated
  COOKIE: valid
   IMAGE: 2.5.11.X
FLASHDEV: /dev/hda

Installer Main Menu:
    1. Configure Network
    2. Manufacture flash
    3. Install flash cookie
    4. Install flash image from network
    5. Install flash image from cdrom
    6. Install flash image from disk
    7. Wipe out disks and install .bin image
    8. Exit (and reboot)
    9. Force manufacturing flash
Choice [0]: 8
```

Step 7 Select **0** to reboot. Remove the DVD and move to add an IP to the Server. Once IP-ed, the Server can be remotely prepared to correct software version and patch level.

Device Replacement Method

This device replacement method helps preserve settings after using the rescue CD or resident rescue system image:

Step 1 In global configuration mode, enter the **no cms enable** command to disable CMS on the device:

```
ServiceEngine# configure
ServiceEngine(config)# no cms enable
```

Step 2 If this SE is the acquirer in the delivery service, please select a different acquirer for those delivery services.

Step 3 From the CDSM, choose **Devices > Devices > Device Activation**. The Device Activation page is displayed.

Step 4 Uncheck the **Activate** check box and click **Submit**. The page refreshes and displays a Replaceable check box.

Step 5 Check the **Replaceable** check box and click **Submit**.

Step 6 Choose **System > Configuration > System Properties**. The System Properties page is displayed.

Step 7 Click the edit icon next to the **System.devivce.recovery.key** property. The Modify Config Property page is displayed.

Step 8 Write down the Value field. The default value is default.

Step 9 Run the **cms deregister force command** on the SE, in this way, all tables are removed.

Step 10 In EXEC mode, enter the **cms recover identity** command with the key parameter you set in Step 8.

```
ServiceEngine# cms recover identity <key>
On successful registration to the CDSM, a message similar to the following is
displayed:
DT-7326-4# cms recover identity se
Registering this node as Service Router...
Sending identity recovery request with key se
Node successfully registered with id CrConfig_291
Registration complete.
```

Step 11 Register the device with the CDSM by using the **cms enable** command in global configuration mode:

```
ServiceEngine# configure
ServiceEngine(config)# cms enable
```

Step 12 From the CDSM, choose **Devices > Devices > Device Activation**. The Device Activation page is displayed.

Step 13 Check the **Activate** check box and click **Submit**.

Step 14 After a few minutes, approximately two polling intervals, the device status shows online and all configurations (delivery service assignments, programs, and so on) are the same as those on the device that was replaced.

Step 15 Once the new device is up and running, as noted by the online status, the old device can be removed from the CDS network.

Appendix A: Sample Output after Replacing Disks

This section contains the sample output on an SE, SR and CDSM ater replacing a disk.

SE

```
ServiceEngine# script execute globedrvreplmnt.sh.signed

---------- Global drive replacement log ----------
Fri Mar 2 10:48:28 UTC 2012

======================================================================
Information

Current Alarms

Critical Alarms:
----------------
None

Major Alarms:
-------------
None

Minor Alarms:
-------------
None

System Initialization Finished.

Disk Model and Firmware Version
=== disk00 ===
Device Model:     ST500NM0011
Firmware Version: SN33
=== disk01 ===
Device Model:     ST500NM0011
Firmware Version: SN33
=== disk02 ===
Device Model:     ST500NM0011
Firmware Version: SN33
=== disk03 ===
Device Model:     ST500NM0011
Firmware Version: SN33
=== disk04 ===
Device Model:     ST500NM0011
Firmware Version: SN33
=== disk05 ===
Device Model:     ST500NM0011
Firmware Version: SN33
=== disk06 ===
Device Model:     ST500NM0011
Firmware Version: SN33
=== disk07 ===
Device Model:     ST500NM0011
Firmware Version: SN33
=== disk08 ===
Device Model:     ST500NM0011
Firmware Version: SN33
=== disk09 ===
Device Model:     ST500NM0011
```

```
Firmware Version: SN33
=== disk10 ===
Device Model:     ST500NM0011
Firmware Version: SN33
=== disk11 ===
Device Model:     ST500NM0011
Firmware Version: SN33

System drive and Key CDNFS data location
Key CDNFS data location: /disk00-06/uns-symlink-tree
Key CDNFS data location as dev: disk00 or sda
System Drive -  First: disk00 or sda
System Drive - Second: disk01 or sdb
Device Mode: service-engine

RAID status:
SYSFS : RAID-1
        Status: Normal
        Partitions: disk00/05 disk01/05
SYSTEM: RAID-1
        Status: Normal
        Partitions: disk00/01 disk01/01
SYSTEM: RAID-1
        Status: Normal
        Partitions: disk00/02 disk01/02
SYSTEM: RAID-1
        Status: Normal
        Partitions: disk00/04 disk01/04

======================================================================
======================================================================
======================================================================

*** Use Procedure 20 - The Key CDNFS data exist on a disk00 ***
*** Use Procedure 20 - The Key CDNFS data exist on a disk00 ***
*** Use Procedure 20 - The Key CDNFS data exist on a disk00 ***

======================================================================
======================================================================

Done

The log file name is /local/local1/globedrvlog.cds-esc-is-g2L1-SE4.txt

Script globedrvreplmnt.sh.signed exited with return code 0
```

SR

```
ServiceRouter# script execute globedrvreplmnt.sh.signed


---------- Global drive replacement log ----------
Fri Mar 2 11:36:26 UTC 2012


======================================================================
Information

Current Alarms

Critical Alarms:
----------------
```

```
None

Major Alarms:
-------------
None

Minor Alarms:
-------------
None

System Initialization Finished.

Disk Model and Firmware Version
=== disk00 ===
Device Model:     ST500NM0011
Firmware Version: SN33
=== disk01 ===
Device Model:     ST500NM0011
Firmware Version: SN33
=== disk02 ===
Device Model:     ST500NM0011
Firmware Version: SN33
=== disk03 ===
Device Model:     ST500NM0011
Firmware Version: SN33
=== disk04 ===
Device Model:     ST500NM0011
Firmware Version: SN33
=== disk05 ===
Device Model:     ST500NM0011
Firmware Version: SN33

System drive and Key CDNFS data location
Key CDNFS data location: No Key CDNFS data found
System Drive -  First: disk00 or sda
System Drive - Second: disk01 or sdb
Device Mode: service-router

RAID status:
SYSFS : RAID-1
        Status: Normal
        Partitions: disk00/05 disk01/05
SYSTEM: RAID-1
        Status: Normal
        Partitions: disk00/01 disk01/01
SYSTEM: RAID-1
        Status: Normal
        Partitions: disk00/02 disk01/02
SYSTEM: RAID-1
        Status: Normal
        Partitions: disk00/04 disk01/04

================================================================
================================================================
================================================================

*** Service Router * Service Router * Service Router         ***
*** This is a Service Router.  It does not have a CDNFS      ***
*** partition or Key CDNFS data or more than 3 drives.       ***
*** Use Procedure 60 - Service Router                        ***
*** Use Procedure 60 - Service Router                        ***
*** Use Procedure 60 - Service Router                        ***

================================================================
```

```
======================================================================

Done

The log file name is /local/local1/globedrvlog.cds-esc-is-g2SR1.txt

Script globedrvreplmnt.sh.signed exited with return code 0
```

CDSM

```
CDSM# script execute globedrvreplmnt.sh.signed


---------- Global drive replacement log ----------
Fri Mar 2 10:49:55 UTC 2012


======================================================================
Information

Critical Alarms:
----------------
None

Major Alarms:
-------------
None

Minor Alarms:
-------------
None

System Initialization Finished.

Disk Model and Firmware Version
=== disk00 ===
Device Model:     ST500NM0011
Firmware Version: SN33
=== disk01 ===
Device Model:     ST500NM0011
Firmware Version: SN33
=== disk02 ===
Device Model:     ST500NM0011
Firmware Version: SN33

System drive and Key CDNFS data location
Key CDNFS data location: No Key CDNFS data found
System Drive -  First: disk00 or sda
System Drive - Second: disk01 or sdb
Device Mode: content-delivery-system-manager

RAID status:
SYSFS : RAID-1
        Status: Normal
        Partitions: disk00/05 disk01/05
SYSTEM: RAID-1
        Status: Normal
        Partitions: disk00/01 disk01/01
SYSTEM: RAID-1
        Status: Normal
        Partitions: disk00/02 disk01/02
SYSTEM: RAID-1
```

```
        Status: Normal
        Partitions: disk00/04 disk01/04

======================================================================
======================================================================
======================================================================

*** Content Delivery System Manager * CDSM * CDSM * CDSM     ***
*** This is a CDSM. It does not have a CDNFS partition       ***
*** or Key CDNFS data or more than 3 drives.                 ***
*** Use Procedure 60 - Content Delivery System Manager       ***
*** Use Procedure 60 - Content Delivery System Manager       ***
*** Use Procedure 60 - Content Delivery System Manager       ***

======================================================================
======================================================================

Done

The log file name is /local/local1/globedrvlog.cds-esc-is-g2CDSM-Pr.txt

Script globedrvreplmnt.sh.signed exited with return code 0
```

Appendix B: Replacement Scripts

This appendix contains the scripts required in the "Replacement Procedure" section on page 5.

globedrvreplmnt.sh.signed

```
#!/bin/bash
################################################################################
# Info and Version
################################################################################
# (globedrvreplmnt} Written by Lew Barding(lbarding@cisco.com)
# Version 1.03
#
# Dependencies and assumptions:
# This program is to determine Key CDNFS data and than determine action plan for complete
drive replacement
# This code has not been reviewed or tested by the BU test resources.
#
# Version history
# 1.01 Script written and tested.
# 1.02 Added suggested changes
# 1.03 Added suggested changes after dev test testing
#
################################################################################


################################################################################
# Declare variables
################################################################################

rootdir="/local/local1/"
vhostname=`hostname`
log="/local/local1/globedrvlog.${vhostname}.txt"
datetime=`date +"%Y%m%d%H"`
normdate=`date`

################################################################################


################################################################################
# Basic Functions
################################################################################

# Init log file
initlog() {
    echo ""
    echo ""
    echo "---------- Global drive replacement log ----------"
    echo $normdate
    echo ""
}

function pause()
    {
    read -n1 -r -p "Press any key to continue..." key
    }


function extdrv4disk()
   {
```

```
   extdrv=`diskman linux2num /dev/$1`
   echo "$extdrv"
   }


################################################################################


################################################################################
# Functions
################################################################################

function checkraidstat()
    {
    vdiskmanstat=` /ruby/bin/diskman list-raid-state 2>&1 | grep "Status" | grep -c
"Status: Normal"`
    if [ $vdiskmanstat -ne 4 ];
    then
        echo "Software RAID is not good, see below output.  Stopping program, please fix
RAID before continuing"
        echo "RAID status:"
        /ruby/bin/exec -c "show disk raid-state"
        exit 1
    fi
    }


function whereissymtree()
    {
    if [ -L "/uns-symlink-tree" ]; then
        symtreedrv=`ls -al /uns-symlink-tree | awk 'BEGIN{FS="\/" } {print $3 }'
2>/dev/null`
        vsymtreetodev=`df -h | grep $symtreedrv | awk '{ print $1 }'`
        fsymtreetodev=`echo ${vsymtreetodev:5:3}`
    else
        #   fsymtreetodev= "blank"
        echo ""
    fi
#   echo "$fsymtreetodev"
    }
#   Outcome can be sda-sdl or blank

function whereissysdrv()
    {
    vsysdrv2=`cat /proc/mdstat | grep "md5 \:" | awk '{ print $5 }'`
    fsysdrv2=`echo ${vsysdrv2:0:3}`
#   echo "$fsysdrv2"
    vsysdrv1=`cat /proc/mdstat | grep "md5 \:" | awk '{ print $6 }'`
    fsysdrv1=`echo ${vsysdrv1:0:3}`
#   echo "$fsysdrv1"
    }

function whatisdevmode()
    {
    vwhatisdevmode=`/ruby/bin/exec -c "show device-mode current" | grep "Current device
mode:" | awk '{ print $4 }'`

    }

function gbdiskinfo()
    {
    echo "======================================================================"
    echo "Information"
    echo ""
```

```
    echo "Current Alarms"
    /ruby/bin/exec -c "show alarms detail"
    echo ""
    echo "Disk Model and Firmware Version"
    /ruby/bin/diskman list-smartinfo detail | egrep -e "=== disk" -e "Device Model:" -e
"Firmware Version:"
    echo ""
    echo "System drive and Key CDNFS data location"
    if [ -L "/uns-symlink-tree" ]; then
        infosymtree=`ls -al /uns-symlink-tree | awk '{ print $11 }'`
    else
        infosymtree=""
    fi
    isfsymtreetodev=`extdrv4disk $fsymtreetodev`
    isfsysdrv1=`extdrv4disk $fsysdrv1`
    isfsysdrv2=`extdrv4disk $fsysdrv2`
    if [ -L "/uns-symlink-tree" ]; then
        echo "Key CDNFS data location: $infosymtree"
        echo "Key CDNFS data location as dev: $isfsymtreetodev or $fsymtreetodev"
    else
        echo "Key CDNFS data location: No Key CDNFS data found"
    fi
    echo "System Drive -  First: $isfsysdrv1 or $fsysdrv1"
    echo "System Drive - Second: $isfsysdrv2 or $fsysdrv2"
    echo "Device Mode: $vwhatisdevmode"
    echo ""
    echo "RAID status:"
    /ruby/bin/diskman list-raid-state
    echo ""
    echo "======================================================================="
    }

function nextsteps()
    {
    echo "======================================================================="
    echo "======================================================================="
#   echo "fsymtreetodev: $isfsymtreetodev or $fsymtreetodev"
#   echo "fsysdrv1: $isfsysdrv1 or $fsysdrv1"
#   echo "fsysdrv2: $isfsysdrv2 or $fsysdrv2"
    echo ""
#     echo "len: ${#fsymtreetodev}"
#   [ -n $fsymtreetodev ]
#   echo $?
    if [ -n "$fsymtreetodev" ]; then

        # Determine if SYSTEM drives are on disk00 and disk01
        sysdrvs0and1="0"
        if [[ ( $isfsysdrv1 = "disk00" || $isfsysdrv1 = "disk01" ) && \
              ( $isfsysdrv2 = "disk00" || $isfsysdrv2 = "disk01" ) ]];
        then
            sysdrvs0and1="1"
        fi

        if [ $isfsymtreetodev = "disk00" -a $sysdrvs0and1 = "1" ]; then
            echo "*** Use Procedure 20 - The Key CDNFS data exist on a disk00 ***"
            echo "*** Use Procedure 20 - The Key CDNFS data exist on a disk00 ***"
            echo "*** Use Procedure 20 - The Key CDNFS data exist on a disk00 ***"

        elif [ $isfsymtreetodev = "disk01" -a $sysdrvs0and1 = "1" ]; then
            echo "*** Use Procedure 30 - The Key CDNFS data exist on a disk01 ***"
            echo "*** Use Procedure 30 - The Key CDNFS data exist on a disk01 ***"
            echo "*** Use Procedure 30 - The Key CDNFS data exist on a disk01 ***"
```

```
        elif [ $fsysdrv1 != $fsymtreetodev -a $fsysdrv2 != $fsymtreetodev -a $sysdrvs0and1
= "0" ]; then
            echo "*** Use Procedure 40 - The system drives are not disk00 and disk01, but
do not have Key CDNFS data ***"
            echo "*** Use Procedure 40 - The system drives are not disk00 and disk01, but
do not have Key CDNFS data ***"
            echo "*** Use Procedure 40 - The system drives are not disk00 and disk01, but
do not have Key CDNFS data ***"

        elif [[ ( $fsysdrv1 = $fsymtreetodev || $fsysdrv2 = $fsymtreetodev ) &&
$sysdrvs0and1 = "0" ]]; then
            echo "*** Use Procedure 50 - The system drives are not disk00 and disk01, but
does have Key CDNFS data ***"
            echo "*** Use Procedure 50 - The system drives are not disk00 and disk01, but
does have Key CDNFS data ***"
            echo "*** Use Procedure 50 - The system drives are not disk00 and disk01, but
does have Key CDNFS data ***"

#       elif [ $fsysdrv1 != $fsymtreetodev -a $fsysdrv2 != $fsymtreetodev -a $fsysdrv1 =
"sda" -a $fsysdrv2 = "sdb" ]; then
        elif [ $fsysdrv1 != $fsymtreetodev -a $fsysdrv2 != $fsymtreetodev ]; then
            echo "*** Use Procedure 10 - The Key CDNFS data exist on a non-system drive
***"
            echo "*** Use Procedure 10 - The Key CDNFS data exist on a non-system drive
***"
            echo "*** Use Procedure 10 - The Key CDNFS data exist on a non-system drive
***"
        fi

    else
        case "$vwhatisdevmode" in
            service-router)
                echo "*** Service Router * Service Router * Service Router         ***"
                echo "*** This is a Service Router.  It does not have a CDNFS      ***"
                echo "*** partition or Key CDNFS data or more than 3 drives.       ***"
                echo "*** Use Procedure 60 - Service Router                        ***"
                echo "*** Use Procedure 60 - Service Router                        ***"
                echo "*** Use Procedure 60 - Service Router                        ***"

             ;;
            content-delivery-system-manager)
                echo "*** Content Delivery System Manager * CDSM * CDSM * CDSM     ***"
                echo "*** This is a CDSM. It does not have a CDNFS partition       ***"
                echo "*** or Key CDNFS data or more than 3 drives.                 ***"
                echo "*** Use Procedure 60 - Content Delivery System Manager       ***"
                echo "*** Use Procedure 60 - Content Delivery System Manager       ***"
                echo "*** Use Procedure 60 - Content Delivery System Manager       ***"
             ;;
            service-engine)
                echo "*** Service Engine * Service Engine * Service Engine     ***"
                echo "*** This is a Service Engine and does not have a         ***"
                echo "*** Key CDNFS data                                       ***"
                echo "*** Use Procedure 10                                     ***"
             ;;
            *)
                echo "Could not determine device mode"
             ;;
        esac
    fi
    echo ""
    echo "========================================================================"
    echo "========================================================================"
    }
```

```
################################################################################


################################################################################
#Main
################################################################################

# Launch in sub-shell (log all output to $log)
(
initlog
checkraidstat
whereissymtree
whereissysdrv
whatisdevmode
gbdiskinfo
nextsteps
) 2>&1 | tee -a $log

echo ""
echo "Done"
echo ""
echo "The log file name is $log"
exit 0
################################################################################


# fd10a328930b2e16d7e70a6cc293684e
```

recover-cdnfs Utility

```
#!/bin/bash
#
# Copyright (c) 2010 by Cisco Systems, Inc. All rights reserved.
# Richard K. Troxell III (rtroxell@cisco.com), started August 2010
#
# Quickly erase (reformat) all CDNFS drives in a CDS-IS system
#

CDNFS_DEVNAMES=$(sfdisk -l 2>/dev/null | grep '35[[:space:]]\+Unknown$' | awk '{ print $1
}')

unmount() {
    DEVNAME=$1
    PARTNAME=$2

    grep "^$DEVNAME[[:space:]]\+" /proc/mounts &> /dev/null
    if [[ "$?" != "0" ]] ; then
        return 0
    fi

    umount $DEVNAME &> /dev/null
    if [ "$?" != "0" ] ; then
        RETRIES=5
        while (( RETRIES > 0 )) ; do
            fuser -km $DEVNAME &> /dev/null
            sleep 1
            umount $DEVNAME
            [ "$?" == "0" ] && break
            (( --RETRIES ))
```

```
        done

        if (( RETRIES == 0 )) ; then
            return 1
        fi
    fi

    return 0
}

nodemgr_clt stop uns

RECOVERED=""
FAILS=""
for DEVNAME in $CDNFS_DEVNAMES; do
    PARTNAME=$(cat /proc/mounts | grep "$DEVNAME" | awk '{ print $2 }' | tr -d '\/')
    PARTNAME=${PARTNAME/-/\/}
    if [[ $PARTNAME != disk[[:digit:]][[:digit:]]/[[:digit:]][[:digit:]] ]]; then
        echo "Failed to map: $DEVNAME"
        continue;
    fi

    echo -n "Recovering CDNFS on $PARTNAME: "

    echo -n "[Unmounting] "
    unmount $DEVNAME $PARTNAME
    if [ "$?" != "0" ] ; then
        echo ""
        echo "   Failed to recover CDNFS on $PARTNAME"
        FAILS="$FAILS$PARTNAME "
        continue;
    fi

    echo -n "[Reformatting] "
    /sbin/mkfs.xfs -fb size=4k $DEVNAME &> /dev/null
    if [ "$?" != "0" ] ; then
        echo ""
        echo "    Failed to re-formate CDNFS on $PARTNAME"
        FAILS="$FAILS$PARTNAME "
        continue;
    fi

    echo -n "[Mounting]"
    mount $DEVNAME "/"${PARTNAME/\//-}
    if [ "$?" != "0" ] ; then
        echo ""
        echo "    Failed to mount CDNFS on $PARTNAME"
        FAILS="$FAILS$PARTNAME "
        continue;
    fi

    RECOVERED="$RECOVERED$PARTNAME "
    echo ""
done

if [ "$RECOVERED" != "" ] ; then
    echo ""
    echo "Successfully recovered the following drives. "
    echo "$RECOVERED"
    echo ""
    echo "Please reload the system for the changes to take effect."
fi

if [ "$FAILS" != "" ] ; then
```

```
    echo ""
    echo "WARNING: Recovery failed for the following CDNFS partitions"
    echo "$FAILS"
    return 1
fi

# 22610ff68d2787c972d2fab9c07b0b46
```

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