

Figure 13.5-15. Volume Group Configuration Page	13-90
Figure 13.5-16. Volume Group Configuration Page	13-90
Figure 13.5-17. Add Volume Group Configuration Page.....	13-91
Figure 13.5-18. Volume Group Configuration: Add Volume Group	13-93
Figure 13.5-19. Operator Configuration Page	13-96
Figure 13.6-1. Detailed Report Layout.....	13-100
Figure 13.6-2. Request Summary Report Layout	13-100
Figure 13.6-3. Granule Summary Report Layout	13-101
Figure 13.6-4. Group History Page.....	13-103
Figure 13.7-1. Help – General Topics	13-104
Figure 13.8-1. DPM GUI Home Page	13-107
Figure 13.8-2. Collection Group Page	13-109
Figure 13.8-3. List of Collection	13-110
Figure 13.8-4. Detail Information.....	13-112
Figure 13.8-5. Modify Collection Group.....	13-114
Figure 13.8-6. Add Collection Group.....	13-116
Figure 13.8-7. List of Collections.....	13-117
Figure 13.8-8. Collections Not In Data Pool Page	13-118
Figure 13.8-9. Add New Collection Page.....	13-118
Figure 13.8-10. Modify Collection Page	13-121
Figure 14.4-1. StorNext GUI Home Page.....	14-4
Figure 14.4-2. Admin Pull-Down Menu.....	14-4
Figure 14.4-3. Start/Stop StorNext Page	14-5
Figure 14.5-1. Add Media Page.....	14-10
Figure 14.5-2. Associated Library Page	14-10
Figure 14.5-3. Associated Library Bulk Load Page	14-11
Figure 14.5-4. Complete Add Media Task Page	14-11
Figure 14.5-5. Remove or Move Media Page.....	14-12

Figure 14.5-6. Select Media Screen.....	14-12
Figure 14.5-7. Complete/Remove Media Task Page.....	14-12
Figure 14.7-1. StorNext Admin Pull- Down Screen.....	14-30
Figure 14.7-2. Backup StorNext Screen	14-31
Figure 14.7-3. Complete Backup Screen	14-32
Figure 14.7-4. Feature Schedules Screen.....	14-33
Figure 14.7-5. Selected Feature Schedules Screen	14-33
Figure 14.9-1. Security Login Prompt	14-41
Figure 14.9-2. DPM GUI Home Page	14-42
Figure 14.9-3. DPM GUI Home Page	14-44
Figure 14.9-4. Data Pool File System Page	14-47
Figure 14.9-5. Add New File System Page.....	14-49
Figure 14.9-6. Modify File System Information Page.....	14-50
Figure 14.9-7. Cloud Cover Information Page	14-52
Figure 14.9-8. Add New Cloud Cover Information Page.....	14-53
Figure 14.9-9. Modify Source Description Page	14-56
Figure 14.9-10. Batch Summary Page	14-57
Figure 14.9-11. List Insert Queue Page	14-58
Figure 14.9-12. DELETED	
Figure 14.9-13. List of Configuration Parameters Page	14-61
Figure 14.9-14. List of Aging Parameters Page.....	14-67
Figure 14.9-15. Collection Groups Page	14-69
Figure 14.9-16. List of Collection Page.....	14-71
Figure 14.9-17. Collection Detail Information Page	14-71
Figure 14.9-18. Modify Collection Page	14-75
Figure 14.9-19. Add Collection Group Page	14-76
Figure 14.9-20. Collections Not in Data Pool Page.....	14-79
Figure 14.9-21. Add New [ECS] Collection Page.....	14-79

Figure 14.9-22. Modify Collection Page	14-82
Figure 14.9-23. Detailed List of Data Pool Themes Page	14-84
Figure 14.9-24. Add New Theme Page	14-85
Figure 14.9-25. Modify Theme Page.....	14-87
Figure 14.9-26. Help Page	14-90
Figure 15.1-1. System Context Diagram	15-2
Figure 15.1-2. Order Manager Subsystem (OMS) Context Diagram.....	15-3
Figure 15.4-1. Security Login Prompt	15-7
Figure 15.4-2. Order Manager Home Page.....	15-8
Figure 15.6-1. Open Interventions Page – Fields and Options.....	15-12
Figure 15.6-2. Order Manager GUI Tools: Find (A), Navigation (B), and Refresh (C)	15-12
Figure 15.6-3. Open Interventions Page	15-14
Figure 15.6-4. ECS Order <ID> Details Page	15-15
Figure 15.6-5. Open Intervention For Request <ID> Page	15-15
Figure 15.6-6. Worker Assignment	15-16
Figure 15.6-7. Request Attributes.....	15-18
Figure 15.6-8. Request Level Disposition	15-19
Figure 15.6-9. Close Confirmation for Intervention (FTP/SCP Push & Hold).....	15-20
Figure 15.6-10. Close Confirmation for Intervention <ID> with E-Mail.....	15-21
Figure 15.6-11. Intervention Closed	15-22
Figure 15.6-12. Open HEG Interventions Page.....	15-23
Figure 15.6-13. Open HEG Interventions – Fields and Options	15-24
Figure 15.6-14. Open HEG Intervention For Request <ID> Detail Page	15-25
Figure 15.6-15. Open HEG Interventions For Request <ID> Detail – Fields and Options ...	15-26
Figure 15.6-16. Processing Instructions Window.....	15-27
Figure 15.6-17. Close Confirmation for Intervention <ID> Page	15-29
Figure 15.6-18. Completed Action and Interventions – Fields and Options	15-30
Figure 15.6-19. Completed Action and Interventions Page.....	15-31

Figure 15.6-20. Distribution Requests Page and Filter Window	15-32
Figure 15.6-21. Distribution Requests Page – Fields and Options	15-33
Figure 15.6-22. Profile for ECSGuest OrderID <ID>	15-35
Figure 15.6-23. Distribution Requests <ID> Profile	15-36
Figure 15.6-24. FtpPush/SCP (A) and Staging (B) Distribution Requests Filters	15-39
Figure 15.6-25. Processing Services Requests Page and Filter	15-41
Figure 15.6-26. Operator Alerts Page (A) and Alert Details Page (B-C)	15-42
Figure 15.6-27. Operator Alerts Page – Fields and Options	15-43
Figure 15.7-1. Suspended Destinations Monitor (A) and Ftp Push Monitor-Suspended Configured Destination (B) Pages	15-46
Figure 15.8-1. Historical Distribution Requests Page (A) and Filter (B)	15-49
Figure 15.8-2. Historical Distribution Requests Page – Fields and Options	15-50
Figure 15.8-3. Historical Processing Requests Page (A) and Filter (B)	15-51
Figure 15.8-4. Historical Processing Requests Page – Fields and Options	15-52
Figure 15.9-1. OM Queue Status Page	15-54
Figure 15.9-2. HEG Order Status Page	15-56
Figure 15.9-3. Staging Status Pages and Table (Fields)	15-57
Figure 15.9-4. Pending HEG Granules Page (Frame A) and Tables (Frames 1-2)	15-59
Figure 15.9-5. Data Pool File System Status Page	15-61
Figure 15.10-1. Aging Parameters Page	15-64
Figure 15.10-2. OMS Server and Database Configuration Page	15-66
Figure 15.10-3. OM Server/Database Configuration - Parameters	15-68
Figure 15.10-4. Media Configuration Page	15-69
Figure 15.10-5. Media Creation Configuration Page	15-72
Figure 15.10-6. ODL Metadata File Users Configuration Page	15-74
Figure 15.10-7. External Processing Services Policy Configuration Page	15-75
Figure 15.10-8. FtpPush/SCP Policy Configuration Page	15-77
Figure 15.10-9. FtpPush/SCP Policy Configuration Page – Fields and Options	15-78
Figure 15.10-10. Context-Sensitive Help for Retry Interval Parameter	15-79

Table 12.1-2	Configuration File Parameters for QA Update Utility.....	12-3
Table 13.2-1.	Login to System Hosts - Activity Checklist.....	13-3
Table 13.3-1.	Monitoring DPL Ingest	13-6
Table 13.3-2.	Home Page Field Descriptions	13-8
Table 13.3-3.	Request Status Page Column Descriptions	13-11
Table 13.3-4.	Ingest Request Status Allowed Actions	13-11
Table 13.4-1.	Interventions & Alerts	13-40
Table 13.5-1.	Modifying DPL Ingest Configuration	13-53
Table 13.5-2.	Edit a Data Provider Configuration Parameter Descriptions	13-54
Table 13.5-3.	Polling Location Page Field Descriptions	13-57
Table 13.5-4.	Data Type Configuration Page Field Descriptions.....	13-62
Table 13.5-5.	SCP/FTP Host Page Field Descriptions	13-65
Table 13.5-6.	Archive File Systems Configuration Page Field Descriptions	13-71
Table 13.5-7.	ECS Services Configuration Field Description.....	13-73
Table 13.5-8.	ECS Services Configurable Field Descriptions.....	13-73
Table 13.5-9.	Global Tuning Parameter Descriptions	13-81
Table 13.5-10.	Volume Groups Configuration Page Field Descriptions.....	13-87
Table 13.5-11.	Add Volume Group Page Field Description	13-87
Table 13.5-12.	Volume Group Naming	13-89
Table 13.6-1.	Reports.....	13-99
Table 13.6-2.	Volume Groups History Page Field Description.....	13-102
Table 13.8-1.	Data Pool Maintenance	13-105
Table 14.4-1.	Starting and Stopping StorNext.....	14-3
Table 14.5-1.	Loading and Removing Archive Media - Activity Checklist.....	14-8
Table 14.6-1.	Deleting Granules - Activity Checklist	14-17
Table 14.6.1-1.	Command Line Parameters of the EcDsBulkSearch.pl.....	14-17
Table 14.6.2-1.	Command Line Parameters for EcDsBulkDelete.pl.....	14-21
Table 14.6.3-1.	Command Line Parameters for EcDsBulkUndelete.pl.....	14-24

Table 14.6.4-1. Command Line Parameters for EcDsDeletionCleanup.....	14-26
Table 14.7-1. StorNext Backup Procedures - Activity Checklist.....	14-30
Table 14.8-1. ACSLS Command Reference.....	14-34
Table 14.8-2. ACSLS Utilities.....	14-35
Table 14.8-3. ACSLS Procedures - Activity Checklist.....	14-35
Table 14.9-1. Data Pool Maintenance Tasks - Activity Checklist.....	14-40
Table 14.10-1. Data Pool Scripts - Activity Checklist.....	14-92
Table 14.10-2. Command Line Parameters.....	14-98
Table 15.3-1. OM GUI Operator Security Capabilities.....	15-6
Table 15.4-1. Launch Order Manager GUI - Activity Checklist.....	15-7
Table 15.5-1. Operator GUI Security Capabilities.....	15-9
Table 15.6-1. Request Management - Activity Checklist.....	15-10
Table 15.7-1. Destination Monitor - Activity Checklist.....	15-44
Table 15.8-1. Archive Data - Activity Checklist.....	15-49
Table 15.9-1. OM Status Pages - Activity Checklist.....	15-53
Table 15.10-1. OM Configuration - Activity Checklist.....	15-62
Table 15.10-2. External Processing Services Parameters.....	15-76
Table 15.12-1. Physical Media Distribution - Activity Checklist.....	15-83
Table 15.13-1. OM GUI Log Viewer - Activity Checklist.....	15-124
Table 15.14-1. Using Order Manager Command Line Utility - Activity Checklist.....	15-127
Table 15.14-2. Command Line Parameters of the SCLI Tool.....	15-143
Table 15.17-1. Troubleshooting Order Manager - Activity Checklist.....	15-152
Table 15.17-2. Order Manager GUI User Messages.....	15-153
Table 15.17-3. Recovering from Order Manager Failures.....	15-167
Table 15.17-4. Troubleshooting HEG Problems.....	15-175
Table 16.1-1. Spatial Subscription Server GUI - Activity Checklist.....	16-1
Table 18.4-1. DAAC Hardware Problem Reporting Procedures.....	18-4
Table 18.4-2. Hardware Corrective Maintenance Actions.....	18-5

14. Archive Management/DataPool Maintenance

14.1 Archive Management Overview

Archive processing is at the heart of the system. Through archive processing, data that have been ingested into the system are archived to tape for permanent storage and distributed to users via hard media (tape or disk) or electronic means. The DAAC Archive Manager's job entails working with all levels of the system.

The Evolution Release 7.20 resulted in changes on the hardware and system levels for managing the Archive. A migration from the AMASS-based archive to a StorNext SAN-based archive was implemented prior to and as a prerequisite of Release 7.20. A pair of HP570 G4 commodity-based Linux servers was installed to run the StorNext Storage Manager (SNSM) product in a high availability, failover environment.

The StorNext disk cache resides on SAN-attached-disk-storage managed by SNSM. This change benefits the DAACs with added capability for multi-tier storage management. StorNext Storage Manager (SNSM) is a hierarchical storage management (HSM) system for managing data on multiple storage tiers consisting of disk and tape resources. The purpose of SNSM in the ECS is to provide an easy-to-use interface (GUI based) for large data archives.

14.2 Archive Hardware

The archive hosts in the ECS architecture are a pair of Hewlett-Packard (HP) Proliant ML570 servers running Red Hat Linux 4.0 Update 3. SNSM includes a Metadata Controller (MDC) failover capability to support a higher level of availability than with the AMASS solution. The MDC Failover allows a secondary MDC host to take over StorNext operations in the event a primary MDC host fails. Failover is supported for all StorNext management operations, including client I/O requests (File System) and data mover operations (Storage Manager). This will significantly increase the uptime of the ECS archive at each DAAC. The archive uses one major type of archival storage hardware for storing science data, browse data, and other data. The StorageTek (STK) Powderhorn Model 9310 Automated Cartridge System tape storage tower, is a mass storage system of removable media jukeboxes. The software that manages the storage in the system architecture is hosted on a HP Proliant ML570. The typical data storage archive consists of the following major elements: Library Storage Module (LSM), Powderhorn Model 9310, Automated Cartridge System (ACS) tape storage tower. Cartridge Access Port (CAP), where media are inserted or ejected from the LSM; standard capacity is 21 cartridges.

Dual tape-transport "robots" for moving cartridges from the tower to a tape drive or CAP and from the tape drive or CAP to the tower.

Tape drive rack with eight 9940 cartridge tape drives (rack capacity is 20 drives).

Library Management Unit (LMU), Model 9330, a serial port for the ACS Library Software (ACSL) that controls and monitors the ACS.

- Library Control Unit (LCU), Model 9311, a hardware interface for managing LSM intercommunications.

Each LSM tape archive can store thousands of tapes. The archive stores science data on STK 9940A and 9940B tapes, each 9940A tape can store 60 gigabytes of data (up to 200 gigabytes compressed) and each 9940B tape can store 200 gigabytes of data (up to 400 gigabytes compressed). Each 9940 tape cartridge is identified by a colored bar code label that shows the media number. An archive catalog or database tracks the location of each cartridge within the library, based on information provided by the laser bar code reader

14.3 Archive Software

Archive operations rely on both custom and commercial off the shelf (COTS) software for complete mass storage archive management, providing the capability to accept Graphical User Interface (GUI) and command line interface inputs, and to interpret them to the appropriate level needed to control and monitor archive operations. The StorNext Storage Manager (SNSM) software is a product of Quantum. Quantum, which acquired ADIC, is the vendor for both the StorNext File System and the StorNext Storage Management products.

The purpose of SNSM in the system is to provide an easy-to-use interface to a large tape archive. StorNext manages files, volumes (media), drives and jukeboxes. It allows UNIX File System (UFS) access methods to be employed (e.g., ftp, rcp, uucp, nfs, RPC, cp, mv and native commands) while removing some of the limitations of the UFS. Primary among these is reliance on UNIX Index Node (inode) structures. StorNext maintains all inode information in database files rather than in associated disk structures. This minimizes or eliminates many of the file search problems inherent in searching large numbers of files in multiple directories.

14.4 Starting and Stopping StorNext

The ECS System contains both managed (Hierarchical Storage Manager) and unmanaged StorNext File Systems. In order for the ECS System to function properly you need to start/stop both. They can be started/stopped from the Linux command line or from the GUI provided by the vendor. Table 14.4-1 provides an Activity Checklist for Starting and Stopping StorNext.

Table 14.4-1. Starting and Stopping StorNext

Order	Role	Task	Section
1	System Administrator or Archive Manager	Start the StorNext Manager Server	(P) 14.4.1.1 (P) 14.4.1.2
2	System Administrator or Archive Manager	Stopping the StorNext Client	(P) 14.4.2.1
3	System Administrator or Archive Manager	Disabling the Tape Archive System	(P) 14.4.2.2
4	System Administrator or Archive Manager	Rebooting StorNext Metadata Server	(P) 14.4.3.1
5	System Administrator or Archive Manager	Creating a Listing of StorNext Labels	(P) 14.4.4.1

14.4.1 Starting the StorNext Application

To bring the StorNext System, you must start both the server and its clients.

14.4.1.1 Start the StorNext Manager Server (from the command line prompt)

1 Logon to the active metadata server (x4smvaa). Using x4smvaa will log you into the active (x4sml01 (primary) or x4sml02 (failover/secondary))
/etc/init.d/cvfs start

2 Verify that the StorNext Manager Server is active with the command
#ps -ef | grep cvfs

To start StorNext Manager Clients from the command line prompt: (as superuser or root)

3 Logon to the each client hosts.
/etc/init.d/cvfs start

4 Verify that the StorNext Manager Server is active with the command
#ps -ef | grep cvfs

The **StorNext Home** GUI is Web based, and can be accessed by any Web enabled machines with the proper Java libraries.

Note: Persons with Administrators Accounts can only have full control of the archive.

14.4.1.2 Start the StorNext Manager Server (from the GUI)

- 1 Bring up a Web browser. **Mozilla** is the EMD supported standard, however, other browsers such as Firefox, Netscape 7+ , and others can be used.
- 2 Enter the name of the active **StorNext** metadata server (p4smvaa:81).
 - The **StorNext** login window will appear.
- 3 Enter the username (admin) and password in the spaces provided. (Operators can create multiple accounts.)
 - The **StorNext** GUI Home page will be displayed (see Figure 14.4-1).

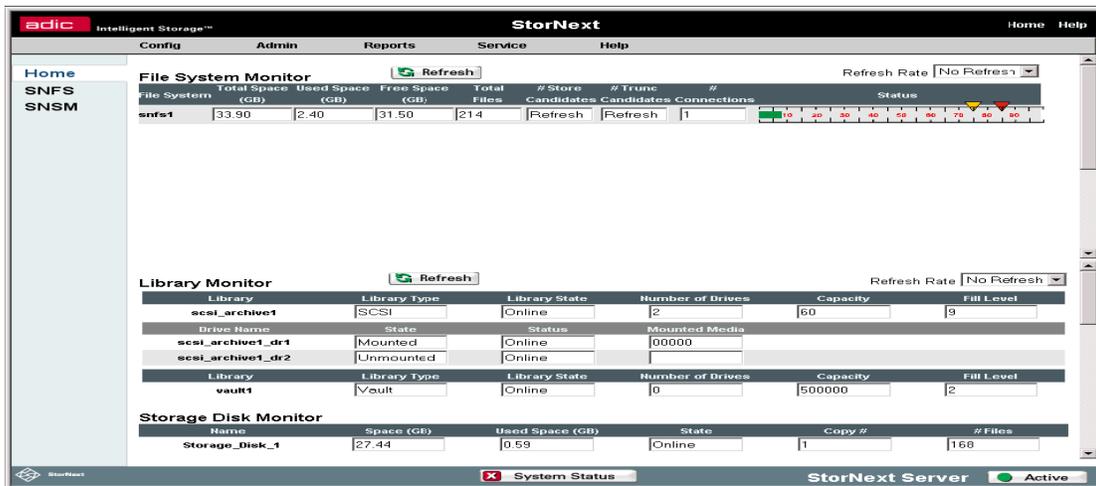


Figure 14.4-1. StorNext GUI Home Page

- 4 Select **Admin** from the Home Page.
 - The **Admin** Pull-Down Menu will be displayed (see Figure 14.4-2).

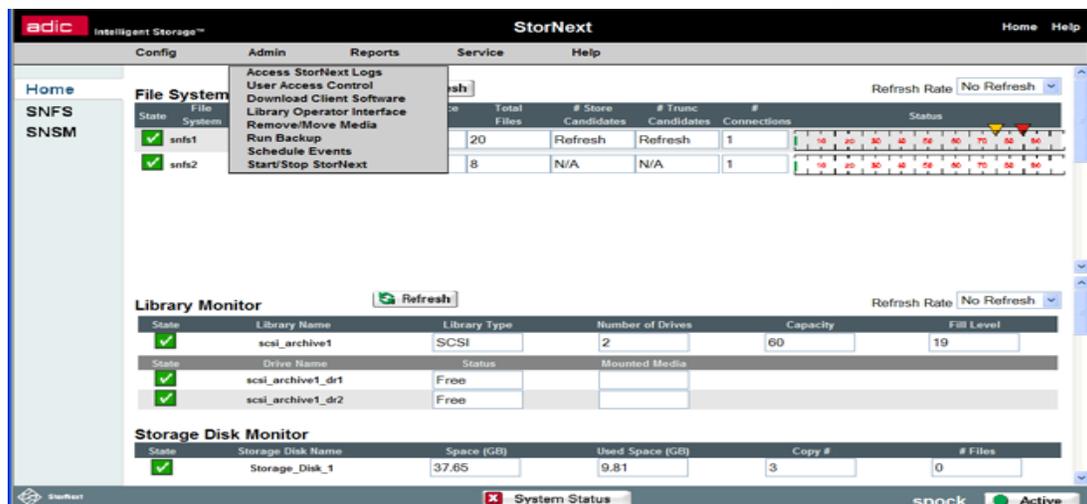


Figure 14.4-2. Admin Pull-Down Menu

- 5 Select **Stop/Start StorNext** from **Admin** the pull-down window.
 - The **StorNext Start/Stop** page will be displayed (see Figure 14.4-3).

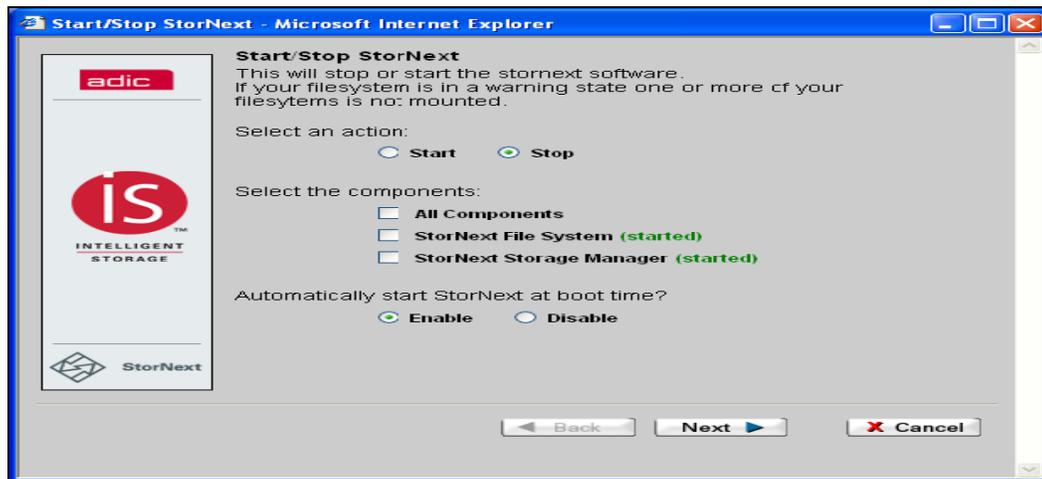


Figure 14.4-3. Start/Stop StorNext Page

- 6 Select the **Start** radio button for **Select an action**.
- 7 Select the **All Components** radio button for **Select the components** *”NOTE : NEVER Select Automatically Start StorNext Manager at boot time? EMD has provided a script in the init.d directory to perform this action.*
- 8 Select the **Next** radio button

14.4.2 Stopping the StorNext Application

To bring the StorNext System, you must stop both the server and its clients. The Clients must all be stopped first.

14.4.2.1 Stop the StorNext Clients:

- 1 Log in as root (system administrator) into each **StorNext Metadata** client.
- 2 To stop the **StorNext** clients, type:

```
# /etc/init.d/cvfs stop
```
- 3 Check to ensure client has been stopped

```
#ps -ef | grep cvfs
```

NOTE : MAKE SURE THAT ALL CLIENTS ARE STOPPED.
 To Stop the **StorNext** server

- 4 Log in as **root** (system administrator) into the active **StorNext Metadata** server (x4smvaa).
 - 5 To stop **StorNext** server, type:
/etc/init.d/cvfs stop
 - 6 Check to ensure server has been stopped
#ps -ef | grep cvfs
-

14.4.2.2 Disabling the Tape Archive System

- 1 From the **StorNext Home Page**, select **Stop/Start StorNext** from **Admin** Pull-down.
 - The **Start/Stop StorNext** page will be displayed.
 - 2 Select the **Stop** radio button form the **Select an Action** section.
 - 3 Select **StorNext Storage Manger** radio button form the **Select the components** section
NOTE : NEVER select **Automatically start StorNext at boot time?** EMD has provide a script in the init.d directory to perform this action
 - 4 Select the **Next** radio button
-

14.4.3 Rebooting the StorNext Metadata Servers

The StorNext Metadata Servers (x4sml01, x4sml02) may need to be rebooted during certain anomalous conditions (e.g., system "hang," interruption of communication between StorNext and ACSLS, a required daemon is down).

In order to reboot StorNext Metadata Servers you must have root privileges. The following procedure demonstrates the steps to reboot StorNext Metadata Servers.

14.4.3.1 Rebooting the StorNext Metadata Servers

- 1 To reboot the **StorNext System**, you must stop both the Server and its Clients refer to Section 14.4.2 – **Stopping the StorNext Application**.
 - 2 Perform Required Maintenance on StorNext Metadata Server.
 - 3 Re-Start the StorNext Server and Clients refer to Section 14.4.1 – Starting the StorNext Application.
-

14.4.4 Avoiding loss of LUN Labels When Installing Red Hat

When installing Red Hat Enterprise Linux (RHEL) 3 or 4, the “Anaconda” installation program assumes that it owns any local or Storage Area Network (SAN) LUN (Logical Unit Number) that it can find and will **re-label** each LUN using Linux headers. If an installation is attempted while connected to the SAN, all of the StorNext LUN headers will be rewritten with Linux headers and

StorNext or any other SAN filesystem that the fabric connection allows will cease functioning. As well, it is possible for Anaconda to target the incorrect disk and overwrite data on a SAN LUN. This will occur during a manual install via CD/DVD or an automated (kickstart) install. There is an undocumented option, **-ignore disks**, but it does not work when combined with any other kickstart options.

Warning: It is crucial that before installing Red Hat Linux (via CD, DVD, or kickstart) that any non-OS disks are removed from visibility of the storage controllers (local IDE/SCSI and FC HBAs). For locally installed disks, disconnect or remove the drives. If the OS disk is on the SAN (diskless systems), then any non-OS disks visible by the target host should be removed using zoning, LUN masking, Navisphere or other storage management method. When scanning devices on the target systems HBA, the only device that should be seen is the target OS disk. If installing Red Hat Linux on a local hard drive while attached to a FC SAN, simply disconnect the FC HBA connections to the SAN to easily protect the SAN. Additionally, a current list of StorNext Labels should be created and updated as required.

14.4.4.1 Create a Listing of StorNext Labels

NOTE: Prior to installing Red Hat Enterprise Linux (RHEL) 3 or 4, create a file that contains the StorNext Labels (see the following procedure). Additionally, it is crucial that the Linux system's SAN fiber channel (FC) cables be physically disconnected before attempting an install. If there are foreign (non-linux) data disks installed locally (via SCSI or IDE, for example) that are not part of the installation, they should also be removed.

- 1 Log on (**as root**) to a host (Linux or other) that has persistent binding of the SAN LUNs.
- 2 Make a listing of the StorNext labels currently configured by using the following command (for example):

```
# /usr/cvfs/bin/cvlabel -c > /labels
```

 - This will create a file called **labels** that contains the label, the device, size, VTOC label and comments.
- 3 Edit the **labels** file and **REMOVE ENTRIES THAT ARE NOT STORNEXT!**
 - If non-StorNext entries are still in the file, they will be given StorNext headers and will no longer be able to do their normal function.

For example, the following line is the boot (local) disk and should be deleted:

```
/dev/sda [MegaRAIDLD 0 RAID5 69G1.92] MBR Sectors: 0. SectorSize: 512
```
- 4 Copy the file to /usr/cvfs/config by using the following command:

```
# cp /root/labels /usr/cvfs/config
```
- 5 Logoff from StorNext.

If the StorNext headers are lost, perform the following procedure:

- 1 As root, login to the host where the labels have been copied (in step 1 above).
- 2 Change directory to the cvfs configuration directory by entering the following:

- ```

cd /usr/cvfs/config
3 Copy the labels file to cvlabels by entering the following
cp labels cvlabels
4 Run the cvlabel command by entering the following
/usr/cvfs/bin/cvlabel
5 Check that the headers are correct using the following command:
/usr/cvfs/bin/cvlabel -l
6 Remove the cvlabels file using the command:
rm /usr/cvfs/config/cvlabels

```
- 

## 14.5 Loading and Removing Archive Media

For the STK storage facility, each Powderhorn is equipped with a 21-tape Cartridge Access Port (CAP). Tapes may be placed in the CAP for automatic loading. Tapes are also ejected through the CAP when identified for ejection using a command at the host for the STK Automated Cartridge System Library Software (ACSLs).

Table 14.5-1 provides an Activity Checklist for Loading, and Removing Archive Media.

**Table 14.5-1. Loading and Removing Archive Media - Activity Checklist**

| Order | Role            | Task                        | Section      | Complete? |
|-------|-----------------|-----------------------------|--------------|-----------|
| 1     | Archive Manager | Loading Archive Media       | (P) 14.5.1.1 |           |
| 2     | Archive Manager | Removing Archive Media      | (P) 14.5.1.2 |           |
| 3     | Archive Manager | Recovering Files From Media | (P) 14.5.1.3 |           |

### 14.5.1 Loading Archive Media

Loading of media is appropriate when there are relatively small numbers of media to be loaded. Up to 21 volumes at a time may be loaded through the Cartridge Access Port (CAP). With automated loading, StorNext assigns each cartridge a unique volume number, enters the volumes in its database, and marks the volumes Online in the database.

### 14.5.1.1 Loading Archive Media

---

- 1 Log in as **root** at the active **StorNext Metadata** server (**x4smvaa**). The **x** in the workstation name will be a letter designating your site: **m** = SMC, **l**=LaRC, **e**=LP DAAC, **n**=NSIDC (e.g., **n4smvaa** indicates a server at NSIDC).
- 2 Update the media file to add the appropriate volume information

*#vi /usr/adic/MSM/internal/config/media\_file\_”library”*

Format :

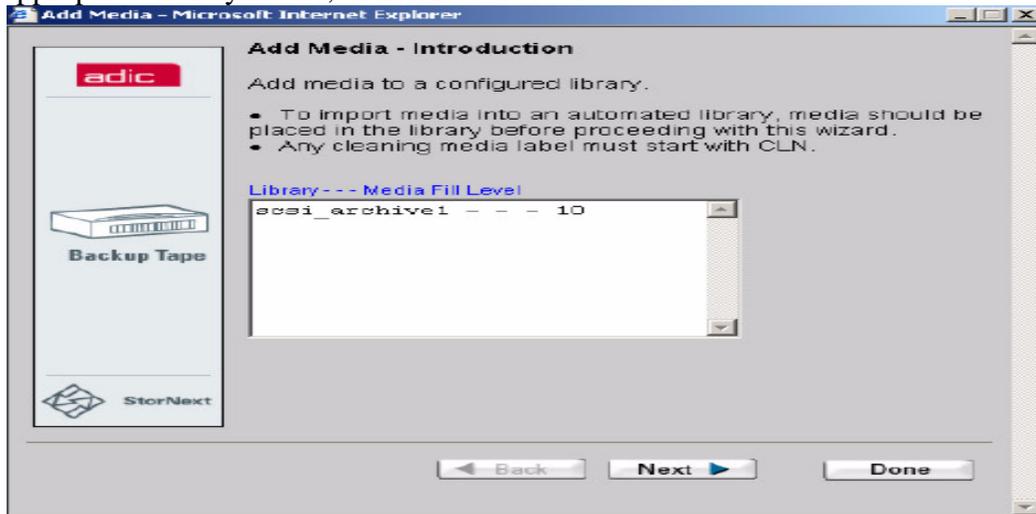
```
[s] any character in the set s, where s is a sequence of
characters and/or a range of characters, for example,
[c-c].
#
r* zero or more successive occurrences of the regular
expression
r. The longest leftmost match is chosen.
Examples:
#
ESY... All six character labels that begin with ESY.
#
[^0-9]..A* All labels that do not begin with a digit, followed
by any 2 characters, followed by zero or more
occurrences of the character A.
#
"DG" EF" DG followed by double quote followed by a space
followed by EF
#
Following is an example of what an entry in this file may look like:
#AML_1 ESY2..
#
```

---

---

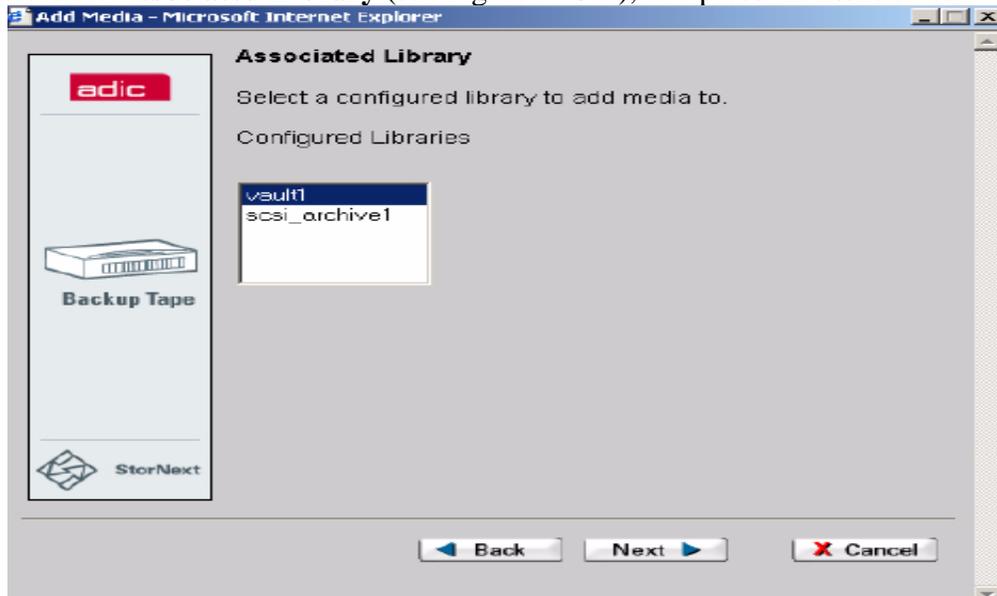
S2\_98 SE925[0-2]

- 3 Place the Media in the Library. Select **Config-Add Media** from the **StorNext** Home page. The **Add Media – introduction** screen will appear (see Figure 14.5-1). Select the appropriate library media, then select the **Next** button.



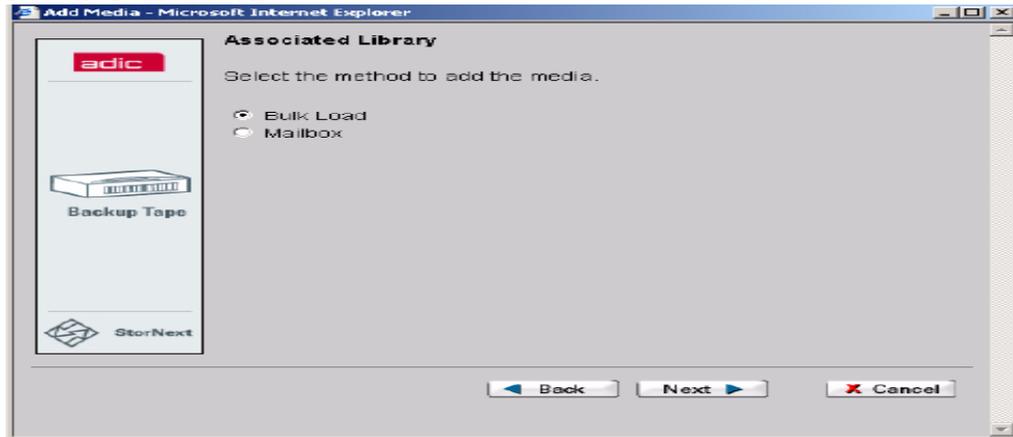
*Figure 14.5-1. Add Media Page*

- 4 Select the **Associated Library** (see Figure 14.5-2), and press the **Next** button.



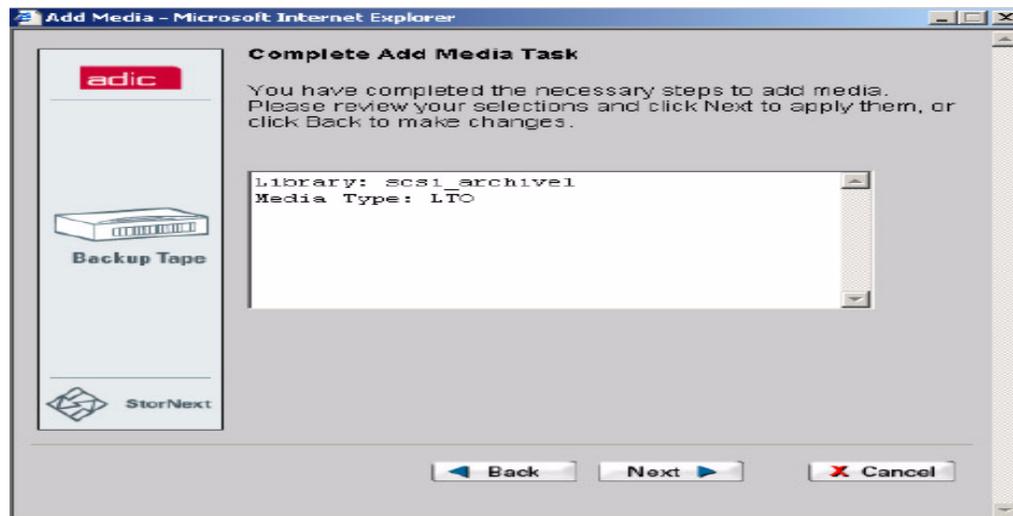
*Figure 14.5-2. Associated Library Page*

- 5 Select the **Bulk Load** button from the **Associated Library** page (see Figure 14.5-3), and press the **Next** button.



**Figure 14.5-3. Associated Library Bulk Load Page**

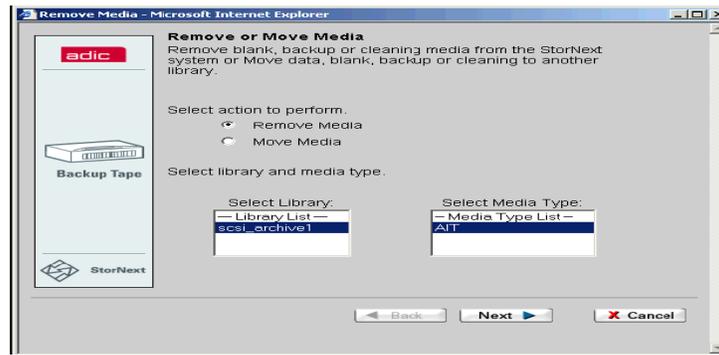
- The **Complete Add Media Task** screen displays.
- 6 Select **Next** from the **Complete Add Media Task** screen (see Figure 14.5-4).
- The system will then automatically add your media



**Figure 14.5-4. Complete Add Media Task Page**

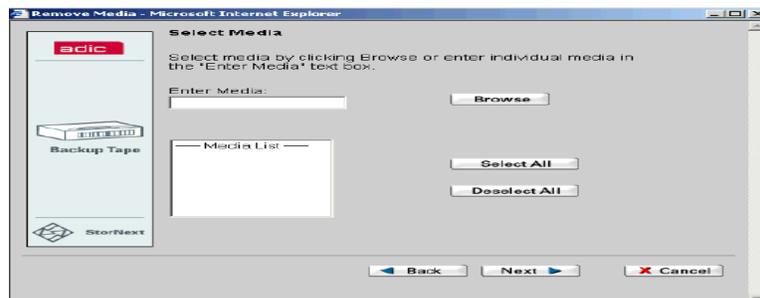
### 14.5.1.2 Removing Archive Media

- 1 Select **Config-Remove** or **Move Media** from the **StorNext Home Page**. The **Remove Media or Move Media** screen will appear (see Figure 14.5-5).
- 2 Select the **ReMove Media** button.
- 3 Select the appropriate **Library** and **Media Type**, then select the **Next** button.



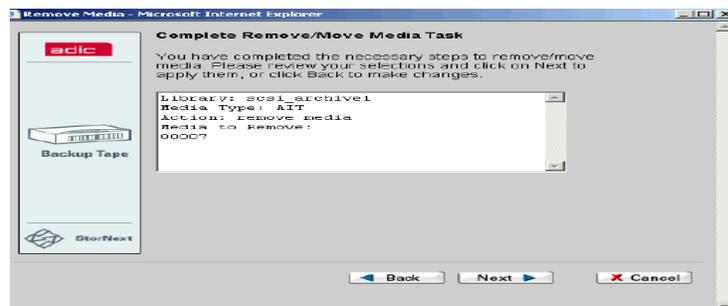
**Figure 14.5-5. Remove or Move Media Page**

- 4 Select the **Media** to be removed (see Figure 14.5-6), then select the **Next** button.



**Figure 14.5-6. Select Media Screen**

- The **Completed Remove/Media Task** will appear (see Figure 14.5-7).



**Figure 14.5-7. Complete/Remove Media Task Page**

- 5 When the status screen indicates that the media has been removed, select **Finish**. The **Library Operator Interface (LOL)** page will appear.
- 6 Open the recessed latch on the **Cartridge Access Port (CAP)** door and remove the tape(s).
- 7 Update the media file to add the appropriate volume information. Type in:

```
#vi /usr/adic/MSM/internal/config/media_file_”library”
```

Format :

```
[s] any character in the set s, where s is a sequence of
characters and/or a range of characters, for example,
[c-c].
#
r* zero or more successive occurrences of the regular
expression
r. The longest leftmost match is chosen.
Examples:
#
ESY... All six character labels that begin with ESY.
#
[^0-9]..A* All labels that do not begin with a digit, followed
by any 2 characters, followed by zero or more
occurrences of the character A.
#
"DG" EF" DG followed by double quote followed by a space
followed by EF
#
Following is an example of what an entry in this file may look
like:
#AML_1 ESY2..
#
```

---



---

```
S2_98 SE925 [0-2]
```

---

### 14.5.1.3 Recovering Files From Media

---

- 1 Log onto the **x4smvaa** machine as root.
- 2 If the media is still available to the TSM module, make the tape unavailable by entering the following command:  
**fschmedstate <mediaID>-s unavail**
- 3 Eject the target media from the tape library using the ACSLS eject command:  
**eject (acs,lsm,cap) <volser>**
- 4 Use a piece of label tape or some other method to make the barcode label unreadable by the barcode scanner on the robot picker.
- 5 Use one of the small square **Imation** labels or some other suitable method to label the tape with a unique ID e.g. **BADTAPE1**. This label will not be read by the picker this label will be used as a temporary volser for the tape when it is reintroduced into the library.
- 6 Reintroduce the tape back into the same library it was removed from by entering the following command:  
**venter (acs,lsm,cap) <BADTAPE1>**
- 7 Add the virtual label to the media inventory by editing the Library\_ID file. Enter  
**cd /usr/adic/MSM/internal/config/media\_file\_(Library\_ID)**
- 8 Audit the Library\_ID by entering the following command:  
**vsaudit <Library\_ID>**
  - The audit should discover a new piece of media with the virtual label **BADTAPE1**.
- 9 Create a new StorNext policy class e.g. **tape\_recover** to import the bad tape into by entering the following command:  
**fsaddclass <tape\_recover> -v <drivepool>**
  - Importing the badtape into an empty policy class with no directory relationship will help to ensure that the tape won't be seen as a scratch pool blank and accidentally used by another policy class.
  - Make sure you assign the new policy class a drive pool that contains only drives of the type that was used to create the tape (either all **A drives** or all **B drives**).
- 10 Execute the following TSM command to import the media into the new policy class that you just created:  
**fsmedin <BADTAPE1> -c <tape\_recover>**
  - This command should add the media to the **tape\_recover** policy class and format it as soon as a drive in the drivepool is available. If you do not want the tape to format immediately, add the **-w** option to the **fsmedin** command.
- 11 Use the following StorNext command to make the tape unavailable to TSM.  
**fschmedstate BADTAPE1 -s**
- 12 Use the following ACSLS eject command to remove the tape from the library:  
**eject (acs,lsm,cap) <volser>**
- 13 Open a tape recovery service request with SUN. In the request stress the fact that the first block (header block) should remain intact. Explain that the tape had been overwritten and that there is recoverable data out beyond the second EOD. Ask the vendor to overwrite the first EOD mark encountered and all blocks up to and including

the second EOD mark. I think the only exception to this scenario would be if a tape is accidentally reformatted. I don't know how this would happen in StorNext, but it may be possible. If we know that the tape was reformatted and not overwritten we would instruct the vendor to just overwrite the first EOD encountered after the header and nothing else.

- 14 When the tape is returned, ensure that the tape is **write protected**. To insert the tape back into same library that it came from, enter the following command:  
**venter (acs,lsm.cap) <BADTAPE1>**
- 15 To place the tape in a drive, Use the following command:  
**fsmount <BADTAPE1>**
  - Make a note of the tape **devpath** that the fsmount command.
- 16 To scan the tape to see if the command finds any recoverable files, enter the following command:  
**fsmesdscan -b <tape devpath>**
- 17 If the **fsmesdscan -b** command finds recoverable files, rewind the tape to BOT using the following command:  
**fs\_scsi**
  - This can also be accomplished by simply unmounting the tape and remounting it to ensure that you are at BOT

Note: Before you recover any files from the tape you must identify a file system with enough capacity to hold all of the files that will be recovered. We do not recommend recovering your files to their original location. Once your files have been recovered they can be copied back to their original location once some QA e.g. cksum has been performed against them.

- 18 With the recovered tape in a drive and at BOT, enter the following command:  
**run fsmesdscan -R <recoverRoot>**
    - The **recoverRoot** is a directory in a file system with enough available free space to hold all of the recoverable files on your tape.
    - If there are recoverable files on your tape, they will be read from tape and placed in the **recoverRoot** directory that was specified in the **fsmesdscan** directory.
    - The files will not be placed directly into the **recoverRoot** directory, the **fsmesdscan** command will create the original directory structure for the files immediately below the **recoverRoot** directory e.g. /recoverRoot/stornext/snfs1/<mode>/{datatype}/.....
  - 19 Once your files have been recovered, their cksums should be validated against the Inventory Database (if a cksum is available).
- 

## 14.6 Deleting Granules

The granule deletion capability provides the Operations Staff with the ability to delete granules using command line interfaces. The granules can be deleted from both the inventory and archive or just the archive. Beginning in Release 7.21, a new database has been created and placed in the AIM system. This database will consist of the old SDSVR and STMGT databases. Additionally a new XML metadata database table has been added to the AIM Inventory

Database and a Small File Archive system has been added to the StorNext file system used for archiving XML metadata files.

The deletion process involves deleting the specified SC (science) granules along with associated granules BR (browse), PH (production history), and QA (quality assurance) granules, as long as any other granules do not reference the associated granules. The deletion process can also involve deleting the specified granules even if they are inputs to other granules.

There are two phases to the granule deletion process:

- Logical deletion [marking granules (in the AIM database) for deletion].
- Physical deletion involves removing the XML metadata from the Small File Archive and the Science Granules from the Large File Archive for all files identified for deletion).

**Phase 1, Logical Deletion:** For the first phase, a command-line Bulk Delete utility (EcDsBulkDelete.pl) responds to operator-specified criteria for the deletion of granules by "logically" deleting from the inventory (AIM database) those granules that meet the criteria. The granules are marked as "deleted" and can no longer be accessed, but their inventory entries are not removed yet. The logical "deletion" may specify the flagging of granule files to be deleted from the archive (*Delete From Archive*, or DFA) only, leaving the inventory record intact, or it may specify *Physical Deletion*, which entails removal of the inventory record from the database as well as removal of the files from the archive. For each granule to be physically deleted an entry is made in the DsMdDeletedGranules table of the Inventory Database with a time stamp recording the logical deletion time. If applicable, the DFAFlag is set for the granule's entry in the DsMdDeletedGranules table. Flagging DFA granules involves changing the value of the DeleteFromArchive entry in the DsMdGranules table from **N** to **Y**.

**Phase 2, Physical Deletion:** The second phase is actual deletion from the inventory of the granules marked for physical deletion (not DFA only). Physical deletion occurs when the operations staff runs the Deletion Cleanup utility (EcDsDeletionCleanup.pl). The Deletion Cleanup utility removes all Inventory entries for that granule from the AIM db, the XML file for the granule is removed from the XML archive, and all data files for the granule are removed from the Large File Archive.

Periodically, as sufficient data removal from the archive makes it appropriate, Operations may elect to reclaim the tape space and recycle archive tapes. StorNext software commands (e.g., *volcomp*, *volclean*, *volformat*, and *volstat*) are used for that purpose.

Table 14.6-1 provides an Activity Checklist for Deleting Granules from the Archive.

**Table 14.6-1. Deleting Granules - Activity Checklist**

| Order | Role                                   | Task                                                             | Section      |
|-------|----------------------------------------|------------------------------------------------------------------|--------------|
| 1     | Archive Manager/Database Administrator | Generating a GeoID File                                          | (P) 14.6.1.1 |
| 2     | Archive Manager/Database Administrator | Mark Granules for Deletion (Logical)                             | (P) 14.6.2.1 |
| 3     | Archive Manager/Database Administrator | Undelete Marked Granules for Deletion (Logical)                  | (P) 14.6.3.1 |
| 4     | Archive Manager/Database Administrator | Deleting Granules, Phase 2: Running the Deletion Cleanup Utility | (P) 14.6.4.1 |

### 14.6.1 Generating a GeoID File

A GeoID is the granule identification portion of a Universal Reference (UR); it contains the BaseType, SubType (ESDT ShortName and VersionID) and databaseID. For example, the GeoID SC:AST\_L1BT.001:5850 indicates BaseType SC (science granule), ShortName AST\_L1BT (ASTER Level 1B thermal infrared data) VersionID 001, and databaseID 5850. The GeoID is different for each granule in the system.

GeoID files are input files for scripts used in deleting (or “undeleting”) ECS granules from the inventory, archive, or Data Pool. A GeoID file consists of a list of GeoIDs for granules that are to be deleted (or “undeleted”). One way to generate a file of granule GeoIDs is to use the Bulk Search utility, which allows the operator to specify criteria for selecting granules on the basis of certain characteristics (e.g., ESDT, version, and date inserted in the archive). Subsequently, the GeoID file can be used as input to the Bulk Delete utility, the Bulk Undelete utility, or the Data Pool Cleanup Utility. Table 14.6.1-1 provides a description of the parameters used in executing the Bulk Search utility.

**Table 14.6.1-1. Command Line Parameters of the EcDsBulkSearch.pl (1 of 2)**

| Parameter Name | Mandatory | Description                                                                                                                          |
|----------------|-----------|--------------------------------------------------------------------------------------------------------------------------------------|
| name           | No        | ESDT Short Name of the granules to delete.                                                                                           |
| version        | No        | ESDT Version ID of the granules to delete.                                                                                           |
| begindate      | No        | <mm/dd/yyyy> <hh:mm:ss><br>Search only for granules who's BeginningDateTime is greater than or equal to the specified date and time. |
| enddate        | No        | <mm/dd/yyyy> <hh:mm:ss><br>Search only for granules who's EndingDateTime is less than or equal to the specified date and time.       |

**Table 14.6.1-1. Command Line Parameters of the EcDsBulkSearch.pl (2 of 2)**

| Parameter Name   | Mandatory | Description                                                                                                                                                                                                                                                    |
|------------------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| acquirebegin     | No        | <mm/dd/yyyy> <hh:mm:ss><br>Search only for granules who's BeginningDateTime is greater than or equal to the specified date and time. This option is the same as '-begindate', except that it can be combined with 'acquireend' and used in a 'BETWEEN' clause. |
| acquireend       | No        | <mm/dd/yyyy> <hh:mm:ss><br>Search only for granules who's BeginningDateTime is less than or equal to the specified date and time. This option is usually used in conjunction with 'acquirebegin'.                                                              |
| insertbegin      | No        | <mm/dd/yyyy> <hh:mm:ss><br>Search only for granules who's insertTime is greater than or equal to the specified date and time                                                                                                                                   |
| insertend        | No        | <mm/dd/yyyy> <hh:mm:ss><br>Search only for granules who's insertTime is less than or equal to the specified data and time                                                                                                                                      |
| localgranulefile | No        | The name of a file containing Local Granule IDs to be converted into Geoids                                                                                                                                                                                    |
| geoidfile        | Yes       | Name of file containing geoids of the granules to delete.                                                                                                                                                                                                      |
| physical         | No        | Search only for deleted granules.                                                                                                                                                                                                                              |
| dfa              | No        | Search only for DFA'd granules                                                                                                                                                                                                                                 |
| mode             | Yes       | The ECS mode in which the program is to operate, this parameter can be omitted if the environment variable MODE is set.                                                                                                                                        |
| user             | Yes       | The user ID for database login                                                                                                                                                                                                                                 |
| server           | Yes       | The name of Sybase server. this parameter can be omitted if the environment variable SYB_SQL_SERVER is set                                                                                                                                                     |
| database         | Yes       | The name of the database, this parameter can be omitted if the environment variable SYB_DB_NAME is set                                                                                                                                                         |
| password         | No        | The name of the database login password, the utility will prompt user to enter the password if it is not specified in the command line (for security reason, not recommend to specify password in the command line)                                            |

Generic Bulk Search format:

```
EcDsBulkSearch.pl -name <shortname> -version <version ID> -begindate
<mm/dd/yyyy> <hh:mm:ss> -enddate <mm/dd/yyyy> <hh:mm:ss> -insertbegin
<mm/dd/yyyy> <hh:mm:ss> -insertend <mm/dd/yyyy> <hh:mm:ss> -acquirebegin
<mm/dd/yyyy> <hh:mm:ss> -acquireend <mm/dd/yyyy> <hh:mm:ss> -DFA -physical
-localgranulefile <path/filename> -geoidfile <geoid file> -limit <granule limit>
-mode <ECS mode> -server <SYBASE_SERVER> -database <DB_NAME> -user
<db_user> -password <database login password>
```

### 14.6.1.1 Generating a Geoid File

---

- 1 Log in at the x4dp101 host, where the Bulk Search utility is installed.
- 2 To change to the directory for starting the Bulk Search utility at the UNIX prompt enter:  
**cd /usr/ecs/<MODE>/CUSTOM/utilities**
  - The working directory is changed to **/usr/ecs/<MODE>/CUSTOM/utilities**.
- 3 To set up relevant environment the following commands would allow the Bulk Search utility to run using the OPS mode Inventory database at the DAAC:  
**setenv MODE OPS**  
**setenv SYB\_SQL\_SERVER x4dbl01\_srvr**  
**setenv SYB\_DB\_NAME EcInDb\_OPS**
  - The **<ECS mode>** value specified for the **MODE** parameter indicates the ECS mode (e.g., OPS, TS1, or TS2) to be searched.
    - If this environment variable is set, the **-mode** command line argument does not need to be given when starting the Bulk Search utility.
  - The **<Sybase server>** value specified for the **SYB\_SQL\_SERVER** parameter indicates the Sybase (database) server for the Inventory database.
    - If this environment variable is set, the **-server** command line argument does not need to be given when starting the Bulk Search utility.
  - The **<database name>** value specified for the **SYB\_DB\_NAME** parameter indicates which database (e.g., EcInDb, EcInDb\_TS1, or EcInDb\_OPS) is involved in the search.
    - If this environment variable is set, the **-database** command line argument does not need to be given when starting the Bulk Search utility.
- 4 Example 1:
  - Generate a file of GeoIDs deletion by shortname, versionid and inclusive temporal range:  
**EcDsBulksearch.pl -geoidfile </path/geofilename> -name <ESDT ShortName> -version <ESDT versionId> -begindate <mm/dd/yyyy> -user <db\_userid>**
- 5 Example 2:
  - Generate a file of GeoIDs for all MYD09GQ.001 granules marked “DFA” in the OPS mode.  
**EcDsBulkSearch.pl -DFA -name MYD09GQ -version 001 -password *password* -geoidfile MYD09GQ\_Dec23.geoid**
- 6 Example 3:
  - Generate a file of GeoIDs for all deleted (“physical” deletion) MYD09GQ\_100 granules in the OPS mode at the DAAC.  
**EcDsBulkSearch.pl -physical -name MYD09GQ -version 100 -password <password> -geoidfile MYD09GQ\_Dec23.geoid**

- 7 When the Bulk Search utility has completed its run and the GeoID output file is available, at the UNIX prompt enter:
- vi <geoid file>**
- **<geoid file>** refers to the GeoID file to be reviewed
  - Although this procedure has been written for the **vi** editor, any UNIX editor can be used to edit the file.
- 8 Review the file entries to identify any problems that have occurred.
- The GeoID file must contain GeoIDs in the format **<BaseType>:<ESDT\_ShortName.VersionID>:<databaseID>**.
  - For example:  
**SC:PM1ATTNR.077:2013496393**
    - The GeoID in the example indicates BaseType SC (science granule), ShortName PM1ATTNR (AQUA attitude data in native format) VersionID 077, and databaseID 2013496393.
  - There may be no spaces or blank lines in the file.
- 9 Use UNIX editor commands to fix problems detected in the file.
- The following vi editor commands are useful:
    - **h** (move cursor left).
    - **j** (move cursor down).
    - **k** (move cursor up).
    - **l** (move cursor right).
    - **a** (append text).
    - **i** (insert text).
    - **r** (replace single character).
    - **x** (delete a character).
    - **dw** (delete a word).
    - **dd** (delete a line).
    - **ndd** (delete *n* lines).
    - **u** (undo previous change).
    - **Esc** (switch to command mode).
- 10 Press the **Esc** key.
- 11 At the **vi** prompt enter:
- ZZ**
- **vi** exits and the edited file is saved.
    - To exit **vi** without saving the new entries in the file type **:q!** then press **Return/Enter**.
  - UNIX command line prompt is displayed.
-

## 14.6.2 Deleting Granules, Phase 1: Mark Granules for Deletion (Logical)

Once granules have been identified/selected for deletion, the operator runs the Bulk Delete utility, a Perl script, **EcDsBulkDelete.pl**. There are two types of runs that can be performed with the Bulk Delete utility:

- Physical.
- DFA.

A “physical” deletion run results in marking granules in the geoidfile as logically deleted. Specifying “DFA” (not able to combine with physical) will mark the granules in the geoidfile as DFAed, meaning the metadata will be kept but the granule files will be removed from the archive.

As previously mentioned the Bulk Delete utility responds to operator-specified criteria for the deletion of granules by "logically" deleting from the Inventory Database those granules that meet the criteria. The granules are marked as “deleted” and can no longer be accessed, but their inventory entries are not removed yet. The logical “deletion” may specify the flagging of granule files to be deleted from the archive (*Delete From Archive*, or DFA) only, leaving the Inventory Database record intact, or it may specify *Physical Deletion*, which entails removal of the Inventory Database record from the database as well as removal of the files from the archive.

For each granule to be physically deleted an entry is made in the DsMdDeletedGranules table of the Inventory Database with a time stamp recording the logical deletion time. If applicable, the DFAFlag is set for the granule’s entry in the DsMdDeletedGranules table. Flagging DFA granules involves changing the value of the DeleteFromArchive entry in the DsMdGranules table from **N** to **Y**. Table 14.6.2-1 provides a description of the parameters used in executing the Bulk Delete utility.

**Table 14.6.2-1. Command Line Parameters for EcDsBulkDelete.pl (1 of 2)**

| Parameter Name | Mandatory | Description                                                                                                                                                                                                                                                 |
|----------------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| geoidfile      | Yes       | Name of file containing geoids of the granules for deletion.                                                                                                                                                                                                |
| physical       | Yes       | Specifying this parameter will mark granules in the geoidfile logically deleted.                                                                                                                                                                            |
| DFA            | Yes       | Specifying this parameter (not able to combine with physical) will mark the granules in the geoidfile as DFAed, meaning the metadata will be kept but the granule files will be removed from the archive.                                                   |
| delref         | No        | Optional. When given, indicates that non SC/LM granule should be deleted even if it is associated to undeleted SC/LM granules<br>Note: This option has no effect on deleting SC/LM granules. They are always deleted regardless of being referenced or not. |
| noassoc        | No        | Optional. When given, indicates that associated granules (Browse granules etc.) will not be deleted.                                                                                                                                                        |

**Table 14.6.2-1. Command Line Parameters for EcDsBulkDelete.pl (2 of 2)**

| Parameter Name | Mandatory | Description                                                                                                                                                                                                         |
|----------------|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| mode           | Yes       | The ECS mode in which the program is to operate, this parameter can be omitted if the environment variable MODE is set.                                                                                             |
| user           | Yes       | The user ID for database login                                                                                                                                                                                      |
| server         | Yes       | The name of Sybase server. this parameter can be omitted if the environment variable SYB_SQL_SERVER is set                                                                                                          |
| database       | Yes       | The name of the database, this parameter can be omitted if the environment variable SYB_DB_NAME is set                                                                                                              |
| password       | No        | The name of the database login password, the utility will prompt user to enter the password if it is not specified in the command line (for security reason, not recommend to specify password in the command line) |
| log            | No        | The name of the log file to which a deletion report will be written. If this is not provided, it will default to /usr/ecs/<MODE>/CUSTOM/logs/                                                                       |

NOTE: A prerequisite to deleting granules is having a file of GeoIDs (corresponding to granules) for use as input to the Bulk Delete utility. Although it is possible to manually create a file of GeoIDs, an easier way is to use the Bulk Search utility to generate a list of GeoIDs based on criteria specified when running the Bulk Search utility (refer to the procedure for running the Bulk Search utility.)

Generic Bulk Delete format:

**EcDsBulkDelete.pl -physical | -DFA -delref -noassoc -user <db\_user> -password <passwd>-geoidfile <path/filename>-mode <MODE> -server <SYBASE\_SERVER> -database <DB\_NAME>-log <log\_file\_name>**

### 14.6.2.1 Mark Granules for Deletion (Logical)

- 1 Log in at the x4dpl01 host, where the Bulk Delete utility is installed.
- 2 To change to the directory for starting the Bulk Search utility at the UNIX prompt enter:  
**cd /usr/ecs/<MODE>/CUSTOM/utilities**
  - The working directory is changed to /usr/ecs/<MODE>/CUSTOM/utilities.
- 3 To set up relevant environment the following commands would allow the Bulk Search utility to run using the OPS mode Inventory database at the DAAC:  
**setenv MODE OPS**  
**setenv SYB\_SQL\_SERVER x4dbl01\_srvr**  
**setenv SYB\_DB\_NAME EcInDb\_OPS**

**NOTE:** There are two types of runs that can be performed with the Bulk Delete utility; i.e., “physical,” or “DFA.” A “physical” deletion run results in marking each specified granule and metadata as deleted from both inventory and archive. A “DFA” run involves deletion from the archive only.

- 4 To mark granules for logical “physical” deletion (i.e., granules plus associated granules such as Browse, QA and PH), at the UNIX prompt enter:
- EcDsBulkDelete.pl -physical -delref -noassoc -geoidfile <path/geoid\_name> -user -log <log\_file\_name.log>**
- The -delref option (i.e., delete granules that are referenced by other granules) indicates that a non-science/limited (non-SC/LM) granule should be deleted even if it is associated with “undeleted” SC/LM granules.
  - The -delref option has no effect on deleting SC/LM granules. They are always deleted regardless of whether or not they are referenced.
- 5 To mark granules for logical “DFA” deletion (i.e., meaning the metadata will be kept but the granule files will be removed from the archive), at the UNIX prompt enter:
- EcDsBulkDelete.pl -DFA -geoidfile <path/geoid\_name> -user -log <log\_file\_name.log>**
- The -DFA option indicates that the granules listed in the GeoID file are to be marked as “Delete From Archive” only (does not involve a “physical” deletion).
  - The Bulk Delete utility records information about utility events in the log file.
- 6 When the Bulk Delete utility has completed its run and the log file is available, at the UNIX prompt enter:
- more <log filename>**
- The contents of the log file is displayed.
- 

### 14.6.3 “Undeleting” Granules from the Archive and Inventory

Logically deleted or DFAed granule(s) can be undeleted by EcDsBulkUndelete utility.

The **BulkUndelete** utility requires a **geoid** file, in which all granules intended to be undeleted are properly listed (i.e., “physical” or –DFA).

The following command line format is used to **undelete** granules which have been marked for “physical” deletion or DFA deletion.

**EcDsBulkUndelete.pl -physical | -DFA -noassoc -user <db\_user>-password <passwd>-geoidfile <path/filename>-mode <MODE> -server <SYBASE\_SERVER> -database <DB\_NAME> -log <log\_file\_name>**

Table 14.6.3-1 provides a description of the parameters used in the Bulk Undelete utility.

**Table 14.6.3-1. Command Line Parameters for EcDsBulkUndelete.pl**

| Parameter Name | Mandatory | Description                                                                                                                                                                                                         |
|----------------|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| geoidfile      | Yes       | Name of file containing geoids of the granules for deletion.                                                                                                                                                        |
| physical       | Yes       | Specify this parameter will undelete granules specified in the geoid file which have been previously logically deleted.                                                                                             |
| DFA            | Yes       | Specify this parameter (not able to combine with physical) will undelete granules specified in the geoid file which have been previously marked as DFA.                                                             |
| noassoc        | No        | Optional. When given, indicates that associated granules (Browse granules etc.) will not be undeleted.                                                                                                              |
| mode           | Yes       | The ECS mode in which the program is to operate, this parameter can be omitted if the environment variable MODE is set.                                                                                             |
| user           | Yes       | The user ID for database login                                                                                                                                                                                      |
| server         | Yes       | The name of Sybase server. this parameter can be omitted if the environment variable SYB_SQL_SERVER is set                                                                                                          |
| database       | Yes       | The name of the database, this parameter can be omitted if the environment variable SYB_DB_NAME is set                                                                                                              |
| password       | No        | The name of the database login password, the utility will prompt user to enter the password if it is not specified in the command line (for security reason, not recommend to specify password in the command line) |
| log            | No        | The name of the log file to which an undeletion report will be written. If this is not provided, it will default to /usr/ecs/<MODE>/CUSTOM/logs/                                                                    |

**NOTE:** A prerequisite to “undeleting” is having a file of GeoIDs (corresponding to granules) for use as input to the Bulk Undelete utility. Although it is possible to manually create a file of GeoIDs, an easier way is to use the Bulk Search utility to generate a list of “deleted” GeoIDs based on criteria specified when running the Bulk Search utility (refer to the procedure for running the Bulk Search utility).

### 14.6.3.1 Undelete Marked Granules for Deletion (Logical)

- 1 Log in at the x4dpl01 host, where the Bulk Undelete utility is installed.
- 2 To change to the directory for starting the Bulk Search utility at the UNIX prompt enter:  
**cd /usr/ecs/<MODE>/CUSTOM/utilities**
  - The working directory is changed to /usr/ecs/<MODE>/CUSTOM/utilities.
- 3 To set up relevant environment the following commands would allow the Bulk Search utility to run using the OPS mode Inventory database at the DAAC:  
**setenv MODE OPS**  
**setenv SYB\_SQL\_SERVER x4dbl01\_srvr**  
**setenv SYB\_DB\_NAME EcInDb OPS**

**NOTE:** There are two types of runs that can be performed with the Bulk Undelete utility; i.e., “physical,” or “DFA.” A “physical undeletion” run results in removing

“deleted” markings for the granules/metadata in both inventory and archive. A “DFA undeletion” run involves removing “deleted” markings for the granules in the archive only.

4 To perform a “Physical” undeletion, at the UNIX prompt enter the following:

```
EcDsBulkUndelete.pl -physical -noassoc -geoidfile <path/geoid_name> -user
<database user ID >-log <log_file_name.log>
```

- The Bulk Undelete utility runs and removes “deleted” markings for the granules specified in the GeoID file in the archive.
- The Bulk Undelete utility records information about utility events in the log file.

5 To perform a “DFA undeletion,” at the UNIX prompt enter the following:

```
EcDsBulkUndelete.pl -DFA -geoidfile <geoid file>-user <database user ID> -log <log
filename>
```

- The -DFA option indicates that “deleted” markings are to be removed for the granules in the archive only.
  - The Bulk Undelete utility records information about utility events in the log file.
- 

#### 14.6.4 Deleting Granules, Phase 2: Running the Deletion Cleanup Utility

Once granules have been marked/flagged for deletion, the operator runs the Deletion Cleanup utility, **EcDsDeletionCleanup.pl**. As previously mentioned the Deletion Cleanup utility removes all inventory rows (in the Inventory Database) for granules that were flagged as “deleted,” including rows referencing related information (e.g., BR, PH, and QA). The database record is removed from DsMdGranules, DsMdFileStorage, DsMdXMLFile, DsMdBrowsGranuleXfer, DsMdBrowseFileStorage, DsMdQAGranule, DsMdQAGranuleXfer and DsMdQAGranuleFileStorage.

When the utility is executed, the utility checks for any unfinished work from a previous run(s). If found, the user will be prompted the following options:

- Rerun unfinished run only
- Start a new run which includes unfinished run(s)
- Quit

The EcDsDeletionCleanup requires user’s interactions during execution.

```
EcDsDeletionCleanup.pl -user <db_user>-mode <MODE> -server <SYBASE_SERVER> -
database <DB_NAME> -batch <number> -grbatch <number> -phbatch <number> -log
<log_file_name>
```

There are various command line parameters that are used in combination with each other. Table 14.6.4-1 provides a description of the parameters.

The operations staff can control the lag time between logical deletion and physical deletion. The lag time is entered into the Deletion Cleanup utility, which deletes inventory entries only for granules that have been logically deleted prior to that time period.

**Table 14.6.4-1. Command Line Parameters for EcDsDeletionCleanup**

| Parameter Name | Mandatory | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|----------------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| mode           | Yes       | The ECS mode in which the program is to operate, this parameter can be omitted if the environment variable MODE is set.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| user           | Yes       | The user ID for database login                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| server         | Yes       | The name of Sybase server. this parameter can be omitted if the environment variable SYB_SQL_SERVER is set                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| database       | Yes       | The name of the database, this parameter can be omitted if the environment variable SYB_DB_NAME is set                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| log            | No        | The name of the log file to which an undeletion report will be written. If this is not provided, it will default to /usr/ecs/<MODE>/CUSTOM/logs/                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| batch          | No        | The batch size for populating DsStPendingDelete table in batch. This parameter can be omitted if the environment variable BATCH_SIZE_GRANULE is set.<br>If the environment variable BATCH_SIZE_GRANULE is set, <b>-batch &lt;number&gt;</b> is also specified, the value from command line parameter <b>-batch</b> will be used.<br>If neither the environment variable BATCH_SIZE_GRANULE is set nor <b>-batch</b> is specified, the user will be prompted to enter in runtime.                                                                                                                                                                                                  |
| grpatch        | No        | The batch size used for physical granule file cleanup. If it is not provided in the command line, the user will be prompted to enter in runtime.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| phpatch        | No        | The <b>phbatch</b> size for PH granule deletion. Because PH granule deletion could be time consuming, set a high batch size for PH granule deletion could lock the database too long, so this parameter can be specified separately and keep a small value such as 5.<br>This parameter can be omitted if the environment variable BATCH_SIZE_PH is set.<br>If the environment variable BATCH_SIZE_PH is set, <b>-phbatch &lt;number&gt;</b> is also specified, the value from command line parameter <b>-phbatch</b> will be taken.<br>If neither the environment variable BATCH_SIZE_PH is set nor <b>-phbatch</b> is specified, the user will be prompted to enter in runtime. |

#### 14.6.4.1 Deleting Granules, Phase 2: Running the Deletion Cleanup Utility

---

- 1 Log in at the x4dpl01 host, where the Deletion Cleanup utility is installed.
- 2 To change to the directory for starting the Deletion Cleanup utility at the UNIX prompt enter:

```
cd /usr/ecs/<MODE>/CUSTOM/utilities
```

- The working directory is changed to **/usr/ecs/<MODE>/CUSTOM/utilities**.
- 3 To set up relevant environment variables (if desired) at the UNIX prompt enter:

```
setenv MODE <ECS mode>
setenv SYB_SQL_SERVER <xdbl01>
setenv SYB_DB_NAME EcInDb_ <ECS mode>
```

- 4 To execute the Deletion Cleanup utility at the UNIX prompt enter:

```
EcDsDeletionCleanup.pl -user <db_user>-batch <number> -grbatch <number> -
phbatch <number> -log <log_file_name>
```

**NOTE:** Take care when increasing the BATCH\_SIZE\_GRANULE and BATCH\_SIZE\_PH values beyond the recommended default values. If the values are set too high, the database tables will be locked and all available Sybase locks will be used up.

- <batch size granule> represents the number of granules that will be deleted simultaneously from granule tables during granule cleanup. The default value is 50, which is accepted by pressing **Return/Enter** at the prompt without entering a value first.
- 5 Deletion Cleanup prepares to connect to the database and displays the following message is displayed:

**Ready to get into inventory database...**

- 6 After the Deletion Cleanup script connects to the database and checks for leftover granules that need to be processed. The following message is displayed:

*Previous run was not completed, you can choose to:*

*1. Rerun unfinished run only*

*2. Start a new run which include unfinished run(s)*

*3. Quit*

*Select 1, 2 or 3:*

- 7 Enter the appropriate number:  
*<number>*

- 8 If there are granules marked as deletion or DFAed, the following message will be displayed for user selection:

*==== Menu for Lag Time ====*

*1. Select granules for a specific day (lag<n> or date <mm/dd/yyyy> format)*

2. *Select all granules older than a specific day (lag<n> or date <mm/dd/yyyy> format)*

3. *Quit*

*Select 1, 2 or 3:*

9 Enter the appropriate number:

*<number>*

- Entering 1 will cleanup granules whose deletion date fall into a single day specified by lag time. The user will be prompted to enter a lag time in number (*integer*) of days or a date **<mm/dd/yyyy>**.
- Entering 2 will cleanup all granules whose effective deletion date is older than the date specified by lag time. The user will be prompted to enter a lag time in number (*integer*) of days or a date **<mm/dd/yyyy>**.
- Entering 3 will cause the script to exit (ie, nothing is cleaned up).

10 After the lag time is confirmed, the utility will display the following menu for user selection:

*==== Menu for Data Type ====*

*1. Specify datatype(s) and version for deletion by an input file*

*The file format : one ESDT.Version <AST\_LIBT.001 or AST\_LIB\*.001> per line*

*2. Select all datatypes for deletion*

*3. Quit*

*Select 1, 2 or 3: \_*

11 Enter 1, 2 or 3 as appropriate:

- Entering 1 will cause a subset of the listed ESDT.Version will be cleaned up by manual preparing an input file.
  - Entering 2 will cleanup all ESDT.version.
  - Entering 3 will cause the script to exit (ie, nothing is cleaned p).
  - The progress and failure information will be logged in the log file.
-

## 14.7 Backing Up the StorNext Application

StorNext provides the capability to perform both full and partial backups of metadata and database information. Full backups create backups of the full database dumps, snapshots of the file system metadata, and software configuration information. Partial backups create backups of the database journal files, metadata journal files, and software configuration information. Backups in SNSM version 2.8 are now written to a managed file system and stored off to media. When the data is stored to tape, the files are truncated to save room on disk. This is different than earlier releases where backup data was saved to a local disk before being written to tape. Backups are run in several different ways:

- **Automatically**
  - Nightly as configured through the Scheduler
- **Manually:**
  - From the command line by running `snbackup`
  - From the GUI

The *snbackup* command-line utility is used to create the backups. The usage of `snbackup` can be found in the man page, and the utility also incorporates a `-h` option which can be used to display usage. This utility when first run will identify available system resources (a managed file system) to use for temporary storage of backup files. The largest capacity managed file system will be used for this temporary storage area. The selected file system will be stored in the */usr/adic/TSM/config/fs\_sysparm* file

This setting will be used in subsequent backups. Once all backup files have been created, the files are stored to media. The files are immediately truncated upon a successful store of all copies. This frees up the disk space that was borrowed from the managed file system. The number of copies, type of storage, and other attributes can be modified from the StorNext Home page and clicking **Admin > Backups** tab

A complete set of backups is comprised of a full and all the subsequent partial backups. A set is identified by a unique identifier. This unique number is used during restores to tie all the backup elements together. Backups can be manually executed (command line or GUI) or they can be scheduled.

**NOTE:** By default, full backups are scheduled on Sundays. Partial backups are scheduled every day of the week except Sunday. When a backup completes, an e-mail notification is sent. The e-mail sent contains information about the backup. This backup information must be retained in order to successfully do a restore of the system in case of failure. If storage disks are used, the path of the storage disk media is shown.

### **IMPORTANT**

**DO NOT ATTEMPT RESTORE FROM THIS TAPE, OR ANY BACKUP UNLESS AUTHORIZED BY A CERTIFIED QUANTUM STORNEXT SUPPORT ENGINEER. EMD SUSTAINING ENGINEERING DOES NOT SUPPORT ANY SYSTEM RESTORATION THAT HAS NOT BEEN APPROVED, OR PERFORMED SOLELY BY A QUANTUM CUSTOMER SUPPORT ENGINEER.**

The following procedures describe how to run a manual backup. These backups are scheduled by default to run once a day. If a full backup already exists, you have the option to run either a full or partial backup.

By default, a full backup is run once a week. This backup includes:

- The StorNext database
- Configuration files
- File system metadata dump file (after journal files are applied)

A partial backup is run on all other days of the week (that the full backup is not run). This backup includes:

- StorNext database journals
- Configuration files
- File system journal files

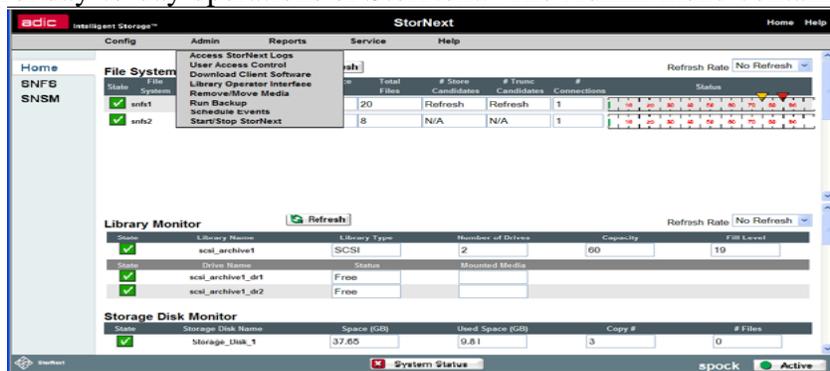
Table 14.7-1 provides an Activity Checklist for StorNext Backup procedures addressed in this section.

**Table 14.7-1. StorNext Backup Procedures - Activity Checklist**

| Order | Role            | Task                         | Section    | Complete? |
|-------|-----------------|------------------------------|------------|-----------|
| 1     | Archive Manager | Executing a StorNext Backup  | (P) 14.7.1 |           |
| 2     | Archive Manager | Scheduling a StorNext Backup | (P) 14.7.2 |           |

### 14.7.1 Executing a StorNext Backup

- 1 Connect to the StorNext web page using Firefox or Internet Explorer
- 2 From the StorNext home page click **Admin > Run Backup**.
  - The options for the Admin drop-down menu (see Figure 14.7-1) enable you to control day-to-day operations of StorNext. The Admin menu contains these options:



**Figure 14.7-1. StorNext Admin Pull- Down Screen**

- **Access StorNext Logs:** Access logs of StorNext operations
- **User Access Control:** Control user access to StorNext tasks
- **Download Client Software:** Download SNFS client software

- **Library Operator Interface:** Enter or eject media from the Library Operator Interface
- **Remove/Move Media:** Remove media from a library or move media from one library to another
- **Run Backup:** Run a backup of StorNext software
- **Schedule Events:** Schedule file system events including Clean Info, Clean Versions, Full Backup, Partial Backup, and Rebuild Policy
- **Start/Stop StorNext:** Start or stop the StorNext components

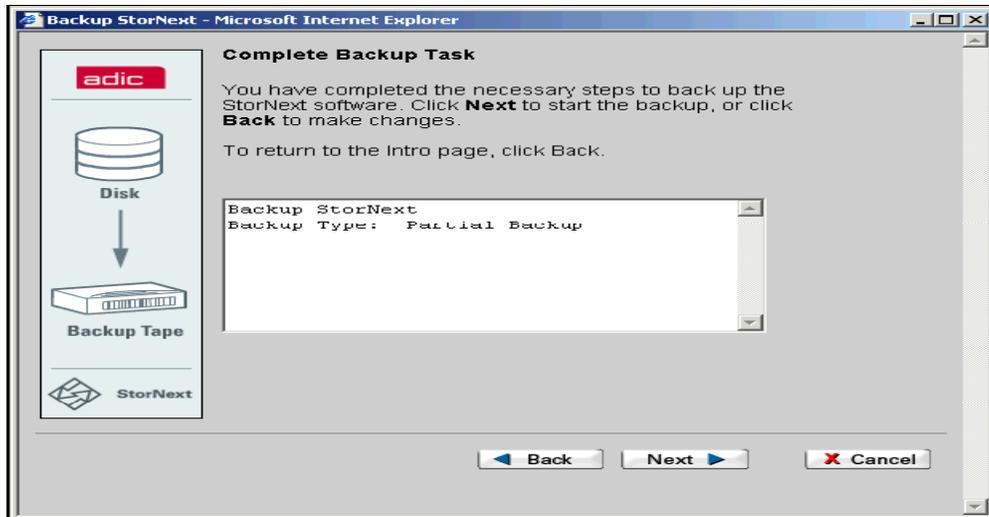
3 Select Run Backup, and the **Backup StorNext** screen appears (see Figure 14.7-2).



**Figure 14.7-2. Backup StorNext Screen**

4 Select the type of backup you want run, **Full** or **Partial**, and click **Next**. The Complete Backup Task screen appears (see Figure 14.7-3).

NOTE: These backups DO NOT backup user data.



**Figure 14.7-3. Complete Backup Screen**

- 5 Click **Next** to start the backup.
- 6 Click **Finish** when the Status screen displays success.

As stated previously, by default the StorNext Full Backup is set to execute once a week, and Partial Backups are performed on each day of the week that the full backups does not run on. To schedule a backup outside of the default setting, use the Scheduling StorNext Events screen. You can use this screen to schedule all StorNext events. The following is an explanation of how to schedule a new event, such as backups.

Events that can be scheduled are:

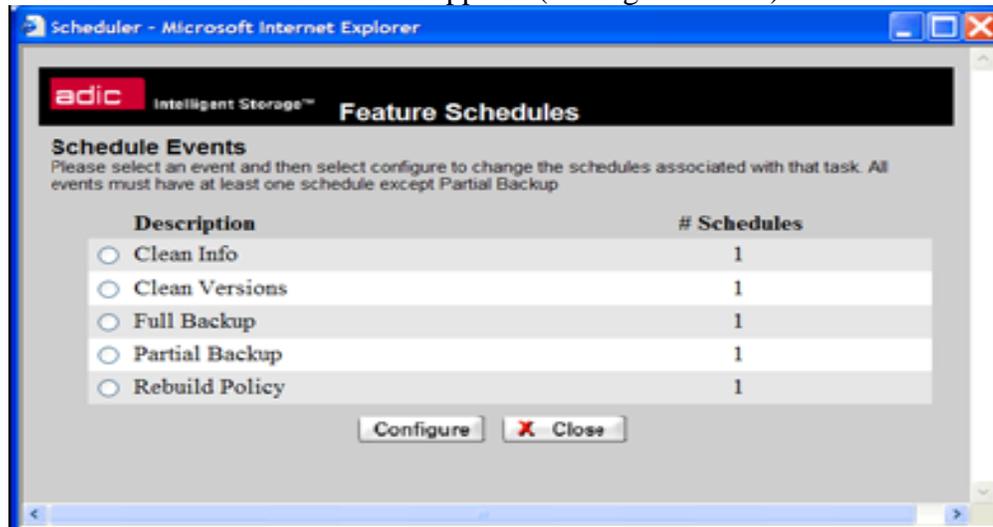
- **Clean Info:** Scheduled background operation for removing knowledge of media from StorNext
- **Clean Versions:** Clean old inactive versions of files
- **Full Backup:** By default, a full backup is run once a week to back up the entire database, configuration files, and the file system metadata dump file.
- **Partial Backup:** By default, a partial backup is run on all other days of the week (that the full backup is not run). This backup includes database journals; configuration files, and file system journal files.
- **Rebuild Policy: Rebuild** the internal candidate lists (for storing, truncation, and relocation) by scanning the file system for files that need to be stored
- 

NOTE: The **Scheduler** does not dynamically update when dates and times are changed greatly from the current setting. You must reboot the system to pick up the change.

Each of these events have a default schedules set, these procedures allow you to reconfigure the schedules to suit your system needs.

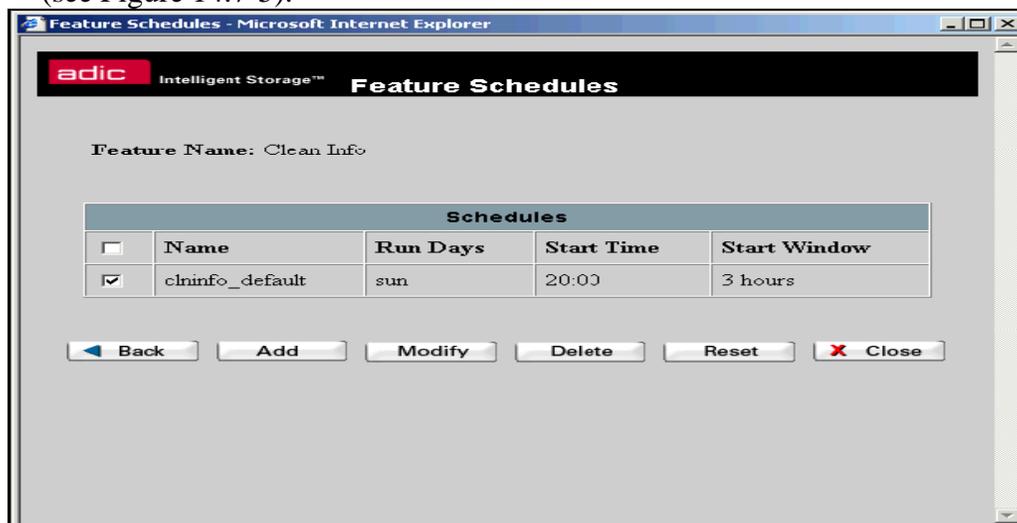
## 14.7.2 Scheduling a StorNext Backup

- 1 From the StorNext Home Page click **Admin > Schedule Events**.
  - The **Feature Schedules** screen appears (see Figure 14.7-4).



**Figure 14.7-4. Feature Schedules Screen**

- 2 Select a feature to schedule and click **Configure**.
  - The Feature Schedules screen displays the selected Feature and its current schedule (see Figure 14.7-5).



**Figure 14.7-5. Selected Feature Schedules Screen**

Select a schedule and click one of the following:

- **Back:** Go back to the previous screen
  - **Add:** Add a new schedule
  - **Modify:** Change an existing schedule
  - **Delete:** Delete an existing schedule
  - **Reset:** Reset the schedule to the default settings
  - **Close:** Close the window
- 

## 14.8 ACSLS Procedures

For the StorageTek Powderhorn, direct control of the tape storage and handling operations is managed by the *Automated Cartridge System Library Software (ACSL)*. Full guidance for using ACSLS is provided in the *Automated Cartridge System Library Software System Administrator's Guide*. Table 14.8-1 lists the commands covered in that *Guide*.

**Table 14.8-1. ACSLS Command Reference**

| Command    | Function                                                                         |
|------------|----------------------------------------------------------------------------------|
| Audit      | Creates or updates the database inventory of the volumes in a library component. |
| Cancel     | Cancel a current or pending request.                                             |
| clear lock | Removes all active and pending locks on transports or volumes.                   |
| Dismount   | Dismounts a volume.                                                              |
| Eject      | Ejects one or more volumes from the Automated Cartridge System (ACS).            |
| Enter      | Sets a Cartridge Access Port (CAP) to enter mode.                                |
| Idle       | Stops ACSLS from processing new requests.                                        |
| Lock       | Locks (dedicates) a volume or transport to a user.                               |
| Logoff     | Exits the command processor.                                                     |
| Mount      | Mounts a data or scratch volume.                                                 |
| Query      | Displays the status of a library component.                                      |
| Set        | Sets various attributes of different library components.                         |
| Show       | Displays your lock ID or user ID.                                                |
| Start      | Starts ACSLS request processing.                                                 |
| Unlock     | Removes active locks on volumes or transports.                                   |
| Vary       | Changes the state of an ACS, LSM, CAP, transport, or port.                       |
| Venter     | Enters one or more volumes with missing or unreadable labels into the ACS.       |

ACSL commands use the following general syntax:

**command type\_identifier state [options]**

where **type\_identifier** is the ACS component and its identifier (these are listed in the *System Administrator's Guide*), **state** is a device state for the **vary** command only, and **options** are command options (these are specified for each command in the *System Administrator's Guide*).

The two most useful commands in ACSLS are **query** and **vary**. Other frequently used commands are **enter** and **eject**, for inserting and removing cartridges, respectively. ACSLS does not have an online help facility, but if you enter a command (e.g., **vary**), it will prompt you for the parameters.

There are also several utilities provided with ACSLS. These are listed with their functions in Table 14.8-2.

**Table 14.8-2. ACSLS Utilities**

| Utility    | Function                            |
|------------|-------------------------------------|
| bdb.acsss  | Backs up the ACSLS database.        |
| kill.acsss | Terminates ACSLS.                   |
| rc.acsss   | Starts and recovers ACSLS.          |
| rdb.acsss  | Restores the ACSLS database.        |
| Volrpt     | Creates a volume report.            |
| db_command | Starts or stops the ACSLS database. |

To control and interact with ACSLS, you use the following user IDs:

- **acssa** lets you enter ACSLS commands from a command processor window.
- **acsss** lets you run ACSLS utilities from the UNIX command line prompt.

It is typical to log in as both user IDs to permit entering both ACSLS utilities and commands. You can, however, open a command processor window from the **acsss** user ID if you prefer to work from a single user ID. The *System Administrator's Guide* provides full details.

Table 14.8-3 provides an Activity Checklist for major ACSLS procedures addressed in this section.

**Table 14.8-3. ACSLS Procedures - Activity Checklist**

| Order | Role            | Task                                           | Section      | Complete? |
|-------|-----------------|------------------------------------------------|--------------|-----------|
| 1     | Archive Manager | Entering the Archive after StorNext is Started | (P) 14.8.1.1 |           |
| 2     | Archive Manager | Backing up the ACSLS Database                  | (P) 14.8.2.1 |           |
| 3     | Archive Manager | Restoring the ACSLS Database                   | (P) 14.8.3.1 |           |
| 4     | Archive Manager | Checking Cleaning Cartridges                   | (P) 14.8.4.1 |           |

### 14.8.1 Entering the Archive After StorNext is Started

There are circumstances in which it may be necessary to enter the archive after StorNext is started. For example, there may be a requirement for maintenance that necessitates access to the robot or other area inside the Powderhorn. Another example is that it may sometime be desirable to bypass the Cartridge Access Port (CAP) when inserting tape cartridges, if there is a need to

perform bulk loading of a large number of tapes, although usually this would be limited to initial loading of the volumes.

### 14.8.1.1 Entering the Archive After StorNext is Started

---

- 1 At the host for ACSLS (e.g., **e4sms03**, **n4sms03**), log in using the **acssa** user ID and password.
  - The **acssa** command-process window is displayed with the **ACSSA>** prompt.
- 2 Type **vary lsm 0,0 offline** and then press the **Return/Enter** key.
  - The access port is unlocked (audible unlatching sound).
- 3 Use the key to unlatch and open the access door.
  - A red **DO NOT ENTER** warning is visible inside the enclosure.

#### **Warning**

If it is necessary to enter the STK Powderhorn after StorNext is started, it is necessary to perform the following step to avoid hazard and ensure safety of personnel and equipment.

- 4 Remove the key from the door to ensure that no one inadvertently locks the enclosure with someone inside.
    - The red **DO NOT ENTER** warning is extinguished and a green **ENTER** message is displayed inside the enclosure.
  - 5 Upon leaving the enclosed area, insert the key in the access door and latch the door.
    - The LED display indicates that the door is locked.
  - 6 At the ACSLS host, type **vary lsm 0,0 online** and then press the **Return/Enter** key. After a few seconds, the archive robots execute an initialization sequence and the LSM is back online.
- 

### 14.8.2 Backing Up the ACSLS Database

ACSLs provides the **bdb.acsss** utility to back up the database. It is advisable to run this utility when there has been a change in the archive volume structure (e.g., upon addition or removal of volumes). In the event of database loss, it is possible to re-create the database even if there is no backup available, by using the **audit** command to inventory the archive. However, for a large storage facility, creating the database this way may take several hours. If there is a backup available, the database can be restored easily and quickly (refer to Section 14.8.3)

### 14.8.2.1 Backing Up the ACSLS Database

---

- 1 At the host for ACSLS (e.g., .., **e4sms03**, **n4sms03**), log in using the **acsss** user ID and password.
    - The **acsss** command-process window is displayed with the **ACSSS>** prompt.
  - 2 Ensure that there is a tape in the backup drive (device **dev/rmt/0**), a streaming tape drive attached to each ACSLS workstation.
  - 3 Type **bdb.acsss**, and then press the **Return/Enter** key.
    - If you enter **bdb.acsss** with no options, the backup utility defaults to the default tape device attached and configured to the ACSLS server.
    - The system displays the following message.  
Check tape device (/dev/rmt/0) to make sure you have a tape in the tape drive.  
[ Hit RETURN to continue or Ctrl-C to exit ]
  - 4 Press the **Return/Enter** key.
    - The **bdb.acsss** utility backs up the ACSLS database and miscellaneous library resource files.
- 

### 14.8.3 Restoring the ACSLS Database

ACSLs provides the **rdb.acsss** utility to restore the database in case of severe disk or data problems. If you have made regular backups, it should be possible to restore the database with little or no loss of data. Restoring the database is likely to be necessary if there has been a system crash, or if the database cannot be started or has a physical or logical error.

#### 14.8.3.1 Restoring the ACSLS Database

---

- 1 At the host for ACSLS (e.g., **e4sms03**, **n4sms03**), log in using the **acsss** user ID and password.
    - The **acsss** command-process window is displayed with the **ACSSS>** prompt.
  - 2 Load the restore tape into the backup drive.
  - 3 Type **rdb.acsss**, and then press the **Return/Enter** key.
    - If you enter **bdb.acsss** with no options, the backup utility defaults to the default tape device attached and configured to the ACSLS server.
    - The system displays the following message.  
Check tape device (/dev/rmt/0) to make sure you have a tape in the tape drive.  
[ Hit RETURN to continue or Ctrl-C to exit ]
  - 4 Press the **Return/Enter** key.
    - The **rdb.acsss** utility restores the ACSLS database and miscellaneous library resource files.
-

## 14.8.4 Checking Cleaning Cartridges

The Automated Cartridge System Library Software (ACSL) schedules and implements routine cleaning of the system tape drives after a set usage time tracked by the software, using cleaning volumes from a cleaning volume group designated for that purpose. The ACSL software also tracks the number of times a cleaning tape is used, and will not use a cleaning tape that has been used the maximum set number of times (usually set at 100 for the 9940 drives). It is the responsibility of the Archive Manager to monitor cleaning tape usage periodically, to ensure that usable cleaning tapes remain available to the system.

### 14.8.4.1 Checking Cleaning Cartridges

---

- 1 At the host for ACSL (e.g., **e4sms03**, **n4sms03**), log in using the **acssa** user ID and password.
  - The **acssa** command-process window is displayed with the **ACSSA>** prompt.
- 2 Type **query clean all**, and press the **Return/Enter** key.
  - *Note*: The command may be abbreviated to **qu cl a**.
  - ACSL displays information on the status of the cleaning volumes in format similar to the following:  
2001-10-04 08:50:54 Cleaning Cartridge Status  
Identifier Home Location Max Usage Current Usage Status Type  
9840C1 0, 0, 3, 2, 2 100 38 home STK1U  
9840C2 0, 0,13, 1, 3 100 0 home STK1U  
9940C1 0, 0, 1, 4,19 100 7 home STK2W

*Note*: If it is desirable or necessary to change the maximum number of uses permitted for a cleaning volume, the change can be accomplished with the command **set clean <max\_usage> <vol\_id>** where *max\_usage* (e.g. 100) is the maximum number of uses for that volume and *vol\_id* is the volume id of that cleaning cartridge.

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## 14.9 Data Pool Maintenance Tasks

### 14.9.1 Features of the Data Pool Maintenance GUI

Most Archive or support personnel tasks for monitoring and maintaining the Data Pool require the use of the **Data Pool Maintenance (DPM) GUI**. The **DPM GUI** permits an operator to perform tasks in the following general areas:

- Monitoring Data Pool Active Insert Processes and Insert Actions.
- Managing Data Pool File Systems.
- Managing Cloud Cover Information.
- Checking the Status of Batch Inserts.
- Checking the Data Pool Insert Queue.

- Managing Data Pool Configuration Parameters and Data Pool Tuning.
- Managing Data Pool Collection Groups.
- Managing Data Pool Collections within Collection Groups.
- Managing Themes.

Other tasks are supported by scripts or utilities. For example, a Data Pool Update Expiration Script (Update Granule Utility) is available for extending the period of retention for selected science granules already in the Data Pool. There is a Data Pool cleanup utility that is typically run in a cron job, but may be invoked manually. Similarly, a utility for accumulating Data Pool access statistics is usually run in a cron job but may be invoked manually. There is a command line utility that permits operators to execute batch inserts of data from the archive into the Data Pool.

Distribution of data from the Data Pool is supported by the **HDF-EOS to GeoTIFF Conversion Tool (HEG)**. There are two versions of HEG:

- Data Pool HEG.
- Standalone HEG.

The Standalone HEG is a tool that an end user downloads and runs on his/her own workstation to convert EOS data products on the workstation from one format to another. The Data Pool HEG, which is accessed through the DAAC **Data Pool Web Access GUI** interface, is used to convert EOS data products before they are downloaded or shipped from the DAAC.

Finally, the **Spatial Subscription Server GUI** is a major Data Pool management tool. Although used primarily by User Services or science personnel, Archive or engineering support personnel may use it to extend the period of retention in a Data Pool insert subscription, and to view statistics on the processing of events and actions by the Spatial Subscription Server.

Both the **DPM GUI** and the **Spatial Subscription Server GUI** are web applications, accessed through the Mozilla Firefox 2.0 standard web browser.

Table 14.9-1 provides an Activity Checklist for Data Pool Maintenance Tasks addressed in this section.

**Table 14.9-1. Data Pool Maintenance Tasks - Activity Checklist**

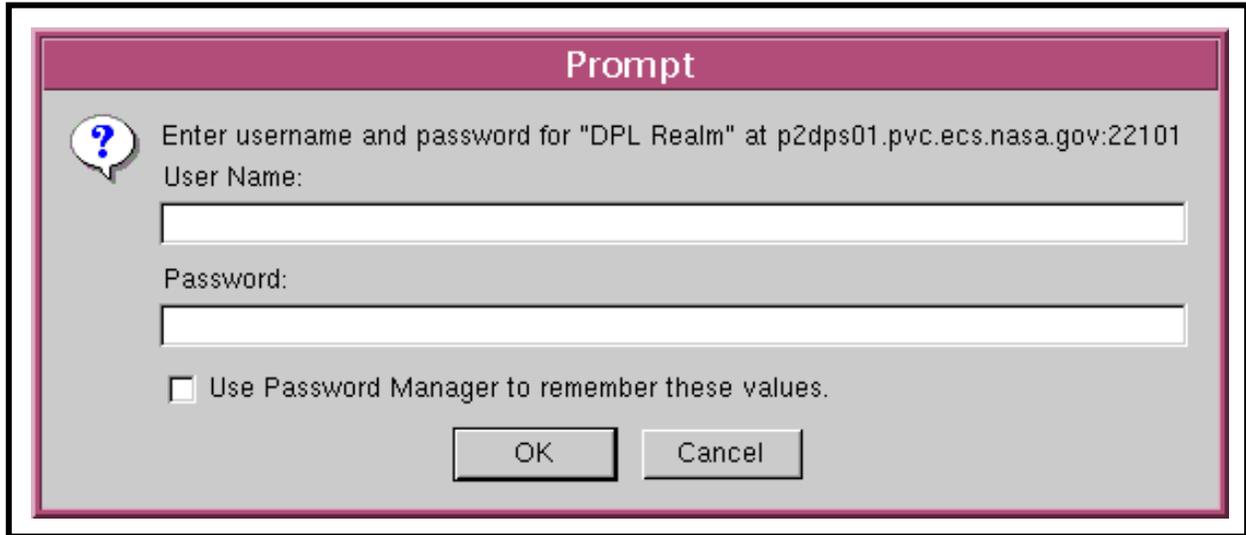
| Order | Role               | Task                                                                  | Section      | Complete? |
|-------|--------------------|-----------------------------------------------------------------------|--------------|-----------|
| 1     | Archive Technician | Launch the DPM GUI                                                    | (P) 14.9.1.1 |           |
| 2     | Archive Technician | Shut Down the DPM GUI                                                 | (P) 14.9.1.2 |           |
| 3     | Archive Technician | Monitor Data Pool Active Insert Processes                             | (P) 14.9.1.3 |           |
| 4     | Archive Technician | View a List of Data Pool File Systems                                 | (P) 14.9.2.1 |           |
| 5     | Archive Technician | Add a Data Pool File System                                           | (P) 14.9.2.2 |           |
| 6     | Archive Technician | Modify a Data Pool File System                                        | (P) 14.9.2.3 |           |
| 7     | Archive Technician | View cloud Cover Information                                          | (P) 14.9.3.1 |           |
| 8     | Archive Technician | Add New Cloud Cover Information                                       | (P) 14.9.3.2 |           |
| 9     | Archive Technician | Modify Cloud Cover Information                                        | (P) 14.9.3.3 |           |
| 10    | Archive Technician | Delete Cloud Cover Information                                        | (P) 14.9.3.4 |           |
| 11    | Archive Technician | Check the Status of Batch Inserts                                     | (P) 14.9.4.1 |           |
| 12    | Archive Technician | Check the Data Pool Insert Queue and Cancel a Data Pool Insert Action | (P) 14.9.5.1 |           |
| 13    | Archive Technician | View DPM Configuration Parameter Values                               | (P) 14.9.6.1 |           |
| 14    | Archive Technician | Modify DPM Configuration Parameter Values                             | (P) 14.9.6.2 |           |
| 15    | Archive Technician | View DPM Aging Parameter Values                                       | (P) 14.9.7.1 |           |
| 16    | Archive Technician | Modify DPM Aging Parameter Values                                     | (P) 14.9.7.2 |           |
| 17    | Archive Technician | View Collection Groups                                                | (P) 14.9.8.1 |           |
| 18    | Archive Technician | Modify Collection Groups                                              | (P) 14.9.8.2 |           |
| 19    | Archive Technician | Add a Collection Group                                                | (P) 14.9.8.3 |           |
| 20    | Archive Technician | Delete a Collection Group                                             | (P) 14.9.8.4 |           |
| 20    | Archive Technician | Add an ECS Collection to a Collection Group                           | (P) 14.9.8.5 |           |
| 21    | Archive Technician | Modify an ECS Collection                                              | (P) 14.9.8.6 |           |
| 22    | Archive Technician | View a List of Themes                                                 | (P) 14.9.9.1 |           |
| 23    | Archive Technician | Filter a List of Themes                                               | (P) 14.9.9.2 |           |
| 24    | Archive Technician | Modify a Theme                                                        | (P) 14.9.9.3 |           |
| 25    | Archive Technician | Add a Theme                                                           | (P) 14.9.9.4 |           |
| 26    | Archive Technician | Delete a Theme                                                        | (P) 14.9.9.5 |           |

Let's examine how the **DPM GUI** is used for Data Pool maintenance tasks. Of course, the first thing to do is launch the GUI. The procedure for launching the GUI is provided separately here and is referenced in other procedures. It applies to both full-capability and limited-capability operators. An operator's level of permission is determined when the operator logs in to the GUI using the security login prompt (Figure 14.9-1).

Full-capability operators have the ability to configure parameters and perform all other actions that can be accomplished with the GUIs. Limited-capability operators are able to view a lot of

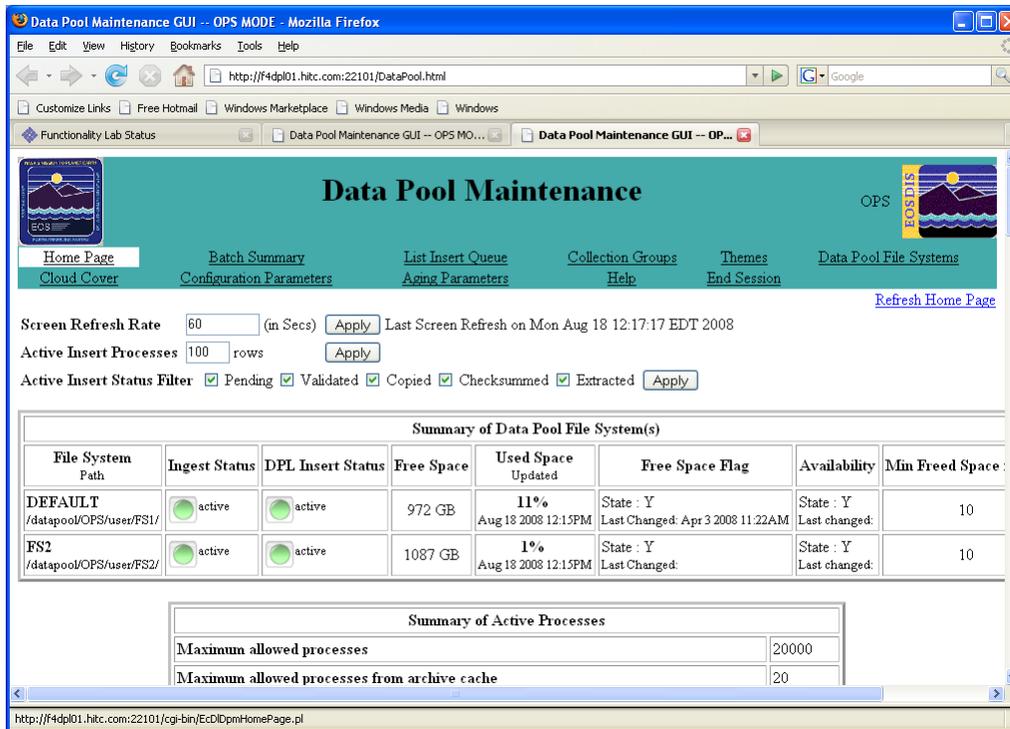
information; however, on the limited-capability GUI some buttons and links have been disabled so it is not possible to perform certain actions or access certain pages.

This lesson provides instruction in the full-capability version of the GUIs. However, the functions that are available to limited-capability operators as well as the functions that are not available to limited-capability operators are identified.



**Figure 14.9-1. Security Login Prompt**

Figure 14.9-2 illustrates the **DPM GUI Home Page**, from which the operator can perform some monitoring and maintenance tasks and from which there is access to other pages supporting other tasks.



**Figure 14.9-2. DPM GUI Home Page**

The **DPM GUI Home Page** (Figure 14.9-2) displays the state of several parameters and allows an operator to make changes. It also lists active insert processes. Near the top of the **Home Page** are links allowing an operator to access other functions including the following items:

- **Data Pool File Systems**
- **Cloud Cover**
- **List Insert Queue**
- **Batch Summary**
- **Collection Groups**
- **Themes**
- **Configuration Parameters**
- **Aging Parameters**

There is also a **Help** page for assistance in navigation of the GUI and an **End Session** link for logging out of the GUI.

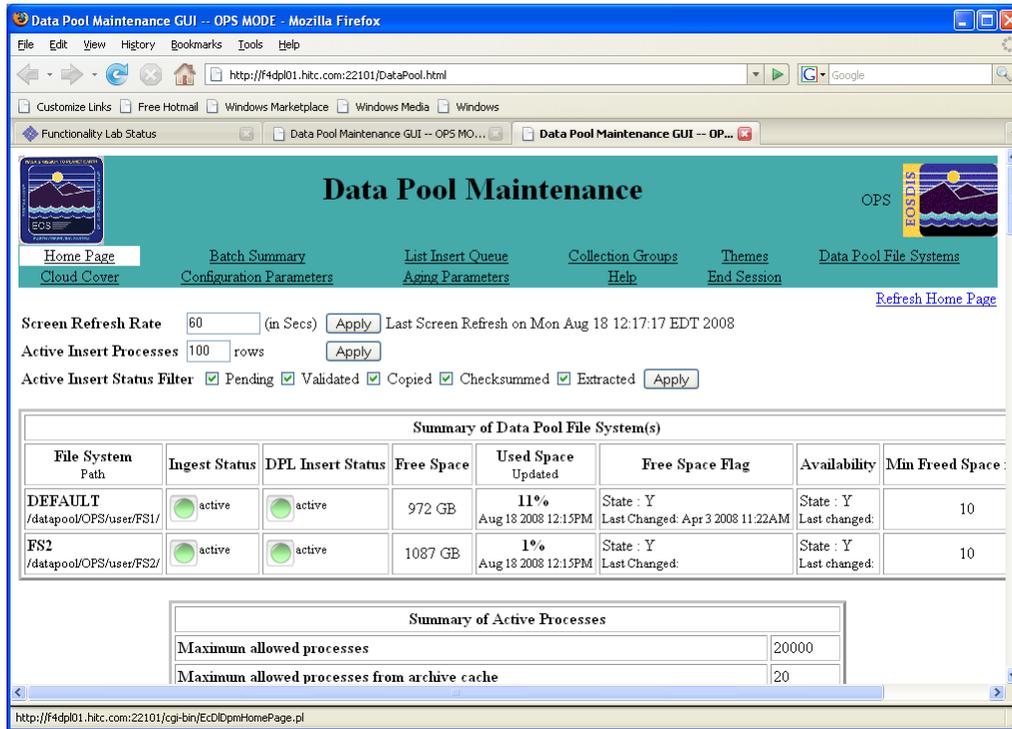
### 14.9.1.1 Launch the DPM GUI

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- 1 At the UNIX command shell prompt, type **setenv DISPLAY *clientname*:0.0** and then press the **Return/Enter** key.
  - For *clientname*, use either the local terminal/workstation IP address or its machine name.
- 2 Start the log-in to a Firefox host by typing **/tools/bin/ssh *hostname* (x4dpl01)** at the UNIX command shell prompt, and press the **Return/Enter** key.
  - If you receive the message, **Host key not found from the list of known hosts. Are you sure you want to continue connecting (yes/no)?** type **yes** (“y” alone does not work).
  - If you have previously set up a secure shell passphrase and executed **sshremote**, a prompt to **Enter passphrase for RSA key '<user@localhost>'** appears; continue with Step 3.
  - If you have not previously set up a secure shell passphrase, go to Step 4.
- 3 If a prompt to **Enter passphrase for RSA key '<user@localhost>'** appears, type your **Passphrase** and then press the **Return/Enter** key. Go to Step 5.
- 4 At the **<user@remotehost>'s password:** prompt, type your **Password** and then press the **Return/Enter** key.
  - You are logged in and a UNIX command shell prompt is displayed.
- 5 Type **Firefox &** then press **Return/Enter**.
  - It may be necessary to type the path as well as the Firefox command (e.g., **/tools/bin/Firefox &**).
  - It may be necessary to respond to dialogue boxes, especially if the browser is already being used by someone else who has logged in with the same user ID.
  - The Firefox web browser is displayed.
- 6 If a bookmark has been created for the DPM GUI, select the appropriate bookmark from those listed on the browser's.
  - The security login **Prompt** is displayed.
- 7 If no bookmark has been created for the **DPM GUI**, type **http://host:port/path** in the browser's **Location (Go To)** field then press **Return/Enter**.
  - For example: **http://x4dpl01.daac.ecs.nasa.gov:54321/DataPool.html**
  - The security login **Prompt** is displayed.
- 8 Type the appropriate user name in the **User Name** box of the security login **Prompt**.
- 9 Type the appropriate password in the **Password** box of the security login **Prompt**.

**NOTE:** If the security login prompt reappears after the first time the user name and password have been entered (and the **OK** button has been clicked), it may not be due to a data entry problem. Try again to log in using the same user name and password. Sometimes it is necessary to enter the user name and password for the GUI more than once.

- 10 Click on the appropriate button from the following selections:
- **OK** - to complete the log-in and dismiss the dialogue box.
    - The dialogue box is dismissed.
    - The **DPM GUI Home Page** is displayed (see Figure 14.9-3).



**Figure 14.9-3. DPM GUI Home Page**

- **Cancel** - to dismiss the dialogue box without logging in.
  - The dialogue box is dismissed.
  - The Firefox web browser is displayed.

At some point it becomes necessary to shut down the **DPM GUI** (end a **DPM GUI** session). The procedure that follows is recommended and is applicable to both full-capability and limited-capability operators.

### 14.9.1.2 Shut Down the DPM GUI (End a DPM GUI Session)

- 1 Click on the **Home Page** link at the top of the **DPM GUI**.
- The **DPM GUI Home Page** is displayed.

- 2 Click on the **End Session** link at the top of the **Home Page**.
  - A log-out page containing the following message is displayed.

**Click on Button Below to End Session:**

**THIS WOULD ALSO SHUT DOWN THE BROWSER :**

**NOTE:** To abort the log-out and return to the **Home Page**, click on the browser **Back** button.

- 3 Click on the **ShutDown** button.
    - The Firefox browser is dismissed.
- 

You may wish to keep an instance of the **DPM GUI** displayed to monitor Data Pool Active Insert Processes. The procedure for using the **DPM GUI** to monitor Data Pool active insert processes is applicable to both full-capability and limited-capability operators.

#### **14.9.1.3 Monitor Data Pool Active Insert Processes**

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- 1 Launch the **DPM GUI**.
  - The **Home Page** is displayed.
- 2 Observe information displayed on the **DPM GUI Home Page**.
  - The **Home Page** has the following links for access to Data Pool maintenance function pages:
    - **Data Pool File Systems**
    - **Cloud Cover**
    - **List Insert Queue**
    - **Batch Summary**
    - **Collection Groups**
    - **Themes**
    - **Configuration Parameters**
    - **Aging Parameters**
    - **End Session**
  - The **Home Page** has a **Summary of Data Pool File Systems** with the following columns:
    - **File System Label** (label representing an existing Data Pool file system).
    - **Free Space Flag** (if set to “Y,” free space is available for inserts; “N” means free space is not available).

- **Availability** (if set to “Y,” the file system is currently available for Data Pool insert; “N” means the file system is not available for Data Pool insert).
- **Min Freed Space in MB** (value that represents the minimum amount of freed space in the file system in megabytes; it is an amount of space must remain free in order to make the file system available for insert).
- The **Home Page** has a **Summary of Active Processes** with the following rows:
  - **Maximum allowed processes**
  - **Maximum allowed processes from cache**
  - **Maximum allowed processes from tape**
  - **Total number of active insert processes running**
  - **Total number of validated active insert processes running**
  - **Total number of pending active insert processes running**
  - **Number of active insert processes using cache**
  - **Number of active insert processes using tape**
- The **Home Page** has a table of **List of Active Insert Processes ( Rows X)** showing the following columns of detailed information for each process:
  - **Unix ProcessId** (UNIX process identifier).
  - **EcsID** (ECS identifier or Granule ID for the granule being processed).
  - **Collection** (to which the granule belongs).
  - **Version** (for the collection to which the granule belongs).
  - **StartTime** (time at which the insert processing started).
  - **StatusTime** (time at which the status listed in the Status column was achieved).
  - **Status** (current state of the insert process).
  - **Archive Cache** [availability (Y or N) of the granule being processed].
  - **Retries** [number of attempts by the process to recover from retryable errors (e.g., Data Pool disk temporarily unavailable, Data Pool directory does not exist, or Data Pool database temporarily unavailable)].

**NOTE:** The system is designed for rapid insertion of data into the Data Pool by quickly processing data that are available in cache, such as data that are staged for archiving. If the insert processing is delayed and the data are removed from cache, the Data Pool insert is likely to fail.

3 To obtain an immediate screen refresh, click on the **Refresh Home Page** link near the upper right corner of the display.

- The displayed data are updated.

**NOTE:** The screen refreshes automatically at intervals determined by the number of seconds specified in the **Screen Refresh Rate** field.

4 To change the automatic screen refresh rate first type the desired number of seconds between refreshes in the **Screen Refresh Rate** text entry box.

5 To complete changing the automatic screen refresh rate click on the **Apply** button adjacent to the **Screen Refresh Rate** text entry box.

- The **Screen Refresh Rate** is changed to the new value.

6 To change the number of active insert processes displayed at a time in the **List of Active Insert Processes** table on the **Home Page** first type the desired number of rows to be displayed in the **Active Insert Processes** text entry box.

7 To complete changing the number of active insert processes displayed at a time in the **List of Active Insert Processes** table on the **Home Page** click on the **Apply** button adjacent to the **Active Insert Processes** text entry box.

- The number of active insert processes displayed at a time in the **List of Active Insert Processes** table is changed to the new value.

## 14.9.2 Data Pool File Systems

Figure 14.9-4 illustrates the Data Pool **File System Information** page that allows both full-capability and limited-capability operators to view a list of Data Pool file systems and obtain information on **Free Space Flag**, **Availability** for insert, and **Minimum Freed Space**. From this page, the full-capability operator is able to configure a new file system or modify an existing file system (which may include assigning Availability and/or No Free Space status).

| File System Path                 | Ingest Status | DPL Ingest Status | Free Space | Used Space Updated         | Free Space Flag                              | Availability              | Min Freed Space (in MB) |
|----------------------------------|---------------|-------------------|------------|----------------------------|----------------------------------------------|---------------------------|-------------------------|
| DEFAULT /data-pool/CPDShare/FS1/ | Active        | Active            | 972 GB     | 11%<br>Aug 18 2008 10:51AM | State: Y<br>Last Changed: Apr 3 2008 11:22AM | State: Y<br>Last changed: |                         |
| FS2 /data-pool/CPDShare/FS2/     | Active        | Active            | 1087 GB    | 1%<br>Aug 18 2008 10:51AM  | State: Y<br>Last Changed:                    | State: Y<br>Last changed: |                         |

**Figure 14.9-4. Data Pool File System Page**

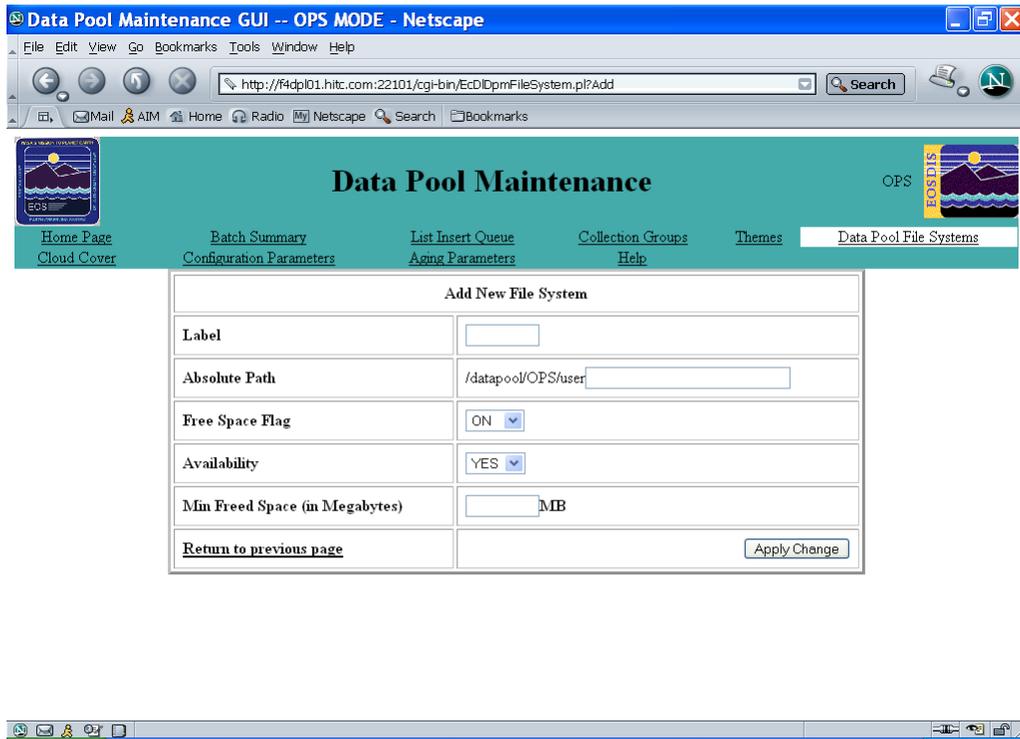
### 14.9.2.1 View a List of Data Pool File Systems

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- 1 Launch the **DPM GUI**.
    - The **DPM GUI Home page** is displayed.
  - 2 Click on the **Data Pool File Systems** link.
    - The **File System Information** page is displayed (see Figure 14.9-4).
  - 3 Observe data displayed on the **File System Information** page.
    - The table on the File System Information page has columns containing the following types of Data Pool file system information:
      - **File System Path**
      - **Ingest Status**
      - **DPL Insert Status**
      - **Free Space**
      - **Used Space Updated**
      - **Free Space Flag**
      - **Availability**
    - The following links are available on the **File System Information** page:
      - **Add New File System**
      - **Modify File System**
- 

Clicking on the **Add New File System** link takes the full-capability operator to the **Add New File System** page shown in Figure 14.9-5. The operator needs to add data in the following five fields:

- 1) [File System] **Label**: a label representing an existing Data Pool file system;
- 2) **Absolute Path**: the path to the directory where the file system is located (the basic ftp root path is provided and the operator completes the path name if necessary);
- 3) **Free Space Flag**: a value that needs to be set to either “ON” or “OFF” (ON means free space is available for inserts; OFF means free space is not available);
- 4) **Availability**: a value that needs to be set to either “YES” or “NO” (YES means the file system is currently available for Data Pool insert; NO means the file system is not available for Data Pool insert);
- 5) **Min Freed Space (in Megabytes)**: an integer value that represents the minimum amount of freed space in the file system in megabytes; it is an amount of space must remain free in order to make the file system available for insert.



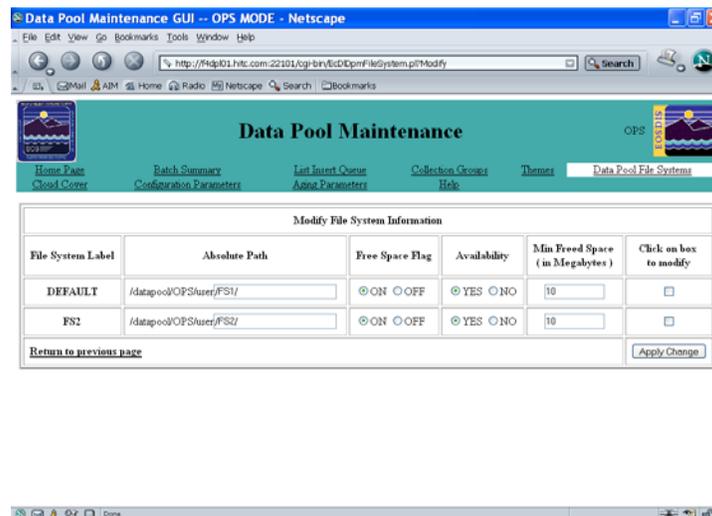
**Figure 14.9-5. Add New File System Page**

### 14.9.2.2 Add a Data Pool File System

- 1 Launch the **DPM GUI**.
  - The **DPM GUI Home page** is displayed.
- 2 Click on the **Data Pool File Systems** link.
  - The **File System Information** page is displayed.
- 3 Click on the **Add New File System** link at the bottom of the list of file systems (scrolling down if necessary).
  - The **Add New File System** page is displayed (see Figure 14.9-5).
- 4 Type the desired file system label in the **Label** field.
  - Enter a unique name with no more than 25 characters.
- 5 Type the desired path in the **Absolute Path** field.
  - The basic ftp root directory path is shown adjacent to the text entry box; data entered in the box will be appended to the base path shown.
- 6 To display free space flag options click on the **Free Space Flag** option button.
  - **Free Space Flag** options are displayed (i.e., **ON** and **OFF**).

- 7 To display availability options click on the **Availability** option button.
    - **Availability** options are displayed (i.e., **YES** and **NO**).
  - 8 To select an availability option click on the appropriate choice from the option list.
    - **YES** should be selected if the file system is currently available for inserts.
    - **NO** should be selected if the file system is not currently available for inserts.
  - 9 Type the desired value for minimum freed space (in megabytes) in the Min Freed Space (in Megabytes) field.
    - **Min Freed Space** indicates how much space needs to be available to keep the file system available for insert.
  - 10 Click on the **Apply Change** button.
    - The file system information is entered in the Data Pool database.
    - The **File System Information** page is displayed with the new file system information.
- 

The **DPM GUI** may be used to modify a Data Pool file system. This is useful if the Absolute Path, Free Space Flag, Availability (for Insert), and/or Min. Freed Space for a particular Data Pool file system need to be corrected or updated. Selecting the **Modify File System** link takes the full-capability operator to the **Modify File System Information** page shown in Figure 14.9-6. The operator can change the Absolute Path, Free Space Flag, Availability flag, or the Min Freed Space on this page. There are check boxes associated with each file system. The operator can change multiple file systems at one time by checking the desired file systems' checkboxes and clicking on the **Apply Change** button.



**Figure 14.9-6. Modify File System Information Page**

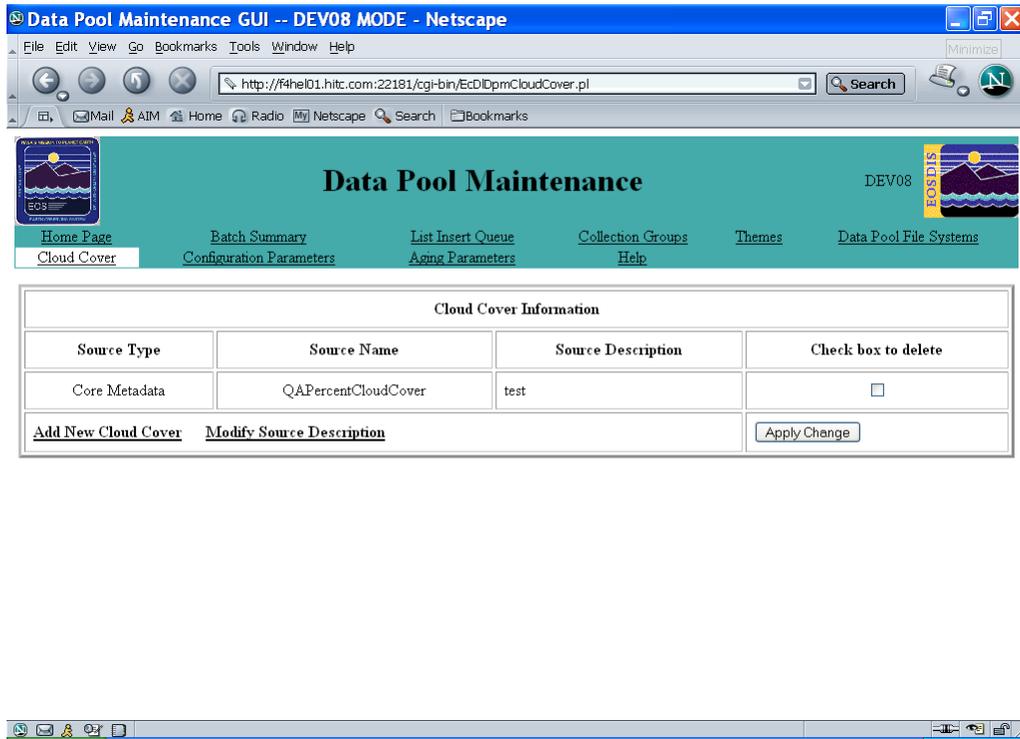
### 14.9.2.3 Modify a Data Pool File System

---

- 1** Launch the **DPM GUI**.
    - For detailed instructions refer to the Launch the DPM GUI procedure (previous section of this lesson).
    - The **DPM GUI Home page** is displayed.
  - 2** Click on the **Data Pool File Systems** link.
    - The **File System Information** page is displayed.
  - 3** Click on the **Modify File System** link at the bottom of the list of file systems (scrolling down if necessary).
    - The **Modify File System Information** page is displayed (see Figure 14.9-6).
  - 4** To change the absolute path for a file system type the desired path in the **Absolute Path** field for the file system.
    - The basic ftp root directory path is shown above the text entry box; data entered in the box will be appended to the base path shown.
  - 5** To change a file system's free space flag setting click on the appropriate button in the **Free Space Flag** column.
    - The following choices are available:
      - **ON**
      - **OFF**
  - 6** To change the setting for a file system's availability for data insert click on the appropriate button in the **Availability** column.
    - The following choices are available:
      - **YES**
      - **NO**
  - 7** To change the minimum freed space for a file system type the desired value (in megabytes) in the appropriate **Min Free Space (in Megabytes)** field.
  - 8** Click in the check box at the end of the row containing file system information to be modified.
    - The selected file system information is marked for subsequent modification.
  - 9** Repeat Steps 4 through 8 for any additional file systems to be modified.
  - 10** Click on the **Apply Change** button.
    - The revised file system information is entered in the Data Pool database.
    - The **File System Information** page is displayed with the modified file system information.
-

### 14.9.3 Cloud Cover

Both full-capability and limited-capability operators can view existing cloud cover information in the Data Pool database by clicking on the **Cloud Cover** link shown in Figure 14.9-2. The link takes the operator to the **Cloud Cover Information** page shown in Figure 14.9-7. The page displays the information concerning the sources of cloud cover; i.e., the **Source Type**, **Source Name**, and **Source Description**.



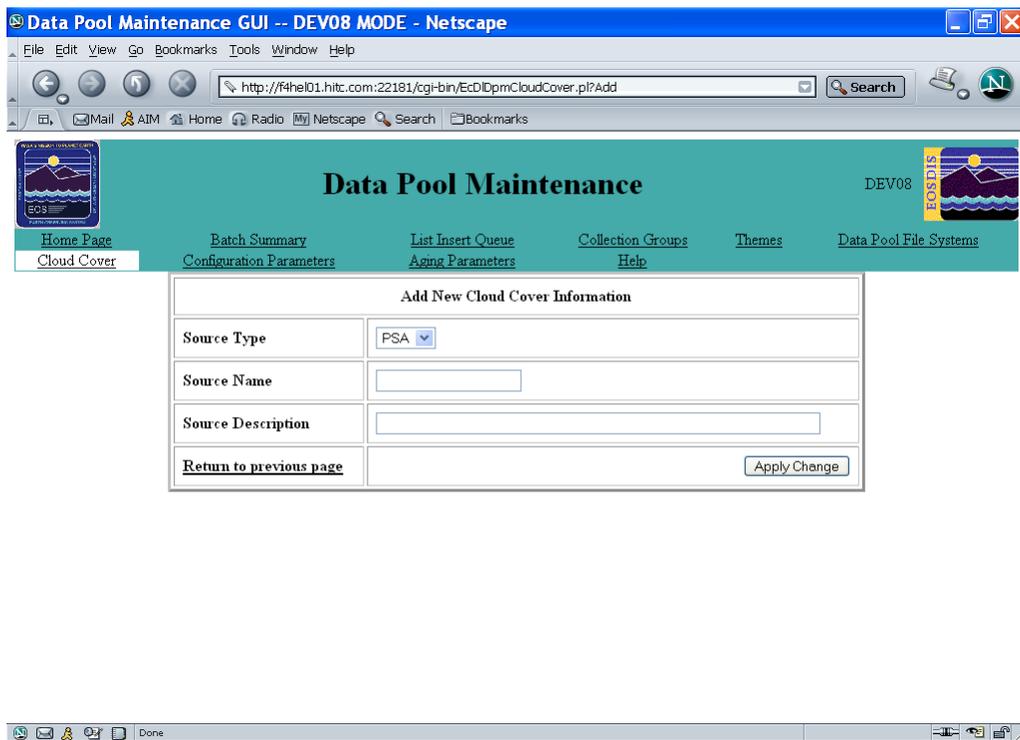
**Figure 14.9-7. Cloud Cover Information Page**

#### 14.9.3.1 View Cloud Cover Information

- 1 Launch the **DPM GUI**.
  - The **DPM GUI Home page** is displayed.
- 2 Click on the **Cloud Cover** link.
  - The **Cloud Cover Information** page is displayed (see Figure 14.9-7).
- 3 Observe data displayed on the **Cloud Cover Information** page.
  - The table on the **Cloud Cover Information** page has columns containing the following types of cloud cover information:
    - **Source Type**

- **Source Name**
  - **Source Description**
  - **Check box to delete**
  - The following links are available on the **Cloud Cover Information** page:
    - **Add New Cloud Cover**
    - **Modify Source Description**
  - An **Apply Change** button is available for deleting cloud cover information from the Data Pool database.
- 

The full-capability operator can add a new cloud cover source by clicking on the **Add New Cloud Cover** link shown in Figure 14.9-7. The link takes the operator to the **Add New Cloud Cover Information** page shown in Figure 14.9-8. After selecting the Source Type from an option list and entering the Source Name and Source Description, the operator clicks on the **Apply Change** button. All Source Names are validated against the Inventory database. The new cloud cover source is added to the Data Pool database and the **Cloud Cover Information** page is refreshed.



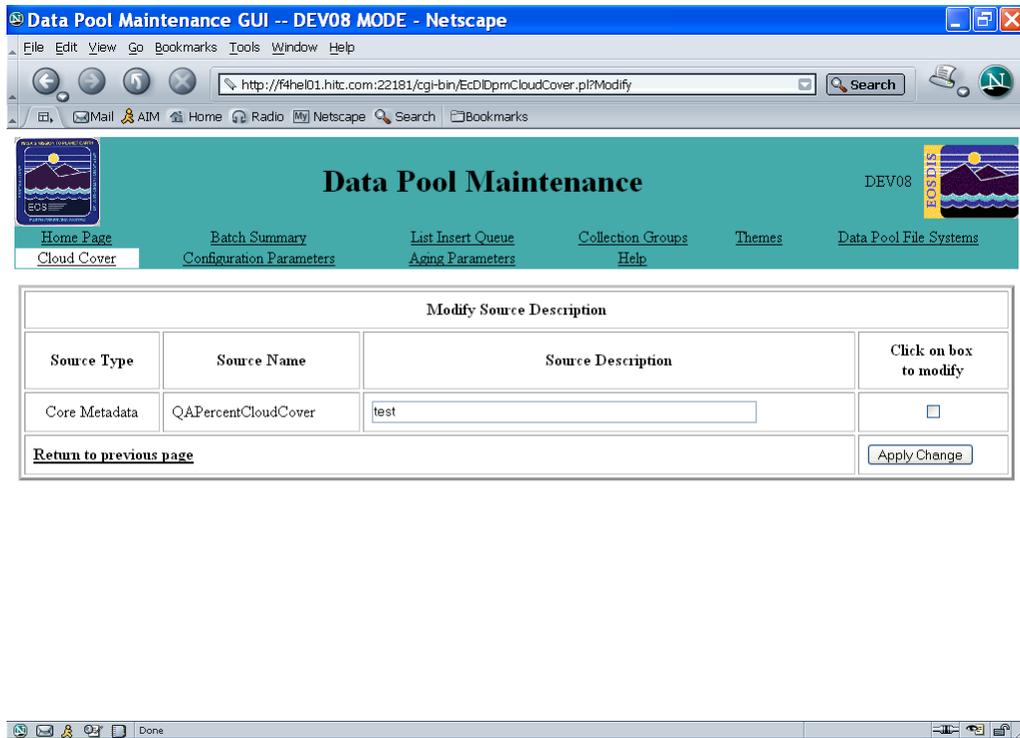
**Figure 14.9-8. Add New Cloud Cover Information Page**

### 14.9.3.2 Add New Cloud Cover Information

---

- 1 Launch the **DPM GUI**
    - The **DPM GUI Home Page** is displayed.
  - 2 Click on the **Cloud Cover** link.
    - The **Cloud Cover Information** page is displayed.
  - 3 Click on the **Add New Cloud Cover** link at the bottom of the **Cloud Cover Information** page (scrolling down if necessary).
    - The **Add New Cloud Cover Information** page is displayed (see Figure 14.9-8).
  - 4 To view the source type options click on the **Source Type** option button.
    - Source type options are displayed (e.g., **Core Metadata** and **PSA**).
  - 5 To select a source type click on the appropriate source type from the option list.
    - If **Core Metadata** was selected, the **Source Name** field is automatically filled in.
  - 6 To specify a source name type the desired name in the **Source Name** field.
    - If **Core Metadata** was selected as the source type, the **Source Name** field is automatically filled in and cannot be edited.
  - 7 Type a description of the cloud cover information in the **Source Description** field.
    - The description may be up to 255 characters in length.
  - 8 Click on the **Apply Changes** button.
    - The source name is validated against the Inventory database.
    - The new cloud cover information is entered in the Data Pool database.
    - The **Cloud Cover Information** page is displayed with the new cloud cover information.
- 

The full-capability operator can modify an existing cloud cover Source Description by clicking on the **Modify Source Description** link shown in Figure 14.9-7. The link takes the operator to the **Modify Source Description** page shown in Figure 14.9-9. The operator can modify the Source Descriptions only. (To modify a Source Type or Source Name the operator must delete the applicable cloud cover information row and add a new one with the correct information.) After making desired changes, the operator clicks on the checkbox(es) adjacent to the source(s) to be modified and clicks on the **Apply Change** button. The changes are applied to the Data Pool database and the **Cloud Cover Information** page is refreshed.



**Figure 14.9-9. Modify Source Description Page**

### 14.9.3.3 Modify Cloud Cover Information

- 1 Launch the **DPM GUI**
  - For detailed instructions refer to the **Launch the DPM GUI** procedure (previous section of this lesson).
  - The **DPM GUI Home Page** is displayed.
- 2 Click on the **Cloud Cover** link.
  - The **Cloud Cover Information** page is displayed.
- 3 Click on the **Modify Source Description** link at the bottom of the **Cloud Cover Information** page (scrolling down if necessary).
  - The **Modify Source Description** page is displayed (see Figure 14.9-9).
- 4 To start the process of changing a source description type the desired description in the appropriate **Source Description** field.
- 5 Click in the check box at the end of the row containing modified source description information.
  - The source description is marked for subsequent modification. (A check mark is displayed in the selected check box.)

- 6 Repeat Steps 4 and 5 for any additional source descriptions to be modified.
  - 7 Click on the **Apply Change** button.
    - The revised source description information is entered in the Data Pool database.
    - The **Cloud Cover Information** page is displayed with the modified cloud cover information.
- 

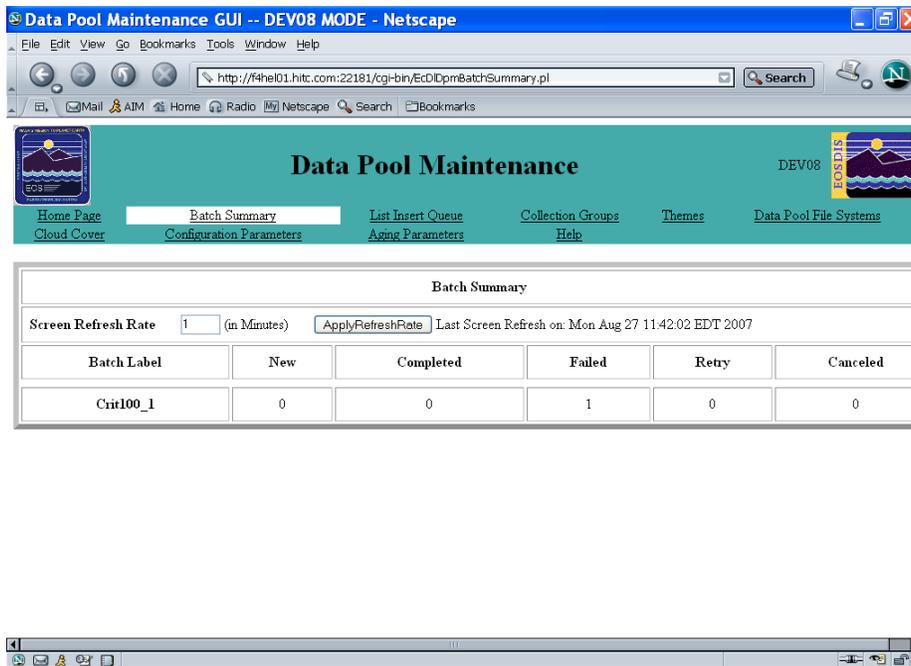
#### 14.9.3.4 Delete Cloud Cover Information

---

- 1 Launch the **DPM GUI**
    - The **DPM GUI Home Page** is displayed.
  - 2 Click on the **Cloud Cover** link.
    - The **Cloud Cover Information** page is displayed.
  - 3 Click in the check box(es) at the end of the row(s) containing the **Check box to delete**.
    - The selected source(s) is (are) marked for subsequent deletion.
  - 4 Click on the **Apply Change** button.
    - The selected source(s) is (are) deleted from the Data Pool database.
    - If any cloud cover information is associated with any collection, it will not be deleted.
    - The **Cloud Cover Information** page is displayed with the modified cloud cover information.
- 

#### 14.9.4 Batch Summary

Figure 14.9-10 illustrates the **Batch Summary** page, which is accessible from the **Batch Summary** link on the **DPM GUI Home Page** (Figure 14.9-2). The **Batch Summary** page displays information on inserts made with the command line utility that permits operators to execute batch inserts of data from the archive into the Data Pool. In addition, it displays a summary of the status of Data Pool inserts for each batch label. Insert statuses include “new,” “completed,” “failed,” “retry,” and “canceled.” The information is accessible to both full-capability and limited-capability operators.



**Figure 14.9-10. Batch Summary Page**

The **DPM GUI** provides a page to display a summary of the status of batch Data Pool inserts made using the Synergy batch insert utility. The procedure that follows is applicable to both full-capability and limited-capability operators.

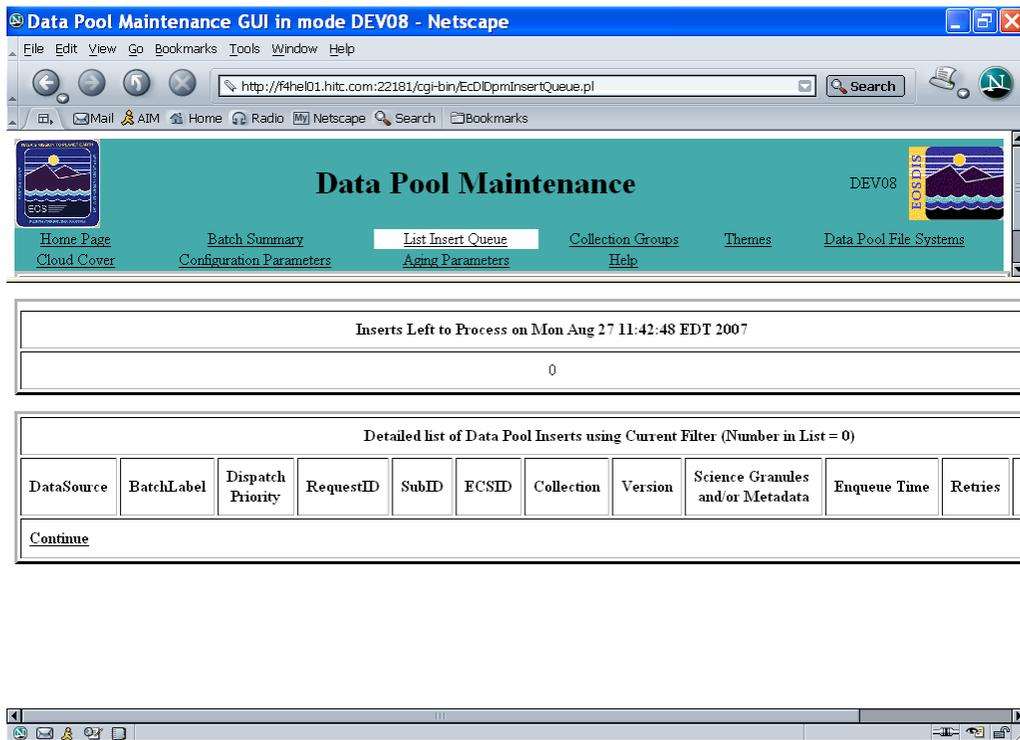
#### 14.9.4.1 Check the Status of Batch Inserts

- 1 Launch the **DPM GUI**
  - The **DPM GUI Home Page** is displayed.
- 2 Click on the **Batch Summary** link.
  - The **Batch Summary** page is displayed (see Figure 14.9-10).
- 3 Observe data displayed on the **Batch Summary** page.
  - The table on the **Batch Summary** page has columns containing the following types of information:
    - **Batch Label**
    - **New** (number of inserts for the label that are new)
    - **Completed** (number of inserts for the label that have been completed)
    - **Failed** (number of inserts for the label that have failed)
    - **Retry** (number of inserts for the label that have been retried)

- **Canceled** (number of inserts for the label that have been canceled)
- 4 To change the automatic screen refresh rate first type the desired number of minutes between refreshes in the **Screen Refresh Rate** text entry box.
  - 5 To complete changing the automatic screen refresh rate click on the **ApplyRefreshRate** button adjacent to the **Screen Refresh Rate** text entry box.
    - The **Screen Refresh Rate** is changed to the new value.
  - 6 Return to Step 3.
- 

### 14.9.5 List Insert Queue

Figure 14.9-11 illustrates the **List Insert Queue** page, which is accessible from the **List Insert Queue** link on the **DPM GUI Home Page** (Figure 14.9-2). The page provides a list with detailed information on inserts left to process. The information is accessible to both full-capability and limited-capability operators.



**Figure 14.9-11. List Insert Queue Page**

The **List Insert Queue** page of the **DPM GUI** provides a list of Data Pool inserts left to process that both full-capability and limited-capability operators can view. It also provides for each listed insert a check box permitting a full-capability operator to mark queued inserts for cancellation, and an **Apply Change** button to implement the cancellation.

### 14.9.5.1 Check the Data Pool Insert Queue and Cancel a Data Pool Insert Action

---

- 1 Launch the **DPM GUI**
  - The **DPM GUI Home Page** is displayed.
- 2 Click on the **List Insert Queue** link.
  - The **List Insert Queue** page is displayed (see Figure 14.9-11).
- 3 Observe data displayed on the **List Insert Queue** page.
  - The **List Insert Queue** page shows how many inserts are left to process as of the current date.
  - The table on the **List Insert Queue** page has columns containing the following types of insert queue information:
    - **Batch Label**
    - **Dispatch Priority**
    - **RequestID**
    - **SubID** (subscription identifier of the subscription selected by the software for processing)
    - **ECSID** (ECS identifier or Granule ID for the granule to be processed)
    - **Collection** (to which the granule belongs)
    - **Version** (for the collection to which the granule belongs)
    - **Science Granules and/or Metadata** (indication of whether the insert is to include science granules and metadata or just the metadata)
    - **Enqueue Time** (time when the insert was placed in the insert queue)
    - **Retries** [number of attempts by the process to recover from retryable errors (e.g., Data Pool disk temporarily unavailable, Data Pool directory does not exist, Data Pool database temporarily unavailable)]
    - **Status**
    - **Click on Box to Cancel** (containing a check box to mark the insert for cancellation)

**NOTE:** There may be multiple subscriptions specifying insertion of specific data into the Data Pool, but only one insert is needed; therefore, only one of the subscriptions serves as the basis for the insert action. The **SubID** is of no particular significance to an operator and may safely be ignored.

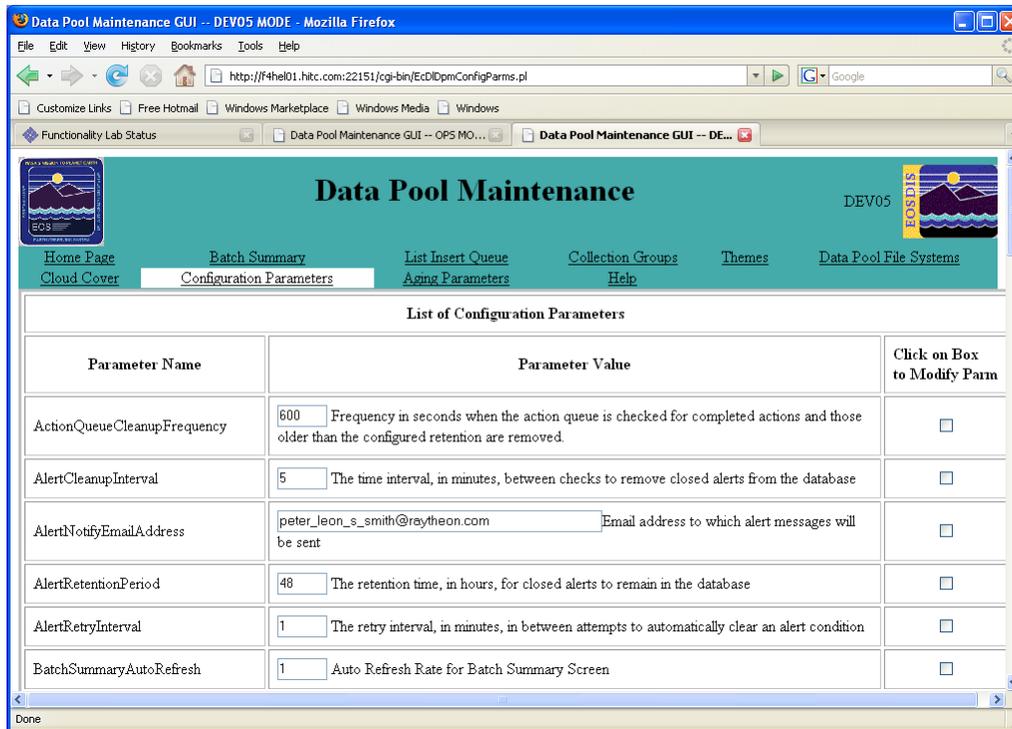
- There is an **Apply Change** button at the bottom of the page for implementing cancellations.

- There is a **Continue** link at the bottom of the page; if there are more inserts than can be displayed in the space of one page, the **Continue** link displays the next page of the list.
- 4 To cancel an insert, first click on the check box at the end of the row of information for the insert to be canceled.
    - The insert is marked for subsequent cancellation.
    - The check box for the selected insert is filled to indicate selection.
  - 5 Repeat Step 4 for any additional insert to be canceled.
  - 6 To implement the cancellation of insert(s) click on the **Apply Change** button.
    - A confirmation message is displayed; it asks "**Are you ready to cancel the insert for . . .**" and there are links displayed for **Yes, cancel insert** and **No**, return to previous page.
  - 7 To confirm cancellation, click on the **Yes, cancel insert** link.
    - The **List Insert Queue** page is displayed with the canceled insert(s) removed and the count of inserts left to process reduced by the number of inserts canceled.
- 

#### 14.9.6 Configuration Parameters

Figure 14.9-13 shows the **List of Configuration Parameters** page, which is accessible from the **Configuration Parameters** link on the **DPM GUI Home Page** (Figure 14.9-2). The page lists numerous Data Pool configuration parameters with their settings and a brief description of each. The information is accessible to both full-capability and limited-capability operators.

For each parameter there is a text box or option list in the **Parameter Value** column so the full-capability operator can assign a new value to the parameter when necessary. In addition, there is a check box that the full-capability operator uses to mark parameters with values to be modified. At the bottom of the page is an **Apply Change** button for implementing the change(s).



**Figure 14.9-13. List of Configuration Parameters Page**

The following parameters are examples of the types of parameters in the Data Pool database that the full-capability operator can modify:

- ActionQueueCleanupFrequency - frequency in seconds when the action queue is checked for completed actions and those older than the configured retention period are removed.
- AlertCleanupInterval - The time interval, in minutes, between checks to remove closed alerts from the database.
- AlertNotifyEmail Address - Email address to which alert messages will be sent.
- AlertRetentionPeriod - The retention time, in hours, for closed alerts to remain in the database.
- AlertRetryInterval - The retry interval, in minutes, in between attempts to automatically clear an alert condition.
- BatchSummaryAutoRefresh – autorefresh rate for the Batch Summary page.
- ChecksumPercent - The percentage of science files that will have checksums verified or computed.
- Clean703Orders -Flag indicating whether DPL should clean up order only granules.

- DatabaseRetryCount - The number of times a retryable database error may be retried before being considered failed.
- Database RetryInterval - The number of seconds to wait between retries of a retryable database error.
- DefaultRetentionPeriod - default retention period in days for all Data Pool Insert Actions.
- DefaultRetentionPriority - default retention priority for all Data Pool Inserts actions. The range of valid values is 1 – 255.
- DeleteCompletedActionsAfter - time in minutes that operators let completed actions stay in the insert action queue before making them eligible for removal. The delay is intended to provide the operator with some ability to check on past actions. The time period should not be too long.
- DisplayAIPChunkSize - number of rows to return per chunk for the Active Insert Processes list.
- FileSystemCheckInterval - The time interval, from 1 to 10 minutes, in between attempts to automatically clear a Data Pool file system alert condition.
- FileSystemRefreshRate - Time in minutes before the File Systems Page Refreshes.
- Filter ChecksumAIP - Show Checksummed Active Insert Processes on the Data Pool Maint. GUI page.
- FilterCopiedAIP - Show Copied Active Insert Processes on the Data Pool Maint. GUI page.
- FilterExtractedAIP - Show Extracted Active Insert Processes on the Data Pool Maint. GUI page.
- FilterPendingAIP - Show Pending Active Insert Processes on the Data Pool Maint. GUI page.
- FilterValidAIP - Show Validated Active Insert Processes on the Data Pool Maint. GUI page.
- FreeSpaceResumePercent - The percentage of free space required before a Data Pool file system full condition may be cleared.
- GranuleLockRetentionPeriod - The age in hours that determines when a granule lock should be considered stale
- GranuleOmLockRetentionPeriod - The age in minutes that determines when a granule lock by OMS should be considered stale
- HEGCleanupAge – HDF-EOS to GeoTIF Converter (HEG) cleanup age in days.
- IdleSleep - number of seconds to sleep when there is nothing to do (Obsolete in 7.20).

- InCacheTimeLimit - maximum time in minutes that operators are willing to wait for a Data Pool Insert Utility (DPIU) process to complete when its files are in cache. When the time limit is reached, the Data Pool Action Driver (DPAD) kills the process and retries the action (Obsolete in 7.20)
- InsertRetryWait - number of seconds to wait before an insert that failed should be resubmitted (if it can be retried).
- MAX\_READ\_DRIVES\_x0xxgnn – (multiple parameters as necessary) maximum number of simultaneous tape drives used for the specified archive.
- MFSONinsert – specifies whether or not (YES or NO) DPAD should use the Multiple File System table (Obsolete in 7.20).
- MaxConcurrentBandExtract – The maximum number of concurrent Band Extraction operations.
- MaxConcurrentDPIUThread – The concurrency limit for the DPIU processing queue.
- MaxConcurrentEventThreads – The concurrency limit for the DPAD event processing queue.
- MaxConcurrentPublish – The maximum number of concurrent Data Pool publication operations.
- MaxConcurrentReadsPerTape – The maximum number of concurrent tape read (stage) operations for a single tape.
- MaxConcurrentRegister - The maximum number of concurrent Data Pool registration operations.
- MaxConcurrentValidate – The maximum number of concurrent request validation operations.
- MaxCosecutiveErrors - The maximum number of consecutive errors or timeout conditions for a service before an alert will be raised.
- MaxInsertRetries - maximum number of times an insert should be tried again (-1 means forever).
- MaxReadDrivesPerArchive - maximum number of tape drives in use simultaneously.
- MaxTapeMountPerRequest - maximum number of tape mounts allowed per request.
- NewActionCheckFrequency – number of seconds before checking for new actions. DPAD always checks to determine whether we are out of actions that can be dispatched, so unless getting things queued up in memory is urgent, this could be a time interval of minutes.
- NumOfAllowedCacheProcesses - maximum number of insert processes that require access to cache (Obsolete in 7.20).

- NumOfAllowedInsertProcesses - maximum number of insert processes running at any time.
- NumOfAllowedNonCacheProcesses - maximum number of insert processes that require access to tape (Obsolete in 7.20).
- OnTapeTimeLimit - maximum time in hours operators are willing to wait for a DPIU process to complete when its files are not in cache. After the time limit, DPAD kills the process and retries the action.
- OrderOnlyFSLabel - order-only file system label.
- RefreshRate - DPM Home Page refresh rate in seconds.
- RunAwayCheckFrequency – number of seconds before checking again for runaway processes. It is recommended that RunAwayCheckFrequency not be much less than InCacheTimeLimit.
- RunawayDuration - maximum number of seconds to wait for an insert to complete before considering it a runaway (Obsolete in 7.20).
- SizeOfInsertQueueList - number of Data Pool Insert Queue entries that the DPM GUI can display on a page at any one time.
- StartUpWait - number of seconds to delay start-up while trying to clean out leftover DPIU processes (Obsolete in 7.20).

#### 14.9.6.1 View DPM Configuration Parameter Values

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- 1 Launch the **DPM GUI**
  - The **DPM GUI Home Page** is displayed.
- 2 Click on the **Configuration Parameters** link.
  - The **List of Configuration Parameters** page is displayed (see Figure 14.9-13).
- 3 Observe data displayed on the **List of Configuration Parameters** page.
  - The table on the **List of Configuration Parameters** page has columns containing the following types of Data Pool configuration information:
    - **Parameter Name**
    - **Parameter Value** (including an entry field with current value, followed by a brief description of the parameter)
    - **Click on Box to Modify Parm** (containing a check box to mark the parameter for change)
  - The rows in the table indicate the current values and descriptions of the following types of parameters:
    - ActionQueueCleanupFrequency

- AlertCleanupInterval
- AlertNotifyEmailAddress
- AlertRetentionPeriod
- AlertRetryInterval
- BatchSummaryAutoRefresh
- ChecksumPercent
- Clean703Orders
- DatabaseMaxPoolSize
- DatabaseMinPoolSize
- DatabaseRetryCount
- DatabaseRetryInterval
- DefaultRetentionPeriod
- DefaultRetentionPriority
- DeleteCompletedActionsAfter
- DisplayAIPChunkSize
- FileSystemCheckInterval
- FileSystemRefreshRate
- FilterChecksumAIP
- FilterCopiedAIP
- FilterExtractedAIP
- FilterPendingAIP
- FilterValidAIP
- FreeSpaceResumePercent
- GranuleLockRetentionPeriod
- GranuleOMLockRetentionPeriod
- HEGCleanupAge
- InsertRetryWait
- MAX\_READ\_DRIVES\_x0xxgmn
- MaxConcurrentBandExtract

- MaxConcurrentDPIUThreads
  - MaxConcurrentEventThreads
  - MaxConcurrentPublish
  - MaxConcurrentReadsPerTape
  - MaxConcurrentRegister
  - MaxConcurrentValidate
  - MaxConsecutiveErrors
  - MaxInsertRetries
  - MaxReadDrivesPerArchive
  - MaxTapeMountPerRequest
  - NewActionCheckFrequency
  - NumOfAllowedInsertProcesses
  - OnTapeTimeLimit
  - OrdersOnlyFSLabel
  - RefreshRate
  - SizeOfInsertQueueList
- There is an **Apply Change** button at the bottom of the page for implementing changes.
- 

Although most of the parameters managed on the **List of Configuration Parameters** page are not likely to be changed frequently, the operator may want to change some of them for tuning the Data Pool. Data Pool tuning parameters can be used to help meter the flow of data into the Data Pool and to adjust retention priority and duration to maintain optimum usage of Data Pool storage. To determine the best settings, it is necessary to monitor Data Pool inserts and disk space and adjust the parameters based on experience and projected functioning.

#### **14.9.6.2 Modify DPM Configuration Parameter Values**

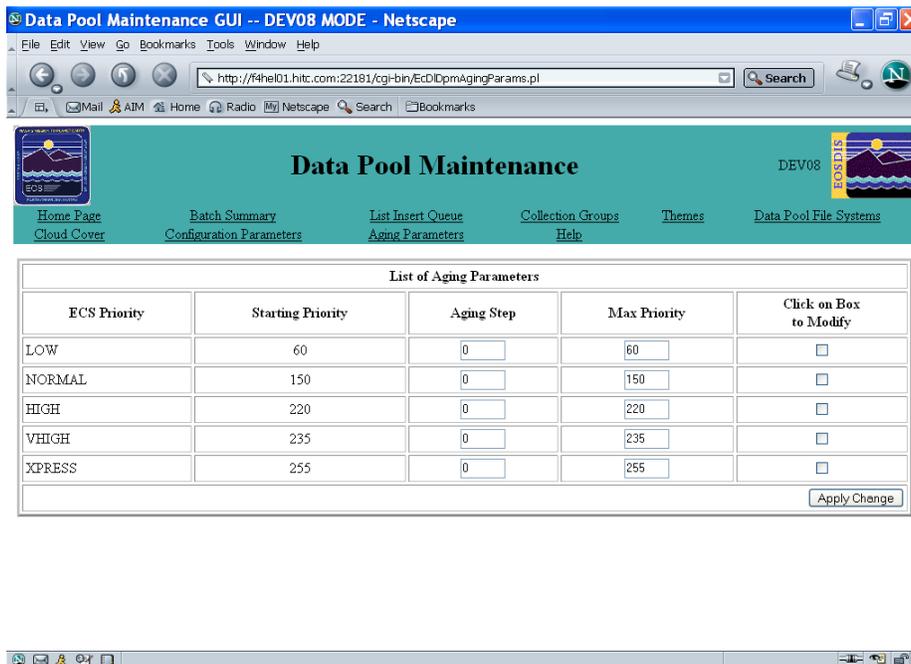
---

- 1 Launch the **DPM GUI**.
  - The **DPM GUI Home Page** is displayed.
- 2 Click on the **Configuration Parameters** link.
  - The **List of Configuration Parameters** page is displayed.

- 3 If there is an option list for the parameter value to be changed, first click on the corresponding option button then click on the appropriate choice (e.g., **ON**)
    - Options are displayed (e.g., **ON** and **OFF**).
  - 4 If there is no option list for the parameter value to be changed, type the desired value in the corresponding text entry box.
  - 5 Click in the check box at the end of the row containing the parameter value to be modified.
    - The selected configuration information is marked for modification.
  - 6 Repeat Steps 3 through 5 for any additional parameter values to be modified.
  - 7 To implement the modification of parameter value(s) click on the **Apply Change** button.
    - The **List of Configuration Parameters** page is refreshed, the check box(es) is (are) unfilled, and the displayed **Parameter Value(s)** reflect(s) the change(s) implemented.
- 

### 14.9.7 Aging Parameters

Figure 14.9-14 shows the **List of Aging Parameters** page, which is accessible from the **Aging Parameters** link on the **DPM GUI Home Page** (Figure 14.9-2). The page lists the starting priority, aging step, and maximum priority associated with each ECS priority. The information is accessible to both full-capability and limited-capability operators.



**Figure 14.9-14. List of Aging Parameters Page**

### 14.9.7.1 View DPM Aging Parameter Values

---

- 1 Launch the **DPM GUI**.
    - For detailed instructions refer to the **Launch the DPM GUI** procedure (previous section of this lesson).
    - The **DPM GUI Home Page** is displayed.
  - 2 Click on the **Aging Parameters** link.
    - The **List of Aging Parameters** page is displayed (see Figure 14.9-14).
  - 3 Observe data displayed on the **List of Aging Parameters** page.
    - The table on the **List of Aging Parameters** page has columns containing the following types of Data Pool configuration information:
      - **ECS Priority** (list of all ECS priorities)
      - **Starting Priority** (cannot be changed using the GUI)
      - **Aging Step** (includes an entry field with current value)
      - **Max Priority** (includes an entry field with current value)
      - **Click on Box to Modify Parm** (containing a check box to mark the parameter for change)
    - The rows in the table indicate the current values and descriptions of the various ECS priorities, from **LOW** to **XPRESS**.
    - There is an **Apply Change** button at the bottom of the page for implementing changes.
- 

For the aging step, and maximum priority associated with each ECS priority there is a text box so the full-capability operator can assign a new value to the parameter when necessary. In addition, there is a check box that the full-capability operator uses to mark parameters with values to be modified. At the bottom of the page is an **Apply Change** button for implementing the change(s).

### 14.9.7.2 Modify DPM Aging Parameter Values

---

- 1 Launch the **DPM GUI**.
  - The **DPM GUI Home Page** is displayed.
- 2 Click on the **Aging Parameters** link.
  - The **List of Aging Parameters** page is displayed.
- 3 To change the value associated with **Aging Step** and/or **Max Priority** for a particular ECS priority first type the desired value(s) in the corresponding text entry box(s).

- 4 To continue the process of changing the value associated with **Aging Step** and/or **Max Priority** for a particular ECS priority click in the check box at the end of the row containing the parameter value(s) to be modified.
  - The selected configuration information is marked for modification.
- 5 Repeat Steps 3 and 4 for any additional parameter values to be modified.
- 6 To implement the modification of parameter value(s) click on the **Apply Change** button.
  - The **List of Aging Parameters** page is refreshed, the check box(es) is (are) unfilled, and the displayed **Aging Step** and **Max Priority** values reflect the change(s) implemented.

### 14.9.8 Collection Groups

Figure 14.9-15 illustrates the Collection Groups page and is accessible from the **Collection Groups** link on the **Home Page** (Figure 14.9-2). The page lists the collection groups, providing for each the **Data Source (ECS or Non-ECS)** (LaRC only), **Group ID**, **Display Name**, and a brief **Description** of the collection group.

Note: For the 7.21 LaRC delivery the Data Source field was added in order to accommodate Non-ECS data.

| Data Source | Group ID<br>(Click for managing collections) | Display Name | Description                                                                                  |
|-------------|----------------------------------------------|--------------|----------------------------------------------------------------------------------------------|
| ECS         | <a href="#">ACRM</a>                         | ACRM         | All collections/granules from the ACRIM mission                                              |
| ECS         | <a href="#">AIRA</a>                         | AIRA         | AIRS/AMSU/MHS collections/granules from the Aqua mission                                     |
| ECS         | <a href="#">AL22</a>                         | AL22         | Description                                                                                  |
| ECS         | <a href="#">AMSA</a>                         | AMSA         | AMSR-E collections/granules from the Aqua mission                                            |
| ECS         | <a href="#">ASTI</a>                         | ASTI         | ASTER collections/granules from the Terra mission                                            |
| ECS         | <a href="#">BRWS</a>                         | BRWS         | Browse collections/granules                                                                  |
| ECS         | <a href="#">DASP</a>                         | DASP         | Data Assimilation System Products                                                            |
| ECS         | <a href="#">OTHR</a>                         | OTHER1       | Other Products. This group is used for ancillary products or other non-science products      |
| ECS         | <a href="#">SAGS</a>                         | SAGS         | All collections/granules from the SAGE III mission                                           |
| ECS         | <a href="#">SECDEMO</a>                      | SECDEMO      | group for security demo going well                                                           |
| NON-ECS     | <a href="#">TEST</a>                         | TEST1        | This NON ECS group is to be used by the WEB ACCESS folks - don't delete any granules from it |
| ECS         | <a href="#">TESTONE</a>                      | TESTONE      | this is a test                                                                               |
| ECS         | <a href="#">TEST_ADD</a>                     | 123456789012 | testing for adding collection to this group                                                  |
| NON-ECS     | <a href="#">UNITTESTSEC</a>                  | UNIT         | Unit test demo for security ticket                                                           |

**Figure 14.9-15. Collection Groups Page**

The conceptual structure of the data pool is set up for each DAAC based on the collections and granules archived at the DAAC. Related collections are grouped in **Collection Groups** (e.g., ASTER collections and granules from the Terra mission, MODIS Oceans collections and granules from the Terra Mission, MISR collections and granules from the Terra mission, MODIS Snow and Ice collections and granules from the Terra mission). Each collection group initially consists of a number of collections that have been specified as valid for Data Pool insertion (i.e., granules of the data types in the collection may be inserted into the Data Pool).

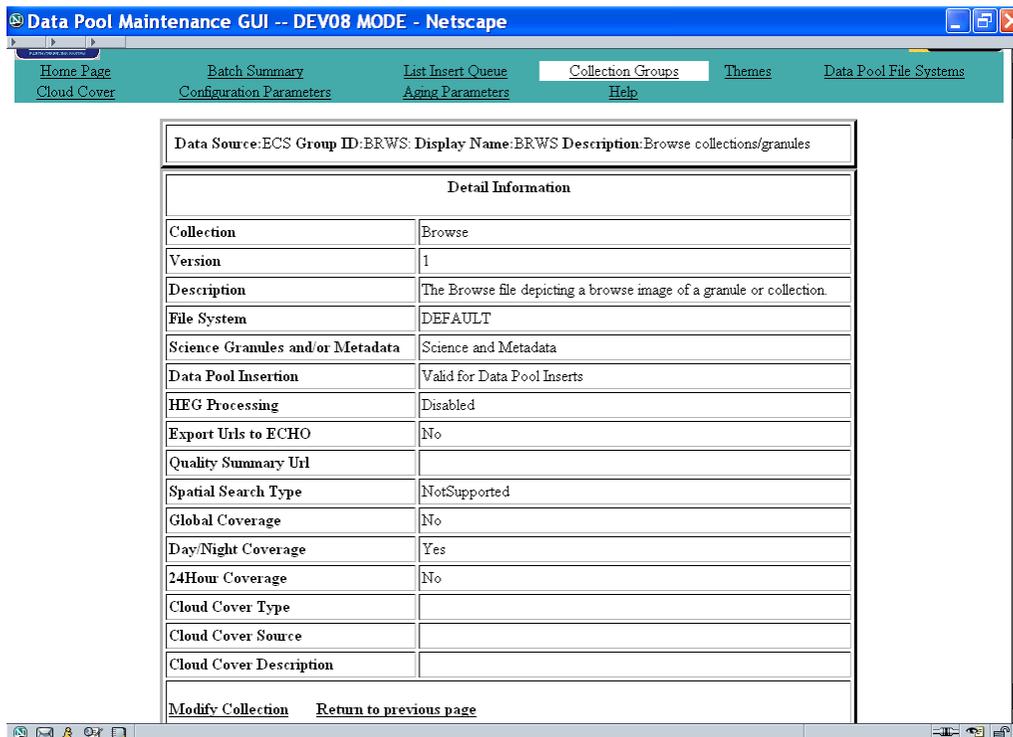
The Collection Groups page of the **DPM GUI** allows both full-capability operators and limited-capability operators to view collection groups. It also provides access to pages for viewing collections within a collection group. In addition, the page has links that allow a full-capability operator to modify or add a collection group or collection in the Data Pool database.

Figure 14.9-16 shows a **List of Collections** page obtained by clicking on one of the **Group ID** links on the Collection Groups page. The **List of Collections** page lists the collections in the collection group, providing for each collection information (as applicable) concerning the Version, Science Granules and/or Metadata, Data Pool Insertion, HDF-EOS to GeoTIFF Conversion Tool (HEG) Processing, Export URLs to ECHO, Quality Summary URL, Spatial Search Type, Global Coverage, Day/Night Coverage, 24-Hour Coverage, and Cloud Coverage characteristics of the collection.

| Collection (Click for Detail Information) | Version | Compression Command Label | Science Granules and/or Metadata | Data Pool Insertion | HEG Processing | Export Urls to ECHO | Quality Summary Url                 | Spatial Search Type | Global Coverage | Day/Night Coverage | 24 Hour Coverage | Cloud Coverage |
|-------------------------------------------|---------|---------------------------|----------------------------------|---------------------|----------------|---------------------|-------------------------------------|---------------------|-----------------|--------------------|------------------|----------------|
| AIR10SCC                                  | 001     | NONE                      | science and metadata             | valid for Data Pool | Disabled       | No                  | http://www.aummary.com/quality.html | Not supported       | No              | Yes                | No               | No             |
| AIRBAQAP                                  | 001     | NONE                      | science and metadata             | valid for Data Pool | Disabled       | No                  | http://www.aummary.com/quality.html | Rectangle           | No              | Yes                | No               | No             |
| AIRBAQAP                                  | 099     | NONE                      | science and metadata             | valid for Data Pool | Disabled       | No                  | http://www.aummary.com/quality.html | Rectangle           | No              | Yes                | No               | No             |
| AIRIACAL                                  | 001     | NONE                      | science and metadata             | valid for Data Pool | Disabled       | No                  | http://www.aummary.com/quality.html | Rectangle           | No              | Yes                | No               | No             |
| AIRIACAL                                  | 099     | NONE                      | science and metadata             | valid for Data Pool | Disabled       | No                  | http://www.aummary.com/quality.html | Rectangle           | No              | Yes                | No               | No             |
| AIRIAHBE                                  | 001     | NONE                      | science and metadata             | valid for Data Pool | Disabled       | No                  | http://www.aummary.com/quality.html | Rectangle           | No              | Yes                | No               | No             |
| AIRIAHBE                                  | 099     | NONE                      | science and metadata             | valid for Data Pool | Disabled       | No                  | http://www.aummary.com/quality.html | Rectangle           | No              | Yes                | No               | No             |

**Figure 14.9-16. List of Collection Page**

At the bottom of the **List of Collections** page, there is a link that permits a full-capability operator to **Add New Collection** or **Delete a Collection Droup**. A click on one of the **Collection (Click for Detail Information)** ID links brings up a collection **Detail Information** page (Figure 14.9-17) listing the same information for the collection as was displayed on the **List of Collection** page plus some additional information. The additional information includes a **Description**, **File System**, **Cloud Cover Type**, **Cloud Cover Source**, and **Cloud Cover Description**.



**Figure 14.9-17. Collection Detail Information Page**

The collection **List of Collections** and **Detail Information** pages provide a means of determining what collections within a collection group have been designated valid for Data Pool insertion and whether the insertion is for science granules and metadata or metadata only.

At the bottom of the **Detail Information** page, there is a link that permits a full-capability operator to modify a collection.

### 14.9.8.1 View Collection Groups

- 1 Launch the **DPM GUI**.
  - The **DPM GUI Home Page** is displayed.

- 2 Click on the **Collection Groups** link.
  - The Collection Group page is displayed (see Figure 14.9-15).
- 3 Observe data displayed on the Collection Group page.
  - The table on the Collection Group page has columns containing the following types of collection group information:
    - **Data Source (LaRC only)** – Designates ECS or Non-ECS data.
    - **Group ID (Click for managing collections)**
    - **Display Name**
    - **Description**
  - The following links are available on the Collection Groups page:
    - **Group ID (Click for managing collections)** - Links to a **List of Collections** contained in that group
    - **Add Collection Group**
    - **Modify Collection Group**
- 4 To obtain more information about the collections in one of the groups, click on its link in the **Group ID (Click for managing collections)** column.
  - The **List of Collection** page is displayed (see Figure 14.9-16).
- 5 Observe data displayed on the **List of Collections** page.
  - Near the top of the **List of Collections** page contains the following basic collection group information:
    - **Group ID**
    - **Display Name**
    - **Description**
  - There is a file system filter (and associated **Apply Filter** button) for displaying data on the **Collection (Click for Detail Information)** column for all file systems or by individual file system.
  - The **List of Collection** page has columns containing the following types of collection group information:
    - **Collection (Click for Detail Information)** link
    - **Version**
    - **Science Granules and/or Metadata**
    - **Data Pool Insertion**
    - **HEG Processing**

- **Export Urls to ECHO**
  - **Quality Summary Url**
  - **Spatial Search Type**
  - **Global Coverage**
  - **Day/Night Coverage**
  - **24 Hour Coverage**
  - **Cloud Coverage**
  - **Check the Box to Delete Collection**
- The following links are available on the **List of Collection** page:
    - Each collection listed in the **Collection** column links to a **Collection Detail** page.
    - **Add New Collection**
    - **Return to previous page**
- 6** To filter data displayed on the **List of Collections** page, click on the **File System** filter option button.
- Options are displayed.
- 7** Select a file system filter option click on the appropriate choice from the option list.
- 8** To implement the filtering of data displayed on the **Collection Detail** link, click on the **Apply Filter** button.
- The **Collection (Click for Detail Information)** column is displayed with the filtered collection group information.
- 9** To obtain more information about one of the collections in the collection group, click on its link in the **Collection (Click for Detail Information )** column.
- The **Detail Information** page (see Figure 13.9-17) for the selected collection is displayed.
- 10** Observe data displayed on the **Detail Information** page.
- Near the top of the **Detail Information** page is the following basic collection group information:
    - **Data Source**
    - **Group ID**
    - **Display Name**
    - **Description**

- The **Detail Information** page has rows containing the following types of collection information:
  - **Collection**
  - **Version**
  - **Description**
  - **File System**
  - **Science Granules and/or Metadata**
  - **Data Pool Insertion**
  - **HEG Processing**
  - **Export Urls to ECHO**
  - **Quality Summary Url**
  - **Spatial Search Type**
  - **Global Coverage**
  - **Day/Night Coverage**
  - **24 Hour Coverage**
  - **Cloud Cover Type**
  - **Cloud Cover Source**
  - **Cloud Cover Description**
- The following links are available on the Collection **Information Detail** page:
  - **Modify Collection**
  - **Return to previous page**

**11** To view a description for another collection in the same group first click on the **Return to previous page** link.

- The **List of Collections** page is displayed again.

**12** To view a description for another collection in the same group return to Step 9.

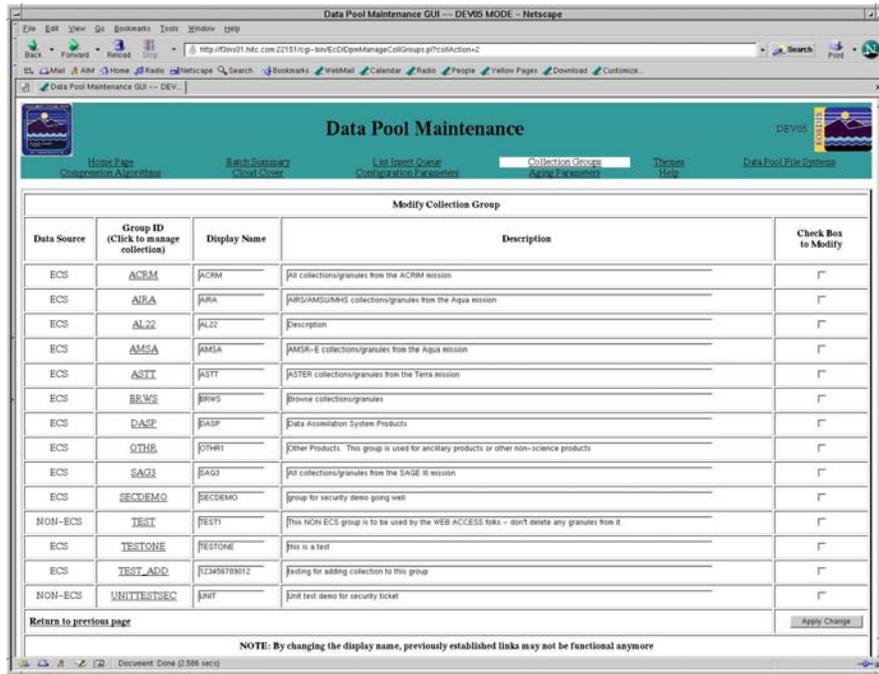
**13** To view a description for another collection in another group return to Step 2.

---

The collection **List of Collections** and **Detail Information** pages provide a means of determining what collections within a collection group have been designated valid for Data Pool insertion and whether the insertion is for science granules and metadata or metadata only.

At the bottom of the **Detail Information** page, there is a link that permits a full-capability operator to modify a collection. Figure 14.9-18 shows the **Modify Collection** page obtained by

clicking on a **Modify Collection** link. On this page, a full-capability operator can modify many of the characteristics of the collection then implement the changes with a click on the **Apply Change** button at the bottom.



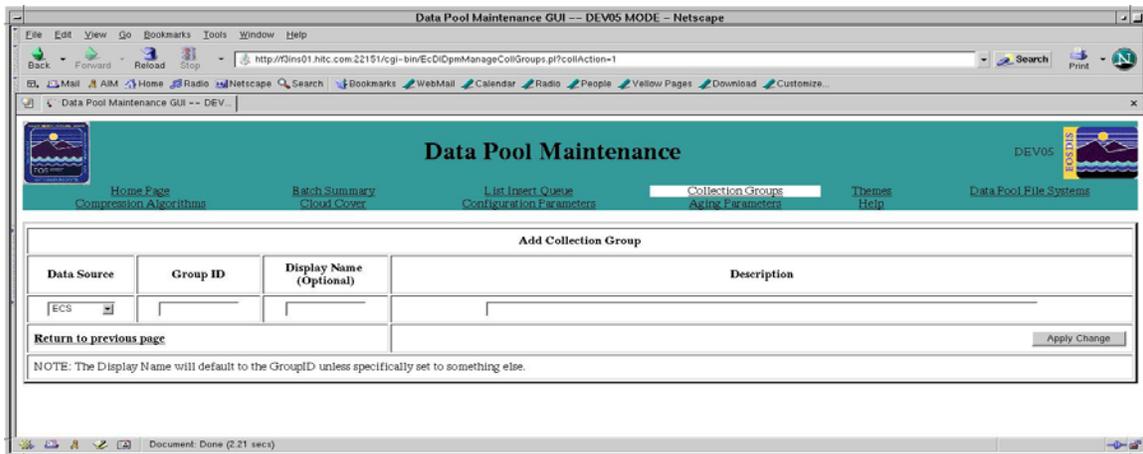
**Figure 14.9-18. Modify Collection Page**

From time to time, it may be necessary to add or modify a collection group (e.g., if a DAAC begins archiving data from a new instrument). If a collection group is to be added to the list of collection groups, it is necessary to use the **Add Collection Group** link at the bottom of the Collection Groups page. Full-capability operators (only) can use the procedure that follows to add a collection group (see Figure 14.9-19):

**NOTE:** Although the following procedure is applicable, most of the time new collection groups will be added only during releases of new software versions and you will not use this procedure often.

### Caution

The Add Collection Group function is to be exercised judiciously because the **DPM GUI** does not provide any means of deleting collection groups.



**Figure 14.9-19. Add Collection Group Page**

### 14.9.8.2 Modify Collection Groups

- 1 Launch the **DPM GUI**.
  - The **DPM GUI Home Page** is displayed.
- 2 Click on the **Collection Groups** link.
  - The Collection Groups page is displayed.
- 3 Click on the **Modify Collection Group** link at the bottom of the page.
  - The **Modify Collection Group** page is displayed (see Figure 14.9-18), providing a table of collection group information showing four columns **Group ID (Click to Manage Collections)**, **Display Name**, **Description**, and **Check box to Modify** (containing a check box to mark the collection group for change).
  - There is an **Apply Change** button at the bottom of the page for implementing changes.
- 4 To change the display name for the collection group, type the desired name in the **Display Name** field for the group ID.
  - The **Display Name** may have no more than 12 characters.
    - Valid characters include A-Z, 0-9, underscore and space.
- 5 To change the description of the collection group, type the desired description in the **Description** field for the group ID.
  - The **Description** may have no more than 255 characters.
- 6 Click in the check box at the end of the row containing collection group information to be modified.
  - The selected collection group information is marked for modification.
- 7 Repeat Steps 4 through 6 for any additional collection groups to be modified.

- 8 Click on the **Apply Change** button.
    - The revised collection group information is entered in the Data Pool database.
    - The Collection Group page is displayed with the modified collection group information.
- 

### 14.9.8.3 Add a Collection Group

---

- 1 Launch the **DPM GUI**.
    - The **DPM GUI Home Page** is displayed.
  - 2 Click on the **Collection Groups** link.
    - The Collection Groups page is displayed.
  - 3 Click on the **Add Collection Group** link at the bottom of the page.
    - The **Add Collection Group** page is displayed (see Figure 14.9-19) providing a page with three columns of text-entry fields, **Data Source**, **Group ID**, **Display Name**, and **Description**.
  - 4 Enter the **Data Source** (ECS or Non-ECS) for the new collection group in the **Data Source** field.
  - 5 Type a unique identifier for the new collection group in the **Group ID** field.
    - The **Group ID** may have no more than 12 characters.
      - Valid characters include A-Z, 0-9, and underscore.
    - The **Group ID** will be compared with the existing **Group IDs** to ensure that it is not a duplicate of another ID.
  - 6 To provide a display name that is different from the **Group ID** type a name in the **Display Name** field.
    - The **Display Name** is the name for the collection as displayed on the **Data Pool Web Access GUI**.
    - If no **Display Name** is entered, the **Group ID** will be used as the **Display Name**.
    - The **Display Name** may have no more than 12 characters.
      - Valid characters include A-Z, 0-9, underscore and space.
  - 7 Type the description for the new collection group in the **Description** field.
    - The **Description** may have no more than 255 characters.
  - 8 Click on the **Apply Change** button.
    - The new collection group information is entered in the Data Pool database.
    - The Collection Group page is displayed with the new collection group information.
-

#### 14.9.8.4 Delete a Collection Group

---

- 1 Launch the **DPM GUI**.
    - The **DPM GUI Home Page** is displayed.
  - 2 Click on the **Collection Groups** link.
    - The List of Collections page is displayed.
  - 3 Scroll to the far right of the screen, and click on the **Delete Collection** box of the collection group to be deleted.
    - A check mark is placed in the box..
  - 4 Click on the **Delete Collection** button (bottom of screen).
    - A confirmation window is displayed.
    - Select **OK** if you want to complete the delete process.
- 

Although an initial Data Pool structure is provided, not all collections are necessarily specified as eligible for Data Pool insertion. Based on experience, or on changes in demand, a DAAC may wish to add one or more collections to a data group. The procedure for adding ECS collections to a collection group is somewhat different from the procedure for adding a non-ECS collection to a collection group. If a full-capability operator clicks on an **Add New Collection** link at the bottom of a **List of Collections** page for an ECS collection, a **Collections Not in Data Pool** page (Figure 14.9-20) is displayed. The page lists ECS collections that are not currently part of a Data Pool collection group. The operator can select an ECS collection to add to the collection group by clicking on the link in the **Collection (Click on collection to add)** column of the table on the page. That causes an **Add New Collection** page (Figure 14.8-21) to be displayed. The Collection, Version, Description, and Spatial Search Type fields are filled in when the page comes up. The page has fields and option lists for entering the remaining data concerning the collection (e.g., File System, and Science Granules and/or Metadata). After the operator enters the appropriate data concerning the ECS collection, clicking on the **Apply Change** button at the bottom of the page applies the changes to the Data Pool database and refreshes the **List of Collections Group** page.

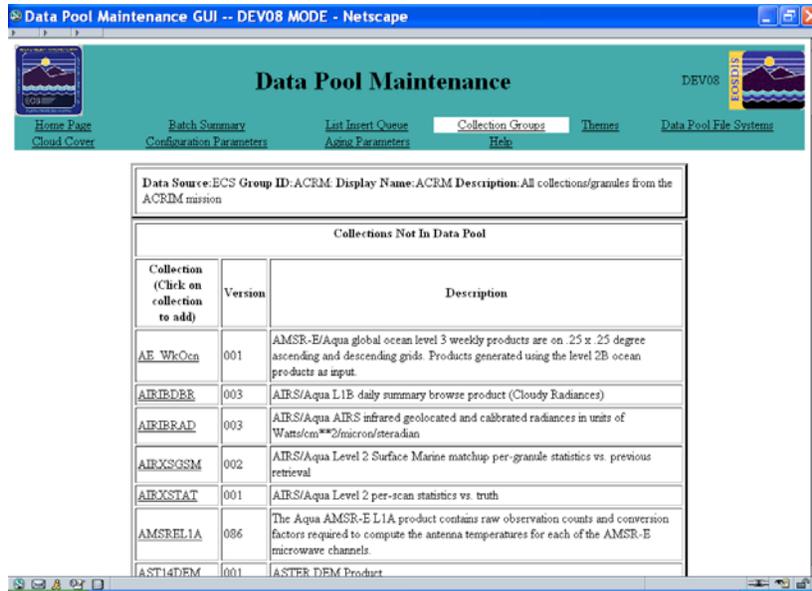


Figure 14.9-20. Collections Not in Data Pool Page

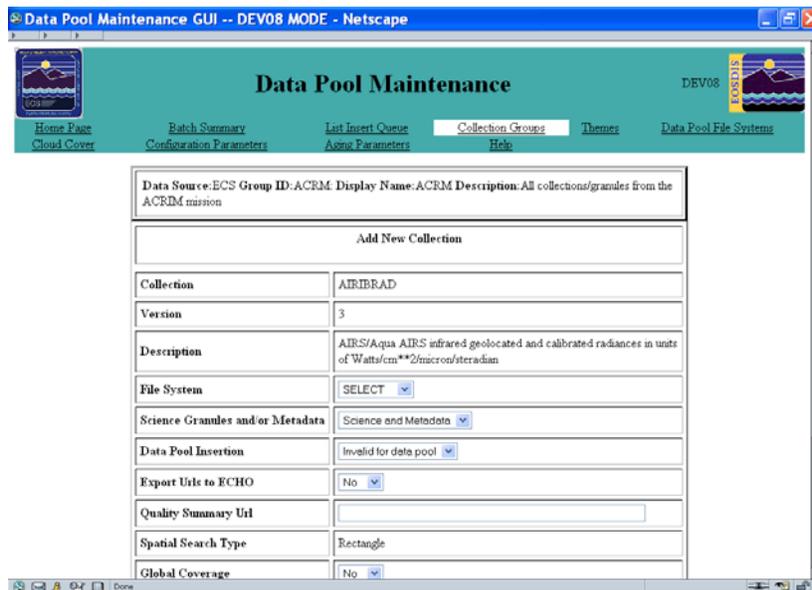


Figure 14.9-21. Add New [ECS] Collection Page

### 14.9.8.5 Add an ECS Collection to a Collection Group

- 1 Launch the DPM GUI.
  - The DPM GUI Home Page is displayed.

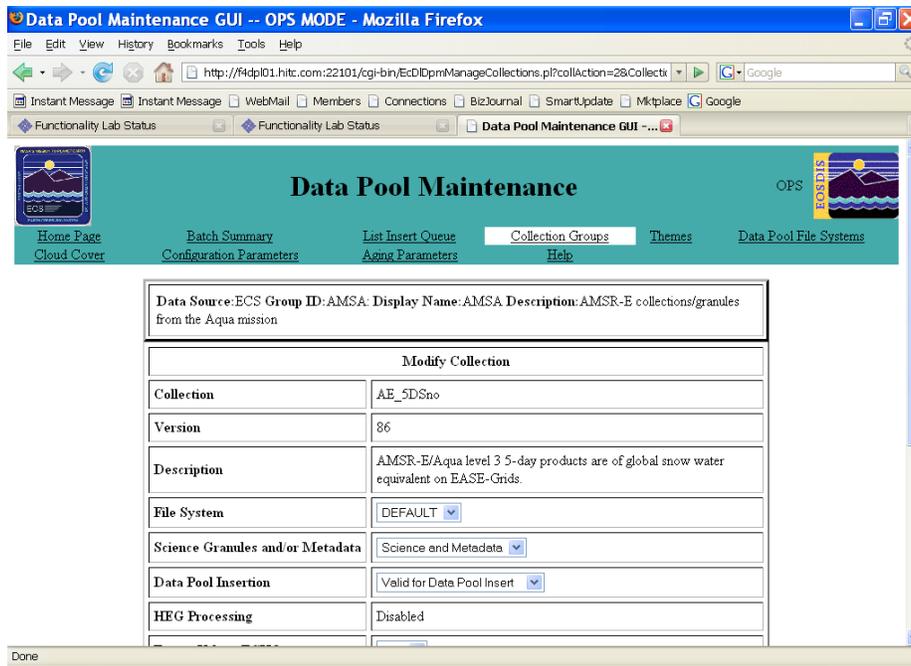
- 2 Click on the **Collection Groups** link.
  - The Collection Group page is displayed.
- 3 Click on the **Group ID** link for the ECS collection group to which the collection is to be added.
  - The **List of Collections** page is displayed.
- 4 Click on the **Add New Collection** link at the bottom of the **List of Collections** page.
  - The **Collections Not in Data Pool** page is displayed (see Figure 14.9-20).
- 5 Click on the link in the **Collection (Click on collection to add)** column of the collection to be added to the collection group.
  - The **Add New Collection** page is displayed (see Figure 14.9-21).

**NOTE:** On the ECS collection version of the **Add New Collection** page the **Collection**, **Version**, **Description**, and **Spatial Search Type** fields are already filled in using information from the Data Pool database.

- 6 To select a file system option (if applicable), click on the appropriate choice from the **File System** option list.
- 7 To select a Science Granules and/or Metadata option, click on the appropriate choice from the Science Granules and/or Metadata option list.
  - **Science and Metadata** is the default option.
- 8 To select a data pool insertion option, click on the appropriate choice from the Data Pool Insertion option list.
  - **Invalid for data pool** is the default option.
  - **Valid for data pool** must be selected if the collection is to be eligible for insertion into the Data Pool.
- 9 To select an ECHO export option, click on the appropriate choice from the **Export Urls to ECHO** option list.
  - **No** is the default option.
  - **Yes** must be selected if collection URLs are to be eligible for export to ECHO.
- 10 If the collection is to be linked to a quality summary web site, enter the URL in the **Quality Summary Url** text entry field.
  - Ensure that **http://** is included in the **Quality Summary Url** text entry field.
- 11 To select a global coverage option, click on the appropriate choice from the **Global Coverage** option list.
  - **Yes** indicates no spatial searches for the collection.
  - **No** indicates that spatial searches are allowed for the collection.
- 12 To select a day/night coverage option, click on the appropriate choice from the **Day/Night Coverage** option list.
  - **Yes** indicates that day/night searches are allowed for the collection.

- **No** indicates that the collection is excluded from day/night searches.
- 13** To select a 24-hour coverage option, click on the appropriate choice from the **24 Hour Coverage** option list.
- **Yes** indicates that the collection is excluded from time of day searches.
  - **No** indicates that time of day searches are allowed for the collection.
- 14** To select a cloud cover type and source option, click on the appropriate choice from the **Cloud Cover Type & Source** option list.
- All cloud cover information in the Data Pool database is listed.
  - If the desired cloud cover type/source is not listed, it can be entered using the procedure **Add New Cloud Cover Information** (previous section of this lesson).
- 15** To view details of cloud cover type and source, click on the **View Details** link adjacent to the **Cloud Cover Type & Source** option list.
- 16** Click on the **Apply Change** button.
- The new collection information is entered in the Data Pool database.
  - The **List of Collection** page is displayed with the new collection information.
- 

As part of managing the Data Pool storage and retention of data, making adjustments based on experience and/or changes in demand, it may be desirable to modify a collection. The modification may mean specifying that metadata only may continue to be inserted and science granules may no longer be inserted, or declaring the collection no longer valid for data pool insertion at all. Figure 14.9-22 shows the **Modify Collection Group** page that a full-capability operator obtains by clicking on the **Modify Collection Group** link at the bottom of the Collection Groups page. On the **Modify Collection Group** page, the full-capability operator can modify the Display Name and/or Description of one or more collection groups then mark the group for change by checking the box(es) in the last column of the table. The operator implements the change(s) with a click on the **Apply Change** button at the bottom of the page.



**Figure 14.9-22. Modify Collection Page**

### 14.9.8.6 Modify an ECS Collection

- 1 Launch the **DPM GUI**.
  - The **DPM GUI Home Page** is displayed.
- 2 Click on the **Collection Groups** link.
  - The Collection Group page is displayed.
- 3 Click on the **Group ID** link for the ECS collection group to which the collection is to be added.
  - The **List of Collections** page is displayed.
- 4 Click on the desired link found in the **Collection (Click for Detail Information)** column.
  - The **Detail Information** page is displayed.
- 5 Click on the **Modify Collection** link.
  - The **Modify Collection** page is displayed (see Figure 14.9-22).

**NOTE:** On the ECS collection version of the **Modify Collection** page, the **Collection**, **Version**, **Description**, **Spatial Search Type**, and **HEG Processing** fields cannot be edited.

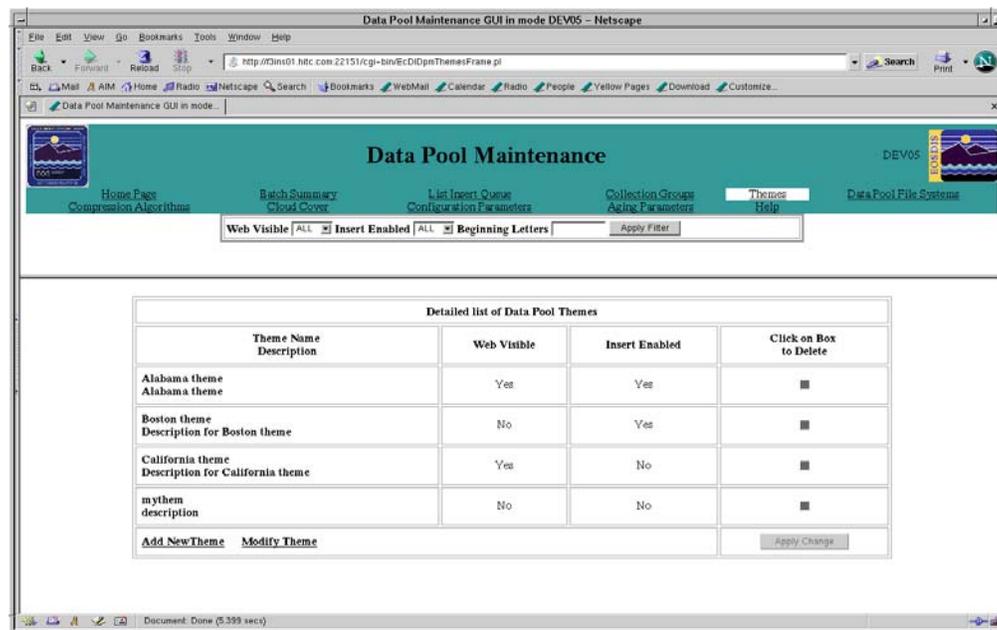
- 6 To select a file system option (if applicable), click on the appropriate choice from the **File System** option list.

- 7 To select a Science Granules and/or Metadata option, click on the appropriate choice from the Science Granules and/or Metadata option list.
  - **Science and Metadata** is the default option.
- 8 To select a data pool insertion option, click on the appropriate choice from the Data Pool Insertion option list.
  - **Invalid for Data Pool** is the default option.
  - **Valid for Data Pool** must be selected if the collection is to be eligible for insertion into the Data Pool.
- 9 To select an ECHO export option, click on the appropriate choice from the **Export Urls to ECHO** option list.
  - **No** is the default option.
  - **Yes** must be selected if collection URLs are to be eligible for export to ECHO.
- 10 If the collection is to be linked to a quality summary web site, enter the URL in the **Quality Summary Url** text entry field.
  - Ensure that **http://** is included in the **Quality Summary Url** text entry field.
- 11 To select a global coverage option, click on the appropriate choice from the **Global Coverage** option list.
  - **Yes** indicates no spatial searches for the collection.
  - **No** indicates that spatial searches are allowed for the collection.
- 12 To select a day/night coverage option, click on the appropriate choice from the **Day/Night Coverage** option list.
  - **Yes** indicates that day/night searches are allowed for the collection.
  - **No** indicates that the collection is excluded from day/night searches.
- 13 To select a 24-hour coverage option, click on the appropriate choice from the **24 Hour Coverage** option list.
  - **Yes** indicates that the collection is excluded from time of day searches.
  - **No** indicates that time of day searches are allowed for the collection.
- 14 To select a cloud cover type and source option, click on the appropriate choice from the **Cloud Cover Type & Source** option list.
  - All cloud cover information in the Data Pool database is listed.
  - If the desired cloud cover type/source is not listed, it can be entered using the procedure **Add New Cloud Cover Information** (previous section of this lesson).
- 15 To view details of cloud cover type and source, click on the **View Details** link adjacent to the **Cloud Cover Type & Source** option list.
- 16 Click on the **Apply Change** button.
  - The new collection information is entered in the Data Pool database.

- The **List of Collection** page is displayed with the new collection information.

### 14.9.9 Themes

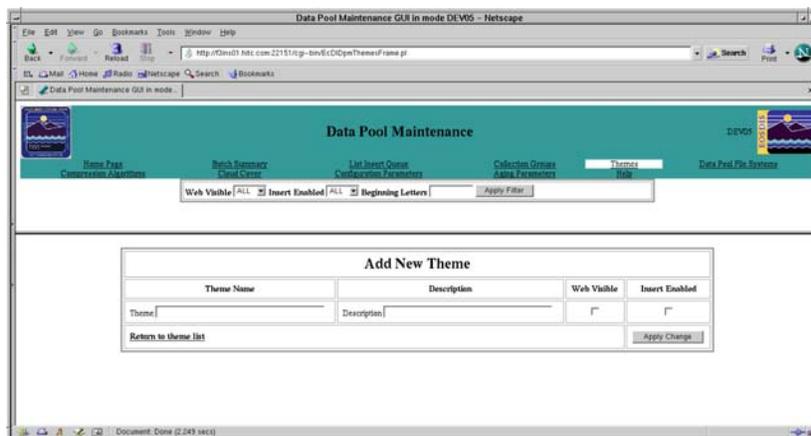
Figure 14.9-23 illustrates the **Detailed List of Data Pool Themes** page. The page allows either the full-capability operator or the limited-capability operator to view a list of themes in alphabetical order. The list can be filtered using the option lists for **Web Visible** and **Insert Enabled**, and/or typing **Beginning Letters** (of the theme name). After selecting the options, a click on the **Apply Filter** button displays the filtered list of themes. The full-capability operator can delete a theme by selecting the corresponding check box and clicking on the **Apply Change** button. There are **Add New Theme** and **Modify Theme** links providing access to pages for managing those functions. After the operator completes adding a new theme or modifying a theme by clicking on the **Apply Change** button at the pages for those functions, the changes take effect in the Data Pool database and the changes are also reflected in the **Detailed List of Data Pool Themes** page.



**Figure 14.9-23. Detailed List of Data Pool Themes Page**

If a full-capability operator clicks on the **Add New Theme** link of the **Detailed List of Data Pool Themes** page shown in Figure 14.9-23, the **Add New Theme** page (Figure 14.9-24) is displayed. To specify a theme, the operator types information in the fields provided for the purpose. **Theme Name** and **Description** are text entry fields. There are check boxes to specify whether the theme is valid for various options (i.e., **Web Visible** and **Insert Enabled**) or not. A

click on the **Apply Change** button commits the changes to the Data Pool database and updates the **Detailed List of Data Pool Themes** page shown in Figure 14.9-23.



**Figure 14.9-24. Add New Theme Page**

Users may search the Data Pool for data associated with themes. As data are inserted into the Data Pool, it is possible to associate the data with themes. The **DPM GUI Detailed List of Data Pool Themes** page permits both full-capability and limited-capability operators users to view a list of Data Pool themes. In addition it has links that allow full-capability operators to add new themes, modify existing themes, or delete themes.

### 14.9.9.1 View a List of Themes

- 1 Launch the **DPM GUI**.
  - The **DPM GUI Home Page** is displayed.
- 2 Click on the **Themes** link.
  - The **Detailed List of Data Pool Themes** page is displayed (see Figure 14.9-23).
- 3 Observe data displayed on the **Detailed List of Data Pool Themes** page.
  - The table on the Detailed List of Data Pool Themes page has columns containing the following types of Data Pool file system information:
    - **Theme Name/Description**
    - **Web Visible**
    - **Insert Enabled**
    - **Click on Box to Delete** (containing a check box to mark the theme for deletion)

- There are theme filters (and associated **Apply Filter** button) for displaying data on the **Detailed List of Data Pool Themes** page depending on whether or not the theme.
    - Are web visible
    - Are insert enabled
    - Have certain letters at the beginning of the theme name.
  - Filters can be applied individually or in any combination.
  - The following links are available on the **Detailed List of Data Pool Themes** page:
    - **Add New Theme**
    - **Modify Theme**
  - There is an **Apply Change** button at the bottom of the page to implement the deletion of selected themes.
- 4 To filter data displayed on the **Detailed List of Data Pool Themes** page use the **Filter a List of Themes** procedure (subsequent section of this lesson).
  - 5 If data displayed on the Detailed List of Data Pool Themes page were filtered, return to Step 3.
- 

The procedure to **Filter a List of Themes** is subordinate to other theme-related procedures (i.e., **View a List of Themes** , **Modify a Theme** , and **Delete a Theme** ). Both full-capability and limited-capability operators users may filter data displayed on the Themes pages to which they have access.

#### **14.9.9.2 Filter a List of Themes**

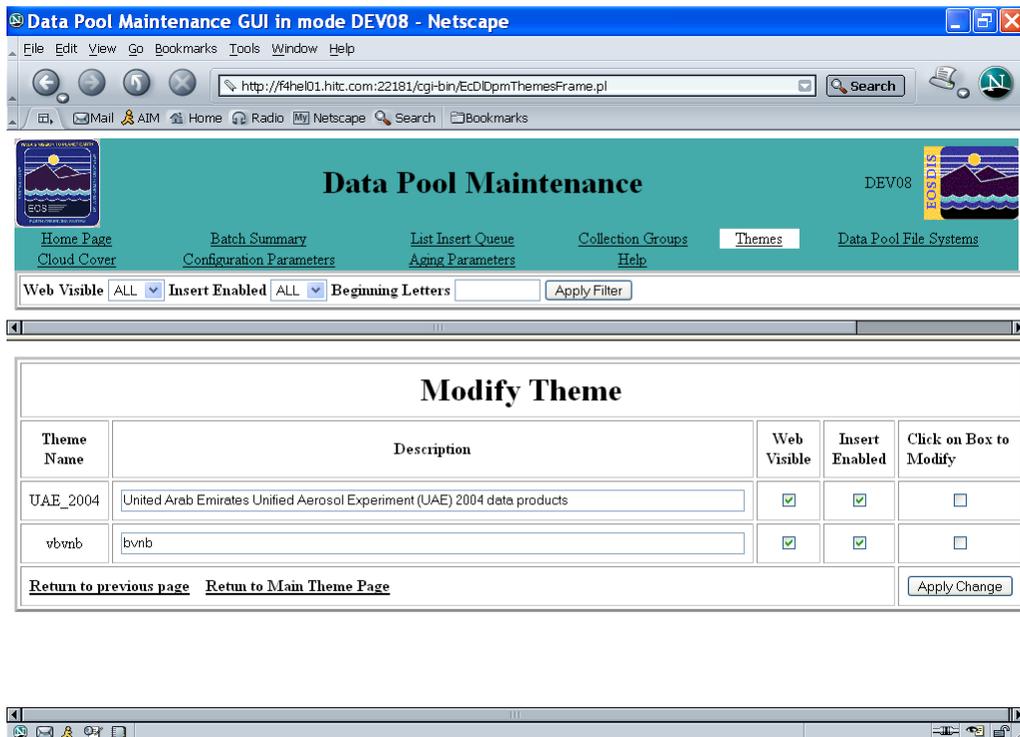
---

- 1 To filter data displayed on one of the **Themes** pages on the basis of whether or not the themes are enabled for web drill-down, insertion in to the Data Pool, WCS accessibility, WMS accessibility, file format preconversion first click on one of the option buttons (in the filter area of the page):
  - **Web Visible**
  - **Insert Enabled**
- 2 To continue the process of selecting a theme filter option click on the appropriate choice from the option list.
  - **Yes** (View all themes enabled for the selected option)
  - **No** (View all themes disabled for the selected option)
  - **ALL** (View all themes regardless of whether the selected option is enabled or disabled)
- 3 Repeat Steps 1 and 2 as necessary to select additional filter options.

- 4 To select a theme filter option on the basis of the beginning letters of the theme (if applicable) type the beginning letter(s) of the theme in the Beginning Letters text entry field.
  - 5 To implement the filtering of data displayed on one of the Themes pages click on the **Apply Filter** button.
    - The page is displayed with the filtered theme information.
  - 6 Return to the procedure that specified the **Filter a List of Themes** procedure.
- 

Full-capability operators can use the **DPM GUI** to modify a theme. This can be useful if, for example, it is noted that access frequency for granules referencing a theme has declined to the point that the thematic collection should be removed from the Data Pool, but there are a few web users that still use it. In that case, it may be appropriate to change the description of the theme to alert users that the theme will be phased out soon.

If a full-capability operator clicks on the **Modify Theme** link of the **Detailed List of Data Pool Themes** page shown in Figure 14.9-23, the **Modify Theme** page (Figure 14.9-25) is displayed. **Theme Name** is the only field that is not editable. The operator can modify the description of a theme by simply retyping in the text area. The operator also can change the various options (i.e., **Web Visible** and **Insert Enabled**) by selecting or deselecting the appropriate boxes. A click on the **Apply Change** button commits the changes to the Data Pool database and updates the **Detailed List of Data Pool Themes** page shown in Figure 14.9-23.



**Figure 14.9-25. Modify Theme Page**

### 14.9.9.3 Modify a Theme

---

- 1 Launch the **DPM GUI**.
    - The **DPM GUI Home Page** is displayed.
  - 2 Click on the **Themes** link.
    - The **Detailed List of Data Pool Themes** page is displayed.
  - 3 Click on the **Modify Theme** link.
    - The **Modify Theme** page is displayed (see Figure 14.9-25).
  - 4 To filter data displayed on the **Modify Theme** page use the **Filter a List of Themes** procedure.
  - 5 To change the description of a theme (if applicable) type the desired description in the **Description** field for the theme name.
    - The **Description** may have no more than 255 characters.
  - 6 To change the theme from enabled to disabled (or vice versa) for one of the options (i.e., **Web Visible, Insert Enabled**) (if applicable) click on the toggle button box in the corresponding column in the row for the theme.
    - A check mark in the box indicates that the theme is enabled for the corresponding option.
    - The absence of a check mark in the box indicates that the theme is not enabled for the corresponding option.
  - 7 Click in the **Click on Box to Modify** check box at the end of the row containing the theme to be modified.
    - The selected theme is marked for modification.
  - 8 Repeat Steps 5 through 7 as necessary for any additional themes to be modified.
  - 9 To implement the modification of theme(s) click on the **Apply Change** button.
    - The theme information is entered in the Data Pool database.
    - The Detailed List of Data Pool Themes page is displayed with the modified theme information.
- 

Full-capability operators (only) can use the following procedure to add a theme:

### 14.9.9.4 Add a Theme

---

- 1 Launch the **DPM GUI**.
  - The **DPM GUI Home Page** is displayed.
- 2 Click on the **Themes** link.
  - The **Detailed List of Data Pool Themes** page is displayed.
- 3 Click on the **Add New Theme** link.
  - The **Add New Theme** page is displayed (see Figure 14.9-24).

- There are theme filters (and associated **Apply Filter** button) for displaying data on the **Modify Theme** page.
    - The filters serve no real function on this page (there is nothing to filter).
  - There is an **Apply Change** button at the bottom of the page for implementing changes.
  - The following link is available: **Return to theme list**.
- 4 Type a unique name for the theme in the **Theme Name** text entry field.
- The Theme Name may have no more than 40 characters.
  - The Theme Name may not start with a number.
  - The Theme Name may not duplicate the name of a collection, an ESDT, or another theme.
- 5 To enter a description of the theme type the desired description in the **Description** text entry field.
- The **Description** may have no more than 255 characters.
- 6 To enable the theme for one of the options (i.e., **Web Visible, Insert Enabled**) (if applicable) click on the toggle button box in the corresponding area of the form.
- A check mark in the box indicates that the theme is enabled for the corresponding option.
  - The absence of a check mark in the box indicates that the theme is not enabled for the corresponding option.
- 7 Repeat Step 6 as necessary to enable the theme for additional options.
- 8 Click on the **Apply Change** button.
- The new theme information is entered in the Data Pool database.
  - The Detailed **List of Data Pool Themes** page is displayed with the new theme information.
- 

Full-capability operators (only) can use the following procedure to delete a theme:

#### 14.9.9.5 Delete a Theme

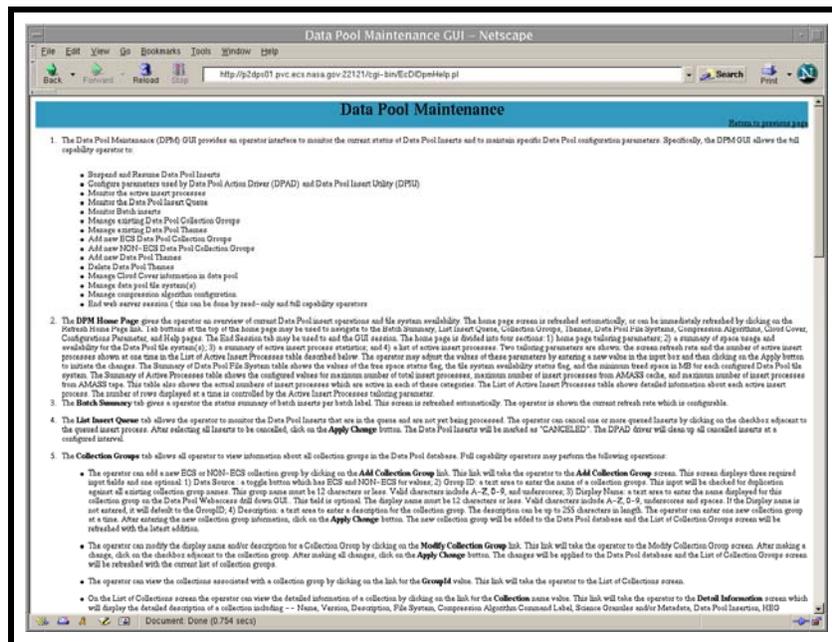
---

- 1 Launch the **DPM GUI**.
  - The **DPM GUI Home Page** is displayed.
- 2 Click on the **Themes** link.
  - The **Detailed List of Data Pool Themes** page is displayed.
- 3 To filter data displayed on the **Detailed List of Data Pool Themes** page use the **Filter a List of Themes** procedure (previous section of this lesson).

- 4 Click in the **Click on Box to Delete** check box at the end of the row containing the theme to be deleted.
  - The selected theme is marked for deletion.
- 5 Repeat Step 4 as necessary for any additional themes to be deleted.
- 6 To implement the deletion of theme(s) click on the **Apply Change** button.
  - The theme deletion information is entered in the Data Pool database.
  - The **Detailed List of Data Pool Themes** page is displayed with the modified theme information.

### 14.9.10 Help

Figure 14.9-26 illustrates the **Help** page that allows both full-capability and limited-capability operators to obtain information on using the **DPM GUI**. The **Help** page describes the features of the other pages of the **DPM GUI**.



**Figure 14.9-26. Help Page**

## 14.10 Working with Data Pool Scripts

There are several Data Pool scripts that provide the operator with utilities or applications for managing Data Pool maintenance. These include:

- Update Granule Utility: a script to update granule expiration (extend the period of retention) and, optionally, retention priority, for selected science granules already in the Data Pool. For Synergy III, the utility allows operators to extend the expiration of all granules associated with a particular thematic collection or upgrade their expiration priority.
- Data Pool Cleanup Utility: a script to remove expired granules from Data Pool disks and inventory and free up space in the Data Pool. For Synergy III, it allows operators to clean up a thematic collection. It permits unlinking granules from a thematic collection, and permits data pool removal of granules that belong to a given thematic collection if they meet the cleanup criteria specified by the other command line parameters.
- Data Pool Access Statistics Utility (DPASU): scripts for processing available Data Pool access logs to extract and summarize statistics on FTP and web access to data in the Data Pool. The statistics are stored in the Data Pool database to be used for producing tabular reports that can be loaded into a spreadsheet program for sorting, graphing, or other manipulation.
- Batch Insert Utility: a command-line utility for inserting non-ECS data and ECS data that are already in the archive into the Data Pool.
- Most Recent Data Pool Inserts Utility: normally runs as a cron job that lists the most recent additions to the Data Pool. If necessary, the utility can be run from the command line.
- Data Pool Collection-to-Group Remapping Utility: a command-line utility interface that is used for reassigning a Data Pool collection to a collection group other than the one to which it was originally assigned.
- Data Pool Move Collections Utility: a command-line interface to move collections from one file system to another. The file system move is implemented as a copy operation to the new collection directory, followed by removal of the old collection directory and its contents.
- Data Pool Hidden Scrambler Utility: a command-line utility for making the transition to or renaming (with encrypted names) hidden directories for order-only granules in the Data Pool.

Table 14.10-1 provides an Activity Checklist for Data Pool Scripts addressed in this section.

**Table 14.10-1. Data Pool Scripts - Activity Checklist**

| Order | Role               | Task                                                                                       | Section       | Complete? |
|-------|--------------------|--------------------------------------------------------------------------------------------|---------------|-----------|
| 1     | Archive Technician | Extend the Retention for Selected Science Granules Using the Update Granule Utility        | (P) 14.10.1.1 |           |
| 2     | Archive Technician | Invoke the Data Pool Cleanup Utility Manually                                              | (P) 14.10.2.1 |           |
| 3     | Archive Technician | Specify Data Pool Access Statistics Rollup Start Time and DPASU Execution with <i>cron</i> | (P) 14.10.3.1 |           |
| 4     | Archive Technician | Specify Data Pool Access Statistics Utility Execution from the Command Line                | (P) 14.10.3.2 |           |
| 5     | Archive Technician | Archive Access Statistics Using the Data Pool Archive Access Statistics Data Utility       | (P) 14.10.3.3 |           |
| 6     | Archive Technician | Delete Access Statistics Using the Data Pool Archive Access Statistics Data Utility        | (P) 14.10.3.4 |           |
| 7     | Archive Technician | Restore Access Statistics Using the Data Pool Archive Access Statistics Data Utility       | (P) 14.10.3.5 |           |
| 8     | Archive Technician | Perform Batch Insert of Data Into the Data Pool                                            | (P) 14.10.4.1 |           |
| 9     | Archive Technician | Running the Most Recent Data Pool Inserts Utility                                          | (P) 14.10.5.1 |           |
| 10    | Archive Technician | Running the Data Pool Collection-to-Group Remapping Utility                                | (P) 14.10.6.1 |           |
| 11    | Archive Technician | Running the Data Pool Move Collections Utility                                             | (P) 14.10.7.1 |           |
| 13    | Archive Technician | Running the Data Pool Hidden Scrambler Utility in Rename Mode                              | (P) 14.10.8.1 |           |

### 14.10.1 Extending the Period of Retention for Granules in the Data Pool

We have seen that a change in user interest in data from a particular location may arise because of unusual circumstances (e.g., weather, natural event) and that as a result it may be desirable to extend the period of retention in a Data Pool insert subscription. Such circumstances may also make it desirable to retain certain data already in the Data Pool for a longer period of time than originally specified. Data Pool maintenance personnel can run the Update Granule Utility to update the expiration date for selected science granules. This utility also permits modifying a granule's retention priority, which can affect how soon the Data Pool Cleanup Utility removes the granule from the Data Pool.

The Update Granule Utility permits updating granule information using a command-line interface. The following options may be used:

**-noprompt:** suppressing prompts and detailed information display.

**-theme:** specifies a valid theme name (i.e., a character string that matches an existing theme name in the Data Pool inventory).

A single granule may be updated using manual input. Multiple granule updates can be handled using an input file containing a list of granules to be updated, or by specifying a theme. The input file must be structured as a list of granules to be processed, one per line. Each line contains a granule ID (reflecting the Sybase entry in the Data Pool database), an expiration date, and (optionally) a new retention priority, the value of which may be null (i.e., left blank). The fields are separated by a single space. There should be no blank lines before the first or after the last granule in the list. The file contents should be similar to the following example.

```
GRANULE_ID_4832 EXP_DATE=2002/2/28 RETENTION=255
GRANULE_ID_4876 EXP_DATE=2002/2/28 RETENTION=200
GRANULE_ID_4883 EXP_DATE=2002/2/28 RETENTION=
GRANULE_ID_4937 EXP_DATE=2002/2/28
GRANULE_ID_4966 EXP_DATE=2002/2/28 RETENTION=255
```

When updating the granules associated with a theme, the utility updates the expiration date of a granule associated with that theme if and only if the new expiration date specified is later than the current expiration date of the granule. It updates the retention priority of a granule associated with that theme if and only if the new expiration priority specified is higher than the current retention priority of the granule.

The Update Granule Utility connects to the Data Pool database and calls Sybase stored procedures to perform the requested updates. Therefore, the utility runs only if the Data Pool database server is running and if the database is available. It also assumes the stored procedures are present. The Granule Update Utility may be run as a background process, with suppression of all warning/error messages and confirmation prompts if desired. When the utility is run, it writes information, any warnings, any errors, and messages to a log file about granules as they are updated.

Assume that a user contacts the DAAC with a request to update (extend) the expiration date to the end of February 2002 for selected granules in the Data Pool, and provides a list of granule IDs for the selected granules. The following procedure is applicable.

#### **14.10.1.1 Extend the Retention for Selected Science Granules Using the Update Granule Utility**

---

- 1 Log in at the machine on which the Update Granule Utility is installed (e.g., e4dpl01, l4dpl01, n4dpl01).
- 2 To change to the directory for starting the Update Granule Utility, type:  
**cd /usr/ecs/<MODE>/CUSTOM/utilities** and then press the **Return/Enter** key.
  - The working directory is changed to **/usr/ecs/<MODE>/CUSTOM/utilities**.
- 3 At the UNIX prompt, type the command to start the Update Granule Utility, in the form **EcDIUpdateGranule.pl <command line parameters>** then press the **Return/Enter** key.
  - For this exercise, use the following command:

**EcDIUpdateGranule.pl <MODE> -file <tr\_list>**

The first command-line parameter specified must be <MODE>, a valid, existing Data Pool mode (e.g., OPS, TS1, TS2).

- The following six permutations are valid command-line entries for initiating the Update Granule utility:
  - **EcDIUpdateGranule.pl <MODE> -file <filename>** (to update granules listed in an input file named <filename> while displaying all summary information to the operator, and asking confirmation of the update).
  - **Ec DIUpdateGranule.pl <MODE> -grnid <granuleID> -exp <expiration date> [-ret <retention priority>]** (to update a granule identified by its <granuleID> with a new expiration date and, optionally, a new retention priority while displaying all summary information to the operator, and asking confirmation of the update).
  - **EcDIUpdateGranule.pl <MODE> -noprompt -file <filename>** (to update granules listed in an input file named <filename> with no confirmation or information displayed to the operator).
  - **EcDIUpdateGranule.pl <MODE> -noprompt -grnid <granuleID> -exp <expiration date> [-ret <retention priority>]** (to update a granule identified by its <granuleID> with a new expiration date and, optionally, a new retention priority with no confirmation or information displayed to the operator).
  - **EcDIUpdateGranule.pl <MODE> -theme <themename> -exp <expiration date> [-ret <retention priority>]** (to update a granule identified by its <themename> with a new expiration date and, optionally, a new retention priority while displaying all summary information to the operator, and asking confirmation of the update).
  - **EcDIUpdateGranule.pl <MODE> -noprompt -theme <themename> -exp <expiration date> [-ret <retention priority>]** (to update a granule identified by its <themename> with a new expiration date and, optionally, a new retention priority with no confirmation or information displayed to the operator).

- The utility executes and displays a confirmation prompt similar to the following:

**You are about to start updating granules.**

-----

**Total number of granules: 11**

**Total size of granules: 8.61339673772454 MB**

**Do you wish to continue processing the update? [y/n]y**

4 Type y and then press the **Return/Enter** key.

- The utility completes execution and displays output similar to the following:

**Update completed.**

**Please check the database to ensure proper completion.**

## Update took 2 seconds to complete

### Gracefully exiting...

- To check the database, have the Database Administrator use isql commands on the Data Pool database host to query the DIGranuleExpirationPriority table. It may also be useful to examine the Update Granule Utility log file to determine whether there were any problems with the execution. To examine that log file, go to Steps 5 and 6.
- 5** To change to the directory containing the Update Granule Utility log file and other log files, type the following:  
**cd /usr/ecs/<MODE>/CUSTOM/logs** and then press the **Return/Enter** key.
- The working directory is changed to /usr/ecs/<MODE>/CUSTOM/logs.
- 6** To examine the Update Granule Utility log file, type **pg EcDIUpdateGranule.log** and then press the **Return/Enter** key.
- The first page of the log file is displayed; additional sequential pages can be displayed by pressing the **Return/Enter** key at the **:** prompt. It is also possible to search forward by typing **/<search item>**. For example, to search the log file for reference to one of the granules updated, type **/<granuleID>** and then press the **Return/Enter** key.
  - Although this procedure is written for the **pg** command, any UNIX editor or visualizing command (e.g., **vi**, **view**, **more**, or **tail**) can be used to review the log.
  - The log entries have a time and date stamp; about the time that the update was executed, the log should show entries similar to the following:  
**2001/11/29 15:52:50.814:Update started...**  
**2001/11/29 15:52:50.964:Granule 4871 updated**  
**2001/11/29 15:52:51.083:Granule 4954 updated**  
**2001/11/29 15:52:51.212:Granule 4955 updated**  
**2001/11/29 15:52:51.346:Granule 4956 updated**  
**2001/11/29 15:52:51.409:Granule 4957 updated**  
**2001/11/29 15:52:51.688:Granule 4959 updated**  
**2001/11/29 15:52:51.778:Granule 4961 updated**  
**2001/11/29 15:52:51.998:Granule 4963 updated**  
**2001/11/29 15:52:52.107:Granule 4963 updated**  
**2001/11/29 15:52:52.394:Granule 4964 updated**  
**2001/11/29 15:52:52.569:Granule 4966 updated**  
**2001/11/29 15:52:52.590:Update ended.**  
**2001/11/29 15:52:52.608:This update took approximately 2 seconds**
  - If the log indicates errors or warnings, it may be necessary to correct the condition identified in the entry (e.g., edit the data in the granule list in the input file) and run the utility again. Specific error entries depend on the error that occurred; examples of error entries in the log may be similar to the following:  
**4959 AST\_04 1 0.03962299 Jul 30 2001 12:00AM Feb 2 1998 11:59PM**  
**255 2**

**Warning: The new expiration date for the above granule is less than or equal to today's date.**

**DATABASE ERROR:Server message number=120001 severity=16 state=1**

**line=33 server= x4oml01\_srvr procedure=ProcSelectGrExpiration**

**text=ProcSelectGrExpiration: Requested granule id not in database.**

**2001/11/29 15:50:36.647:Sybase Lookup ==> ERRORS WERE FOUND WITH GRANULE "4654". (It may not exist or contains the wrong format).**

**2001/11/29 15:50:36.663:**

**EcDIUpdateGranule\_1.pl aborted due to insufficient processing data: All the granule triplets had errors.**

---

### 14.10.2 Running the Data Pool Cleanup Utility

The Data Pool Cleanup utility provides a mechanism by which the ECS Operations Staff can remove granules and their associated metadata and browse files from the Data Pool disks and corresponding Data Pool database inventory. Qualification of a granule for cleanup is usually based on two criteria: expiration date/time and retention priority. If a granule's expiration date is prior to midnight of the previous day (plus or minus a specified optional offset), and its priority is less than a specified threshold, it will be eligible for removal. ECS Operations Staff may wish to run Data Pool Cleanup at regular intervals via a cron job, removing granules which have expired and have a retention priority below a certain threshold. With the proper options, this would enable ECS Operations Staff to prevent the Data Pool file systems from filling up with little to no intervention by the Operator.

In addition to the nominal, non-interactive scenario outlined above, ECS Operations Staff may wish to run the utility manually, perhaps with more control over what granules are removed. To this end, the Operator may provide a file to the Data Pool Cleanup utility containing either geoids (Datatype:Shortname.Versionid:dbID entries) or Data Pool granule IDs of the granules they wish to remove. In addition, they may desire to remove from the Data Pool any granules which are scheduled for deletion from the ECS Archive. The Data Pool Cleanup utility can automatically find and remove such granules, optionally along with expired or specified granules. The Data Pool Cleanup utility can also be run in "validation" mode to clean up orphan or phantom granules, which are present on disk or in the database, but not both. These inconsistencies accumulate over time for many reasons, such as granules being cleaned up by Order Manager, and must be removed periodically. The Cleanup utility will also remove "Most Recent Data Pool" utility files prefaced with naming convention *DPRecentInserts* that exist in the top level and collection-level directories of each Data Pool file system.

When a granule is removed from Data Pool, ECHO must be informed that the granule is no longer available for ftp download. The Data Pool Cleanup utility provides two options for doing this. First, the utility can be run in "deleteall" mode, which will remove the granules and export their deletion all at once. Since this would likely leave a short window between the granule being deleted, and ECHO processing the deletion, the utility offers a second option. The Data Pool Cleanup utility can be run in "predelete" mode, which will mark the granules for deletion, and export their deletion to ECHO, but not actually complete the deletion. The utility must then

be run in “finishdelete” mode to complete the deletion. Splitting the cleanup up into two operations allows ECS Operations Staff to remove the granules from the ECHO list of granules available for FTP download, and then delete them at a later time to minimize the likelihood of broken links.

If as a result of granules being deleted by the Data Pool Cleanup utility, the free space in a file system flagged as full is caused to exceed an operator configured limit, the utility will set the freeSpaceFlag in the DIFileSystems table. The filesystem on which a given granule resides is transparent to the Operator, so the granules being cleaned up or validated may reside on any number of different file systems. If a file system is marked as unavailable, the utility will automatically skip the cleanup or validation of any granules belonging to collections residing on that file system, and log a message explaining why the collection was skipped in the log file. Table 14.10-2 list the parameters and their descriptions used in the CleanupDataPool script.

**Table 14.10-2. Command Line Parameters (1 of 3)**

|                                           |                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------------------|------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| noprompt                                  | No                                                               | Suppresses all confirmations and warnings normally displayed on the screen. Requires no value. May be used with any other option.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Parameters specific to performing cleanup |                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| echomode                                  | Yes<br>(for cleanup and clean/validate, not for validation only) | Specifies the method by which the Cleanup utility will report deletion candidates to the ECS Clearing House (ECHO). The <b>echomode</b> parameter can take 3 values: <b>predelete</b> , <b>finishdelete</b> or <b>deleteall</b> . A value of <b>predelete</b> signifies that the cleanup utility will only build the list of items to clean up from the Data Pool and will report them to ECHO through the BMGT utility. No actual data will be cleaned up from the disks or database inventory using <b>predelete</b> . A value of <b>finishdelete</b> signifies that the cleanup utility will now delete all of the data that was marked for deletion during a previous run with the <b>predelete</b> parameter. A third value of <b>deleteall</b> will indicate that the Cleanup utility should build its list of items to cleanup, actually clean them up and to <i>also</i> notify ECHO via the BMGT utility. The <b>deleteall</b> command does not allow for a time lag between Cleanup deleting the granules and ECHO performing its own clean up of URLs. The <b>predelete/finishdelete</b> run sequence can be viewed as a logical run done in two parts. The normal sequence will be to run Cleanup first with <b>predelete</b> and then with <b>finishdelete</b> . Note that an <b>echomode</b> parameter with a value of <b>finishdelete</b> can only be specified by itself since the list of items to delete will have already been determined by the previous run. If a <b>predelete</b> run is performed, the subsequent run <i>must</i> specify <b>finishdelete</b> in order to perform the actual deletions. This requirement is enforced by the utility to avoid operator error and end-user confusion. The values of <b>predelete</b> and <b>deleteall</b> may be used with each of the other parameters specific to performing Cleanup except themexref (see themexref parameter description). |

**Table 14.10-2. Command Line Parameters (2 of 3)**

| offset     | No | Specifies hours before (negative) or after (positive) midnight of the previous day from which to delete. Defaults to zero.<br>(Some examples:<br><b>-offset 5</b> would delete all granules which had expired as of 5 AM of the current day;<br><b>-offset -5</b> would delete all granules which had expired as of 7 PM yesterday<br><b>-offset 72</b> would delete all granules which will be expiring in 72 hours measured from the previous day's midnight).                                                                                                                                                                                                                   |
|------------|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| limit      | No | Specifies limiting value used for determining which granules will be deleted. Will delete all granules with priority less than or equal to the specified limit. Must be within the range 1–255, 1 being the lowest priority and 255 being the highest priority. Defaults to value specified in configuration file.                                                                                                                                                                                                                                                                                                                                                                 |
| file       | No | Specifies name of file containing Data Pool granule ids to be deleted. May not be used with any other options other than the <i>noprompt</i> option.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| geoidfile  | No | Specifies the name of the file containing geoids which are a combination of science type, esdt short name and version id and ECS Inventory database id. Granules in this file whose ECS id match those in the data pool are candidates for data pool cleanup if specified by this option. May not be used in conjunction with any other options other than the <i>noprompt</i> option. The input value for this parameter is logically defined to be the output of any phase 1 (EcDsBulkDelete.pl) granule deletion run. This will cause the Data Pool cleanup utility to clean up any Inventory granules found in the geoid input file to be removed from the Data Pool database. |
| ecsgrandel | No | Indicates that only granules removed in the ECS system from the inventory will be removed from the data pool if they exist. This option may not be used in conjunction with any other options other than the <i>noprompt</i> option. No other cleanup will occur.                                                                                                                                                                                                                                                                                                                                                                                                                  |
| theme      | No | Specifies the name of a theme for which cleanup is to be performed. The Cleanup Utility will clean up granules that would otherwise qualify for cleanup only if the granules are associated with that theme, and remove the granules entirely if they are not associated with any other theme, otherwise only remove the cross references with that theme. The theme name must be enclosed in quotes (").                                                                                                                                                                                                                                                                          |
| themexref  | No | Specifies the name of a theme all cross-references of which are to be removed from the Data Pool inventory. This option is specified to remove the theme cross references only. It does not remove any granules. This command line option cannot be used with any other options other than the <i>noprompt</i> option. The theme name must be enclosed in quotes (").                                                                                                                                                                                                                                                                                                              |

**Table 14.10-2. Command Line Parameters (3 of 3)**

| Parameters specific to performing validation |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------------------------------------|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| orphan                                       | No | <p>Specifies that Data Pool validation be performed by performing orphan checking. Orphans are defined as files that are on disk but are no longer part of the Data Pool inventory in the database.</p> <p>The Data Pool inventory validation function will remove all orphan files and links from the Data pool disks unless <i>nofix</i> option was specified.</p> <p>(In order to perform validation either <i>orphan</i> or <i>phantom</i> or both <b>must</b> be provided on command line.)</p>                            |
| phantom                                      | No | <p>Specifies that phantom checking be performed. Phantoms are defined as files that exist in the Data Pool inventory in the database, but do not exist on disk.</p> <p>The Data Pool inventory validation function will remove granules affected by any phantom from the inventory and all its remaining files and links from the Data pool disks unless <i>nofix</i> option was specified.</p> <p>(In order to perform validation either <i>orphan</i> or <i>phantom</i> or both <b>must</b> be provided on command line.)</p> |
| maxorphanage                                 | No | <p>Specifies the maximum orphan age in days. The value specified must be greater than or equal to 10 days. The Data Pool inventory validation function will consider only those files on disk as orphans whose age is equal to or larger than the maximum orphan age specified. If this parameter is omitted, a default value specified in the configuration file will be used.</p>                                                                                                                                             |
| nofix                                        | No | <p>Specifies that a Data Pool validation be performed, but do not attempt to reconcile the discrepancies found. The validation results will be logged.</p>                                                                                                                                                                                                                                                                                                                                                                      |
| collgroup                                    | No | <p>Limit the Data Pool validation to the collection group(s) specified. Single or multiple collection groups can be specified on the command line. Multiple collection groups if provided must be separated by commas, with the string enclosed in double quotes ("), e.g. "MOAT, ASTT".</p> <p>By default, all collection groups in the Data Pool inventory will be included in the validation if this option is not specified.</p>                                                                                            |
| cleanvalidate                                | No | <p>Specifies that a cleanup run should be followed by a validation run.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

The Data Pool Cleanup utility performs the following as part of the "cleanup" processing:

- Removes all data pool granules along with the associated browse files (if no other granules are cross-referenced to them) and the browse links that meet the specified cleanup criteria, from both the Data Pool inventory and the disks. This occurs when the echomode parameter has a value of **finishdelete** or **deleteall**.
- Removes all recent insert files prefixed with *DPRRecentInsert* that are older than 7 days. These files are found in /datapool/<fs1>/<mode>/user/ and /datapool/<fs1>/<mode>/user/<group>/<esdt>.
- Exports a list of deleted granules for ECHO accessibility by initiating a BMGT export cycle in the inventory database if the **echomode** parameter is set to **predelete** or **deleteall**. If there are granules that are being deleted that qualify for ECHO export, this BMGT "CLEANUP" cycle generates an XML file containing a list of those granules, packages it into a zipped package file, and exports it to ECHO. If the Data Pool cleanup utility is run with **echomode finishdelete** then a BMGT cycle is not created, as any granules being physically removed should have been exported in a previous **predelete** run. Any granules which have been deleted through means other than the Cleanup utility, or which have been changed from public to hidden, will also be exported by BMGT.
- Removes all HEG conversion files associated with the HEG order IDs that have the status of "DONE" or "FAILED" and a timestamp older than a certain cleanup age. The HEG order IDs are provided in the DICartOrder table and the cleanup age is specified by the "HEGCleanupAge" parameter in the DIConfig table. The HEG conversion files for each order ID are stored in the /datapool/<mode>/user/downloads/<orderID> directory. (HEG orders and conversion files are generated when end users request HEG-converted data via Data Pool Web Access.)

The Data Pool Cleanup utility performs the following as part of the "validation" processing:

- Validates the Data Pool inventory and disk content by checking for the existence of orphans and/or phantoms and removing or just logging them depending on the command line options specified.

In normal operations, the Cleanup Utility will be run once a day as a cron job as a "cleanup only" run executing with **-echomode predelete**. This will build the list of cleanup candidates (based on the expiration date and retention priority) that will be reported to ECHO as those which will be deleted in the next run of cleanup. On a subsequent run within the same 24-hour period, the cleanup utility will be run with **-echomode finishdelete** to perform the actual cleanup processing that was reported to ECHO in the **predelete** mode. A validation run can be time consuming and should not be run as often, since it potentially involves the checking of all files in the entire Data Pool inventory against those on the Data Pool disk in order to find and remove the discrepancies. It is advised that the validation function be run using *collgroup* option whenever possible to limit the validation to the user specified collection groups.

### 14.10.2.1 Invoke the Data Pool Cleanup Utility Manually

---

- 1 Log in at the machine where the Data Pool Cleanup Utility is installed (e.g., x4dpl01).
  - The operator who is executing the script must have privileges for removing science, metadata, and browse files from the Data Pool disks.
- 2 To change to the directory for starting the Data Pool Cleanup Utility, type **cd /usr/ecs/<MODE>/CUSTOM/utilities** and then press the **Return/Enter** key.
  - The working directory is changed to **/usr/ecs/<MODE>/CUSTOM/utilities**.

**NOTE:** The normal sequence for cleanup is to run the Cleanup Utility twice: specifying **predelete** for the first run and **finishdelete** for the second run. Note that an **-echomode** parameter with a value of **finishdelete** can only be specified by itself because the list of items to delete will have already been determined by the previous (**predelete**) run.

- 3 Enter the predelete/finishdelete run sequence. In this case, two runs are required to perform a cleanup. The first with **-echomode predelete** and the second with **-echomode finishdelete**.

Example 1: Initiate a cleanup using a list of granules:

```
EcDlCleanupDataPool.pl <mode> -echomode <predelete> -file <fileName>
```

and

```
EcDlCleanupDataPool.pl <mode> -echomode finishdelete -noprompt
```

Example 2: Initiate a Cleanup using a list of geoids:

```
EcDlCleanupDataPool.pl <MODE> -echomode <predelete> -geoidfile <geoidfile>
```

and

```
EcDlCleanupDataPool.pl <mode> -echomode finishdelete
```

- 4 To perform a “validation only” run, at the UNIX prompt enter:

```
EcDlCleanupDataPool.pl <MODE> -orphan |-phantom -noprompt -collgroup <groupList> -maxorphanage <days> -nofix
```

- For validation either the **-orphan** parameter or the **-phantom** parameter or both must be specified.
- **<groupList>** is the name of the collection group(s) to be validated (e.g., “MOAT, ASTT”). The collection group(s) must be enclosed in quotes and if there are multiple groups, they must be separated by commas. If the **-collgroup** option is not specified, all collection groups in the Data Pool inventory are included in the validation.
- **<days>** is the number of days (at least 3) after which files on the Data Pool disks are considered orphans if they do not have corresponding entries in the Data Pool inventory. The default value in the configuration file (e.g., 3) is used if the **-maxorphanage** option is not specified.
- The **-nofix** option prevents reconciling any discrepancies found during validation. The validation results are logged.

- 5 To perform a “cleanup followed by validation” run, at the UNIX prompt enter a command line with valid options plus the **-cleanvalidate** parameter.
- For example:  
**EcDICleanupDataPool.pl OPS -echomode predelete -offset 5 -limit 200 -orphan -phantom -cleanvalidate**  
and  
**EcDICleanupDataPool.pl <mode> -echomode finishdelete**
- 

### 14.10.3 Running the Data Pool Access Statistics Utility

The Data Pool Access Statistics Utility (DPASU) parses logs of the Data Pool Web Access service and the FTP access service and stores the results in tables in the Data Pool database. The DPASU is a command-line utility that permits an option of entering input parameters. It is intended to be run with *cron* to cover an arbitrary 24-hour period starting at a time specified as a configuration parameter in a configuration file. However, an operator may run the utility from the command line specifying a start date as an input parameter to cover a period other than the normal 24-hour period addressed by *cron* or to cover that normal period if *cron* failed to process the logs for that period.

There are two versions of the DPASU, one for each type of log processed. The script named **EcDIRollupWebLogs.pl** runs on the Data Pool Web Access server and processes its log; its configuration file is **EcDIRollupWebLogs.CFG**. The script named **EcDIRollupFwFtpLogs.pl** runs on a server with access to SYSLOG with FTP access entries; its configuration file is **EcDIRollupFwFtpLogs.CFG**. These scripts capture data on downloads from the Data Pool, including date and time of access, path and file name of the file, and size of the file. The captured data are written to a temporary "flat file" -- a tab-delimited text file -- stored in the directory `</ECS_HOME>/<MODE>/CUSTOM/data/DPL/`. The flat file is then exported to Sybase and stored in a table. The DPASU calls Sybase stored procedures to generate a separate rollup table, removes the flat file, and enters a record in a separate table identifying which periods have been rolled up in order to prevent inadvertent reprocessing of that period.

To prevent potential table locking, *cron* runs of the DPASU scripts should be separated so that they are not both running concurrently (e.g., separate their start times by at least 20 minutes). Use the following procedure to specify a 1:00 a.m. start time for the rollup and add a line to the *crontab* files to run the DPASU for the OPS mode beginning at 2:00 a.m. every day with a 20-minute separation between the scripts.

#### 14.10.3.1 Specify Data Pool Access Statistics Rollup Start Time and DPASU Execution with *cron*

---

- 1 Log in at the host for **EcDIRollupWebLogs.pl** and its configuration file (e.g., `x4dpl01`).
- 2 To change to the directory containing the configuration file, type the following command: **cd /usr/ecs/OPS/CUSTOM/cfg** and then press the **Return/Enter** key.
  - The working directory is changed to **/usr/ecs/OPS/CUSTOM/cfg**.

- 3 To look at the Rollup Start Time specified in the configuration file, type **vi EcDIWebRollup.CFG** and then press the **Return/Enter** key.
  - The contents of the file are displayed, and the last line of the file indicates the start time in format similar to the following:  
**ROLLUP\_START\_TIME=3:00**
  - If the start time is correct, exit **vi** by typing **:q!** and pressing the **Return/Enter** key; then go to Step 10. Otherwise, to change the time, execute Steps 4 - 9.
- 4 Use the arrow keys on the keyboard to move the cursor down to the line specifying the **ROLLUP\_START\_TIME** and to move it to the right until it is located over the first character in the time value.
  - The cursor is moved to the start time location; the line should look similar to the following:  
**ROLLUP\_START\_TIME=█:00**
- 5 Type **x** to delete the number under the cursor.
  - The number is deleted; the line should look similar to the following.  
**ROLLUP\_START\_TIME=█00**
  - If more characters in the time value are to be changed, you can type **x** repeatedly to delete additional characters. For this exercise, you need only delete one character.
- 6 Type **i** to put the **vi** editor into the insert mode.
  - The **vi** editor is in the insert mode, but no feedback is provided.
- 7 Type **1**.
  - The typed entry appears to the left of the cursor.
- 8 Press the **Esc** key.
  - The cursor moves one character to the left and the **vi** editor is in the command mode.
- 9 Type **ZZ** (be sure to use upper case).
  - The file is saved and the UNIX prompt is displayed.
- 10 To ensure that the **crontab** command launches the **vi** editor, type **setenv EDITOR vi** and then press the **Return/Enter** key.
  - It may be desirable to include this command in the operator's **.cshrc** file to set the **crontab** editor to **vi** as part of the environmental settings normally used routinely.
- 11 Type **crontab -e** and then press the **Return/Enter** key.
  - The contents of the file are displayed, and the cursor is displayed on the first character at the upper left corner of the file.
  - If the operator has no **crontab** file on the current platform, this command opens a new one for editing.
- 12 If necessary, use the down arrow key on the keyboard to move the cursor down to a blank line.
  - The cursor is displayed at the beginning of the selected line.

- 13 Type **i** to put the **vi** editor into the insert mode.
  - The **vi** editor is in the insert mode, but no feedback is provided.
- 14 Type **0 2 \* \* \* /usr/ecs/OPS/CUSTOM/utilities/EcDIRollupWebLogs.pl OPS -noprompt**.
- 15 Press the **Esc** key.
  - The cursor moves one character to the left and the **vi** editor is in the command mode.
- 16 Type **:wq** and then press the **Return/Enter** key.
  - UNIX displays a message identifying the number of lines and characters in the **crontab** file (stored in the directory **/var/spool/cron/crontabs**) and then displays the UNIX prompt.
- 17 Log in at the host for EcDIRollupFtpLogs.pl and its configuration file (e.g., x4eil01).
- 18 To change to the directory containing the configuration file, type the following command:  
**cd /usr/ecs/OPS/CUSTOM/cfg** and then press the **Return/Enter** key.
  - The working directory is changed to **/usr/ecs/OPS/CUSTOM/cfg**.
- 19 To look at the Rollup Start Time specified in the configuration file, type the following: **vi EcDIRollupWuFtpLogs.CFG** and then press the **Return/Enter** key.
  - The contents of the file are displayed, and the last line of the file indicates the start time in format similar to the following:  
**ROLLUP\_START\_TIME=3:00**
  - If the start time is correct, exit **vi** by typing **:q!** and pressing the **Return/Enter** key; then go to Step 21. Otherwise, to change the time, execute Step 20.
- 20 Repeat Steps 4-9 to change the time in **EcDIRollupWuFtpLogs.CFG**.
- 21 To ensure that the **crontab** command launches the **vi** editor, type **setenv EDITOR vi** and then press the **Return/Enter** key.
  - It may be desirable to include this command in the operator's **.cshrc** file to set the **crontab** editor to **vi** as part of the environmental settings normally used routinely.
- 22 Type **crontab -e** and then press the **Return/Enter** key.
  - The contents of the file are displayed, and the cursor is displayed on the first character at the upper left corner of the file.
  - If the operator has no **crontab** file on the current platform, this command opens a new one for editing.
- 23 If necessary, use the down arrow key on the keyboard to move the cursor down to a blank line.
  - The cursor is displayed at the beginning of the selected line.
- 24 Type **i** to put the **vi** editor into the insert mode.
  - The **vi** editor is in the insert mode, but no feedback is provided.

- 25 Type **20 2 \* \* \* /usr/ecs/OPS/CUSTOM/utilities/EcDIRollupWuFtpLogs.pl OPS -noprompt**.
- The typed entry appears to the left of the cursor.
- 26 Press the **Esc** key.
- The cursor moves one character to the left and the **vi** editor is in the command mode.
- 27 Type **:wq** and then press the **Return/Enter** key.
- UNIX displays a message identifying the number of lines and characters in the **crontab** file (stored in the directory **/var/spool/cron/crontabs**) and then displays the UNIX prompt.
- 

Although the Data Pool Access Statistics Utility scripts are intended to be run with **cron**, if it is necessary to run them from the command line, it is possible to do so. For example, if **cron** fails to complete successfully for any reason, no entry is made into the record table to indicate that a period was processed. In that event, the statistics can be captured for the missing interval by running the utility manually.

There are seven command-line parameters for use with the utility scripts (see 609 document information):

- The **<MODE>** parameter indicates the mode (must specify a valid directory path) in which the script is to run; it is mandatory, unlabeled, and must be the first parameter following the command.
- The **-noprompt** parameter optionally specifies suppression of output to the screen.
- The **-nodelete** parameter optionally prevents the flat file from being deleted upon completion of the run.
- The **-flatfile <path/file>** parameter optionally provides an alternative path/file name for the flat file produced by the parser (useful only with the **-nodelete** option).
- The **-ftp <path/file>** parameter optionally indicates an alternative ftp log path/file(s) to be used instead of the configured default path/file (for the **EcDIRollupWuFtpLogs.pl** script only). Wildcards may be used, but must be escaped (i.e., preceded with a **\**).
- The **-web <path/file>** parameter optionally indicates an alternative web log path/file(s) to be used instead of the configured default path/file (for the **EcDIRollupWebLogs.pl** script only). Wildcards may be used, but must be escaped (i.e., preceded with a **\**).
- The **-start <date>** parameter optionally indicates an alternative start date for the rollup period, using the format **MM/DD**, and may be used to process a previously uncovered period.

With the exception of the mandatory **<MODE>** parameter, which must appear first after the command, the other parameters may be used in various orders and combinations. For example, to run without screen prompts or information, starting from December 22, and to retain the flat file, the command for accumulating statistics on web access should be entered as follows:



- 4 Log in at the host for EcDIRollupFwFtpLogs.pl and its configuration file (e.g., x4dpl01).
- 5 To change directory to the directory containing the script, type the following command:  
**cd /usr/ecs/<MODE>/CUSTOM/utilities** and then press the **Return/Enter** key.
  - The working directory is changed to **/usr/ecs/<MODE>/CUSTOM/utilities**.
- 6 Type **EcDIRollupFwFtpLogs.pl <MODE>** and then press the **Return/Enter** key.
  - The utility runs and displays information to the screen as it executes, in form similar to the following:

**A Synergy II/Data Pool product**

```

\ _\	/ _\					
0	/ 0	\ \				
		/	\ \			
___/	_	/	__	_ / ___/		

```

**Data Pool Access Statistics Utility**

**Connecting to database...**

**The DPASU will examine the logs for access entries between the following times:**

| Month | Day | Hour | Minute |
|-------|-----|------|--------|
|-------|-----|------|--------|

```

START: 11 26 03 00
 END: 11 27 02 59

```

**Checking for already covered rollup periods...**

**File list:**

**/var/adm/SYSLOG**

**Processing FTP logs...**

**No access entries found in any of the FTP logs**

**Cleaning up table "DIftpAccessLog"...OK**

**Exporting flat file to Sybase...OK**

**No access data was available to roll up.**

**DPASU will skip this step.**

**Rollup successful!**

**Removing flat file...OK**

**Gracefully exiting...**

The three remaining utilities are shell scripts for archiving, deleting, and restoring information in database tables populated by the DPASU. The **Data Pool Archive Access Statistics Data Utility** is run from the command line as needed or desirable to connect to the Data Pool database and write granule access data for a specified time range from the DIGranuleAccess, DIGranuleSubscription, and DIAccessRollup tables to an ASCII file. Once this is done, the operator can run the **Data Pool Delete Access Statistics Data Utility** from the command line to delete the archived data from the Data Pool database. If it is desirable to restore deleted data to the database, the **Data Pool Restore Access Statistics Data Utility** can be run from the command line to restore the data. The following procedures are applicable.

### 14.10.3.3 Archive Access Statistics Using the Data Pool Archive Access Statistics Data Utility

---

- 1 Log in at the host for the Data Pool database (e.g., x4dbl01).
  - 2 To change directory to the directory containing the Data Pool Archive Access Statistics Data Utility, type the following:  
**cd /usr/ecs/<MODE>/CUSTOM/dbms/DPL** and then press the **Return/Enter** key.
    - The working directory is changed to **cd /usr/ecs/<MODE>/CUSTOM/dbms/DPL**.
  - 3 Type the following:  
**DI DbArchiveAccessStat <MODE> <STARTDATE> <STOPDATE> <ARCHIVEDIR> <USERNAME> <SERVER> <DBNAME>** and then press the **Return/Enter** key.
    - **<MODE>** is the mode in which the utility is being executed (e.g., OPS, TS1, TS2).
    - **<STARTDATE>** is the start date time range, in format **yyyymmdd**, for the data to be archived.
    - **<STOPDATE>** is the stop date time range, in format **yyyymmdd**, for the data to be archived.
    - **<ARCHIVEDIR>** is the absolute path where the generated ASCII files are to be stored.
    - **<USERNAME>** is the Sybase login name.
    - **<SERVER>** is the Sybase Server for the Data Pool database (e.g., x4dbl01\_svr).
    - **<DBNAME>** is the name of the Data Pool database (e.g., DataPool\_OPS).
    - The script displays a prompt for entry of the password for the Sybase login.
- NOTE:** The step that follows may require input from the Database Administrator.
- 4 Type **<password>** and then press the **Return/Enter** key.
    - The script runs and the Archive Access Statistics Utility log file **DI DbArchiveAccessStat.log** records errors, warnings, and information about utility events. The log is written to the directory **/usr/ecs/<MODE>/CUSTOM/logs**.
- 

To run the Data Pool Delete Access Statistics Data Utility, use the following procedure.

### 14.10.3.4 Delete Access Statistics Using the Data Pool Delete Access Statistics Data Utility

---

- 1 Log in at the host for the Data Pool database (e.g., x4dbl01).
- 2 To change directory to the directory containing the Data Pool Delete Access Statistics Data Utility, type the following:  
**cd /usr/ecs/<MODE>/CUSTOM/dbms/DPL** and then press the **Return/Enter** key.
  - The working directory is changed to **cd /usr/ecs/<MODE>/CUSTOM/dbms/DPL**.

- 3 Type the following:  
**DIDbDeleteAccessStat** <MODE> <STARTDATE> <STOPDATE> <USERNAME>  
<SERVER> <DBNAME> and then press the **Return/Enter** key.
- <MODE> is the mode in which the utility is being executed (e.g., OPS, TS1, TS2).
  - <STARTDATE> is the start date time range, in format *yyyymmdd*, for the data to be deleted.
  - <STOPDATE> is the stop date time range, in format *yyyymmdd*, for the data to be deleted.
  - <USERNAME> is the Sybase login name.
  - <SERVER> is the Sybase Server for the Data Pool database (e.g., x4dbl01\_srvr).
  - <DBNAME> is the name of the Data Pool database (e.g., DataPool\_OPS).
  - The script displays a prompt for entry of the password for the Sybase login.

**NOTE:** The step that follows may require input from the Database Administrator.

- 4 Type <password> and then press the **Return/Enter** key.
- The script runs and the Delete Access Statistics Utility log file **DIDbDeleteAccessStat.log** records errors, warnings, and information about utility events. The log is written to the directory **/usr/ecs/<MODE>/CUSTOM/logs**.
- 

To run the Data Pool Restore Access Statistics Data Utility, use the following procedure.

#### 14.10.3.5 Restore Access Statistics Using the Data Pool Restore Access Statistics Data Utility

---

- 1 Log in at the host for the Data Pool database (e.g., x4dbl01).
- 2 To change directory to the directory containing the Data Pool Restore Access Statistics Data Utility, type **cd /usr/ecs/<MODE>/CUSTOM/dbms/DPL** and then press the **Return/Enter** key.
- The working directory is changed to **cd /usr/ecs/<MODE>/CUSTOM/dbms/DPL**.
- 3 Type **DIDbRestoreAccessStat** <MODE> <STARTDATE> <STOPDATE> <ARCHIVEDIR> <USERNAME> <SERVER> <DBNAME> and then press the **Return/Enter** key.
- <MODE> is the mode in which the utility is being executed (e.g., OPS, TS1, TS2).
  - <STARTDATE> is the start date time range, in format *yyyymmdd*, for the data to be restored.
  - <STOPDATE> is the stop date time range, in format *yyyymmdd*, for the data to be restored.
  - <ARCHIVEDIR> is the absolute path of the storage location for the ASCII files containing the data to be restored.

- *<USERNAME>* is the Sybase login name.
- *<SERVER>* is the Sybase Server for the Data Pool database (e.g., x4dbl01\_srvr).
- *<DBNAME>* is the name of the Data Pool database (e.g., DataPool\_OPS).
- The script displays a prompt for entry of the password for the Sybase login.

**NOTE:** The step that follows may require input from the Database Administrator.

**4** Type *<password>* and then press the **Return/Enter** key.

- The script runs and the Archive Access Statistics Utility log file **DIDbRestoreAccessStat.log** records errors, warnings, and information about utility events. The log is written to the directory */usr/ecs/<MODE>/CUSTOM/logs*.
- 

#### 14.10.4 Using the Batch Insert Utility

The Batch Insert Utility allows operators to specify Data Pool insert for granules residing in the ECS archive, as well as data from outside ECS (non-ECS granules). The utility queues the granules up for dispatch by the Data Pool Action Dispatcher (DPAD) for insertion by the Data Pool Insert Utility (DPIU). It accepts either a list of ECS granule identifiers or a list of non-ECS names; the list can be provided either as an input file or as standard input. A label identifying a batch of granules is specified as a command-line parameter, using the option **-label**, so that operators can monitor a batch with the DPM GUI.

Granules to be inserted can also be linked to a theme, using the option **-theme**. In fact, the Batch Insert Utility can also be used with that option to link granules already present in the Data Pool to a theme, or to additional themes. However, it is important to note that if the granules were originally inserted into the Data Pool using the Batch Insert Utility, you must use a different batch label when linking the granules to the theme than was used for the original insert. This is necessary because the Batch Insert Utility is designed to reject inserts that are in a batch with a label identical to one for which granules are already being processed. So, even if the batch has been inserted, if the inserts are still in the queue (e.g., with a status of **Completed**), you cannot run another batch with the same label to link them to a theme.

The following procedure is applicable.

##### 14.10.4.1 Perform Batch Insert of Data into the Data Pool

---

**1** Log in at the machine where the Data Pool Batch Insert Utility is installed (e.g., x4dpl01

**NOTE:** The login must be as either **cmshared** or **allmode** to ensure correct permissions.

**2** To change to the directory for starting the Batch Insert Utility, type the following:  
**cd /usr/ecs/<MODE>/CUSTOM/utilities** and then press the **Return/Enter** key.

- The working directory is changed to */usr/ecs/<MODE>/CUSTOM/utilities*.

3 At the UNIX prompt, type the command to start the Batch Insert Utility, in the form of the following.

**EcDIBatchInsert.pl** <MODE> **-ecs -nonecs -file** <pathname> *options* then press the **Return/Enter** key.

- The following examples show valid command-line entries for initiating the Batch Insert Utility:
  - **EcDIBatchInsert.pl** <MODE> **-ecs -file** /home/cmshared/<filename> (to add actions to the action insert queue for all ECS granules specified by granule IDs in the specified file. Because the command does not specify a **-label** parameter, the label is formed from the first 16 characters of the input file name).
  - **EcDIBatchInsert.pl** <MODE> **-nonecs -file** /home/cmshared/<filename> **-label Chig\_volcano -theme “Chiginagak Volcano 2002”** (to add actions to the insert action queue for all non-ECS granules specified by XML pathnames in the specified input file, with all granules linked with the theme name **“Chiginagak Volcano 2002”** in the Data Pool database).
  - The theme name must already be in the Data Pool database in the DIThemes table; if necessary, use the DPM GUI Manage Themes tab to define the theme before running the batch insert.
  - You can use Batch Insert with the **-theme** option to link granules already in the Data Pool to a theme, but if the granules were originally inserted using the Batch Insert Utility, you must use a different batch label than was used for the original insert; otherwise, the insert of the theme links may be rejected.
  - **EcDIBatchInsert.pl** <MODE> **-ecs -file** /home/cmshared/<filename> **-mdonly** (to add actions to the action insert queue for all ECS granules specified by granule IDs in the specified file, but insert metadata only. Because the command does not specify a **-label** parameter, the label is formed from the first 16 characters of the input file name).
  - **EcDIBatchInsert.pl** <MODE> **-ecs -file** /home/cmshared/<filename> **-rpriority 255** (to add actions to the action insert queue for all ECS granules specified by granule IDs in the specified file, and to set their retention priority to 255. Because the command does not specify a **-label** parameter, the label is formed from the first 16 characters of the input file name).
  - **EcDIBatchInsert.pl** <MODE> **-ecs -file** /home/cmshared/<filename> **-rpriority 255 -rperiod 10 -dpriority 5** to add actions to the action insert queue for all ECS granules specified by granule IDs in the specified file, and to set their retention priority to 255 and their retention period to 10 days, with dispatch priority set to 5. Because the command does not specify a **-label** parameter, the label is formed from the first 16 characters of the input file name).

- The Batch Insert Utility runs and events and errors are recorded in the Batch Insert Utility log file **EcDIBatchInsert.log**.
- 

### 14.10.5 Running the Most Recent Data Pool Inserts Utility

The **Most Recent Data Pool Insert Utility (EcDIMostRecentInsert)** lists the most recent additions to the Data Pool. The output of the utility is a set of files that a user could download and quickly inspect to identify recent additions to the Data Pool.

The utility takes in a date command-line parameter indicating the day of interest to the user. Files inserted into Data pool on the specified day are subsequently listed in the output files. If no date is provided, the utility uses the preceding day as a default with a time range of midnight to midnight.

The Most Recent Data Pool Insert Utility normally runs as a cron job. However, if it is necessary to run the utility from the command line it is possible to do so.

The procedure for running the Most Recent Data Pool Insert Utility is based on the following assumptions:

- Data Pool database server is running.
- Data Pool database is available.
- Stored procedures are present.

#### 14.10.5.1 Running the Most Recent Data Pool Inserts Utility

---

- 1 Log in at the host where the Most Recent Data Pool Inserts Utility is installed (e.g. x4dpl01).
- 2 Type `cd /usr/ecs/<MODE>/CUSTOM/utilities`, then press the **Return/Enter** key.
- 3 Type `EcDIMostRecentInsert.pl <MODE> -insertDate <YYYY/MM/DD>` and then press the **Return/Enter** key.
  - `<MODE>` is the mode in which the utility is being executed (e.g., OPS, TS1, or TS2).
  - `-insertDate` is an optional parameter specifying date of user's interest . If the date parameter is not specified, the preceding day's date is used as the default value.
  - For example, if today were July 11, 2005, the following command:`EcDIMostRecentInsert.pl OPS` would generate files concerning additions to the Data Pool between midnight July 9, 2005 and midnight July 10, 2005.
  - The Most Recent Data Pool Inserts Utility runs and generates a set of files:
  - One file, named `DPrecentInserts_<YYYYMMDD>`, is located at the top-level Data Pool directory. It contains distinct GroupID, ShortName, and VersionID. For example, the file `DPrecentInserts_20051102` in directory `/datapool/OPS/user` might contain the following types of entries:

```

START_FILE: Entries:: 7
GROUP_ID SHORT_NAME VERSION_ID
MOAT MOD02QKM 077
MOAT MYD02OBC 077
MOAT MYD02QKM 077
MOAT MYD35_L2 077
TEST3 MOD35_L2 077
END_FILE: Written 7

```

- There is a file in each of the collection-level directories named `DPrecentInserts_<ShortName>_<VersionID>_<YYYYMMDD>`. The files contain `SHORTNAME`, `VERSION_ID`, and `RELATIVE_PATH`. For example, the file `DPrecentInserts_MYD35_L2_077_20051102` in directory `/datapool/OPS/user/MOAT/MYD35_L2.077` might contain the following types of entries:

```

START_FILE: FileEntries:: 616
SHORTNAME VERSION_ID RELATIVE_PATH
MYD35_L2 077 /MYD35_L2.077/2001.07.01/labtest_2019099138
MYD35_L2 077 /MYD35_L2.077/2001.07.01/labtest_2019099140
MYD35_L2 077 /MYD35_L2.077/2001.07.01/labtest_2019099237
MYD35_L2 077 /MYD35_L2.077/2001.07.01/labtest_2019099247
MYD35_L2 077 /MYD35_L2.077/2001.07.01/labtest_2019099263
[...]

```

- If it is unable to create a file at the top-level Data Pool directory, the Most Recent Data Pool Inserts Utility shuts down and logs an error message.
- If it is unable to create a file at a collection level directory, the Most Recent Data Pool Inserts Utility logs an error message and continues processing other valid directories.
- When the Most Recent Data Pool Inserts Utility runs, it creates a log file, `EcDlMostRecentInsert.log`, which records errors, warnings, and information about utility events.
- The Most Recent Data Pool Inserts Utility does not perform automatic recovery operations. If there is an execution failure as a result of database server or system shut down, rerun the script. This will create a new set of files (overwriting previous ones) listing additions to Data Pool for the specified insert date.

### 14.10.6 Running the Data Pool Collection-to-Group Remapping Utility

The **Data Pool Collection-to-Group Remapping Utility (EcDIRemap)** is a command-line utility interface that is used for reassigning a Data Pool collection to a collection group other than the one to which it was originally assigned.

The procedure for running the Data Pool Collection-to-Group Remapping Utility is based on the following assumptions:

- “Insert Enabled Flag” for the source collection has been turned off using the Data Pool Maintenance GUI
- The group to which the user is mapping the collection already exists in the Data Pool database.
- The group to which the user is mapping the collection is not the BRWS (browse) group.
- The collection to be remapped is not the Browse (Browse.001) collection.
- Data Pool database server is running.
- Data Pool database is available.
- Stored procedures are present.

There are several assumptions expected of the Data Pool Collection-to-Group Remapping Utility. The utility expects the exists of the collection in the Data Pool to which the user is mapping; it assumes that the browse collection is always located in the group “BRWS”; it also assumes the stored procedures are present. The Group Mapping utility runs only if the Data Pool database server is running and if the database is available.

#### 14.10.6.1 Running the Data Pool Collection-to-Group Remapping Utility

---

- 1 Ensure that the “Insert Enabled Flag” for the source collection has been turned off.
  - For detailed instructions refer to the **Modify an ECS Collection Using the DPM GUI** procedure (previous section of this lesson).
- 2 Log in at the host where the Data Pool Collection-to-Group Remapping Utility is installed (e.g., x4dp101).
- 3 Type `cd /usr/ecs/<MODE>/CUSTOM/utilities`, then press the **Return/Enter** key.
- 4 Type the following:  
**EcDIRemap.pl <MODE> -esdt <name> -version <version> -oldgrp <old group> -newgrp <new group >** and then press the **Return/Enter** key.
  - <MODE> is the mode in which the utility is being executed (e.g., OPS, TS1, or TS2).
  - <name> is the name of the source collection being remapped.
  - <version> is the version of the source collection version being remapped.
  - <old group> is the name of the collection group name that currently contains the collection.
  - <new group> is the name of the collection group to which the source collection is being remapped.

- 5 Example: To remap collection MOD29, Version 4, (i.e., MOD29.004) from collection group MOST to collection group MOSS, enter the following:

```
EcDIRemap.pl OPS -esdt MOD29 -version 4 -oldgrp MOST -newgrp
MOSS
```

- The Data Pool database inventory would be updated to reflect the new location of the files.
  - The Data Pool Collection-to-Group Remapping Utility runs and the log file, **EcDIRemap.log**, records errors, warnings, and information about utility events.
  - The Data Pool Collection-to-Group Remapping Utility is able to recover from aborted runs by using the DIRecoveryParameters table to checkpoint its progress. In the event of an aborted run, the utility reads the recovery parameters table to determine at which point the utility left off when it aborted. This ensures that remappings that were taking place prior to the abort finish correctly. After recovery processing takes place, the utility processes the current run by acting on the latest input parameters.
- 

#### 14.10.7 Running the Data Pool Move Collections Utility

The **Data Pool Move Collections Utility (EcDIMoveCollection)** provides the DAAC Operations Staff with a command-line interface to move collections from one file system to another. The file system move is implemented as a copy operation to the new collection directory (destination), followed by removal of the old collection directory (origination) and its contents. The utility then establishes a link to the new location in place of the old directory. As a result, existing URLs are not invalidated by the move and no updated URLs need to be exported to ECHO. However, any existing URLs and file pointers become invalid from the time when the utility starts deleting the existing directories until the time the link is established. During that time the following errors could be encountered with respect to the collection being moved:

- A Data Pool ftp user clicking on a URL might experience a temporary error when trying to access files and directories. File transfers already in progress at the beginning of the deletion should complete normally.
- FTP Pull users could experience similar temporary problems trying to access links in FTP Pull directories that were established by the OMS and that point to granules in the moving collection.
- The Data Pool Web GUI returns an error if a user tries to access the collection via a bookmark. It flags the collection and does not display it as an active link on the collection drill down web page, thus temporarily preventing drill down access to the collection.
- The Data Pool insert service looks up the collection path in the Data Pool database during the insert process. The collection path is updated once the copy step is complete. Any Data Pool insert processes that looked up the copy path before it was

updated insert their granules into the old directory location. If those granules are not copied but are then removed, they become phantoms and could trigger additional errors downstream, e.g., in distribution. Alternatively, if they were not removed, they would cause the move process to fail, as the Data Pool insert service would re-create the deleted directories.

- The OMS looks up granule file locations immediately before performing an FTP Push operation. If the lookup occurs just before the collection information in the Data Pool database is updated, but the copy operation starts after the file was deleted, the FTP Push operation fails and causes an operator intervention. Since the time window between file location look up and ftp push start is small, the chances for that occurring are very small. In such cases the operator would need to resubmit the request, and since the directory entry would now have been updated, the ftp push operation would succeed.

If the preceding impacts are not acceptable, operators can suspend inserts and web access for the original file system by marking it as "unavailable" in the DPM GUI. This would also halt staging operations for that file system in OMS.

The procedure for running the Data Pool Move Collections Utility is based on the following assumptions:

- Data Pool database server is running.
- Data Pool database is available.
- Stored procedures are present.

#### 14.10.7.1 Running the Data Pool Move Collections Utility

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- 1 Log in at the host where the Data Pool Move Collections Utility is installed (e.g., f4dpl01).
- 2 Type the following:  
**cd /usr/ecs/<MODE>/CUSTOM/utilities**, then press the **Return/Enter** key.
3. Type the following:  
**EcDIMoveCollection.pl <MODE> -shortname <shortname> -versionid <versionID>**  
**-targetfs <path> [ -verbose ]** and then press the **Return/Enter** key.
  - **<MODE>** is the mode in which the utility is being executed (e.g., OPS, TS1, or TS2).

**NOTE:** When the utility is run in OPS mode an operator prompt is displayed to prevent any accidental loss of data.

- **<shortname>** is the shortname of the collection being moved. It is a mandatory parameter.
- **<versionID>** is the version identifier of the collection being moved. Leading zeros must **not** be included. **-versionid** is a mandatory parameter.

- *<path>* is the relative path to the target file system (the file system to which the collection is being moved). Note that all Data Pool file systems must be mounted under the Data Pool root (e.g., /datapool/OPS/user). This parameter is mandatory.
- **-verbose** is an optional parameter. When **-verbose** is specified, some information is displayed on the screen and detailed information is written to the utility's log. Nonverbose is the default.

4 Example 1: Move collection MODVOLC, Version 1, (i.e., MODVOLC.001) from its current directory as specified in the database to the new filesystem fs1. The collection would be moved from /datapool/OPS/user/MOAT to /datapool/OPS/user/fs1/MOAT

**EcDIMoveCollection.pl OPS -shortname MODVOLC -versionid 1 -targetfs fs1 -verbose**

- The Data Pool Move Collections Utility runs and the log file, **EcDIMoveCollection.log**, records errors, warnings, and information about utility events.
- The Data Pool Move Collections Utility is from an execution failure caused by situations such as system faults or database errors leaving all or some of the file moves unprocessed.
  - At startup the utility determines whether or not an execution failure has occurred. If there has been an execution failure, the utility prompts the operator as to whether or not to attempt recovery. If the operator chooses to recover, the utility completes the processing of file moves that were left unprocessed in the previous run. Upon completion of the recovery, the utility runs again with the current command-line parameters.
  - An operator may not wish to recover (e.g. if the target filesystem has become corrupted or full). In this case, recovery is not attempted, and the utility runs with the current command-line parameters. The moveFlag is automatically reset to “N”. Any files that were copied to the target file system that experienced the failure would have to be deleted manually.

#### 14.10.8 Running the Data Pool Hidden Scrambler Utility in Rename Mode

In Synergy V a new capability was introduced whereby the Data Pool Insert Service stores granules that are staged to the Data Pool for ordering purposes only in separate directories whose contents are not visible to anonymous ftp users. Order-only granules were accessible by the general public.

When an order-only granule is subsequently inserted via a “normal” Data Pool insert, it becomes a normal Data Pool granule, and the Data Pool Insert Service moves it from the hidden directory to the appropriate place in the public directory structure. Of course, such transfers are not allowed for billable or restricted granules. DAACs should not and generally do not insert granules from billable collections into the Data Pool, and the Data Pool Insert Service performs

various checks (including examination of the DFA flag) to prevent the insert of granules that are flagged as “Hidden” or “Restricted” in ECS.

To decouple Data Pool and OMS file references, ordered granules are always represented in the hidden directory structure, either by files (if the granule is not in the public Data Pool) or by links pointing to the public files (if the granule is in the public Data Pool). Whenever a granule is converted from an order-only to a public Data Pool granule, its files are moved and links are left behind in the order only directories. Although a “metadata only” granule would be considered public, its science file would remain inaccessible (i.e., it would never be in the public Data Pool).

The hidden directory structure is below the FTP root because of the need to support FTP Pull access to ordered data. To hide the directories, the FTP root contains a directory that serves as the root for the hidden directory structure. (The directory is directly below the file system level, i.e., at the level of the Data Pool collection groups.) While it is impossible to hide that directory from view, it and all directories below it are configured in such a manner that their contents cannot be listed via ftp, in effect hiding all lower-level directories as well as their contents from public view.

The hidden directory structure mimics the public Data Pool directory structure (i.e., it is organized by collection group and collection); however, the hidden directory structure uses encrypted directory names so the pathnames cannot be guessed, preventing anonymous ftp users from switching into a hidden directory via the `cd` command. The Data Pool Hidden Scrambler Utility (EcDIHiddenScrambler.pl) allows the DAAC to re-encrypt directory names during system maintenance periods (i.e., during Data Pool down time), either on a regular basis or when intrusion is suspected.

Other Data Pool utilities (e.g., Data Pool collection move and re-map utilities) have been changed to the extent that they rely on the pre-Synergy V directory naming conventions so they can deal with granules in the hidden directory structure.

In Synergy V, OMS takes responsibility for removing order-only data from the Data Pool when they are no longer needed. However, the responsibility for cleaning up the public Data Pool remains with the Data Pool Cleanup Utility.

It is essential that the names of the hidden directory names do not become public knowledge. An external user could use knowledge of directory names and clever guessing of file names to download from them via anonymous ftp. The Data Pool cannot prevent this because it is necessary to allow ftp pull download from the directories via anonymous ftp. However, the Data Pool log analyzer will detect any attempt to access the hidden directories directly and will send an e-mail message to a DAAC-configured address to report security breaches. When that occurs, the DAAC should shut down ftp access to the Data Pool as soon as possible and run the Data Pool Hidden Scrambler Utility, which generates a new set of hidden directory names and updates the existing data holdings.

The Data Pool Collection-to-Group Remapping Utility will move the hidden collection directories when it moves the public collection directories. The Data Pool Move Collections Utility may also move the hidden directories for a collection depending on whether the order-

only files are in the same file system as the public collection or are in a designated file system of their own.

The Data Pool Hidden Scrambler Utility (EcDIHiddenScrambler.pl) can be run in either of the following two modes:

- Transition.
- Rename.

In transition mode the utility generates hidden directory names and corresponding database entries for every collection defined for Data Pool in the affected operating mode. The transition mode can be used while Data Pool is up. The utility should be run in transition mode only once; i.e., the first time the utility is run in any given operating mode. Because transition mode is not used during normal operation, it is not described in any detail in this section.

In rename mode the utility re-encrypts all of the hidden directory names. This involves updates to the directory in the file system and to the database. Links from the FtpPull area (and elsewhere) are preserved. Re-encryption must be done during DAAC downtime only.

If the Data Pool Hidden Scrambler Utility is interrupted during execution, upon restart it detects failures from the previous run and continues processing the directories and files that were left unprocessed in the previous run. The operator is given no choice as to recovery. Recovery proceeds so that the Data Pool inventory and disk files will not be left in a corrupted state.

The procedure for running the Data Pool Hidden Scrambler Utility in rename mode starts with the assumption that the Data Pool is down for maintenance (no orders being processed, no external access to the Data Pool for downloading data, etc.).

**THE DATA POOL HIDDEN SCRAMBLER UTILITY SHOULD BE RUN IN TRANSITION MODE ONLY ONCE; I.E., THE FIRST TIME THE UTILITY IS RUN IN ANY GIVEN OPERATING MODE. IN NORMAL OPERATIONS, THE DATA POOL HIDDEN SCRAMBLER UTILITY IS RUN IN RENAME MODE.**

#### **14.10.8.1 Running the Data Pool Hidden Scrambler Utility in Rename Mode**

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**NOTE:** In normal operations, the Data Pool Hidden Scrambler Utility is run in rename mode whenever hidden directory intrusion is detected/suspected. In addition, it is recommended that the Data Pool Hidden Scrambler Utility be run in rename mode on a scheduled basis (e.g., monthly) at the DAAC's discretion.

- 1** Log in at the machine where the Data Pool Hidden Scrambler Utility is installed (e.g., x4dpl01).
  - The script must be run from a user account with privileges to rename directories on the Data Pool.
- 2** Type `cd /usr/ecs/<MODE>/CUSTOM/utilities` then press **Return/Enter**.
  - Change directory to the directory containing the Data Pool Hidden Scrambler Utility script (e.g., EcDIHiddenScramblerDataPool.pl).

- **<MODE>** will most likely be one of the following operating modes:
  - OPS (for normal operation).
  - TS1 (for SSI&T).
  - TS2 (new version checkout).
- Note that the separate subdirectories under /usr/ecs apply to different operating modes.

**3** To perform a “rename” run, at the UNIX prompt enter:

**EcDIHiddenScramblerDataPool.pl <MODE>**

OR

**EcDIHiddenScramblerDataPool.pl <MODE> -collgroup <collgroup>**

OR

**EcDIHiddenScramblerDataPool.pl <MODE> -shortname <shortname> -versionid <versionid>**

- **<collgroup>** is a particular Data Pool collection group with collection directories to be renamed using the Hidden Scrambler Utility. If the **-collgroup** parameter is specified, the **-shortname** and **-versionid** parameters may not be used. If not all directories for collections within a collection group are to be renamed, run the Hidden Scrambler Utility using the **-shortname** and **-versionid** parameters to rename the directory for each affected collection.
- **<shortname>** is the name of a particular Data Pool collection, the directory for which is to be renamed using the Hidden Scrambler Utility. If the **-shortname** parameter is specified, the **-versionid** parameter must be specified too. If the **-shortname** parameter is specified, the **-collgroup** parameter may not be used.
- **<versionid>** is the version ID of a particular Data Pool collection, the directory for which is to be renamed using the Hidden Scrambler Utility. If the **-versionid** parameter is specified, the **-shortname** parameter must be specified too. If the **-versionid** parameter is specified, the **-collgroup** parameter may not be used.
- The following examples show valid command-line entries for a “rename” run of the Hidden Scrambler Utility:

**EcDIHiddenScramblerDataPool.pl OPS**

- The Hidden Scrambler Utility performs rename processing (re-encrypts the hidden directory names) for all collection groups and all collections in the Data Pool in OPS mode.

**EcDIHiddenScramblerDataPool.pl OPS -collgroup MOAT**

- The Hidden Scrambler Utility performs rename processing (re-encrypts the hidden directory names) in OPS mode for the MOAT collection group, including all collections in the MOAT collection group.

**EcDIHiddenScramblerDataPool.pl OPS -shortname AST\_L1B  
-versionid 3**

- The Hidden Scrambler Utility performs rename processing (re-encrypts the hidden directory names) in OPS mode for the AST\_L1B.003 collection. [Note that the hidden directory name of the corresponding collection group (ASTT) would not be re-encrypted.]
  - If applicable, usage errors (e.g., failure to specify a mode) are displayed on the terminal screen.
  - The Data Pool Hidden Scrambler Utility records events and errors in the **EcDIHiddenScrambler.log** (in the /usr/ecs/<MODE>/CUSTOM/logs directory). If the log file exists already, the new information is automatically appended. If there is no existing log file named EcDIHiddenScrambler.log, the utility creates a new log file with that name.
  - The Data Pool Hidden Scrambler Utility provides a capability to recover from interruptions caused by situations such as the system faults or database errors that leave all or some of the directories unprocessed. The utility detects such failure upon the next run and continues processing the directories and files that were left unprocessed in the previous run. The operator is given no choice as to recovery. Recovery proceeds so that the Data Pool inventory and disk files will not be left in a corrupted state.
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