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EOSDIS Core System Project

ECS Project Training Material
Volume 9: Data Distribution

March 2001

Raytheon Systems Company
Upper Marlboro, Maryland

ECS Project Training Material
Volume 9: Data Distribution

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Preface

This document is a contract deliverable with an approval code of 3. As such, it does not require formal Government approval. This document is delivered for information only, but is subject to approval as meeting contractual requirements.

Any questions should be addressed to:

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Note: This document contains change bars to indicate the addition or revision of material since the issuance of the predecessor document containing training material for Release 5B of the Earth Observing System Data and Information System (EOSDIS) Core System (ECS).

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Abstract

This is Volume 9 of a series of lessons containing the training material for Release 6A of the Earth Observing System Data and Information System (EOSDIS) Core System (ECS). This lesson provides a detailed description of the process required for data distribution.

***Keywords**:* training, instructional design, course objective, distribution, data distribution, Release 6A.

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Introduction

Identification

Training Material Volume 9 is part of Contract Data Requirements List (CDRL) Item 129, whose requirements are specified in Data Item Description (DID) 625/OP3 and is a required deliverable under the Earth Observing System Data and Information System (EOSDIS) Core System (ECS), Contract (NAS5-60000).

Scope

Training Material Volume 9 describes the process and procedures for data distribution. This lesson is designed to provide the operations staff with sufficient knowledge and information to satisfy all lesson objectives.

Purpose

The purpose of this Student Guide is to provide a detailed course of instruction that forms the basis for understanding data distribution. Lesson objectives are developed and will be used to guide the flow of instruction for this lesson. The lesson objectives will serve as the basis for verifying that all lesson topics are contained within this Student Guide and slide presentation material.

Status and Schedule

This lesson module provides detailed information about training for Release 6A. Subsequent revisions will be submitted as needed.

Organization

This document is organized as follows:

Introduction:	The Introduction presents the document identification, scope, purpose, and organization.
Related Documentation:	Related Documentation identifies parent, applicable and information documents associated with this document.
Student Guide:	The Student Guide identifies the core elements of this lesson. All Lesson Objectives and associated topics are included.
Slide Presentation:	Slide Presentation is reserved for all slides used by the instructor during the presentation of this lesson.

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Related Documentation

Parent Document

The parent document is the document from which this ECS Training Material's scope and content are derived.

423-41-01	Goddard Space Flight Center, EOSDIS Core System (ECS) Statement of Work

Applicable Documents

The following documents are referenced within this ECS Training Material, or are directly applicable, or contain policies or other directive matters that are binding upon the content of this document:

420-05-03	Goddard Space Flight Center, Earth Observing System (EOS) Performance Assurance Requirements for the EOSDIS Core System (ECS)
423-41-02	Goddard Space Flight Center, Functional and Performance Requirements Specification for the Earth Observing System Data and Information System (EOSDIS) Core System (ECS)

Information Documents

Information Documents Referenced

The following documents are referenced herein and amplify or clarify the information presented in this document. These documents are not binding on the content of the ECS Training Material.

609-CD-600	Release 6A Operations Tools Manual for the ECS Project
611-CD-600	Mission Operation Procedures for the ECS Project
910-TDA-022	Custom Configuration Parameters for ECS Release 6A

Information Documents Not Referenced

The following documents, although not referenced herein and/or not directly applicable, do amplify or clarify the information presented in this document. These documents are not binding on the content of the ECS Training Material.

305-CD-600	Release 6A Segment/Design Specification for the ECS Project
311-CD-600	Release 6A Data Management Subsystem Database Design and Database Schema Specifications for the ECS Project

311-CD-601	Release 6A Ingest Database Design and Database Schema Specifications for the ECS Project
311-CD-602	Release 6A Interoperability Subsystem (IOS) Database Design and Database Schema Specifications for the ECS Project
311-CD-603	Release 6A Planning and Data Processing Subsystem Database Design and Schema Specifications for the ECS Project
311-CD-604	Release 6A Science Data Server Database Design and Schema Specifications for the ECS Project
311-CD-605	Release 6A Storage Management and Data Distribution Subsystems Database Design and Database Schema Specifications for the ECS Project
311-CD-606	Release 6A Subscription Server Database Design and Schema Specifications for the ECS Project
311-CD-607	Release 6A Systems Management Subsystem Database Design and Schema Specifications for the ECS Project
311-CD-608	Release 6A Registry Database Design and Schema Specifications for the ECS Project
313-CD-600	Release 6A ECS Internal Interface Control Document for the ECS Project
334-CD-600	6A Science System Release Plan for the ECS Project
601-CD-001	Maintenance and Operations Management Plan for the ECS Project
603-CD-003	ECS Operational Readiness Plan for Release 2.0
604-CD-001	Operations Concept for the ECS Project: Part 1-- ECS Overview
604-CD-002	Operations Concept for the ECS Project: Part 2B -- ECS Release B
605-CD-002	Release B SDPS/CSMS Operations Scenarios for the ECS Project
607-CD-001	ECS Maintenance and Operations Position Descriptions
152-TP-001	ACRONYMS for the EOSDIS Core System (ECS) Project
152-TP-003	Glossary of Terms for the EOSDIS Core System (ECS) Project
211-TP-005	Transition Plan 4PX to 4PY, 4PY to 5A, and 5A to 5B for the ECS Project
220-TP-001	Operations Scenarios - ECS Release B.0 Impacts
500-1002	Goddard Space Flight Center, Network and Mission Operations Support (NMOS) Certification Program, 1/90

535-TIP-CPT-001	Goddard Space Flight Center, Mission Operations and Data Systems Directorate (MO&DSD) Technical Information Program Networks Technical Training Facility, Contractor-Provided Training Specification

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Data Distribution Overview

Lesson Overview

This lesson will provide you with the complete process by which the ECS personnel perform data distribution. The processes described in the lesson apply to Ingest/Distribution Technicians. The procedures involved in data distribution include such tasks as monitoring data distribution requests; changing the priority of a distribution request; canceling, suspending and/or resuming a distribution request; or unloading/loading tape stackers.

Lesson Objectives

Overall Objective - The overall objective of the Data Distribution lesson is for Maintenance and Operations (M&O) personnel to develop proficiency in the procedures that apply to data distribution operations for the Earth Observing System (EOS) Data and Information System (EOSDIS) Core System (ECS).

Condition - The student will be given oral or written information and requirements for performing data distribution activities, access to the Data Server Subsystem, a copy of 609-CD-600-001, *Release 6A Operations Tools Manual for the ECS Project*, and a copy of 611-CD-600-001, *Mission Operation Procedures for the ECS Project*.

Standard - The student will perform data distribution activities in accordance with the prescribed procedures without error.

Specific Objective 1 - The student will describe the general functions and processes associated with data distribution (in the context of ECS operations).

Condition - The student will be given written or oral questions concerning the general functions and processes associated with data distribution.

Standard - The student will state without error the general functions and processes associated with data distribution in accordance with the lesson content and the applicable procedures.

Specific Objective 2 - The student will perform the steps involved in launching the Data Distribution Operator graphical user interface (GUI) and the Storage Management Control GUI.

Condition - The student will be given a statement of the requirements for launching the Data Distribution Operator and Storage Management Control GUIs, access to the Data Server Subsystem (through a workstation or X terminal), a copy of 609-CD-600-001, *Release 6A Operations Tools Manual for the ECS Project*, and a copy of 611-CD-600-001, *Mission Operation Procedures for the ECS Project*.

Standard - In accordance with the lesson content, the applicable procedure, and the statement of requirements the student will log in to the appropriate host using secure shell, enter the command

to start the Data Distribution Operator GUI in the specified mode, and enter the command to start the Storage Management Control GUI in the specified mode.

Specific Objective 3 - The student will perform the steps involved in monitoring/controlling data distribution requests, including configuring data distribution polling, filtering data distribution requests, changing the priority of distribution requests, suspending/resuming distribution requests, and canceling distribution requests.

Condition - The student will be given a statement of the requirements for monitoring/controlling data distribution requests, access to the previously launched Data Distribution Operator GUI in the Data Server Subsystem (through a workstation or X terminal), a copy of 609-CD-600-001, *Release 6A Operations Tools Manual for the ECS Project*, and a copy of 611-CD-600-001, *Mission Operation Procedures for the ECS Project*.

Standard - In accordance with the lesson content, the applicable procedure, and the statement of requirements the student will monitor/control data distribution requests (including configuring data distribution polling, filtering requests, and changing the status of distribution requests as directed) and respond to questions concerning the current status of distribution requests.

Specific Objective 4 - The student will perform the steps involved in modifying an e-mail preamble applicable to data distribution.

Condition - The student will be given a statement of the requirements for modifying an e-mail preamble applicable to data distribution, access to the previously launched Data Distribution Operator GUI in the Data Server Subsystem (through a workstation or X terminal), a copy of 609-CD-600-001, *Release 6A Operations Tools Manual for the ECS Project*, and a copy of 611-CD-600-001, *Mission Operation Procedures for the ECS Project*.

Standard - In accordance with the lesson content, the applicable procedure, and the statement of requirements the student will select the Preamble Editor tab of the Data Distribution Operator GUI, select the appropriate media type, select the appropriate preamble type, edit the preamble text, and save the edited preamble.

Specific Objective 5 - The student will perform the steps involved in configuring Storage Management polling functions.

Condition - The student will be given a statement of the requirements for configuring Storage Management polling functions, access to the previously launched Storage Management Control GUI in the Data Server Subsystem (through a workstation or X terminal), a copy of 609-CD-600-001, *Release 6A Operations Tools Manual for the ECS Project*, and a copy of 611-CD-600-001, *Mission Operation Procedures for the ECS Project*.

Standard - In accordance with the lesson content, the applicable procedure, and the statement of requirements the student will select the appropriate option from the pull-down menu on the Storage Management Control GUI, set the Operator Notification Timer and/or Cache Statistics Timer to the appropriate polling states as directed, enter database polling rates as directed, set the error retry rate as directed, and apply the modifications.

Specific Objective 6 - The student will perform the steps involved in deleting files from cache.

Condition - The student will be given a statement of the requirements for deleting files from cache, access to the previously launched Storage Management Control GUI in the Data Server Subsystem (through a workstation or X terminal), a copy of 609-CD-600-001, *Release 6A Operations Tools Manual for the ECS Project*, and a copy of 611-CD-600-001, *Mission Operation Procedures for the ECS Project*.

Standard - In accordance with the lesson content, the applicable procedure, and the statement of requirements the student will select the Cache Stats. tab on the Storage Management Control GUI, select the cache containing the files to be deleted, select the file(s) to be deleted from the cache, and mark the file(s) for deletion.

Specific Objective 7 - The student will perform the steps involved in viewing storage management event log information.

Condition - The student will be given a statement of the requirements for viewing storage management event log information, access to the previously launched Storage Management Control GUI in the Data Server Subsystem (through a workstation or X terminal), a copy of 609-CD-600-001, *Release 6A Operations Tools Manual for the ECS Project*, and a copy of 611-CD-600-001, *Mission Operation Procedures for the ECS Project*.

Standard - In accordance with the lesson content, the applicable procedure, and the statement of requirements the student will select the Event Logging tab of the Storage Management Control GUI, enter the defining characteristic(s) of the event, search the event log for events that meet the specified criteria, observe event information displayed in the Event Log window, and respond to questions concerning the event information displayed in the Event Log window.

Specific Objective 8 - The student will perform the steps involved in monitoring storage management server operations.

Condition - The student will be given a statement of the requirements for monitoring storage management server operations, access to the Data Server Subsystem (through a workstation or X terminal), a copy of 609-CD-600-001, *Release 6A Operations Tools Manual for the ECS Project*, and a copy of 611-CD-600-001, *Mission Operation Procedures for the ECS Project*.

Standard - In accordance with the lesson content, the applicable procedure, and the statement of requirements the student will monitor storage management servers (including filtering requests) and respond to questions concerning the current status of storage management requests.

Specific Objective 9 - The student will perform the steps involved in modifying system parameters in database tables.

Condition - The student will be given a statement of the requirements for modifying system parameters in database tables, access to the Data Server Subsystem (through a workstation or X terminal), a copy of 609-CD-600-001, *Release 6A Operations Tools Manual for the ECS Project*, and a copy of 611-CD-600-001, *Mission Operation Procedures for the ECS Project*.

Standard - In accordance with the lesson content, the applicable procedure, and the statement of requirements the student will log in to the appropriate host using secure shell and use the appropriate GUI, script, or interactive structured query language (isql) commands to modify the value assigned to the parameter in a database table.

Specific Objective 10 - The student will perform the steps involved in troubleshooting data distribution problems.

Condition - The student will be given a statement of the requirements for troubleshooting data distribution problems, access to the Data Server Subsystem (through a workstation or X terminal), a copy of 609-CD-600-001, *Release 6A Operations Tools Manual for the ECS Project*, and a copy of 611-CD-600-001, *Mission Operation Procedures for the ECS Project*.

Standard - In accordance with the lesson content, the applicable procedure, and the statement of requirements the student will review the trouble symptoms, respond to requests that exceed the distribution request threshold (if applicable), check for an acquire failure, check appropriate log files (as necessary), take action to correct the problem(s), verify that distribution request processing has resumed, and respond to questions concerning the possible cause(s) of the problem.

Importance

This lesson applies to students who will be Distributed Active Archive Center (DAAC) Ingest/Distribution Technicians. The lesson will provide them with the knowledge and skills needed when performing their assigned tasks. Those tasks include the following types of activities:

- Launching the Data Distribution Operator and Storage Management Control GUIs.
- Monitoring/controlling data distribution requests.
- Modifying packing list and e-mail preambles.
- Configuring Storage Management polling.
- Deleting files from cache.
- Viewing Storage Management Event Log information.
- Monitoring Storage Management server operations.
- Modifying system parameters.
- Troubleshooting Data Distribution problems.

The lesson describes why and how the activities are performed. Consequently, the students will become aware of what tasks they will be performing on the job and how to accomplish those tasks.

Distribution Concepts

ECS Context

Data distribution for ECS is accomplished at the Distributed Active Archive Centers (DAACs). The people involved in data distribution activities are Ingest/Distribution Technicians.

The ECS Context Diagram (Figure 1) shows the relationships among subsystems within the Science Data Processing component of ECS. The Data Server Subsystem (DSS), which manages access to the data archive, is key to data distribution as well as several other functions. Of course, the context diagram shows a generalized (high-level) view of ECS. The Data Distribution (DDIST), Storage Management (STMGT), and Science Data Server (SDSRV) architecture diagrams (Figures 2 through 4 respectively) focus on the individual computer software configuration items (CSCIs) of the Data Server Subsystem and their relationships with each other and with other subsystems.

- DDIST (Figure 2) is the part of the DSS that formats and distributes data to users.
  - Accepts requests from the SDSRV CSCI.
  - Directs the STMGT CSCI to transfer data.
- STMGT (Figure 3) is the part of the DSS that stores, manages, and retrieves data files on behalf of other parts of the Science Data Processing components (including Data Distribution).
  - Provides interfaces that allow Data Distribution to obtain access to disk space.
  - Maintains a user pull area that supports electronic pull distribution.
  - Provides for the copying of files into the archive for permanent storage.
- SDSRV (Figure 4) is the part of the DSS that manages and provides user access to collections of non-document Earth Science data.
  - Checks/verifies metadata.
  - Issues requests to the STMGT and DDIST CSCIs to perform storage and distribution services in support of the processing of service requests, such as insertion of data into the archive or distribution of data products from the archive.

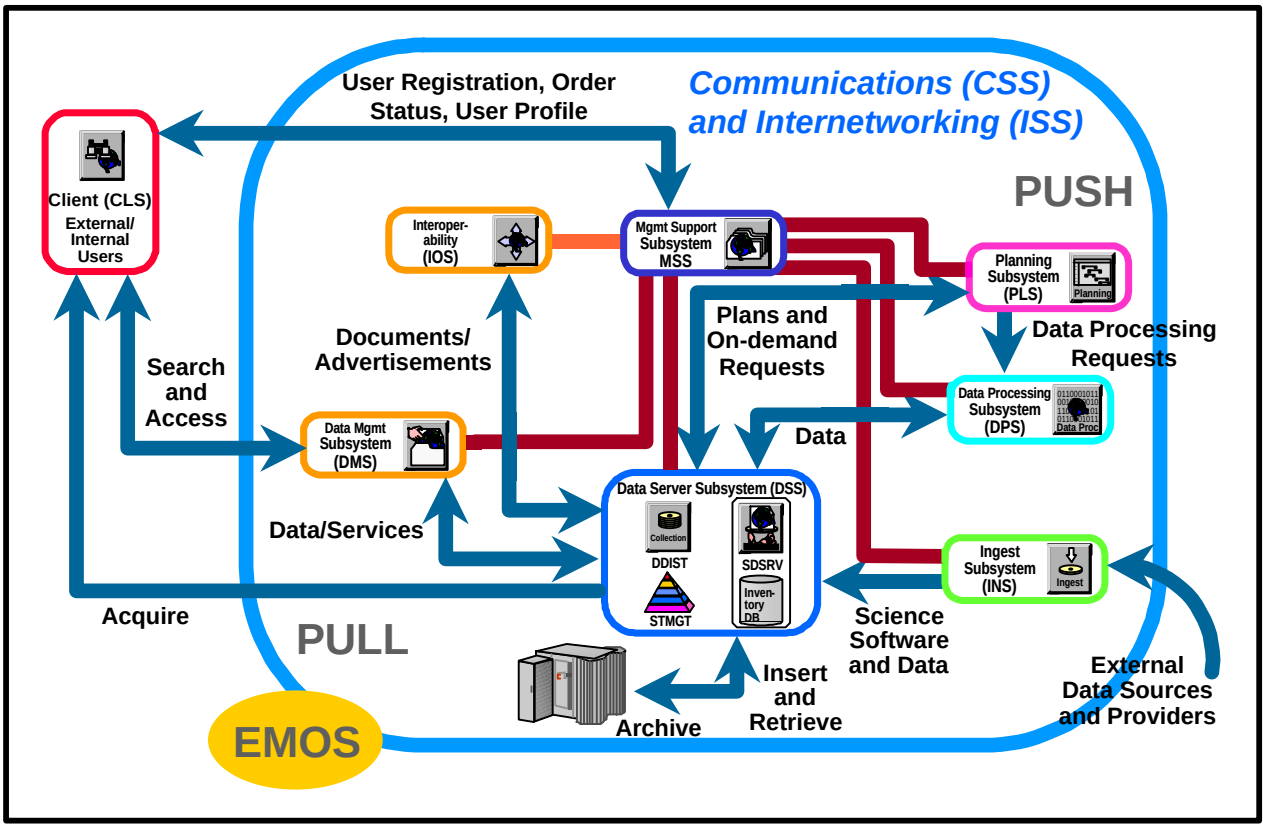

Figure 1. ECS Context Diagram

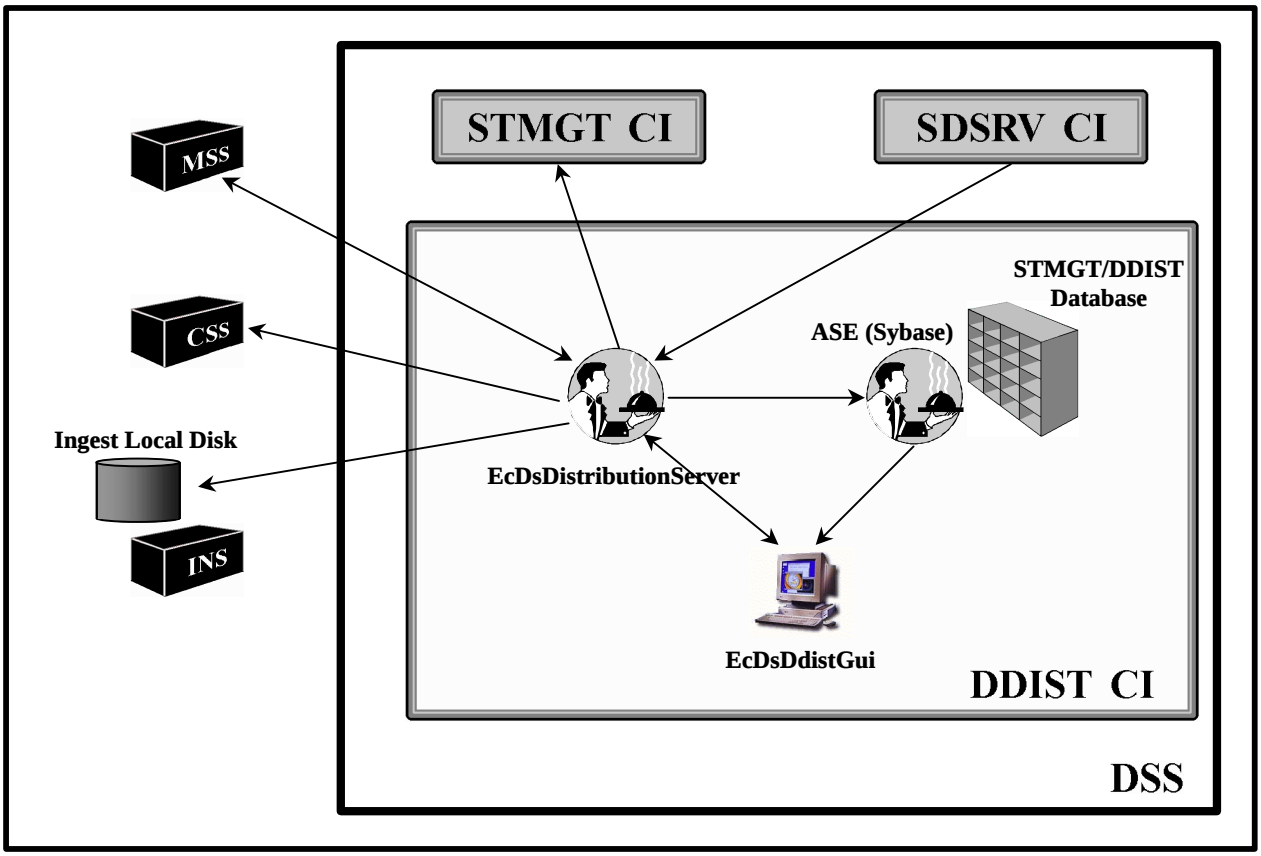

Figure 2. DSS Data Distribution (DDIST) CSCI Architecture

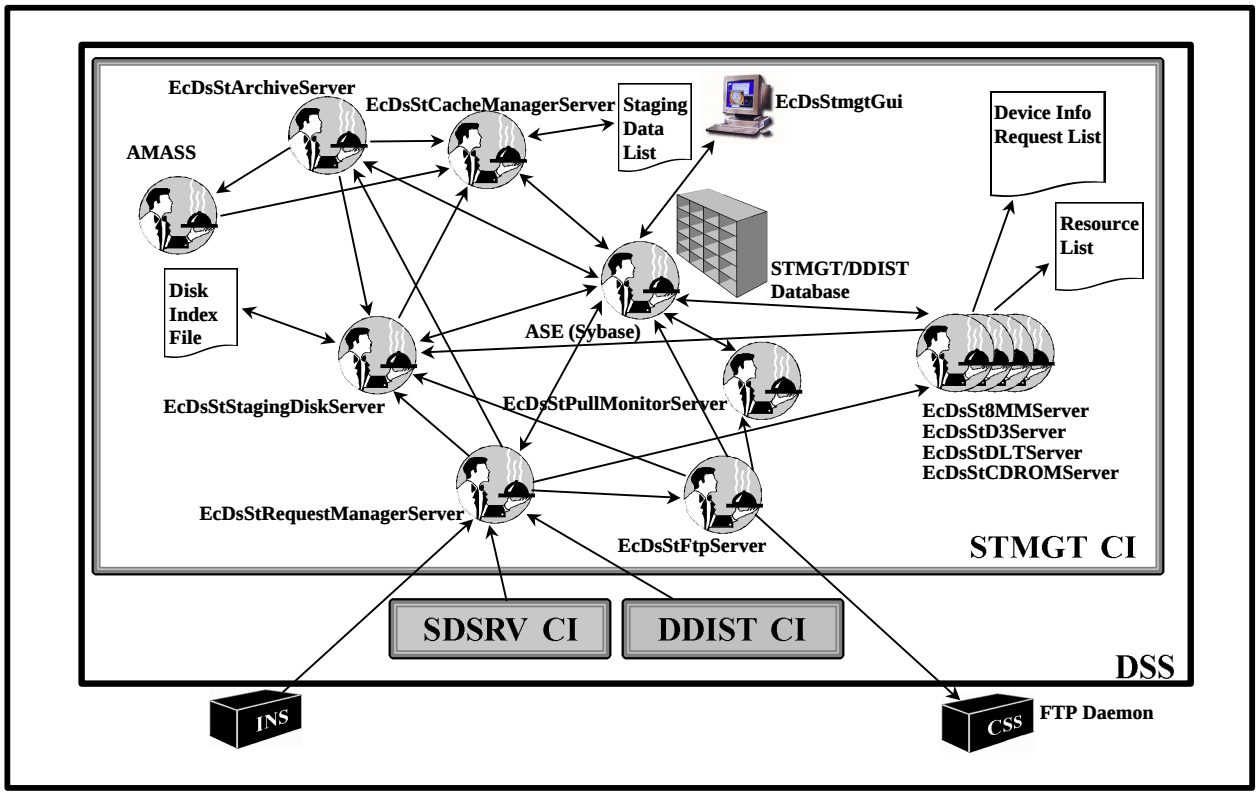

Figure 3. DSS Storage Management (STMGT) CSCI Architecture

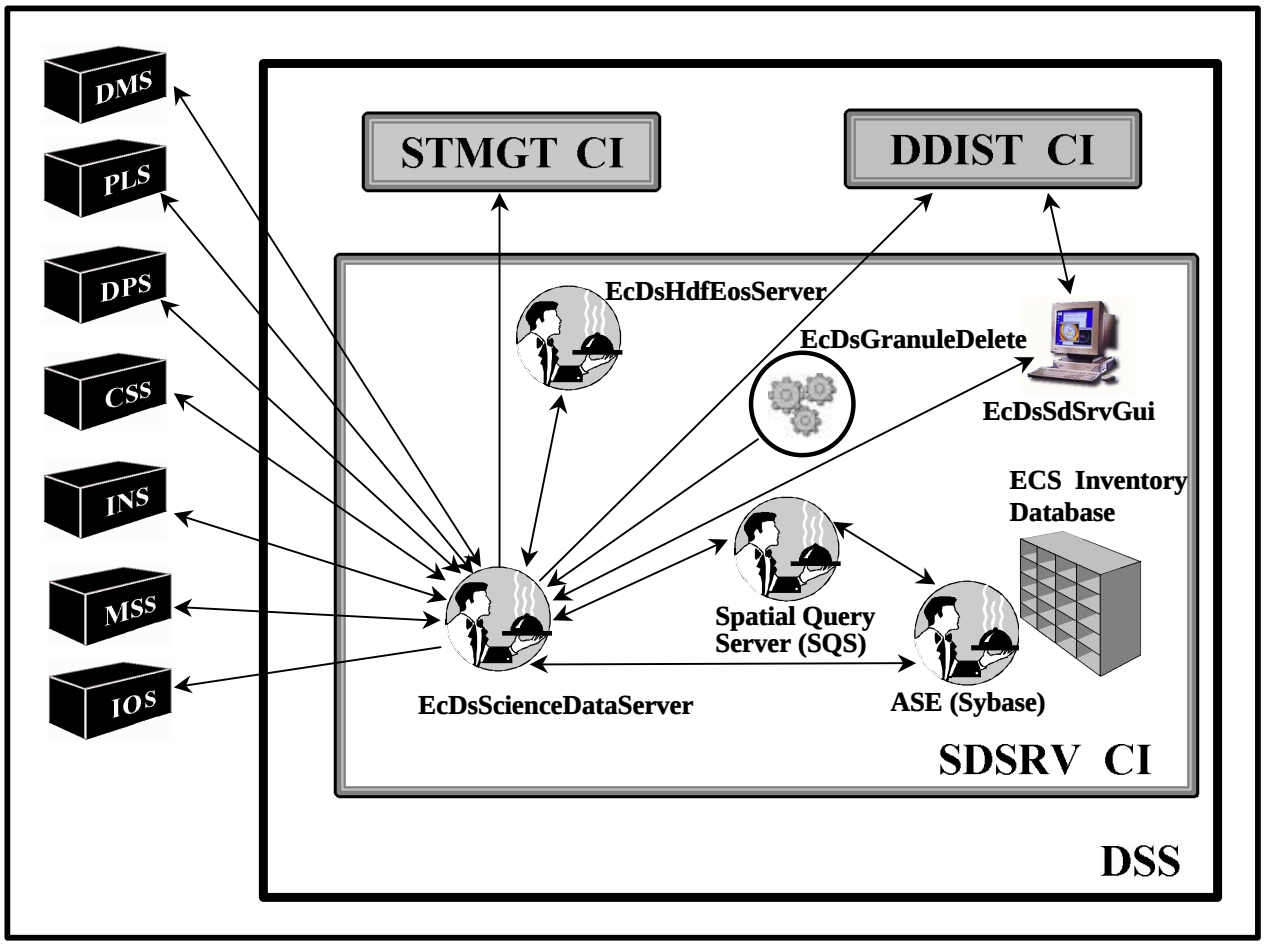

Figure 4. DSS Science Data Server (SDSRV) CSCI Architecture

A recent addition to ECS is the Product Distribution System (PDS), which supports the distribution of data on the following types of media:

- 8mm tape cartridges.
- Digital Linear Tape (DLT).
- Compact disk (CD).
- DVD (formerly digital video disk or digital versatile disk now referred to as just "DVD").

A description of PDS (including procedures for the distribution of data on hard media) is described in Addendum A to this document.

Data Distribution (DDIST)

The DDIST CSCI is the part of ECS Science Data Processing (SDP) that manages the distribution of data products to requesters, whether they are internal or external to SDP. The Ingest/Distribution Technician uses DDIST when monitoring and controlling the distribution of data products. The Ingest/Distribution technician has access to DDIST primarily through the Data Distribution Operator graphical user interface (GUI).

DDIST has the following three major components (as shown in Figure 2):

- Data Distribution Operator GUI (EcDsDdistGui).
  - GUI that allows the technician to track and manipulate distribution requests through GUI controls and database information.
- Distribution Server (EcDsDistributionServer).
  - Server that provides the control and coordination for data distribution through request processing.
- Sybase Adaptive Server Enterprise (ASE) Server.
  - Commercial off-the-shelf (COTS) software application that handles the request list and has a set of stored procedures that updates the request configuration, provides the request configuration to GUI operations and check-points the state of the CSCI for fault recovery purposes.

Distribution personnel use the following start-up script that is available in the /usr/ecs/*MODE*/CUSTOM/utilities directory on the Distribution Server host:

- EcDsDdistGuiStart.
  - Launches the Data Distribution Operator GUI.

The following start-up scripts in the /usr/ecs/*MODE*/CUSTOM/utilities directory on the Distribution Server host are typically called by other applications and are not normally invoked directly by Distribution personnel:

- EcDsDataDistributionAppStart.
- EcDsDdStart.
- EcDsDistributionServerStart.
  - Starts the Distribution Server.

In addition to the preceding start-up scripts the following scripts are available in the /us/ecs/*MODE*/CUSTOM/utilities directory on the Distribution Server host:

- DsDdSendMailPl.pl.

- EcDsDdPTEdit.pl.
  - Perl script that allows system operators to change the threshold for the number of threads that can be active for each priority level of distribution requests.

Storage Management (STMGT)

The STMGT CSCI manages all physical storage resources for all DSS components including the following items:

- Tape robotic archive.
- Random Array of Inexpensive Disks (RAID) disk cache.
- On-line storage.
- Peripheral devices (e.g., various types of magnetic tape drives) used for ingesting data.

During the distribution of data, STMGT provides DDIST and SDSRV with interfaces that copy files out of the archive and allocate magnetic disk space for staging the files. In addition, STMGT provides DDIST with interfaces that copy files for electronic distribution. Furthermore, STMGT maintains a user pull area that supports electronic pull distribution.

STMGT has the following major components (as shown in Figure 3):

- Archive Server (EcDsStArchiveServer).
  - Server that provides access to stored data.
  - There can be multiple archive servers running at a given site, each with its own type of data or storage medium.
- Staging Servers.
  - Cache Manager Server (EcDsStCacheManagerServer) - Server that manages a group of data files that have been retrieved from the archive and placed into a cache area on staging disk; it maintains a list of the data files so that subsequent data retrieval requests are fulfilled immediately without requiring an additional archive access.
  - Pull Monitor (EcDsStPullMonitorServer) [The pull monitor is just a symbolic link to the Cache Manager Server binary executable image.] - Server that manages the files in the user pull area; deletes files as they are retrieved (i.e., electronically "pulled") from the user pull area by respective ECS users or as the files become stale (their time-out periods expire).
  - Staging Disk Server (EcDsStStagingDiskServer) - Server that manages shared disk space; it allows clients to allocate disk space and reserve files between staging directories and from non-staging to staging directories.
- Resource Managers.

  - 8mm Server (EcDsSt8MMServer) - Server that schedules access to the 8mm cartridge tape drives used by Ingest; maintains a request queue based on priority and time of request receipt.
  - D3 Server (EcDsStD3Server) - Server that schedules access to the D3 cartridge tape drive(s); maintains a request queue.
  - FTP Server (EcDsStFtpServer) - Server that schedules access for Ingest or distribution file transfer protocol (ftp); maintains a request queue.
- Storage Management Request Manager (EcDsStRequestManagerServer).
  - Routes requests to the appropriate server for servicing.
  - Provides the primary point of detection and recovery for unexpected client or server termination.
- Storage Management Control GUI (EcDsStmgtGui).
  - GUI to the Storage Management/Data Distribution shared database; allows the technician to set parameters and configurations that control the STMGT servers.
- Sybase ASE Server.
  - COTS software application that handles insertion and retrieval of data concerning storage management activities into/from the STMGT/DDIST database.
- Archival Management and Storage System (AMASS).
  - COTS software application that supports the functioning of the data repository hardware (e.g., archive robotics).

Distribution personnel use the following start-up script that is available in the /usr/ecs/*MODE*/CUSTOM/utilities directory on the Distribution Server host:

- EcDsStmgtGuiStart.
  - Launches the Storage Management Control GUI.

The following start-up scripts in the /usr/ecs/*MODE*/CUSTOM/utilities directory on the Ingest Server host, Access/Process Coordinators (APC) Server host, Distribution Server host, File and Storage Management System (FSMS) Server host, and/or Working Storage host are typically called by other applications and are not normally invoked directly by Distribution personnel:

- EcDsStFtpServerStart.
  - Starts the ftp server.

- EcDsStStagingDiskServerStart.
  - Starts a staging disk server.
- EcDsStStart.
- EcDsStStorageMgmtAppStart.
- EcEcsAppStart.
- EcDsStArchiveServerStart.
  - Starts an archive server.
- EcDsStCacheManagerServerStart.
  - Starts a cache manager server.
- EcDsStRequestManagerServerStart.
  - Starts the Request Manager.
- EcDsSt8MMServerStart.
  - Starts the 8mm Server.
- EcDsStD3ServerStart.
  - Starts the D3 Server.
- EcDsStDLTServerStart.
  - Starts the DLT Server.
- EcDsStCDROMServerStart.
  - Starts the CD Server.

In addition to the preceding applications the following scripts are available in the /us/ecs/*MODE*/CUSTOM/utilities directory on a variety of hosts, including the APC Server host, FSMS Server host, and/or Working Storage host:

- EcDsCheckArchive.
- EcDsStConfigVolGrps.
- EcDsStDbBuild.
- EcDsStDbDrop.
- EcDsStDbDump.
- EcDsStDbDumpTrans.
- EcDsStDbLoad.

- EcDsStDbLoadTrans.
- EcDsStDbPatch.
- EcDsStFilesPerTapeUtility.
- EcDsStVolGrpCreateMain.pl.

Science Data Server (SDSRV)

The SDSRV CSCI is the part of the Data Server Subsystem that issues requests to the STMGT and DDIST CSCIs to perform storage and distribution services in support of the processing of service requests, such as insertion of data into the archive or distribution of data products to requesters (including other ECS subsystems).

SDSRV has the following major components (as shown in Figure 4):

- Science Data Server (EcDsScienceDataServer).
  - Server responsible for managing collections of Earth Science and related data and for servicing requests for the storage, search, retrieval, and manipulation of data within those collections.
- Hierarchical Data Format (HDF) EOS Server (EcDsHdfEosServer).
  - Server that provides science data subsetting capabilities for Earth Science data that have been configured with a subsetting service.
- Granule Deletion Administration Tool (EcDsGranuleDelete).
  - Provides a command line operator interface for deleting granules either in both the inventory and the archive or just the archive.
  - The associated Production History (PH), Quality Assessment (QA) and Browse granules can also be deleted.
- Science Data Server GUI (EcDsSdSrvGui).
  - GUI that allows the operator to monitor active EcDsScienceDataServer requests and receive descriptor files and dynamic link libraries (dll) for configuring Earth Science Data Types (ESDTs) in the EcDsScienceDataServer.
- Autometric Spatial Query Server (SQS).
  - COTS software application that provides the capability to manage spatial data types of earth science catalog metadata (including specialized spatial searches) for the ECS Science Data Processing Segment (SDPS).

- Sybase Adaptive Server Enterprise (ASE) Server.
  - COTS software application that provides the management of spatial data types of an earth science catalog of metadata for the SDPS. Includes capabilities for searching and storing the catalog.

The following start-up script is available in the /usr/ecs/*MODE*/CUSTOM/utilities directory on the SDSRV Server host and the Operations Workstation:

- EcDsSdSrvGuiStart.
  - Launches the Science Data Server GUI.

In addition to the preceding applications the following scripts are available in the /us/ecs/*MODE*/CUSTOM/utilities directory on the SDSRV Server host:

- EcTsDsClientDriverStart.
- EcDsSrConvertEvt.
- EcDsSrDbBuild.
- EcDsSrDbDrop.
- EcDsSrDbDump.
- EcDsSrDbLoad.
- EcDsSrDbMigrate.
- EcDsSrDbPatch.
- EcDsSrDbValids.

System Changes for Release 6A

Release 6A involves changes in the following areas:

- Increased data processing load at certain DAACs in support of…
  - Reprocessing of Terra satellite data (in addition to routine processing of Terra data).
    - Essentially doubles the previous Terra processing load.
  - Processing of data from the Aqua satellite.
    - Release 5B supported Aqua Science Software Integration and Test (SSI&T) only.

- Greater volume of data to be ingested.
  - Supports more interfaces and a larger number of Earth Science Data Types (ESDTs).
- Higher volume of data products to be distributed.

ECS hardware configuration upgrades for Release 6A include the following changes:

- Replacement of the Fiber Distributed Data Interface (FDDI) networks with gigabit Ethernet networks at two DAACs [i.e., Goddard Spaceflight Center (GSFC) and Earth Resources Observation Systems Data Center (EDC)].
  - The gigabit Ethernet networks are expected to handle the increased throughputs of Terra reprocessing along with routine processing for Aqua.
- Addition of an SGI Origin processor to the Science Processing configuration at GSFC to handle the additional Aqua MODIS processing load.
- Replacement of SGI Challenge archive machines with SGI Origin machines.
- Upgrading of Science Data Server configurations (both the SDSRV and Sybase/SQS hosts) at EDC and GSFC so that the request load is shared between two separate host configurations.
- Additional staging disks in the Release 6A configuration to handle increased Ingest and Data Distribution loads.

The Data Distribution Process

Data Distribution is a process of retrieving archived data and providing the data to requesters in response to the orders they submit. The requesters may be classified in either of the following two categories:

- External to ECS.
  - For example, scientists at Science Computing Facilities (SCFs) may have standing orders for the data products that are processed using their science software.
- Internal to ECS.
  - For example, the Data Processing Subsystem depends on Data Distribution to distribute copies of archived science software and input data in support of data processing.

Data retrieved from the archives can be distributed to requesters using any of the following three general methods:

- Electronic pull.
- Electronic push.
- Hard (physical) media distribution on disks or tape cartridges [distributed through the Product Distribution System (PDS)].

The method of data distribution is dictated by the nature of the data distribution request. (The requester specifies the distribution method when ordering or subscribing to the data.)

If the requester specifies distribution in the electronic "pull" mode, data are retrieved from the archive and placed in the "pull area" on the data server staging disk. The requester is notified that the data are available for retrieval from that particular location for a set period of time. The requester initiates a file transfer procedure (ftp "get") to move the data electronically (over a communications network) to the requester's own system.

In response to a request for distribution in the electronic "push" mode, data are retrieved from the archive and placed on a data server staging disk. Then the retrieved data on the staging disk are transferred electronically (via ftp "put") to the requester's designated storage location (specified in the distribution request) under the control of the data server. The requester is notified when the data push has been completed.

If the requester submits a request for hard media distribution, the retrieved data and metadata files on the staging disk are transferred via ftp push to the designated PDS staging area. The PDS generates and mails the media; and sends an e-mail distribution notice (order shipment notification) in standard ECS format to the requester's e-mail address (as specified in the original order).

In general, data distribution operations proceed as follows:

- Electronic Pull:
  - A requester connects to the system and performs a search [e.g., using the EOS Data Gateway (EDG)] for a specific data product.
  - When the system notifies the requester that the product has been found, the requester submits an order for a "pull" of the data using ftp.
  - STMGT retrieves the data from the archive and places the data on the Data Server pull disk.
  - DDIST builds an e-mail notification that the requester's order has been filled.
  - Message is sent via e-mail to the requester's e-mail address, which is determined from the User Profile.
  - The requester pulls (transfers) the data from the Data Server pull disk to the requester's own system.

- The data are deleted from the pull disk in accordance with DAAC policy (usually after a set period of time).

- Electronic Push:
  - A requester connects to the system and performs a search for a specific data product.
  - When the system notifies the requester that the product has been found, the requester submits an order for an ftp push of the data. The requester supplies all the necessary system, path, and security information to enable the requested data to be placed in a directory on the requester's system.
  - The data are retrieved from the archive, placed on the Data Server staging disk and pushed (transferred) to the requester's system.
  - DDIST builds an e-mail notification that the requester's order has been filled.
  - Message is sent via e-mail to the requester's e-mail address, which is determined from the User Profile.
  - The data are deleted from the staging disk in accordance with DAAC policy (e.g., after a set period of time).

- Physical Media Distribution:
  - A requester connects to the system and performs a search for a specific data product.
  - The requester submits an order for a shipment of specific data on a physical medium.
  - If an order to be delivered on a physical medium is for a product other than a Landsat-7 product, the V0 Gateway forwards the order to the Product Distribution System (PDS).
  - For Landsat-7 products, the V0 Gateway first forwards the order to be delivered on a physical medium to the Distributed Ordering, Research, Reporting and Accounting Network (DORRAN) at the Earth Resources Observation Systems (EROS) Data Center (EDC); then when the gateway receives a validated Product Request from DORRAN, it forwards the Landsat-7 order to the PDS.
  - For each order it receives from the V0 Gateway, the PDS orders the requested data from the ECS using the Science Data Server (SDSRV) Command Line Interface (SCLI).
    - The PDS may break up large orders into smaller sets and may elect to order granules for a request individually.
  - ECS delivers the data to the PDS using its standard ftp push data distribution capability.

- The PDS transfers the data to the specified physical medium.
- PDS e-mails a data distribution notice (order shipment notification) to the user and (for Landsat-7 orders) to DORRAN.
- The PDS updates the ECS order tracking database to completed status.

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Launching the Data Distribution Operator and Storage Management Control GUIs

Launching the Data Distribution Operator and Storage Management Control GUIs

The following software applications are associated with Data Distribution:

- Data Distribution Operator GUI (EcDsDdistGui).
- Distribution Server (EcDsDistributionServer).
- Sybase ASE Server.

In addition, Data Distribution depends on a number of related servers, especially the Science Data Server and Storage Management servers, to participate in the distribution of data from the archive.

The following software applications are associated with Storage Management:

- Storage Management Control GUI (EcDsStmgtGui).
- Archive Server (EcDsStArchiveServer).
- Cache Manager Server (EcDsStCacheManagerServer).
- Pull Monitor (EcDsStPullMonitorServer).
- Staging Disk Server (EcDsStStagingDiskServer).
- 8mm Server (EcDsSt8MMServer).
- D3 Server (EcDsStD3Server).
- FTP Server (EcDsStFtpServer).
- Storage Management Request Manager (EcDsStRequestManagerServer).
- Sybase ASE Server.
- Archival Management and Storage System (AMASS).

The Storage Management Control GUI can be used in distribution operations to monitor cache (e.g., pull area) statistics. Access to the GUIs must be gained through the use of UNIX commands.

Launching the Data Distribution Operator and Storage Management Control GUIs starts with the assumption that the applicable servers are running and the Ingest/Distribution Technician has logged in to the ECS system.

NOTE: Commands in Steps 1 through 7 are typed at a UNIX system prompt.

1 Type **setenv DISPLAY *clientname*:0.0** then press the **Return/Enter** key.

- Use either the X terminal/workstation IP address or the machine-name for the ***clientname***.
- When using secure shell, the DISPLAY variable is set just once, before logging in to remote hosts. If it were to be reset after logging in to a remote host, the security features would be compromised.

2 Start the log-in to the Distribution Server host by typing **/tools/bin/ssh *hostname*** (e.g., **e0dis02**, **g0dis02**, **l0dis02**, or **n0dis02**) in the new window then 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 will 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*** then press the **Return/Enter** key.

- Go to Step 5.

4 At the **<*user@remotehost*>'s password:** prompt type your ***Password*** then press the **Return/Enter** key.

5 Type **cd /usr/ecs/*MODE*/CUSTOM/utilities** then press **Return/Enter**.

- Change directory to the directory containing the Data Distribution Operator GUI and Storage Management Control GUI start-up scripts (e.g., EcDsDdistGuiStart, EcDsStmgtGuiStart).
- The ***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.

6 Type **EcDsDdistGuiStart** ***MODE*** then press **Return/Enter**.

- The **Data Distribution Operator** GUI **Distrib'n Requests** tab (Figure 5) is displayed.

7 Type **EcDsStmgtGuiStart** ***MODE*** then press **Return/Enter**.

- The **Storage Management Control** GUI **Storage Config.** tab (Figure 6) is displayed.

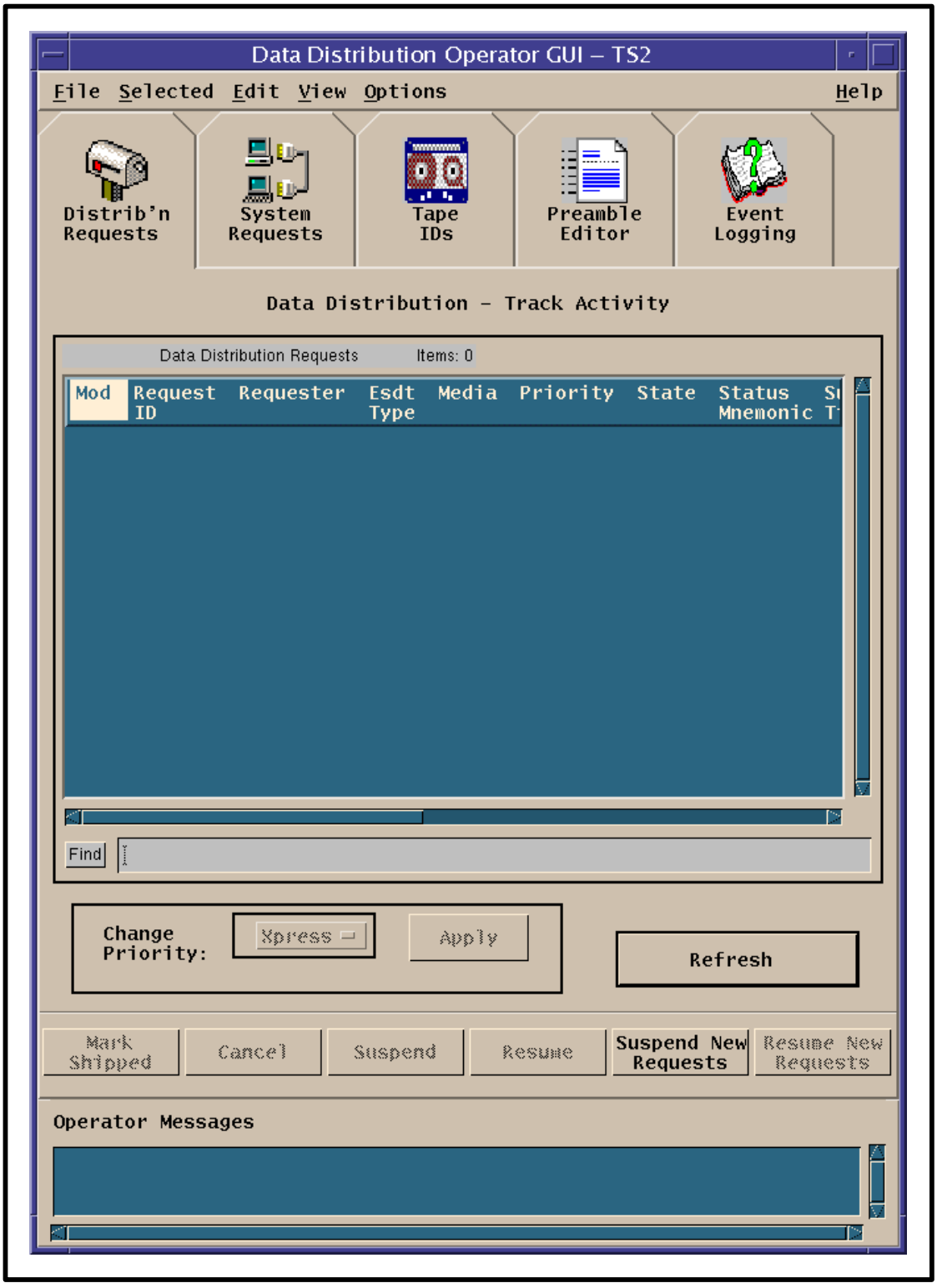

Figure 5. Distrib'n Requests Tab (Data Distribution Operator GUI)

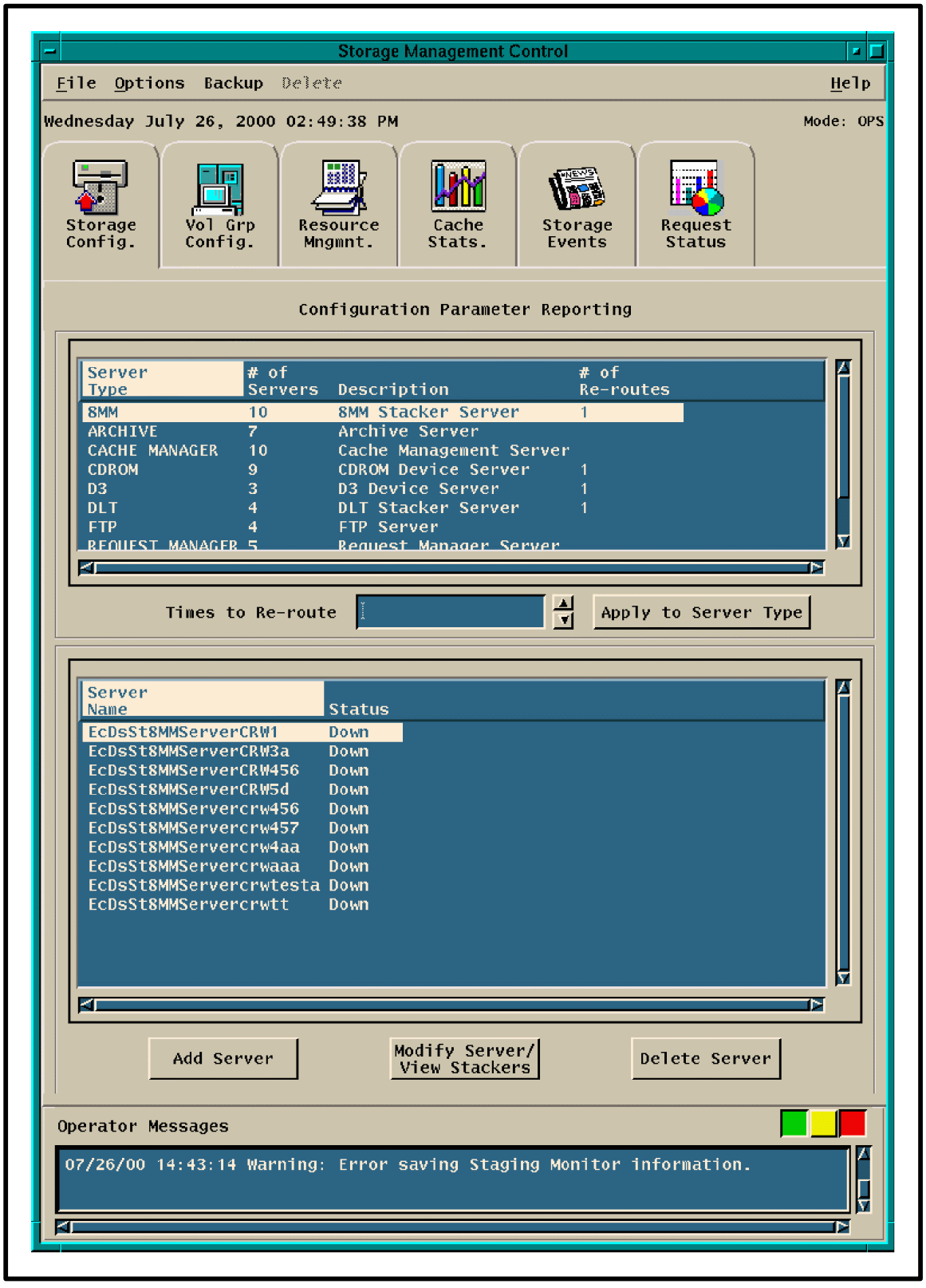

Figure 6. Storage Config. Tab (Storage Management Control GUI)

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Monitoring/Controlling Distribution Requests

Monitoring/Controlling Data Distribution Requests

Data Distribution activities are monitored and controlled using the **Data Distribution Operator GUI** and the **Storage Management Control** GUI. The **Data Distribution Operator GUI** has the following five tabs:

- **Distrib'n Requests** [for monitoring/controlling distribution requests].
- **System Requests** [not currently functional].
- **Hard Media** [obsolete].
- **Preamble Editor** [for editing packing lists and other messages to requesters].
- **Event Logging** [not currently functional].

The **Storage Management Control** GUI has the following six tabs:

- **Storage Config.** [for configuring Storage Management components].
- **Vol Grp Config.** [for configuring archive volume groups].
- **Resource Mngmnt.** [for monitoring/controlling media resources].
- **Cache Stats.** [for monitoring/controlling the contents of various caches].
- **Storage Events** [for searching for events in the Event Log].
- **Request Status** [for displaying the status of requests in Storage Management].

The Ingest/Distribution Technician monitors and manages data distribution requests primarily via the **Data Distribution - Track Activity** window of the **Distrib'n Requests** tab (Figure 5) on the **Data Distribution Operator GUI**. From the **Data Distribution - Track Activity** window the DAAC Ingest/Distribution Technician can perform the following functions:

- View data distribution requests.
- Change the priority of a selected distribution request.
- Cancel or suspend a request.
- Resume processing of a suspended request.
- Filter on all or specific requests by...
  - Request ID.
  - Requester.

- All Requests.
- Media Type.
- State (current status).

The **Data Distribution - Track Activity** window displays the following information for each data distribution request:

- Mod [contains a check mark if the request has been selected/modified (e.g., suspended) by the operator during the current session].
- Request ID.
- Requester.
- Esdt Type.
- Media [type].
- Priority.
- State [current state of the request].
- Status Mnemonic [message indicating there is an operator message attached to the request].
- Submission Time [(and date) GMT].
- End Time [(and date) GMT].
- Total Size [of the request] (bytes).
- Media # Completed.
- # of Media.
- # of Granule.
- # of Files.
- Order ID.
- Ordered State [the next state that the request should have (based on operator input)].

The procedure for monitoring data distribution requests starts with the assumption that all applicable servers and the **Data Distribution Operator GUI** are currently running and the **Distrib'n Requests** screen (Figure 5) is being displayed.

Monitoring/Controlling Data Distribution Requests

---

1 Configure polling as described in the procedure for **Configuring Data Distribution Polling** (subsequent section of this lesson).

2 Observe information displayed on the **Distrib'n Requests** tab of the **Data Distribution Operator GUI**.

- By default all current distribution requests are shown in the **Data Distribution Requests** list of the **Data Distribution - Track Activity** window (**Distrib'n Requests** tab).
- Note that virtually all data retrieved from the archive is controlled by Data Distribution; consequently there may be a lot of activity on the **Data Distribution - Track Activity** screen, especially if data processing is operating at or near capacity.
  - Consequently, it may be useful to restrict the number of distribution requests displayed by filtering them as described in the next step of this procedure.
- Horizontal and vertical scroll bars allow viewing data that are not readily visible in the window.
- The **Refresh** button provides a means of updating the data on the screen.
- The **Find** button provides a means of performing a keyword search of the distribution requests.
- The **Operator Messages** field at the bottom of the GUI displays messages concerning events occurring in distribution operations.
- Selecting **Options → Verify Connection** from the pull-down menu allows the operator to check the status of the connection to the server.
  - The status is displayed in the **Operator Messages** field at the bottom of the GUI.
- Selecting **Options → Reconnect** from the pull-down menu allows the operator to re-establish a connection with the server.
  - The status is displayed in the **Operator Messages** field at the bottom of the GUI.
- Highlighting a distribution request in the **Data Distribution - Track Activity** window then selecting **View→ Detailed** from the pull-down menu allows the operator access to more detailed information concerning the status of the distribution request.
  - The information is displayed in the **Operator Messages** field at the bottom of the GUI.

3 If the list of data distribution requests shown in the **Data Distribution - Track Activity** window needs to be filtered, perform the procedure for **Filtering Data Distribution Requests** (subsequent section of this lesson).

4 Observe data distribution requests displayed in the **Data Distribution Requests** list.

5 If it becomes necessary to change the priority of a data distribution request, perform the procedure for **Changing the Priority of Data Distribution Requests** (subsequent section of this lesson).

6 If it becomes necessary to either suspend a data distribution request or resume processing of a suspended request, perform the procedure for **Suspending/Resuming Data Distribution Requests** (subsequent section of this lesson).

7 If it becomes necessary to cancel a data distribution request, perform the procedure for **Canceling Data Distribution Requests** (subsequent section of this lesson).

8 Repeat Steps 3 through 7 as necessary to monitor data distribution requests.

9 If it becomes necessary to exit from the **Data Distribution Operator GUI** select **File → Exit** from the pull-down menu.

Configuring Data Distribution Polling

The **Data Distribution Operator GUI Options** menu provides the Ingest/Distribution Technician with a means of switching the Data Distribution database polling function on or off. In addition, there are two parameters that the technician can modify:

- DDist Polling Rate
  - How often (in seconds) the system updates the information displayed in the **Data Distribution - Track Activity** window.
- Error Retry Rate
  - Amount of time (in seconds) that the system waits before trying to poll the Data Server after a failed attempt.

The procedure for configuring data distribution polling starts with the assumption that all applicable servers and the **Data Distribution Operator GUI** are currently running and the **Data Distribution - Track Activity** window (Figure 5) on the **Distrib'n Requests** tab is being displayed.

Configuring Data Distribution Polling

---

1 Select **Options → System Settings** from the pull-down menu.

- The **Refresh Options** dialogue box (Figure 7) is displayed.

2 To change the DDist Polling state (from off to on or vice versa), click on the **DDist Polling On** button.

- If the button does not have a check mark in it, clicking on it turns DDist Polling on.

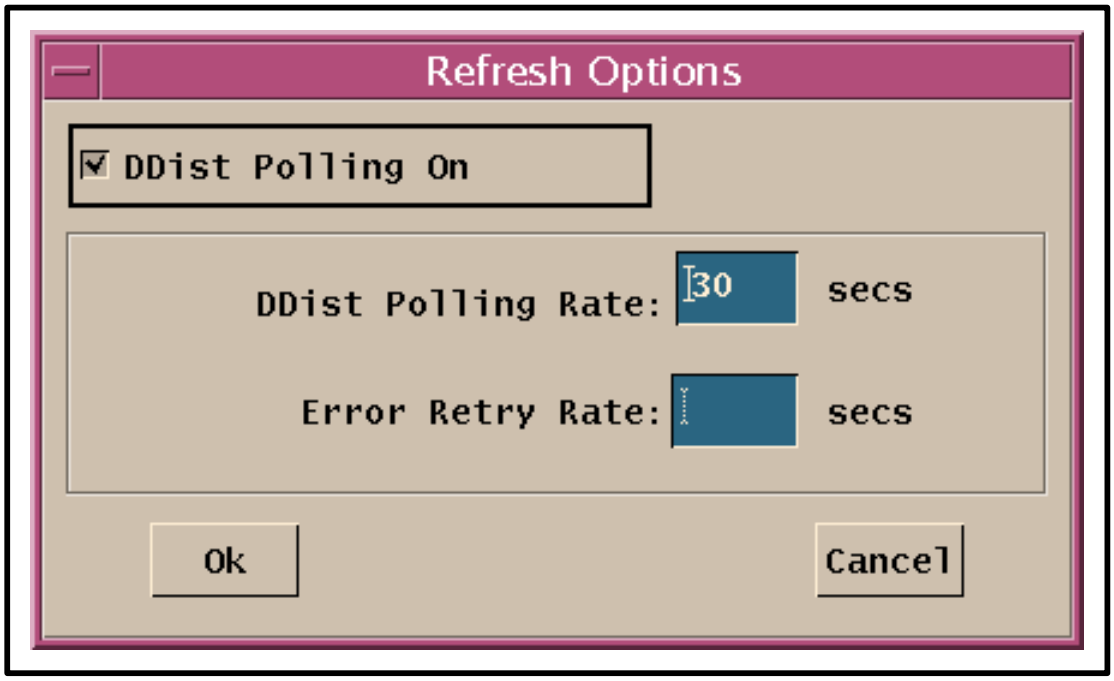

Figure 7. Refresh Options Dialogue Box

- If the button already has a check mark in it, clicking on it turns DDist Polling off.

3 To change the polling rate type the desired value (in seconds) in the **DDist Polling Rate** field.

- The default value is 30 seconds.

4 To specify an error retry rate, type the desired value (in seconds) in the **Error Retry Rate** field.

5 When the appropriate data have been entered in the **Refresh Options** dialogue box fields, click on the appropriate button.

- **Ok** - to apply the selections and dismiss the **Refresh Options** dialogue box.
- **Cancel** - to dismiss the **Refresh Options** dialogue box without applying the selections.

6 Return to the procedure for Monitoring/Controlling Data Distribution Requests.

Filtering Data Distribution Requests

The distribution requests to be displayed in the **Data Distribution Requests** list (**Data Distribution - Track Activity** window shown in Figure 5) can be filtered using the **Distribution**

Filter Requests dialogue box. The filtering can be done on the basis of the following criteria, either individually or in combination:

- Request ID.
- Requester.
- Media Type.
- State [of the request].

The procedure for filtering data distribution requests starts with the assumption that all applicable servers and the **Data Distribution Operator GUI** are currently running and the **Data Distribution - Track Activity** window (Figure 5) on the **Distrib'n Requests** tab is being displayed.

Filtering Data Distribution Requests

---

1 Select **View → Filter** from the pull-down menu.

- The **Distribution Filter Requests** dialogue box (Figure 8) is displayed.
- Perform as many of the following steps as necessary depending on the criteria for filtering distribution requests:
  - Request ID - Step 2.
  - Requester - Step 3.
  - All Requests - Step 4.
  - Media Type - Step 5.
  - State - Step 6.

2 If a specific distribution request is desired and the request ID is known, first click on the **Request ID** radio button, then click in the adjacent text box and type the request ID.

3 If data distribution requests submitted by a particular requester are desired, first click on the **Requester** radio button, then click in the adjacent text box and type the requester's identification.

- In the text box the requester must be identified exactly as known to the Data Server Subsystem.

4 If all data distribution requests are to be displayed in the **Data Distribution Requests** list, click on the **All Requests** radio button and go to Step 7.

- The **All Requests** button is particularly useful for restoring the **Data Distribution Requests** list after reviewing a previously filtered set of requests.

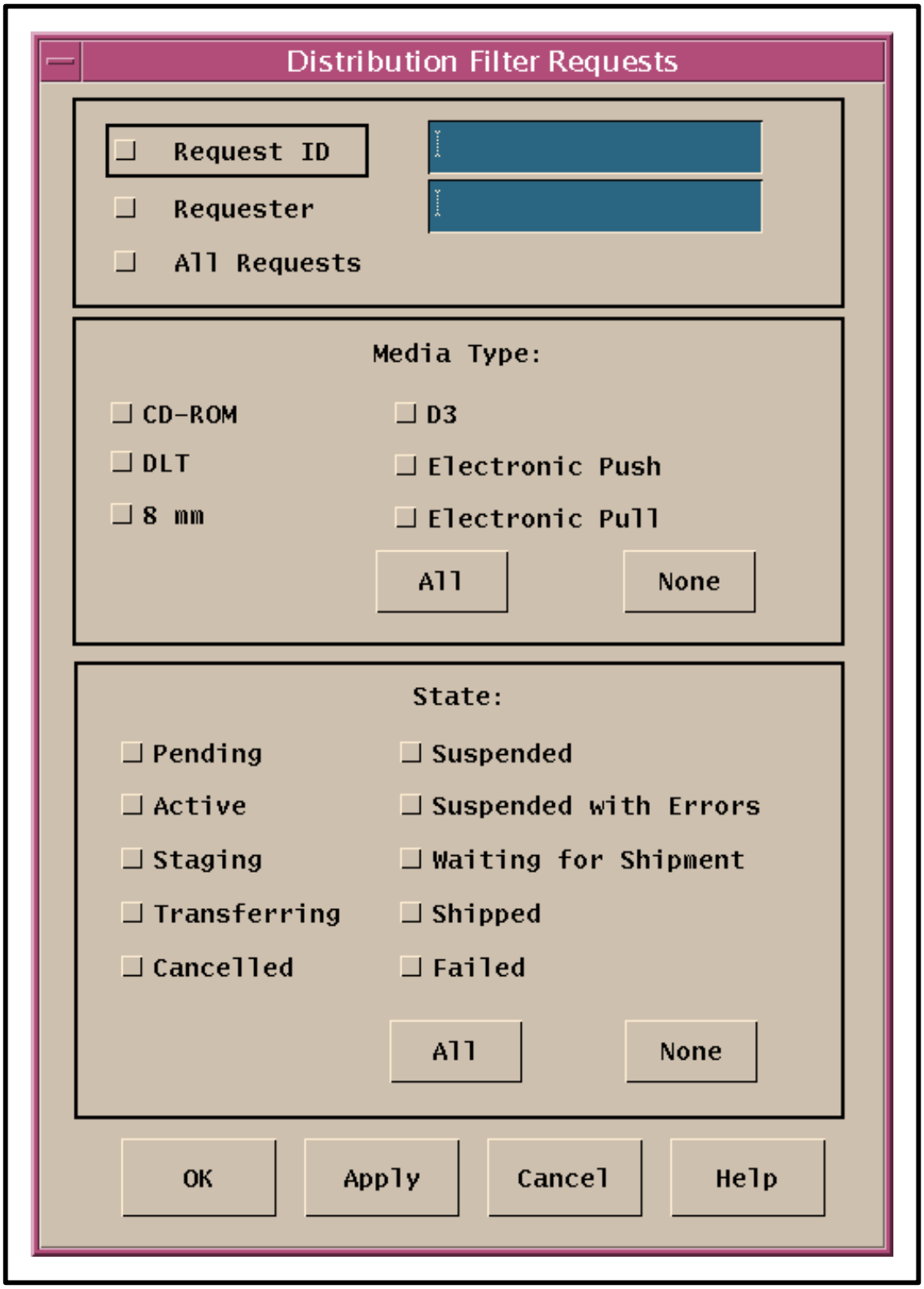

Figure 8. Distribution Filter Requests Dialogue Box

5 If a list of data distribution requests filtered by media type(s) is needed, click on the applicable button(s) in the **Media Type** section of the **Filter Requests** dialogue box.

- Radio buttons corresponding to the following types of media are available:
  - **CD-ROM** [(Compact Disk – Read-Only Memory (not relevant in Release 6A)].
  - **DLT** [Digital Linear Tape (not relevant in Release 6A)].
  - **8 mm** (tape) (not relevant in Release 6A).
  - **D3** (not relevant in Release 6A).
  - **Electronic Push.**
  - **Electronic Pull.**
- In addition, the following media selections are available:
  - **All.**
  - **None.**
- If other filters (e.g., requester or state) are to be applied, the **Apply** button may be clicked to implement the media type filter and leave the **Filter Requests** dialogue box open.

6 If a list of data distribution requests filtered by state(s) is needed, click on the applicable button(s) in the **State** section of the **Filter Requests** dialogue box.

- Radio buttons corresponding to the following states are available:
  - **Pending.**
  - **Active.**
  - **Staging.**
  - **Transferring.**
  - **Cancelled.**
  - **Suspended.**
  - **Suspended with Errors.**
  - **Waiting for Shipment.**
  - **Shipped.**
  - **Failed.**

- In addition, the following state selections are available:
  - **All.**
  - **None.**
- If other filters (e.g., requester or media type) are to be applied, the **Apply** button may be clicked to implement the state filter and leave the **Filter Requests** dialogue box open.

7 When all filter criteria have been selected, click on the appropriate button:

- **OK** - to implement the selections and dismiss the **Distribution Filter Requests** dialogue box.
  - The **Data Distribution - Track Activity** window (Figure 5) reappears; only requests that meet the specified filter criteria appear in the list.
- **Apply** - to implement the selections without dismissing the **Distribution Filter Requests** dialogue box.
  - The **Distribution Filter Requests** dialogue box remains open.
- **Cancel** - to dismiss the **Distribution Filter Requests** dialogue box without implementing the selections.
  - The previously available **Data Distribution Requests** list is shown in the **Data Distribution - Track Activity** window (Figure 5).

8 Return to the procedure for **Monitoring/Controlling Data Distribution Requests**.

Changing the Priority of Data Distribution Requests

The **Change Priority** area of the **Data Distribution - Track Activity** window (Figure 5) allows the Ingest/Distribution Technician to change the priority of data distribution requests. The procedure for changing the priority of data distribution requests starts with the assumption that all applicable servers and the **Data Distribution Operator GUI** are currently running and the **Data Distribution - Track Activity** window (Figure 5) on the **Distrib'n Requests** tab is being displayed.

Changing the Priority of Data Distribution Requests

---

1 If the list of data distribution requests shown in the **Data Distribution - Track Activity** window needs to be filtered to include the distribution request for which the priority is to be changed, perform the procedure for **Filtering Data Distribution Requests**.

2 Highlight the distribution request to be assigned a different priority by clicking on its entry in the **Data Distribution Requests** list.

3 Click and **hold** the **Change Priority** option button to display a menu of priorities, move the mouse cursor to the desired selection (highlighting it), then release the mouse button.

- The following priority codes are available:
  - **Xpress.**
  - **Vhigh.**
  - **High.**
  - **Normal.**
  - **Low.**
- Selected code is displayed on the **Change Priority** option button when the mouse button is released.

4 To implement the priority change click on the **Apply** button to the right of the priority option button.

5 Click on the **Refresh** button to update the data displayed on the screen.

- Priority of the request, as displayed in the **Priority** column of the **Data Distribution Requests** list, changes from its original value to the newly selected priority.
- A check mark is displayed in the **Mod** column of the **Data Distribution Requests** list to indicate that the request has been changed.

6 Repeat the preceding steps as necessary to change the priority of additional data distribution requests.

7 Return to the procedure for **Monitoring/Controlling Data Distribution Requests**.

Suspending/Resuming Data Distribution Requests

Under certain circumstances it may be advisable to suspend the processing of a data distribution request and resume it at a later time. For example, if there is a very large request that is taking up resources and causing other requests to back up waiting (especially requests from data processing that must be filled to allow processing to proceed), the processing of that request should be suspended until a time when there is less demand on data distribution.

Use the procedure that follows to suspend and subsequently resume data distribution. The procedure starts with the assumption that all applicable servers and the **Data Distribution Operator GUI** are currently running and the **Data Distribution - Track Activity** window (Figure 5) on the **Distrib'n Requests** tab is being displayed.

1 If the list of data distribution requests shown in the **Data Distribution - Track Activity** window needs to be filtered to include the distribution request to be suspended or resumed, perform the procedure for **Filtering Data Distribution Requests**.

2 To **suspend** requests, perform Steps 3 through 6; to **resume** suspended requests, go to Step 7.

3 If all new requests displayed in the **Data Distribution Requests** list are to be suspended, click on the **Suspend New Requests** button.

- The data distribution requests are suspended.
- Go to Step 5.

4 If a single request displayed in the **Data Distribution Requests** list is to be suspended, first click on the corresponding row in the **Data Distribution Requests** list to highlight the request, then click on the **Suspend** button.

- The selected data distribution request is suspended.

5 Click on the **Refresh** button to update the data displayed on the screen.

- Status of request(s), as displayed in the **State** column of the **Data Distribution Requests** list, change(s) from original value to "Suspended."
- Check mark(s) is (are) displayed in the **Mod** column of the **Data Distribution Requests** list to indicate that changes have been made to the request(s).

6 If there are no suspended requests to be resumed at this time, return to the procedure for **Monitoring/Controlling Data Distribution Requests**.

7 If processing of all new requests displayed in the **Data Distribution Requests** list is to be resumed, click on the **Resume New Requests** button.

- The data distribution requests resume processing.
- Go to Step 9.

8 If processing of a single request displayed in the **Data Distribution Requests** list is to be resumed, first click on the corresponding row in the **Data Distribution Requests** list to highlight the request, then click on the **Resume** button.

- The selected data distribution request resumes processing.

9 Click on the **Refresh** button to update the data displayed on the screen.

- Status of request(s), as displayed in the **State** column of the **Data Distribution Requests** list, changes from "Suspended" to whatever state(s) is (are) appropriate for

the continuation of request processing (depending on each request's status when it was suspended).

- Check mark(s) is (are) displayed in the **Mod** column of the **Data Distribution Requests** list to indicate that changes have been made to the request(s).

10 Return to the procedure for **Monitoring/Controlling Data Distribution Requests**.

Canceling Data Distribution Requests

Sometimes it may be necessary to cancel the processing of a data distribution request. The procedure for canceling data distribution request processing starts with the assumption that all applicable servers and the **Data Distribution Operator GUI** are currently running and the **Data Distribution - Track Activity** window (Figure 5) on the **Distrib'n Requests** tab is being displayed.

Canceling Data Distribution Requests

---

1 If the list of data distribution requests shown on the **Data Distribution - Track Activity** window needs to be filtered to include the distribution request to be canceled, perform the procedure for **Filtering Data Distribution Requests**.

2 To cancel a request first click on the corresponding row in the **Data Distribution Requests** list to highlight the desired request.

3 Click on the **Cancel** button near the bottom of the **Distrib'n Requests** tab.

- The selected data distribution request is canceled.

4 Click on the **Refresh** button to update the data displayed on the screen.

- Status of the request, as displayed in the **State** column of the **Data Distribution Requests** list, changes from its original value to "Canceled."
- A check mark is displayed in the **Mod** column of the **Data Distribution Requests** list to indicate that the request has been changed.

5 Return to the procedure for **Monitoring/Controlling Data Distribution Requests**.

Modifying Preambles

The **Preamble Editor** tab (Figure 9) on the **Data Distribution Operator GUI** allows the Ingest/Distribution Technician to review and/or modify the text of preambles to the following types of documents:

- Packing list.
- Successful e-mail.
- Failed e-mail.

The preambles are accessible in the **/usr/ecs/*MODE*/CUSTOM/data/DSS** directory on the Distribution Server host. Figure 10 is a sample of the "ftp push failed e-mail" preamble file (EcDsDdFtpPushEMFailurePreamble.txt). The directory contains preambles for the different types of distribution. The following two types of distribution only are relevant for Release 6A:

- Ftp pull.
- Ftp push.

The procedure for modifying preambles starts with the assumption that all applicable servers and the **Data Distribution Operator GUI** are currently running and the **Data Distribution - Track Activity** window (Figure 5) on the **Distrib'n Requests** tab is being displayed.

Modifying Preambles

1 Click on the **Data Distribution Operator GUI Preamble Editor** tab.

- The **Preamble Editor** screen (Figure 9) is displayed.

2 Click and hold the **Media Type** option button to display a menu of types of distribution media, move the mouse cursor to the desired selection (highlighting it), then release the mouse button.

- The following media types are listed:
  - **8mm.**
  - **D3.**
  - **FtpPush.**
  - **FtpPull.**

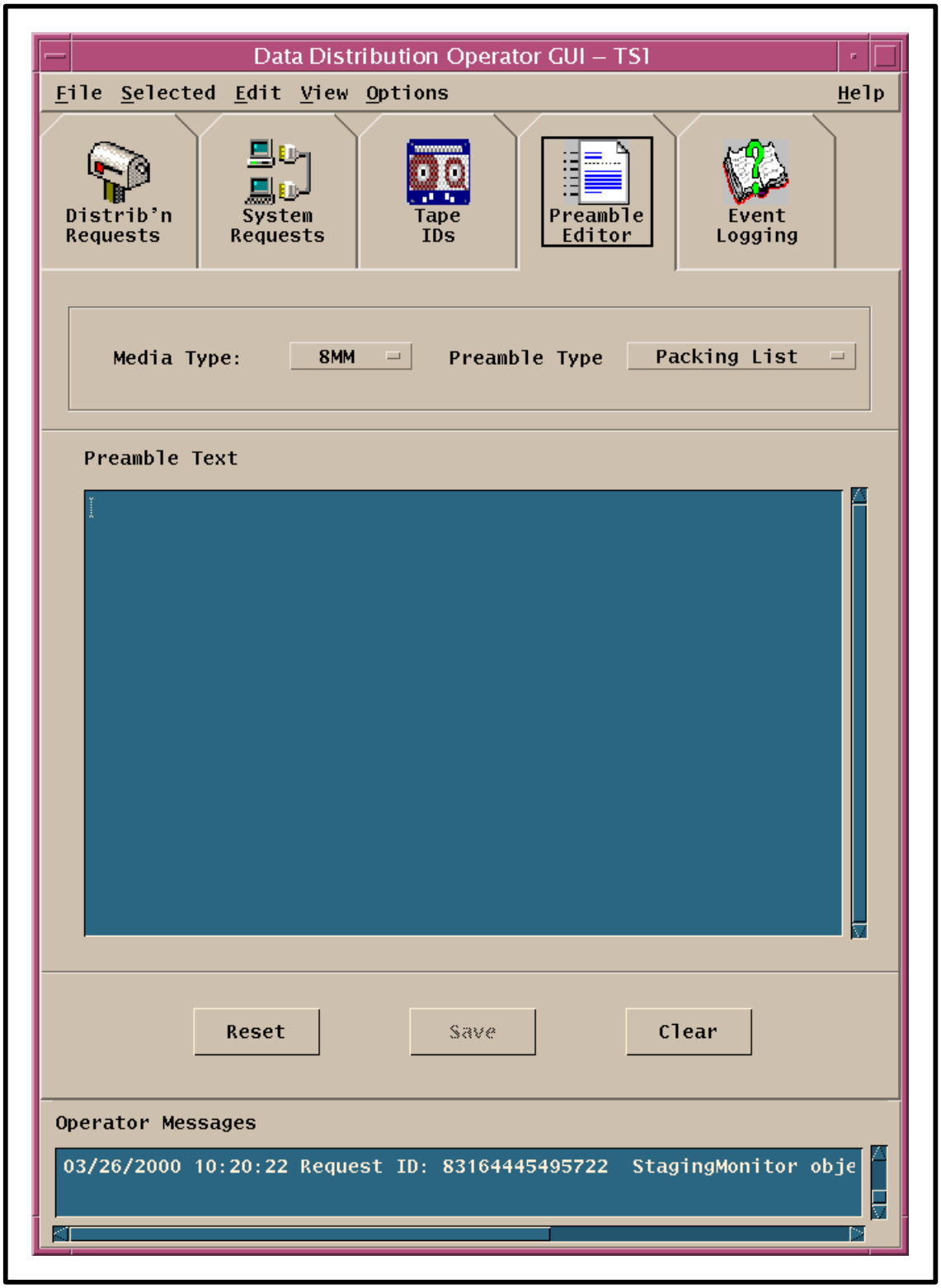

Figure 9. Preamble Editor Tab (Data Distribution Operator GUI)

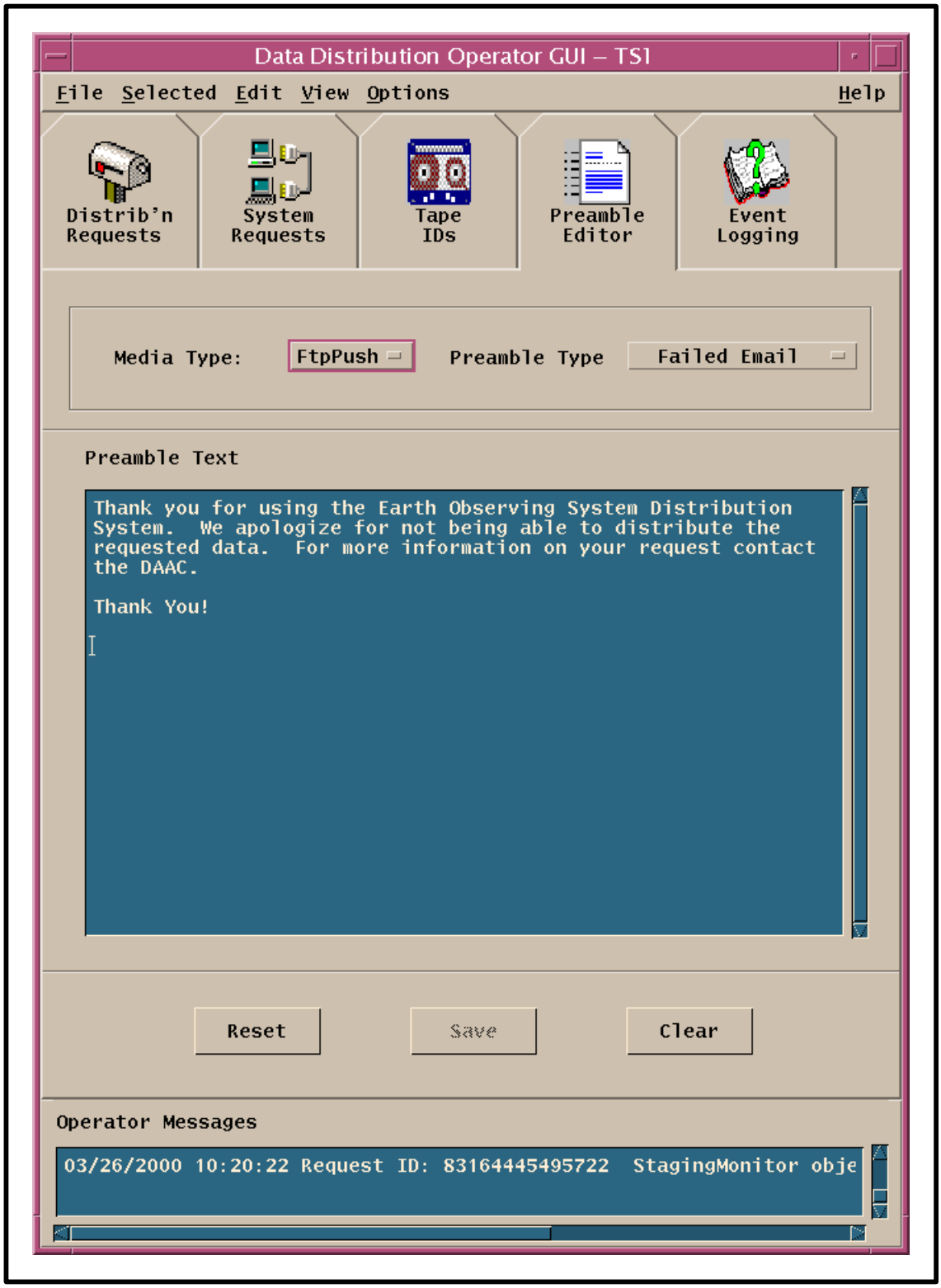

Figure 10. Sample FTP Push Failed E-Mail Preamble

- **CDROM.**
- **DLT.**

- The selected media type is displayed on the **Media Type** option button.

3 Click and hold the **Preamble Type** option button to display a menu of types of preambles, move the mouse cursor to the desired selection (highlighting it), then release the mouse button.

- The following preamble types are listed:
  - **Packing List.**
  - **Successful Email.**
  - **Failed Email.**
- The selected preamble type is displayed on the **Preamble Type** option button.
- The selected preamble is displayed in the **Preamble Text** window.
  - If the **Preamble Text** window is blank, either there is no current preamble of the specified type or the preamble file is empty. Proceed to Step 4 and create a new preamble.

4 Click in the **Preamble Text** window and type modifications to the preamble text as necessary.

- The following editing functions are available from the **Edit** pull-down menu or by clicking on the right mouse button:
  - **Cut.**
  - **Copy.**
  - **Paste.**

5 Click on the appropriate button from the following selections:

- **Save** - to save the preamble text as modified.
- **Reset** - to discard any changes and revert to the original (unmodified) preamble text.
- **Clear** - to remove all text from the **Preamble Text** window.
  - When the **Clear** button has been selected, a **Preamble Save Confirmation Dialogue Box** (Figure 11) is displayed.

6 If the **Preamble Save Confirmation Dialogue Box** is displayed, click on the appropriate button from the following selections:

- **Yes** - to save the preamble text as modified.

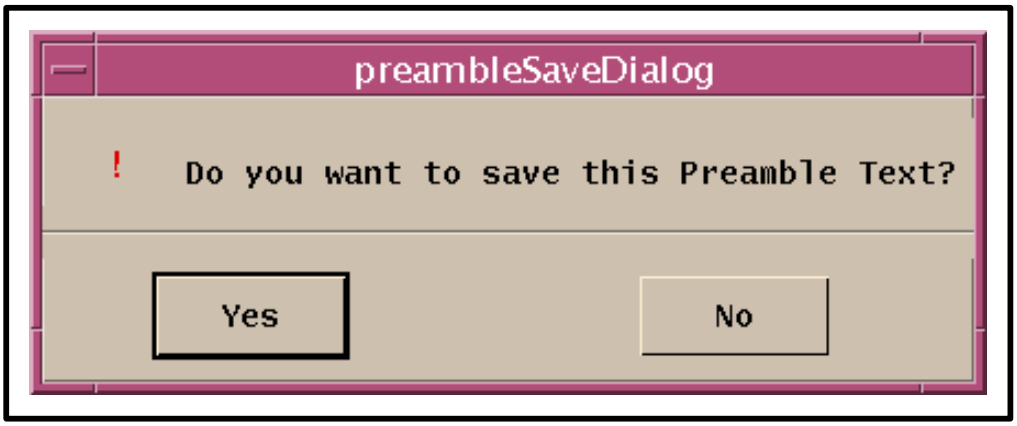

Figure 11. Preamble Save Confirmation Dialogue Box

- **No** - to revert to the original (unmodified) preamble text.

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Performing Hard (Physical) Media Operations

Media Operations

Media operations are accomplished through the Product Distribution System (PDS), which is described in Addendum A to this document.

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Configuring Storage Management Polling and Deleting Files from Cache

Configuring Storage Management Polling

The **Storage Management Control** GUI **Options** menu provides the Ingest/Distribution Technician with a means of switching the following two database polling functions on or off:

- **Operator Notification Timer** [e.g., polling for displaying Event Log data]**.**
- **Cache Statistics Timer** [polling for displaying cache statistics data]**.**

In addition, the technician can modify the following parameters relevant to the **Operator Notification Timer**:

- Database Polling Rate.
  - How often (in seconds) the system updates the information displayed on the GUI.
- Error Retry Rate.
  - Amount of time (in seconds) that the system waits before trying to poll the database server after a failed attempt.

The technician can modify the following parameter relevant to the **Cache Statistics Timer**:

- Database Polling Rate.

The procedure for configuring storage management polling starts with the assumption that all applicable servers and the **Storage Management Control** GUI are currently running and the **Storage Config.** tab (Figure 6) is being displayed.

Configuring Storage Management Polling

1 Select **Options → System Settings** from the pull-down menu.

- The **Session Settings** dialogue box (Figure 12) is displayed.

2 To change either the **Operator Notification Timer** or **Cache Statistics Timer** Polling state (from off to on or vice versa), click on the corresponding **Polling** button.

- If **OFF** is displayed in the **Polling** field , clicking on the adjacent button turns Polling on.
- If **ON** is displayed in the **Polling** field , clicking on the adjacent button turns Polling off.

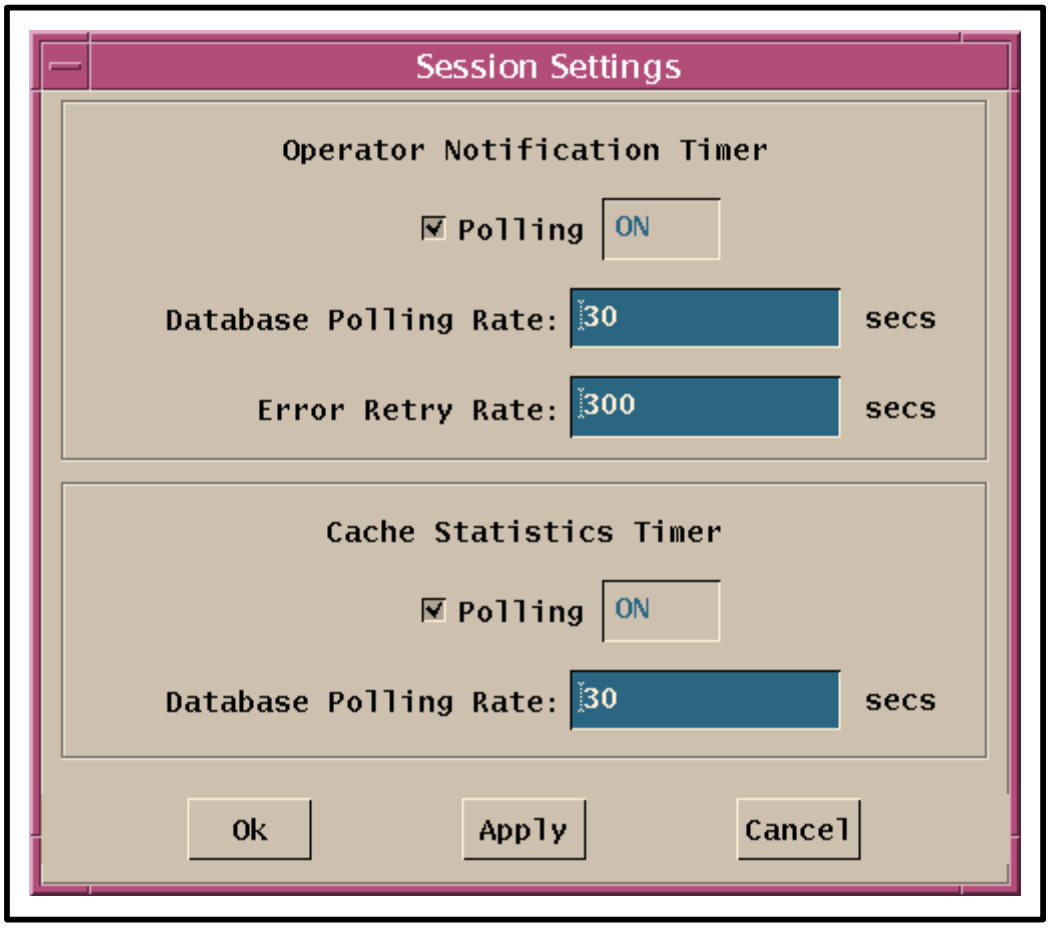

Figure 12. Session Settings Dialogue Box

3 To change the database polling rate for either the **Operator Notification Timer** or **Cache Statistics Timer** type the desired value (in seconds) in the corresponding **Database Polling Rate** field.

- The default value is 30 seconds.

4 To change the error retry rate for the **Operator Notification Timer**, type the desired value (in seconds) in the **Error Retry Rate** field.

5 When the appropriate data have been entered in the **Session Settings** dialogue box fields, click on the appropriate button.

- **Ok** - to apply the selections and dismiss the **Session Settings** dialogue box.
- **Apply** - to apply the selections without dismissing the **Session Settings** dialogue box.
- **Cancel** - to dismiss the **Session Settings** dialogue box without applying the selections.

Deleting Files from Cache

The **Storage Management Control** GUI's **Cache Stats.** tab displays all of the files that are in the cache areas, including the Pull Monitor and other staging areas. The data displayed on the **Cache Stats.** tab reports general statistics on the selected cache and allows the operator to delete expired files in cache areas. If a cache area reaches an operator-configurable threshold, the operator receives a warning message in the operator messages area of the GUI. If expired files are not deleted and the cache fills completely, the server is not able to copy new files to the cache area.

The procedure for deleting files from cache starts with the assumption that all applicable servers and the **Storage Management Control** GUI are currently running and the **Storage Config.** tab (Figure 6) is being displayed.

Deleting Files from Cache

---

1 Click on the **Storage Management Control** GUI **Cache Stats.** tab.

- The **Cache Stats.** tab (Figure 13) is displayed.

2 To view the contents of a particular cache (e.g., **Pull Monitor cache 1**) click and hold on the option button to the right of the **Cache Id** field, move the mouse cursor to the desired selection (highlighting it), then release the mouse button.

- The selected cache is displayed in the **Cache Id** field of the **Cache Stats.** tab.
- The following cache statistics are displayed in the **Cache Statistics** area:
  - **Current Utilization.**
  - **Used Space (Blocks).**
  - **Free Space (Blocks).**
  - **Total Space (Blocks).**
  - **Number of Resident Files.**
  - **Maximum File Size (Blocks).**
  - **Minimum File Size (Blocks).**
  - **Average File Size (Blocks).**
- The following information concerning the files in the selected cache is listed in the **Cache Information** window:
  - **Filename.**
  - **File Size.**
  - **Last Accessed.**

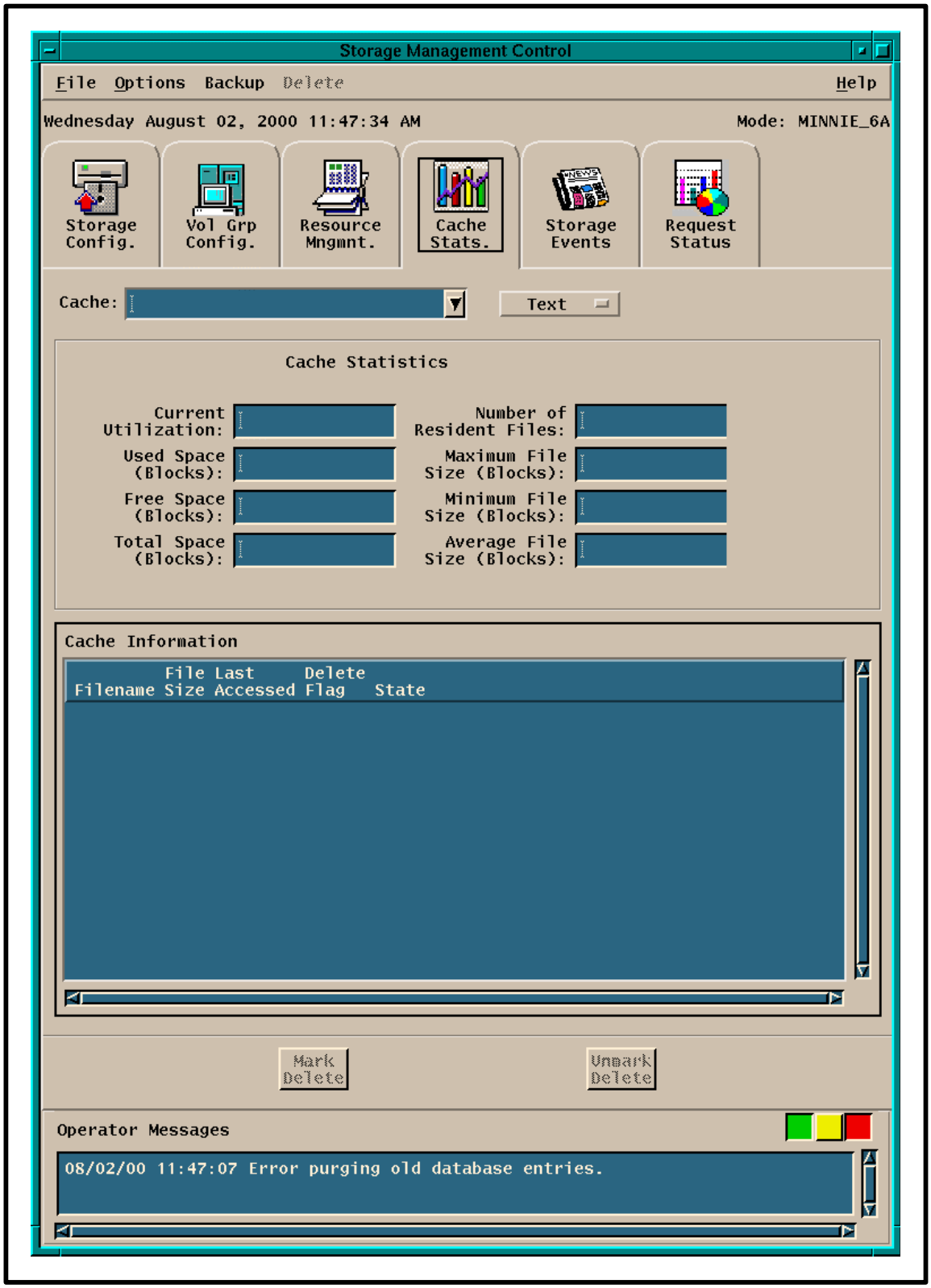

Figure 13. Storage Management Control GUI's Cache Stats. Tab

- **Delete Flag** (displays either blank space or **DELETE**).
- **State.**

3 Observe cache statistics information displayed on the **Cache Stats.** tab.

4 Click on the row corresponding to a file to be deleted in the **Cache Information** window of the **Cache Stats.** tab.

- Multiple rows may be selected.

5 Click on the **Mark Delete** button near the bottom of the **Cache Stats.** tab.

- **Y** is displayed in the **Del. Flag** field for the row in the **Cache Information** window.

6 If any file that should be left in the cache has been inadvertently marked **Delete**, first click on the row corresponding to the file then click on the **Unmark Delete** button near the bottom of the **Cache Stats.** tab.

- **N** is displayed in the **Del. Flag** field for the row in the **Cache Information** window.

7 If it becomes necessary to exit from the **Storage Management Control** GUI select **File** → **Exit** from the pull-down menu.

Viewing Storage Management Event Log Information

The **Storage Events** tab (**Storage Management Control** GUI) provides the Ingest/Distribution Technician with the ability to search the Event Log and obtain reports on events that have occurred in Storage Management. It is possible to review the following information concerning any particular Storage Management event:

- Number.
- Date.
- Level.
- Type.
- Message.

The following search criteria can be used individually or in combination to view entries in the Event Log:

- Date Interval.
- Event Type.
- Event Level.
- Message.

The procedure for viewing Storage Management Event Log information starts with the assumption that all applicable servers and the **Storage Management Control** GUI are currently running and the **Storage Config.** tab (Figure 6) is being displayed.

Viewing Storage Management Event Log Information

---

1 Click on the **Storage Management Control** GUI **Storage Events** tab.

- The **Storage Events** screen (Figure 14) is displayed.
- If Event Log entries are to be displayed on the basis of a particular….
  - Time period, perform Step 2. (If no time period is specified, log entries for the current day will be displayed.)
  - Event type, perform Step 3.
  - Event level, perform Step 4.
  - Message, perform Step 5.
- Any of the preceding criteria (time period, event type, event level, or message) may be used individually or in combination to view entries in the Event Log.

2 To view Event Log entries for a particular **time period**, click in the appropriate **Date Interval: Begin**, and/or **Date Interval: End** field, and type the appropriate numerical values in ***MM/DD/YYYY*** format.

- The **Tab** key may be pressed to move from field to field.
- Another method of changing date settings (other than typing the numbers) is to click in each of the date fields in turn and click on the up/down buttons adjacent to the **Date Interval** fields until the correct date is indicated.

3 To view log entries for a particular **event type**, click and hold on the **Event Type** option button, move the mouse cursor to the desired selection (highlighting it), then release the mouse button.

- The selected event type is displayed on the **Event Type** option button.
- The following event types are displayed on the **Event Type** option button:
  - **Any.**
  - **Device.**
  - **Cache.**
  - **Software.**
  - **COTS.**

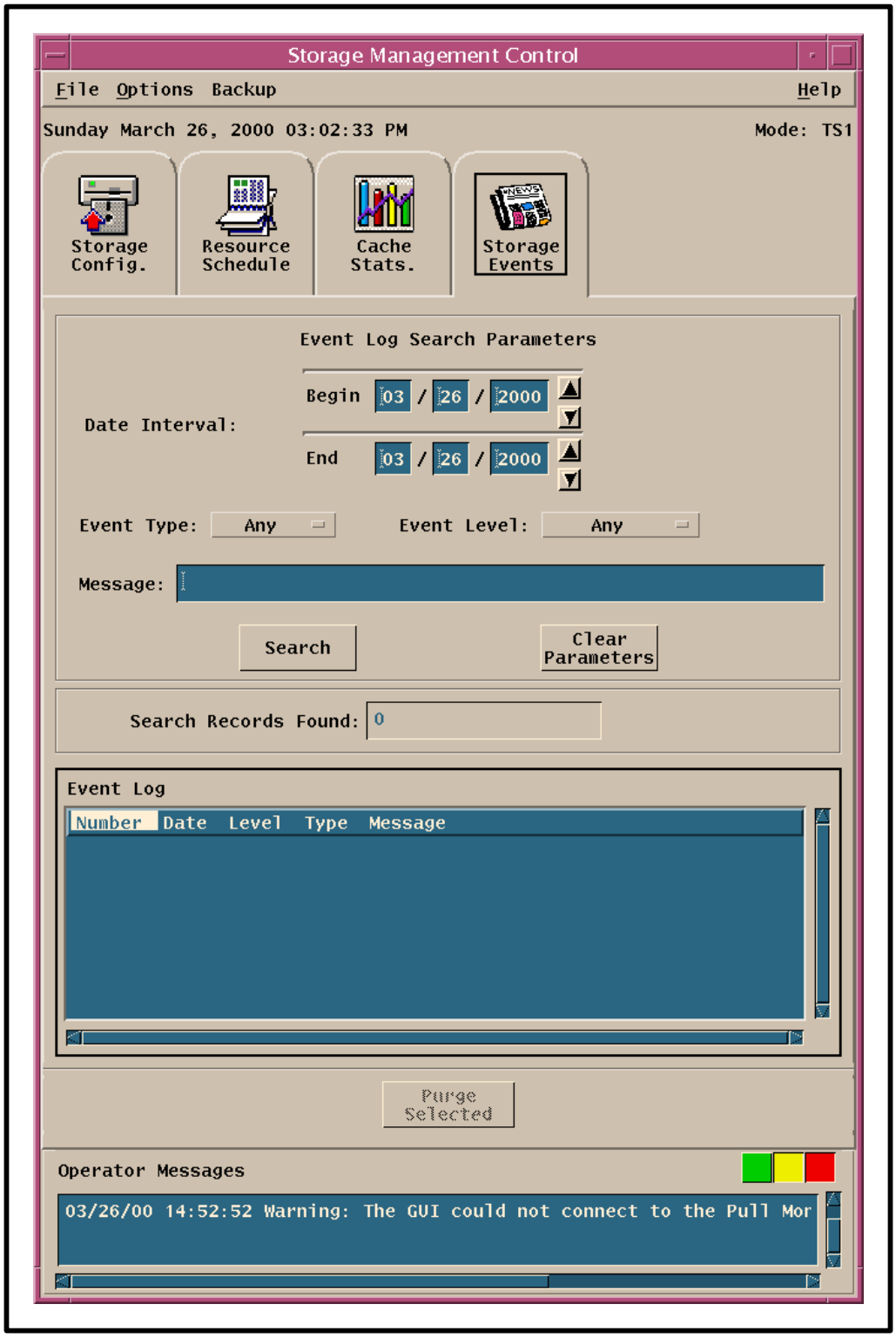

Figure 14. Storage Events Screen

- **Sybase.**
- **Pulldisk.**
- **Unknown.**

4 To view log entries for a particular **event level**, click and hold on the **Event Level** option button, move the mouse cursor to the desired selection (highlighting it), then release the mouse button.

- The selected event level is displayed on the **Event Level** option button.
- The following event levels are displayed on the **Event Level** option button:
  - **Any.**
  - **Information.**
  - **Warning.**
  - **Error.**
  - **Severe.**
  - **Fatal.**
  - **Unknown.**

5 To view log entries for a particular **message** type the relevant message in the **Message** field.

6 Click on the **Search** button to search the event log for events that meet the specified criteria.

- The search results are displayed in the **Event Log** window of the **Storage Management Control** GUI **Storage Events** tab (Figure 14).

7 Observe event information displayed in the **Event Log** window.

8 To clear entries in the Event Log Search Parameter fields, click on the **Clear Parameters** button.

- Entries in the Event Log Search Parameter fields are cleared.

9 To purge entries from the Event Log, first click on the row corresponding to the event to be deleted in the **Event Log** window then click on the **Purge Selected** button.

- Multiple entries may be selected.
- Selected entries are deleted from the Event Log.

10 If a new Event Log search is to be performed on the basis of a particular….

- time period, return to Step 2.

- event type, return to Step 3.
- event level, return to Step 4.
- message, return to Step 5.

11 If it becomes necessary to exit from the **Storage Management Control** GUI select **File** → **Exit** from the pull-down menu.

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Monitoring Storage Management Server Operations

Request Status

The **Request Status** tab (Figure 15) on the **Storage Management Control** GUI provides the Ingest/Distribution Technician with the ability to monitor processing activity in all of the storage management servers for a given mode. The **Request Status Information** table lists the requests that are currently being serviced by storage management servers and those that have been completed within the last 24 hours. It is possible to review the following information concerning any particular storage management request:

- Operation [type of operation represented by the request].
- Request ID.
- Progress [stage of processing on which the request is currently working (may include a numeric progress indication)].
- Status.
- Priority.
- When Submitted [time and date when the request was received by the Storage Management server that is responsible for the request].
- Last Updated [time and date when the status was last updated for the request].

Using the **Request Status** tab the Ingest/Distribution Technician can detect stalled requests or servers that appear to be idle.

The procedure for monitoring storage management server operations starts with the assumption that all applicable servers and the **Storage Management Control** GUI are currently running and the **Storage Config.** tab (Figure 6) is being displayed.

Monitoring Storage Management Server Operations

1 Click on the **Storage Management Control** GUI **Request Status** tab.

- The **Request Status** tab (Figure 15) is displayed.

2 Observe information displayed on the **Request Status** tab of the **Storage Management Control** GUI.

- The **Request Status Information** table displays the following information:
  - Operation.

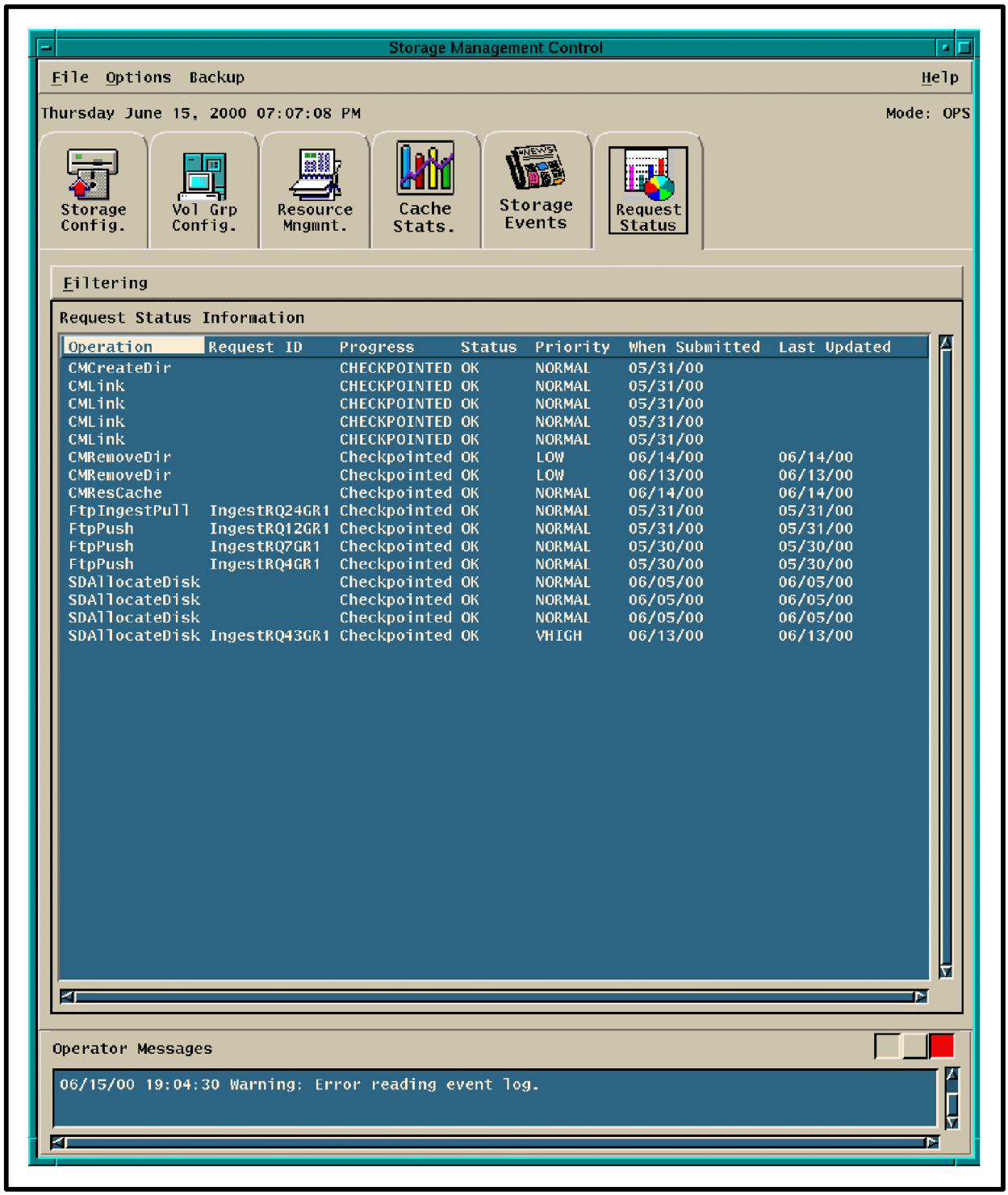

Figure 15. Request Status Tab (Storage Management Control GUI)

- Request ID.
- Progress.
- Status.
- Priority.
- When Submitted.
- Last Updated.

- By default all storage management server requests for the last 24 hours are shown in the **Request Status Information** table of the **Request Status** tab.
- Note that virtually all data inserted into or retrieved from the archive is controlled by storage management servers; consequently there may be a lot of activity on the **Request Status** tab.
  - Consequently, it may be useful to restrict the number of requests displayed by filtering them as described in the next step of this procedure.
- Clicking on any of the column headers of the **Request Status Information** table causes the listed requests to be sorted in order by the column selected.
  - For example, clicking on the **Last Updated** column header causes the requests to be listed in order from the least recently updated to the most recently updated.
- The **Operator Messages** field at the bottom of the GUI displays messages concerning events occurring in storage management operations.

3 If the list of Storage Management requests shown in the **Request Status Information** table needs to be filtered, make the appropriate selection from the following choices listed on the **Filtering** pull-down menu:

- **Server.**
  - Controls what activity is displayed by limiting the list to the requests being/having been serviced by a specific server.
  - Selecting **All** displays all requests throughout the Storage Management CSCI.
  - Other selections include the individual archive servers, cache manager servers, ftp servers, request manager server, and staging disk servers.
- **Operation.**
  - Allows the Ingest/Distribution Technician to focus on a specific type of operation.

- The list of operations is dynamically generated to reflect those operations for which requests are currently in queue, for example (among others):
    - All.
    - CMLink.
    - ArStore.
    - FtpPull.
    - FtpPush.

- **Processing State.**
    - Allows the Ingest/Distribution Technician to differentiate among requests that are being actively processed; have been completed, either successfully or to a retryable error state; or have been suspended and are awaiting the outcome of another event.
    - The following selections are available:
        - All.
        - Processing.
        - Suspended.
        - Completed.

- **Submitter.**
    - Allows the Ingest/Distribution Technician to see the status of requests submitted by a specific client process.
    - The list of possible clients is dynamically generated to reflect the list of clients with outstanding requests for example (among others)
        - All.
        - DSDD.
        - SDSV.
        - this.
        - [ftp server].
        - [archive server].
        - [staging disk server].

4 Observe the Storage Management requests displayed in the **Request Status Information** table.

5 Repeat Steps 3 and 4 as necessary to monitor Storage Management requests.

6 If it becomes necessary to exit from the **Storage Management Control** GUI select **File** → **Exit** from the pull-down menu.

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Tuning System Parameters

Tuning System Configuration Parameters

The values assigned to system parameters affect the functioning and performance of the system. When certain parameters are modified, the system operates differently. Changes to some other parameters may not appear to affect the system although there may in fact be subtle effects. In any case before system parameters are modified it is essential to understand what will happen to system functioning and performance.

Many system parameters may be subject to control by Configuration Management (CM). When making or requesting a change to system parameters, the CM process at the particular site must be followed (if applicable).

Values are assigned to Storage Management and Data Distribution parameters in the following databases:

- Storage Management and Data Distribution database.
- Configuration Registry database.

The Configuration Registry Server provides a single interface (via a Sybase server) for retrieving configuration attribute-value pairs for ECS servers from the Configuration Registry database. When ECS servers are started, they access the Configuration Registry Database to obtain needed configuration parameters.

The Database Administrator has access to a Configuration Registry GUI for viewing and editing configuration data in the database. Therefore, it is necessary to coordinate with the Database Administrator when changes to configuration parameters are needed. Also, as previously mentioned, changes to configuration-controlled parameters are subject to approval through the site CM process.

Default and adjusted values assigned to system parameters vary from site to site. For guidance concerning the assignment of values to parameters included in the Configuration Registry refer to document 910-TDA-022 rev2, Custom Configuration Parameters for ECS Release 6A. The document is available at http://cmdm.east.hitc.com/baseline/ under "Technical Documents."

The following parameters are examples of parameters whose values may be modified to enhance system functioning or performance:

- AppLogSize
  - Maximum size of the application log (ALOG) file for a particular application.
- AppLogLevel
  - Level of detail provided in the ALOG file for a particular application.

- DebugLevel
  - Level of detail provided in the debug log file for a particular application.
- DBMaxConnections
  - Maximum number of database connections allowed a particular application.
- FtpPushThreshold
  - Maximum number of bytes per distribution request via ftp push.
  - The FtpPushThreshold should always be greater than the size of the largest input granule used by the Planning and Data Processing Subsystems (PDPS) in order to ensure that PDPS distribution requests are processed without manual intervention. For example, at a DAAC that archives MODIS Level 0 (L0) data the FtpPushThreshold might be greater than the maximum size of a MODIS L0 granule (~7GB).
  - When a distribution request exceeds a threshold (e.g., FtpPushThreshold or FtpPullThreshold), the request is suspended in DDIST.
- FtpPullThreshold
  - Maximum number of bytes per distribution request via ftp pull.
- Checksum Status
  - Check-summing can be enabled or disabled for either acquires or inserts using the Storage Config. tab of the **Storage Management Control** GUI.
  - The checksum status entry (for EcDsStArchiveServer) controls whether or not a checksum is calculated for each file inserted into the archive.
  - Note that checksums are calculated on retrieval only when the file is first moved from the archive to the read-only cache. As long as the file remains resident in the read-only cache, the checksum is not recalculated.
  - Checksum calculation is a highly time-consuming process, and makes intensive use of central processing unit (CPU) resources. Consequently, enabling check-summing has significant effects on both archive server and cache manager servers.
- ListenThreads
  - Number of listen threads assigned to a particular application.

When the value assigned to a parameter has been changed and saved in the Configuration Registry, the modified value does not take effect until the affected server has been restarted. For example, if the debug level for the Distribution Server log has been changed from “2” to “3” in the Configuration Registry, the modification does not affect the recording of data in the log until

after a warm restart of the Distribution Server (at which time the server would read the parameters in the Configuration Registry).

Tuning System Parameters in the Storage Management and Data Distribution Database

Staging Area Size and Read-Only Cache Size

The DsStConfigParameter table in the Storage Management and Data Distribution database has columns related to staging area size and read-only cache size. The TotalSpace column contains the total size of raid allocated to the associated Cache Manager and staging disk combined. The CacheSpace column contains the amount of read-only cache space allocated/available on disk (to the associated Cache Manager/staging disk) in block-size increments.

The staging area size and read-only cache size parameters are tuned in tandem. They determine how much disk space is available for staging of files (both for Ingest and acquires), and how large the read-only cache is. When either area is exhausted, requests hang until space becomes available.

Pull area read-only cache size defaults to 2,000,000,000 (blocks). There is no need for much user space because the user files are symbolically linked back to the files in the read-only cache.

Staging area read-only cache size depends on the server and the data being handled. Staging read-only cache comes out of the same disk space as staging disk. The more need there is for staging disk, the smaller the size of the read-only cache can be. If the staging disk is being used primarily to link files from the read-only cache, the read-only cache can take most of the total staging area (90% or so). If data is being staged in support of Ingest or subsetting of data for distribution, the read-only cache should be smaller (e.g., 40% or 50% of the total staging area).

The parameters are modified using the **Storage Management Control** GUI. Refer to the section on **Modifying System Parameters in the Storage Management and Data Distribution Database Using the Storage Management Control GUI** (subsequent section of this lesson) for the applicable procedure.

Setting the FTP Pull Expiration Time

Among the columns in the DsStConfigParameter table in the Storage Management and Data Distribution database is the PullExpirationTime column. The value listed for a particular pull monitor server specifies the duration (in hours) after which files may be considered for deletion.

The ftp pull expiration time is used as a cleanup mechanism for files that have not been pulled. The appropriate setting for the ftp pull expiration time depends on the following factors:

- Frequency of files being left behind in the pull area.
  - The more files, the lower the expiration time.

- Size of the files.
  - The bigger the files, the lower the expiration time.
- Capacity of disk used.
  - The higher the capacity used, the lower the expiration time.
- Pull expiration time defaults to 24 hours.

The parameter is modified using the **Storage Management Control** GUI. Refer to the section on **Modifying System Parameters in the Storage Management and Data Distribution Database Using the Storage Management Control GUI** (subsequent section of this lesson) for the applicable procedure.

Priority Thread Allocation

The DsDdPriorityThread database table holds the threshold for the number of threads that can be active for each priority level of distribution requests. The priorities are set either via a Perl script (EcDsDdPTEdit.pl) or through command line sql. Table 1 lists representative default values as listed in the DsDdPriorityThread database table.

Refer to the section on **Modifying PriorityThread Table Values in the Storage Management and Data Distribution Database Using the EcDsDdPTEdit.pl Script** or the section on **Modifying System Parameters in the Storage Management and Data Distribution Database Using ISQL** (subsequent section of this lesson) for the applicable procedure.

Table 1. Representative Number of Active Threads for Each Priority of Distribution Requests (DsDdPriorityThread Database Table)

ThreadName	ThreadLimit
LOW	28
NORMAL	128
HIGH	64
VHIGH	5
XPRESS	2

Modifying System Parameters in the Storage Management and Data Distribution Database Using the Storage Management Control GUI

As previously mentioned the effects on system functioning and performance must be considered before modifying system parameters. In addition, when making or requesting a change to system parameters, the CM process at the particular site must be followed (if applicable). Depending on circumstances (e.g., operator permissions) at a particular site, it may be necessary to request that someone else make parameter modifications using the **Storage Management Control** GUI. The procedure that follows is provided to assist Ingest/Distribution Technicians who have to make parameter modifications using the **Storage Management Control** GUI.

The procedure for changing system parameters using the **Storage Management Control** GUI starts with the assumption that all applicable servers and the **Storage Management Control** GUI are running and the **Storage Config.** screen (Figure 6) is being displayed.

Modifying System Parameters in the Storage Management and Data Distribution Database Using the Storage Management Control GUI

1 Click on **Cache Manager** in the **Configuration Parameter Reporting** window on the **Storage Config.** tab.

- The selected server type is highlighted in the **Configuration Parameter Reporting** window on the **Storage Config.** tab.
- Associated servers are listed in the server information window on the **Storage Config.** tab.

2 Click on the appropriate server in the server information window on the **Storage Config.** tab.

- The selected server is highlighted in the server information window on the **Storage Config.** tab.

4 Click on the **Modify Server/View Stackers** button.

- The **Cache Manager Server Configuration** dialogue box (Figure 16) is displayed.
- The **Cache Manager Server Configuration** dialogue box (Figure 16) displays data in the following fields (as applicable):
  - **Server Name.**
  - **RPC Tag.**
  - **Original Cache Space (blocks).**
  - **Available Cache Space (blocks)** [cannot be modified from GUI].
  - **Allocation Block Size (bytes).**
  - **Description** [e.g., "Cache Manager"].
  - **Expiration Threshold (hours).**
  - **Expired Files Confirm Delete** [option button with **Yes** and **No** as the options]**.**
  - **Disk Capacity: Fault Level.**
  - **Disk Capacity: Warning Level.**
  - **File I/O Block Size (bytes).**
  - **Retries.**

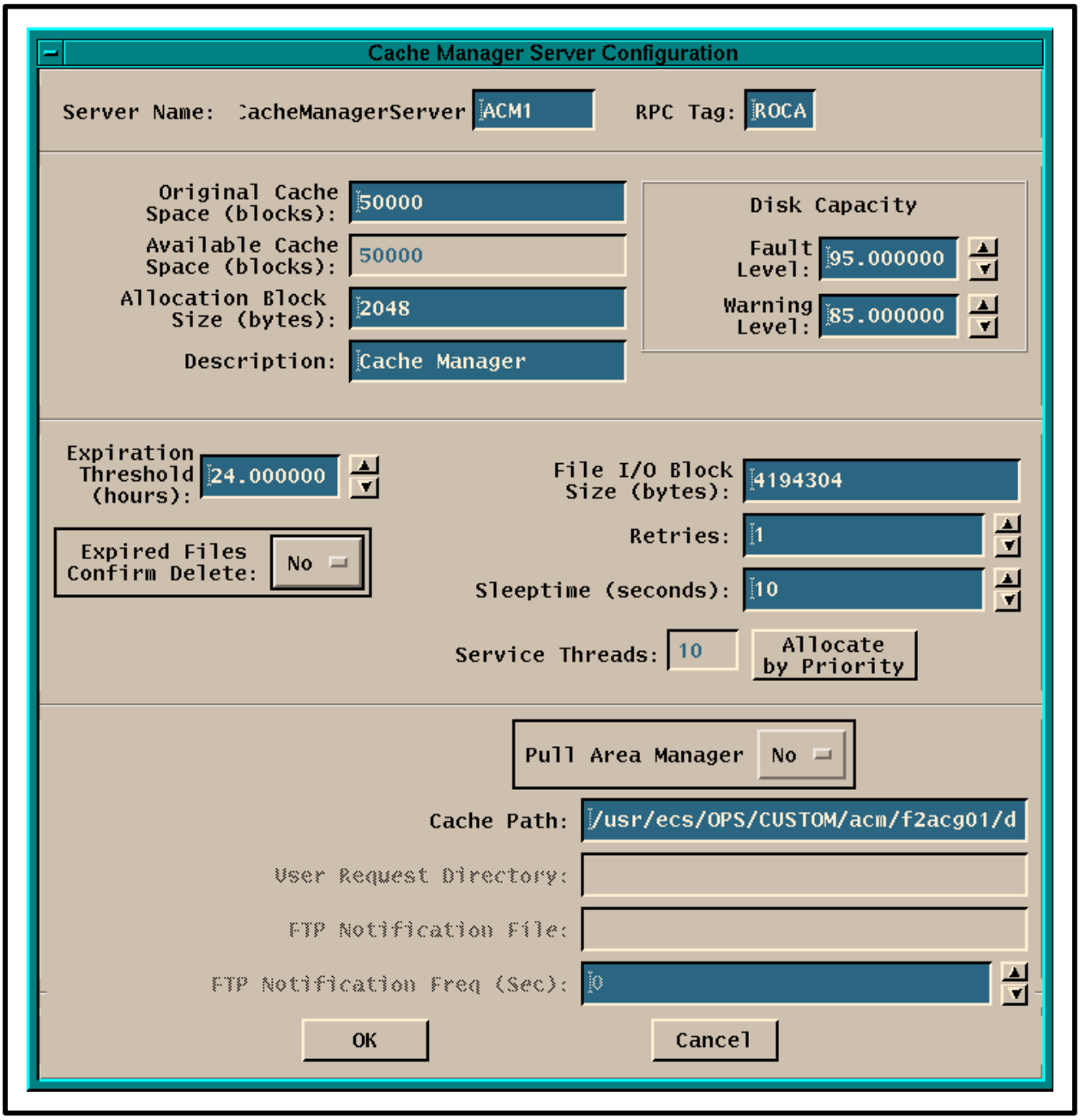

Figure 16. Cache Manager Server Configuration Dialogue Box

- **Sleeptime (seconds).**
- **Service Threads** [number of worker threads that are allocated within the server instance to process requests].
- **Pull Area Manager** [option button with **Yes** and **No** as the options].

- **Cache Path.**
- **User Request Directory.**
- **FTP Notification File.**
- **FTP Notification Freq (Sec).**

5 Type modified data in relevant field(s) as necessary.

6 If service threads are to be allocated by priority in order to reserve certain resources for higher priority requests, click on the **Allocate by Priority** button.

- The **Service Threads: Allocate by Priority** window (Figure 17) is displayed.

7 If service threads are to be allocated by priority, type the desired values in the appropriate fields in the **Service Threads: Allocate by Priority** window (Figure 17).

- Lower-priority threads may be used to service higher priority requests, but never vice versa.
- By default, all service threads are created as low priority service threads, since they may be pre-empted by any priority request.

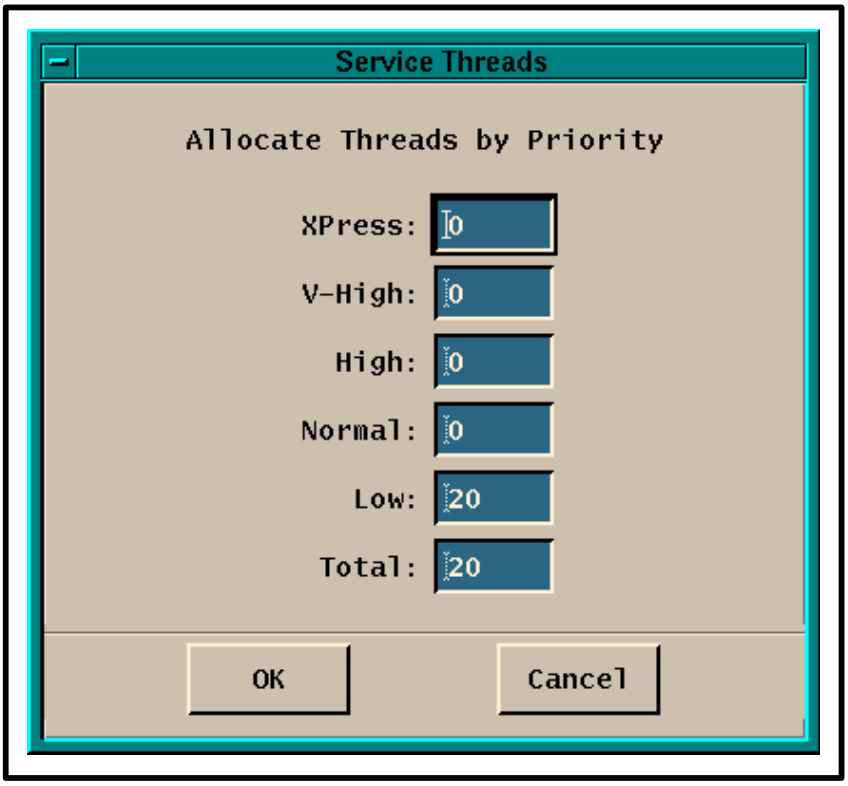

Figure 17. Service Threads: Allocate by Priority window

- The number of low threads is automatically re-calculated whenever the number of any of the other thread types is changed.
  - Consequently, the total of the numbers in each of the five different thread type fields equals the number in the **Total** field.

8 If service threads are to be allocated by priority, click on the appropriate button from the following selections:

- **OK** - to approve the new value(s) and dismiss the **Service Threads: Allocate by Priority** window.
  - The **Cache Manager Server Configuration** dialogue box (Figure 17) is displayed.
- **Cancel** - to return to the **Cache Manager Server Configuration** dialogue box without saving the new value(s).
  - The **Cache Manager Server Configuration Dialogue Box** (Figure 17) is displayed.

9 When new values have been entered in all fields to be modified, click on the appropriate button from the following selections:

- **OK** - to approve the new value(s) and dismiss the configuration dialogue box.
  - The **Storage Config.** screen (Figure 6) is displayed.
- **Cancel** - to return to the **Storage Config.** screen without saving the new value(s).
  - The **Storage Config.** screen (Figure 6) is displayed.

10 Repeat Steps 1 through 9 as necessary.

Modifying PriorityThread Table Values in the Storage Management and Data Distribution Database Using the EcDsDdPTEdit.pl Script

The EcDsDdPTEdit.pl script is a tool that can be used to change the limits for priority levels of threads in the DsDdPriorityThread database table. The script operates in either of two modes:

- Interactive.
  - A menu presents the old limits for the priority levels and prompts the technician to make necessary changes.
- Non-Interactive (command line).
  - The technician specifies new limits on the command line (useful for cron jobs).

As previously mentioned the effects on system functioning and performance must be considered before modifying system parameters. In addition, when making or requesting a change to system

parameters, the CM process at the particular site must be followed (if applicable). Depending on circumstances at a particular site it may be necessary to request that the Database Administrator modify parameters in the Storage Management and Data Distribution database. The procedure that follows is provided to assist Ingest/Distribution Technicians who have to make the database modifications themselves.

The procedure for changing PriorityThread table values in the Storage Management and Data Distribution Database using the EcDsDdPTEdit.pl Script starts with the assumption that the Ingest/Distribution Technician has logged in to the system.

Modifying PriorityThread Table Values in the Storage Management and Data Distribution Database Using the EcDsDdPTEdit.pl Script

1 Access a terminal window logged in to the Distribution Server (e.g., **e0dis01**, **g0dis01**, **l0dis02** or **n0dis01**).

- If values in the Storage Management and Data Distribution Database using….
  - Non-interactive mode, perform Step 2.
  - Interactive mode, perform Steps 3 through 7.

2 Type **EcDsDdPTEdit.pl USER** ***userID*** **PASSWORD** ***password*** **DBNAME** ***DBName*** **SERVER** ***DBServer PRIORITYLEVEL #threads [PRIORITYLEVEL #threads] [PRIORITYLEVEL #threads] […]*** then press **Return/Enter**.

- For example:

  EcDsDdPTEdit.pl USER stmgt_role PASSWORD greetings DBNAME stmgtdb1_TS1 SERVER x0acg01_srvr HIGH 60 LOW 32

  - Would set the thread limits for HIGH and LOW priorities in TS1 mode.
  - Thread limit for HIGH priority would be set at 60 threads.
  - Thread limit for LOW priority would be set at 32 threads.

- If necessary type **SYBASE** ***sybase_home_dir*** after **SERVER** ***DBServer***, for example:

  EcDsDdPTEdit.pl USER stmgt_role PASSWORD greetings DBNAME stmgtdb1_TS1 SERVER x0acg01_srvr SYBASE /tools/sybOCv11.1.1 HIGH 60 LOW 32

- The script makes the specified changes (end of procedure).

3 To use interactive mode type **EcDsDdPTEdit.pl USER *userID* PASSWORD *password* DBNAME *DBName* SERVER *DBServer*** then press **Return/Enter**.

- For example:

  EcDsDdPTEdit.pl USER stmgt_role PASSWORD greetings DBNAME stmgtdb1_TS1 SERVER x0acg01_srvr

- If necessary type **SYBASE *sybase_home_dir*** after **SERVER *DBServer***, for example:

  EcDsDdPTEdit.pl USER stmgt_role PASSWORD greetings DBNAME stmgtdb1_TS1 SERVER x0acg01_srvr SYBASE /tools/sybOCv11.1.1

- A menu similar to the following one is displayed:

  Configuration Parameter Change Menu

  Priority Nr. Threads

  -------- -----------

  1. HIGH 16,

  2. LOW 16,

  3. NORMAL 16,

  4. VHIGH 16,

  5. XPRESS 16,

  Enter number of Priority (1 - 5) to change, q to quit, or s to save and exit.

4 **Type** the number corresponding to the priority thread to be modified at the **Enter number of Priority.…** prompt then press **Return/Enter**.

- For example:

  1

- The script responds with the following type of message:

  value of HIGH is 16,

  Enter new value for HIGH

5 **Type** the new value for the number of priority threads for the specified priority then press **Return/Enter**.

- For example:

  10

- The value in the table associated with the menu changes to the value entered; for example:

  Configuration Parameter Change Menu

Priority	**Nr. Threads**
1. HIGH	**10,**
2. LOW	**16,**
3. NORMAL	**16,**
4. VHIGH	**16,**
5. XPRESS	**16,**

  Enter number of Priority (1 - 5) to change, q to quit, or s to save and exit.

6 Repeat Steps 4 and 5 as necessary to enter new values for all PriorityThread table values to be modified.

7 When new values have been entered for all PriorityThread table values to be modified, type the appropriate response from the following selections then press **Return/Enter**:

- **s** - to implement the new PriorityThread table values and dismiss the **Configuration Parameter Change Menu.**
  - The following message is displayed while the new values are being saved to the database:

    ok, saving values...

- **q** - to dismiss the **Configuration Parameter Change Menu** without implementing the new PriorityThread table values.

Modifying System Parameters in the Storage Management and Data Distribution Database Using ISQL

As previously mentioned the effects on system functioning and performance must be considered before modifying system parameters. In addition, when making or requesting a change to system parameters, the CM process at the particular site must be followed (if applicable). Depending on circumstances at a particular site it may be necessary to request that the Database Administrator modify parameters in the Storage Management and Data Distribution database. The procedure that follows is provided to assist Ingest/Distribution Technicians who have to make the database modifications themselves.

The procedure for changing system parameters specified in the Storage Management and Data Distribution database using interactive structured query language (isql) starts with the assumption that the Ingest/Distribution Technician has logged in to the system.

Modifying System Parameters in the Storage Management and Data Distribution Database Using ISQL

1 Access a terminal window logged in to the Access/Process Coordinators (APC) Server (e.g., **e0acg01**, **g0acg01**, **l0acg02** or **n0acg01**).

2 Type **isql –U*userID* -S*DBServer*** then press **Return/Enter**.

- For example:

  isql –Ustmgt_role –Sx0acg01_srvr

3 At the **Password:** prompt type ***dbpassword*** then press **Return/Enter**.

- The ***dbpassword*** is the password for logging in to the database using the specified ***userID***.

4 Type **use *dbname*** at the **1>** prompt then press **Return/Enter**.

- The ***dbname*** is likely to be one of the following names:
  - **stmgtdb1** [OPS mode].
  - **stmgtdb1_TS1** [TS1 mode].
  - **stmgtdb1_TS2** [TS2 mode].

5 Type **go** at the **2>** prompt then press **Return/Enter**.

6 Type **select * from *TableName*** at the **1>** prompt then press **Return/Enter**.

- For example:

  select * from DsDdPriorityThread

- Alternatively, type **select *columnName* from *TableName*** at the **1>** prompt then press **Return/Enter**.
  - For example:

    select ThreadLimit from DsDdPriorityThread
- Another alternative is to type **select *columnName1,columnName2[,columnName3,…]* from *TableName*** at the **1>** prompt then press **Return/Enter**.
  - For example:

    select ThreadName,ThreadLimit from DsDdPriorityThread

7 Type **go** at the **2>** prompt then press **Return/Enter**.

- Table contents are displayed.
  - If * (wildcard) was specified, all entries in the table are displayed.
  - If specific columnNames were entered, the data associated with those columns only are displayed.
- For example:

```
1> select * from DsDdPriorityThread
2> go
 ThreadName   ThreadLimit
 ------------ -----------
 HIGH                  64
 LOW                   28
 NORMAL               128
 VHIGH                  5
 XPRESS                 2
(5 rows affected)
```

8 Type **update *TableName* set *columnName1=value1* where *columnName2=value2*** at the **1>** prompt then press **Return/Enter**.

- For example:

  update DsDdPriorityThread set ThreadLimit=125 where ThreadName=NORMAL

9 Type **go** at the **2>** prompt then press **Return/Enter**.

10 Start verification of the update by typing **select * from *TableName*** (or one of the options described in Step 6) at the **1>** prompt then pressing **Return/Enter**.

11 Type **go** at the **2>** prompt then press **Return/Enter**.

- Table contents are displayed.
- Specified value should have been updated.

- For example:

```
1> select * from DsDdPriorityThread
2> go
 ThreadName   ThreadLimit
 ------------ -----------
 HIGH                  64
 LOW                   28
 NORMAL               125
 VHIGH                  5
 XPRESS                 2
(5 rows affected)
```

12 To exit from isql type **quit** at the **1>** prompt then press **Return/Enter**.

Troubleshooting Data Distribution Problems

Trouble Symptoms

Troubleshooting is a process of identifying the source of problems on the basis of observed trouble symptoms. Most problems with data distribution can be traced to some part of the Data Server Subsystem:

- Data Distribution.
- Science Data Server.
- Storage Management.

However, a common source of problems involves the reliance on messages or data from other subsystems. Like many other operational areas in ECS, data distribution has interfaces with other subsystems. Consequently, it is possible to trace some problems to another ECS subsystem, including (but not necessarily limited to) those in the following list:

- Communications Subsystem (CSS).
- System Management Subsystem (MSS).

Table 2 describes actions to be taken in response to some common data distribution problems. If the problem cannot be identified and fixed without help within a reasonable period of time, the appropriate response is to call the help desk and submit a trouble ticket in accordance with site Problem Management policy.

Table 2. Troubleshooting Data Distribution Problems

Symptom	Response
Unable to log in to any host (e.g., Distribution Server, g0dis02).	Check with the Operations Controller/System Administrator to ensure that the host is "up."
GUI not displayed when the start-up script has been properly invoked.	Ensure that the DISPLAY variable was set properly. [For detailed instructions refer to the procedure for **Launching the Data Distribution Operator and Storage Management Control GUIs** (previous section of this lesson).]
Error message associated with the Data Distribution Operator GUI.	Refer to Table 3, Data Distribution Operator GUI User Messages (adapted from the corresponding table in 609-CD-600-001, *Release 6A Operations Tools Manual for the ECS Project*).
Request status change to "Suspended with Errors," indicating a data distribution failure.	1. Ensure (e.g., using ECS Assistant) that the necessary hosts and servers (listed in Table 4) are "up." 2. If hosts/servers have gone down, notify the Operations Controller/System Administrator to have servers brought back up. 3. If hosts/servers are all "up," notify the Operations Controller/System Administrator to have the STMGT servers bounced (shut down and immediately restarted). 4. Resume processing of the suspended request. [For detailed instructions refer to the procedure for **Suspending/Resuming Data Distribution Requests** (previous section of this lesson).] 5. If processing does not resume, refer to the procedure for **Recovering from a Data Distribution Failure** (subsequent section of this lesson).
Other problems.	Check the log files (e.g., EcDsDdistGui.ALOG, EcDsDistributionServer.ALOG, EcDsStStagingDiskServer.ALOG, EcDsStCacheManagerServer.ALOG) in the /usr/ecs/*MODE*/CUSTOM/logs directory of the Distribution Server host for error messages. [For detailed instructions refer to the procedure for **Checking Log Files** (subsequent section of this lesson).]

Table 3. Data Distribution Operator GUI User Messages

Message Text	Impact	Cause and Corrective Action
Cannot create connection pool.	Attempt to create connection pool to database failed.	1. Refresh the GUI display (click on the **Refresh** button). 2. Check the database connections. [For detailed instructions refer to the procedure for **Checking Database Connections** (subsequent section of this lesson).] 3. Refresh the GUI display (click on the **Refresh** button). 4. If the problem recurs, call the help desk and submit a trouble ticket in accordance with site Problem Management policy.
Cannot create the DsDdDistRequestList.	The Data Distribution Request List was not created.	1. Refresh the GUI display (click on the **Refresh** button). 2. Check the database connections. [For detailed instructions refer to the procedure for **Checking Database Connections** (subsequent section of this lesson).] 3. Refresh the GUI display (click on the **Refresh** button). 4. If the problem recurs, call the help desk and submit a trouble ticket in accordance with site Problem Management policy.
Cannot get a dbInterface connection pool.	Attempt to get a dbInterface from connection pool to database failed.	1. Refresh the GUI display (click on the **Refresh** button). 2. Check the database connections. [For detailed instructions refer to the procedure for **Checking Database Connections** (subsequent section of this lesson).] 3. Refresh the GUI display (click on the **Refresh** button). 4. If the problem recurs, call the help desk and submit a trouble ticket in accordance with site Problem Management policy.

Table 3. Data Distribution Operator GUI User Messages

Message Text	Impact	Cause and Corrective Action
DDist Cancel Failure.	GUI received failure from server. Request was not canceled.	1. Check the current state of the distribution request (**State** column of the **Data Distribution Requests** list on the **Distrib'n Requests** tab (Figure 5)). Canceling the request may not be a valid operation in the current state (e.g., if the current state is "Shipped"). 2. Ensure (e.g., using ECS Assistant) that the Distribution Server is "up." 3. If the Distribution Server has gone down, notify the Operations Controller/System Administrator to have the server brought back up. 4. Refresh the GUI display (click on the **Refresh** button). 5. Try again to cancel the request. [For detailed instructions refer to the procedure for **Canceling Data Distribution Requests** (previous section of this lesson).] 6. If repeated attempts to cancel the request fail, call the help desk and submit a trouble ticket in accordance with site Problem Management policy.
DDist Mark Shipped Failure.	GUI received failure from server. Request was not marked "Shipped."	No Longer Applicable.
DDist Refresh Failure.	Data Distribution Refresh Error. Dialogue Message GUI was not able to get new request list from server.	1. Check the database connections. [For detailed instructions refer to the procedure for **Checking Database Connections** (subsequent section of this lesson).] 2. Refresh the GUI display (click on the **Refresh** button). 3. If the problem recurs, call the help desk and submit a trouble ticket in accordance with site Problem Management policy.

Table 3. Data Distribution Operator GUI User Messages

Message Text	Impact	Cause and Corrective Action
DDist Resume All Failure.	GUI received failure from server. Requests were not resumed.	1. Check the current state of the distribution request(s) (**State** column of the **Data Distribution Requests** list on the **Distrib'n Requests** tab (Figure 5)). Resuming the request(s) may not be a valid operation in the current state(s) (e.g., if the current state is "Shipped"). 2. Ensure (e.g., using ECS Assistant) that the Distribution Server is "up." 3. If the Distribution Server has gone down, notify the Operations Controller/System Administrator to have the server brought back up. 4. Refresh the GUI display (click on the **Refresh** button). 5. Try again to resume the request(s). [For detailed instructions refer to the procedure for **Suspending/Resuming Data Distribution Requests** (previous section of this lesson).] 6. If repeated attempts to resume request processing fail, call the help desk and submit a trouble ticket in accordance with site Problem Management policy.
DDist Resume Failure.	GUI received failure from server. Request was not resumed.	1. Check the current state of the distribution request (**State** column of the **Data Distribution Requests** list on the **Distrib'n Requests** tab (Figure 5)). Resuming the request may not be a valid operation in the current state (e.g., if the current state is "Shipped"). 2. Ensure (e.g., using ECS Assistant) that the Distribution Server is "up." 3. If the Distribution Server has gone down, notify the Operations Controller/System Administrator to have the server brought back up. 4. Refresh the GUI display (click on the **Refresh** button). 5. Try again to resume the request. [For detailed instructions refer to the procedure for **Suspending/Resuming Data Distribution Requests** (previous section of this lesson).] 6. If repeated attempts to resume request processing fail, call the help desk and submit a trouble ticket in accordance with site Problem Management policy.

Table 3. Data Distribution Operator GUI User Messages

Message Text	Impact	Cause and Corrective Action
DDist Set Priority Failure.	GUI received failure from server. Request set priority failed.	1. Check the current state of the distribution request (**State** column of the **Data Distribution Requests** list on the **Distrib'n Requests** tab (Figure 5)). Setting priority may not be a valid operation in the current state (e.g., if the current state is "Shipped"). 2. Ensure (e.g., using ECS Assistant) that the Distribution Server is "up." 3. If the server has gone down, notify the Operations Controller/System Administrator to have it brought back up. 4. Try again to set the priority of the selected distribution request. [For detailed instructions refer to the procedure for **Changing the Priority of Data Distribution Requests** (previous section of this lesson).] 5. If repeated attempts to set the request priority fail, call the help desk and submit a trouble ticket in accordance with site Problem Management policy.
DDist Suspend All Failure.	GUI received failure from server. Requests will not be submitted in a SuspendAll state.	1. Check the current state of the distribution request(s) (**State** column of the **Data Distribution Requests** list on the **Distrib'n Requests** tab (Figure 5)). Suspending the request(s) may not be a valid operation in the current state(s) (e.g., if the current state is "Shipped"). 2. Ensure (e.g., using ECS Assistant) that the Distribution Server is "up." 3. If the Distribution Server has gone down, notify the Operations Controller/System Administrator to have the server brought back up. 4. Refresh the GUI display (click on the **Refresh** button). 5. Try again to suspend the request(s). [For detailed instructions refer to the procedure for **Suspending/Resuming Data Distribution Requests** (previous section of this lesson).] 6. If repeated attempts to suspend request processing fail, call the help desk and submit a trouble ticket in accordance with site Problem Management policy.

Table 3. Data Distribution Operator GUI User Messages

Message Text	Impact	Cause and Corrective Action
DDist Suspend Failure.	GUI received failure from server. Request was not suspended.	1. Check the current state of the distribution request (**State** column of the **Data Distribution Requests** list on the **Distrib'n Requests** tab (Figure 5)). Suspending the request may not be a valid operation in the current state (e.g., if the current state is "Shipped"). 2. Ensure (e.g., using ECS Assistant) that the Distribution Server is "up." 3. If the Distribution Server has gone down, notify the Operations Controller/System Administrator to have the server brought back up. 4. Refresh the GUI display (click on the **Refresh** button). 5. Try again to suspend the request. [For detailed instructions refer to the procedure for **Suspending/Resuming Data Distribution Requests** (previous section of this lesson).] 6. If repeated attempts to suspend request processing fail, call the help desk and submit a trouble ticket in accordance with site Problem Management policy.
DsDdRequestMgrC Cancel Failure.	GUI received failure from server. Request was not canceled.	1. Check the current state of the distribution request (**State** column of the **Data Distribution Requests** list on the **Distrib'n Requests** tab (Figure 5)). Canceling the request may not be a valid operation in the current state (e.g., if the current state is "Shipped"). 2. Ensure (e.g., using ECS Assistant) that the Distribution Server is "up." 3. If the Distribution Server has gone down, notify the Operations Controller/System Administrator to have the server brought back up. 4. Refresh the GUI display (click on the **Refresh** button). 5. Try again to cancel the request. [For detailed instructions refer to the procedure for **Canceling Data Distribution Requests** (previous section of this lesson).] 6. If repeated attempts to cancel the request fail, call the help desk and submit a trouble ticket in accordance with site Problem Management policy.

Table 3. Data Distribution Operator GUI User Messages

Message Text	Impact	Cause and Corrective Action
DsDdRequestMgrC create handle error.	Error cannot create Request Manager Handle to the Data Distribution Server.	1. Click on the **Refresh** button to try again. 2. Check the database connections. [For detailed instructions refer to the procedure for **Checking Database Connections** (subsequent section of this lesson).] 3. Refresh the GUI display (click on the **Refresh** button). 4. If the problem recurs, call the help desk and submit a trouble ticket in accordance with site Problem Management policy.
DsDdRequestMgrC Mark Shipped Failure.	GUI received failure from server. Request was not marked "Shipped."	No Longer Applicable.
DsDdRequestMgrC Resume Failure.	GUI received failure from server. Request was not resumed.	1. Check the current state of the distribution request (**State** column of the **Data Distribution Requests** list on the **Distrib'n Requests** tab (Figure 5)). Resuming the request may not be a valid operation in the current state (e.g., if the current state is "Shipped"). 2. Ensure (e.g., using ECS Assistant) that the Distribution Server is "up." 3. If the Distribution Server has gone down, notify the Operations Controller/System Administrator to have the server brought back up. 4. Refresh the GUI display (click on the **Refresh** button). 5. Try again to resume the request. [For detailed instructions refer to the procedure for **Suspending/Resuming Data Distribution Requests** (previous section of this lesson).] 6. If repeated attempts to resume request processing fail, call the help desk and submit a trouble ticket in accordance with site Problem Management policy.

Table 3. Data Distribution Operator GUI User Messages

Message Text	Impact	Cause and Corrective Action
DsDdRequestMgrC Set Priority Failure.	GUI received failure from server. Request priority was not changed.	1. Check the current state of the distribution request (**State** column of the **Data Distribution Requests** list on the **Distrib'n Requests** tab (Figure 5)). Setting priority may not be a valid operation in the current state (e.g., if the current state is "Shipped"). 2. Ensure (e.g., using ECS Assistant) that the Distribution Server is "up." 3. If the server has gone down, notify the Operations Controller/System Administrator to have it brought back up. 4. Try again to set the priority of the selected distribution request. [For detailed instructions refer to the procedure for **Changing the Priority of Data Distribution Requests** (previous section of this lesson).] 5. If repeated attempts to set the request priority fail, call the help desk and submit a trouble ticket in accordance with site Problem Management policy.
Invalid text field entry.	Invalid data was entered.	1. Enter valid data in the relevant field. 2. Retry the operation that led to the error message.
No Ddist request selected. Please select one.	An operation was performed without first selecting a request from the scrolled list.	1. Select (highlight) the appropriate request in the list. 2. Retry the operation that led to the error message.

Table 4. Hosts, Servers, Clients and Other Software Relevant to Data Distribution

HOST	SERVER/CLIENT/OTHER SOFTWARE
Distribution Server (e.g., x0dis02)	Data Distribution Operator GUI (EcDsDdistGui) Distribution Server (EcDsDistribution Server) Staging Disk Server (EcDsStStagingDiskServer) Storage Management Request Manager (EcDsStRequestManagerServer)
Working Storage (e.g., x0wkg01)	HDF EOS Server (EcDsHdfEosServer) Archive Server (EcDsStArchiveServer) Cache Manager Server (EcDsStCacheManagerServer) FTP Server (EcDsStFtpServer) Staging Disk Server (EcDsStStagingDiskServer)
SDSRV Server (e.g., x0acs03)	Science Data Server (EcDsScienceDataServer)
Access/Process Coordinators (APC) Server (e.g., x0acg01)	Archive Server (EcDsStArchiveServer) Cache Manager Server (EcDsStCacheManagerServer) FTP Server (EcDsStFtpServer) Staging Disk Server (EcDsStStagingDiskServer) Pull Monitor Server (EcDsStPullMonitorServer)
FSMS Server (e.g., x0drg01)	Archive Server (EcDsStArchiveServer) Cache Manager Server (EcDsStCacheManagerServer) FTP Server (EcDsStFtpServer) Staging Disk Server (EcDsStStagingDiskServer)
Ingest Server (e.g., x0icg01)	Registry Server (EcCsRegistry)
Interface Server 02 (e.g., x0ins01)	Subscription Server (EcSbSubServer) Event Server (EcSbEventServer)

Recovering from a Data Distribution Failure

The automated data distribution processes (push and pull) normally do not require intervention by the Ingest/Distribution Technician. However, when a data distribution fault (error) occurs, there may be a requirement for action to recover from the error. For example, recovery actions may be made necessary by the failure of storage management to acquire granules from the archive so they can be distributed. When a fault (error) occurs, the request status on the **Distrib'n Requests** tab of the **Data Distribution Operator GUI** is likely to change to "Suspended with Errors."

The Ingest/Distribution Technician may use the **Data Distribution Operator GUI Distrib'n Requests** tab (refer to the section on Monitoring/Controlling Data Distribution Requests) and/or log files on various host machines to review the failure event.

When recovering from a data distribution failure, use the procedure that follows. The procedure starts with the assumption that all applicable servers and the **Data Distribution Operator GUI** are currently running and the **Distrib'n Requests** screen (Figure 5) is being displayed.

Recovering from a Data Distribution Failure

---

1 Observe the information displayed on the **Distrib'n Requests** tab of the **Data Distribution Operator GUI** to identify distribution requests with a status of "Suspended with Errors."

2 If a suspended request has the error mnemonic **DsEDdXLargeRequest** associated with it, perform the procedure for **Responding to Requests that Exceed the Distribution Request Threshold** (subsequent section of this lesson).

3 Perform the procedure for **Handling an Acquire Failure** (subsequent section of this lesson).

4 If additional information is needed, open and read the appropriate log file in the **/usr/ecs/*MODE*/CUSTOM/logs** directory on the appropriate host machine(s).

- Applicable host machines are listed in Table 4. Hosts, Servers, Clients and Other Software Relevant to Data Distribution.
- For detailed instructions refer to the procedure for **Checking Log Files** (subsequent section of this lesson).

5 If the problem could not be identified through any of the preceding steps, call the help desk and submit a trouble ticket in accordance with site Problem Management policy.

6 When the problem has been corrected, review the information displayed on the **Distrib'n Requests** tab of the **Data Distribution Operator GUI** to determine whether the distribution request resumed processing.

7 If the distribution request does not resume processing after the problem has been corrected, return to Step 3.

Responding to Requests that Exceed the Distribution Request Threshold

When a distribution request exceeds the corresponding distribution request threshold (e.g., FtpPushThreshold or FtpPullThreshold), the request is suspended in DDIST with the following error mnemonic:

- DsEDdXLargeRequest

The procedure for responding to requests that exceed the distribution request threshold starts with the assumption that all applicable servers and the **Data Distribution Operator GUI** are currently running and the **Distrib'n Requests** screen (Figure 5) is being displayed.

1 Contact User Services to determine whether or not the user's request should be processed.

- User Services may contact the requester to verify whether or not the requester intended to order so much data.

2 If User Services responds that the request should be aborted, perform the procedure for **Canceling Data Distribution Requests** (previous section of this lesson).

- An e-mail message is automatically sent to the requester indicating that the request was cancelled through operator intervention.
- User Services should follow up with an additional e-mail message to the requester explaining the rationale for not completing the request.

3 If User Services responds that the request should be completed, first determine whether the request should be resumed immediately or should be left suspended until an off-hours period when the system is less loaded.

- Another alternative may be to submit a request to the Database Administrator to increase (at least temporarily) the corresponding threshold.

4 If the request should be completed, perform the procedure for **Suspending/Resuming Data Distribution Requests** (previous section of this lesson).

Handling an Acquire Failure

Diagnosing an acquire failure involves examining the following system log files and directories involved in the process:

- Science Data Server ALOG File (EcDsScienceDataServer.ALOG file).
- Archive Server ALOG File (EcDsStArchiveServer.ALOG).
- Staging Area.
  - Presence of the relevant file.
  - Staging Disk ALOG File (EcDsStStagingDiskServer.ALOG or EcDsStCacheManagerServer.ALOG).
  - Space available in the staging area.

Checking the Science Data Server ALOG File

The procedure for checking the EcDsScienceDataServer.ALOG file starts with the assumption that the operator has logged in to the ECS system.

Checking the Science Data Server ALOG File

---

1 Log in to the SDSRV Server host (e.g., e0acs05, g0acs03, l0acs03, n0acs04) as described in Steps 1 through 5 of the procedure for **Launching the Data Distribution Operator and Storage Management Control GUIs** (previous section of this lesson).

2 Type **cd /usr/ecs/*MODE*/CUSTOM/logs** then press **Return/Enter**.

3 Type **view EcDsScienceDataServer.ALOG** then press **Return/Enter**.

- Although this procedure has been written for the **view** command, any UNIX editor or visualizing command (e.g., **vi**, **pg**, **more**) can be used to review the log file.

4 Review the log file to determine whether the relevant file was successfully acquired.

- The EcDsScienceDataServer.ALOG file should contain entries identifying the file to be acquired by the ShortName of the corresponding ESDT.
- The EcDsScienceDataServer.ALOG file should contain entries regarding the acquire activity. The following types of messages should be included in the ALOG file:

  Msg: File 1 to be distributed: :SC:MOD03.001:1369:1.HDF-EOS

  Priority: 0 Time : 07/29/98 12:35:42

  PID : 24279:MsgLink :1684108385 meaningfulname :DsSrWorkingCollectionDistributeOneDistributFile

  Msg: File 2 to be distributed: SCMOD03.0011369.met

- If the ShortName does not appear in the ALOG file, with a timestamp corresponding to the time of the attempted acquire, SDSRV may not be running, or may not be communicating with other servers.
- If the ALOG file does contain entries for that ShortName, and indicates that two files (the file and its associated metadata file) are being distributed, SDSRV has completed its role in the acquire.
- If the ALOG contains the ShortName, and also contains an error showing that the data file time stamp does not match the time stamp required by the acquire, the data file needs to be removed from the Science Data Server and reinserted.
  - This is usually done using a script called DsDbCleanGranules.

5 Type **:q!** then press **Return/Enter** to quit the view application.

6 If the ShortName does **not** appear in the ALOG file, with a timestamp corresponding to the time of the attempted acquire, ensure (e.g., using ECS Assistant) that the necessary hosts and servers (listed in Table 4) are "up."

- If hosts/servers have gone down, notify the Operations Controller/System Administrator to have servers brought back up.
- Return to the procedure for **Troubleshooting a Data Distribution Failure** after the problem has been corrected.

7 If the ALOG contains the ShortName, and also contains an error showing that the data file time stamp does not match the time stamp required by the acquire, notify the Archive Manager to have the data file removed from the Science Data Server and reinserted.

- Return to the procedure for **Troubleshooting a Data Distribution Failure** after the problem has been corrected.

8 If the ALOG file does contain entries for the ShortName and indicates that two files (the file and its associated metadata file) are being distributed, continue with the procedure for **Checking the Archive Server ALOG File**.

Checking the Archive Server ALOG File

Acquire success from the Science Data Server is only part of the acquire process. Since any file entered into SDSRV is stored in the archive, the Archive Server must be involved during an acquire. Consequently, it may be useful to inspect the Archive Server ALOG file (EcDsStArchiveServer.ALOG) to check for error messages associated with the ShortName of the file type.

The procedure for checking the archive server ALOG file starts with the assumption that the operator has logged in to the ECS system.

Checking the Archive Server ALOG File

---

1 Log in to the Distribution Server (e.g., e0drg01, g0 drg01, l0 drg01, n0 drg01) host as described in Steps 1 through 5 of the procedure for **Launching the Data Distribution Operator and Storage Management Control GUIs** (previous section of this lesson).

2 Type **cd /usr/ecs/*MODE*/CUSTOM/logs** then press **Return/Enter**.

3 Type **view EcDsStArchiveServer.ALOG** then press **Return/Enter**.

- Although this procedure has been written for the **view** command, any UNIX editor or visualizing command (e.g., **vi**, **pg**, **more**) can be used to review the log file.

4 Review the log file to determine whether the relevant file was successfully acquired.

5 Type **:q!** then press **Return/Enter** to quit the view application.

6 If the relevant file was **not** successfully acquired, notify the Archive Manager to have the data file reacquired for Data Processing.

- Return to the procedure for **Troubleshooting a Data Distribution Failure** after the problem has been corrected.

7 If the relevant file was successfully acquired, continue with the procedure for **Checking the Staging Disk**.

Checking the Staging Disk

During an acquire, files are copied to a staging area as an intermediate step before distributing them to their destination. As part of diagnosing an acquire failure it is useful to check the staging area to ascertain whether the files have completed part of their journey. A subdirectory containing both the data granule and metadata file should be written to the staging area.

The procedure for checking the staging disk starts with the assumption that the operator has logged in to the ECS system.

Checking the Staging Disk

---

1 Log in to the Distribution Server (e.g., e0dis02, g0dis02, l0dis02, n0dis02) host as described in Steps 1 through 5 of the procedure for **Launching the Data Distribution Operator and Storage Management Control GUIs** (previous section of this lesson).

2 Type **cd /usr/ecs/*MODE*/CUSTOM/drp/*archivehost*/data/staging/user#** then press **Return/Enter**.

3 Type **ls -lrt** then press **Return/Enter**.

4 Review the directory to determine whether the relevant file was successfully staged.

5 If the relevant file was successfully staged, ensure (e.g., using ECS Assistant) that the necessary hosts and servers (listed in Table 4) are "up."

- If hosts/servers have gone down, notify the Operations Controller/System Administrator to have servers brought back up.
- Return to the procedure for **Troubleshooting a Data Distribution Failure** after the problem has been corrected.

6 If the relevant file was **not** successfully staged, continue with the procedure for **Checking the Staging Disk ALOG File** to determine why it was not successfully staged.

Checking the Staging Disk ALOG File

If the failure occurs in copying the files to the staging area, then the Staging log files (EcDsStStagingDiskServer.ALOG or EcDsStCacheManagerServer.ALOG) may reveal the cause.

The procedure for checking the staging disk ALOG file starts with the assumption that the operator has logged in to the ECS system.

Checking the Staging Disk ALOG File

---

1 Log in to the Distribution Server (e.g., e0dis02, g0dis02, l0dis02, n0dis02) host as described in Steps 1 through 5 of the procedure for **Launching the Data Distribution Operator and Storage Management Control GUIs** (previous section of this lesson).

2 Type **cd /usr/ecs/*MODE*/CUSTOM/logs** then press **Return/Enter**.

3 Type **view EcDsStStagingDiskServer.ALOG** or **EcDsStCacheManagerServer.ALOG** then press **Return/Enter**.

- Although this procedure has been written for the **view** command, any UNIX editor or visualizing command (e.g., **vi**, **pg**, **more**) can be used to review the log file.

4 Review the log file to determine whether the relevant file was successfully staged.

5 Type **:q!** then press **Return/Enter** to quit the view application.

6 If the relevant file was successfully staged, ensure (e.g., using ECS Assistant) that the necessary hosts and servers (listed in Table 4) are "up."

- If hosts/servers have gone down, notify the Operations Controller/System Administrator to have servers brought back up.
- Return to the procedure for **Troubleshooting a Data Distribution Failure** after the problem has been corrected.

7 If the relevant file was **not** successfully staged, continue with the procedure for **Checking the Space Available in the Staging Area**.

Checking the Space Available in the Staging Area

Failure can be caused by a lack of space in the staging area.

The procedure for checking the space available in the staging area starts with the assumption that the operator has logged in to the ECS system.

Checking the Space Available in the Staging Area

1 Log in to the Distribution Server (e.g., e0dis02, g0dis02, l0dis02, n0dis02) host as described in Steps 1 through 5 of the procedure for **Launching the Data Distribution Operator and Storage Management Control GUIs** (previous section of this lesson).

2 Type **cd /usr/ecs/*MODE*/CUSTOM/drp/*archivehost*/data/** then press **Return/Enter**.

3 Type **df -k .** (being sure to include the dot) then press **Return/Enter**.

4 Review the available space listed to determine whether there is adequate space for staging the relevant file.

5 If there is **not** adequate space for staging the relevant file, notify the Operations Controller/System Administrator of the lack of space.

6 If there is adequate space for staging the relevant file, notify the Archive Manager to have the data file reacquired for Data Processing.

7 Go to the procedure for **Troubleshooting a Data Distribution Failure** after the problem has been corrected.

Checking Log Files

Log files can provide indications of the following types of problems:

- DCE problems.
- Database problems.
- Lack of disk space.

The procedure for checking log files starts with the assumption that the operator has logged in to the ECS system and the appropriate host.

Checking Log Files

1 Access a terminal window logged in to the appropriate host.

- Distribution Server (e.g., e0dis02, g0dis02, l0dis02, n0dis02) host has the following data distribution and storage management log files:
  - EcDsDdistGui.ALOG.
  - EcDsDistributionServer.ALOG.
  - EcDsStStagingDiskServer.ALOG.

- EcDsStCacheManagerServer.ALOG.
- EcDsStmgtGui.ALOG.

- APC Server (e.g., e0acg01, g0acg01, l0acg02, n0acg01) host has the following storage management log files:
  - EcDsStArchiveServer.ALOG.
  - EcDsStStagingDiskServer.ALOG.
  - EcDsStCacheManagerServer.ALOG.
- FSMS Server (e.g., e0drg01, g0drg01, l0drg01, n0drg01) host has the following storage management log files:
  - EcDsStArchiveServer.ALOG
  - EcDsStStagingDiskServer.ALOG.
  - EcDsStCacheManagerServer.ALOG.
- Working Storage (e.g., e0wkg01, g0wkg01, l0wkg01) host has the following storage management log files:
  - EcDsStArchiveServer.ALOG.
  - EcDsStStagingDiskServer.ALOG.
  - EcDsStCacheManagerServer.ALOG.
- SDSRV Server (e.g., e0acs05, g0acs03, l0acs03, n0acs04) host has the following science data server log files:
  - EcDsHdfEosServer.ALOG.
  - EcDsScienceDataServer.ALOG
  - EcDsScienceDataServerClient.ALOG.
  - EcDsSdSrvGui.ALOG.
- Interface Server 02 (e.g., e0ins01, g0ins01, l0ins01, n0ins01) host has the EcSbSubServer.ALOG file.

2 Type **cd /usr/ecs/*MODE*/CUSTOM/logs** then press **Return/Enter**.

- Change directory to the directory containing the data distribution, science data server, or storage management log files (e.g., EcDsDdistGui.ALOG, EcDsDistributionServer.ALOG).

3 Type **pg** ***filename*** then press **Return/Enter**.

- ***filename*** refers to the data distribution, science data server, or storage management log file to be reviewed (e.g., EcDsDdistGui.ALOG, EcDsDistributionServer.ALOG).
- The first page of the log file is displayed.
- Although this procedure has been written for the **pg** command, any UNIX editor or visualizing command (e.g., **vi**, **view, more**) can be used to review the log file.

4 Review the log file to identify problems that have occurred.

5 Respond to problems as follows:

- DCE problems.
  - Notify the Operations Controller/System Administrator of suspected DCE problems.
- Database problems.
  - Verify that relevant database servers are running.
  - Check for lack of (or corruption of) data in the database using either a database browser or isql commands.
  - Notify the Database Administrator of suspected database problems.
- Lack of disk space.
  - Remove unnecessary files.
  - Notify the Operations Controller/System Administrator of recurring disk space problems.

Checking Database Connections

The storage management/data distribution shared database is the repository of data concerning data distribution requests. If applications (including the Data Distribution Operator GUI) are unable to connect to the database, the data distribution request data cannot be retrieved or (in the case of the GUI) displayed. Consequently, if the GUI does not display data or if the display does not refresh, checking the database connections is a logical step in trying to isolate the problem.

The procedure for checking database connections starts with the assumption that the operator has logged in to the ECS system.

1 Submit a request to the Database Administrator to identify the values for the following parameters associated with the EcDsDistributionServer:

- **DBName.**
- **DBServer.**
- **DBMaxConnections.**

2 Access a terminal window logged in to the APC Server (e.g., e0acg01, g0acg01, l0acg02, n0acg01) host.

- APC Server (e.g., e0acg01, g0acg01, l0acg02, n0acg01) typically hosts Sybase for the storage management/data distribution shared database.

3 Type **isql –U*userID* -S*DBServer*** then press **Return/Enter**.

- For example:

```
isql –Ustmgt_role  –Sx0acg01_srvr
```

4 At the **Password:** prompt type ***dbpassword*** then press **Return/Enter**.

- The ***dbpassword*** is the password for logging in to the database using the specified ***userID***.

5 Type **sp_who** at the **1>** prompt then press **Return/Enter**.

6 Type **go** at the **2>** prompt then press **Return/Enter**.

- A listing similar to the following one is displayed (some lines have been deleted):

```
   spid   status       loginame                        hostname   blk
          dbname                          cmd
 ------ ------------ ------------------------------ ---------- -----
          ------------------------------ ---------------
      1 recv sleep   stmgt_role                      x0acs03      0
          stmgtdb1_TS1                    AWAITING COMMAND
      2 sleeping     NULL                                        0
          master                          NETWORK HANDLER
      3 sleeping     NULL                                        0
          master                          DEADLOCK TUNE
      4 sleeping     NULL                                        0
          master                          MIRROR HANDLER
      5 sleeping     NULL                                        0
          master                          HOUSEKEEPER
      6 sleeping     NULL                                        0
          master                          CHECKPOINT SLEEP
      7 sleeping     NULL                                        0
```

```
    master                          AUDIT PROCESS
 8 recv sleep   stmgt_role                    x0ais01   0
    stmgtdb1_TS1                    AWAITING COMMAND
 9 recv sleep   EcDsStArchiveServer                      0
    stmgtdb1_TS2                    AWAITING COMMAND
10 recv sleep   EcInReqMgr                               0
    Ingest_TS3                      AWAITING COMMAND
11 recv sleep   EcDsStCacheManagerServer               0
    stmgtdb1_TS2                    AWAITING COMMAND
12 recv sleep   EcDsStStagingDiskServer                 0
    stmgtdb1_TS2                    AWAITING COMMAND
13 recv sleep   EcInGran                       x0icg01   0
    Ingest_TS3                      AWAITING COMMAND
14 recv sleep   EcDsStFtpServer                          0
    stmgtdb1_TS2                    AWAITING COMMAND
15 recv sleep   EcDsStArchiveServer                      0
    stmgtdb1_TS1                    AWAITING COMMAND
16 recv sleep   EcDsStCacheManagerServer               0
    stmgtdb1_TS1                    AWAITING COMMAND
17 recv sleep   EcDsStStagingDiskServer                 0
    stmgtdb1_TS1                    AWAITING COMMAND
18 recv sleep   EcInGran                                 0
    Ingest_TS3                      AWAITING COMMAND
19 recv sleep   EcDsStStagingDiskServer                 0
    stmgtdb1_TS1                    AWAITING COMMAND
20 recv sleep   EcInGUI                                  0
    Ingest_TS1                      AWAITING COMMAND
21 recv sleep   EcDsDistributionServer                   0
    stmgtdb1_TS1                    AWAITING COMMAND
22 recv sleep   EcDsDistributionServer                   0
    stmgtdb1_TS1                    AWAITING COMMAND
23 recv sleep   EcDsDistributionServer                   0
    stmgtdb1_TS1                    AWAITING COMMAND
24 recv sleep   EcDsDistributionServer                   0
    stmgtdb1_TS1                    AWAITING COMMAND
25 recv sleep   EcDsDistributionServer                   0
    stmgtdb1_TS1                    AWAITING COMMAND
26 recv sleep   EcDsDistributionServer                   0
    stmgtdb1_TS1                    AWAITING COMMAND
27 recv sleep   EcDsDistributionServer                   0
    stmgtdb1_TS1                    AWAITING COMMAND
28 recv sleep   EcDsDistributionServer                   0
    stmgtdb1_TS1                    AWAITING COMMAND
29 recv sleep   EcDsDistributionServer                   0
    stmgtdb1_TS1                    AWAITING COMMAND
30 recv sleep   EcDsDistributionServer                   0
    stmgtdb1_TS1                    AWAITING COMMAND
31 recv sleep   EcDsDistributionServer                   0
    stmgtdb1_TS1                    AWAITING COMMAND
32 recv sleep   EcDsDistributionServer                   0
    stmgtdb1_TS1                    AWAITING COMMAND
33 recv sleep   EcDsDistributionServer                   0
```

```
          stmgtdb1_TS1                    AWAITING COMMAND
      34 recv sleep   EcDsDistributionServer                    0
          stmgtdb1_TS1                    AWAITING COMMAND
      35 recv sleep   EcDsDistributionServer                    0
          stmgtdb1_TS1                    AWAITING COMMAND
      36 recv sleep   EcInPolling                               0
          Ingest_TS1                      AWAITING COMMAND
[…]
      49 recv sleep   EcDsStmgtGui                              0
          stmgtdb1_TS1                    AWAITING COMMAND
      50 recv sleep   EcDsDdistGui                             0
          stmgtdb1_TS1                    AWAITING COMMAND
      51 recv sleep   EcDsDdistGui                             0
          stmgtdb1_TS1                    AWAITING COMMAND
      52 recv sleep   EcDsDdistGui                             0
          stmgtdb1_TS1                    AWAITING COMMAND
      53 recv sleep   EcDsDdistGui                             0
          stmgtdb1_TS1                    AWAITING COMMAND
      54 running      stmgt_role                  x0icg01   0
          stmgtdb1                        SELECT
      55 recv sleep   EcDsStArchiveServer                      0
          stmgtdb1                        AWAITING COMMAND
(55 rows affected)
(return status = 0)
```

7 Type **sp_configure "user connections"** at the **1>** prompt then press **Return/Enter**.

8 Type **go** at the **2>** prompt then press **Return/Enter**.

- A listing similar to the following one is displayed:

```
Parameter Name                 Default     Memory Used Config Value
          Run Value
 ----------------------------- ----------- ----------- ------------
          -----------
 number of user connections              25       20195          255
                  255
(1 row affected)
(return status = 0)
```

9 Type **quit** at the **1>** prompt then press **Return/Enter**.

10 Compare the number of actual connections (results of **sp_who**) with the number of connections for which the database has been configured (results of **sp_configure "user connections"**).

11 If the number of actual connections is very close to the number of connections for which the database has been configured, notify the Database Administrator of the fact.

12 If the number of actual connections is **not** very close to the number of connections for which the database has been configured, compare the number of actual connections with the value for DBMaxConnections that the Database Administrator specified (Step 1).

13 If the number of actual connections is very close to the value for DBMaxConnections, notify the Database Administrator of the fact.

- It may be advisable to increase the value assigned to the DBMaxConnections parameter in the Configuration Registry.

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Practical Exercise

Introduction

This exercise is designed to give the students practice in data distribution activities.

Equipment and Materials

One ECS workstation per student.

Statement of the requirements for the exercise.

Release 6A Operations Tools Manual for the ECS Project, 609-CD-600-001, one copy per student.

Mission Operation Procedures for the ECS Project, 611-CD-600-001, one copy per student.

Launching the Data Distribution Operator and Storage Management Control GUIs

The exercise involves launching the Data Distribution Operator and Storage Management Control GUIs. The exercise begins with a student acting in the role of Ingest/Distribution Technician receiving the necessary information/ requirements for launching the Data Distribution Operator and Storage Management Control GUIs. The student launches the data distribution and storage management control GUIs as specified in the requirements.

Perform the following steps:

1. Log in to the distribution server host using secure shell.
2. Set the environmental variables.
3. Enter the path to the utilities directory.
4. Enter the command to start the **Data Distribution Operator** GUI in the specified mode.
5. Enter the command to start the **Storage Management Control** GUI in the specified mode.

Monitoring/Controlling Data Distribution Requests

The exercise involves monitoring and controlling data distribution requests via ftp push or ftp pull. The exercise begins with a student acting in the role of Ingest/Distribution Technician receiving the necessary information/requirements for monitoring/controlling data distribution requests. The requirements may include instructions to configure data distribution polling, filter data distribution requests, change the priority of a distribution request, or change the status of a

distribution request (e.g., cancel, suspend, or resume). The student monitors/controls data distribution requests as specified in the requirements.

Perform the following steps:

1. Monitor/control data distribution requests as specified in the written or stated requirements.
2. Configure data distribution polling as specified in the written or stated requirements.
3. Filter requests as necessary.
4. Change the status of distribution requests as specified in the written or stated requirements.
5. Respond to questions concerning the current status of distribution requests.

Modifying Preambles

The exercise involves modifying an e-mail preamble applicable to data distribution. The exercise begins with a student acting in the role of Ingest/Distribution Technician receiving the necessary information/requirements for modifying an e-mail preamble. The student modifies the e-mail preamble in accordance with the requirements.

Perform the following steps:

1. Select the **Preamble Editor** tab of the **Data Distribution Operator GUI**.
2. Select the appropriate media type.
3. Select the appropriate preamble type.
4. Edit the preamble text.
5. Save the edited preamble.

Configuring Storage Management Polling

The exercise involves configuring Storage Management polling functions. The exercise begins with a student acting in the role of Ingest/Distribution Technician receiving the necessary information/requirements to configure Storage Management polling functions. The student configures Storage Management polling functions as specified in the requirements.

Perform the following steps:

1. Select **Options** → **System Settings** from the pull-down menu on the **Storage Management Control** GUI.
2. Set the **Operator Notification Timer** and/or **Cache Statistics Timer** to the appropriate polling states (off or on) if applicable.
3. Enter the database polling rate for the **Operator Notification Timer** and/or **Cache Statistics Timer** if applicable.
4. Set the error retry rate for the **Operator Notification Timer** if applicable.

5. Apply the modifications.

Deleting Files from Cache

The exercise involves deleting files from cache. The exercise begins with a student acting in the role of Ingest/Distribution Technician receiving the necessary information/requirements to delete files from cache. The student deletes files from cache as specified in the requirements.

Perform the following steps:

1. Select the **Cache Stats.** tab on the **Storage Management Control** GUI.
2. Select the cache containing the files to be deleted.
3. Select the file to be deleted from the cache.
4. Click on the **Mark Delete** button.

Viewing Storage Management Event Log Information

The exercise involves viewing storage management event log information. The exercise begins with a student acting in the role of Ingest/Distribution Technician receiving the necessary information/requirements for viewing storage management event log information. The student views storage management event log information as specified in the requirements.

Perform the following steps:

1. Select the **Storage Events** tab of the **Storage Management Control** GUI.
2. Enter the defining characteristic(s) (e.g., time period, event type, event level) of the event.
3. Click on the **Search** button to search the event log for events that meet the specified criteria.
4. Observe event information displayed in the **Event Log** window.
5. Respond to questions concerning the event information that is displayed in the **Event Log** window.

Monitoring Storage Management Server Operations

The exercise involves monitoring storage management server operations. The exercise begins with a student acting in the role of Ingest/Distribution Technician receiving the necessary information/requirements for monitoring storage management server operations. The requirements may include instructions to filter storage management requests. The student monitors storage management server operations as specified in the requirements.

Perform the following steps:

1. Monitor storage management server operations as specified in the written or stated requirements.
2. Filter requests as necessary.

3. Respond to questions concerning the current status of requests.

Modifying System Parameters

The exercise involves modifying system parameters in database tables. The exercise begins with a student acting in the role of Ingest/Distribution Technician receiving the necessary information/ requirements for modifying system parameters in database tables. The student modifies a system parameter in a database table as specified in the requirements.

Perform the following steps:

1. Access the command shell.
2. Log in to the appropriate host using secure shell.
3. Use the appropriate GUI, script, or isql commands to modify the value assigned to the parameter.

Troubleshooting Data Distribution Problems

The exercise involves troubleshooting data distribution problems. The exercise begins with a student acting in the role of Ingest/Distribution Technician receiving the necessary trouble symptom information and requirements for troubleshooting the problem(s). The student reviews the specified trouble symptoms, takes action to correct the problem(s), and responds to questions concerning the possible cause(s).

Perform the following steps:

1. Review the trouble symptoms.
2. Respond to requests that exceed the distribution request threshold if applicable.
3. Check for an acquire failure.
4. Check appropriate log files as necessary.
5. Take action to correct the problem(s).
6. Verify that distribution request processing has resumed.
7. Respond to questions concerning the possible cause(s) without error.

Slide Presentation

Slide Presentation Description

The following slide presentation represents the slides used by the instructor during the conduct of this lesson.

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Addendum A: Product Distribution System (PDS) Operations

Lesson Overview

This lesson will provide you with the complete process by which the production team performs hard media distribution operations using the Production Distribution System (PDS). The processes described in the lesson apply primarily to Distribution Technicians. The procedures involved in PDS operation include such tasks as starting up PDS, shutting down PDS, monitoring/controlling product processing using PDS, generating production reports, and troubleshooting PDS problems.

Lesson Objectives

Overall Objective - The overall objective of the PDS Operation lesson is for Maintenance and Operations (M&O) personnel to develop proficiency in the procedures that apply to hard media distribution operations for the Earth Observing System (EOS) Data and Information System (EOSDIS) Core System (ECS).

Condition - The student will be given oral or written information and requirements for performing PDS activities, access to the PDS, and a copy of PDS-114, *Product Distribution System (PDS) Stand Alone (PDSSA) User's Guide*.

Standard - The student will perform hard media distribution operations activities in accordance with the prescribed procedures without error.

Specific Objective 1 - The student will describe the general functions and processes associated with hard media distribution operations (in the context of ECS and PDS operations).

Condition - The student will be given written or oral questions concerning the general functions and processes associated with hard media distribution operations.

Standard - The student will state without error the general functions and processes associated with hard media distribution operations using PDS in accordance with the lesson content and the applicable procedures.

Specific Objective 2 - The student will perform the steps involved in starting up PDS.

Condition - The student will be given a statement of the requirements for starting up PDS, access to the PDS, and a copy of PDS-114, *Product Distribution System (PDS) Stand Alone (PDSSA) User's Guide*.

Standard - In accordance with the lesson content, the applicable procedure, and the statement of requirements the student will log on to the PDS operations interface computer, start the PDS Operator Interface (PDSOI), the PDSIS Operator Interface (PDSIS OI), the PDS Job Monitor,

the PDS Verification Tool, the PDS Maintenance Module; in addition the student will log on to the Rimage compact disk (CD) production system personal computer (PC) and start the Rimage CD Production Software.

Specific Objective 3 - The student will perform the steps involved in shutting down PDS.

Condition - The student will be given a statement of the requirements for shutting down PDS, access to the PDS, and a copy of PDS-114, *Product Distribution System (PDS) Stand Alone (PDSSA) User's Guide*.

Standard - In accordance with the lesson content, the applicable procedure, and the statement of requirements the student will exit from the PDS Maintenance Module, the PDS Job Monitor, the PDS Operator Interface (PDSOI), the Rimage CD Production Software (after all executing PDS jobs are completed or at a logical stopping point), and the PDS Verification Tool.

Specific Objective 4 - The student will perform the steps involved in monitoring/controlling product processing using PDS.

Condition - The student will be given a statement of the requirements for monitoring/controlling product processing using PDS, access to the PDS, and a copy of PDS-114, *Product Distribution System (PDS) Stand Alone (PDSSA) User's Guide*.

Standard - In accordance with the lesson content, the applicable procedure, and the statement of requirements the student will activate jobs, respond to the Media Drive Selection window, respond to a status of QC-Hold (perform a QC check or verification), mark jobs "Complete" in PDSSA, mark jobs "Shipped" in PDSIS, and generate PDS production reports.

Specific Objective 5 - The student will perform the steps involved in troubleshooting PDS problems.

Condition - The student will be given a statement of the requirements for troubleshooting PDS problems, access to the PDS, and a copy of PDS-114, *Product Distribution System (PDS) Stand Alone (PDSSA) User's Guide*.

Standard - In accordance with the lesson content, the applicable procedure, and the statement of requirements the student will review the trouble symptoms, check the status of relevant hosts/servers (as necessary), check log files (as necessary), take action to correct the problem(s), and respond to questions concerning the possible cause(s) of the trouble symptoms.

Importance

This lesson applies to students who will be Distributed Active Archive Center (DAAC) Distribution Technicians. The lesson will provide them with the knowledge and skills needed when performing tasks associated with the operation of the PDS. Those tasks include the following types of activities:

- Starting Up PDS.
- Shutting Down PDS.

- Monitoring/Controlling Product Processing Using PDS.
- Troubleshooting PDS problems.

The lesson describes why and how the activities are performed. Consequently, the students will become aware of what tasks they will be performing on the job and how to accomplish those tasks.

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PDS Context

System Level Capability

- Provides operationally proven media distribution support.
- Media products supported:
  - CD.
  - DVD.
  - DLT.
  - 8mm.
- Media quality check (QC) before shipment.
- Media labels (DAAC can tailor by data set).
- Jewel box inserts for CD-R and DVD (DAAC can tailor by data set).
- Automatically generated shipping labels.
- Automatically generated packing list.
- Distribution Notice (DN) e-mailed to customer.
- CD-R and DVD mass production from DAAC-constructed masters.
- Potentially increased media distribution capacity (depends on media types and cache access patterns).
- Inherent capability to utilize ftp push and ftp pull (no plans to use).
- Potential use by other DAAC elements.

System/Component Overview

The system/component overview is illustrated in Figure 18.

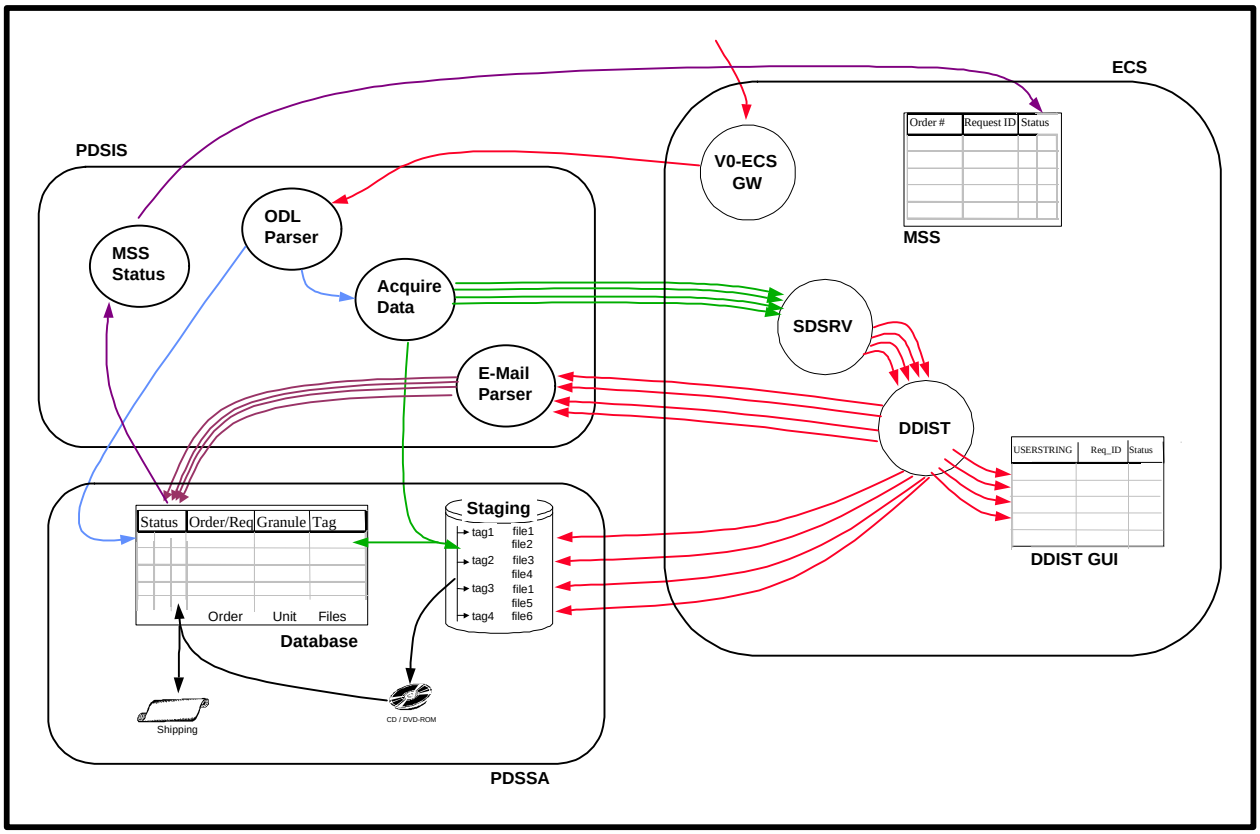

Figure 18. System/Component Overview Diagram

System Overview

PDS Input Server (PDSIS)

The PDSIS includes the following four processes:

- ODL Parser.
  - Accepts digital product requests via Version 0 Gateway (V0GW) Object Description Language (ODL) files.
- Acquire Data process.
  - Requests digital product data from ECS via a product request parameter file that is sent via the Science Data Server (SDSRV) Command Line Interface (SCLI).
- E-Mail Parser.
  - Receives e-mail notifications that ECS has sent data to PDS.

- MSS Status process.
  - Provides order status updates to the order server in the ECS System Management Subsystem (MSS).

PDS-Stand Alone (PDSSA)

The PDSSA is composed of the following four subsystems:

- Operator Interface Subsystem.
  - Receives orders for products from PDSIS. Upon activation of a job, the PDSOI extracts the order information for each unit in the order, creates the Production Parameter File (PPF), and activates the relevant production module.
- Production Module Subsystem.
  - Receives a production tasking in the form of a PPF file. The PM will assemble the required product data, conduct volume spanning calculations, generate the product media, and pass status and production file information back to the PDSOI.
- Job Monitor Subsystem.
  - Acts as the interface to allow the operator to have a graphical view of system resources, as well as to have the capability to check the status of current production jobs in some degree of detail.
- Verification Tool Subsystem.

Provides an operator interface for verification of products. In addition there is a PDS Cleanup Manager that is used for managing transient files.

Capabilities

PDS Input Server (PDSIS)

The PDSIS is an input server that provides the interface between ECS and the PDSSA in accordance with the Interface Control Documents (ICDs) and relevant specifications.

The PDSIS supports the following capabilities:

- Accepting multiple digital product requests via Version 0 Gateway (V0GW) Object Description Language (ODL) files.
- Requesting digital product data from ECS via a product request parameter file that is sent via the Science Data Server (SDSRV) Command Line Interface (SCLI).
- Receiving digital product data from ECS and PDSSA via e-mail and ftp push.

- Coordinating PDSSA processing to include detection and resolution of data transfer problems, data flow control, and order recovery.
- Generating packaging and shipping artifacts including packing lists, shipping labels, and e-mail Distribution Notices (DNs).
- Managing PDSIS processing; e.g., accepting operator processing requests, managing PDSIS data, generating production reports, monitoring PDSIS operations, and managing PDSIS jobs.
- Providing storage for up to 438GB of digital data (total, shared with PDSSA), and providing a production capability in a 24-hour time period equivalent to 535GB of digital data.
- Enabling continuous operations within ECS (24 hours a day, seven days a week).

The PDSIS supports future growth capability in processing and media output types.

PDS-Stand Alone (PDSSA)

The PDSSA supports the following capabilities:

- Acquiring digital products from disk, resolving and detecting transfer problems, and re-pulling data.
- Generating and distributing digital products to customers via the following media types:
  - CD-ROM.
  - DVD-ROM.
  - High-density 8mm tape.
  - DLT 7000c.
- Developing a “generic” production module that uses the following rules:
  - Writing one granule to one directory.
  - No spanning of granules across media (does not span files).
- Labeling tape products, CD-ROM, and DVD-ROM and printing jewel case inserts.
  - Basic order-level information (e.g., Order #, Req_ID, date).
  - Format printed on inserts is generic via a configurable field.
- Providing customer notification that a digital product has been produced and verified.
- Removing digital source files upon completion of a media product.
- Managing PDSSA processing, including accepting operator processing requests.

- Managing PDSSA data, order status, and production reports.
- Managing PDSSA operations including operator interfaces and job management capabilities including...
  - System control.
  - Job management and tracking.
  - Error reporting.
  - Fault isolation support and recovery.
- Providing storage for up to 438GB of digital data (total, shared with PDSIS).
- Providing a production capability in a 24-hour time period equivalent to 535GB of digital data.
- Potentially supporting continuous attended operations 24 hours a day, seven days a week and unattended automatic processing 16 hours a day, seven days a week.

The PDSSA supports future growth capability in processing and media output types.

ECS Subsystem Interfaces

The ECS subsystem interfaces required to support the ECS PDS include the following elements:

- Data Management Subsystem (DMS) Version 0 Gateway (V0GW).
  - Receives orders from the EOS Data Gateway (EDG) web client.
  - Sends order information to the PDSIS via a socket connection.
- System Management Subsystem (MSS).
  - Receives order information (e.g., ECS Order #, ECS REQ-ID) for update in the order-tracking database.
- Science Data Server (SDSRV) Command Line Interface (SCLI).
  - Receives requests from PDSIS for ftp push of granules to the PDS staging disk directories.
  - Forwards acquire requests to the SDSRV.
- Science Data Server (SDSRV).
  - Receives query requests from the PDSIS.
  - Forwards query requests to the Sybase server for the inventory database.
  - Receives acquire requests (via ftp push) from the SCLI.
  - Forwards distribution requests (via ftp push) to Data Distribution (DDIST).

- Data Distribution (DDIST).
  - Receives ftp push requests from SDSRV.
  - Requests Storage Management (STMGT) to ftp push data to PDS staging disk directories.
  - Sends DNs to the PDSIS E-Mail Parser.

PDS System Design and Operational Scenarios

ECS PDS System Architecture

ECS PDS system architecture and workspace are shown in Figure 19.

- Silicon Graphics Inc. (SGI) Origin 2000 processor.
- SGI disk contains…
  - Operating system and ECS software.
  - PDSSI custom code.
  - PDSSA custom code.
- PDSOI (operator interface).
- Random Array of Inexpensive Disks (RAID) contains…
  - PDSIS staging.
  - PDSSA staging.
- Data output devices.
  - Rimage units (CD/DVD).
    - Network File System cross-mount (for tasking to Rimage).
  - 8mm (not shown in Figure 19).
  - DLT (not shown in Figure 19).
- Printers.
  - Report printer.
  - Jewel case insert printer.
  - Label printer (not shown in Figure 19).
  - Shipping label printer (not shown in Figure 19).

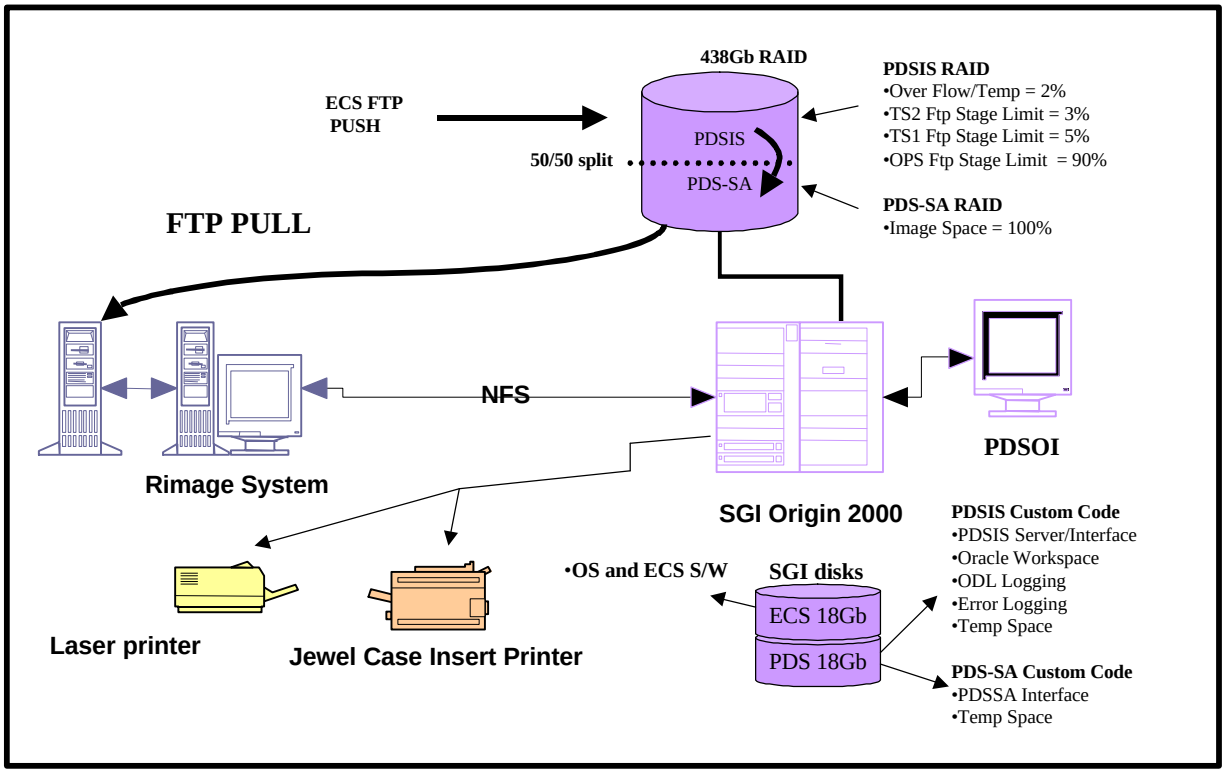

Figure 19. ECS PDS System Architecture and Workspace

PDSIS Data Flow Control Mechanism

- Throttling approach to ftp-push directory is via a "running" total of requests.
  - RAID is monitored to determine how full it is.
- ECS to PDS order breakdown structure is shown in Figure 20.
  - In ECS orders, requests are grouped by media type.
    - A problem with a request in an order causes a problem with the entire order.
  - In PDS, ECS requests are converted to orders composed of units.
    - An order can be completed even if units within the order cannot be completed (the customer receives the units that can be completed).
    - Units may be completed at different times.

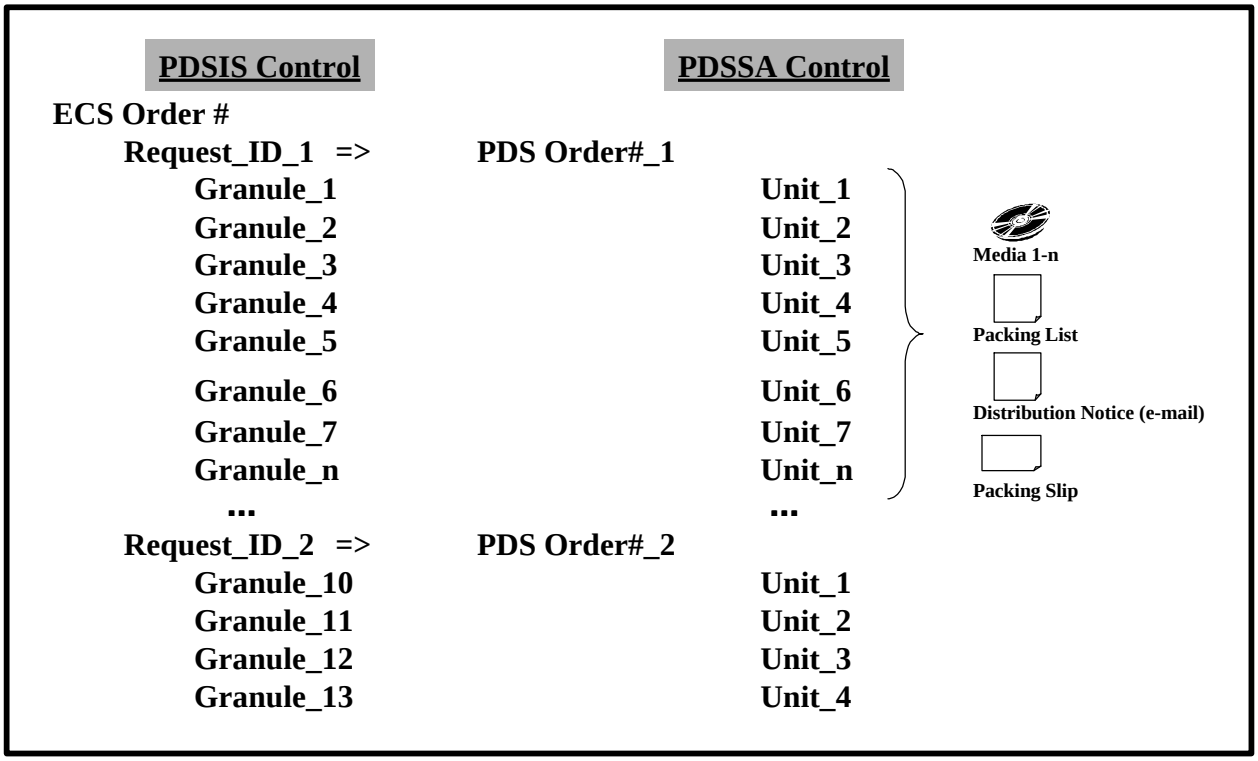

Figure 20. ECS to PDS Order Breakdown Structure

- Large orders (e.g., 300GB) are released via either “chunking” or “job” to PDSSA for media creation and working space cleanup/release.
  - ECS to PDS order “chunking”/job limit setup is shown in Figure 21.
  - "Chunking" limits are set to a physical size limit and number of units (e.g., a chunk is 35000 MB (35GB) or five (5) units).
  - When the limit is reached (receiving data from ECS) PDSIS starts releasing units to PDSSA.
  - When PDSSA completes units, disk space is made available for additional data from ECS.

PDS Operational Scenarios

ECS/PDS front-end integration is shown in Figure 22. It illustrates a scenario that briefly describes the following aspects of PDS operations:

- Nominal path.
- Error conditions and operational recovery approaches.
- Operational control of the PDS to ECS interface.

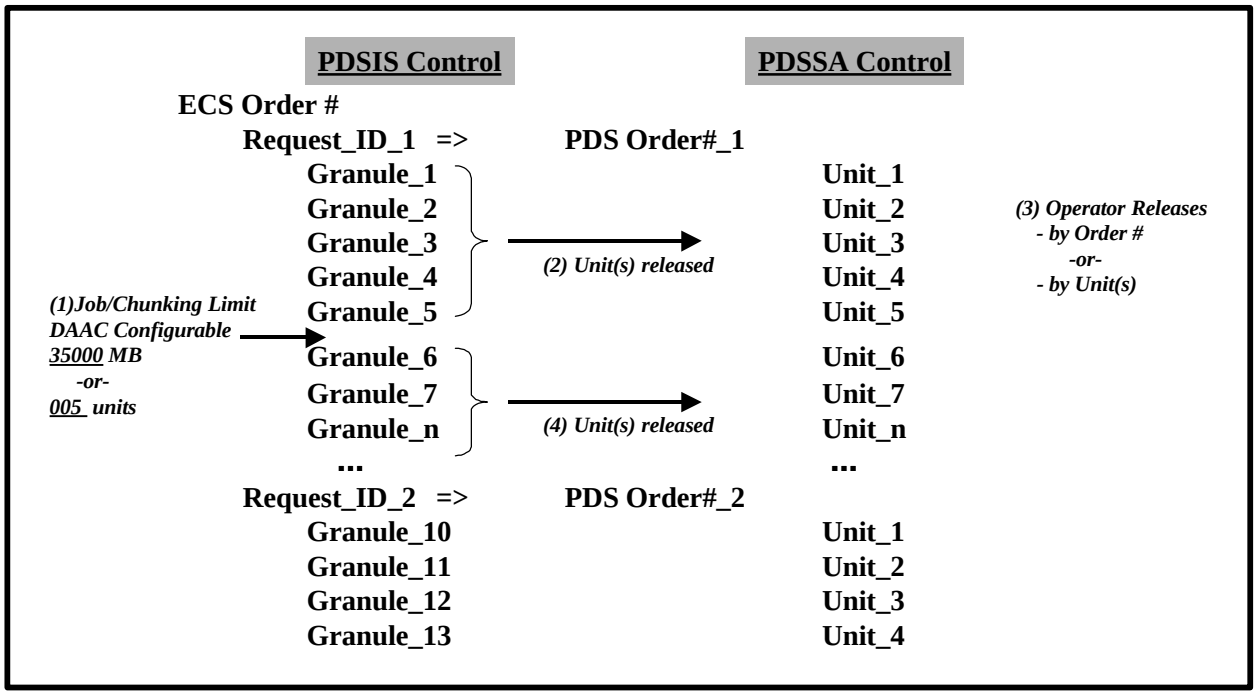

Figure 21. ECS to PDS Order "Chunking" Job Limit Setup

In general, PDS operations proceed as follows (numbers relate to Figure 22):

1. An order is sent to the Version 0 Gateway (V0GW).
    - Order from the EOS Data Gateway (EDG) web client enters ECS through the V0GW via a socket connection.
    - Order is created in Object Description Language (ODL) format; order includes the following types of data:
        - ECS Order #.
        - ECS REQ_ID.
        - Granule #.
        - Dataset ID.
        - Media Type.
        - Media Format.
        - User Information/Addresses.
    - Order information (e.g., ECS Order #, ECS REQ-ID) is updated in the ECS System Management Subsystem (MSS) order-tracking database.

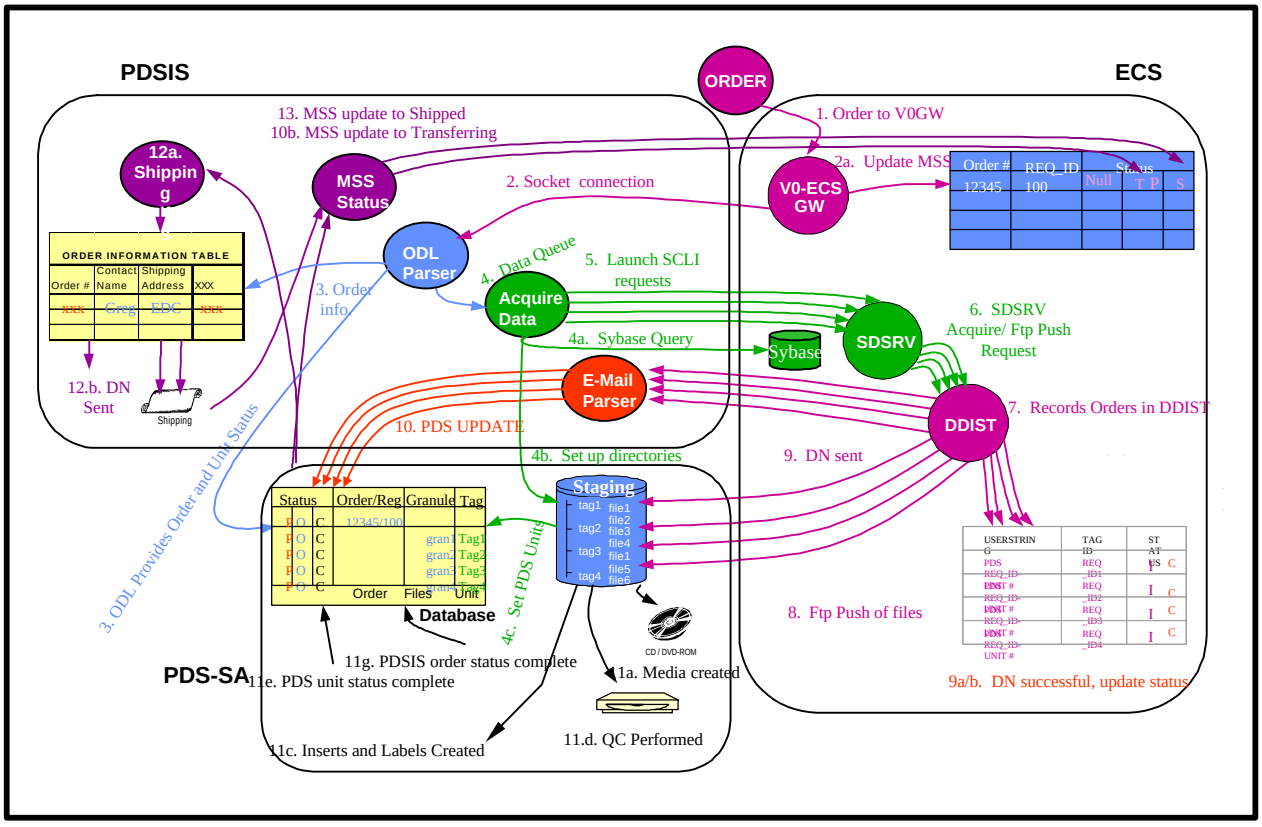

Figure 22. ECS/PDS Front-End Integration

2. A PDSIS-V0GW socket connection is established.

   2a. If successful acknowledgement, MSS status is set to null (0).

   – If the connection fails, the EDG client receives a "fail" message.

3. PDSIS parses the ODL file, creates an order, and sets the unit-level status in the PDS Oracle database.

   3a. PDS order # is assigned (equal to Req_ID).

   3b. Order status is “O” (ODL Order Received).

   3c. Unit status is “O” (ODL Order Received).

   – Order information is filled in.

   – PDSIS notifies the MSS order-tracking database server to update the order to Pending (P) status.

- If the PDS database is down, PDSIS rejects the handshake and the EDG client receives a "fail" message.

4. Data queue operations occur (to determine the quantity of data so the PDS disk space will not be overrun).

4a. PDSIS sends a query (for SizeMBECSDataGranule) to the ECS inventory database Sybase server.

- If the inventory database is down, PDSIS sets the error flag to "Y" (Yes) and retries the query (unit status still “O”), the ECS operator fixes condition, PDS OPS resets the error flag to "N" (No Error), and PDSIS retries the query (unit status “O”).

4b. PDSIS checks for unallocated space on staging disk (working storage).

- If all disk space is allocated, orders queue until space becomes available.

4c. PDSIS sets up a directory path on PDS disk and assigns the destination to unit # (granule #) in PDSSA.

5. PDSIS launches Science Data Server (SDSRV) Command Line Interface (SCLI) requests.

5a. PDSIS requests ftp push of the granule to the staging disk directory path.

5b. PDSIS receives an ftp request acknowledgement (either "1" or "0") (0 = Okay).

- If the ftp request acknowledgement fails, PDSIS receives a "1" (1 = Fail).
- The unit status error flag is set to “Y” (Yes) and is retried; the PDS Operator resets the flag to “N” (No Error) when ECS has been fixed.

5c. PDSIS updates the unit status to "D" (ECS Data Requested).

6. SDSRV receives an acquire request (via ftp push) from the SCLI.

6a. SDSRV writes to the ALOG for troubleshooting purposes.

6b. The SDSRV forwards the ftp push request to Data Distribution (DDIST).

- If the SDSRV request fails, the ftp push order is reset via a script in ECS.
- In case of bad data the SCLI order is cancelled (it can be restarted from an earlier step if necessary).

7. DDIST receives the ftp push request from SDSRV.

7a. Order is recorded in DDIST as status "I" (In Progress).

- If DDIST is down, SDSRV queues requests until DDIST is back up, then updates status to (I).

7b. Operator can query by PDS USERSTRING (which includes PDS, REQ_ID, and Unit#).

8. DDIST requests Storage Management (STMGT) to ftp push the data to PDS staging disk directories.

- If the ftp push fails, the ECS operator retries the request (in a "suspended with errors" state) on the DDIST GUI.
  - Alternatively, the ECS Operator cancels the order and DDIST sends a “failed” e-mail to PDSIS.

9. DDIST sends a Distribution Notice (DN) sent to the PDSIS E-Mail Parser.

9a. DDIST sends a "successful" DN to the PDSIS.

9b. PDSIS updates ftp status to Complete.

- If DDIST sends an unsuccessful/failed DN to the PDSIS…
  - PDSIS sets the unit status error flag to “Y” (Yes).
  - If the error is recoverable, ECS retries, fixes the e-mail and resends it manually.
  - If the error is recoverable, the PDS operator resets the error flag to “N” (No Error) and retries a new SCLI request.
  - If the error is not recoverable, (if the ECS operator decides that the failure is fatal), the order unit can be rejected; the PDS operator changes the unit to Reject ("X").

10. PDSIS updates the corresponding PDS order status to "R" (ECS Data Received).

10a. PDSIS Job Control accounts for all order integrity and releases REQ_ID to PDSSA operator GUI by changing the status to (P) after having accounted for all units or having hit a chunking limit.

10b. PDSIS notifies MSS to updated the order status to Transferring (T).

11. PDS operator assigns order units to media drive.

- If there is a file size related to media selection error,…
  - Either the operator changes the media type and changes “E” to “O“ in the PDSIS Config GUI (System Support)…
  - Or the operator changes “E” to “X” for failed unit and the order proceeds without the failed unit.
  - Policy guidance is needed as to whether User Services helps fix order media errors or the e-mail goes back as rejected for that unit and the customer has to reorder.

11a. PDSSA creates media.

11b. PDS operator monitors the production process.

11c. PDSSA generates inserts and tape labels.

- Failures can be retried.

11d. PDS operator performs QC.

- If there is a corrupt file/bad media error, the PDS operator selects a new drive and restarts.

11e. PDS updates the unit status to complete.

11f. PDSIS deletes the unit from storage space; PDSSA deletes the entry.

11g. PDSIS Job Unit Control accounts for order integrity; orders are updated to "C" (Completed) after Job Unit Control has accounted for all units.

12. Shipping artifacts are created.

12a. A physical packing list is printed.

12b. A customer DN (same as the packing list) is e-mailed.

12c. Shipping labels are printed.

12d. PDS operator packages the order and sends it to shipping/dissemination.

12e. PDSIS updates order status to "S" (Shipped).

- Failures can be retried or manually recreated.

13. PDSIS notifies the MSS order-tracking database server that the status of the REQ-ID is "S" (Shipped).

- If MSS is down, ECS fixes the condition, then PDSIS resets the error flag from "Y" to "N" and retries (a configurable number of times).

Design/Operational Issues

- Invalid Media Selection:
  - EDG allows unfortunate selections (e.g., 2GB product on CD-ROM).
  - DAACs need to decide on policy/process for recovery (cancel, partially reject, contact and change media selection, etc.).
- Media not available through Machine-to-Machine Gateway (MTMGW), subscription, or ASTER on-demand interface.
- Chunking limits need to be set up to avoid "stalling" of disk space.

- Large Media orders (greater than ½ available ftp disk space) of a single media type may prevent distribution of other media types until the initial order has been completed.
- PDS distributes restricted data granules if they are visible on the EDG client.
  - SCLI doesn't check whether or not granules are restricted.
- Customization of inserts and intelligent file spanning will be follow-on deliveries.

PDS Operations

Operator Tools

The following operator tools have been provided to support PDS operations:

- PDS Operator Interface (PDSOI).
- PDSIS Operator Interface (PDSIS OI)
- PDS Job Monitor.
- Rimage CD Production Software.
  - Data Publisher.
  - Production Server.
- PDS Verification Tool.
- PDS Maintenance Module.

The sections that follow describe the tools in some detail.

PDS Operator Interface (PDSOI)

The PDS Operator Interface (PDSOI) module resides on machines that are capable of generating customer products. The operators start up the OI using a shell script (pdsoi_prod.sh) or using an alias that is set up, pdsoi. This script then makes a connection to the Oracle database. The connection is made using the Oracle SQL*Net communication mechanism. The script ensures that all operators log on to Oracle with the same usercode/password. The usercode has privileges against only those tables used specifically by PDS. Any data needed to produce the product is included in the accessible tables.

The PDSOI module generates several reports dealing with order status and jewel case inserts. Some of the information used is stored in the Oracle database tables and Oracle Report generator is used to create the reports. The Oracle report modules reside on the PDS machine and use the SQL*Net connection to get any data needed for the reports.

The customer has, as an option, the ability to receive products via ftp. The PDSOI module would send an e-mail message to the customer when the product had been generated and delivered to an ftp-retrievable directory. The e-mail message would be sent using the e-mail address provided in the PDT_PDSINFO table using the UNIX sendmail utility on the PDS machine.

The communication philosophy employed allows for multiple copies of the PDS code to reside anywhere as long as they have SQL*Net and the physical communication means to connect to the PDS machine.

Communications between the OI module and the product generation code are handled via ASCII files. The OI module generates appropriate ASCII parameter files using Oracle Form's TEXT_IO package, which allows both reading and writing of operating system files. The PDSOI module looks for returning ASCII files from the product generation code on a timed basis and processes them appropriately.

Additional reports and listings are generated which use ASCII files stored on the PDS machine. These reports are generated by UNIX scripts, which are on the PDS machine and are called from both the OI module and the product generation code.

The source data needed to produce a customer's request can come from several sources. It might come from offline media that is mounted by an operator or it might come from a mass storage device. The latter case may cause a staging request to be sent from the product generation code to the device. The mass storage device will retrieve the data and send it to the PDS machine thus making it available for product generation.

The product generation code may need to generate near line stage requests and to implement network data server requests depending upon the near line storage hardware requirements.

Other source options could be local disks or getting data from some value-added processing system.

The PDS back end consists of a set of production modules. A production module is a piece of software that generates products for one particular product line. For example, if the PDS operator activates an order with a product code of DRG, the OI invokes the DRG production module, which in turn generates the media to ship to the customer. The production modules and OI communicate through status files that allow the back end to indicate either a success or failure to the front end. For the ECS implementation, only one generic production module is being used initially. Specific production modules may be added later.

Product generation code within PDS generates customer products on magnetic tape, recordable optical media, as well as prepare them for FTP delivery.

The product generation software is started by a system call from the PDSOI when a job is activated. A .ppf file is created in the $PDSROOT directory. The file name is <job_key>_<first unit #>.ppf. For example: 0110101310123_00001.ppf.

Each product generation module generates an order status file for passing back to the OI. The file is named <PDSOI_ID>_<PPF_KEY>.status (e.g., PDS1_test_0110101310123_00001.status) and is placed within the $PDSROOT/status directory after product completion.

There is one record per line in the status file for each unit that was produced in the specified job run. Each line has the format |<ORDNUM>|<unit>|<status>|<media_id>|<ncopies>|1| where ORDNUM is the Order Number from the PDT_PDSINFO table, unit is the unit processed, status is the resulting status of the unit, media_id is the unique media identification number, and ncopies is the number of copies produced for the media_id. The lines in the status file are sorted by media_id.

The PDSOI picks up the status files that pertain to their OI_ID and status the units to either 'F' for units that are successfully produced or 'G' for units that had errors. If the output product is CD or DVD, the PDS generation software creates a label on the CD or DVD itself.

PDSIS Operator Interface (PDSIS OI)

The PDSIS Operator Interface (PDSIS OI) is used in communicating with the PDSIS database. The operators start up the OI using a shell script, typically via an alias that has been set up. The script makes a connection to the Oracle database. The connection is made using the Oracle SQL*Net communication mechanism. The script ensures that all operators log on to Oracle with the same usercode/password. The usercode has privileges against only those tables used specifically in PDS operations. One of the principal uses of the PDSIS OI is marking a job shipped when the media have been produced, verified, and assembled with the packing list and shipping label.

PDS Job Monitor

While the PDSOI provides a mechanism for operators to start and complete jobs, and to separate those jobs that are active from those that are not, it does not reveal a lot of detail as to the status of running jobs. Similarly, it does not provide much information about the status of the PDS environment as a whole. This information is often useful, and sometimes crucial.

The PDS Job Monitor, is intended to be used as a complement to the PDSOI. It lists running PDS jobs and displays which specific stage each job is in. It also serves up detailed information about each job on request. Additionally, it displays information about available disk space and workload on the Rimage CD generation systems. This information should prove helpful to the operator to use PDS in an efficient manner.

In addition, the Job Monitor can be used to verify consistency between the jobs that the PDS Operator Interface reports as being active and the jobs that actually *are* active. For instance, if the PDS machine crashes and is brought back up, after the Operator Interface window is started, all the jobs that were active at the time of the crash will still show up in an active state (even though none of them are actually running). Under normal operation, the number of active jobs in the PDS Operator Interface will match the number of active jobs in the Job Monitor. If any discrepancies occur, they will be easy to spot through a comparison of the contents of the two windows.

Rimage CD Production Software

The Rimage CD production software includes the following programs:

- Data Publisher.
- Production Server.

Data Publisher

The Data Publisher watches the PDS job control directory looking for files to transfer. The files are identified by a ".ORD" extension to the filename. The ".ORD" extension indicates that the data are ready to be transferred. Data Publisher transfers the data via ftp and updates the Rimage Powertools log file, also located in the job control directory, and changes the ".ORD" extension to a ".dn0" extension. It also updates the Powertools log file when the production is complete, which in turn places the order in QC-HOLD on PDS. Then PDS prints summaries and jewel case inserts.

Production Server

The Production Server does an initial hardware check on the Rimage CD burners, internal printer and the media carousel. The Production Server is responsible for producing the media (writing the data to disk) after Data Publisher has transferred the data (via ftp) onto the Rimage "E" drive.

PDS Verification Tool

The PDS Verification Tool provides the Distribution Technician with a means of selecting a verification drive for checking a disk or tape when performing a QC check.

PDS Maintenance Module

The Maintenance Module contains Oracle Forms, which are used to look at and update the data within the database used by the PDSOI. Access to these forms is normally restricted to lead operators.

The support maintenance for the PDSOI module requires an Oracle usercode/password that is different from the general one used to run the OI module. This is to add security so that any operator will not be able to modify these maintenance tables or perform functions that require additional training and knowledge. The operator starts the maintenance module using a shell script (pdsmaint_prod.sh) or using an alias (pdsmaint). The maintenance module resides on the PDS machine like the PDSOI.

Starting Up PDS

Starting up PDS involves the following activities:

- Starting the PDS Operator Interface (PDSOI).
- Starting the PDSIS Operator Interface (PDSIS OI).
- Starting the PDS Job Monitor.
- Starting the Rimage CD Production Software.
  - Data Publisher.
  - Production Server.

- Starting the PDS Verification Tool.
- Starting the PDS Maintenance Module (as needed).

Starting the PDS Operator Interface (PDSOI)

Starting the PDS Operator Interface (PDSOI) starts with the assumption that the applicable servers (e.g., the Oracle DBMS server) are running and the Distribution Technician has logged in to the ECS system.

Starting the PDS Operator Interface (PDSOI)

NOTE: Commands in Steps 1 through 5 are typed at a UNIX system prompt.

1 Type **setenv DISPLAY *clientname*:0.0** then press the **Return/Enter** key.

- Use either the X terminal/workstation IP address or the machine-name for the ***clientname***.
- When using secure shell, the DISPLAY variable is set just once, before logging in to remote hosts. If it were to be reset after logging in to a remote host, the security features would be compromised.

2 Start the log-in to the PDS operations host by typing **/tools/bin/ssh -l *pds_userid hostname*** (e.g., **e0dig06**, **g0dig06**, **l0dig06**, or **n0dig06**) then press the **Return/Enter** key.

- ***pds_userid*** refers the PDS user ID (e.g., pds_it).
- 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 will 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*** then press the **Return/Enter** key.

- Go to Step 5.

4 At the **<*user@remotehost*>'s password:** prompt type your ***Password*** then press the **Return/Enter** key.

5 Type **pdsoi** then press **Return/Enter**.

- The **PDSOI Startup Window** (Figure 23) is displayed.
  - It may take a few seconds for the window to be displayed.
  - The following information is displayed near the top of the screen:
    - Name of the Oracle Form (e.g., PDSMTOIX).
    - Current version of the PDS (e.g., 2.3).
    - Database instance being run (e.g., PRODUCTION).
    - Current date.
- **pdsoi** is an alias for a UNIX script (pdsoi_prod.sh) that is used to start up the PDSOI.
  - The script is located in the run directory (e.g., /usr/local/pds/run).
  - The alias may vary somewhat depending on the site set-up.

6 Click and **hold** the **PDS Machine** option button to display a menu of machines, move the mouse cursor to the desired selection (highlighting it), then release the mouse button.

- Selected machine is displayed on the **PDS Machine** option button when the mouse button is released.

7 Click in the **Console ID** window, type the appropriate console ID, then press **Return/Enter**.

- The **PDSOI Start-Up Selection Screen** (Figure 24) is displayed.
- The **Machine ID** and **Console ID** (linked with an underscore) are displayed in the header of the window.
  - For example, “PDS1_test” in the header of Figure 24 indicates that “PDS1” was chosen as the Machine ID and that “test” was typed in as the Console ID.
- Together the **PDS Machine** and **Console ID** constitute the **OI_ID** for all jobs started up from the current window.
  - If the OI is shut down or goes down for some reason, it is necessary to log in to the system with the same Machine ID and Console ID to be able to continue work on any jobs started with the OI_ID being used in the current session.

8 If all priorities are to be displayed on the **PDSOI**, verify that the **All** toggle button is selected in the **Priority** area.

- Click on the **All** button to change state from unselected to selected or vice versa.
  - When the **All** option is selected, the **All** button has a depressed or sunken appearance rather than a raised appearance.

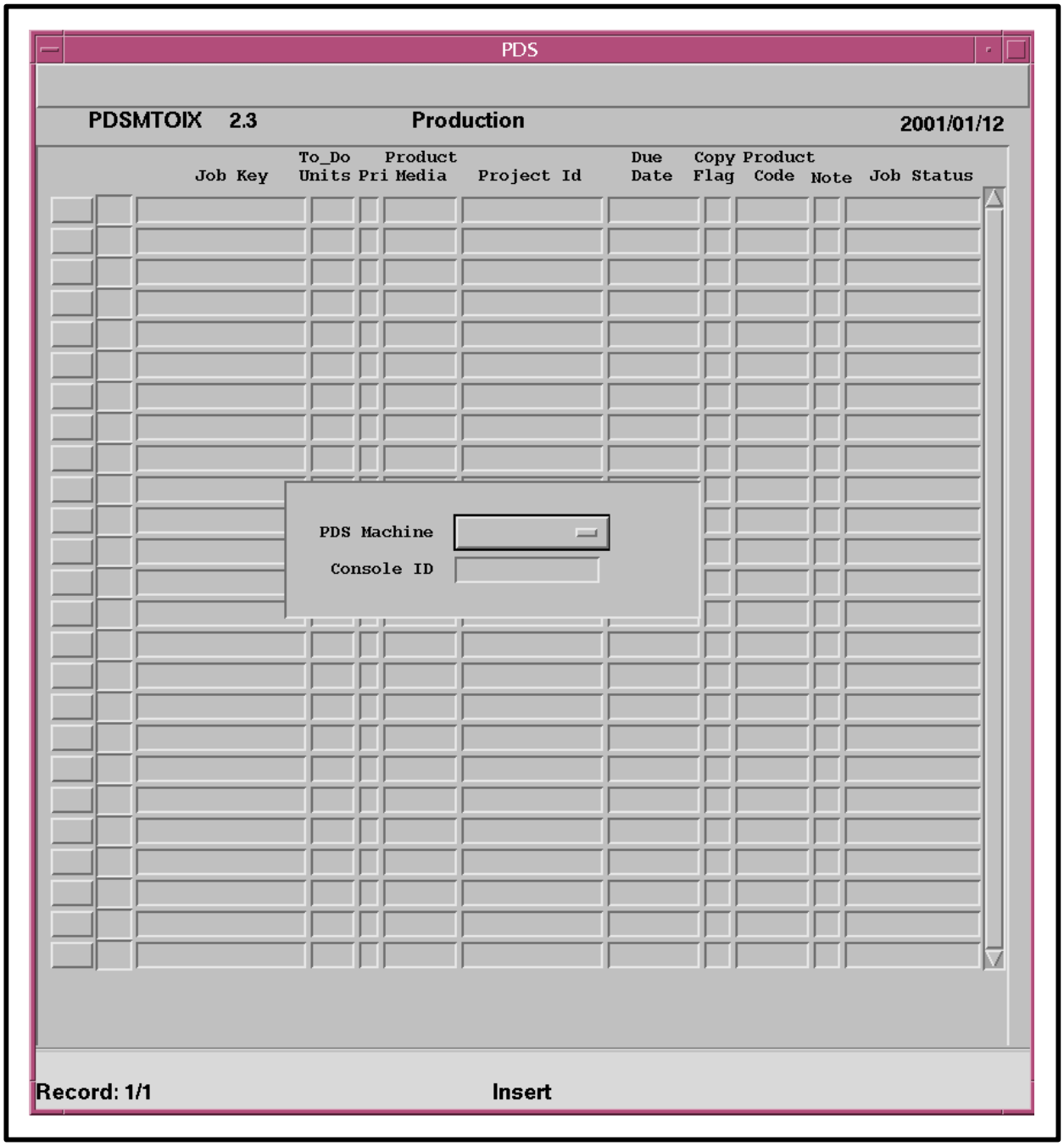

Figure 23. PDSOI Startup Window

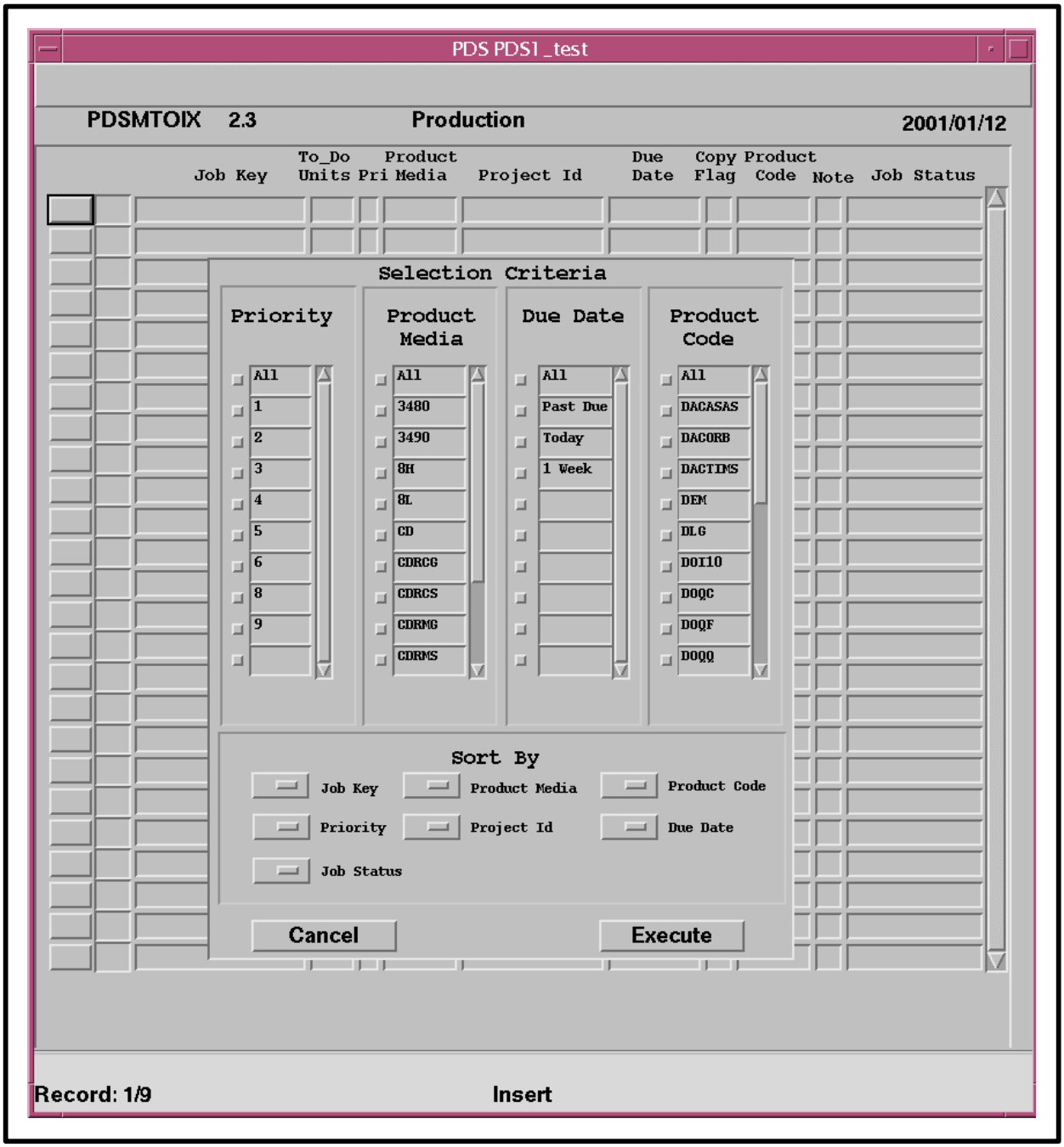

Figure 24. PDSOI Start-Up Selection Screen

- Proceed to Step 10.

9 If selecting a particular priority or set of priorities to be displayed on the **PDSOI**, click on the toggle button(s) corresponding to the desired priority(ies) in the **Priority** list.

- Priority meanings might be assigned (in the database) as follows (for example):

  1 - Emergency - Eight-hour turn-around required.

  2 - High Priority - Less than 24-hour turn-around.

  3 - Priority - Turn around in less than five working days.

  4 - 6 - Rush - Two-week turn-around.

  7 - 9 - Standard Orders - Four- to six-week turn-around.

- One button or several buttons may be selected.
- Buttons have a depressed or sunken appearance rather than a raised appearance when selected.

10 If all product media types are to be displayed on the **PDSOI**, verify that the **All** toggle button is selected in the **Product Media** area.

- Click on the **All** button to change state from unselected to selected or vice versa.
- Proceed to Step 12.

11 If selecting a particular product media type or set of product media types to be displayed on the **PDSOI**, click on the toggle button(s) corresponding to the desired product media type(s) in the **Product Media** list.

- Product media types might be defined (in the database) as follows (for example):

  CD - CDROM.

  8M - 8mm tape.

  DL - DLT.

  DV - DVD.

- One button or several buttons may be selected.

12 If all due dates are to be displayed on the **PDSOI**, verify that the **All** toggle button is selected in the **Due Date** area.

- Click on the **All** button to change state from unselected to selected or vice versa.
- Proceed to Step 14.

13 If selecting a particular due date or set of due dates to be displayed on the **PDSOI**, click on the toggle button(s) corresponding to the desired due date(s) in the **Due Date** list.

- The following types of due date choices might be available (for example):

  Past Due.

  Today.

  1 Week.

- One button or several buttons may be selected.

14 If all product codes are to be displayed on the **PDSOI**, verify that the **All** toggle button is selected in the **Product Code** area.

- Click on the **All** button to change state from unselected to selected or vice versa.
- Proceed to Step 16.

15 If selecting a particular product code or set of product codes to be displayed on the **PDSOI**, click on the toggle button(s) corresponding to the desired product code(s) in the **Product Code** list.

- One button or several buttons may be selected.

16 Click and **hold** the appropriate **Sort By** option button to display a list of numbers indicating the order in which the sort criteria should be evaluated, move the mouse cursor to the desired selection (highlighting it), then release the mouse button.

- The following **Sort By** option buttons are available for indicating the order in which job information should be displayed on the **PDSOI**:
  - **Priority** - Jobs will be sorted by priority on the screen (higher-priority jobs are displayed before lower priority jobs).
  - **Job Status** - Jobs will be sorted by status [jobs with a particular status are shown together on the screen (this is most commonly selected as Number 1)].
  - **Product Media** - Jobs will be sorted by Product Media type.
  - **Project Id** - Jobs will be sorted by Project Id. This is an optional field, so all jobs with a null Project Id would be sorted together.
  - **Product Code** - Jobs will be by Product Code, keeping orders of a certain Product Code together.
  - **Due Date** - Jobs will be sorted by Date Due, displaying jobs with a closer Due Date before those with a later Due Date.
- Selected sort order number is displayed on the selected **Sort By** option button when the mouse button is released.

- It is not possible to selected a sort order number for a sorting category if the number has already been assigned to another category.
  - For example, if Job Status was assigned Number 1, Product Media cannot be assigned Number 1 as well. If jobs should be sorted by Product Media first, it is necessary to change the Job Status assignment to some (unused) number other than one (1) then one (1) can be assigned to Product Media.

17 Repeat Step 16 as necessary to assign sorting order to additional categories.

- It is possible to select more than one **Sort By** item.
- If more than one **Sort By** option is selected the jobs will be selected by the sort order for the selection assigned Number 1, then within that sort order they would be sorted by the category assigned Number 2, etc.
  - For example, if Job Status were assigned the first sort order (1) and Due Date were assigned the second sort order (2), the jobs would be sorted by Job Status, then within each status the jobs would be sorted by Due Date. So the jobs containing the same status would be displayed together with the earliest due date for each status at the top of the list for that status.

18 Click on the **Execute** button.

- A **Querying Database** notice (Figure 25) is displayed temporarily in a blue box.
  - The **message line** at the bottom of the screen displays "Working" while the **Querying Database** notice is being displayed.
  - If there are status files waiting to be read, another blue box may be displayed indicating "Reading Status files. Please wait…"
  - If no selection criteria were selected, a **Selection Error Dialogue** (Figure 26) is displayed in a purple box.
    - Click on the **OK** button to dismiss the error window.
- The **Main OI Screen** (Figure 27) is displayed when the **Querying Database** notice quits (indicating that database has been queried and the results are being displayed).

Starting the PDSIS Operator Interface (PDSIS OI)

Starting the PDSIS Operator Interface (PDSIS OI) starts with the assumption that the applicable servers (e.g., the Oracle DBMS server) are running and the Distribution Technician has logged on to the PDS operations host and started the PDSOI as described in the procedure for **Starting the PDS Operator Interface (PDSOI)** (previous section of this lesson).

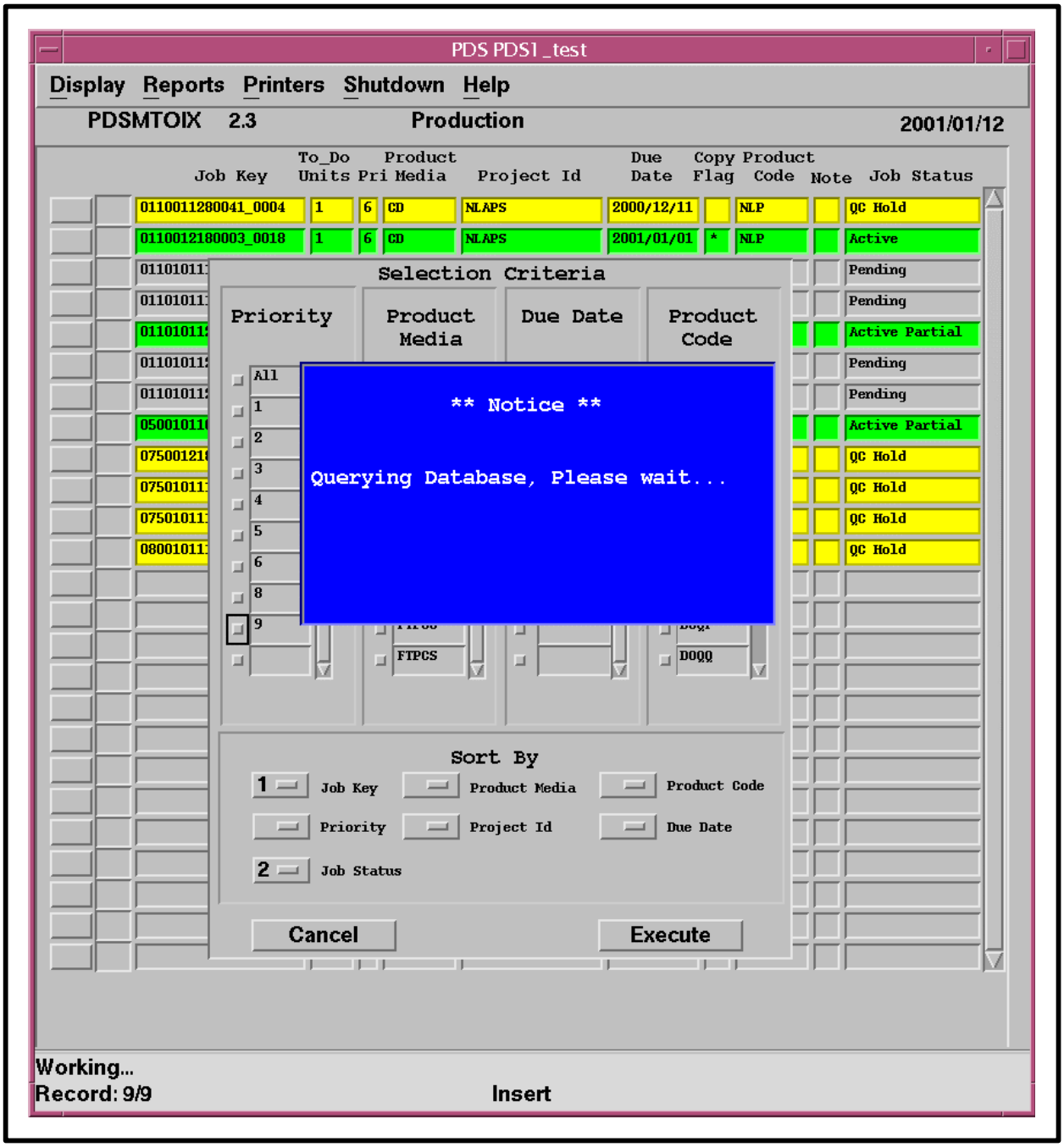

Figure 25. Querying Database Notice

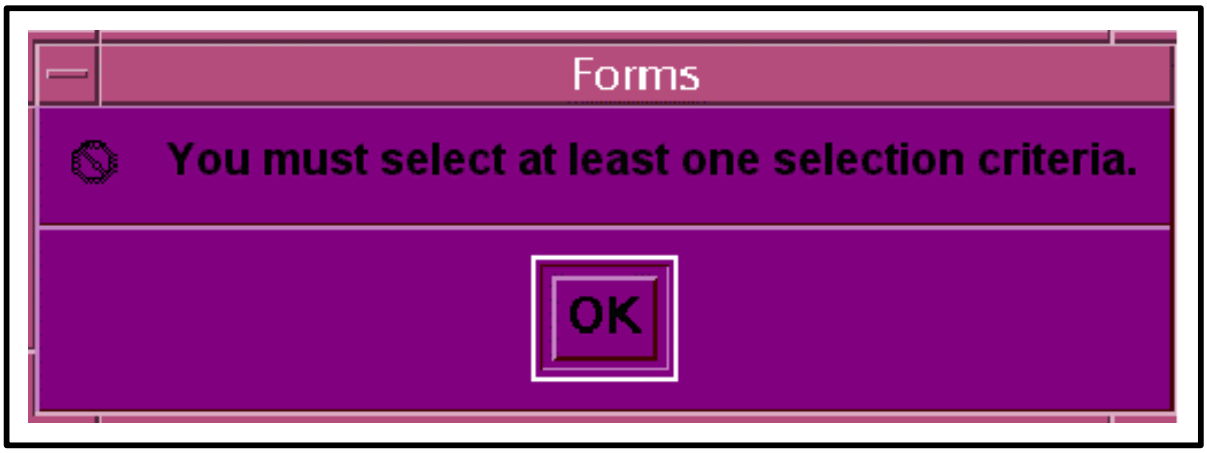

Figure 26. Selection Error Dialogue Box

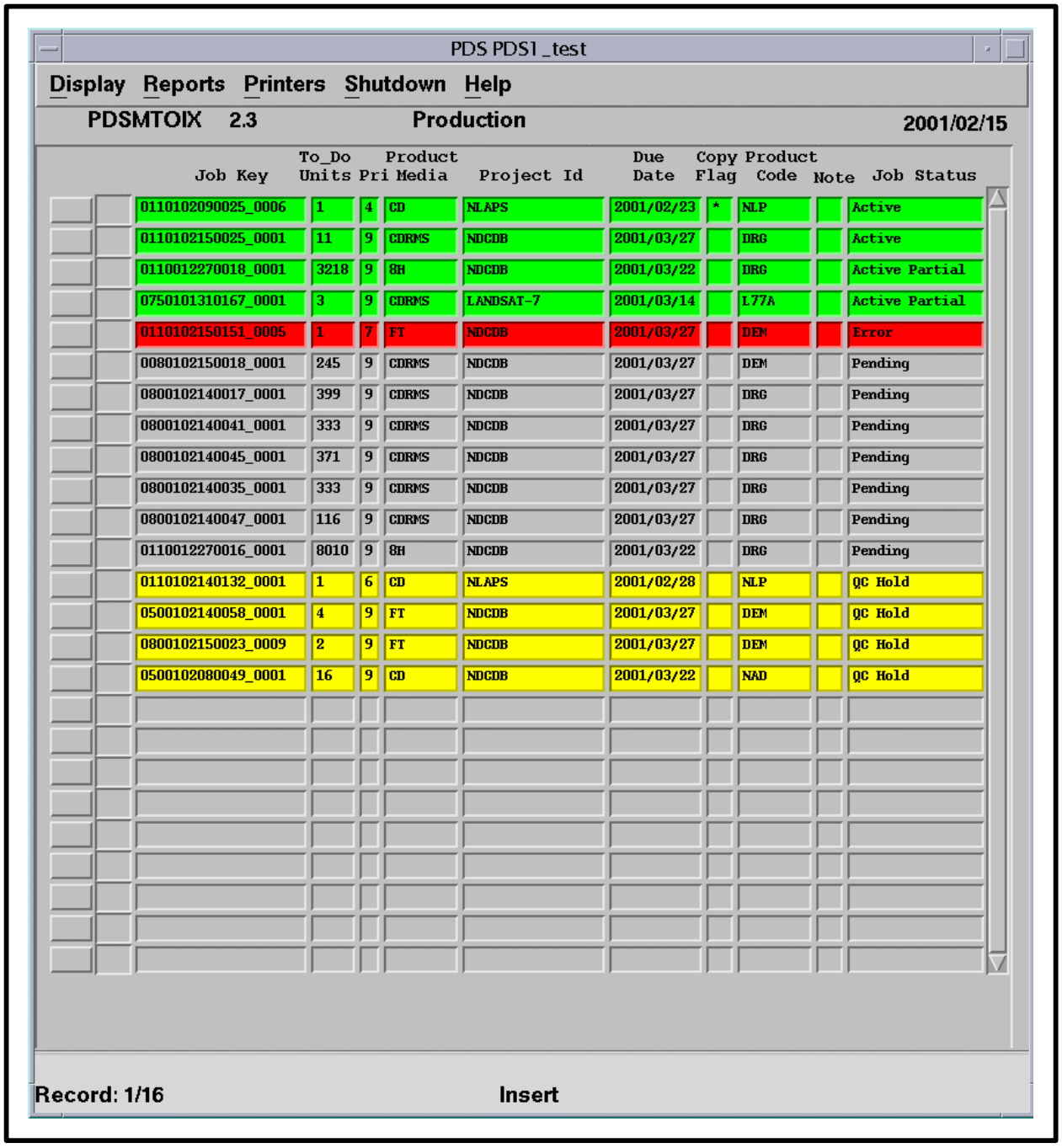

Figure 27. Main OI Screen

NOTE: Commands in Steps 1 and 2 are typed at a UNIX system prompt.

1 At the UNIX command line prompt type **cd** then press the **Return/Enter** key on the keyboard.

- The alias **cd** changes the current directory to the PDS root directory.
  - To identify the PDS root directory type **echo $PDSROOT** then press the **Return/Enter** key.

2 Type **pdsisoi** then press **Return/Enter**.

- The **PDSIS OI** (Figure 28) is displayed.
  - It may take a few seconds for the window to be displayed.
  - The following information is displayed near the top of the screen:
    - Name of the Oracle Form (e.g., PDSISMTOIX).
    - Current version of the PDS (e.g., 1.0).
    - Database instance being run (e.g., PDSIS).
    - Current date.
- **pdsisoi** is an alias for a UNIX script (pdsisoi_prod.sh) that is used to start up the PDSIS OI.
  - The script is located in the run directory (e.g., /usr/local/pds/run).
  - The alias may vary somewhat depending on the site set-up.

Starting the PDS Job Monitor

The PDS **Job Monitor Main Window** is intended to run continually in conjunction with the PDS **Main OI Screen**.

Starting the PDS Job Monitor starts with the assumption that the applicable servers (e.g., the Oracle DBMS server) are running and the Distribution Technician has logged on to the PDS operations host and started the PDSOI.

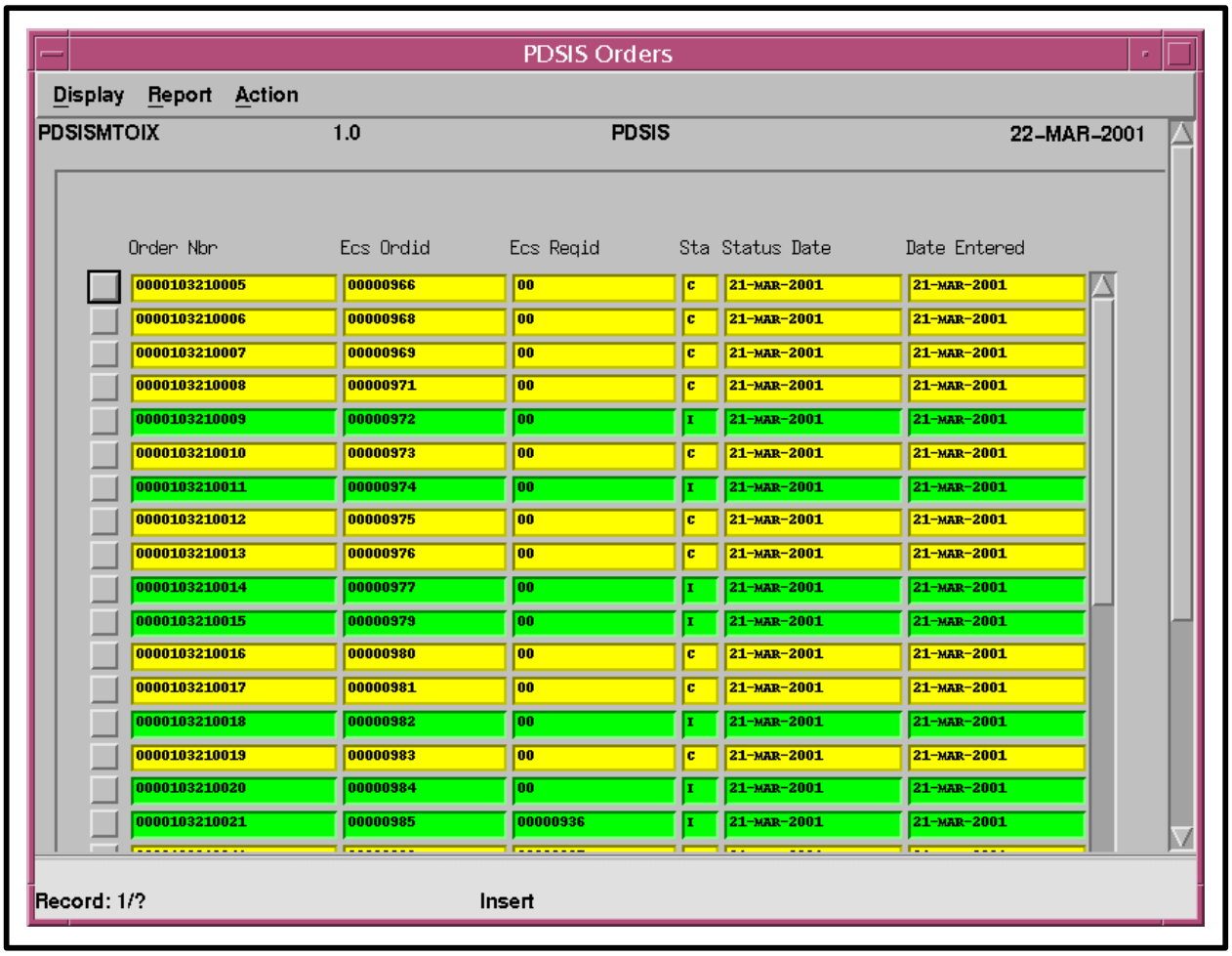

Figure 28. PDSIS Operator Interface (PDSIS OI)

Starting the PDS Job Monitor

NOTE: Commands in Steps 1 and 2 are typed at a UNIX system prompt.

1 At the UNIX command line prompt type **cd** then press the **Return/Enter** key on the keyboard.

- The alias **cd** changes the current directory to the PDS root directory.
  - To identify the PDS root directory type **echo $PDSROOT** then press the **Return/Enter** key.

2 Type **jobmon &** then press **Return/Enter**.

- The **Job Monitor Main Window** (Figure 29) is displayed.

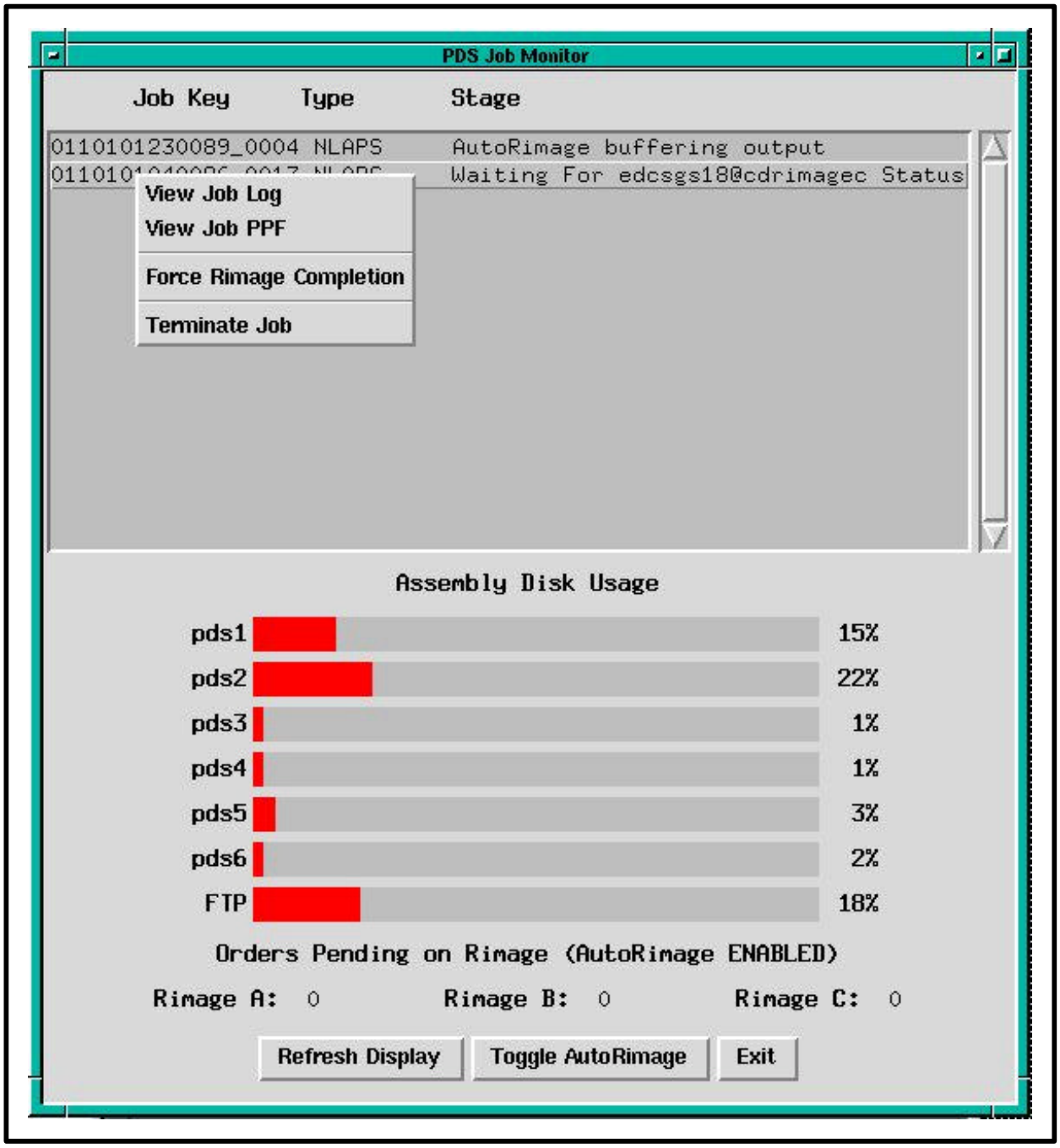

Figure 29. Job Monitor Main Window

- The PDS **Job Monitor Main Window** is intended to run continually in conjunction with the PDS **Main OI Screen**.

- **jobmon** is an alias for a UNIX script (jobmonitor) that is used to start up the PDSIS OI.
  - The script is located in the jobmon directory (e.g., /usr/local/pds/jobmon).
  - The alias may vary somewhat depending on the site set-up.
- Hypothetically, there is no limit to the number of PDS Job Monitors that can be running at once; however, since the application consumes a small amount of resources, care should be taken to not run multiple instances excessively.

Starting the Rimage CD Production Software

The following Rimage CD production software programs have to be started on the Rimage personal computer (PC):

- Data Publisher.
- Production Server.

Starting the Rimage programs starts with the assumption that the Distribution Technician has logged on to the Rimage PC using an account that is valid on the PDS system. [A Network File System (NFS) mount will need to be able to see the job control directory (e.g., /pdssa/rimage_jobcontrol) on the PDS system.].

Starting the Rimage CD Production Software

---

1 Double-click on the Data Publisher icon on the PC desktop.

- The program starts and a Data Publisher window is displayed on the PC.
- Data Publisher watches the job control directory looking for files to be transferred (so they can be written to disk).
  - The files are identified by a ".ORD" extension, which indicates data ready to be transferred.
- Data Publisher transfers data (via ftp) from PDSSA to the CD-R_images directory on the "E" drive and changes the ".ORD" extension to a ".dn0" extension.

2 Double-click on the Production Server icon on the PC desktop.

- The program starts and a Production Server window is displayed on the PC.
- The Production Server does an initial hardware check on the Rimage CD burners, internal printer and the media carousel.

- The Production Server transfers data to disk media after Data Publisher has transferred the data onto the Rimage "E" drive.

3 Click on the **Start** button in the Production Server window.

Starting the PDS Verification Tool

The PDS **Verification Tool** is intended to run continually in conjunction with the PDS **Main OI Screen**.

Starting the PDS **Verification Tool** starts with the assumption that the applicable servers (e.g., the Oracle DBMS server) are running and the Distribution Technician has logged on to the PDS operations host and started the PDSOI.

Starting the PDS Verification Tool

NOTE: Commands in Steps 1 through 3 are typed at a UNIX system prompt.

1 At the UNIX command line prompt type **cd** then press the **Return/Enter** key on the keyboard.

- The alias **cd** changes the current directory to the PDS root directory.
  - To identify the PDS root directory type **echo $PDSROOT** then press the **Return/Enter** key.

2 Type **cd verify** then press **Return/Enter**.

- Change directory to the verify directory.

3 Type **ckwin &** then press **Return/Enter**.

- The PDS **Verification Tool** (Figure 30) is displayed.
- If a custom verification window has been prepared for the site, the command to be typed may vary somewhat (e.g., "ckwin_gdaac" instead of "ckwin").
- The PDS **Verification Tool** is intended to run continually in conjunction with the PDS **Main OI Screen**.

Starting the PDS Maintenance Module

The PDS Maintenance Module contains Oracle Forms, which are used to look at and update the data within the database used by the PDSOI. The PDS **Maintenance Module** is intended to be run as it is needed to change data in certain fields in the database. It would not normally be running continuously.

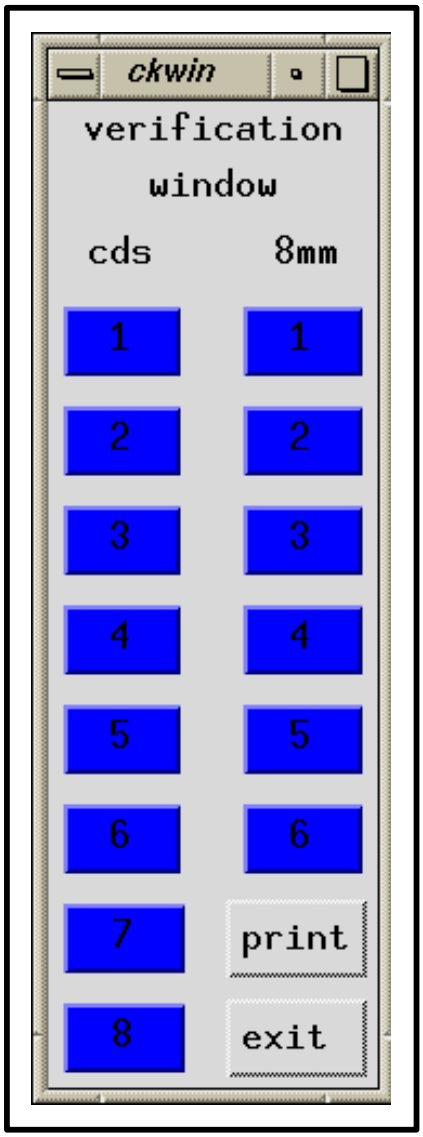

Figure 30. PDS Verification Tool

Starting the PDS Maintenance Module starts with the assumption that the applicable servers (e.g., the Oracle DBMS server) are running and the Distribution Technician has logged on to the PDS operations host and started the PDSOI.

NOTE: Commands in Steps 1 and 2 are typed at a UNIX system prompt.

1 At the UNIX command line prompt type **cd** then press the **Return/Enter** key on the keyboard.

- The alias **cd** changes the current directory to the PDS root directory.
  - To identify the PDS root directory type **echo $PDSROOT** then press the **Return/Enter** key.

2 Type **pds_maint** then press **Return/Enter**.

- The PDS **Maintenance Module Login Screen** (Figure 31) is displayed.
- **pds_maint** is an alias for a UNIX script (pdsmaint.sh) that is used to start up the PDSOI.
  - The script is located in the run directory (e.g., /usr/local/pds/run).
  - The alias may vary somewhat depending on the site set-up.

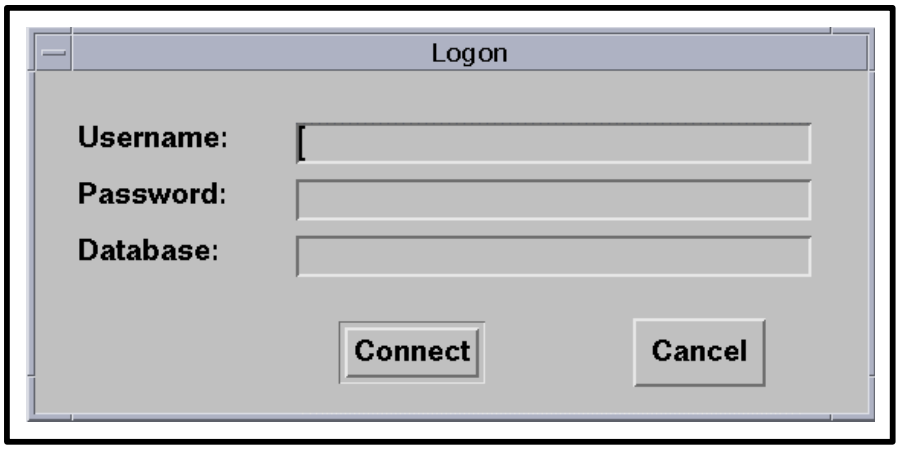

Figure 31. PDS Maintenance Module Login Screen

3 Type ***userID*** in the **Username** field of the PDS **Maintenance Module Login Screen** then press **Tab**.

4 Type ***Password*** in the **Password** field of the PDS **Maintenance Module Login Screen** then press the **Return/Enter** key.

NOTE: It is not necessary to fill in the **Database** field on the PDS **Maintenance Module Login Screen**; it defaults to the correct database if left blank.

5 Click on the appropriate button from the following selections:

- **Connect** - to log in to the PDS Maintenance Module.
  - The PDS **Maintenance Module Main Menu** (Figure 32) is displayed.
- **Cancel** - to dismiss the PDS **Maintenance Module Login Screen** (Figure 31) without logging in to the PDS Maintenance Module.

Shutting Down PDS

Shutting down PDS involves the following activities:

- Shutting down the PDS Maintenance Module (if it is running).
- Shutting down the PDS Job Monitor.
- Shutting down the PDS Operator Interface (PDSOI).
- Shutting down the Rimage CD production software.
- Shutting down the PDS Verification Tool.

Shutting down PDS is best done only after all executing PDS jobs have completed or are at a logical stopping point.

Shutting down the PDS Maintenance Module

Shutting down the PDS Maintenance Module starts with the assumption that the applicable servers (e.g., the Oracle DBMS server) are running and either the PDS **Maintenance Module Main Menu** (Figure 32) or one of the maintenance modules is being displayed.

Shutting down the PDS Maintenance Module

1 If one of the maintenance modules is being displayed, click on the **Exit** button at the bottom of the window.

- If the **Exit** button is not visible on the maintenance module form, click on the **Cancel Query** button.
  - The buttons will change and the **Exit** button will become visible.
- Either the maintenance module window is dismissed or a dialogue box is displayed with a message requesting whether changes made to the data on the form should be saved.
- If the maintenance module window was dismissed, the PDS **Maintenance Module Main Menu** (Figure 32) is displayed.

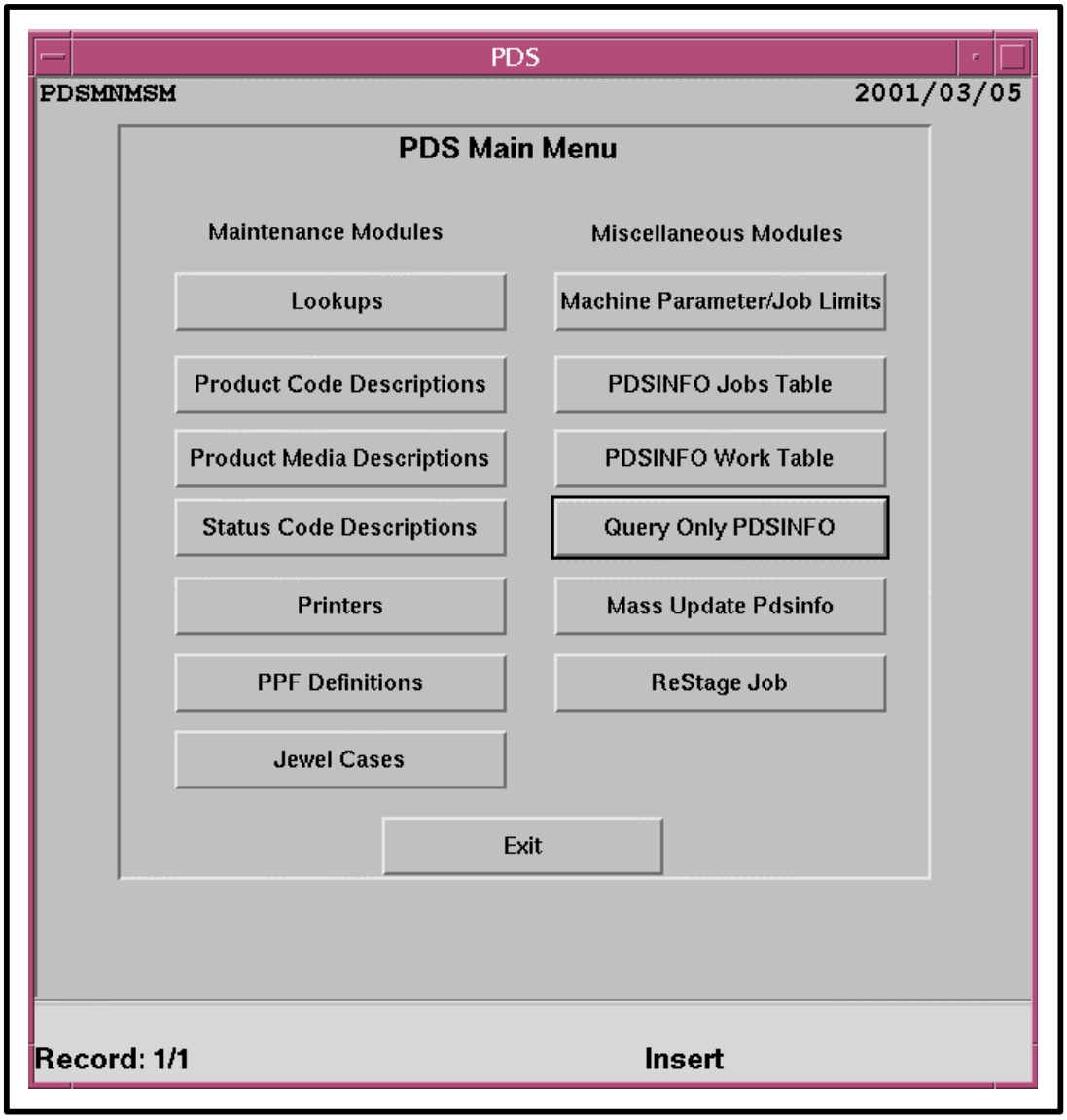

Figure 32. PDS Maintenance Module Main Menu

2 If a dialogue box is displayed with a message requesting whether changes made to the data on the form should be saved, click on the appropriate button from the following selections:

- **Yes** - to accept the changes and dismiss the dialogue box.
  - The dialogue box is dismissed.
  - The PDS **Maintenance Module Main Menu** (Figure 32) is displayed.
- **No** - to dismiss the dialogue box without accepting the changes made to the data on the form.
  - The dialogue box is dismissed.
  - The PDS **Maintenance Module Main Menu** (Figure 32) is displayed.

3 Click on the **Exit** button at the bottom of the PDS **Maintenance Module Main Menu** window.

- The PDS **Maintenance Module Main Menu** is dismissed.
- The PDS maintenance module has been shut down.

Shutting down the PDS Job Monitor

Shutting down the PDS Job Monitor starts with the assumption that the applicable servers (e.g., the Oracle DBMS server) are running and the PDS **Job Monitor Main Window** (Figure 29) is being displayed.

Shutting Down the PDS Job Monitor

---

1 Click on the **Exit** button at the bottom of the **Job Monitor Main Window** (Figure 29).

- The **Job Monitor Main Window** (Figure 29) is dismissed.

Shutting Down the PDS Operator Interface (PDSOI)

Shutting down the PDS Operator Interface (PDSOI) starts with the assumption that the applicable servers (e.g., the Oracle DBMS server) are running and the PDS **Main OI Screen** (Figure 27) is being displayed.

1 Select **Shutdown → Stop All Job** from the pull-down menu.

- A yellow **Shutdown Confirmation** dialogue box (Figure 33) is displayed.

2 Click on the appropriate button from the following selections:

- **Yes** - to shut down the PDSOI and dismiss the **Shutdown Confirmation** dialogue box.
  - The message line at the bottom of the screen displays a message indicating that the system is in shutdown mode.
  - The OI stops checking the status of jobs or starting jobs; however, the products may continue to be produced and status files may be generated.
    - Any status files generated while the OI is shut down will not be processed until the OI is up and running.
- **Cancel** - to dismiss the **Shutdown Confirmation** dialogue box without shutting down the PDSOI.

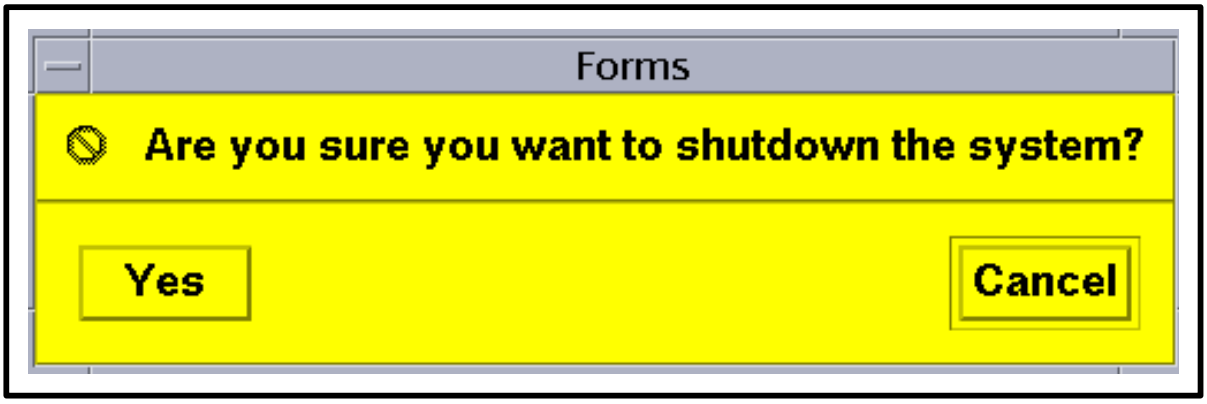

Figure 33. Shutdown Confirmation Dialogue Box

Shutting Down the Rimage CD Production Software

Shutting down the Rimage CD production software starts with the assumption that the Rimage Data Publisher and Production Server windows are being displayed on the Rimage PC.

Shutting Down the Rimage CD Production Software

1 Click on the **X** in the box at the upper right-hand corner of the Rimage Production Server window.

- The Production Server window is dismissed.

2 Click on the **X** in the box at the upper right-hand corner of the Rimage Data Publisher window.

- The Data Publisher window is dismissed.

Shutting down the PDS Verification Tool

Shutting down the PDS Verification Tool starts with the assumption that the applicable servers (e.g., the Oracle DBMS server) are running and the PDS **Verification Tool** (Figure 30) is being displayed.

Shutting Down the PDS Verification Tool

1 Click on the **Exit** button at the bottom of the PDS **Verification Tool** (Figure 30).

- A verification window is displayed to inquire whether to really exit from the PDS **Verification Tool**.

2 Click on the **Exit** button in the verification window.

- The PDS **Verification Tool** (Figure 30) is dismissed.

Monitoring/Controlling Product Processing Using PDS

Monitoring/controlling product processing using PDS involves the following activities (among others):

- Activating a Job
- Stopping/Terminating a Job
- Responding to the Media Drive Selection Window
- Responding to a Status of QC-Hold (Performing a QC Check or Verification)
- Completing a Job
- Entering Notes about a Job

- Changing the Values of Job Parameters Using the PDS Maintenance Module
- Promoting a Job
- Responding to Low Disk Space
- Viewing a Job Log
- Viewing a Job PPF
- Forcing AutoRimage Completion
- Reprocessing a Job
- Cleaning up the "E" Drive on the Rimage
- Reprinting a Label Stamped on a Disk
- Reprinting a Tape Label
- Reprinting a Jewel Case Insert
- Generating PDS Production Reports

FPDS activities are monitored and controlled using the **Main OI Screen** (Figure 27), the **Job Monitor Main Window** (Figure 29) and the **Verification Tool** (Figure 30).

The **Main OI Screen** (Figure 27) displays the following items for each individual PDS job:

- Action Button [not labeled].
  - Allows access to a list of actions that can be taken with respect to the job.
- Job Stopped [not labeled].
  - "STOP" is displayed in the field if the job has been stopped.
- Job Key.
  - Unique label for the job composed of the order number, an underscore and a zero-padded unit number of the first unit of the job.
- To_Do Units.
  - Number of units left in the job in either a pending, active or QC_hold state.
- Pri.
  - Priority of the job from 1 to 9, with "1" the highest priority.
- Product Media.
  - The pds_description of the output specifications.

- Project Id.
  - An optional field that indicates whether there is a particular project associated with the job.
- Due Date.
  - Date that the order is due to the customer.
- Copy Flag.
  - An "*" is displayed if the total number of copies does not equal the total number of units. (Used if multiple copies are needed for a specific unit.)
- Product Code.
  - The pds_description of the product code.
- Note.
  - An "*" is displayed if there is a current note for the job.
- Job Status.
  - Status of the job.

The **OI Detail Screen** (Figure 34) displays the following items for the selected individual PDS job:

- Job Key.
  - The dynamically generated identifier tying the units in the job together.
- Copies.
  - Number of copies the customer wants for each unit.
- Pri.
  - Priority code for the job.
- Product Media.
  - PDS's description of the output specifications.
- Due Date.
  - Date that the job needs to be delivered to the customer.
- Product Code.
  - PDS's description of the product code.

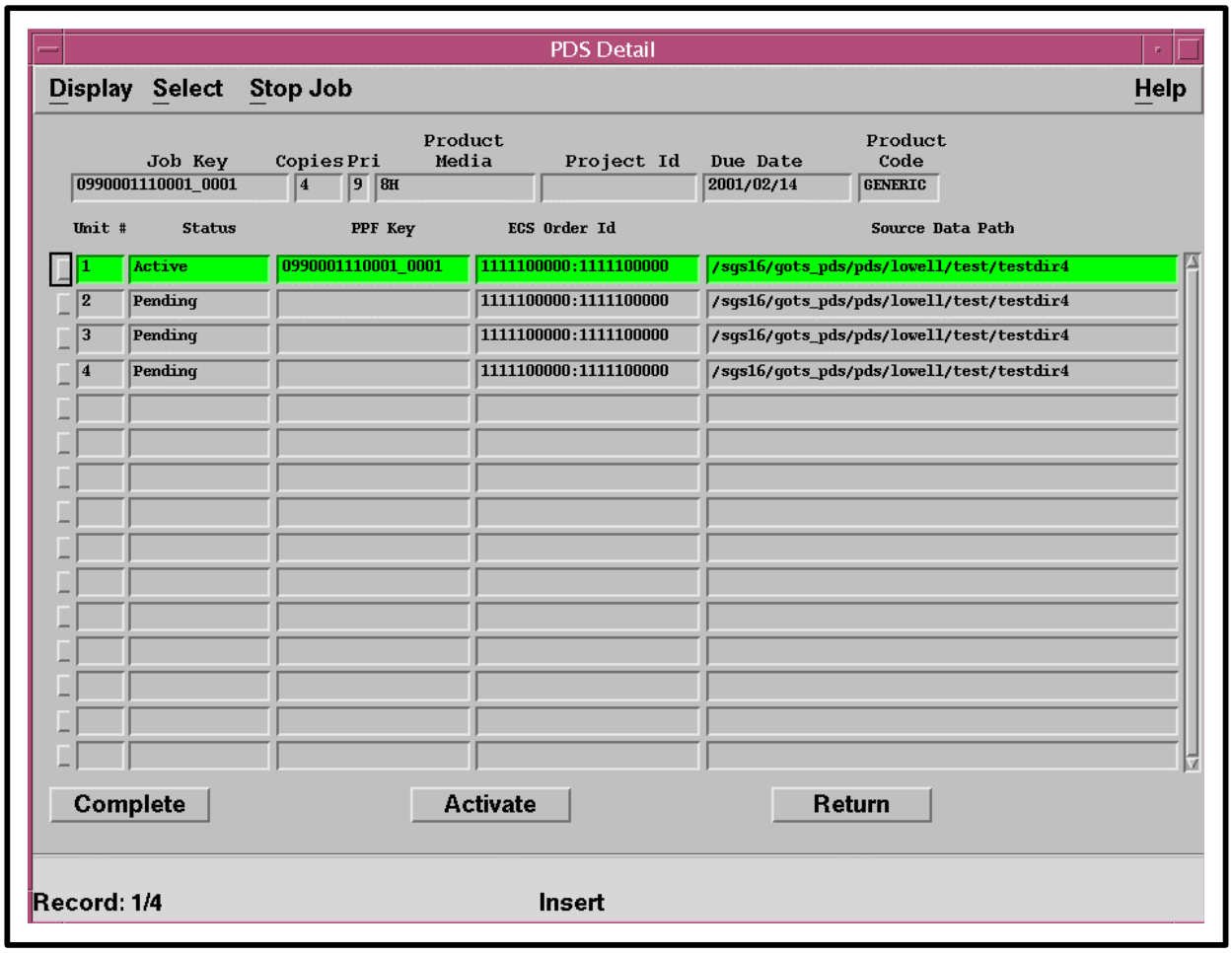

Figure 34. OI Detail Screen

The **OI Detail Screen** (Figure 34) displays the following items for each unit within the selected PDS job:

- Unit # .
  - Unit number.
- Status.
  - PDS's description of the status.
- PPF Key.
  - Blank if the unit is in pending status; otherwise the PPF Key for the unit is displayed.
  - The PPF Key ties to the .ppf file used during the product generation process.

- ECS Order ID.
  - ECS Order Id. (blank if there is no ECS Order ID in the PDT_PDSINFO table).
- Source Data Path.
  - Location of the source data needed to produce the customer's product.
  - Could be either a media storage identifier in the digital archive or a storage location on a mass media device or a location on a remote machine.

The **Job Monitor Main Window** (Figure 29) displays the following types of information:

- Running Jobs.
  - Job Key.
  - Type [of product].
  - Stage.
    - What the job is currently doing (if the information is available).
- Assembly Disk Usage.
  - Graphical displays of the free space remaining on the PDS assembly and ftp staging disks.
  - Intended to give the operator advance warning when one (or more) of the disks is running low on available space.
- Rimage Pending Orders.
  - Displays how many orders are pending on the Rimage systems.
    - Refers to how many CD images are *waiting* to be pulled over to the Rimage system; it does *not* refer to the number of jobs that are actually active on the Rimage itself.
    - Useful when balancing the distribution of jobs among Rimage systems.
    - Displays whether PDS's AutoRimage mode is enabled or disabled.

The **Verification Tool** (Figure 30) displays the following types of information:

- Drives available for performing verification of disks and tapes.

The procedure for monitoring/controlling product processing using PDS starts with the assumption that all applicable servers are currently running and the **Main OI Screen** (Figure 27), the **Job Monitor Main Window** (Figure 29), and the **Verification Tool** (Figure 30) are being displayed.

1 If desired, set timer intervals (for automatically refreshing the data displayed on the **Main OI Screen**) as described in the procedure for **Setting Timer Intervals** (subsequent section of this lesson).

2 Observe information displayed on the **Main OI Screen** (Figure 27).

- The following items are displayed on a **job line** for each individual PDS job:
  - Action Button [not labeled].
  - Job Stopped [not labeled].
  - Job Key.
  - To_Do Units.
  - Pri.
  - Product Media.
  - Project Id.
  - Due Date.
  - Copy Flag.
  - Product Code.
  - Note.
  - Job Status.
- Each **job line** display is color-coded to draw attention to job status. The colors are interpreted as follows:
  - Red Either **Error** or **Error-Partial** status.
    - Error indicates that all units in the job are in error.
    - Error Partial indicates that part of the job is in error and there are no actives or QC-holds.
  - Green Either **Active** or **Active-Partial** status.
    - Active indicates that all units in the job are active.
    - Active-Partial indicates that part of the job is active.
  - Yellow Either **QC-Hold** or **QC-Hold-Partial** status.
    - QC-Hold indicates that all units in the job are in QC-hold.

- QC-Hold-Partial indicates that part of the job is in QC-hold and there are no actives.

– Grey **Pending** status.

- Pending indicates that all units in the job are pending.

- If there are more records than can be displayed on the screen, use the scroll bar on the right hand side of the form to view the additional records.
- Selecting **Display → Refresh** from the pull-down menu provides a means of updating the data on the screen from the database without having to wait for the interval set on the timer.
- Selecting **Display → Repaint** from the pull-down menu causes the entire screen (borders, buttons, data) to be redrawn without accessing the database for data.
  - The **Repaint** option is used in case the window becomes garbled.
- The **status line** at the bottom of the screen displays information about the form (for example, the status line in Figure 27 displays "Record: 1/16" and "INSERT").
- The **message line** near the bottom of the screen (just above the **status line**) displays informational messages and error messages pertinent to what is happening on the form.
  - For example, Figure 25 shows an informational message ("Working…").
  - Messages are displayed on the screen as long as they are pertinent.
- Selecting **Help → On Form** from the pull-down menu causes a web browser to pop up in another window, positioned to the start of the document about the Operator Interface.
- Selecting **Help → Show Error** from the pull-down menu causes a message to be displayed on the **message line** stating the last error encountered.
  - Frequently a "No errors encountered recently" message is displayed in response to the Show Error option.
- Selecting **Reports → Queue** from the pull-down menu causes the printing of a report that contains the data currently being displayed **Main OI Screen**.
  - The report is printed on the designated report printer.

3 If the list of jobs on the **Main OI Screen** needs to be filtered and/or sorted, perform the procedure for **Specifying Job Selection Criteria** (subsequent section of this lesson).

4 If more specific information is required or action should be taken with respect to units associated with a particular job, perform the procedure for **Using the OI Detail Screen** (subsequent section of this lesson).

5 Observe information displayed on the **Main OI Screen** (Figure 27) and **Job Monitor Main Window** (Figure 29).

- Refer to Step 2 for a description of features on the **Main OI Screen**.
- For each individual PDS job that is running the following items are displayed on a **running jobs** line on the **Job Monitor Main Window**:
  - Job Key.
  - Type [of product].
  - Stage.
- The following values are among those that may be displayed in the **Stage** field (based on data from the job log) on the **Job Monitor Main Window**:
  - **Unknown** - does not mean that there is anything wrong; it simply means that the job monitor was unable to determine what a particular job is currently doing.
  - **Initializing** - getting job parameters from the PPF file, setting up data structures, and doing whatever else is required before the job can actually start producing the output media.
  - **Retrieving Data From *Source* -** indicates that the job is assembling the data for the product.
    - The source varies depending on the type of product. it is, the source will be different.
    - The stage may take quite some time, particularly for orders coming off peak loads systems.
  - **Staging Data To FTP Disk** - (if using this system for FTP orders) indicates that the job has pulled over all required product data from the source and is currently moving it out to the anonymous ftp server for customer retrieval.
  - **Making Browse Image -** (for satellite and other types of raster data that require small browse images on the CD insert label) indicates that PDS is subsampling the image data and creating the browse image.
    - Typically does not take a large amount of time, although for sizable multi-scene Landsat 7 data, it can be a fairly lengthy process.
  - **Waiting For Drive Selection** - currently waiting for the operator to respond to the **Media Drive Selection** window to select a tape drive or a CD writer.
    - The job has retrieved all data for the product.
    - If a job is in this stage but no selection window is visible, it may be "hidden" behind another window.

        - Perform the procedure for **Responding to the Media Drive Selection Window** (subsequent section of this lesson).
    - **Writing Data To *Tape Drive* -** currently writing the product to the specifically named tape drive.
    - **Making ISO9660 Image(s) -** generating "raw" CD image files that will be passed to the Rimage systems for CD generation.
        - May be a somewhat lengthy process, depending on the size of the job and the load on the system.
    - **Waiting For *Rimage* Status -** product has been submitted to the Rimage machine chosen by the operator and the job is waiting for the completion of the output CD(s).
        - May be a lengthy process depending on product size and/or system load.
    - **Cleaning Up** - PDS is cleaning up the job after having generated the product media.
        - Generally involves removing the assembly directory from `$PDSASSM`, writing status and summary files, and removing the Rimage order files.
- The following items are displayed in the **Assembly Disk Usage** section of the **Job Monitor Main Window**:
    - Assembly disk usage bars, which display (graphically) the free space remaining on the PDS assembly staging disks.
        - Provide advance warning when one (or more) disk(s) is (are) running low on available space.
        - Disk bar changes color to yellow if the disk becomes unavailable for some reason.
        - If disk space becomes low, perform the procedure for **Responding to Low Disk Space** (subsequent section of this lesson).
- Clicking on the **Refresh Display** button near the bottom of the **Job Monitor Main Window** causes the job monitor to requery the status of running jobs and display the data.
    - Every two minutes the PDS Job Monitor provides an automatic update to the information displayed in the running jobs listbox, assembly disk usage bars, and Rimage pending orders sections.
- The **Toggle AutoRimage** button is for use with systems that have multiple Rimage units.
    - AutoRimage should be **disabled** at sites that have a single Rimage unit.

6 If it becomes necessary to perform any of the following actions, go to the corresponding procedure (subsequent sections of this lesson):

- **Activating a Job** (to activate a job).
- **Stopping/Terminating a Job** (to suspend a job).
- **Responding to the Media Drive Selection Window** (to designate the drive to be used for a job).
- **Responding to a Status of QC-Hold (Performing a QC Check or Verification)** (to perform a QC check or media verification).
- **Completing a Job** (to complete a job after a QC check).
- **Entering Notes about a Job** (to enter comments or notes about a job).
- **Changing the Values of Job Parameters Using the PDS Maintenance Module** (to change the value associated with any of the job parameters that follow).
  - Status of an order (job).
  - Media type assigned to an order (job).
  - Number of copies in an order (job).
  - Directory path for pulling data for an order (job).
  - E-Mail address for ftp notification of order (job) completion.
- **Promoting a Job** (to process a job ahead of other jobs).
- **Canceling a Job** (not supported by the operator tools).
- **Responding to Low Disk Space** (to prevent filling a disk).
- **Viewing a Job Log** (to obtain access to the log for a job).
- **Viewing a Job PPF** (to obtain access to the project parameter file associated with a job).
- **Forcing AutoRimage Completion** (to tell a waiting Rimage unit to stop waiting and complete processing in a normal fashion).
- **Generating PDS Production Reports** (to generate PDS reports).
- **Selecting an Alternate Printer** (to select an alternate printer for printing reports or jewel cases).

7 Repeat Steps 3 through 6 as necessary to monitor/control jobs.

8 If it becomes necessary to shut down the Job Monitor, click on the **Exit** button at the bottom of the **Job Monitor Main Window** (Figure 29).

- The **Job Monitor Main Window** (Figure 29) is dismissed.

9 If it becomes necessary to shut down the operator interface, perform the procedure for **Shutting Down the PDS Operator Interface** (previous section of this lesson).

Setting Timer Intervals

The **Main OI Screen Display** menu provides the Distribution Technician with a means of setting timer intervals. There are two timers that the technician can set:

- Refresh Timer.
  - Amount of time (in seconds) between refresh events for the **OI Main Screen**.
- Status Timer.
  - Amount of time (in seconds) between episodes of processing the status files from the product generation code.

Timer changes do not affect the default values for the timers. The changed values are in effect until they are changed again or a shutdown occurs. The default values in the database are used each time the OI is started up.

The procedure for setting timer intervals starts with the assumption that all applicable servers are currently running and the **Main OI Screen** (Figure 27) is being displayed.

Setting Timer Intervals

---

1 Select **Display** → **Timers** from the pull-down menu.

- The **Set Timer Intervals** dialogue box (Figure 35) is displayed.

2 To change the refresh timer setting type the desired value (in seconds) in the **Refresh Timer** field.

3 To change the status timer setting type the desired value (in seconds) in the **Status Timer** field.

4 When the appropriate data have been entered in the **Set Timer Intervals** dialogue box fields, click on the **Return** button.

5 Return to the procedure for **Monitoring/Controlling Product Processing Using PDS**.

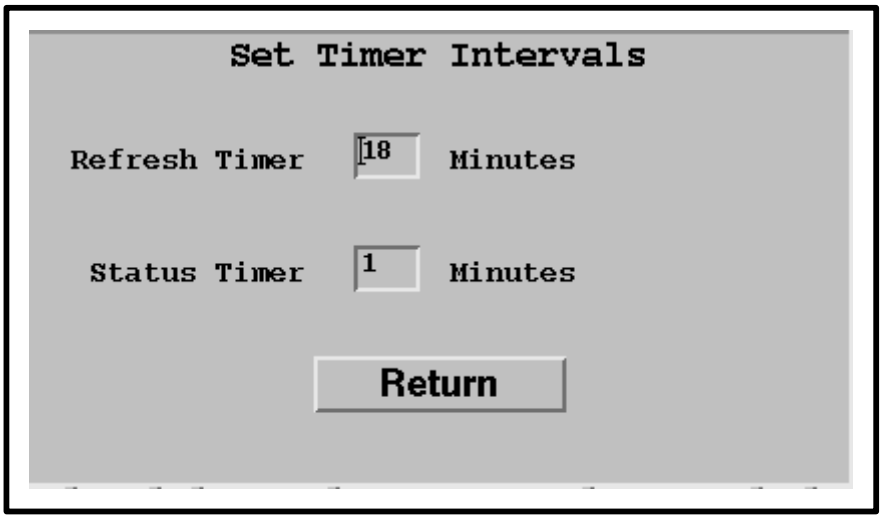

Figure 35. Set Timer Intervals Dialogue Box

Specifying Job Selection Criteria

The jobs to be displayed on the **Main OI Screen** (Figure 27) can be selected and/or sorted using the **PDSOI Selection Criteria Screen** (Figure 36). The selection can be done on the basis of the following criteria, either individually or in combination:

- Priority.
- Product Media [type].
- Due Date.
- Product Code.

Jobs can be sorted on the following fields, either individually or in combination:

- Job Key.
- Priority.
- Job Status.
- Product Media.
- Project Id.
- Product Code.
- Due Date.

The procedure for specifying job selection criteria starts with the assumption that all applicable servers are currently running and the **Main OI Screen** (Figure 27) is being displayed.

1 Select **Display** → **Data/Sort** from the pull-down menu.

- The **PDSOI Selection Criteria Screen** (Figure 36) is displayed.

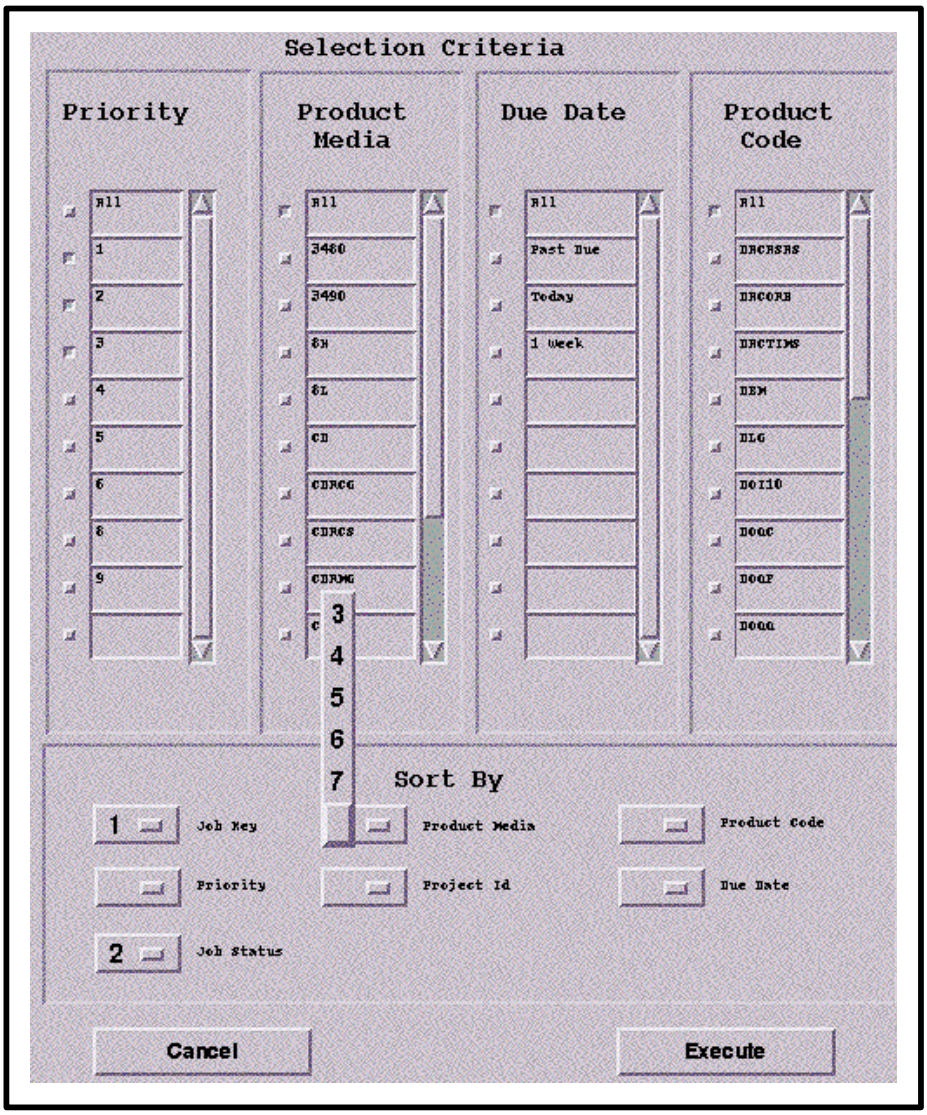

Figure 36. PDSOI Selection Criteria Screen

2 If all priorities are to be displayed on the **PDSOI**, verify that the **All** toggle button is selected in the **Priority** area.

- Click on the **All** button to change state from unselected to selected or vice versa.
  - When the **All** option is selected, the **All** button has a depressed or sunken appearance rather than a raised appearance.
- Proceed to Step 4.

3 If selecting a particular priority or set of priorities to be displayed on the **PDSOI**, click on the toggle button(s) corresponding to the desired priority(ies) in the **Priority** list.

- Priority meanings might be assigned (in the database) as follows (for example):

  1 - Emergency - Eight-hour turn-around required.

  2 - High Priority - Less than 24-hour turn-around.

  3 - Priority - Turn around in less than five working days.

  4 - 6 - Rush - Two-week turn-around.

  7 - 9 - Standard Orders - Four- to six-week turn-around.

- One button or several buttons may be selected.
- Buttons have a depressed or sunken appearance rather than a raised appearance when selected.

4 If all product media types are to be displayed on the **PDSOI**, verify that the **All** toggle button is selected in the **Product Media** area.

- Click on the **All** button to change state from unselected to selected or vice versa.
- Proceed to Step 6.

5 If selecting a particular product media type or set of product media types to be displayed on the **PDSOI**, click on the toggle button(s) corresponding to the desired product media type(s) in the **Product Media** list.

- Product media types might be defined (in the database) as follows (for example):

  CD - CDROM.

  8M - 8mm tape.

  DL - DLT.

  DV - DVD.

- One button or several buttons may be selected.

6 If all due dates are to be displayed on the **PDSOI**, verify that the **All** toggle button is selected in the **Due Date** area.

- Click on the **All** button to change state from unselected to selected or vice versa.
- Proceed to Step 8.

7 If selecting a particular due date or set of due dates to be displayed on the **PDSOI**, click on the toggle button(s) corresponding to the desired due date(s) in the **Due Date** list.

- The following types of due date choices might be available (for example):

  Past Due.

  Today.

  1 Week.

- One button or several buttons may be selected.

8 If all product codes are to be displayed on the **PDSOI**, verify that the **All** toggle button is selected in the **Product Code** area.

- Click on the **All** button to change state from unselected to selected or vice versa.
- Proceed to Step 10.

9 If selecting a particular product code or set of product codes to be displayed on the **PDSOI**, click on the toggle button(s) corresponding to the desired product code(s) in the **Product Code** list.

- One button or several buttons may be selected.

10 Click and **hold** the appropriate **Sort By** option button to display a list of numbers indicating the order in which the sort criteria should be evaluated, move the mouse cursor to the desired selection (highlighting it), then release the mouse button.

- The following **Sort By** option buttons are available for indicating the order in which job information should be displayed on the **PDSOI**:
  - **Priority** - Jobs will be sorted by priority on the screen (higher-priority jobs are displayed before lower priority jobs).
  - **Job Status** - Jobs will be sorted by status [jobs with a particular status are shown together on the screen (this is most commonly selected as Number 1)].
  - **Product Media** - Jobs will be sorted by Product Media type.
  - **Project Id** - Jobs will be sorted by Project Id. This is an optional field, so all jobs with a null Project Id would be sorted together.
  - **Product Code** - Jobs will be by Product Code, keeping orders of a certain Product Code together.

- **Due Date** - Jobs will be sorted by Date Due, displaying jobs with a closer Due Date before those with a later Due Date.

- Selected sort order number is displayed on the selected **Sort By** option button when the mouse button is released.
- It is not possible to selected a sort order number for a sorting category if the number has already been assigned to another category.
  - For example, if Job Status was assigned Number 1, Product Media cannot be assigned Number 1 as well. If jobs should be sorted by Product Media first, it is necessary to change the Job Status assignment to some (unused) number other than one (1) then one (1) can be assigned to Product Media.

11 Repeat Step 10 as necessary to assign sorting order to additional categories.

- It is possible to select more than one **Sort By** item.
- If more than one **Sort By** option is selected the jobs will be selected by the sort order for the selection assigned Number 1, then within that sort order they would be sorted by the category assigned Number 2, etc.
  - For example, if Job Status were assigned the first sort order (1) and Due Date were assigned the second sort order (2), the jobs would be sorted by Job Status, then within each status the jobs would be sorted by Due Date. So the jobs containing the same status would be displayed together with the earliest due date for each status at the top of the list for that status.

12 Click on the appropriate button from the following selections:

- **Execute** - to query the database for the specified selections and dismiss the **PDSOI Selection Criteria Screen**.
  - A **Querying Database** notice (Figure 25) is displayed temporarily in a blue box.
    - The **message line** at the bottom of the screen displays "Working" while the **Querying Database** notice is being displayed.
    - If there are status files waiting to be read, another blue box may be displayed indicating "Reading Status files. Please wait…"
  - If no selection criteria were selected, a **Selection Error Dialogue** (Figure 26) is displayed in a purple box.
    - Click on the **OK** button to dismiss the error window.
  - The **Main OI Screen** (Figure 27) is displayed when the **Querying Database** notice quits (indicating that database has been queried and the results are being displayed).

- **Cancel** - to dismiss the **PDSOI Selection Criteria Screen** without specifying any selection or sorting criteria.
  - The **Main OI Screen** (Figure 27) is displayed with the original selection/sorting criteria results.

13 Return to the procedure for **Monitoring/Controlling Product Processing Using PDS**.

Using the OI Detail Screen

The **OI Detail Screen** provides the Distribution Technician with a means of accomplishing the following objectives:

- Obtaining specific information with respect to units associated with a particular job.
- Taking action with respect to units associated with a particular job.

The procedure for using the **OI Detail Screen** starts with the assumption that all applicable servers are currently running and the **Main OI Screen** (Figure 27) is being displayed.

Using the OI Detail Screen

---

1 Click on the action button at the beginning of the job line for the relevant job.

- The **Action List** box (Figure 37) is displayed.
- Not all actions are available for every job.
  - The available actions depend on the job's current status and processing.

2 Select (highlight) **Detail** in the **Action List** box.

- **Detail** is highlighted.

3 Click on the appropriate button from the following selections:

- **OK** - to bring up the **OI Detail Screen** and dismiss the **Action List** box.
  - The **OI Detail Screen** (Figure 34) is displayed.
- **Cancel** - to dismiss the **Action List** box and return to the **Main OI Screen**.
  - The **Main OI Screen** (Figure 27) is displayed.

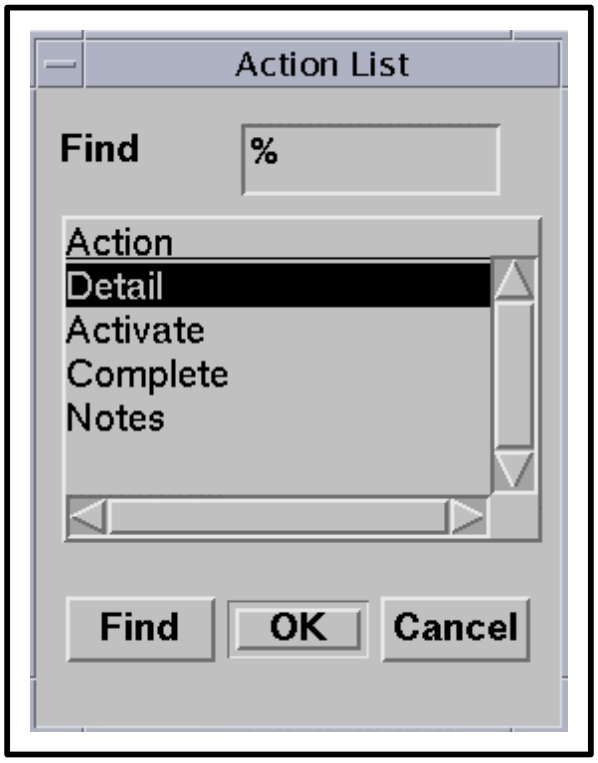

Figure 37. Action List Box

NOTE: It is recommended that the operator not stay in the Detail window for long periods of time because the processing initiated by the Main screen timers will not occur while the Detail window is open. If the Detail window is left open for a long time, the amount of processing that might occur when the Detail window was closed and control returned to the Main screen could be extensive and might cause the Main screen to be inactive for quite a period of time.

4 Observe information displayed on the **OI Detail Screen** (Figure 34).

- The following items are displayed on the **OI Detail Screen** for the selected individual PDS job:
  - Job Key.
  - Copies.
  - Pri.
  - Product Media.
  - Due Date.
  - Product Code.

- The following items are displayed on the **OI Detail Screen** for each unit within the selected PDS job:
  - Unit # .
  - Status.
  - PPF Key.
  - ECS Order ID.
  - Source Data Path.
- Each **unit line** display is color-coded to draw attention to unit status. The colors are interpreted as follows:
  - Red **Error**.
  - Green **Active**.
  - Yellow **QC-Hold**.
  - Grey **Pending**.
- There is a "Select" button (unlabeled) at the beginning of each unit line.
  - There is a "Select" button is used for selecting or deselecting each individual unit.
  - It is possible to select multiple units to be affected by the same action (e.g., "Activate") at the same time.
- If there are more records than can be displayed on the screen, use the scroll bar on the right hand side of the form to view the additional records.
- Selecting **Display → Refresh** from the pull-down menu causes the **OI Detail Screen** data in the database to be requeried and redisplayed using the current detail window default sort preference.
- Selecting **Display → Repaint** from the pull-down menu causes the entire screen (borders, buttons, data) to be redrawn without accessing the database for data.
  - The **Repaint** option is used in case the window becomes garbled.
- The **status line** at the bottom of the screen displays information about the form (for example, the status line in Figure 34 displays “Record: 1/4” and “INSERT").
- The **message line** near the bottom of the screen (just above the **status line**) displays informational messages and error messages pertinent to what is happening on the form.

- Selecting **Help → On Form** from the pull-down menu causes a web browser to pop up in another window, positioned to the start of the document about the Operator Interface.
- Selecting **Help → Show Error** from the pull-down menu causes a message to be displayed on the **message line** stating the last error encountered.
  - Frequently a “No errors encountered recently” message is displayed in response to the Show Error option.
- The following three "Action" buttons are located at the bottom of the screen:
  - **Complete**.
    - The **Complete** button completes all appropriate unit status changes (for the selected units) in the system.
    - Units with current status either **QC-Hold** or **Error** are the only units that can be completed using the **Complete** button.
  - **Activate.**
    - The **Activate** button starts the data generation process (creates the .ppf file) for the selected units that are needed by product generation.
    - Units with current status either **Pending** or **Error** are the only units that can be activated using the **Activate** button.
  - **Return**
    - The **Return** button causes any selected units to be deselected, closes the **OI Detail Screen**, and returns control to the **Main OI Screen** (Figure 27).
    - If any timers went off while the **OI Detail Screen** was activated, the associated processing occurs upon selection of the **Return** button.

5 If the list of units on the **OI Detail Screen** needs to be sorted, perform the procedure for **Sorting Units** (subsequent section of this lesson).

6 Observe information displayed on the **OI Detail Screen** (Figure 34).

7 If it is desirable to select a unit for the application of an action, click on the "Select" button at the beginning of the unit line for the relevant unit.

- To select multiple units for the application of the same action, perform the procedure for **Selecting Multiple Units** (subsequent section of this lesson).
- To deselect all currently selected units select **Select → Clear All** from the pull-down menu.
  - The "Select" buttons for all units go to the unselected state.

8 If it becomes necessary to activate unit(s), click on the **Activate** button near the bottom of the **OI Detail Screen** (Figure 34).

- Unit status before activation must be either **Pending** or **Error**.
- Clicking on the **Activate** button starts the data generation process (creates the .ppf file) for the selected unit(s) only.
- A pop-up window appears indicating that the activation is being performed.
- When the activation process has been completed, the database is queried, the **OI Detail Screen** is refreshed, all selected units are deselected and all active units are shown in green.
- If no units were selected for activation, a “No units were selected, no action taken” message is displayed in a purple box.
  - Click on the **OK** button to dismiss the error window.

9 If it becomes appropriate to complete unit(s) [e.g., the unit(s) has (have) passed the QC check], click on the **Complete** button near the bottom of the **OI Detail Screen** (Figure 34).

- Unit status before initiating a "complete" action must be either **QC-Hold** or **Error**.
- Clicking on the **Complete** button completes all appropriate unit status changes in the system for the selected unit(s) only.
- A pop-up window appears indicating that the "complete" action is being performed.
- When the "complete" action has finished, the database is queried, the **OI Detail Screen** is refreshed, all selected units are deselected and all completed units have been removed from the display (are no longer visible).
- If no units were selected for activation, a “No units were selected, no action taken” message is displayed in a purple box.
  - Click on the **OK** button to dismiss the error window.
  - When it is done, the database will be requeried causing the Detail Window to refresh and all selected units to be deselected, and completed units will no longer be visible.

10 If it becomes necessary to stop the job (that includes the units currently being displayed on the **OI Detail Screen)**, select **Stop Job** from the pull-down menu.

- A confirmation dialogue box is displayed to inquire "Are you sure you want to stop this job?"

11 If **Stop Job** was selected from the pull-down menu, click on the appropriate button from the following selections:

- **Yes** - to stop the job and dismiss the confirmation dialogue box.
  - The system performs no further actions on the job except to process status files from the product generation code.
    - Any status files generated while the OI is shut down will not be processed until the OI is up and running.
  - When the **Main OI Screen** is refreshed the next time, the field adjacent to the action button on the job line for the specified job displays the word **STOP**.
- **Cancel** - to dismiss the confirmation dialogue box without stopping the job.

12 Repeat Steps 4 through 11 as necessary to obtain additional information with respect to units associated with the selected job and/or take action with respect to units associated with the job.

13 To return to the **Main OI Screen** click on the **Return** button.

- Clicking on the **Return** button deselects any selected units, closes the **OI Detail Screen**, and returns control to the **Main OI Screen** (Figure 27).
  - If any timers went off while the **OI Detail Screen** was activated, the associated processing occurs upon selection of the **Return** button.
  - The **Main OI Screen** (Figure 27) is refreshed, showing any new information and status changes.

Sorting Units

The units to be displayed on the **OI Detail Screen** (Figure 34) can be sorted using the **Sort Dialogue Box** (Figure 38). The sorting can be done on the basis of the following criteria, either individually or in combination:

- Unit Nbr [number] (default sort preference that is used whenever the **OI Detail Screen** is opened).
- Unit Status.
- PPF Key.

The procedure for sorting units starts with the assumption that all applicable servers are currently running and the **OI Detail Screen** (Figure 34) is being displayed.

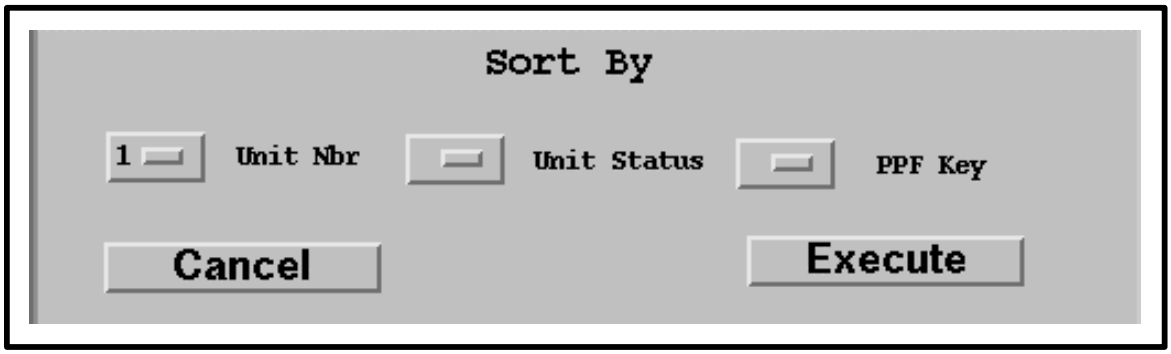

Figure 38. Sort Dialogue Box

Sorting Units

1 Select **Display** → **Sort** from the pull-down menu.

- The **Sort Dialogue Box** (Figure 38) is displayed.

2 Click and **hold** the appropriate **Sort By** option button to display a list of numbers indicating the order in which the sort criteria should be evaluated, move the mouse cursor to the desired selection (highlighting it), then release the mouse button.

- The following **Sort By** option buttons are available for indicating the order in which unit information should be displayed on the **OI Detail Screen**:
  - **Unit Nbr**.
  - **Unit Status**.
  - **PPF Key**.
- Selected sort order number is displayed on the selected **Sort By** option button when the mouse button is released.
- It is not possible to selected a sort order number for a sorting category if the number has already been assigned to another category.

3 Repeat Step 2 as necessary to assign sorting order to additional categories.

- It is possible to select more than one **Sort By** item.
- If more than one **Sort By** option is selected the units will be selected by the sort order for the selection assigned Number 1, then within that sort order they would be sorted by the category assigned Number 2, etc.
  - For example, if Unit Status were assigned the first sort order (1) and Unit Nbr were assigned the second sort order (2), the jobs would be sorted by Unit Status,

then within each status the jobs would be sorted by Unit Nbr. So the units containing the same status would be displayed together with the lowest unit number for each status at the top of the list for that status.

4 Click on the appropriate button from the following selections:

- **Execute** - to query the database for the specified selections and dismiss the **Sort Dialogue Box**.
  - A **Querying Database** notice (Figure 25) is displayed temporarily in a blue box.
    - The **message line** at the bottom of the screen displays "Working" while the **Querying Database** notice is being displayed.
    - If there are status files waiting to be read, another blue box may be displayed indicating "Reading Status files. Please wait…"
  - If no selection criteria were selected, a **Selection Error Dialogue** (Figure 26) is displayed in a purple box.
    - Click on the **OK** button to dismiss the error window.
  - The **OI Detail Screen** (Figure 34) is displayed when the **Querying Database** notice quits (indicating that database has been queried and the results are being displayed).
- **Cancel** - to dismiss the **Sort Dialogue Box** without specifying any sorting criteria.
  - The **OI Detail Screen** (Figure 34) is displayed with the original sorting criteria results.

5 Return to the procedure for **Using the OI Detail Screen**.

Selecting Multiple Units

The procedure for selecting multiple units starts with the assumption that all applicable servers are currently running and the **OI Detail Screen** (Figure 34) is being displayed.

Selecting Multiple Units

---

1 Select **Select → Range** from the pull-down menu.

- The **Range Dialogue Box** (Figure 39) is displayed.

2 Type the unit number of the first unit in the range of units to be selected in the **Begin Unit** field.

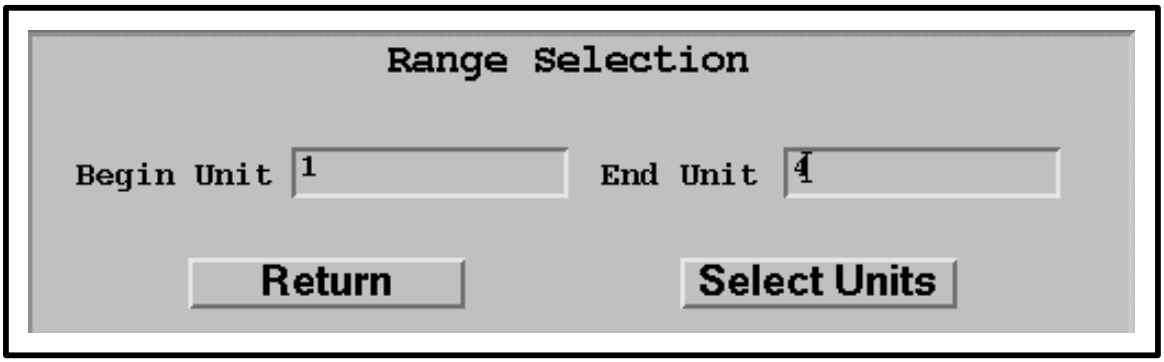

Figure 39. Range Dialogue Box

3 Type the unit number of the last unit in the range of units to be selected in the **End Unit** field.

4 Click on the appropriate button from the following selections:

- **Select Units** - to query the database for the specified selections and dismiss the **Range Dialogue Box**.
  - The **OI Detail Screen** (Figure 34) is displayed and the "Select" buttons for all units within the specified range go to the selected state.
  - Already selected units remain selected and units that are not within the specified range are ignored.
- **Return** - to dismiss the **Sort Dialogue Box** without specifying any sorting criteria.
  - The **OI Detail Screen** (Figure 34) is displayed with the "Select" buttons in their original states.

5 Return to the procedure for **Using the OI Detail Screen**.

Activating a Job

The **Main OI Screen** provides the Distribution Technician with a means of activating jobs that are in a **Pending** status. The **Activate** option is available just once for each job. If it is necessary to reactivate the same job, the activation must be done at the detail level, which is accomplished using the **OI Detail Screen** (Figure 34) as described in the procedure for **Using the OI Detail Screen** (preceding section of this lesson).

The procedure for activating a job starts with the assumption that all applicable servers are currently running and the **Main OI Screen** (Figure 27) is being displayed.

1 Click on the action button at the beginning of the job line for the relevant job.

- The **Action List** box (Figure 37) is displayed.
- Not all actions are available for every job.
  - The available actions depend on the job's current status and processing.

2 Select (highlight) **Activate** in the **Action List** box.

- **Activate** is highlighted.
- The **Activate** option is available if the job status is **Pending** only.
- Once selected, the **Activate** option is no longer available for the selected job.
  - Subsequent activation/reactivation must be done at the detail level, which is accomplished using the **OI Detail Screen** (Figure 34) as described in the procedure for **Using the OI Detail Screen** (preceding section of this lesson).

3 Click on the appropriate button from the following selections:

- **OK** - to start the process of generating the data (.ppf file) that the product generation code needs by using this machine's job limitation information and other data stored in the database.
  - A blue pop-up window is displayed with one of the following types of messages indicating that the activation is being performed:
    - Activating Job *job_key*.
    - Activating next units *job_key*.
  - When the activation process has been completed, the database is queried, the **Main OI Screen** is refreshed.
- **Cancel** - to dismiss the **Action List** box and return to the **Main OI Screen**.
  - The **Main OI Screen** (Figure 27) is displayed.

4 Return to the procedure for **Monitoring/Controlling Product Processing Using PDS**.

Stopping/Terminating a Job

The **Main OI Screen** and the **Job Monitor Main Window** provide the Distribution Technician with a means of stopping/terminating (suspending) jobs. Note that if a job has proceeded to the stage where the data are being written to the specified medium that process (writing to the medium) continues even after an attempt to stop/terminate the job.

The following procedures are described in this section:

- Stopping/Terminating a Job Using the Main OI Screen Display.
- Stopping/Terminating a Job Using the Job Monitor Main Window.

The procedures are rarely used.

Stopping/Terminating a Job Using the Main OI Screen Display

The procedure for stopping/terminating a job using the **Main OI Screen Display** starts with the assumption that all applicable servers are currently running and the **Main OI Screen** (Figure 27) and **Job Monitor Main Window** (Figure 29) are being displayed.

Stopping/Terminating a Job Using the Main OI Screen Display

---

1 Click on the action button at the beginning of the job line for the relevant job on the **Main OI Screen**.

- The **Action List** box (Figure 37) is displayed.
- Not all actions are available for every job.
  - The available actions depend on the job's current status and processing.

2 Select (highlight) **Stop Job** in the **Action List** box.

- **Stop Job** is highlighted.

3 Click on the appropriate button from the following selections:

- **OK** - to start the process of stopping the job.
  - A confirmation dialogue box is displayed to inquire "Are you sure you want to stop this job?"
- **Cancel** - to dismiss the **Action List** box and return to the **Main OI Screen**.
  - The **Main OI Screen** (Figure 27) is displayed. [End of procedure.]

4 If a confirmation dialogue box is being displayed, click on the appropriate button from the following selections:

- **Yes** - to stop the job and dismiss the confirmation dialogue box.
  - The system performs no further actions on the job except to process status files from the product generation code.
  - When the screen is refreshed the next time, the field adjacent to the action button on the job line for the specified job displays the word **STOP**.

NOTE: It may be useful to manually refresh the screen.

- **Cancel** - to dismiss the confirmation dialogue box without stopping the job.
  - When the activation process has been completed, the database is queried, the **Main OI Screen** is refreshed.

5 Return to the procedure for **Monitoring/Controlling Product Processing Using PDS**.

Stopping/Terminating a Job Using the Job Monitor Main Window

The procedure for stopping/terminating a job using the **Job Monitor Main Window** starts with the assumption that all applicable servers are currently running and the **Main OI Screen** (Figure 27) and **Job Monitor Main Window** (Figure 29) are being displayed.

Stopping/Terminating a Job Using the Job Monitor Main Window

---

1 Place the mouse cursor on the relevant job (the one to be suspended) in the running job list of the **Job Monitor Main Window** and click and hold the **right** mouse button.

- Pop-up menu appears. It has the following entries:
  - **View Job Log.**
  - **View Job PPF.**
  - **Force AutoRimage Completion** (appears only when the selected job is waiting for a completion message from a Rimage writer).
  - **Terminate Job.**

2 Select (highlight) **Terminate Job** from the pop-up menu (release the right mouse button).

- A confirmation window is displayed.

3 Click on the appropriate button from the following selections:

- **Proceed** - to suspend the job and dismiss the confirmation window.
  - The confirmation window is dismissed.
- **Cancel** - to dismiss the confirmation window without suspending the job.
  - The confirmation window is dismissed.

Responding to the Media Drive Selection Window

The **Media Drive Selection** window (Figure 40) provides the Distribution Technician with a means of designating the drive (i.e., tape drive or CD writer) to be used for a job. After the job

has retrieved all data for the product the **Media Drive Selection** window is displayed until the Distribution Technician selects a device for writing the data.

The **Media Drive Selection** window is not displayed for Rimage units if AutoRimage mode has been enabled.

- AutoRimage may be enabled on systems that have multiple Rimage units only.
- It should be disabled at sites that have a single Rimage unit.

The procedure for responding to the **Media Drive Selection** window starts with the assumption that all applicable servers are currently running and the **Media Drive Selection** window (Figure 40) is being displayed.

Responding to the Media Drive Selection Window

1 When the **Media Drive Selection** window (Figure 40) is displayed, ensure that there is a blank medium (tem or disk) in the drive.

- A list of the available drives is displayed in the **Media Drive Selection** window.

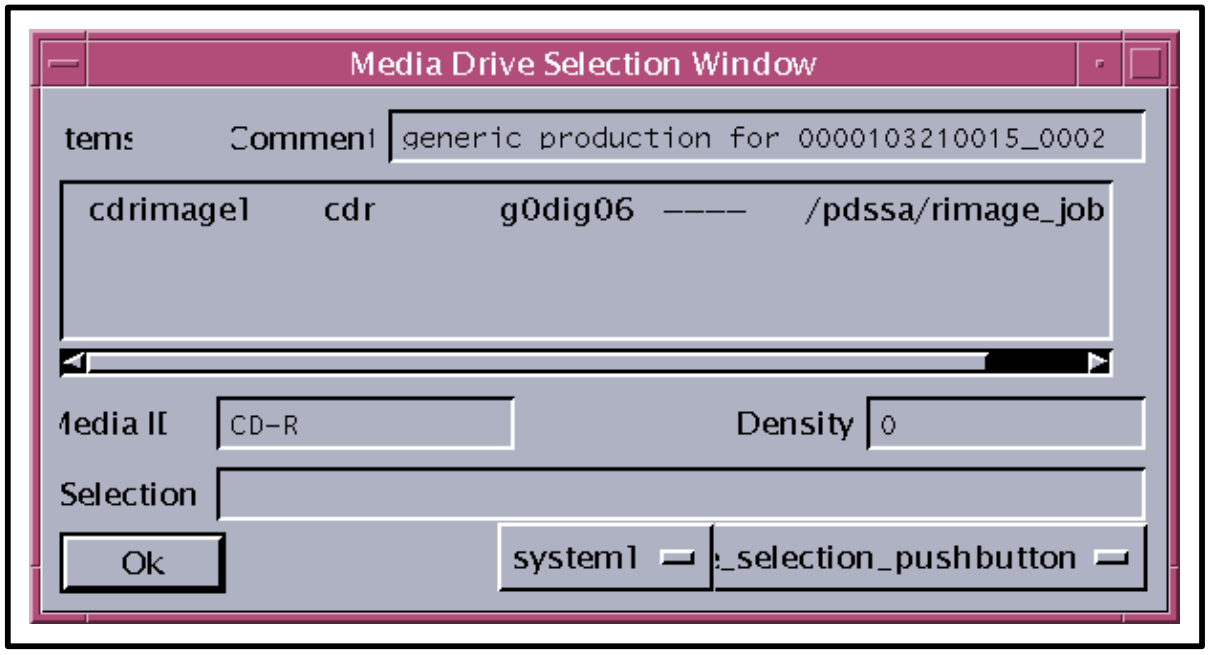

Figure 40. Media Drive Selection Window

2 Wait for the drive to come on line before responding to the **Media Drive Selection** window.

3 In the **Media Drive Selection** window click on (highlight) the drive (i.e., tape drive or CD writer) to be used for the job.

4 Click on the **OK** button.

- The **Media Drive Selection** window is dismissed.
- The process of writing data to the selected drive starts.

5 Return to the procedure for **Monitoring/Controlling Product Processing Using PDS**.

Responding to a Status of QC-Hold (Performing a QC Check or Verification)

A status of **QC-Hold** on the **PDS Operator Interface (PDSOI)** indicates that a job requires a QC check or media verification. The PDS **Verification Tool** provides the Distribution Technician with a means of selecting a verification drive for checking a disk or tape.

The procedure for responding to a status of QC-Hold (performing a QC check or verification) starts with the assumption that all applicable servers are currently running and the **Main OI Screen** (Figure 27) and PDS **Verification Tool** (Figure 30) are being displayed.

Responding to a Status of QC-Hold (Performing a QC Check or Verification)

---

1 Retrieve the product summary from the report printer.

2 Review the product summary to determine whether there were any problems in writing to the medium.

- The status of each file on the medium is indicated on the report by a "Y" or "N."
- If there were problems in writing to the medium, go to the procedure for **Reprocessing a Job** (subsequent section of this lesson).

3 Remove the medium (tape or disk) from the unit in which the data were written.

- If the label on a disk was not printed, go to the procedure for **Reprinting a Label Stamped on a Disk** (subsequent section of this lesson).

4 If the medium is a tape set the write-protect switch on the tape cartridge at the **Read-Only** (write-protected) position.

5 If the medium is a tape, retrieve the tape label from the label printer.

- If the tape label is not correct or damaged, go to the procedure for **Reprinting a Tape Label**.

6 If the medium is a tape, affix the tape label in the appropriate place.

- Labels are typically affixed directly to the tape cartridge unless DAAC policy states otherwise (e.g., affix the label to the case for the tape).

7 If the medium is a disk, retrieve the corresponding jewel case insert from the jewel case insert printer.

- If the jewel case insert is not correct or damaged, go to the procedure for **Reprinting a Jewel Case Insert**.

8 If the medium is a disk, insert the jewel case insert in a jewel case.

9 Observe the PDS **Verification Tool** to identify an available drive for verifying writing to the medium (tape or disk).

- The color of the buttons on the PDS **Verification Tool** provides an indication as to the status of each drive.
  - Dark blue typically indicates "available."
  - Red typically indicates "in use."
- The colors may vary in meaning because the color settings are configurable.

10 Load the medium (tape or disk) in an available drive.

11 Wait for the drive to come on line before continuing.

12 On the PDS **Verification Tool** click on the button corresponding to the drive in which the medium was loaded.

- The following events occur when the reader in which the medium was loaded has completed the verification:
  - The drive opens (except DLT drives, which do not open automatically).
  - The button corresponding to the drive on the PDS **Verification Tool** changes color.

13 When the reader in which the medium was loaded has completed the verification, retrieve the corresponding verification report from the printer.

14 Remove the medium from the drive.

- Keep the medium and its verification report together.
- If verification reports for media are lost, it is necessary to reverify the tape or disk.

15 Insert the medium in its case.

16 Review the verification report for read errors.

- If the medium is a tape with read errors and the tape has just been verified for the first time, repeat the verification on a different drive (return to Step 3).
- If the medium is a tape with read errors and the errors have been verified for a second time, reprocess the job by performing the procedure for **Reprocessing a Job** (subsequent section of this lesson).
- If the medium is a disk with read errors and the disk has just been verified for the first time, visually inspect the disk for obvious damage.
  - If the disk has obvious unrecoverable damage (such as a scratch), discard the disk and reprocess the job by performing the procedure for **Reprocessing a Job** (subsequent section of this lesson).
  - If the disk does not have obvious damage or has a recoverable problem (such as a fingerprint that can be wiped off), repeat the verification on a different drive (return to Step 3).
- If the medium is a disk with read errors and the errors have been verified for a second time, reprocess the job by performing the procedure for **Reprocessing a Job** (subsequent section of this lesson).

17 Place the medium (in its case), product summary, and verification report (indicating that the medium is good) together in an appropriate place.

18 Perform the procedure for **Completing a Job** (subsequent section of this lesson).

- About five minutes after the job has been marked complete on the **PDSOI**, its status on the **PDSIS OI** changes from "I" (In Progress) to "C" (Completed).
- About five minutes after the job has been marked "C" on the **PDSIS OI** the shipping label and packing list are printed.

19 When the shipping label and packing list have been printed, retrieve the items and put them with the medium (in its case) in the appropriate area for pick-up by or delivery to the shipping function.

20 When the shipping label and packing list have been printed and the job status on the **PDSIS OI** has changed from "I" (In Progress) to "C" (Completed), click on the action button (on the **PDSIS OI**) at the beginning of the job line for the job.

- The **Action List** box is displayed.

21 Select (highlight) **Ship** in the **Action List** box.

- **Ship** is highlighted.

22 Click on the appropriate button from the following selections:

- **OK** - to mark the job "shipped."

- **Cancel** - to dismiss the **Action List** box and return to the **PDSIS OI** without marking the job "shipped.".
  - The **PDSIS OI** is displayed.

Completing a Job

The **Main OI Screen** provides the Distribution Technician with a means of completing jobs that are in a **QC-Hold** status once they have passed the QC check. This "Complete" action first checks the status of the units of the job. If any unit(s) of the job is (are) not in QC-Hold status, some unit(s) may not be ready for completion; consequently, the completion must be performed using the **OI Detail Screen** (Figure 34) as described in the procedure for **Using the OI Detail Screen** (preceding section of this lesson).

The procedure for completing a job starts with the assumption that all applicable servers are currently running and the **Main OI Screen** (Figure 27) is being displayed.

Completing a Job

---

1 Click on the action button at the beginning of the job line for the relevant job.

- The **Action List** box (Figure 37) is displayed.
- Not all actions are available for every job.
  - The available actions depend on the job's current status and processing.

2 Select (highlight) **Complete** in the **Action List** box.

- **Complete** is highlighted.
- The **Complete** option is available if the job status is **QC-Hold** only.

3 Click on the appropriate button from the following selections:

- **OK** - to start the process of completing the units in the job and the job itself.
  - A blue pop-up window is displayed with the following type of message indicating that the job's units are being completed:
    - Completing Job *job_key*.
  - When the completion process has finished, the database is queried, the **Main OI Screen** is refreshed, showing any new information or status changes.
    - The job that was completed should no longer be displayed after the screen is refreshed because there are no units to be processed.

- **Cancel** - to dismiss the **Action List** box and return to the **Main OI Screen**.
  - The **Main OI Screen** (Figure 27) is displayed.

4 Return to the procedure for **Monitoring/Controlling Product Processing Using PDS**.

Entering Notes about a Job

The **Main OI Screen** provides the Distribution Technician with a means of entering comments or notes about jobs. If a note has been entered for a job, an "*" is displayed in the **Note** field of the **Main OI Screen**.

The procedure for entering notes about a job starts with the assumption that all applicable servers are currently running and the **Main OI Screen** (Figure 27) is being displayed.

Entering Notes about a Job

---

1 Click on the action button at the beginning of the job line for the relevant job.

- The **Action List** box (Figure 37) is displayed.
- Not all actions are available for every job.
  - The available actions depend on the job's current status and processing.

2 Select (highlight) **Notes** in the **Action List** box.

- **Notes** is highlighted.

3 Click on the appropriate button from the following selections:

- **OK** - to gain access to the **Job Notes** dialogue box.
  - The **Job Notes** dialogue box (Figure 41) is displayed.
- **Cancel** - to dismiss the **Action List** box and return to the **Main OI Screen**.
  - The **Main OI Screen** (Figure 27) is displayed.

4 Type appropriate text in the **Job Notes** dialogue box.

- If notes had already been entered for the selected job, the notes are displayed in the **Job Notes** dialogue box and it is possible to add to or modify them.

5 Click on the **Return** button to dismiss the **Job Notes** dialogue box and return to the **Main OI Screen**.

- The **Main OI Screen** (Figure 27) is displayed.

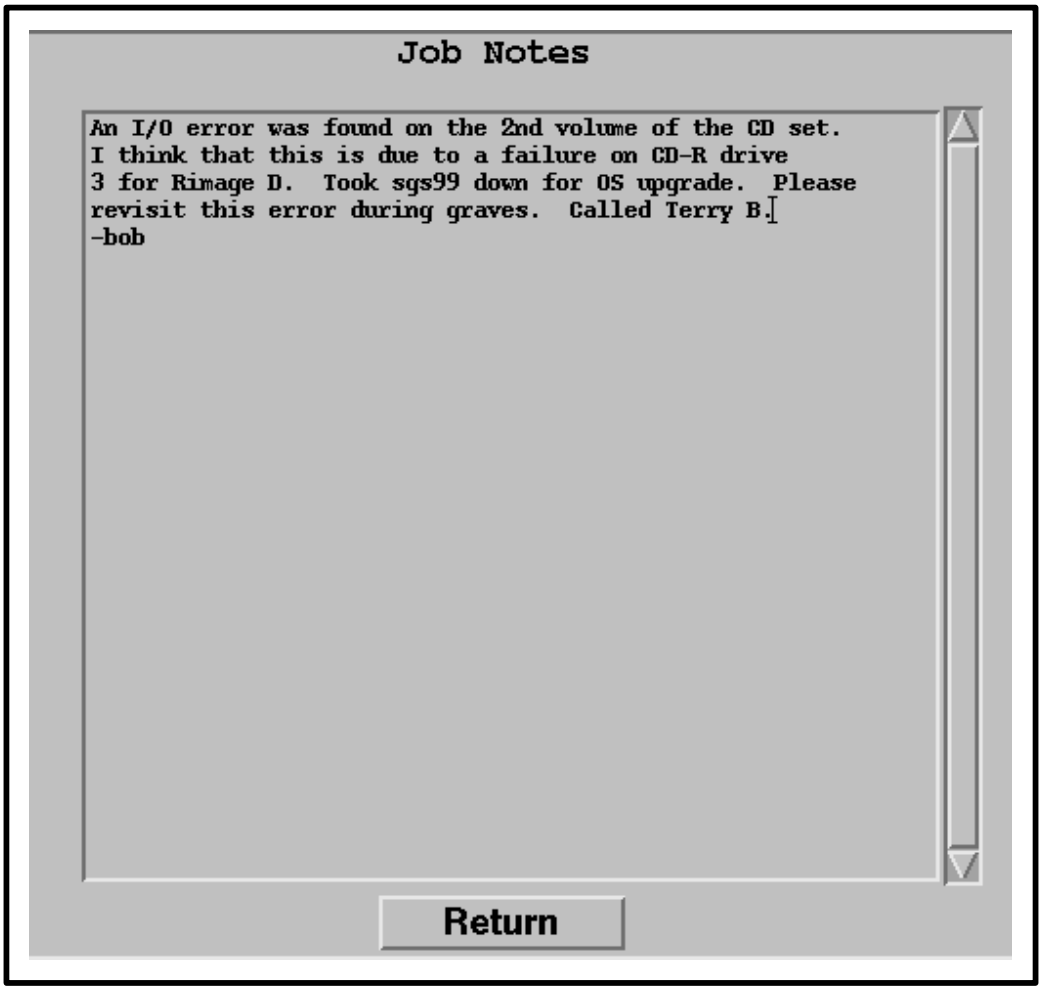

Figure 41. Job Notes Dialogue Box

- When the **Main OI Screen** is refreshed next an "*" is displayed in the **Note** field on the job line for the specified job (on the **Main OI Screen**) indicating that there is a note concerning the job**.**

6 Return to the procedure for **Monitoring/Controlling Product Processing Using PDS**.

Changing the Values of Job Parameters Using the PDS Maintenance Module

The PDS Maintenance Module provides the Distribution Technician with a means of changing the values assigned to job parameters, especially the following types of parameters:

- Status of an order (job).
  - May be changed (for example) to "Pending" so the job will rerun (e.g., if there was a problem with the previous run of the job).
- Media type assigned to an order (job).
  - Typically changed in response to a request from the user that has been forwarded by User Services.
- Number of copies in an order (job).
  - May be changed in response to a request from the user that has been forwarded by User Services.
  - Usually involves in-house orders.
- Directory path for pulling data for an order (job).
  - May be necessary if (for example) a problem occurs with the disk on which the normal directory resides.
- E-Mail address for ftp notification of order (job) completion.
  - Typically changed in response to a request from the user that has been forwarded by User Services.

The PDS **Maintenance Module Main Menu** (Figure 32) has the following buttons available for selection:

- Lookups.
- Product Code Descriptions.
- Product Media Descriptions.
- Status Code Descriptions.
- Printers.
- PPF Definitions.
- Jewel Cases.
- Machine Parameter/Job Limits.
- PDSINFO Jobs Table.
- PDSINFO Work Table.

- Query Only PDSINFO.
- Mass Update PDSINFO.
- Restage a Job.
- Exit.

Along the top of the PDS **Maintenance Module Main Menu** (Figure 32) are the following features:

- Name of the Oracle Form (e.g., PDSMNMSM).
- Current version of the PDS in use (e.g., 2.3).
- Database instance that is being running against (e.g., PRODUCTION).
- Current date (e.g., 2000/01/19).

At the bottom of the PDS **Maintenance Module Main Menu** (Figure 32) are the following features:

- The **status line** displays information about the form (e.g., “Record: 1/1” and “INSERT").
- The **message line** (just above the **status line**) displays informational messages and error messages pertinent to what is happening on the form (e.g., "Working…").
  - Messages are displayed on the screen as long as they are pertinent.

The procedure for changing the values of job parameters using the PDS Maintenance Module starts with the assumption that all applicable servers are currently running and the **Main OI Screen** (Figure 27) and PDS **Maintenance Module Main Menu** (Figure 32) are being displayed.

Changing the Values of Job Parameters Using the PDS Maintenance Module

---

NOTE: If parameter values (except Input Directory or Email Address) are to be changed for a job or all units within a job, start with Step 1. If parameters are to be changed for specific units only associated with a job, go to Step 11. Input Directory and Email Address parameter values can be changed on the **PDSINFO Work Table** only (go to Step 11).

1 Click on the **PDSINFO Jobs Table** button on the PDS **Maintenance Module Main Menu** (Figure 32).

- The **PDSINFO Jobs Table Maintenance Form (PDSMTPJT)** or **PDSINFO Jobs Table** (Figure 42) is displayed.

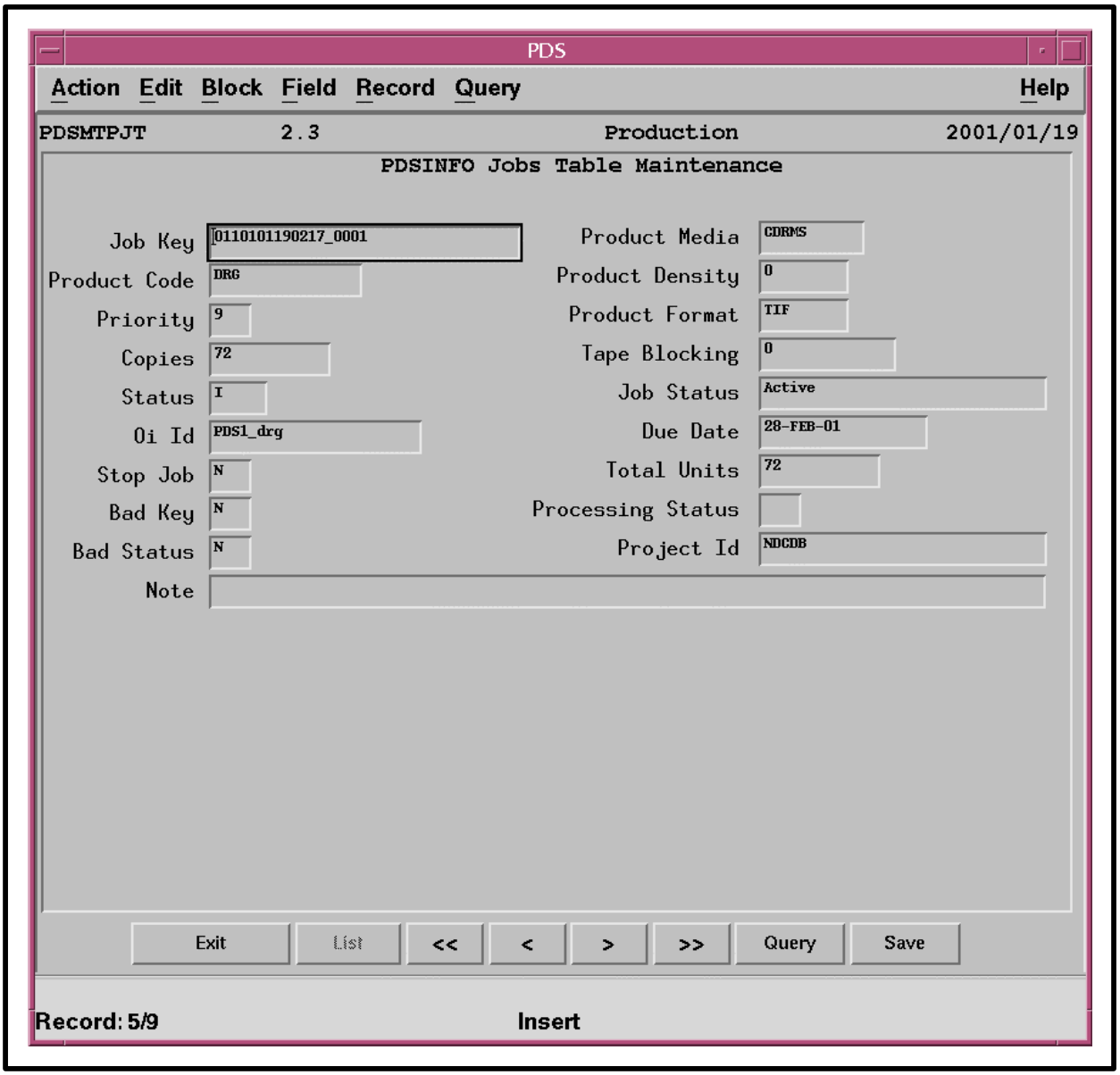

Figure 42. PDSINFO Jobs Table

2 Copy the job key by clicking and dragging (to highlight the text) in the **Job Key** field for the appropriate job on the **Main OI Screen**.

- **Job Key** text is highlighted on the **Main OI Screen**.

3 Click on the **Query** button near the bottom of the **PDSINFO Jobs Table**.

- The form goes to query mode; i.e., the fields on the **PDSINFO Jobs Table** clear of values and are ready for search criteria to be entered.

- "Query" is displayed on the status line.

4 Paste the job key copied from the **Main OI Screen** by clicking in the **Job Key** field on the **PDSINFO Jobs Table** with the **center** mouse button.

- **Job Key** is pasted in the **Job Key** field on the **PDSINFO Jobs Table**.

5 Click on the **Execute Query** button near the bottom of the **PDSINFO Jobs Table**.

- The database is queried for data concerning the job represented by the **Job Key** and the relevant data are displayed on the **PDSINFO Jobs Table**.

6 Click in the appropriate field of the **PDSINFO Jobs Table**.

- **Status** - to change the status of an order (job).
- **Product Media** - to change the media type assigned to an order (job).
- **Copies** - to change the number of copies in an order (job).

7 Type the new value in the field.

- Clicking on the **List** button on the **PDSINFO Jobs Table** causes a list of valid values for the field to be displayed in a dialogue box if the value of certain parameters is being changed.
- Lists are available for at least the following parameters:
  - Status.
  - Product Media.

8 Click on the **Save** button on the **PDSINFO Jobs Table**.

- The record is saved in the database with the new value entered in the appropriate field.
- It is recommended that each record be saved immediately after it is changed (before making changes to another record).

9 Click on the **Exit** button at the bottom of the **PDSINFO Jobs Table**.

- If the **Exit** button is not visible on the form, click on the **Cancel Query** button.
- The buttons will change and the **Exit** button will become visible.
- Either the maintenance module window is dismissed or a dialogue box is displayed with a message requesting whether changes made to the data on the form should be saved.
- If the maintenance module window was dismissed, the PDS **Maintenance Module Main Menu** (Figure 32) is displayed.

10 If a dialogue box is displayed with a message requesting whether changes made to the data on the form should be saved, click on the appropriate button from the following selections:

- **Yes** - to accept the changes and dismiss the dialogue box.

– The dialogue box is dismissed.

– The PDS **Maintenance Module Main Menu** (Figure 32) is displayed.

- **No** - to dismiss the dialogue box without accepting the changes made to the data on the form.

– The dialogue box is dismissed.

– The PDS **Maintenance Module Main Menu** (Figure 32) is displayed.

11 Click on the **PDSINFO Work Table** button on the PDS **Maintenance Module Main Menu**.

- The **PDSINFO Table Maintenance Form (PDSMTPDT)** or **PDSINFO Work Table** (Figure 43) is displayed.

12 Copy the job key by clicking and dragging (to highlight the text) in the **Job Key** field for the appropriate job on the **Main OI Screen**.

- **Job Key** text is highlighted on the **Main OI Screen**.

13 Click on the **Query** button near the bottom of the **PDSINFO Work Table**.

- The form goes to query mode; i.e., the fields on the **PDSINFO Work Table** clear of values and are ready for search criteria to be entered.
- "Query" is displayed on the status line.

14 Paste the job key copied from the **Main OI Screen** by clicking in the **Job Key** field on the **PDSINFO Work Table** with the **center** mouse button.

- **Job Key** is pasted in the **Job Key** field on the **PDSINFO Work Table**.

15 Click on the **Execute Query** button near the bottom of the **PDSINFO Work Table**.

- The database is queried for data concerning the job represented by the **Job Key** and the relevant data are displayed on the **PDSINFO Work Table**.

16 If the values of any of the following parameters were changed in the **PDSINFO Jobs Table** (Steps 1 through 10), determine whether the values have changed in the **PDSINFO Work Table**:

- **Status.**
- **Product Media.**
- **Copies.**

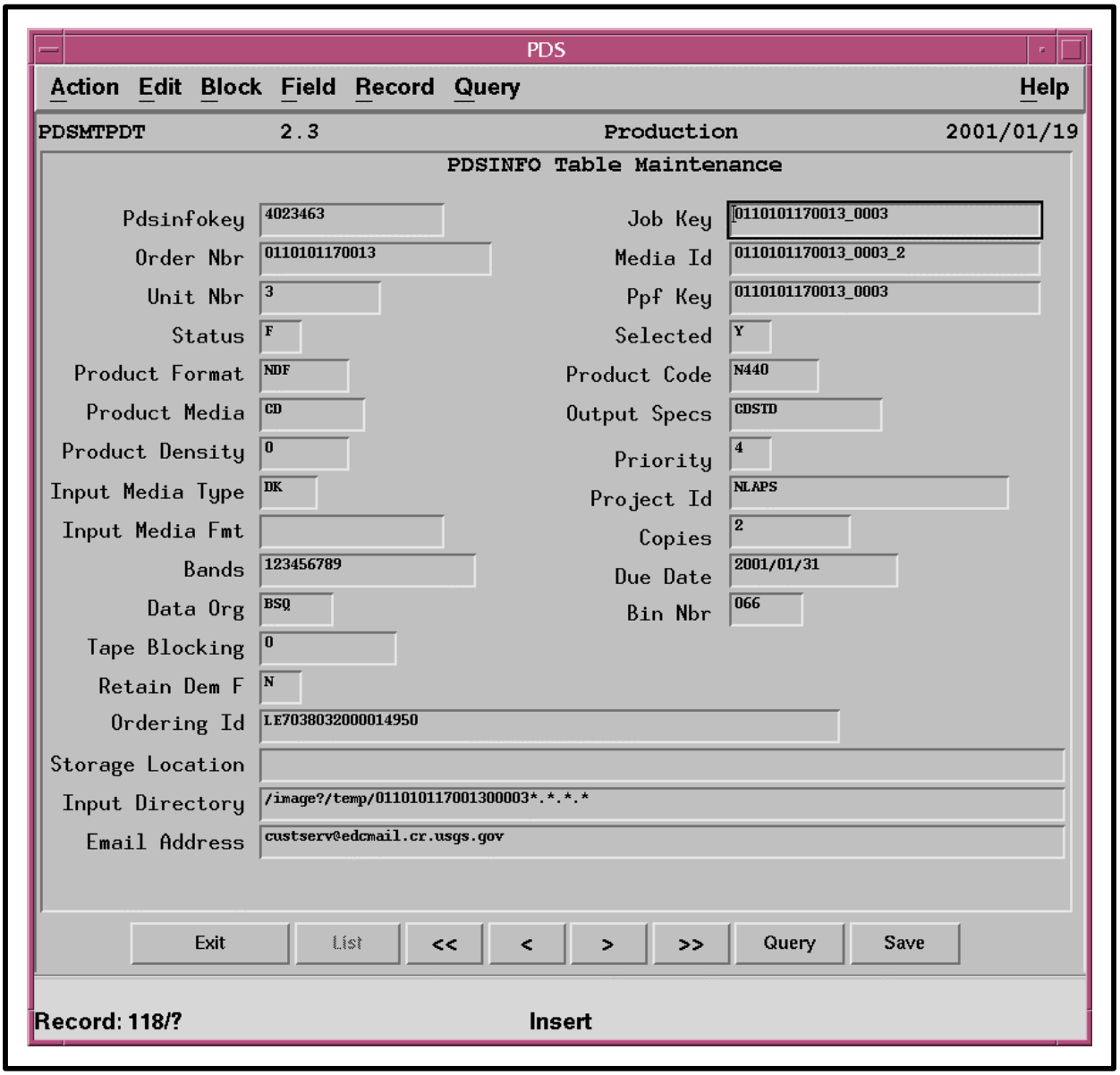

Figure 43. PDSINFO Work Table

17 If the values of any of the preceding parameters were changed in the **PDSINFO Jobs Table** and the changed values are not displayed in the **PDSINFO Work Table**, continue with Step 18; otherwise, go to Step 23.

18 If the data displayed on the **PDSINFO Work Table** do not refer to the appropriate record (e.g., as indicated in the **Unit Nbr** field) click on the next/previous record buttons (> >> < <<) button near the bottom of the form as necessary to display the appropriate record.

19 Click in the appropriate field of the **PDSINFO Work Table**.

- **Status** - to change the status of an order (job).
- **Product Media** - to change the media type assigned to an order (job).
- **Copies** - to change the number of copies in an order (job).
- **Input Directory** - to change the directory path for pulling data for an order (job).
- **Email Address** - to change the e-mail address for ftp notification of order (job) completion.

20 Type the new value in the field.

- Clicking on the **List** button on the **PDSINFO Work Table** causes a list of valid values for the field to be displayed in a dialogue box if the value of certain parameters is being changed.
- Lists are available for at least the following parameters:
  - Status.
  - Product Media.

21 Click on the **Save** button on the **PDSINFO Work Table**.

- The record is saved in the database with the new value entered in the appropriate field.
- It is recommended that each record be saved immediately after it is changed (before making changes to another record).

22 Repeat Steps 18 through 21 for all additional records that need to be modified for the job.

23 Click on the **Exit** button at the bottom of the **PDSINFO Work Table**.

- If the **Exit** button is not visible on the form, click on the **Cancel Query** button.
  - The buttons will change and the **Exit** button will become visible.
- Either the maintenance module window is dismissed or a dialogue box is displayed with a message requesting whether changes made to the data on the form should be saved.
- If the maintenance module window was dismissed, the PDS **Maintenance Module Main Menu** (Figure 32) is displayed.

24 If a dialogue box is displayed with a message requesting whether changes made to the data on the form should be saved, click on the appropriate button from the following selections:

- **Yes** - to accept the changes and dismiss the dialogue box.
  - The dialogue box is dismissed.
  - The PDS **Maintenance Module Main Menu** (Figure 32) is displayed.
- **No** - to dismiss the dialogue box without accepting the changes made to the data on the form.
  - The dialogue box is dismissed.
  - The PDS **Maintenance Module Main Menu** (Figure 32) is displayed.

25 Return to the procedure for **Monitoring/Controlling Product Processing Using PDS** or the procedure for **Reprocessing a Job** as applicable.

Promoting a Job

A job would most likely be promoted at the request of User Services. The only practical means the Distribution Technician has of promoting jobs is to activate the pending job ahead of any other pending jobs.

Canceling a Job

Jobs are not normally canceled using the PDSSA operator tools.

Responding to Low Disk Space

The Distribution Technician may notice that the available space on a disk has become low (e.g., as indicated in the **Assembly Disk Usage** section of the **Job Monitor Main Window**). The procedure that follows describes the process for responding to low disk space.

The procedure for responding to low disk space starts with the assumption that all applicable servers are currently running and the **Main OI Screen** (Figure 27) and PDS **Maintenance Module Main Menu** (Figure 32) are being displayed.

Responding to Low Disk Space

---

1 Wait before activating any jobs that would use the disk resource and perform the steps that follow.

2 Complete orders that are being processed.

3 Click in or open a UNIX (terminal) window.

4 At the UNIX command line prompt type **cd /pdssa/assemble** then press the **Return/Enter** key on the keyboard.

- Change to the assembly directory.

5 Type **ls** then press the **Return/Enter** key on the keyboard.

- A list of subdirectories and files in the assembly directory is displayed.

6 Type **rm *filename*** then press the **Return/Enter** key on the keyboard.

- Remove unneeded data from the directory.
- ***filename*** refers to unneeded file(s) or subdirectory(ies).

7 Repeat Step 6 as necessary to remove unneeded data from the assembly directory.

8 Return to the procedure for **Monitoring/Controlling Product Processing Using PDS**.

Viewing a Job Log

The PDS Job Monitor provides the Distribution Technician with a relatively easy means of gaining access to the log for a particular job.

The procedure for viewing a job log starts with the assumption that all applicable servers are currently running and the **Main OI Screen** (Figure 27) and **Job Monitor Main Window** (Figure 29) are being displayed.

Viewing a Job Log

---

1 Place the mouse cursor on the relevant job in the running job list of the **Job Monitor Main Window** and click and hold the **right** mouse button.

- Pop-up menu appears. It has the following entries:
  - **View Job Log.**
  - **View Job PPF.**
  - **Force AutoRimage Completion** (appears only when the selected job is waiting for a completion message from a Rimage writer).
  - **Terminate Job.**

2 Select (highlight) **View Job Log** from the pop-up menu (release the right mouse button).

- The log for the selected job is displayed in a text window (refer to the example in Figure 44).

3 Review the log.

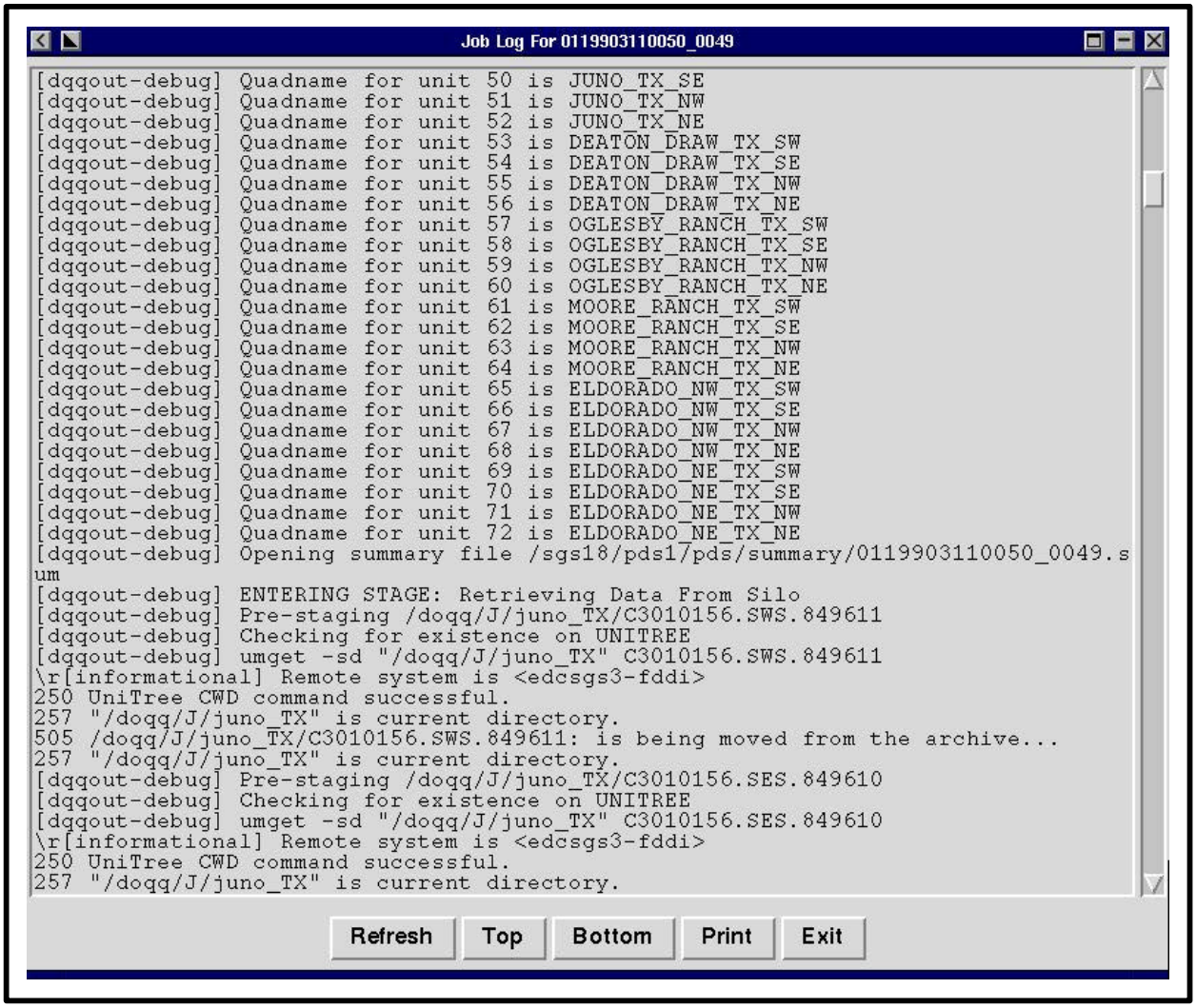

Figure 44. Example of a PDS Job Log

4 To exit from the log click on the **Exit** button at the bottom of the window.

- The window is dismissed.

Viewing a Job PPF

The PDS Job Monitor provides the Distribution Technician with a relatively easy means of gaining access to the PPF for a particular job. The PPF specifies all of the information that the job needs to run (e.g., the media type, data path, bin number, etc.).

The procedure for viewing a job PPF starts with the assumption that all applicable servers are currently running and the **Main OI Screen** (Figure 27) and **Job Monitor Main Window** (Figure 29) are being displayed.

Viewing a Job PPF

---

1 Place the mouse cursor on the relevant job in the running job list of the **Job Monitor Main Window** and click and hold the **right** mouse button.

- Pop-up menu appears. It has the following entries:
  - **View Job Log.**
  - **View Job PPF.**
  - **Force AutoRimage Completion** (appears only when the selected job is waiting for a completion message from a Rimage writer).
  - **Terminate Job.**

2 Select (highlight) **View Job PPF** from the pop-up menu (release the right mouse button).

- The PPF file for the selected job is displayed in a text window(refer to the example in Figure 45).

3 Review the PPF file.

4 To exit from the PPF file click on the **Exit** button at the bottom of the window.

- The window is dismissed.

Forcing AutoRimage Completion

The PDS Job Monitor provides the Distribution Technician with a means of forcing AutoRimage completion. It results in a signal being sent to the job telling it to stop waiting needlessly and complete processing in a normal fashion. This is useful when a number of jobs are queued for a Rimage, but the waiting job has produced the media and is waiting needlessly.

The procedure for forcing AutoRimage completion starts with the assumption that all applicable servers are currently running and the **Main OI Screen** (Figure 27) and **Job Monitor Main Window** (Figure 29) are being displayed.

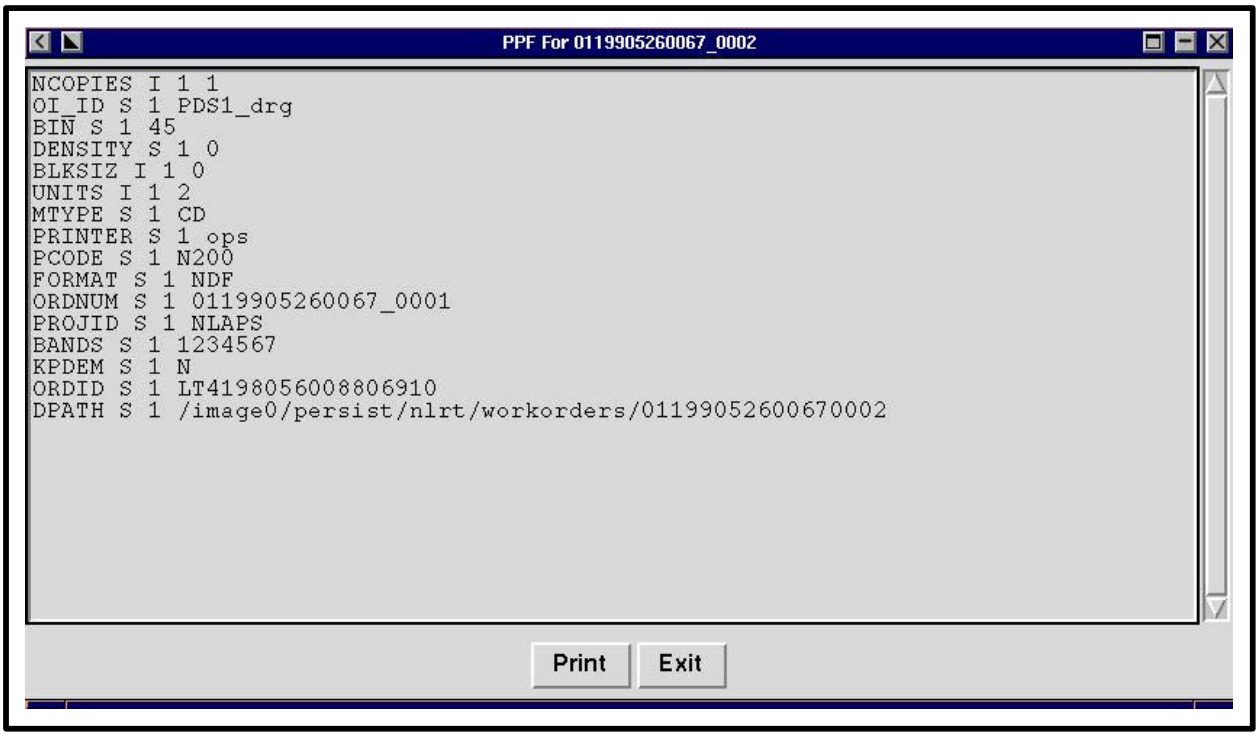

Figure 45. Example of a PDS Job Log

Forcing AutoRimage Completion

1 Place the mouse cursor on the relevant job in the running job list of the **Job Monitor Main Window** and click and hold the **right** mouse button.

- Pop-up menu appears. It has the following entries:
  - **View Job Log.**
  - **View Job PPF.**
  - **Force AutoRimage Completion** (appears only when the selected job is waiting for a completion message from a Rimage writer).
  - **Terminate Job.**

2 Select (highlight) **Force AutoRimage Completion** from the pop-up menu (release the right mouse button).

- A confirmation prompt is displayed.

3 Click on the appropriate button from the following selections:

- **Yes** - to force AutoRimage completion and dismiss the dialogue box.
  - The dialogue box is dismissed.
  - The Rimage unit stops waiting and completes processing of the medium.
- **No** - to dismiss the dialogue box without forcing AutoRimage completion.
  - The dialogue box is dismissed.

Reprocessing a Job

If processing of an order will not complete or if the medium does not pass verification, the job must be reprocessed.

The procedure for reprocessing a job starts with the assumption that all applicable servers are currently running and the **Main OI Screen** (Figure 27) and PDS **Maintenance Module Main Menu** (Figure 32) are being displayed.

Reprocessing a Job

---

1 Click in or open a UNIX (terminal) window.

2 At the UNIX command line prompt type **cd** then press the **Return/Enter** key on the keyboard.

- The alias **cd** changes the current directory to the PDS root directory.
  - To identify the PDS root directory type **echo $PDSROOT** then press the **Return/Enter** key.

3 Type **ls** then press the **Return/Enter** key on the keyboard.

- A list of subdirectories and files in the PDS root directory is displayed.

4 Type **rm *order#_unit#*.ppf** then press the **Return/Enter** key.

- Remove unneeded data from the directory.
- ***order#_unit#*.ppf** refers to the applicable PPF file.

5 Type **rm *string*_pds_*order#_unit#*.status** then press the **Return/Enter** key.

- Remove unneeded data from the directory.
- ***string*_pds_*order#_unit#*.status** refers to the applicable status file.

6 Type **cd /pdssa/assemble** then press the **Return/Enter** key.

- Change to the assemble directory.

7 Type **rm -r *order#_unit#*** then press the **Return/Enter** key.

- Remove unneeded directory.

8 Type **rm *order#_unit#*.image** then press the **Return/Enter** key.

- Remove unneeded data from the directory although it is likely that the preceding command (**rm -r *order#_unit#***) already removed the image file.
- ***order#_unit#*.image** refers to the applicable image file.

9 Change the status of the order to either F (QC-Hold) or Q (Pending) as appropriate by performing the procedure for **Changing the Values of Job Parameters Using the PDS Maintenance Module** (previous section of this lesson).

10 Return to the procedure for **Monitoring/Controlling Product Processing Using PDS**.

Cleaning up the "E" Drive on the Rimage

From time to time the "E" Drive (accessible from the Rimage PC) needs cleaning to remove files that result from ftp errors, disk space issues, or problems producing an output.

The procedure for cleaning up the "E" drive on the Rimage starts with the assumption that the Distribution Technician has logged on to the Rimage PC using an account that is valid on the PDS system.

Cleaning up the "E" Drive on the Rimage

---

1 Double-click on the **My Computer** icon.

- A window is displayed containing icons for the accessible drives.
- Unneeded files should be deleted on the E drive before attempting to delete them through the Rimage Production Server Production Order Editor.

2 Double-click on the icon for the **E** drive.

- A window is displayed containing icons for the folders (directories) and files on the **E** drive.

3 Double-click on the icon for the **CDR-Images** folder.

- A window is displayed containing icons for the files in the **CDR-Images** folder.

4 Hold the **Ctrl** key while clicking on the icons (highlighting them) for all unneeded files to be deleted from the **CDR-Images** folder.

- All unneeded files in the **CDR-Images** folder are highlighted.

5 Click on one of the highlighted icons with the **right** mouse button.

- Pop-up menu appears.

6 Select **Delete** from the pop-up menu.

- A **Confirm File Delete** dialogue box is displayed containing the message "Are you sure you want to send the '*filename*' to the Recycle Bin?".

7 Click on the appropriate button from the following selections:

- **Yes** - to send the selected files to the recycle bin and dismiss the dialogue box.
  - The dialogue box is dismissed.
  - The selected files are transferred to the recycle bin (folder).
- **No** - to dismiss the dialogue box without sending the selected files to the recycle bin.
  - The dialogue box is dismissed.

8 Select **File → Production Order Editor** from the pull-down menu in the **Production Server** window on the PC.

9 Hold the **Ctrl** key while clicking on the icons (highlighting them) for all unneeded files to be deleted.

- All unneeded files are highlighted.

10 Click on one of the highlighted icons with the **right** mouse button.

- Pop-up menu appears.

11 Select **Delete** from the pop-up menu.

- A **Confirm File Delete** dialogue box is displayed containing the message "Are you sure you want to send the '*filename*' to the Recycle Bin?".

12 Click on the appropriate button from the following selections:

- **Yes** - to send the selected files to the recycle bin and dismiss the dialogue box.
  - The dialogue box is dismissed.
  - The selected files are transferred to the recycle bin (folder).
- **No** - to dismiss the dialogue box without sending the selected files to the recycle bin.
  - The dialogue box is dismissed.

13 Click on the **Recycle Bin** icon on the PC desktop with the **right** mouse button.

- Pop-up menu appears.

14 Select **Empty Recycle Bin** from the pop-up menu.

- A **Confirm Multiple File Delete** dialogue box is displayed containing the message "Are you sure you want to delete these *n* items?".

15 Click on the appropriate button from the following selections:

- **Yes** - to delete the selected files and dismiss the dialogue box.
  - The dialogue box is dismissed.
  - The selected files are deleted.
- **No** - to dismiss the dialogue box without deleting the selected files.
  - The dialogue box is dismissed.

16 Click on the **X** in the box at the upper right-hand corner of the **CDR-Images** folder window.

- The **CDR-Images** folder window is dismissed.

17 Click on the **X** in the box at the upper right-hand corner of the **E** drive window.

- The **E** drive window is dismissed.

18 Click on the **X** in the box at the upper right-hand corner of the **My Computer** window.

- The **My Computer** window is dismissed.

Reprinting a Label Stamped on a Disk

The procedure for reprinting a label stamped on a disk starts with the assumption that the Distribution Technician has logged on to the Rimage PC using an account that is valid on the PDS system.

Reprinting a Label Stamped on a Disk

---

1 Double-click on the **Label Editor** icon.

- A **Label Editor** window is displayed.

2 Select **File → Open** from the pull-down menu in the **Label Editor** window on the PC.

- An **Open** window is displayed containing a list of files.

- The folder/directory should contain a template for each product type.
  - The template for the appropriate product type should be selected as the basis for creating an appropriate file for the use during the restamping.

3 Click on the icon for the appropriate template (file) in the list of files in the **Open** window.

- The selected file is selected (highlighted).

4 Click on the **Open** button.

- The **Open** window is dismissed.
- The selected file is opened and displayed in the **Label Editor** window.

5 Edit the file in the **Label Editor** window.

6 Select **File → Save As** from the pull-down menu in the **Label Editor** window on the PC.

- An **Save As** window is displayed.

7 Type a valid file name in the **File Name** field.

8 Click on the **Save** button.

- The **Save As** window is dismissed.
- The file is saved with the specified file name.
- The file is displayed in the **Label Editor** window.

9 Double-click on a CD-R Workstation icon.

- A window similar to the Production Server window is displayed.

10 Click on **Start**.

11 Click on **Add**.

12 Select **Print Label Only**.

13 Click on **Next**.

14 Click on **Next** again.

15 Click on **Next** again.

16 Select **Browse**.

- A window containing a list of files is displayed.

17 Select the label template created and saved in Steps 5 and 6.

18 Place the CD that needs the label in the Rimage input bin.

19 Click on **Finish**.

- The robot picks and labels the disk and places it in an output bin.

Reprinting a Tape Label

The procedure for reprinting a tape label starts with the assumption that all applicable servers are currently running and the **Main OI Screen** (Figure 27) is being displayed.

Reprinting a Tape Label

1 Click in or open a UNIX (terminal) window.

2 At the UNIX command line prompt type **cd** then press the **Return/Enter** key on the keyboard.

- The alias **cd** changes the current directory to the PDS root directory.
  - To identify the PDS root directory type **echo $PDSROOT** then press the **Return/Enter** key.

3 Type **cd label** then press the **Return/Enter** key.

- Change to the label directory.

4 Type **lpr -P*printername jobkey*.lbl** then press the **Return/Enter** key on the keyboard.

- The label prints on the label printer.
- ***printername*** is the name of the label printer (e.g., g0dil10).
- ***jobkey*** is the job key displayed on the **Main OI Screen**.

Reprinting a Jewel Case Insert

The procedure for reprinting a jewel case insert starts with the assumption that all applicable servers are currently running and the **Main OI Screen** (Figure 27) is being displayed.

Reprinting a Jewel Case Insert

1 Click in or open a UNIX (terminal) window.

2 At the UNIX command line prompt type **cd** then press the **Return/Enter** key on the keyboard.

- The alias **cd** changes the current directory to the PDS root directory.
  - To identify the PDS root directory type **echo $PDSROOT** then press the **Return/Enter** key.

3 Type **cd summary** then press the **Return/Enter** key.

- Change to the summary directory.

4 Type **ls** then press the **Return/Enter** key.

- A listing of the files in the summary directory is displayed.

5 Type **mv *filename* ..** then press the **Return/Enter** key.

- The jewel case insert prints on the jewel case insert printer.
- ***filename*** is the name of the jewel case insert file.
- The two dots (**..**) represent the next directory up in the directory hierarchy; in this case they represent the status directory.

Generating PDS Production Reports

The **Main OI Screen** provides the Distribution Technician with a means of generating PDS production reports.

The procedure for generating PDS production reports starts with the assumption that all applicable servers are currently running and the **Main OI Screen** (Figure 27) is being displayed.

Generating PDS Production Reports

---

1 If the report is to be printed on the currently assigned report printer, continue with Step 2; otherwise, perform the procedure for **Selecting an Alternate Printer** (subsequent section of this lesson).

2 If a report that contains the data currently being displayed **Main OI Screen** is desired, select **Reports → Queue** from the pull-down menu.

- The report is printed on the designated report printer.
- The report is fired off in the background and uses the printer definition for reports.
- The file generated for the report is $PDSROOT/summary/queue<timestamp>.rpt.

3 If a report of all orders that still need to be produced (broken down by various time frame ranges) is desired, select **Reports → Lag** from the pull-down menu.

- The report is printed on the designated report printer.
- The report is fired off in the background and uses the printer definition for reports.
- The file generated for the report is $PDSROOT/summary/lag<timestamp>.rpt.

4 If an error report for a particular job is desired, first click in one of the fields on the job line for the relevant job.

5 If an error report for a particular job is desired, select **Reports → Error** from the pull-down menu.

- The report provides information about errors that have occurred with the specified job.
- The report is fired off in the background.
- The report is printed on the designated report printer.

6 Return to the procedure for **Generating PDS Production Reports** or the procedure for **Monitoring/Controlling Product Processing Using PDS** as applicable.

Selecting an Alternate Printer

The **Main OI Screen** provides the Distribution Technician with a means of selecting an alternate printer for printing reports or jewel cases.

The procedure for selecting an alternate printer starts with the assumption that all applicable servers are currently running and the **Main OI Screen** (Figure 27) is being displayed.

Selecting an Alternate Printer

---

1 Click on **Printers** on the menu bar of the **Main OI Screen**.

- The **Default Printers** dialogue box (Figure 46) is displayed.
- The current selections for printers for reports and jewel case inserts are displayed.

2 Click and **hold** the applicable option button (either **Report Printer** or **Jewel Case Printer**) to display a menu of printers, move the mouse cursor to the desired selection (highlighting it), then release the mouse button.

- Selected printer is displayed on the option button when the mouse button is released.

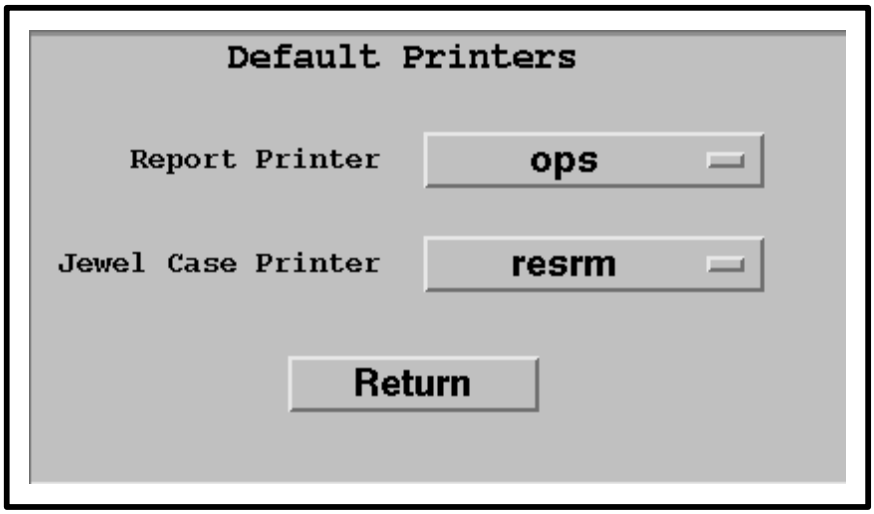

Figure 46. Default Printers Dialogue Box

- If the desired printer is not available on the list of printers, submit a request to the supervisor to have it added to the list.

3 If an alternate printer is to be designated for the other type of printer, repeat Step 2 for the other printer.

4 Click on the **Return** button.

- The **Main OI Screen** (Figure 27) is displayed.

5 Return to the procedure for **Generating PDS Production Reports** or the procedure for **Monitoring/Controlling Product Processing Using PDS** as applicable.

Troubleshooting PDS Problems

Trouble Symptoms

Troubleshooting is a process of identifying the source of problems on the basis of observed trouble symptoms. Many problems with PDS can be traced to some part of the PDS itself. However, a common source of problems involves the reliance on messages or data from other subsystems. Like many other operational areas, PDS has interfaces with several ECS subsystems. Consequently, it is possible to trace some problems to an ECS subsystem, including (but not necessarily limited to) those in the following list:

- Data Management Subsystem (DMS).

- Data Server Subsystem (DSS).
  - Science Data Server.
  - Data Distribution.
  - Storage Management.
- System Management Subsystem (MSS).
- Communications Subsystem (CSS).

The general process of troubleshooting involves the following activities:

- Review the trouble symptoms.
- Check the status of relevant hosts/servers (as necessary).
- Check log files (as necessary).
- Take action to correct the problem(s).

If the problem cannot be identified and fixed without help within a reasonable period of time, the appropriate response is to call the help desk and submit a trouble ticket in accordance with site Problem Management policy.

The sections that follow describe methods of handling some common problems encountered in PDS operations.

CD/DVD Job Error Indicated on PDSOI

A job being produced on CD or DVD indicates an error condition (color code red) on the PDSOI.

- Click in or open a UNIX (terminal) window on the PDSSA host.
- At the UNIX command line prompt type **cd /pdssa/rimage_jobcontrol** then press the **Return/Enter** key on the keyboard.
  - Change to the Rimage job control directory.
- Type **more pwrtool.log** then press the **Return/Enter** key on the keyboard.
  - The content of the Powertools log is displayed.
- Examine the content of the Powertools log for the following types of entries:
  - File already exists.
  - File not found.
- If one of the preceding types of problems is found in the Powertools log, perform the procedure for **Cleaning up the "E" Drive on the Rimage** (preceding section of this lesson).

Duplicate Jobs

There are jobs showing up on the PDSOI multiple times.

- Make sure that the jobs are truly duplicated, same exact job_key, **all** digits the same.
- Duplicate jobs can be removed using the PDS Maintenance Module **PDSINFO Jobs Table**.
  - Enter the full job job_key in the job_key field and press the **Execute Query** button.
    - The message "query will retrieve # records" is displayed on the message line.
- Check **all** fields to ensure that they are identical.
- If the fields are not **all** the same, determine which job is the correct one.
  - If the OI_ID is filled in on one and blank on the others, keep the one that contains a value.
    - This means that this job has been started using the specified OI_ID and work will be performed using the specified OI_ID only.
    - Another OI_ID will not work on this job.
  - Product media and product code are some other fields to check.
    - Ensure that the fields match the values in the PDSINFO table.
    - Use the PDS Maintenance Module **PDSINFO Work Table** to make the check.
- After determining which job is the correct one, first ensure that the current record being displayed in the table is one of those to be removed, not the record to be kept.
  - Select **Record → Remove**.
    - The removed record is no longer displayed on the screen, but the record to be kept is displayed (unless there are multiple duplicates).
  - Click on the **Save** button to save the changes.
- If there are multiple duplicates, repeat the record removal process.
- If the PDSOI continues to create duplicate jobs, there may be a data problem in the PDSINFO table.
  - Use the PDS Maintenance Module **PDSINFO Work Table** to look for fields that are blank or contain invalid values.

- Fix the fields and save the changes.
  - No more duplicate jobs should be created.
- Go back and remove records that are duplicates (as previously explained).

Job on Lag Report

A job may show up on the lag report but not show up on the PDSOI. This is usually a data problem.

- Use the PDS Maintenance Module **PDSINFO Work Table** to check for missing fields.
- Next check to make sure that the Product Code and Output Specs are correct and have entries in the PVT_PRCDTBL_TBL and/or OUT_OTSPTBLV_TBL and these entries have values in the PDS Description field.
  - The tables can be checked using the PDS Maintenance Module **Product Code Descriptions** or **Product Media Descriptions**.
- On the main PDSOI menu, select **Display → Data/Sort** to bring up the **Selection Criteria Screen** (Figure 36).
- Check to ensure that the selected criteria include the values for the job on the lag report.

Redo Units

Unit was completed and later it needs to be redone.

- Use the PDS Maintenance Module **ReStage Job**.
  - This will put the units back onto the PDSOI; however it may take up to half an hour for them to show up after restaging.

NOTE: This option may not be available on the PDSSA system.

Buttons Not Visible

The buttons that should be visible on the bottom of the screen are not visible.

- The screen may need to be resized.
  - Move the mouse to the outside edge of the form.
    - The cursor should change shape.
  - Click and hold the mouse button to resize the screen.

Text Box is Too Small

Not all text is showing in the text box; the box appears to be too small.

- Click on the text box and use the arrow keys to move to the text that is not visible.

Purple Boxes

Purple boxes similar to the one in Figure 26 tell the operator that an error has occurred on the PDSOI. Clicking on the **OK** button makes the purple box disappear. However, the errors that cause a purple box to be displayed usually require some action by the operator to correct the problem or the purple box will continue to pop up.

- "No job limit."
  - Use the PDS Maintenance Module **Machine Parameters/Job Limits** to set the joblimit.
- "No job."
  - Write down the job_key from the purple box.
    - Use the PDS Maintenance Module **PDSINFO Jobs Table** to query the table to see if there is a job with that job_key in the system.
    - Use the **PDSINFO Work Table** and the **Query Only/PDSINFO** maintenance modules to further investigate the problem.
    - If a unit was rejected after it was already in process, it is possible that the job no longer exists when the status file is written.
  - Move the status file out of the way or no other status files will be processed. If the problem has been definitely identified, remove the status file from the status directory; otherwise, just move the file to another name. For example:

mv PDS1_drg_0110011130207_0001.status
tmp.PDS1_drg_0110011130207_0001.status

or

rm PDS1_drg_0110011130207_0001.status

- "Already activated."
  - This job was already started by another PDSOI with a different machine_id/console_id.
    - Log in with the same machine_id/console_id to activate more units or to read status files.
    - To find out what the OI_ID is, use the PDS Maintenance Module **PDSINFO Jobs Table**.

- "Cannot activate because the selected field in the PWT_PDS_WORK_TBL contains an incorrect value."
  - An attempt was made to activate the unit before and the selected field did not get set correctly.
    - Use the PDS Maintenance Module **PDSINFO Work Table** to set the selected status to 'N'.

Not Updating Statuses

The PDSOI is not picking up status files.

- Check to see that the file is in the $PDSROOT/status directory.
- Check to see whether the file is named <machine_id>_<console_id>_<media_id>.status and whether the machine_id and console_id match a PDSOI that is currently up and running.
  - If not, open a PDSOI using the discovered parameters so the status file can be processed.

No Printouts

Printouts (either jewel case inserts or paper reports) are not printing.

- On the main PDSOI menu, click on **Printers**.
  - The default printer pop-up is displayed.
- Ensure that a printer is selected for both Report Printer and Jewel Case Printer, if not, select one and click on the **Return** button.
- If the problem is not fixed, send something to the printer manually from the command line and see if it prints.
- If nothing prints from the command line, contact System Support (Help Desk) and report the problem.

Jewel Case Insert Did Not Print

The data have been written to the medium, the status has changed to QC-Hold, the summary sheet has printed, but the jewel case insert has not printed.

- **Do not complete the units that have no inserts.**
- Look for the status file for the medium in the $PDSROOT/summary directory and move the file back into the $PDSROOT/status directory.

NOTE: The units in the status file cannot have been completed or subsequent reading of the status file will return an error.

- Can anything be printed on the printer?
  - Try sending a jewel case insert file from the $PDSROOT/summary to the printer.
    - If nothing can be printed, call System Support (Help Desk) and report the problem.

Action List

In the **Action** list, a selection has been made but the action is not invoked.

- Click on **OK** to start the action or go to the appropriate screen.

Problem Starting PDSOI

The pdsoi alias was typed but nothing happened.

- It may take a few seconds for the PDSOI to come up, wait a few seconds.
- Was the DISPLAY environmental variable set?
  - On the command line, type **echo $DISPLAY**
  - If the display is not set correctly kill the PDSOI that was started.
    - If the PDSOI starts in a window to which there is access it can be opened using "test" as the console_id. It is necessary to fill out the selection criteria. When the window opens, from the Menu click on **Shutdown**.
    - If it is not known where the PDSOI was started from, use the same window previously used to try to start the PDSOI to type **ps -ef | grep PDSMTOIX**
    - The following type of result should be obtained:

```
pds    790367    790059  0 10:15:11 pts/8   0:00 grep PDSMTOIX
pds    233139         1  0   Feb 08  pts/66  0:27 f45runm PDSMTOIX
pds    779612         1  0 09:25:06 pts/8   0:03 f45runm PDSMTOIX
```

    - In the example the grep returns the same pts/8 as one of the PDSMTOIX lines. The pid of the PDSMTOIX process in this case it is 779612. On the command line, type **kill –9 779612** to kill the PDSOI that was started when the DISPLAY variable was not properly set.

- Is the alias set? On the command line type **alias pdsoi**
  - The actual executable name should be returned. For example:
    - /sg1/csb/pds/run/pdsoi_prod.sh
    - If nothing is returned, then go into the run directory and type **pdsoi_prod.sh**
    - Reset the alias by typing **alias pdsoi <full path and executable name>**

Locked-Up Screen

The screen is locked up and cannot get to the main menu to the shutdown menu item to shut down.

- Go to the window where the PDSOI was originally started from and type **ps -ef | grep PDSMTOIX**
  - The screen will look similar to the following:

```
pds    790367    790059  0 10:15:11 pts/8   0:00 grep PDSMTOIX
pds    233139          1  0   Feb 08  pts/66  0:27 f45runm PDSMTOIX
pds    779612          1  0 09:25:06 pts/8   0:03 f45runm PDSMTOIX
```

  - The grep returns the same pts/8 as one of the PDSMTOIX lines. In the example the pid of the PDSMTOIX process is 779612. On the command line, type **kill -9 779612** to kill the PDSOI.
    - The PDSOI screen should disappear.

No Stop Job

When a job was stopped, it does not appear stopped on the main PDSOI screen.

- The stop does not appear until the next time that the database is queried. Force querying of the database by selecting this (on the PDSOI Menu) **Display → Refresh**.

Exiting Maintenance Screens

You get into a maintenance screen and want to exit, but there is no **Exit** button.

- Press the **Cancel Query** button.
  - The buttons change and the **Exit** button becomes visible.

Exit Without Saving

After clicking on **Exit** (without having selected **Save** first) to exit a maintenance screen without saving changes a pop-up appears asking "Do you want to save changes?"

- It is necessary to respond to the pop-up.
- To save changes click on **Yes**.
  - If changes have been made that cannot be saved to the database, clicking on **Yes** will not override the restrictions; it will not be possible to get out of the maintenance screen except by clicking on **No**.
    - A permission problem could cause the inability to save changes.
    - Report such problems in accordance with site Problem Management policy.
- To return to the maintenance screen click on **Cancel**.
- To exit without saving changes click on **No**.

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PDS Practical Exercise

Introduction

This exercise is designed to give the students practice in PDS activities.

Equipment and Materials

One PDS workstation per student.

One Rimage PC per student.

Statement of the requirements for the exercise.

Product Distribution System (PDS) Stand Alone (PDSSA) User's Guide, PDS-114, one copy per student.

Starting Up PDS

The exercise involves starting up PDS operator interfaces. The exercise begins with a student acting in the role of Distribution Technician receiving the necessary information/requirements for starting up PDS operator interfaces. The student starts up PDS operator interfaces as specified in the requirements.

Perform the following steps:

8. Log on to the PDS operations host.
9. Start the PDS Operator Interface (PDSOI).
10. Start the PDSIS Operator Interface (PDSIS OI).
11. Start the PDS Job Monitor.
12. Log on to the Rimage compact disk (CD) production system personal computer (PC).
13. Start the Rimage CD Production Software.
14. Start the PDS Verification Tool.
15. Start the PDS Maintenance Module.

Shutting Down PDS

The exercise involves shutting down PDS. The exercise begins with a student acting in the role of Distribution Technician receiving the necessary information/requirements for shutting down PDS. The student shuts down PDS as specified in the requirements.

Perform the following steps:

1. Exit from the PDS Maintenance Module.
2. Exit from the PDS Job Monitor.
3. Exit from the PDS Operator Interface (PDSOI).
4. Exit from the Rimage CD Production Software (after all executing PDS jobs are completed or at a logical stopping point).
5. Exit from the PDS Verification Tool.

Monitoring/Controlling Product Processing Using PDS

The exercise involves monitoring/controlling product processing using PDS. The exercise begins with a student acting in the role of Distribution Technician receiving the necessary information/requirements for monitoring/controlling product processing. The student monitors/controls product processing as specified in the requirements.

Perform the following steps:

1. Activate jobs.
2. Respond to the Media Drive Selection window.
3. Respond to a status of QC-Hold (perform a QC check or verification).
4. Mark jobs "Complete" in PDSSA.
5. Mark jobs "Shipped" in PDSIS.
6. Generate PDS production reports.

Troubleshooting PDS Problems

The exercise involves troubleshooting and correcting PDS problems. The exercise begins with a student acting in the role of Distribution Technician receiving the necessary information/requirements for troubleshooting and correcting PDS problems. The student troubleshoots and corrects PDS problems as specified in the requirements.

Perform the following steps:

1. Review the trouble symptoms.
2. Check the status of relevant hosts/servers (as necessary)

3. Check appropriate log files as necessary.
4. Take action to correct the problem(s).
5. Respond to questions concerning the possible cause(s) without error.

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PDS Slide Presentation

Slide Presentation Description

Slides 108 through 246 are the slides used by the instructor during the conduct of the PDS portion of this lesson.

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