**MISSION OPERATIONS AND DATA SYSTEMS DIRECTORATE**
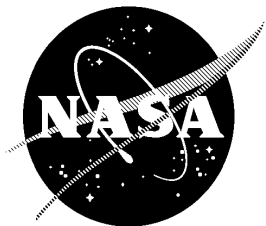
# Transition Region and Coronal Explorer (TRACE) Data Processing System (DPS) Users Guide

**Release 2.0**

**March 1997**

National Aeronautics and
Space Administration

Goddard Space Flight Center
Greenbelt, Maryland

# Transition Region and Coronal Explorer (TRACE)

# Data Processing System (DPS)

# Users Guide

# Release 2.0

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# Transition Region and Coronal Explorer (TRACE)

# Data Processing System (DPS)

# Users Guide

# Release 2.0

**March 1997**

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# Preface

This document provides the Data Processing System (DPS) user with an understanding of the DPS and how to operate it. It guides the analyst through the DPS via computer-human interface (CHI) windows and defines the operation of the DPS, as of Release 2.0, for the Transition Region and Coronal Explorer (TRACE) mission. It includes detailed explanations of the CHI windows; how to start the various tasks [i.e., Production Data Processor Subsystem (PDPS), packet extraction tasks (Packet Extraction Parent [PEP], Packet Extraction Interface [PEI], and Packet Extraction Replay [PER]), and Product Transfer Task (PTT)]; and the daily tasks the analysts perform. In addition, this document provides a reference to other useful DPS documents.

Changes to this document shall be made by document Change Notice (DCN) or by complete revision.

514-4SUG/0496

# DCN Control Sheet

| DCN Number | Date/Time Group (Teletype Only) | Month/ Year | Section(s) Affected | Initials |
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# Section 1.  Introduction

## 1.1  Purpose

This document provides the Data Processing System (DPS) user with an understanding of the DPS and how to operate it. It guides the analyst through the DPS via computer-human interface (CHI) windows and defines the operation of the DPS, as of Release 2.0, for the Transient Region and Coronal Explorer (TRACE) mission. It includes detailed explanations of the CHI windows; how to start the various tasks [i.e., Production Data Processor Subsystem (PDPS), packet extraction tasks (Packet Extraction Parent [PEP], Packet Extraction Interface [PEI], and Packet Extraction Replay [PER]), and Product Transfer Task (PTT)]; and the daily tasks the analysts perform. Additionally, this document provides a reference to other useful DPS documents.

## 1.2  Document Organization

This document is divided into five sections and two appendixes. Section 1 is an introduction to the document. Section 2 is an overview of the hardware and software systems and the network interfaces. Section 3 describes how to set up the DPS and start its operation. Section 4 discusses the CHI with a detailed description of each window. Sections 5 details the analyst online user tasks. Appendix A contains the DPS resource file, and Appendix B provides the complete listing of alarms, advisories, and notifications generated by the DPS software.

## 1.3  Applicable Documents

The DPS windowing system is based on Open Software Foundation (OSF)/Motif and the UNIX operating system. The user must be familiar with these disciplines to effectively operate the DPS. Also, knowledge in using the ORACLE database is helpful.

Other documents applicable to the DPS are as follows:

- *Configuration Management Change Control Report Procedure*, December 1989

- *OSF/Motif User's Guide* by Open Software Foundation

- *OSF/Motif Style Guide* by Open Software Foundation

- *Data Processing System (DPS) Database Administrator Guide* (to be released)

- *Telemetry Processing Division (TPD) Standards and Policies,* Revision B

- *X Window System User's Guide* by Valerie Quercia and Tim O'Reilly

# Section 2.  System Overview

## 2.1  Introduction

This section provides an overview of DPS from an operational perspective. It introduces the operational environment of DPS, the products and services that the system offers to mission users, and the productivity-enhancing automation and usability features that the system provides to DPS operations. It identifies the subsystems and connectivity within DPS and describes the system processing flow from receipt of data from external input interfaces through DPS internal subsystems to external output interfaces.

## 2.2  Operational Environment

DPS is a second-generation data capture and level-zero processing (LZP) system developed to support missions conforming to the Consultative Committee for Space Data Systems (CCSDS) packet telemetry standard. DPS is configured to support the TRACE mission. Although the practice is not encouraged because of extra development cost, DPS can be customized to support other non-CCSDS missions.

### 2.2.1  Interfacing

The DPS, interfacing with other support facilities within the TRACE ground system, provides packet reassembly and LZP support for the mission. Figure 2–1 is a functional diagram of the DPS operational environment.

### 2.2.2  Products and Services to Missions

The DPS provides data capture, quicklook, and routine production products to mission-user facilities.

#### 2.2.2.1  Data Capture Service

The data capture service receives and stores spacecraft real-time and onboard recorder dump data transmitted over the Internet from the ground station. DPS stores the telemetry data for 3 days (database configurable) for use in generating output products for the mission.

#### 2.2.2.2  Quicklook Product

The DPS generates quicklook product data from all or part of the data received during a single acquisition. Data is sorted, ordered, and grouped into files with optional quality and accounting (Q&A) information according to mission-requested product data format and schedule requirements. The quicklook product response time from receipt of the last data associated with an acquisition to notification to the user that the product files are available is 2 hours. Up to 20 percent of a mission's daily data volume can be forwarded as a quicklook product.

#### 2.2.2.3  Routine Production Product

The DPS generates routine production product data from multiple acquisitions sessions. The data is sorted, ordered, merged, and grouped into output data sets with redundant data eliminated and
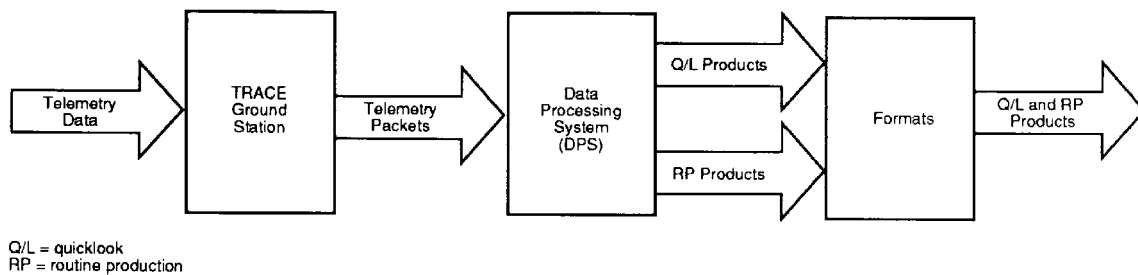
**Figure 2–1. DPS Operational Environment for TRACE**

Q&A information included, all according to mission-requested product specifications. The routine production product response time from receipt of the last data to be included to notification to the user that the product files are available is 24 hours.

### 2.2.3 Automation and Usability Features

The DPS is designed to enhance operational productivity through process automation and an easy-to-use CHI. The following subsections provide specific examples of these improvements.

### 2.2.3.1 Product Specifications—Standing Orders for Product Generation

Quicklook and routine production products in DPS are controlled through product specifications. Product specifications are standing orders to the system for scheduling and generating a product type per a specified format and content. These specifications are stored in the system database. Product scheduling does not require analyst action unless exceptions occur. The analyst at any time can intervene and override automatic product generation through the CHI and generate products manually.

### 2.2.3.2 Automatic Quality Control Processing Checkpoints

A primary concern of analysts is ensuring the quality of the products they deliver to their customers. DPS automatically compares product quality at intermediate processing steps in the generation process to ensure that it meets preestablished minimum quality standards. Whether processing is in automatic or manual mode, if a quality failure is detected, the system will stop further processing of the data and notify the analyst, who must manually intervene to resolve the problem. Quality thresholds are configurable parameters in the system database.

### 2.2.3.3 Automated Resource Cleanup

The DPS relieves the analyst of the burden of manually releasing resources used for storing acquisition data and generating product data. A storage release algorithm that takes into account acquisition and product retention periods, product delivery status, and analyst-requested data retention period extensions, monitors and automatically releases qualifying storage for reuse.

### 2.2.3.4 Enhanced Computer-Human Interface

Analysts interact with the system through the DPS CHI, which is a Motif-based graphical user interface designed to improve the usability of the system and thereby increase user productivity. The DPS Main window (see Section 4.4.1) displays messages on exceptions detected within the system.

Using the mouse and pulldown menu options at the top of the Main window, the analyst can bring up processing-specific second-tier windows or issue a range of system commands. Certain displayed data objects representing system resources, products, or processing transactions are selectable. Clicking the mouse on these objects brings up a selection menu unique to the object that allows the analyst to view or edit more detailed information about the object or to issue a command such as delete or terminate the object. To reduce errors caused by invalid data entry, CHI screens are designed such that users select field entries from a menu of only-valid values that are consistent with all other field entries in the window dialog.

## 2.3  System Interfaces

The DPS interfaces with the TRACE ground stations, the TRACE Integrated Test and Operations System (ITOS), the principal investigators (PIs), and the Flight Operations Team (FOT) in providing overall mission support.

Figure 2–2 is a diagram of DPS interfaces.

### 2.3.1  TRACE Ground Station Interface

The TRACE Ground Station sends virtual channel (VC)0 frames via socket to the DPS frame sorter. The frame sorter extracts the packets from the frames and forwards the packets to the PEI task.

The TRACE Ground Station uses File Transfer Protocol (FTP) to send the VC1 and VC2 frames to the DPS machine. The DPS frame replay task will periodically poll the DPS FTP directory to look for a completed frame file transfer from the ground station. When each frame file has transferred completely, the frame replay task will send via socket the VC1 and VC2 frame files to the frame sorter task.

### 2.3.2  DPS Product Destination Interface

The DPS sends products to the FOT and PIs. The details of this interface are to be determined (TBD).

## 2.4  System Processing Flow

The subsystems within the DPS and the primary processing data flows are shown in Figure 2–3.

This section gives the analyst an overview of the functional processing that is performed within each DPS online subsystem and identifies the software tasks that perform this processing. The descriptions emphasize the operational interactions between the software and the analyst user. The referenced specific windows involved in these interactions are described in detail in Section 4.

### 2.4.1  DPS Database

The DPS database is shown in Figure 2–3. Direct interaction between the analyst user and the system database is not required in the performance of routine operational tasks and will therefore not be discussed further.
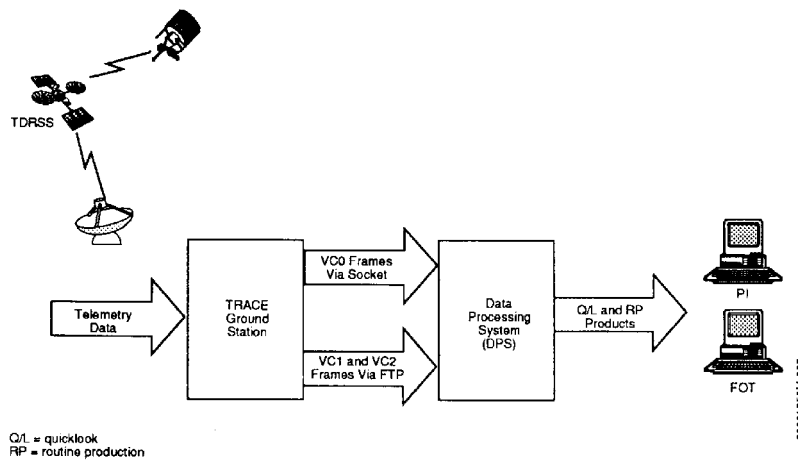
*Figure 2–2. DPS Interfaces*

### 2.4.2  CHI Processing

The CHI is represented in Figure 2–3 as a single processing entity. However, it actually consists of a broad collection of windows software modules that interface with UNIX, Motif, the database, and software tasks within the PEP, PTT, and PDPS to support the required functional interactions between analyst users and the system. CHI processing will not be discussed further because it is more readily understood in conjunction with the subsystem processing that it supports and in the window interactions described in Section 4.

### 2.4.3  Packet Extraction Processing

The packet extraction tasks provide an interface between the Production Data Processor (PDP) capture task and the front-end connection. The PEP task is continuously active from system startup to shutdown. This task's primary job is to start its child tasks: PEI, PER, and the frame sorter. One PEI child task is started for each VC. The PEI task is responsible for setting up a session in the DPS database, reading packets from a mission-specific front-end connection, and forwarding packets to the PDP capture task. After the PEI task reads an end-of-session (EOS) token from the front-end connection, it performs EOS processing (e.g., writes session accounting to the DPS database) and initializes the next session it will process; it then waits indefinitely for the data for the next session.

The PER task periodically queries the FTP directory to determine whether any playback data files are ready to be sent to the frame sorter. If so, the data files are sent over a socket connection. Two frame sorter tasks are started by the PEP: one is responsible for all real-time data (VC0), and the other handles the playback data (VC1 and VC2).

### 2.4.4  PDPS Processing

The PDPS receives telemetry acquisition data annotated with Q&A information, captures the data on disk, and generates quicklook and routine production product data according to predefined product specifications. The PDPS provides utilities that allow the analyst to log acquisition and product data files to tape and restore those files to PDP online storage from tape. The PDPS provides a storage management utility that automatically cleans up disk storage by releasing capture and product data files that are no longer needed.

Figure 2–4 diagrams PDPS software components and processing flow.
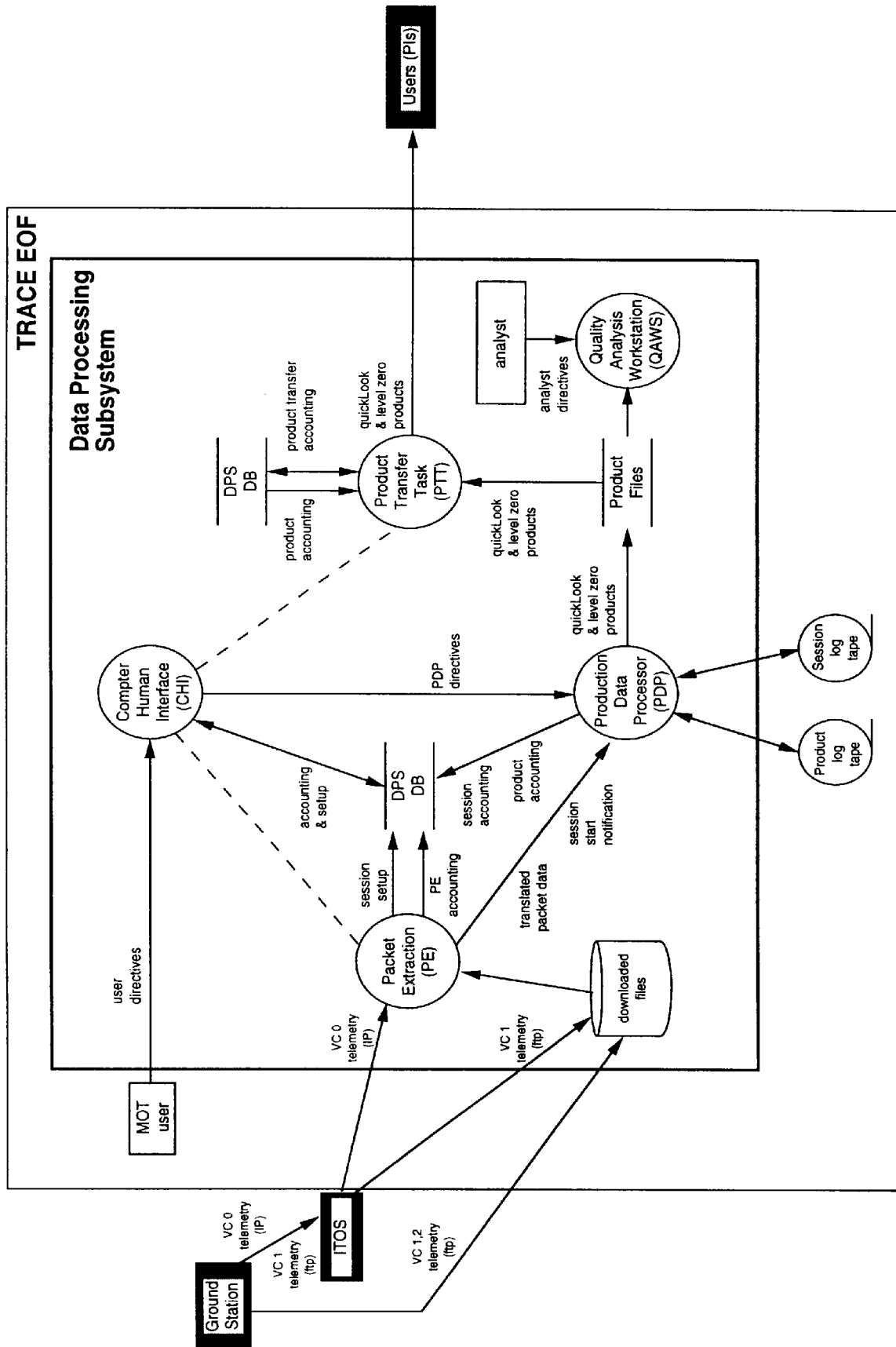
*Figure 2–3. DPS Processing Flow*

*Figure 2–4. PDPS Software Tasks and Processing Flow*

The following subsections discuss each primary processing function performed by the PDPS.

## 2.4.4.1  Acquisition Data Capture

The acquisition data capture function is performed by the Capture Acquisition Session (CAS) and Capture Session Data (CSD) tasks. CAS is the capture control task and is continuously active from system startup to shutdown. CAS waits for a socket-connection request from the PEI task signaling the start of an acquisition data flow. CAS responds to a connection request by creating a child CSD process to actually read the socket and process the data. CAS creates a separate CSD child process for every unique front-end connection request it receives.

Capture processing is controlled by setup parameters obtained from the PICS database. The mux-mode parameter specifies whether demultiplexing of the acquisition stream should be done in the CSD task during capture or deferred to the preprocessing phase. The parameter can be set to

- No demux—CSD does not demultiplex data units in the acquisition stream, but writes entire socket input buffers to a single capture file (default).

- Demux by APID—CSD parses the acquisition stream writing data units to files unique to each applications process identifier (APID).

- Demux by VCID—CSD parses the acquisition stream writing data units to files unique to each virtual channel identifier (VCID).

Demultiplexing in the CSD task has the advantage of completing the demultiplexing operation during the acquisition phase, thereby getting a headstart on product generation. The disadvantage is that the processing associated with demultiplexing during capture limits the maximum input rate that the PDP can support. This parameter is configured by engineering and database administration personnel based on the anticipated mission data rates and should remain static during operations.

The PDP-mode parameter in acquisition setup information specifies whether PDPS should automatically initiate preprocessing of acquisition data following capture or stop and await analyst directive from the CHI to initiate preprocessing. This parameter is also configured by engineering and database administration personnel and should remain relatively static through operations.

When acquisition data begins to flow from the front-end channel, CSD processes the socket input buffers per the mux-mode parameter setting. Data is written to the PDP capture partition on disk. Capture continues until the PEI task sends an EOS token, which results in CSD closing the socket connection, closing capture file(s), writing a final Q&A summary to the PICS database, and terminating.

## 2.4.4.2  Preprocessing

The preprocessing function of the PDPS demultiplexes captured data, depending on the mux-mode parameter setting, sorts the data, and forward-orders it by time. The data units are not physically sorted; a logical hash index entry for each data unit is created and stored in the preprocessing partition on disk. The PDP database is used to hold accounting information related to hash entries.

Preprocessing is controlled by the Preprocess Acquisition Session (PAS) task, which creates a child Preprocess Acquisition (PPA) task to preprocess a single acquisition session. Preprocessing of a session is initiated automatically by PDPS at the completion of session capture if the PDP-mode

parameter for the mission is set to "full product generation." Otherwise, preprocessing must be initiated manually by the analyst from a CHI window.

During preprocessing, PPA writes Q&A summaries to the PICS database. Some of this information can be viewed on the Acquisition Session Monitor window.

When all the data have been preprocessed, PDPS evaluates the session in terms of quality (percentage of errors) and completeness (percent missing data). The analyst is notified if the session fails these minimum Q&A thresholds and must intervene to correct the problem. The minimum Q&A percentage thresholds are configured in the PICS database by engineering and database administration personnel and should remain static throughout operations.

### 2.4.4.3  Product Generation Processing

Product generation processing involves building quicklook and routine production products from captured telemetry based on product specifications contained in the database.

The PDPS Create Group Product Server (CGS) and Create Group Product (CGP) tasks perform product generation. CGS is the product generation scheduling task. When preprocessing of a session is complete, CGS examines all defined product specifications associated with the mission to determine whether the recently completed session satisfies the input data requirements for generation of any of these products. For each specification found, CGS checks the creation mode of the product to determine whether it should initiate generation automatically or wait for a generation directive from the analyst at the CHI.

When generation is initiated, PDPS checks the product specification to determine if any quality threshold-checking-options were selected for the product. The quality thresholds include percent of missing data units in the product (i.e., gaps) and percent of good (non-error) data units in the product. If either of these quality-check options are in effect, PDPS calculates the associated quality of the product data against the preset threshold in the database. If the product fails the quality check, the analyst is notified and must intervene to resolve the problem. If the product meets the quality thresholds, CGS creates the CGP for CCSDS child task to generate the product.

CGP builds quicklook or routine production product files per the form and content described in the product specification. The product consists of one or more data set files. Each data set contains data associated with a VCID or APID or multiple APIDs, as indicated in the product specification. Each data set file has a detached standard format data unit (DSFDU) file describing the associated data set. A Data Availability Notice (DAN) is built describing the contents of the product, including filenames. The DAN is written to a file, and its filename is inserted in the PICS database along with a status indicating that the product is ready for transfer to DDF.

CGP terminates after building the product. The PTT task is responsible for transferring the product to an external destination (e.g., Formats).

### 2.4.4.4  Storage Cleanup Processing

The resource monitor task in the PDPS provides for the automatic deletion of captured acquisition data files, hash data, and product files based on retention periods, product delivery status, and file hold overrides imposed by the analyst. Captured acquisition data files, hash data, and product files are normally retained for 3 days. The analyst can override automatic deletion by setting the hold flag for captured sessions and products through the PDP Data Maintenance window.

### 2.4.4.5  Tape Log/Restore

The PDPS Tape (TAP) task supports analyst requests to log acquisition session data files and product data files to 8mm tape cartridge and to restore these files to online disk.

### 2.4.5  PTT Processing

The PTT is continuously active from system startup to shutdown and sends PDP quicklook and routine products to destinations via FTP. The PTT will poll the database every 15 minutes (database configurable) and identify what products are available to be sent to the remote destination. When creating the product specification, the analyst selects whether a product is to be automatically transmitted after creation or manually transmitted once the analyst enters a transmission directive via the CHI after product creation.

# Section 3.  Getting Started: An Introduction to DPS

## 3.1  Login to the System

The system administrator will assign a UNIX user ID and password for each user. Each user ID will map to a CHI security access level (see Paragraph 3.5 for details on security and access rights).

## 3.2  Setting Up the UNIX Environment

Each user should have a .cshrc file in his/her home directory. The .cshrc file should "source" a file called .dps_user_env. These files set up the UNIX environment when the user logs in. Section 3.4 provides examples of these files. The system administrator should provide the .cshrc file for each user and ensure that the environment variables in these files are set to the proper values.

## 3.3  Setting Up the Database Environment

The DPS intersubsystem communication and CHI is performed through the centralized ORACLE relational database. On initial startup of operations, all database tables are properly populated. This population process is performed by the designated database administrator (DBA) before the first day of DPS operations. The description of these tables and how they should be set up are described in the *DPS Database Administrator Guide* [to be released (TBR)]. Environment variables pertaining to the database environment are set by the .cshrc and .dps_user_env files when a user logs in to the system. Section 3.4 provides examples of these files.

## 3.4  Setting Up the Motif Window Environment

Before the first day of operations, the system administrator sets up the various analysts' terminal environments. This process is also performed when changes are requested to the terminal environment subsequent to the start of DPS operations. When setting up a DPS terminal, the following files should be examined and modified, if necessary, according to the analysts' preferences:

- .cshrc

- .dps_user_env

- .login

These files should reside in the user's home directory, except for the .dps_user_env file, which should reside in the $PICSHOME directory. An example of how to check for these files is shown below.

```
% ls .??*
.login          .cshrc
```

### 3.4.1 .cshrc File

The following is an example of a .cshrc file:

```
setenv PACOR2HOME /export/home/ittest/dps
setenv PICSHOME $PACOR2HOME/pics

source $PICSHOME/.dps_user_env
setenv PATH .:$HOME/bin:$PATH

# Set up C shell environment:

set history=40           # previous commands to remember.
set savehist=40          # number to save across sessions.
set system=`hostname`    # name of this system.
set prompt = "[$system]{`whoami`}\!=>: "     # command prompt.
set cdpath = (.. ~ ~/bin ~/src )
alias hi history
alias rm 'rm -I'
alias cd 'cd \!*;set prompt="`hostname`:`whoami`[$cwd]\!=> "'

stty erase ^H
stty intr "^C"
#QED
```

### 3.4.2 .dps_user_env File

The following is an example of a .dps_user_env file:

```
# Initialize System environment if not set
if ($?FRAMESORTERHOME ==0) then
setenv FRAMESORTERHOME $PACOR2HOME/frmsort
endif

setenv MANPATH /usr/share/catman:usr/share/man:/usr/catman:/usr/man
setenv MANPATH /usr/bin/man:/usr/local/Xncd3.2BQ/man:/opt/man:$MANPATH
s    e    t    e    n    v         P    A    T    H
/usr/sbin:/usr/bsd:/sbin:/usr/bin:/bin:/usr/bin/X11:usr/local
  /bin:/usr/etc:$PATH

#add Purify stuff
setenv PURIFYHOME /usr/purify
setenv PATH $PURIFYHOME/:$PATH
setenv MANPATH $PURIFYHOME/man:$MANPATH
```

.dps_user_env file (Cont'd)

```
# add Motif stuff
setenv MOTIFHOME /usr/lib
```

```
setenv PATH /usr/bin/X11/makedepend:$PATH
#setenv PATH /usr/local/X11/R5/bin:$PATH
setenv MANPATH $MOTIFHOME/man:$MANPATH
setenv LD_LIBRARY_PATH $MOTIFHOME/lib


# add X11R5 stuff
setenv X11R5HOME /usr/lib/X11

# add ORACLE stuff
setenv ORACLE_HOME /usr/oracle/product/7.2.2
setenv ORACLE_SID DPSDB72
setenv SQLPATH $HOME                # location of login.sql file


setenv PATH $ORACLE_HOME/bin:$PATH
setenv LD_LIBRARY_PATH $ORACLE_HOME/lib:$LD_LIBRARY_PATH
setenv LOGNAME oracle
setenv MANPATH $ORACLE_HOME/sqlplus/man:$ORACLE_HOME/report/man:$MANPATH
setenv MENU5PATH $ORACLE_HOME/forms30/admin/resource
setenv ORATERMPATH $ORACLE_HOME/forms30/admin/resource
setenv TK2DEV vt100


#add ORACLE initial login environment variable
setenv INITIALORACLELOGIN $PICSHOME/passwordfile


# add license file for licensed software


# add DPS man pages
setenv MANPATH $PACOR2HOME/man/catman:$MANPATH


# add PICS stuff
setenv PATH $PICSHOME/bin:$PATH
setenv UIDPATH ./%U:$PICSHOME/bin/%U


# add paths for executables
setenv PEP_PATH $PACOR2HOME/pdp/pepLib
setenv PSC_PATH $PACOR2HOME/pdp/pscLib
setenv PTT_PATH $PACOR2HOME/pdp/pttLib
```

.dps_user_env file (Cont'd)

```
# Add frame_sorter to shared library path
setenv LD_LIBRARY_PATH ${FRAMESORTERHOME}:$LD_LIBRARY_PATH

# set up X search paths
setenv XAPPLRESDIR $HOME/app-defaults
setenv XFILESEARCHPATH$PICSHOME/%T/%N%C%S:$X11R5HOME/lib/%L/%T/%N%C%S:
  $X11R5HOME/lib/%l/%T/%N%C%S:$X11R5HOME/lib/%T/%N%C%S:$X11R5HOME/lib
```

```
  /%L/%T/%N%S:$X11R5HOME/lib/%l/%T/%N%S:$X11R5HOME/lib/%T/%N%S

# add command for Print Window button in DPS Main window
setenv DPSMAINPRWIN "xwd -frame|xpr -compact -device ps|rsh astro lpr"

# add X environment for resource files in PICSHOME directory.
setenv XENVIRONMENT $PICSHOME/app-defaults/DPS

# add colors for ACQ Session Monitor window
setenv ASM_COLOR_PENDING      LemonChiffon
setenv ASM_COLOR_ACTIVE       Salmon
setenv ASM_COLOR_TERMINATED   SeaGreen1
setenv ASM_COLOR_CANCELLED    CornflowerBlue
#QED
```

### 3.4.3  .login File

The following is an example of a .login file with some of the more commonly used preferences set.

```
# @(#) $Revision: 64.2 $


# Default user .login file ( /bin/csh initialization )

#set up the terminal
eval 'tset -s -Q -m ':?vt100''
stty erase "^H"
stty kill "^U"
stty intr "^C"
stty eof "^D" susp "^Z" hupcl ixon ixoff tostop
tabs

# Set up shell environment:
set noclobber
set history=40
set filec
```

## 3.5  Setting Up Security and Access Rights

When a user brings up a window, the user ID and the terminal ID determine a user's access rights. The existing access levels are no access, POCC user access, read-only access, and read/write access. If the user has *no access*, he/she will not be able to bring up any of the windows. If the user is a Payload Operations Control Center (POCC) user, only certain windows will be accessible for viewing. Users with *read-only access* may view all windows, but are not allowed to modify or control system functions. Users with *read/write access* rights will have access to the full functionality of the CHI windows. A users's access rights is configurable through the database by the DBA.

The following description shows how the user's access level is determined from the database.

- Each user ID maps to a user category (obtained from the database table db_userlevel):
  - 0 – DBA
  - 1 – POCC user
  - 2 – Junior analyst
  - 3 – Senior analyst
- Each terminal ID maps to a terminal location (obtained from database table db_terminallocation):
  - 0 – Inside the DPS operations work area
  - 1 – Outside the DPS operations work area
- Each category and terminal location map to a user access level (obtained from the database table db_useraccesslevel):
  - 1 – POCC user access
  - 2 – Read-only access
  - 3 – Read/write access

Using the terminal location and the user category, the following access levels are derived:

| User Category | Location | Access Level |
|---|---|---|
| POCC | Inside | POCC user access |
| POCC | Outside | POCC user access |
| Jr. Analyst | Inside | Read only |
| Jr. Analyst | Outside | Read only |
| Sr. Analyst | Inside | Read/write |
| Sr. Analyst | Outside | Read only |

Refer to the DPS *Database Administrator Guide* (TBR) for further information on security and access rights.

## 3.6  Bringing Up the CHI

Before bringing up the CHI, the Motif window environment must be set up correctly and the DISPLAY variable set to the target terminal (see Section 3.4).

All of the CHI windows can be started from the DPS Main window or the lower level windows.

If the PATH environment for the PICS executables is set up correctly in the .dps_user_env file (see Section 3.4.3), the CHI can be started from any directory.

To bring up the main window in the background, enter

```
% dps_main &
```

Refer to the CHI navigational system (Section 4.1) and the descriptions of the CHI windows (Section 4.4) to determine how to start the windows from the DPS Main and lower level windows.

## 3.7  Starting and Terminating Tasks

This section describes methods for starting and terminating DPS tasks from the UNIX prompt. The DPS Resource Monitor window is used for normal operations.

### 3.7.1  Packet Extraction Tasks

The PEP runs 24 hours a day and initiates multiple versions of the PEI as specified in the database. The PEP also initiates two frame sorter tasks: one for real-time data and the other for playback data. In addition, it starts a PER task to replay playback data to the frame sorter task.

If the PATH environment variable is set up correctly in the .dps_user_env file (see Section 3.4.2), PEP can be brought up from the UNIX prompt from any directory by entering the following:

```
% PEP &
```

The PEP children—PEI, PER, and the frame sorter—should not be brought up from the command line; they are forked by PEP.

The following example shows how to determine whether a task is running:

```
% ps –fe | grep PEP
```

or

```
% ps –fe | grep PEI
```

or

```
% ps –fe | grep frame_sorter
```

An example of the result may be as follows:

```
userid 492  440 0 Mar 6 ?    0:12 PEP
```

These processes can be listed in any order. If no results are found for any of the processes, the DPS Main window may be viewed to determine whether any alarms were generated by the online processes. If no alarms are found, a file called PacorIIError.log will be in the directory from which the processes were brought up. This file will contain any alarms that could not be written to the database event log.

To shut down PEP, the same ps command may be run as illustrated previously. The second item displayed in the result (492) is the process ID. To shut down PEP, the following can be typed at the UNIX prompt.

```
% kill 492
```

Under normal circumstances, if PEP is shut down, all running PEI, PER, and frame sorter tasks will automatically shut down. If this does not happen, the remaining PEI, PER, or frame sorter tasks can also be shut down using the kill command.

### 3.7.2  Product Transfer Task

PTT, the only product transfer task, normally runs 24 hours a day. If the PATH environment variable is set up correctly in the .dps_user_file (see Section 3.4.2), PTT can be brought up from the UNIX prompt from any directory by using the following command:

```
% PTT &
```

The following example shows how to determine whether PTT is running:

```
% ps -fe | grep PTT
```

An example of the result may be as follows:

```
userid 492  440 0 Mar 6 ?    0:12 PTT
```

These processes can be listed in any order. If no results are found for any of the processes, the DPS Main window may be viewed to determine whether any alarms were generated by the online processes. If no alarms are found, a file called PacorIIError.log will be in the directory from which the processes were brought up. This file will contain any alarms that could not be written to the database event log.

To shut down PTT, the same ps command may be run as illustrated above. The second item displayed in the result (492) is the process ID. To shut down PTT, the following can be typed at the UNIX prompt.

```
% kill 492
```

### 3.7.3  Production Data Processor Subsystem

Five PDPS application tasks run 24 hours per day. These five tasks, known as process group leaders are as follows:

- PDP Software Control (PSC)
- Resource Monitor (RM)
- CAS
- PAS
- CGS

In addition to these five process group leaders, four child tasks are spawned. These child tasks do not run 24 hours per day, but start when needed and terminate when complete.

- CAS spawns CSD to capture a session
- PSC spawns the TAP task to create/recover from a tar tape and relocate sessions
- PAS spawns the Preprocess Acquisition (PPA) task to preprocess session data.
- CGS spawns the CGP task to create a grouped product.

If the UNIX environment described in Section 3.2 is set up, the process group leaders can be brought up from any directory on the current PDPS host machine. Bringing up the PSC task will result in the start of all five process group leaders. Use the following command to do this:

```
% PSC &
```

The following example shows how to determine which online processes are running on the PDPS machine for a specific userid:

```
% ps -aux | grep <userid>
```

or

```
% /usr/bin/ps fe | grep <userid>
```

An example of the result might be

```
userid 294 37 618 378 pts/12 S 14:17:19 0:00 ../casLib/CAS
userid 291 32 592 262 pts/12 S 14:17:19 0:00 ../cgsLib/CGS
userid 292 28 601 331 pts/12 S 14:17:19 0:00 ../rmLib/RM
userid 290 35 588 391 pts/12 S 14:17:17 0.00 PSC
userid 293 22 612 297 pts/12 S 14:17:19 0.00 ../pasLib/PAS
```

These processes can be listed in any order. If no results are found for any of the processes, the DPS Main window may be viewed to determine whether any alarms were generated by the online processes. If no alarms are found, a file called PacorIIError.log will be in the directory from which the processes were brought up. This file will contain any alarms that could not be written to the database event log.

To shut down an online process, run the same ps command as illustrated previously. The second item displayed in the result is the process ID. To shut down CAS, for example, type the following at the UNIX prompt:

```
% kill 294
```

The ps command invoked again should no longer show CAS as a process.

The online processes can be shut down in any order, but if the PSC task is shut down, then all other PDPS tasks are also shut down.

# Section 4.  Computer-Human Interface

## 4.1  CHI Navigation System

The CHI navigation system, illustrated in Figure 4–1, shows the DPS Main window at the root of the navigation system. From this window, the user may directly or indirectly access all other windows.
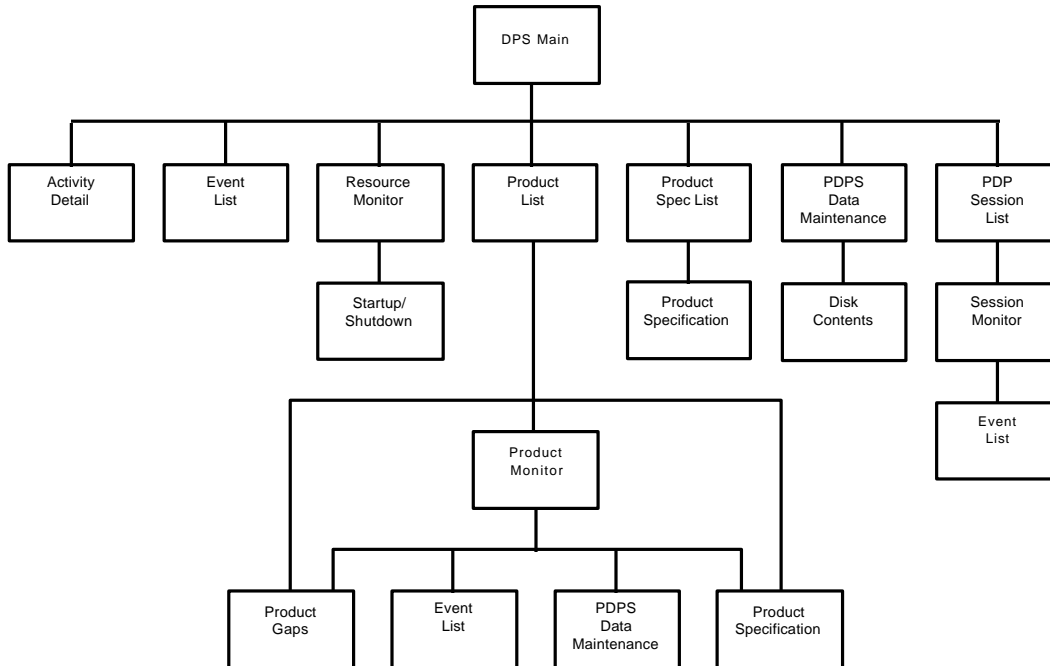


*Figure 4–1.  CHI Navigation System*

## 4.2  How To Customize the CHI Interface

Users can customize the CHI interface by creating a DPS file in their home directories. This file will contain resource settings for the DPS windows such as color information and window size information. The following line should be inserted into the analyst's .cshrc file for the customizations to be effective:

```
setenv XENVIRONMENT ~/app-defaults/DPS
```

Appendix A lists the default DPS file. It is recommended that only certain resources be configured by the user; the remaining items should remain as the default. The items in the user's DPS file will override the default values specified in the DPS file.  Each line in the file sets a specific resource for one or more windows. If the window name is specified, then this resource setting only affects that particular window. The words preceding the colon identify the object(s) in the window(s) to configure (except the word that directly precedes the colon). The word directly preceding the colon identifies the type of resource to configure. The value at the end of the line identifies the value at which to set the resource. For example, the following line specifies the height of the Product List window at 200 pixels. productList is the name of the window, productLists is the name of the list of

products in the Product List window, and height is the resource to set. Every instance of this window will have this resource set to 200.

```
*productList*productLists.height: 200
```

In the following line, the background color of all windows is set to gray. Because an individual window is not specified, all windows are affected unless the background color is overridden later in the file.

```
*background: gray
```

(The *X Window System User's Guide* provides more information on how to configure a window's resources.)

The following examples show how to modify different resources for the CHI windows. To find out which colors are available on the color terminals, users can view the rgb.txt file on their systems. (Consult the system administrator as to where this file is located.)

Example 1: Modify the color of popup and pulldown menus and the background color of each window.

```
*background: blue
*XmMenuShell*background: pink
```

Example 2: Modify the size of the Product List window when invoked.

```
*productList*productLists.width 600
*productList*productLists.height 200
```

The following resources in the DPS file may be configured by the user:

- Background
- IndicatorColor
- Textcolor
- MajorGridColor
- MinorGridColor
- QAWHostName
- Update Interval (This interval should be at least 5 seconds or performance may be affected.)
- ScheduleWindow.width
- ScheduleWindow.height

Appendix A provides a complete listing of the DPS file. Resources not listed previously should not be modified by the user because doing so could cause the window to be inoperable.

## 4.3  Computer-Human Interface—Using the Windows

### 4.3.1  Dialog Boxes

Some CHI windows contain dialog boxes to support the functionality of the window. Dialogs are used to collect more information from the user to perform some action. The dialog boxes contain an

action area at the bottom of the window that allows the analyst to perform some action with the dialog box. Standard action buttons include Close, OK, Cancel, Reset, and Help.

- Close—Closes the dialog. This button is used for read-only dialogs in which no action can be performed.

- OK—Performs the desired action and closes the dialog. In many cases, the OK button is replaced with a more descriptive label that is specific to the windows (i.e., Apply, Save).

- Cancel—Closes the dialog and discards any changes made in the dialog.

- Reset—Allows the user to reset the options shown in the dialog window to the initial contents displayed when the window was opened.

### 4.3.2  Confirmation Boxes

When the analyst performs an action from the CHI window that modifies the database or causes a directive to be sent to a subsystem, a confirmation dialog is first displayed to confirm the action. If the analyst selects OK, the action is performed. If the analyst selects Cancel, the action is not performed.

In some windows, a confirmation is required if an analyst tries to close the window without saving changes.

### 4.3.3  Menu Shortcuts and Ellipses

Many windows contain a menu bar across the top of the window. The menu bar contains several pulldown menus that can be displayed by selecting the desired menu bar item with the mouse. The menu bar items also contain mnemonics that allow the associated pulldown menu to be accessed without using the mouse. The mnemonic for each menu bar item is underlined and is usually the first letter. The mnemonic can be used to access the pulldown menu by holding down the ALT key and pressing the underlined letter. The pulldown menu items also contain mnemonics that can be used by simply pressing the underlined letter.

Some pulldown menu items contain ellipses (...) next to the menu item. These ellipses indicate that another window will be brought up or a dialog window will be displayed to collect more information to complete the action.

### 4.3.4  Common Window Functions

The Product Monitor and Acquisition Session Monitor windows contain optional modules that can be hidden or displayed in the window. These modules conserve space on the screen by hiding less critical information. When the windows are first brought up, a default set of optional modules is displayed. These modules can be hidden or additional modules can be displayed by selecting the toggle button that corresponds to the module in the View menu. When the toggle button is on, the module will be displayed. When the toggle button is off, the module will be hidden.

### 4.3.4.1  All and None Buttons on Lists

Many CHI windows contain All and None buttons next to any lists that may be in the window. This feature is provided as a shortcut in selecting and deselecting items in the corresponding list. When the All button is pressed, all the items will be selected in the list. When the None button is pressed, all the items will be deselected in the list.

### 4.3.5  Popup Menus

Some CHI windows contain selectable objects that will bring up popup menus. These popup menus allow the analyst to perform some action with the selected object. In most cases, the popup menu contains selections for other windows that can be brought up to provide more detail about the selected object, such as bringing up the Acquisition Session Monitor window for a selected session in the Product Monitor window.

### 4.3.6  Filter Windows

Some CHI windows have associated filter windows that allow the analyst to filter on key information in the window. The filter windows are displayed by selecting Filter from the View menu bar item.

The filter windows contain an area for each item being filtered. Common filter items are status and time. When the filter windows are brought up, the current filtering will be shown. Each filter area contains a toggle button that indicates whether filtering is being performed by this item. When the toggle button is enabled, filtering is performed by the corresponding item. When disabled, filtering is not performed by the corresponding item.

The filter windows contain the standard Apply, Cancel, and Reset buttons in the action area of the windows (see Section 4.3.1). When the desired filtering is selected, the Apply button can be used to apply the filtering to the parent window and close the filter window.

### 4.3.7  Printing a Window

The DPS Main window and several other windows have a Print Window button that allows a screen dump to be taken of any window on the display. The screen dump can either be sent to a printer or saved in a designated file. To use this function, the environment variable DPSMAINPRWIN must be set up correctly in the .dps_user_env file.

To send screen dumps to a printer on a designated host machine, set DPSMAINPRWIN as follows:

    setenv DPSMAINPRWIN "xwd | xpr | rsh <host machine> <printer name>"

To save the screen dumps in a designated file, set DPSMAINPRWIN as follows:

    setenv DPSMAINPRWIN "xwd -out <filename>"

Other options for the xwd and xpr commands such as -frame and -scale can also be added. For example, the setenv command in the .dps_user_env file delivered for Release 1.0 is as follows:

```
    setenv DPSMAINPRWIN "xwd –frame|xpr -compact-device ps|rsh astro lpr"
```

Use the man command as follows to obtain a description of the possible options for the xwd and xpr commands:

```
  % man xwd
  % man xpr
```

If these man commands do not work, consult the NMOS system administrator.

To use the print window function, first make sure that the selected window is not obscured by any overlapping windows on the display. Select the Print Window button from the File menu in the window. The cursor will change to a cross. Position the cross over the selected window, then press the mouse button. Leave the cursor in place until the terminal beeps twice.

## 4.4 Windows

### 4.4.1 DPS Main

This window allows the analyst to view the alarms and advisories produced during the operation of the DPS system. The DPS Main window also serves as a gateway to the other CHI windows. The pulldown menus currently allow the analyst to bring up the Activity Detail, Event List, Resource Monitor, Product List, Product Spec List, PDP Data Maintenance, and PDP Session List windows. The DPS Main window also contains a Print Window button to allow the analyst to take a screen dump of any window on the display.

```
┌────────────────────────────────────────────────────────────────────────────────────┐
│ ▭         Data Processing System Main                                      ◢ ▭       │
│  File  Eventlog  Resource  Product  PDP  Miscellaneous                               │
│ ┌──────────────────────────────────────────────────────────────────────────────────┐│
│  User: alanw                                         Current Time: 96 109 13:23:31   │
│                                                                                      │
│  Alarms:                                          ** Unacknowledged Alarms: 51       │
│ ┌───────────────────────────────────────────────────────────────────────────────┬─┐│
│ │** 96 100 13:27:06  PDP Error Notification fot_realtime2 Get session information ORA-01403: no data found │▲││
│ │** 96 100 13:32:24  PDP Error Notification CGP Updating FG Sum ORA-04031: unable to allocate 7 CGP continue to next group │ ││
│ │** 96 100 13:32:24  PDP Error Notification Error in  pcgp_UpdateProdFGSum Error in pcgp_UpdateProdFGSum File group not generated│ ││
│ │   96 100 13:32:28  Product Creation Complete                                    │ ││
│ │** 96 100 13:32:38  Product Creation Complete                                    │ ││
│ │** 96 100 13:36:39  PDP 80 percent disk capacity for mission reached, bytes left 53709, logical disk Product │ ││
│ │** 96 100 15:02:21  Product Creation Start, productspec asc_QL2, Product creation start │ ││
│ │** 96 100 15:02:31  Product Creation Complete                                    │ ││
│ │** 96 100 15:30:16  Product Creation Start, productspec asc_QL2, Product creation start │ ││
│ │** 96 100 15:30:21  Product Creation Complete                                    │ ││
│ │** 96 101 01:36:40  PDP 80 percent disk capacity for mission reached, bytes left 53639, logical disk Product │ ││
│ │** 96 101 01:36:43  Deleting group not sent: RM Delete Product G003 Not sent to DDF │▼││
│ └───────────────────────────────────────────────────────────────────────────────┴─┘│
│  Advisories:                                                                         │
│ ┌──────────────────────────────────────────────────────────────────────────────────┐│
│ │                                                                                    ││
│ │                                                                                    ││
│ │                                                                                    ││
│ └──────────────────────────────────────────────────────────────────────────────────┘│
└────────────────────────────────────────────────────────────────────────────────────┘
```

### 4.4.1.1 Pulldown Menu Option

Pulldown menu options available for each item on the menu are as follows:

| File | Eventlog | Resource | Product | PDP |
|------|----------|----------|---------|-----|
| Print Window | Activity Detail... | Resource Monitor... | Product List... | PDPS Data  Maintenance... |
| Exit DPS Main Window | Event List... | | Product Spec List... | PDP Session List... |
| Exit All DPS Windows | | | | |

Miscellaneous
  QAWS Main...

Detailed pulldown menu descriptions are as follows:

| Menu Item | Option | Description |
|-----------|--------|-------------|
| File | Print Window | Takes a screen dump of a window; see Section 4.3.7 for details on how to use this function. |
| | Exit DPS Main Window | Closes only the DPS Main window. |

| Menu Item | Option | Description |
|---|---|---|
| | Exit All DPS Windows | Closes the DPS Main window and all other CHI windows displayed on the same terminal. |
| Eventlog | Activity Detail | Brings up the Activity Detail window for the selected alarm or advisory. |
| | Event List | Brings up the Event List window. |
| Resource | Resource Monitor | Brings up the Resource Monitor window. |
| | Resource Schedule | Brings up the Resource Schedule window. |
| Product | Product List | Brings up the Product List window. |
| | Product Spec List | Brings up the Product Spec List window |
| PDP | PDPS Data Maintenance | Brings up the PDP Data Maintenance window. |
| | PDP Session List | Brings up the PDP Session List window. |
| Miscellaneous | QAWS Main | Brings up the QAWS Main window. |

NOTE

POCC users will not be able to access many of the windows because of CHI security. The menu options for these windows will be grayed out. Section 3.5 provides details on security and access rights.

### 4.4.1.2  Selectable Items

There are no selectable items.

### 4.4.1.3  Detailed Description

**Window Areas**

This window is divided into three areas:

1. User information—Contains the user ID and current time in Greenwich mean time (GMT).

2. Alarms—Displays the time-tagged messages that are critical to the operation of the DPS system. Unacknowledged alarms are preceded by asterisks and can be acknowledged by double-clicking on the alarm. The number of unacknowledged alarms is displayed in this area and will decrement as alarms are acknowledged.

3. Advisories—Displays time-tagged messages that are informational but not critical. Advisories are not acknowledged.

New alarms and advisories are added at the bottom of each area. There is a display limit of 100 alarms and 100 advisories. When this limit has been reached, the oldest messages will no longer be displayed. The messages reside in the db_eventlog and db_message database tables. The message designation of alarm or advisory can be reconfigured in the database. Appendix B lists the alarms and advisories that might be displayed in the DPS Main window.

**Control Functions**

This window has no control functions.

### 4.4.2  Activity Detail

This window allows the analyst to view and add detailed information about alarms and advisories displayed in the DPS Main window. This window is invoked from the DPS Main window.

```
┌──────────────────────────────────────────────────────────────────────┐
│ ▬                          Activity Detail                      ◦  □  │
├──────────────────────────────────────────────────────────────────────┤
│                                                                        │
│            Log Time:  96 100 13:27:06                                   │
│                                                                        │
│        Message Type:  Alarm (unacknowledged)                           │
│                                                                        │
│            Message:  PDP Error Notification fot_realtime2 Get session   │
│                      information ORA-01403: no data found               │
│                                                                        │
│    Expanded Message:  ~                                                 │
│                      ┌───────────────────────────────────────────┐    │
│      Analyst Notes:  │ I                                          │    │
│                      │                                            │    │
│                      │                                            │    │
│                      │                                            │    │
│                      │                                            │    │
│                      └───────────────────────────────────────────┘    │
│                                                                        │
│          Message ID:  174                                               │
│                                                                        │
│          Session ID:  11                                               │
│                                                                        │
│          Product ID:                                                   │
│                                                                        │
│            Resource:  rtohp1                                            │
│                                                                        │
│                Unit:                                                   │
│                                                                        │
│  ┌──────────┐    ┌──────────┐    ┌──────────┐    ┌──────────┐         │
│  │   Save   │    │  Reset   │    │  Cancel  │    │   Help   │         │
│  └──────────┘    └──────────┘    └──────────┘    └──────────┘         │
└──────────────────────────────────────────────────────────────────────┘
```

### 4.4.2.1  Pulldown Menu Options

There are no pulldown menu options.

### 4.4.2.2  Selectable Items

There are no selectable items.

### 4.4.2.3  Detailed Description

**Window Areas**

This window is divided into 10 areas:

1. Log Time—Time the alarm or advisory was written to the Event Log.
2. Message Type—Alarm or advisory.
3. Message—Message text for the alarm or advisory.
4. Expanded Message—More detailed text message associated with the alarm or advisory.
5. Analyst Notes—Notes about the alarm or advisory entered by an analyst; these notes can be added to or modified if the user has read/write privileges (see Section 3.5).
6. Message ID—Message ID associated with the alarm or advisory.
7. Session ID—Session ID associated with the alarm or advisory.

8. Product ID—Product ID associated with the alarm or advisory.

9. Resource—Resource that created the alarm or advisory.

10. Unit—Unit that created the alarm or advisory.

**Control Functions**

The control function for this window is

Save—When the Save button is enabled and pushed, any change to the Analyst Notes area is written to the database.

### 4.4.3  Event List

This window displays all the alarms, advisories, and notifications for a specific session ID, product ID, or resource/time range. The window can be invoked from the Session Monitor window to display all the messages about the session, or it can be invoked from the Product Monitor Window to display all the messages about the product. It can also be invoked from the DPS Main window, in which case the Event List Filter window is also automatically invoked so that the analyst can select the desired filtering parameters.

```
┌──────────────────────────────────────── Event List ────────────────────────────────┐
│ ▭                                                                            . □     │
│ File  View                                                                    Help   │
│┌───────────────────────────────────────────────────────────────────────────────┐ ▲ │
││97 062 09:15:05  (Resource dptrace1) PEP task error: pep_Main:  PEP child tasks  │   │
││                 terminated PEP terminating                                      │   │
││97 062 09:15:06  (Session 1636) (Resource dptrace1) Session Connection Established Notification│
││97 062 09:15:07  (Session 1635) (Resource dptrace1) Session Connection Established Notification│ ▓ │
││97 062 09:15:07  (Session 1636) (Resource dptrace1) PDP Preprocessing Start: Processing in progress│
││97 062 09:15:07  (Session 1634) (Resource dptrace1) Session Connection Established Notification│
││97 062 09:15:07  (Session 1635) (Resource dptrace1) PDP Preprocessing Start: Processing in progress│
││97 062 09:15:07  (Session 1634) (Resource dptrace1) PDP Preprocessing Start: Processing in progress│
││97 062 09:17:44  (Session 1636) (Resource dptrace1) PDP Telemetry Deletion: Session successfully deleted│
││97 062 09:17:44  (Resource dptrace1) PDP Software Initialization Notification     │   │
││97 062 09:17:44  (Session 1635) (Resource dptrace1) PDP Telemetry Deletion: Session successfully deleted│ ▼ │
│└───────────────────────────────────────────────────────────────────────────────┘   │
│ ◄                                                                              ►     │
└─────────────────────────────────────────────────────────────────────────────────────┘
```

### 4.4.3.1  Pulldown Menu Options

Pulldown menu options available for each item on the menu are as follows:

| File | View |
| --- | --- |
| Refresh | Filter... |
| Print Window | |
| Close | |

Detailed pulldown menu descriptions are as follows:

| Menu Item | Option | Description |
| --- | --- | --- |
| File | Refresh | Redisplays the contents of the window, reflecting any database updates since the window was invoked. |
| | Print Window | Takes a screen dump of a window; see Section 4.3.7   for details on how to use this function. |
| | Close | Closes the window. |
| View | Filter | Brings up the Event List Filter Dialog window. |

### 4.4.3.2  Selectable Items

There are no selectable items.

### 4.4.3.3 Detailed Description

**Window Areas**

This window displays one line of information for each message retrieved from the database.

**Control Functions**

This window has no control functions.

## 4.4.4 Event List Filter

This window allows the analyst to select which messages will be displayed in the Event List window. Messages can be selected either by session ID, product ID, or resource/time range. The window is invoked from the Event List window.

```
┌─────────────────────────────────────────┐
│  Event List Filter (modified)           │
│                                          │
│   ◇ by Session ID:  [              ]    │
│                                          │
│   ◇ by Product ID:  [ 1071         ]    │
│                                          │
│   ◆ by Resource ID / Time:              │
│                                          │
│     Resource ID:    [              ]    │
│                                          │
│     Start Time:  [96 310 00:00:00] ▼ ▲  │
│                                          │
│     Stop Time:   [96 313 00:00:00] ▼ ▲  │
│                                          │
│     Duration:    [03 00:00:00]     ▼ ▲  │
│                                          │
│   [ Apply ]  [ Reset ]  [ Cancel ] [ Help ] │
└─────────────────────────────────────────┘
```

### 4.4.4.1 Selectable Items

There are no selectable items.

### 4.4.4.2 Detailed Description

**Window Areas**

This window is divided into three areas:

1. Session ID selection—A numerical value must be entered.

2. Product ID selection—A numerical value must be entered.

3. Resource ID/time range selection—A resource ID must be entered; the default start time is 2 days in the past, and the default stop time is the end of the current day. The analyst can enter either a start and a stop time or a start time and a duration— the software will calculate and display the stop time.

**Control Functions**

This window has no control functions.

### 4.4.5  Resource Monitor

The Resource Monitor window allows the analyst to view detailed information about the DPS host machine. This information includes disk usage by partition, active network connections, and status of tasks. This window is invoked from the DPS Main window.

```
┌─────────────────────────────────────────────────────────────────────┐
│ ▭                        Resource Monitor                        □ □ │
├─────────────────────────────────────────────────────────────────────┤
│  File   Control                                                      │
├─────────────────────────────────────────────────────────────────────┤
│   Time of Status:    96 109 13:25:51                                 │
│                                                                      │
│  Disk Usage:                                                         │
│  Partition                                     Capacity              │
│  /                                             78%                   │
│  /u02                                          53%                   │
│  /u01                                          67%                   │
│                                                                      │
│  TCP/IP Connections:                                                 │
│  Local Address          Remote Address      Status                  │
│  192.9.204.144.8802      *.*                 LISTEN                   │
│  192.9.204.144.8800      *.*                 LISTEN                   │
│  *.7780                  *.*                 LISTEN                   │
│  *.6000                  *.*                 LISTEN                   │
│  *.5000                  *.*                 LISTEN                   │
│  *.5556                  *.*                 LISTEN                   │
│  *.5555                  *.*                 LISTEN                   │
│  *.7815                  *.*                 LISTEN                   │
│  *.6111                  *.*                 LISTEN                   │
│  *.5696                  *.*                 LISTEN                   │
│                                                                      │
│  Tasks:                                                              │
│  Subsystem   Task Name   Status   Arguments      PID   Start Time CPU T:│
│  PDP         CAS         UP                      13363 Apr 11   0:00  │
│              CAS         UP                      183   Apr 9    0:00  │
│              CGS         UP                      13360 Apr 11   0:01  │
│              CGS         UP                      180   Apr 9    0:01  │
│              PAS         UP                      13362 Apr 11   0:02  │
│              PAS         UP                      182   Apr 9    0:00  │
│              PSC         UP                      13352 Apr 11   0:08  │
│              PSC         UP                      162   Apr 9    0:44  │
└─────────────────────────────────────────────────────────────────────┘
```

### 4.4.5.1  Pulldown Menu Options

Pulldown menu options available for items on the menu are as follows:

File                     Control
 Refresh                  StartUp/ShutDown
 Print Window
 Close

Detailed pulldown menu descriptions are as follows:

| Menu Item | Option | Description |
|-----------|--------|-------------|
| File | Refresh | Refreshes the information in the window. |
| | Print Window | Takes a screen dump of a window; see Section 4.3.7 for details on how to use this function. |
| | Close | Closes the window. |
| Control | StartUp/ShutDown | Brings up the StartUp/ShutDown dialog window. This window is described in a separate section. |

### 4.4.5.2  Selectable Items

There are no selectable items.

### 4.4.5.3  Detailed Description

**Window Areas**

This window is divided into three areas:
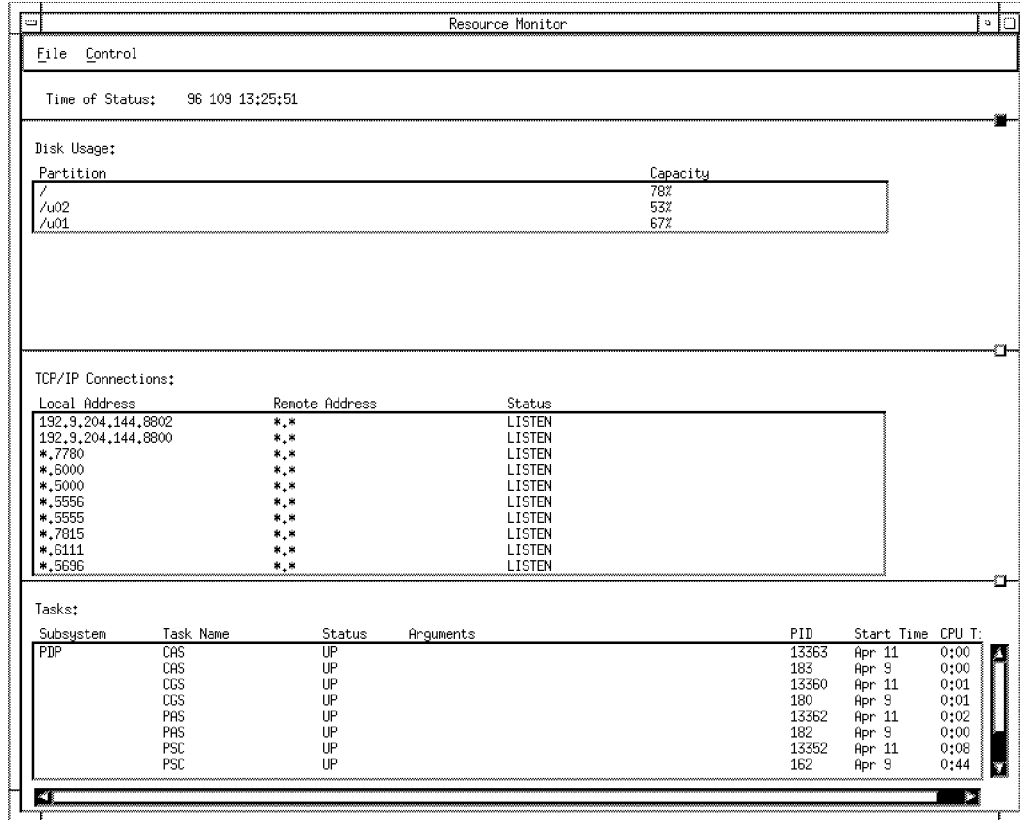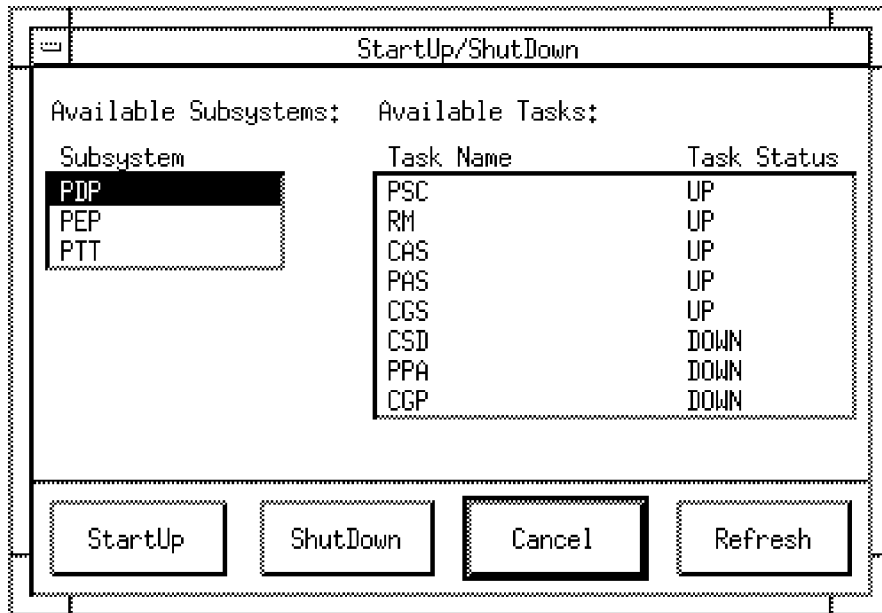
1.  Disk Usage contains the following fields:
    (a)  Partition—Disk partition name on the resource
    (b)  Capacity—Percentage of the partition in use
2.  TCP/IP Connections contains the following fields:
    (a)  Local Address—Address of the connection in the form hostname.portnumber
    (b)  Remote Address—Address of the connection in the form hostname.portnumber
    (c)  Status of the connection that can be one of the following:
        (1)  CLOSED—Closed; socket is not being used
        (2)  LISTEN—Listening for incoming connections
        (3)  SYN_SENT—Actively trying to establish connection
        (4)  SYN_RECEIVED—Initial synchronization of connection under way
        (5)  ESTABLISHED—Connection established
        (6)  CLOSE_WAIT—Remote shutdown; waiting for socket to close
        (7)  FIN_WAIT_1—Socket closed; shutting down connection
        (8)  CLOSING—Closed, then remote shutdown; awaiting acknowledgment
        (9)  LAST_ACK—Remote shutdown, then closed; awaiting acknowledgment
        (10)  FIN_WAIT_2—Socket closed; waiting for shutdown from remote
        (11)  TIME_WAIT—Wait after close for remote shutdown retransmission
3.  Tasks area contains the following fields:
    (a)  Subsystem—Subsystem under which the task is running
    (b)  Task Name—Name of the task
    (c)  Status—Status of the task (UP/DOWN)
    (d)  Arguments—Command line arguments with which the task was invoked
    (e)  PID—Process ID of the task
    (f)  Start Time—System time when the task was started
    (g)  CPU Time—Amount of central processing unit (CPU) time in seconds that the task has used

**Control Functions**

There are no control functions. See the StartUp/ShutDown dialog window for related control functions.

## 4.4.6  StartUp/ShutDown

This window allows the analyst to start up, shut down, or restart the software on the DPS. This can be done for all tasks of a subsystem or by individual task. This window is invoked from the Resource Monitor window.

```
┌─────────────────────────────────────────────────────────────┐
│ ┌──┬──────────────────────────────────────────────────────┐ │
│ │ ─│                  StartUp/ShutDown                     │ │
│ │  └──────────────────────────────────────────────────────┘ │
│ │                                                          │ │
│ │  Available Subsystems:   Available Tasks:                │ │
│ │                                                          │ │
│ │  Subsystem               Task Name       Task Status     │ │
│ │  ┌─────────────────┐     ┌─────────────────────────────┐ │ │
│ │  │ PDP             │     │ PSC             UP          │ │ │
│ │  │ PEP             │     │ RM              UP          │ │ │
│ │  │ PTT             │     │ CAS             UP          │ │ │
│ │  └─────────────────┘     │ PAS             UP          │ │ │
│ │                          │ CGS             UP          │ │ │
│ │                          │ CSD             DOWN        │ │ │
│ │                          │ PPA             DOWN        │ │ │
│ │                          │ CGP             DOWN        │ │ │
│ │                          └─────────────────────────────┘ │ │
│ │                                                          │ │
│ │  ┌──────────┐  ┌──────────┐  ┌──────────┐  ┌──────────┐ │ │
│ │  │ StartUp  │  │ ShutDown │  │ Cancel   │  │ Refresh  │ │ │
│ │  └──────────┘  └──────────┘  └──────────┘  └──────────┘ │ │
│ └──────────────────────────────────────────────────────────┘ │
└─────────────────────────────────────────────────────────────┘
```

## 4.4.6.1  Pulldown Menu Options

There are no pulldown menu options.

## 4.4.6.2  Selectable Items

There are no selectable items.

## 4.4.6.3  Detailed Description

**Window Areas**

This window is divided into two areas:

1. Available Subsystems—Contains all subsystems in the DPS system. A single subsystem can be selected in this module. After a subsystem is selected, the StartUp and ShutDown buttons will be sensitive or grayed out, depending on the current status of the subsystem and the options that are allowed for that subsystem.

2. Available Tasks—Lists associated tasks of the subsystem selected in the Available Subsystems area. The status of each task is also displayed. This status is determined by performing a remote shell to see whether each task of the selected subsystem is present. A single task can be selected in this module. After a task is selected, the StartUp and ShutDown buttons will be sensitive or grayed out, depending on the current status of the task and the options that are allowed for that task.

**Control Functions**

The control functions for this window are as follows:

- Start up a subsystem—When the analyst has selected a subsystem (but not a task), and then selects the StartUp button, the software will be started for the selected subsystem. If the software is already running for that subsystem, and restart is allowed, the analyst will be prompted to restart each running task.

- Start up a task—When the analyst has selected a subsystem and a task, and then selects the StartUp button, the selected task will be started for the selected subsystem. If the task is already running on the subsystem, and restart is allowed, the task will be restarted.

- Shut down a subsystem—When the analyst has selected a subsystem (but not a task) and then selects the ShutDown button, the software for the selected subsystem will be shut down.

- Shut down a task—When the analyst has selected a subsystem and a task, and then selects the ShutDown button, the selected task will be shut down for the selected subsystem.

These functions are only available to users with read/write privileges (see Section 3.5).

## 4.4.7  Acquisition Session Monitor

This window allows the analyst to monitor and control an acquisition session. This window can be invoked from either the PDP Session List or Product Monitor window.



## 4.4.7.1  Pulldown Menu Options

Pulldown menu options available for each item on the menu are as follows:

| File | Session | View |
|------|---------|------|
| Print Window | Event List... | PDP Packet Statistics |
| Close | Start Preprocessing | |
| | Approve Session | |
| | Fail Session | |

Detailed pulldown menu descriptions are as follows:

| Menu Item | Option | Description |
|-----------|--------|-------------|
| File | Print Window | Takes a screen dump of a window; see Section 4.3.7. |
| | Close | Closes the window. |
| Session | Event List | Brings up the Event List window to display all messages pertaining to this session. |
| | Start Prepropcessing | Sends a start preprocessing directive to PDPS for this session. |
| | Approve Session | Approves a session for inclusion into a product. This option is valid only after a session has been terminated. The user must have read/write privileges to select this option. |
| | Fail Session | Fails a session. This option is valid only after a session has been terminated. The user must have read/write privileges to select this option. |
| View | PDP Packet Statistics | Brings up the PDP statistics per VCID/APID pair. |

## 4.4.7.2  Detailed Description

**Window Areas**

This window is divided into two areas:

1. Overview—This area is always visible when an analyst first invokes the window.
2. PDP Packet Statistics—This area allows the analyst to view PDP packet statistics if desired.

**Control Functions**

The control functions for this window areas follows:

- Send a "start preprocessing" directive to the PDPS for this session.

- Approve the session—Allows the analyst to approve a session for inclusion into a product. When the user selects the Approve Session option from the Session menu, the database is updated to indicate this session should be included in a product, and a directive is sent to the PDP(s) to check the evaluation flag for this session.

- Fail the session—Allows the analyst to fail a session. When the user selects the Fail Session option from the Session menu, the database is updated to indicate this session has failed, and a directive is sent to the PDP(s) to check the evaluation flag for this session.

## 4.4.8  PDPS Data Maintenance

The PDPS Data Maintenance window allows the analyst to view and maintain session and product data. This window is invoked from the DPS Main window.
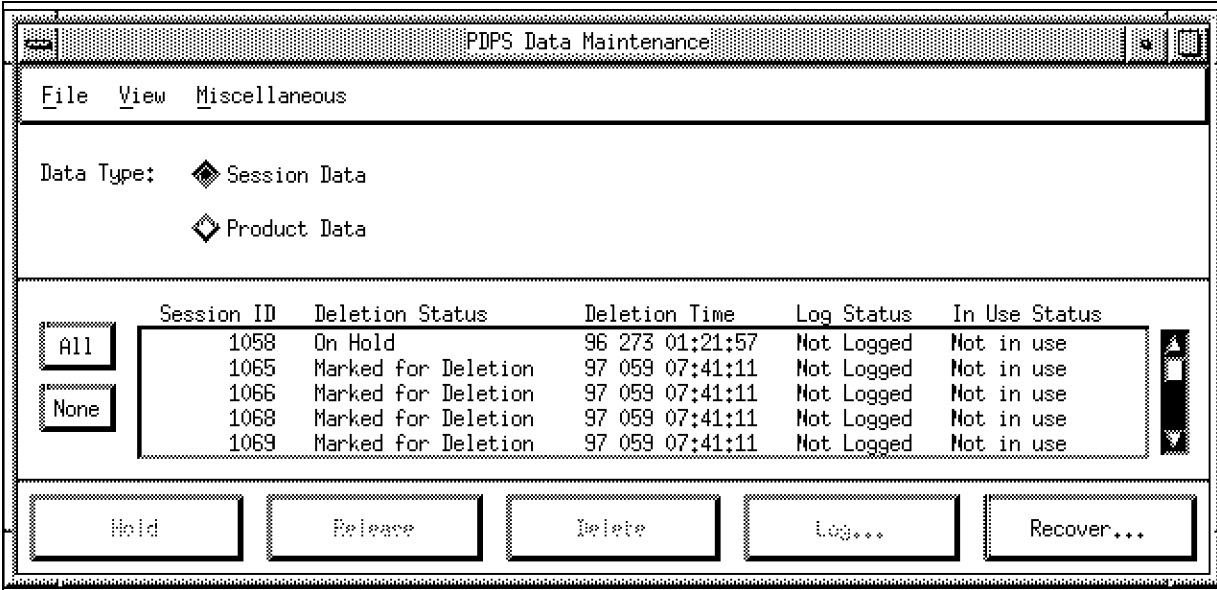


## 4.4.8.1  Pulldown Menu Options

Pulldown menu options available for items on the menu are as follows:

| File | View | Miscellaneous |
|------|------|---------------|
| Refresh | Filter... | Disk Contents... |
| Print Window | | |
| Close | | |

Detailed pulldown menu descriptions are as follows:

| Menu Item | Option | Description |
|-----------|--------|-------------|
| File | Refresh | Refreshes the data list area of the window. |
| | Print Window | Takes a screen dump of a window; see Section 4.3.7. |
| | Close | Closes the window. |
| View | Filter | Brings up the PDPS Data Maintenance Filter Dialog window. |
| Miscellaneous | Disk Contents | Brings up the Disk Contents Dialog window, shown on the following page. When the analyst selects the Contents button, a list of sessions and products on disk is displayed. |

The following illustrations show the PDPS Data Maintenance Filter and the Disk Contents Dialog windows:

```
┌──────────────────────────────────────────┐
│ ┌──┐  PDPS Data Maintenance Filter (modified) │
│ └──┘                                        │
│   ┌────────────────────────────────────┐   │
│   │ ▣ by Deletion Status:              │   │
│   │                                    │   │
│   │    ▣ Active        ▣ On Hold       │   │
│   │                                    │   │
│   │    ▣ Marked for Deletion  ☐ Deleted│   │
│   └────────────────────────────────────┘   │
│   ┌────────────────────────────────────┐   │
│   │ ▣ by Log Status:                   │   │
│   │                         ┌─────────┐│   │
│   │    ▣ Logged             │☐ Not Logged││  │
│   │                         └─────────┘│   │
│   │    ☐ Partially Logged              │   │
│   │                                    │   │
│   └────────────────────────────────────┘   │
│   ┌────────┐  ┌────────┐  ┌────────┐        │
│   │ Apply  │  │ Reset  │  │ Cancel │        │
│   └────────┘  └────────┘  └────────┘        │
└──────────────────────────────────────────┘
```

```
┌────────────────────────────────────────────┐
│ ┌──┐          Disk Contents Dialog          │
│ └──┘                                         │
│            Session ID              Product ID│
│  Sessions: ┌─────────┐  Products: ┌─────────┐│
│            └─────────┘            └─────────┘│
│                                              │
│   ┌──────────────────┐  ┌──────────────────┐ │
│   │    Contents      │  │     Cancel       │ │
│   └──────────────────┘  └──────────────────┘ │
└────────────────────────────────────────────┘
```
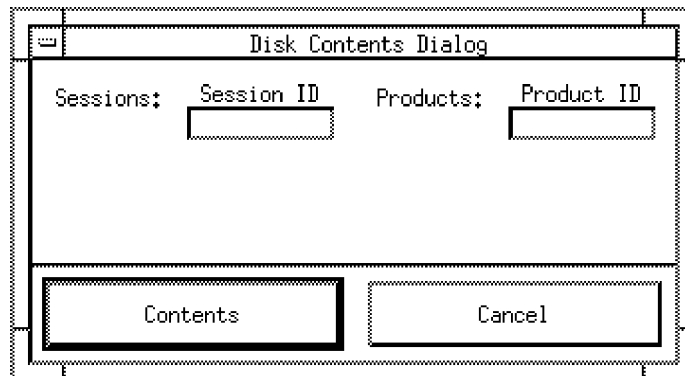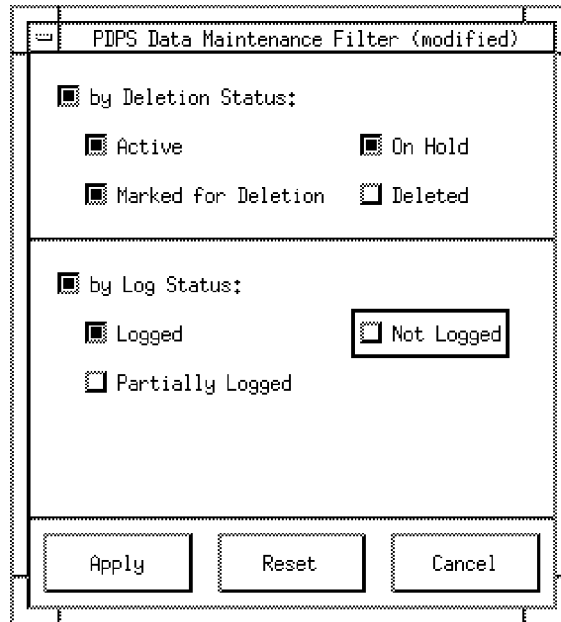
## 4.4.8.2  Selectable Items

There are no selectable items.

## 4.4.8.3  Detailed Description

### Window Areas

This window is divided into two areas:

1. Data Type—Allows the analyst to toggle which type of data to view. Available selections are session data and product data.

2. Data List—Contains a list of sessions or products retrieved from the database based on the data type. The analyst can select one or more data items from the data list. The analyst may

use the All and None buttons next to the data list to select or deselect all of the items in the list. The data list contains the following information:

(a)  Session or product ID.

(b)  Deletion status—On Hold, Marked For Deletion, Deleted, Active, or blank if the data item has no deletion status.

(c)  Deletion time—Estimated deletion time if Deletion Status is Marked For Deletion, or actual deletion time if Deletion Status is Deleted.

(d)  Log status—Logged, Partial, or blank.

(e)  In use status—In use by CAS, In use by PAS, In use by RM, In use by TAP, Not in use.

Sessions and products are monitored at a configured interval by the PDPS for deletion. When the configured retention time for a session has expired, it will be marked for deletion by PDPS. After a product has been delivered or when the configured extended retention time has expired, it will be marked for deletion. At the next monitor interval, the marked sessions and products will be deleted. If a session or product has been placed on hold, it will not be deleted.

**Control Functions**

The control functions for this window are as follows:

• Hold—Allows the analyst to hold selected data from deletion. Holding data will require confirmation from the analyst. As long as the data is on hold, it will never be deleted by the PDPS.

• Release—Allows the analyst to remove the hold on selected data. Releasing a hold will require confirmation from the analyst. The hold on the data will be removed from the database and the deletion status and deletion time will be cleared. Once the hold is released from the data, it will be monitored by the PDPS as normal for automatic deletion.

• Delete—Allows the analyst to manually delete selected data on a PDP. Deleting data will require confirmation from the analyst. A directive will be sent to the PDP to delete the data.

• Log—Allows the analyst to log selected data on a single PDP to a device. A log dialog will be displayed to prompt the analyst for the device on the PDP, as illustrated in the following figure. The available devices will be read from the database.
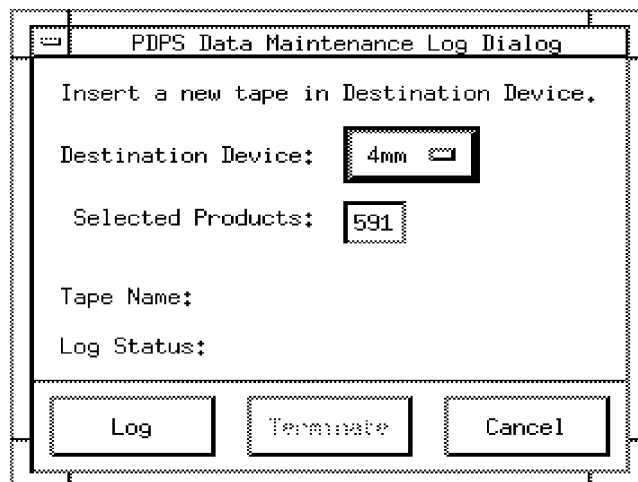
The analyst also has the option to specify the session connections to be logged from the log dialog if more than one connection is associated with the session. These connections can either be specified and logged separately, or, if none are specified, all session connections for the session are logged.

A directive will be sent to the PDP to log the selected data to the device chosen. The dialog will remain open and display the status of the logging. A unique tape name will be generated and displayed in the dialog window. The tape name will consist of the following:

– Mission abbreviation

– Data being logged (P = product, S = session, SC = session connection)

– Actual session start time/product generation start time (sessions/products)

– Actual session stop time/product generation stop time (sessions/products)

– Unique log identifier

The analyst may terminate the logging at any time by selecting Terminate from the log dialog action area. If the log dialog window is closed before logging is complete, logging will continue, but will not be able to be terminated.

The logging of data will be done in tar-relative format and will start from the beginning of the tape. Any data already on the tape will be lost. Because logging will be performed to a single tape, only the amount of data that can fit on the tape will be logged. If any data cannot be logged for this reason, an alarm will appear in the DPS Main window.

• Recover—Allows the analyst to recover data from a device to disk. No sessions or products need to be selected from the data list to perform a recovery. A recover dialog will be displayed to prompt the analyst for the device and the desired sessions or products, as illustrated in the following figure. The available devices will be read from the database and displayed in option menus. The analyst may view the tape contents of the selected device by selecting Contents next to the Device option menu. A directive will be sent to the PDP to generate a list of files on the tape. The list will then be displayed to the analyst.
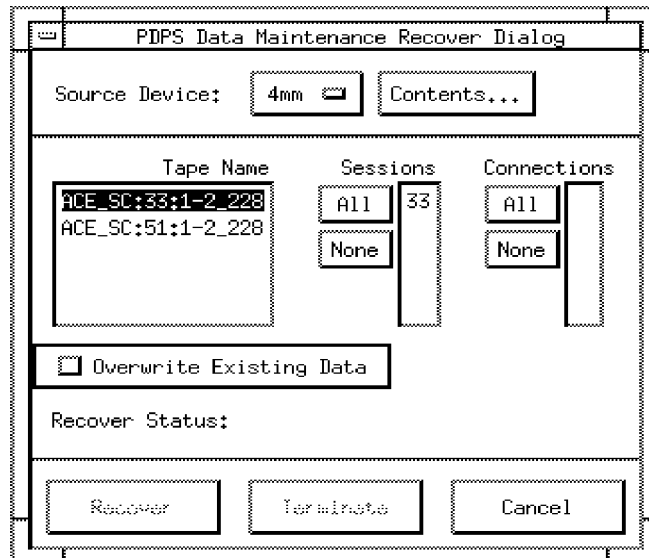
The recover dialog will also display a list of all the tape names retrieved from the database for all the logged session or products. By selecting a tape name, another list will display all the sessions or products on the tape. For the selected session, a list will also show the available session connections for the session.

To overwrite existing data, the analyst may toggle on Overwrite Existing Data in the recover dialog. With this action, the PDP overwrites data that may already exist for a session or product being recovered. By default, data is not overwritten.

After making the desired selections, the analyst can then select Recover to recover the data or Cancel to cancel the operation and close the recover dialog. If the analyst selects Recover, the PDP receives a directive to recover the selected data from the device. The recover dialog will remain open and display the status of the recovery. The analyst may terminate the recovery at any time by selecting Terminate from the recover dialog action area. Any data that was recovered before termination of the recovery activity will remain on disk.

## 4.4.9 PDP Session List

This window allows the analyst to view information about PDP sessions stored in the database and to send directives to the PDPS to terminate capture, start preprocessing, or terminate preprocessing for selected sessions. The analyst may also obtain more detailed information about an individual session by bringing up the Session Monitor window for the selected session. This window is invoked from the DPS Main window.

```
┌─────────────────────────────────────────────────────────┐
│ ┌─┬───────────────────────────────────────────────┬─┬─┐ │
│ │�â│                PDP Session List               │▢│□│ │
│ │                                                       │ │
│ │  File   View   Session                                │ │
│ │                                                       │ │
│ │  Session    PDP Capture   Last Data Capture  Preprocessing │
│ │  ID         State         Receipt Time       State    │ │
│ │  ┌──────────────────────────────────────────────┬─┐ │ │
│ │  │1         Complete      96 071 14:23:04  Complete│▲│ │ │
│ │  │2         Complete      96 071 14:26:52  Complete│ │ │ │
│ │  │3         Complete      96 071 14:30:16  Complete│ │ │ │
│ │  │4         Complete      96 071 14:33:57  Complete│ │ │ │
│ │  │5         Complete      96 071 14:37:29  Complete│ │ │ │
│ │  │6         Complete      96 071 14:41:10  Complete│ │ │ │
│ │  │7         Complete      96 071 14:44:37  Complete│█│ │ │
│ │  │8         Complete      96 071 14:48:23  Complete│▼│ │ │
│ │  └──────────────────────────────────────────────┴─┘ │ │
│ └─────────────────────────────────────────────────────┘ │
└─────────────────────────────────────────────────────────┘
```
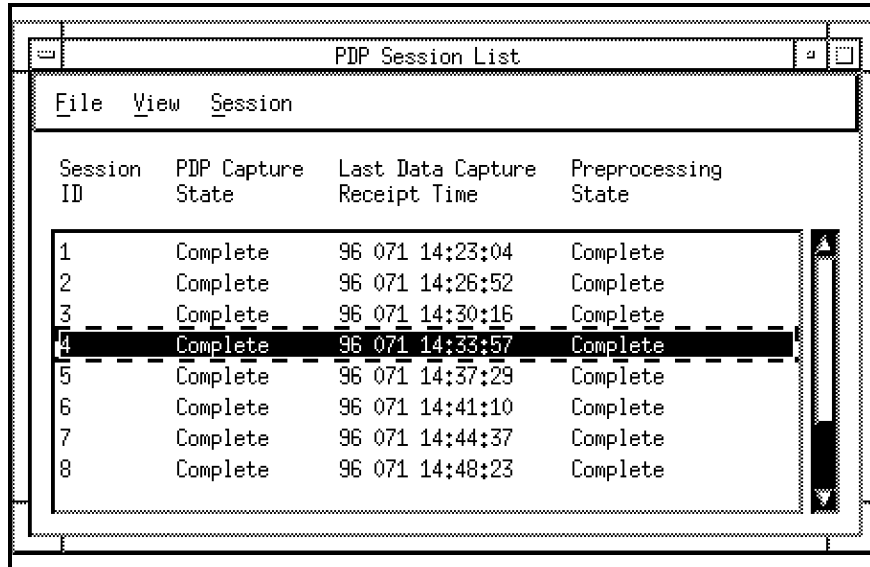
## 4.4.9.1 Pulldown Menu Options

Pulldown menu options available for each item on the menu are as follows:

| File | View | Session |
|------|------|---------|
| Refresh | Filter... | Terminate Capture |
| Print Window | | Start Preprocessing |
| Close | | Terminate Preprocessing |
| | | Session Monitor |

Detailed pulldown menu descriptions are as follows:

| Menu Item | Option | Description |
|-----------|--------|-------------|
| File | Refresh | Redisplays the contents of the window, reflecting any database updates since the window was invoked. |
| | Print Window | Takes a screen dump of a window, see Section 4.3.7. |
| | Close | Closes the window. |
| View | Filter | Brings up the PDP Session List Filter window to allow the analyst to filter the sessions displayed in the PDP Session List window by last data capture receipt time and PDP capture state and preprocessing state. |

| Menu Item | Option | Description |
| --- | --- | --- |
| Session | Terminate Capture | Sends a terminate capture directive to the PDPS for each selected session; only available when all sessions selected have a PDP capture state of Scheduled or In Progress and the user has read/write privileges (see Section 3.5). |
| | Start Preprocessing | Sends a start preprocessing directive to the PDPS for each selected session; only available when the user has read/write privileges. |
| | Terminate Preprocessing | Sends a terminate preprocessing directive to the PDPS for each selected session; only available when all sessions selected have a preprocessing state of Idle or In Progress and the user has read/write privileges. |
| | Session Monitor | Brings up the Session Monitor window for the selected session; only available when a single session has been selected. |

### 4.4.9.2  Selectable Items

There are no selectable items.

### 4.4.9.3  Detailed Description

**Window Areas**

This window displays one line of information for each session assigned to a PDP in the database.

**Control Functions**

The control functions for this window are as follows:

- Terminate capture for the selected sessions
- Start preprocessing for the selected sessions
- Terminate preprocessing for the selected sessions

See descriptions of the pulldown menu options for details.

### 4.4.10  PDP Session List Filter

The PDP Session List Filter window allows the analyst to select which PDP sessions will be displayed in the PDP Session List window. This window allows the analyst to filter the sessions displayed in the PDP Session List window by last data capture receipt time, PDP capture state and/or preprocessing state. This window is invoked from the PDP Session List window.

```
┌──────────────────────────────────────────┐
│  ┌──────────────────────────────────────┐ │
│  │ ⊟│  PDP Session List Filter (modified) │ │
│  ├──────────────────────────────────────┤ │
│  │                                      │ │
│  │   ▣ by Last Data Capture Receipt Time: │ │
│  │                                      │ │
│  │  Start Time:  ┌96 109 00:00:00┐ ▼ ▲  │ │
│  │                                      │ │
│  │  Stop Time:   ┌96 111 00:00:00┐ ▼ ▲  │ │
│  │                                      │ │
│  │  Duration:      ┌02 00:00:00┐   ▼ ▲  │ │
│  │                                      │ │
│  │  ▣ by PDP Capture State:             │ │
│  │         □ Idle        □ In Progress  │ │
│  │         □ Scheduled   ▣ Complete     │ │
│  │                                      │ │
│  │  ▣ by Preprocessing State:           │ │
│  │         □ Idle        ▣ Complete     │ │
│  │         □ In Progress □ Error        │ │
│  │                                      │ │
│  │   ┌─────┐   ┌─────┐   ┌──────┐       │ │
│  │   │Apply│   │Reset│   │Cancel│       │ │
│  │   └─────┘   └─────┘   └──────┘       │ │
│  └──────────────────────────────────────┘ │
└──────────────────────────────────────────┘
```

### 4.4.10.1  Pulldown Menu Options

There are no pulldown menu options.

### 4.4.10.2  Selectable Items

There are no selectable items.

### 4.4.10.3  Detailed Description

**Window Areas**

This window is divided into three areas:

1. Last Data Capture Receipt Time—A start and stop time—the software will calculate and display the duration. Alternately, the analyst can enter a start time and a duration—the software will calculate and display the stop time. If the by Last Data Capture Receipt Time

toggle button is not enabled, the PDP sessions will not be filtered by last data capture receipt time.

2. PDP Capture State—To filter by PDP capture state, the by PDP Capture State toggle button should be enabled. The analyst can then enable or disable the Idle, Scheduled, In Progress, and Complete toggle buttons to display only sessions with the enabled PDP capture states. If the by PDP Capture State toggle button is not enabled, filtering of the PDP sessions will not be performed by PDP capture state.

3. Preprocessing State—To filter by preprocessing state, the by Preprocessing State toggle button should be enabled. The analyst can then enable or disable the Idle, In Progress, Complete, and Error toggle buttons to display only sessions with the enabled preprocessing states. If the by Preprocessing State toggle button is not enabled, the PDP sessions will not be filtered by preprocessing state.

**Control Functions**

The control function for this window is

Apply—After the filtering options have been selected, the analyst can use the Apply button to apply selected filtering to the sessions displayed in the PDP Session List window and to close this window.

## 4.4.11 Product Specification

This window allows the analyst to view, create, copy, or modify a product specification. The PDPS uses product specifications to determine which products to create for incoming acquisition sessions. When adding a new product specification, a set of default parameters built into the window is displayed as the initial settings for the specification. When viewing or modifying an existing product specification, the specification's current values stored in the database are used for the initial settings. Only the Specification State, Generation Mode, and Threshold Checks fields can be changed when modifying an existing product specification. When copying an existing product specification, the source specification's values will be used for the initial settings, and the Specification Name will be empty. This window is invoked from the Product Specification List window with the add, view/modify, or copy option. This window can also be invoked from the Product List window and the Product Monitor window with the view/modify option only.



### 4.4.11.1 Pulldown Menu Options

There are no pulldown menu options.

### 4.4.11.2 Selectable Items

There are no selectable items.

### 4.4.11.3 Detailed Description

**Window Areas**

This window is divided into six areas:

1. General Information

2. Grouping and Ordering Options

3. Data Selection

4. Trailer Contents

5. Threshold Checks

6. Scheduling Option (session selection)

These windows areas are described in the following paragraphs:

- General Information:  The general information area displays the following:
  - Specification Name—Unique name of the product specification. The specification name will be specified and modified by the analyst for new and copied specifications. It cannot be modified for existing specifications. Validity checking will ensure the name is printable. Input names should be no longer than 25 characters. Automatic failure recovery will use the remaining characters to append a special identifier (e.g., ##123) to the product specification name.
  - Specification State—Allows the analyst to select whether or not the product specification is active or inactive. Inactive product specifications will not be monitored by the PDPS. Available menu options are *active* or *inactive*.
  - Product Type—Allows the analyst to select the type of product to be generated. Available menu options are *quicklook* and *routine* production. Quicklook is designed for the case where the user wants a quick snapshot of data that just arrived. Routine is designed for day groups of data.
  - Generation Mode—Allows the analyst to select whether product generation occurs automatically or is dependent on analyst command. Available menu options are *automatic* and *manual*. If automatic is selected, then the product will be automatically generated if two conditions are met. All the sessions in question must pass the quality checking test and the threshold test. When routine products are run in manual mode, the analyst controls the generation mode.
  - Delivery Mode—Allows the analyst to select automatic or manual product delivery. If automatic is selected, then the product will be transmitted to its configured destinations upon successful generation.  If manual is selected, then the analyst must select "Transmit All Files For Product" from the Transmission option of the Product Monitor window for the selected product upon successful generation. Quicklook delivery is always automatic.
  - Resource—Allows the analyst to select the resource for which the product specification will be used.

- Grouping and Ordering:  The data type and options area provides the analyst with the following options:
  - Dataset Type—Select the way in which the groups of data will be organized.  The menu options are the following:
    -- Single:  Each group in a separate file.
    -- Multiplexed:  All data multiplexed into one file.
    -- Concatenated:  All data concatenated into one file.

–  Select Group Option—Select the way the data will be organized in the grouped product. Available menu options are *application ID*, *virtual channel*, *AID/VOID*, and *Server ID* (for PCE). For CCDSD products, a group ID must exist in the pdp_groupids database table for the AID, VOID, or AID/VOID pair selected.

–  Order Option—Select the method of ordering the data. Available menu options are *spacecraft time*, *source sequence count*, and *as received*. The order and merge options are related to each other as detailed in the next paragraph.

–  Merge Option—Select the method by which data is combined during product generation. Available menu options are the following:

--  Redundant data deletion: Eliminates duplicate packets. A packet is considered a duplicate if the time field and the source sequence count are the same.

--  No redundant data deletion: All packets including duplicates are included in the product.

--  No merge: Creates a receive order product. Data appears in the product in the order in which it was received (receive order product) (not available when order option is spacecraft time or source sequence count).

–  Maximum File Size—Select file size bounding if required.  Available options are the following:

--  No Limit:  Do not bound file size.

--  Limit by Data Units:  A value must be entered.

--  Limit by Bytes:  A value must be entered.

Figure 4-2 explains the processing flow during product generation.

• Data Selection:  The following options are provided in this section:

–  Data Type—Select type of data to be included in the generated product. Available menu options are *all, realtime*, and *playback*. This option is provided to allow the analyst to specify only realtime or playback data in the product. The all option is provided for the normal case where both are desired. The playback option will select both forward order and reverse order playback data for inclusion in the product.

–  Data Selection—This area allows the analyst to select VCIDs, APIDs, or VCID/APID pairs. (For ACE, the analyst may select Source ID,  Format ID, or Format/Source IDs.) If the Select Group Options is VCID, only the VCID column is selectable.  If the Select Group Option is VCID/APID, all columns are selectable, but the VCID and APID columns are used to facilitate the selection of pairs in the VCID/APID column.  If the Selection Group Option is VCID or the Dataset Type Option is Multiplexed, at lease one item must be chosen from the appropriate column.

Acquisition Session Data
(captured and preprocessed)
Each apid for each session
is in a separate file
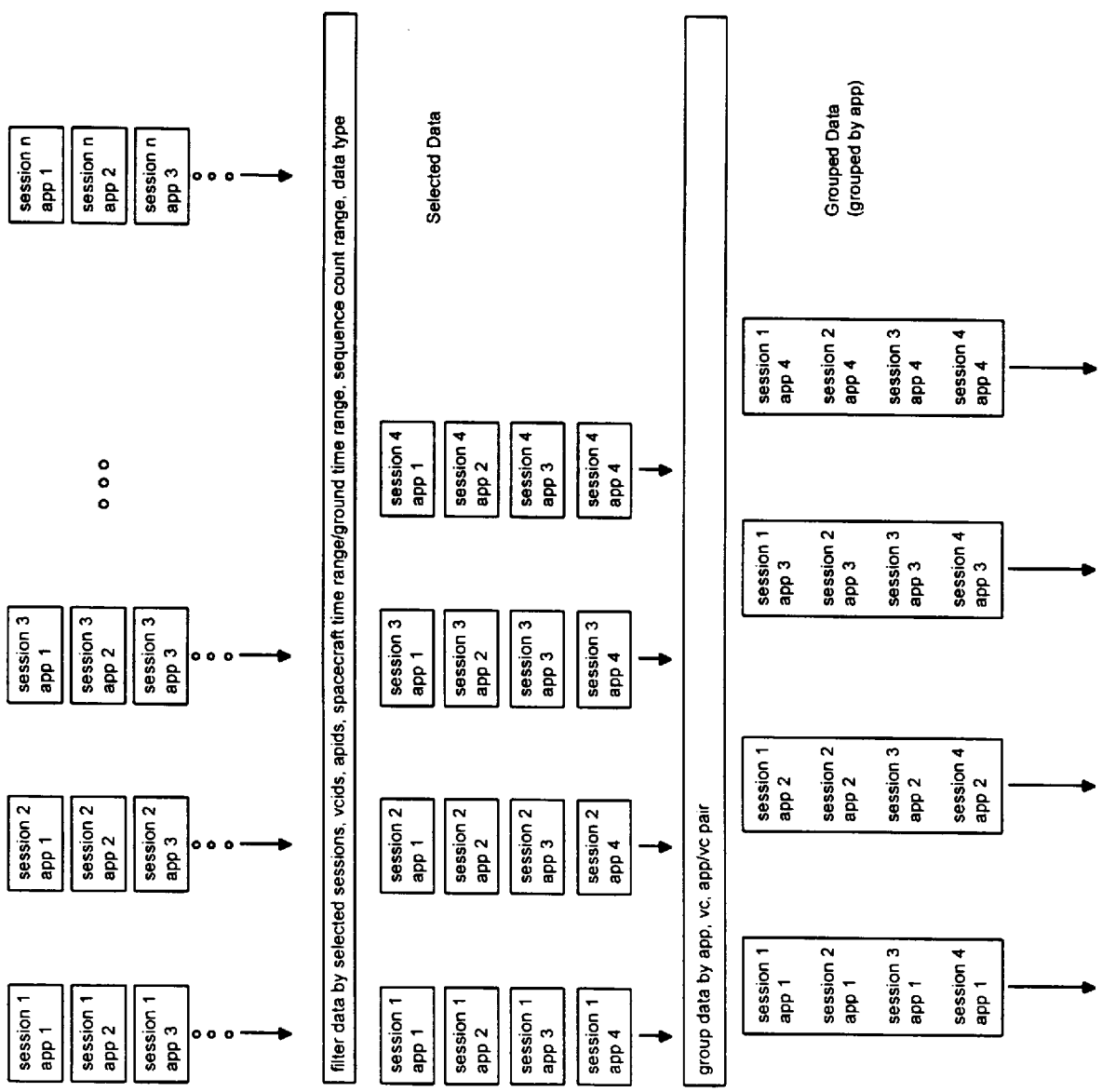
Data is selected (filtered) for inclusion
in products based on data selection
constraints ("Scheduling Option" and
"Data Selection" to select App and VC).
If a field is not specified, there is no
constraint on that field.
For example: ACE QL product spec
uses "Scheduling Option" only. App
and VC selection are not used;
therefore, all data in the session will
be included.

If order option is "As Received," no
primary sort will be applied. All data
will be grouped together.

session n
app 1

session n
app 2

session n
app 3

session 3
app 1

session 3
app 2

session 3
app 3

session 2
app 1

session 2
app 2

session 2
app 3

session 1
app 1

session 1
app 2

session 1
app 3

filter data by selected sessions, vcids, apids, spacecraft time range/ground time range, sequence count range, data type

Selected Data

session 4
app 1

session 4
app 2

session 4
app 3

session 4
app 4

session 3
app 1

session 3
app 2

session 3
app 3

session 3
app 4

session 2
app 1

session 2
app 2

session 2
app 3

session 2
app 4

session 1
app 1

session 1
app 2

session 1
app 3

session 1
app 4

group data by app, vc, app/vc pair

Grouped Data
(grouped by app)

session 1
app 4

session 2
app 4

session 3
app 4

session 4
app 4

session 1
app 3

session 2
app 3

session 3
app 3

session 4
app 3

session 1
app 2

session 2
app 2

session 3
app 2

session 4
app 2

session 1
app 1

session 2
app 1

session 3
app 1

session 4
app 1

*Figure 4–2. Product Creation Processing Flow (1 of 2)*

Each resulting group is then sorted and merged based on "Order Option" and "Merge Option" (secondary sort). No merge operation will be applied if the order option is "As Received." Receive Order Products are always concatenated by the order of sessions received. QAC and MDUL are generated based on "Trailer Contents" selection.

Write each data set to disk file based on "Dataset File Option" and generate DSFDU header

order data by spacecraft time merge with/without deletion, or order as received generate QAC list, generate MDUL

Sorted and Merged Data

Completed Product (all groups in one file)

one group per file, all groups concatenated in one file or customer selected groups
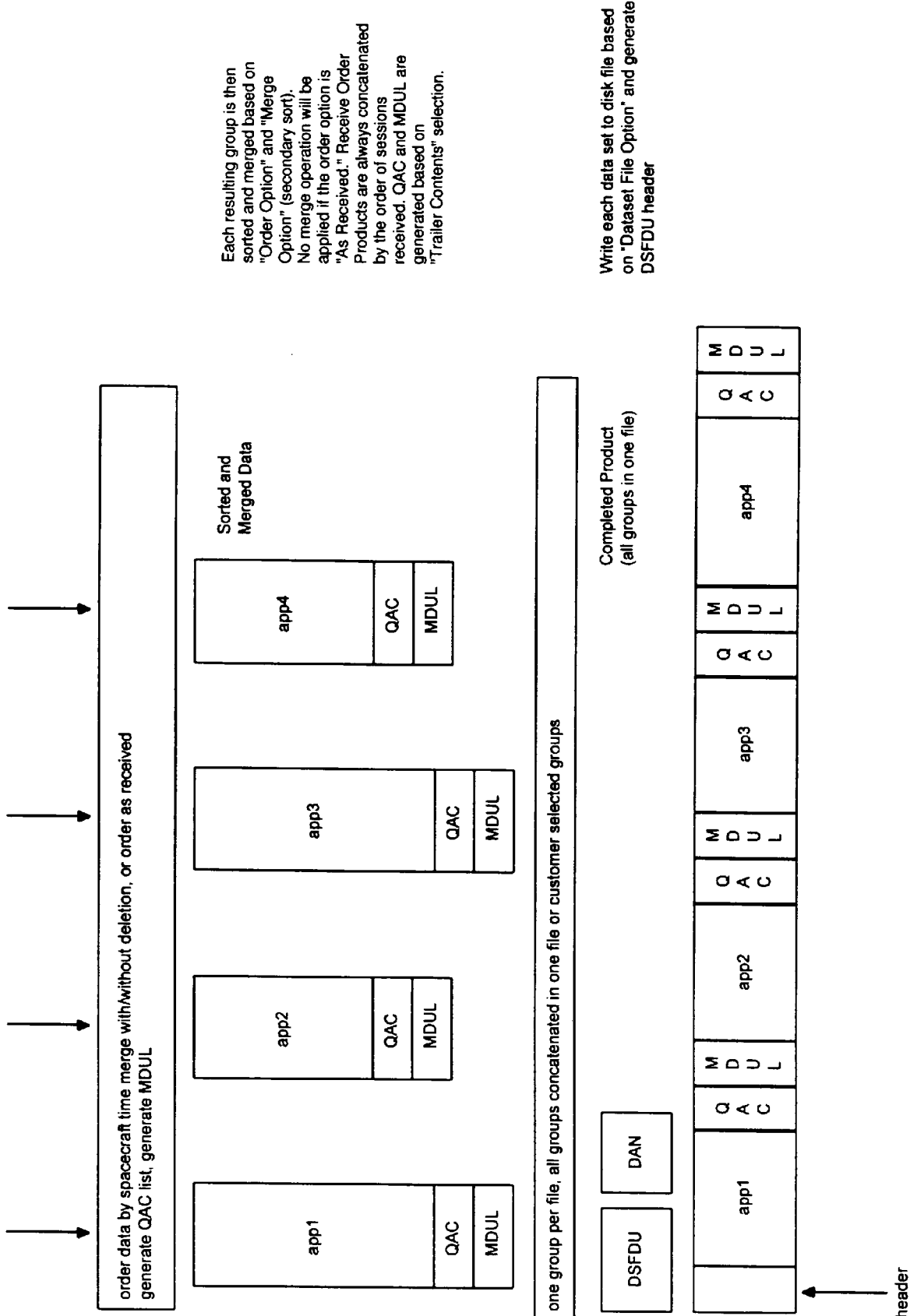
*Figure 4–2. Product Creation Processing Flow (2 of 2)*

- Trailer Contents:  The trailer contents area allows the analyst to select the way in which accounting information will be handled. Checkboxes allow the analyst to select none, one, or both of the following:

  – The quality accounting capsule (QAC) list is a 14-byte field that provides specific information on each packet in error. If a QAC list is requested, it is tagged to the end of a group or to the end of a file, depending on the specific product.

  – The missing data unit list (MDUL) (only available when order option is Spacecraft Time and group option is APID) provides accounting on missing packets by source sequence count. The MDUL is appended after the QAC list. The MDUL should not be selected without also selecting the QAC list.

- Threshold Checks:  The threshold checks area allows the analyst to select the lower limit of acceptability of data quality. The PDP will scan the data quality before product generation if the option is selected. Products will only be generated if the requested checks pass. Checkboxes allow the analyst to select none, one, or both of the following:

  – Percentage of missing data units (not available when order option is as received).
  – Percentage of good data units (not available when order option is as received).

- Scheduling Option Area: This section provides the following options:
  – Scheduling Option—This option allows the analyst to select the sessions to be included in the product. The analyst will select Scheduling Option from an option menu with the following available scheduling selections:

    -- Single Session—This option is used to generate a product from a single session. To simply include an entire session for inclusion in a product, the analyst selects the single session option from the scheduling option entry, and then selects the desired session from the list of available sessions in the selected session window.

    -- Multiple Sessions—This option is used to generate a product from multiple sessions. The analyst selects the multiple sessions option from the scheduling option entry, and then selects the desired sessions from the Available Sessions window. The other options have the same function as in single session with the exception of partial data duration, which is not used for multiple sessions.

    -- Schedule Count—This option is selected by specifying schedule count for the scheduling option entry. This option allows the analyst to define a window specified by schedule start time and schedule stop time. Any session that falls within that window will automatically processed. It was designed with quicklook in mind. Two other options are available: *partial data duration* and *repeat count*.

  In addition, the Scheduling Option window offers several other options that allow the product to be further defined or delimited. The time range option allows the analyst to define the time range that he or she wants the data to be drawn from. There are three options: *schedule time*, *ground time*, or *spacecraft time*. The partial data duration entry should be used when the analyst only wants to make a product from the first minutes of a session. The actual duration of the product will be based on the partial data duration value. The sequence count selection

is used to delay the start of a product until it matches the sequence count value. The product will continue based on the number of data units value.

- Schedule Time—Select session by acquisition session schedule. Specify the schedule start time and expiration time; specify the partial data duration, repeat option, and repeat duration. Options are the same as described in Schedule Count with the exception of repeat duration, which is based on time.

  Example: The analyst wants to create a quicklook session for the first session received after 8:00 every day; the scheduled start time is 8:00, and the repeat duration is every 24 hours.

- Ground Time—Select session by ground time range. All sessions having data in the ground time range will be included in the product. Specify the first data start time and the expiration time; specify the data duration and the repeat option.

- Spacecraft Time—This option was designed with the 24-hour day group in mind. It is selected by specifying spacecraft time for the scheduling option. All sessions having data in the spacecraft time range will be included in the product. However, only packets within the window will be included in the product. The analyst must specify the first data start time and the expiration time. In addition, this product specification can be set up to run periodically by selecting repeat for the repeat option. The data duration then becomes the repeat interval (usually 24 hours). In addition, two other parameters are provided to ensure that the product specification includes all late data: the boundary data type and number of sessions to wait. The boundary data type will be selected from an option menu with the same available selections as the data type in the data type and option area of the window.

The parameters that follow are used with various scheduling options.

- Schedule Start Time—Start time of the first acquisition session to be considered; the first session scheduled at or after the schedule start time will be selected.

- Expiration Time—Time after which this particular product specification will not be used.

- Partial Data Duration—Allows analyst to specify that only part of the file is desired; for long sessions (e.g., SOHO), partial sessions can be selected (e.g., 20 minutes of data from the beginning of the session).

- Repeat count—Number of sessions to repeat (e.g., every third session).

  Example: The analyst wants to create a quicklook session for every other session from 2:00 today; the scheduled start time is 2:00, and the repeat count is 2.

- Sessions To Wait—Operational parameter that is used to delay product generation to ensure that all playback data has been received.

- Boundary Data Type—Usually playback; used in conjunction with the number of sessions to wait; the boundary session is the first session which has the boundary data type (usually playback data) that covers the window boundary.

Based on the scheduling option selected, the analyst will need to make additional selections for the scheduling options. If a session list needs to be displayed, all past, present, and future sessions that have not been canceled will be read from the database. If the service type is quicklook, multiple session scheduling will not be allowed.

**Control Functions**

The control functions for this window are as follows:

- Save a new/modified product specification to the database—When the analyst selects the Save button from the action area, the database is updated with the new/modified product specification. The save function is only available to analysts with read/write privileges (see Section 3.5).

- Add a product specification for monitoring by the PDPS—When the analyst selects the Save button from the action area, a directive notifying the PDPS that a new/modified product specification has been created/modified will be sent if the specification state is active.

- Remove a product specification from being monitored by the PDPS—When the analyst selects the Save button from the action area for a modified product specification, a directive notifying PDPS to remove the product specification from being monitored will be sent if the specification state is inactive.

### 4.4.12 Product Specification List

This window allows the analyst to view a list of all product specifications stored in the database, and to view, add, modify, copy, or delete a product specification by bringing up the Product Specification window. This window is invoked from the DPS Main window.



### 4.4.12.1 Pulldown Menu Options

Pulldown menu options available for items on the menu are as follows:

| File | View | Specification |
|------|------|---------------|
| Refresh | Filter | View/Modify... |
| Print Window | | Copy |
| Close | | Add |
| | | Delete |

Detailed pulldown menu descriptions are as follows:

| Menu Item | Option | Description |
|-----------|--------|-------------|
| File | Refresh | Redisplays contents of the window reflecting any database updates since the window was invoked. |
| | Print Window | Takes a screen dump of a window; see Section 4.3.7. |
| | Close | Closes the window. |
| View | Filter | Brings up the Product Specification List Filter window to allow the analyst to filter by product type and specification state. |
| Specification | View/Modify | Brings up Product Specification window in Modify mode for the selected specification (that is, it has all information pertaining to the selected product specification, but the specification name is grayed out). It is available only when a specification has been selected; otherwise, it is grayed out. |

| Menu Item | Option | Description |
| --- | --- | --- |
| Specification (Cont'd) | Copy | Brings up the Product Specification window in the Copy mode (that is, it has all information pertaining to the selected product specification, except the specification name is blank). It is available only when a product specification has been selected and the user has read/write privileges (see Section 3.5); otherwise, it is grayed out. |
| | Add | Brings up the Product Specification window in the Add mode (that is, all fields are blank). It is only available when the user has read/write privileges. |
| | Delete | Available only when a specification has been selected and the user has read/write privileges; otherwise, it is grayed out. Opens a dialog window to seek analyst confirmation that the specification should be deleted. If the analyst responds in the affirmative, the selected product specification is removed from the database; otherwise, the deletion request is terminated. |

### 4.4.12.2  Selectable Items

There are no selectable items.

### 4.4.12.3  Detailed Description

**Window Areas**

This window displays one line of information for each product specification stored in the database.

**Control Functions**

There are no control functions.

### 4.4.13  Product Specification List Filter

The Product Specification List Filter window allows the analyst to select which product specifications will be displayed in the Product Specification List window. This window allows the analyst to filter the product specifications displayed in the Product specification List window by product type and/or specification state.  This window is invoked from the Product Specification List window.
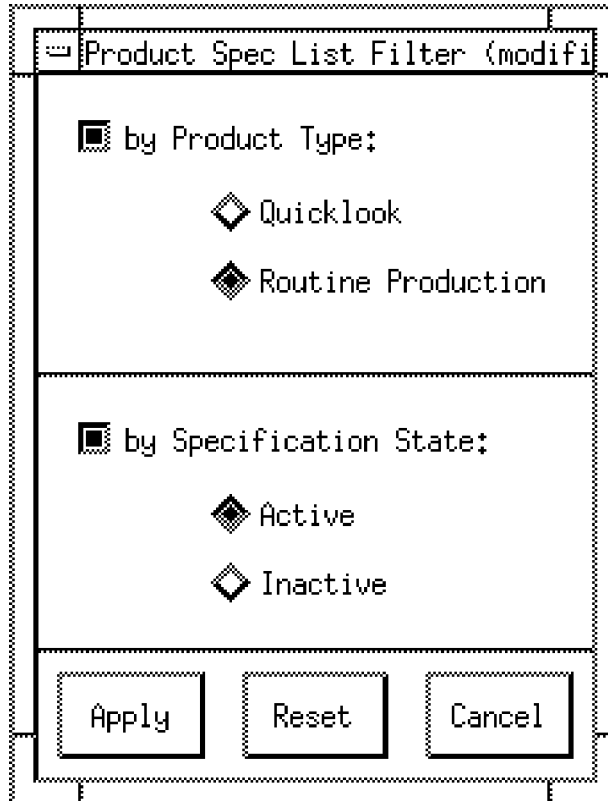


### 4.4.13.1  Pulldown Menu Options

There are no pulldown menu options.

### 4.4.13.2  Selectable Items

There are no selectable items.

### 4.4.13.3  Detailed Description

**Window Areas**

This window is divided into two areas:

1.  Product Type—To filter by product type, the by Product Type toggle button should be enabled.  The analyst can then enable or disable the Quicklook and Routine Production toggle buttons to display only product specifications with the enabled product types.  If the by Product Type toggle button is not enabled, the product specifications will not be filtered by product type.

2. Specification State—To filter by specification state, the by Specification State toggle button should be enabled.  The analyst can then enable or disable the Active and Inactive toggle buttons to display only product specifications with the enabled specification state.  If the by Specification State toggle button is not enabled, the product specifications will not be filtered by specification state.

**Control Functions**

The control function for this window is

Apply—After the filtering options have been selected, the analyst can use the Apply button to apply the selected filtering to the product specifications displayed in the Product Specification List window and to close this window.

## 4.4.14  Product List

This window allows the analyst to view a concise list of information about products stored in the database and to bring up detailed information about an individual product and/or related specification by opening other windows. This window is invoked from the DPS Main window.



## 4.4.14.1  Pulldown Menu Options

Pulldown menu options available for items on the menu are as follows:

| File | View | Product |
|------|------|---------|
| Refresh | Filter... | Specification... |
| Print Window | | Monitor... |
| Close | | Product Gaps... |

Detailed pulldown menu descriptions are as follows:

| Menu Item | Option | Description |
|-----------|--------|-------------|
| File | Refresh | Redisplays contents of the window, reflecting any database updates since the window was invoked. |
| | Print Window | Takes a screen dump of a window; see Section 4.3.7. |
| | Close | Closes the window. |
| View | Filter | Brings up the Product List Filter window to allow the analyst to filter the displayed products by product generation time and product type. |
| Product | Specification | Brings up the Product Specification window for the selected product and is only available to the analyst when a product has been selected; otherwise, it is grayed out. |
| | Monitor | Brings up the Product Monitor window for the selected product and is only available to the analyst when a product has been selected; otherwise, it is grayed out. |
| | Product Gaps | Brings up the Product Monitor window for the selected product and is only available to the analyst when a product has been selected; otherwise, it is grayed out. |

### 4.4.14.2  Selectable Items

There are no selectable items.

### 4.4.14.3  Detailed Description

**Window Areas**

This window displays one line of information for each product stored in the database.

NOTES

1. When the Product List window is first brought up, the default filtering will be by product generation time; only products with a product generation time no later than 2 days will be initially displayed. Products that do not have an assigned product generation time or that have an invalid product generation time will not be initially displayed. Filtering by product generation time must be turned off in the Product List Filter window before these products will be displayed in the Product List window.

2. If there are more DAN IDs for a product than can be displayed in the window, an asterisk will appear at the end of the row of DAN IDs for that product.

**Control Functions**

There are no control functions.

### 4.4.15  Product List Filter

The Product List Filter window allows the analyst to select which products will be displayed in the Product List window. This window allows the analyst to filter the products displayed in the Product List window by product generation time, product type, and/or processing status. This window is invoked from the Product List window.

```
┌─────────────────────────────────────────────────────────────┐
│ ▭         Product List Filter (modified)                     │
├─────────────────────────────────────────────────────────────┤
│  ▣ by Product Generation Time:                               │
│                                                              │
│  Start Time:   ┌96 107 00:00:00┐ ▼ ▲                         │
│                                                              │
│  Stop Time:    ┌96 110 00:00:00┐ ▼ ▲                         │
│                                                              │
│   Duration:    ┌ 03 00:00:00┐    ▼ ▲                         │
│                                                              │
│  ▣ by Product Type:                                          │
│               ◇ Quicklook                                    │
│               ◈ Routine Production                           │
│                                                              │
│  ▣ by Processing Status:  ┌──────────────────────────┐       │
│                           │No Session Data Available │▲      │
│                           │Receiving Data            │       │
│                  ┌─────┐  │Window End Time Covered   │       │
│                  │ All │  │Last Session Received     │       │
│                  └─────┘  │Thresholds Passed         │       │
│                  ┌─────┐  │Ready for Generation      │       │
│                  │None │  │Generation Scheduled      │       │
│                  └─────┘  │Generation in Progress    │▼      │
│                           └──────────────────────────┘       │
│                                                              │
│  ┌──────────┐   ┌──────────┐   ┌──────────┐                  │
│  │  Apply   │   │  Reset   │   │  Cancel  │                  │
│  └──────────┘   └──────────┘   └──────────┘                  │
└─────────────────────────────────────────────────────────────┘
```

### 4.4.15.1  Pulldown Menu Options

There are no pulldown menu options.

### 4.4.15.2  Selectable Items

There are no selectable items.

### 4.4.15.3  Detailed Description

**Window Areas**

This window is divided into three selection areas:

1.  Product Generation Time—To filter by product generation time, the by Product Generation Time toggle button should be enabled. The analyst can then select the filter times by entering a start and stop time—the software will calculate and display the duration. Alternately, the analyst can enter a start time and a duration—the software will calculate and display the stop time. If the by Product Generation Time toggle button is not enabled, the products will not be filtered by product generation time.

2. Product Type—To filter by product type, the by Product Type toggle button should be enabled. The analyst can then enable or disable the Quicklook and Routine Production toggle buttons to display only products with the enabled product types. If the by Product Type toggle button is not enabled, the products will not be filtered by product type

3. Processing Status—To filter by Processing Status, the None button can be used to deselect all processing states currently selected. The All button can be used to select all of the processing states on the list at one time.

**Control Functions**

The control function for this window is

Apply—After the filtering options have been selected, the analyst can use the Apply button to apply the selected filtering to the products displayed in the Product List window and to close this window.

### 4.4.16  Product Monitor

This window monitors and controls a particular product before, during, and after generation and delivery. This window is invoked from the Product List window.

```
+==============================================================+
|  [■]        Product Monitor - TRACE Routine Product 57   [·][□]|
+==============================================================+
| File  View  Assessment  Generation  Transmission  Miscellaneous |
+--------------------------------------------------------------+
| Processing Status: Delivery Complete      Product Mode: Manual |
|                                           Product Spec: realSC3|
|                                               Resource: dptrace1|
+--------------------------------------------------------------+
| [■] Assessment                                               |
|                                                              |
|   Sessions:            Threshold Test Results:               |
|   Session ID Quality      VC ID   App ID  %GOOD  %MISSING Complete|
|      43751  PASS           255        1  100.0%    0.0%  PASS [▲]|
|      43755  PASS           255        2  100.0%    0.0%  PASS    |
|      43761  PASS                                            [▼]|
|                        [◄|            |►]                    |
|                                                              |
|   Data Gaps:                                                 |
|       App ID  Gap Size    Seq Cnt  Begin Time      End Time   |
|          47         1        4051  96 272 19:49:31 96 272 19:49:39|
|                                                              |
| [■] Generation                                               |
|                Start Time:  96 288 19:15:55                   |
|                 Stop Time:  96 288 19:23:45                   |
|   Total Files Generated:  182                                |
|         Total DSFDU Files:  91                               |
|        Total Dataset Files:  91                              |
|          Total Data Units:  1945841                          |
|     Total Data Unit Bytes:  199587684                        |
|          LDU Receipt Time:  96 333 22:02:02                  |
|                                                              |
| [■] File Group Statistics                                    |
|                   Dataset File  Short      Total Data        |
|   Group ID   DAN ID Serial Number Filename      Units  File Size  Sta|
|     G001       65             1            21383  15353050  96 [■]|
|                        [◄|   |►]                            |
|                                                              |
| [■] Dataset Message Statistics                               |
|                              Total Data  Data Unit  First    |
|   Message ID Group ID   VC ID    App ID    Units     Bytes  S/C Time|
|        1      G001       255       1       21383  15352994 96 272 ( [■]|
|                        [◄|   |►]                            |
|                                                              |
| [■] Session Statistics                                       |
|                              Spacecraft Time  Spacecraft '  |
|   Group ID Message ID Session ID  Total DU Earliest DU  Latest DU|
|     G001        1      43751       17643 Invalid Format Invalid For[▲]|
|     G001        1      43755        3740 Invalid Format Invalid For[▼]|
|                        [◄|   |►]                            |
|                                                              |
| [■] pdp6 Transmission Statistics            [Retransmit]     |
|                                            Transmit         |
|   File Name                         Group ID  Count     Tr  |
|   TRACE_G001_LZ_1996-09-28T00-00-02Z_V03.DAT1  G001  1   Tr [■]|
|                        [◄|   |►]                            |
+--------------------------------------------------------------+
```

### 4.4.16.1  Pulldown Menu Options

Pulldown menu options available for items on the menu are as follows:

| File | View | Assessment | Generation | Transmission | Miscellaneous |
|---|---|---|---|---|---|
| Print Window | Assessment | Check Thresholds | Generate | Transmit All | Product Specification... |
| Close | Generation | | Terminate | Files for | PDPS Data Maintenance |
| | File Group Statistics | | | Product | Product Gaps... |
| | Session Statistics | | | Retransmit | Event List... |
| | Dataset Message Statistics | | | All Files | |
| | Transmission Statistics | | | Marked "Not | |
| | | | | Transmitted" | |
| | | | | for Product | |

Detailed pulldown menu descriptions are as follows:

| Menu Item | Option | Description |
|---|---|---|
| File | Print Window | Takes a screen dump of a window; see paragraph 4.3.7. |
| | Close | Closes the window. |
| View | | From this pulldown menu, the analyst may select a module to be displayed. It will be in the same order as it appears in the menu. For example, if the Group Statistics module is chosen for display, it will always appear above the Dataset Message Statistics module. Modules are displayed by using the toggle button next to the module name in the menu. Sashes will be provided to allow the user to resize the individual modules to their desired height within the window. |
| | Assessment | Displays the quality of the sessions in the product, PDPS threshold test results, and data gaps for each APID. |
| | Generation | Displays overview statistics pertaining to product generation. |
| | File Group Statistics | Displays statistics pertaining to the file groups for generation. |
| | Session Statistics | Displays statistics pertaining to the sessions included in the product |
| | Dataset Message Statistics | Displays statistics pertaining to the dataset messages from product generation. |
| | Transmission Statistics | Displays statistics pertaining to product delivery. |
| Assessment | Check Thresholds | Sends a directive to the PDP to check the product thresholds for qualified sessions. |
| Generation | Generate | Sends a directive to the PDP to start product generation. |
| | Terminate | Sends a directive to the PDP to terminate product generation. The termination of product generation must be confirmed through a confirmation dialog. |

| Menu Item | Option | Description |
|---|---|---|
| Transmission | Transmit All Files for Product | Enables the product for delivery in the database. |
| | Retransmit All Files Marked "Not Transmitted" for Product | Enables files (that failed transmission) in the database for redelivery. |
| Miscellaneous | Product Specification | Brings up the Product Specification window. |
| | PDPS Data Maintenance | Brings up the PDPS Data Maintenance window. |
| | Product Gaps | Brings up the Product Gaps window |
| | Event List | Brings up the Event List window to display all messages pertaining to this product. |

### 4.4.16.2  Selectable Items

The Session ID in the session list is a selectable object in the assessment module. Once a session ID is selected, the Session Monitor window can be displayed by selecting it from a popup menu, as illustrated in the following figure.
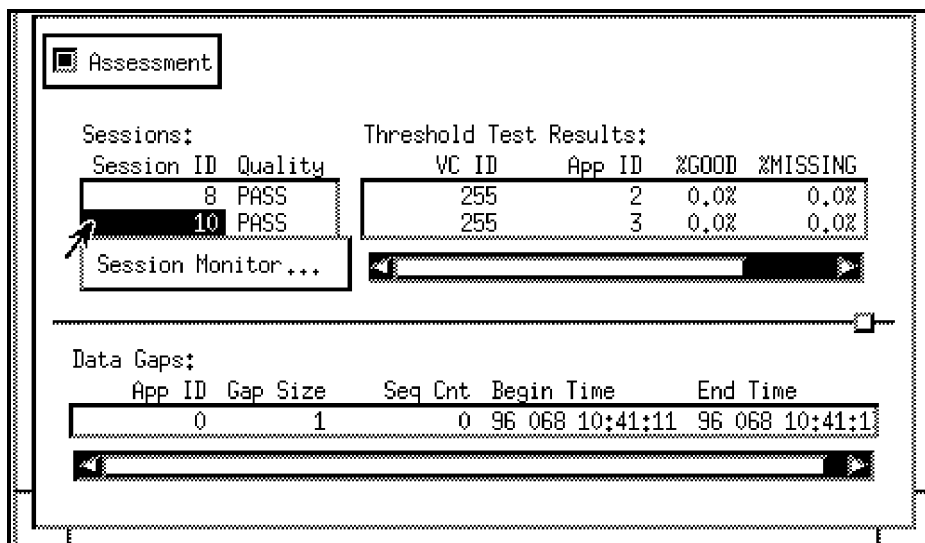


The toggle switch associated with the Processing Options field in the Dataset Message Statistics module cannot be changed by the user. They are for informational purposes only.

### 4.4.16.3  Detailed Description

**Window Areas**

This window is divided into six areas:

1.  Overview
2.  Assessment
3.  Generation
4.  File Group Statistics

5.   Dataset Message Statistics

6.    Session Statistics

7.   Transmission Statistics

All areas except Overview are optional. When the window is first displayed, the Overview, Assessment, and Generation areas are displayed. The analyst can display or hide the optional areas by selecting the area from the View menu.

The following paragraphs describe the areas in this window:

- Overview:  The product overview area displays the current mode and processing status of the product. The product mode can be manual or automatic (if the Product Specification has been deleted from the database, this product mode will appear as 'UNKNOWN'). The processing status can be one of the following:

    – No Session Data Available

    – Receiving Data

    – End Time Covered

    – Last Session Received

    – Session Quality Failed

    – Thresholds Failed

    – Thresholds Passed

    – Ready for Generation

    – Generation Scheduled

    – Generation in Progress

    – Generation Complete

    – Generation Complete, Partial Success

    – Generation Complete, Error Occurred

    – Product Terminated

    – Generation Aborted

    – Delivery in Progress

    – Delivery Complete

    – Delivery Failed

- Assessment:  The product assessment area displays a session list, threshold results for each group ID, and data gaps for each APID. This information enables the analyst to determine whether to generate the product. In automatic mode, the product is generated automatically unless the PDPS assessment fails. If any sessions have a failed processing status, the product thresholds will not be displayed unless the analyst chooses to have them displayed for qualified sessions only.

The session list contains the session ID and corresponding processing status. The threshold results list contains the following information and will be ordered by the grouping option:

– VCID

– APID

– Percentage of good data units

– Percentage of missing data units

– Complete status for percentage of missing data units compared against mission thresholds.

The data gaps list contains the following information:

– APID

– Gap size, which is equal to the number of missing packets

– Sequence count of the gap

– Begin time, which is equal to the time of the last packet time before the gap

– End time, which is equal to the first packet time after the gap

- Generation: The product generation area displays overview information about product generation. The fields for this area contain the following information:

    – Start and stop times when the product was generated

    – Total number of

        -- Files generated

        -- DSFDU files

        -- Dataset files

        -- Data units

        -- Data unit bytes

        -- Time of last data unit received

- File Group Statistics: Each product can have one or more file group(s). This area displays information pertaining to the file groups for both generation and delivery. The fields for this optional area contain the following information:

    – Group ID

    – DAN ID

    – Dataset file serial number

    – Short filename

- – Total data units

- – File size

- – Start time

- – Stop time

- – Total messages

- – Generation status

- – Long filename

- – File ID

- Dataset Message Statistics: Each file group can have one or more message(s).This area displays information pertaining to the dataset messages from generation. The messages are grouped by file groups. The fields for this optional area contain the following information:

  - – Message ID

  - – Group ID

  - – VCID

  - – APID

  - – Total data units

  - – Data unit bytes

  - – First spacecraft time

  - – Last spacecraft time

  - – First source sequence count

  - – Last source sequence count

  - – First ground time

  - – Last ground time

  - – Percent data units present

  - – Discontinuities

  - – Distribution of discontinuities

  - – Percent frame cyclic redundancy check (CRC)/Reed-Solomon (RS) errors

  - – Frame CRC/RS errors

  - – Data units in error

  - – Data units with fill

  - – Missing data units

- – Total QAC

- – Total selected sessions

- – Generation time

- – Data type flags

- – Processing options

- – Select options

- Session Statistics: This area displays statistics for sessions actually included in the product. The information is grouped by file groups. The fields for this area are as follows:

  - – Group ID

  - – Message ID

  - – Session ID

  - – Total DU

  - – Spacecraft Time Earliest DU

  - – Spacecraft Time Latest DU

  - – Ground Time Earliest DU

  - – Ground Time Latest DU

- Transmission Statistics: The information fields for this area are as follows:

  - – File Name

  - – Group ID

  - – Transmit Count

  - – Transmit Status

  - – Transmit Error Indication

  - – Transmit Time

**Control Functions**

The control functions for this window are as follows:

- Assess product thresholds for qualified session—When the analyst selects the Check Thresholds option from the Assessment pulldown menu, the PDP receives a directive to check the product thresholds for qualified sessions.

- Start product generation—When the analyst selects the Generate option from the Generation pulldown menu, the PDP receives a directive to start product generation.

- Terminate product generation—When the analyst selects the Terminate option from the Generation pulldown menu, the PDP receives a directive to terminate product generation.

- Transmit a product—After generation, when the analyst selects the Transmit All Files for Product option from the Transmission pulldown menu, the database is updated to indicate that the product should be transmitted.

- Retransmit a product—After a failed transmission, when the analyst selects the Retransmit option from the Transmission pulldown menu, the database is updated to indicate that those files that were not transmitted for the product should be retransmitted.

- Retransmit all files for a destination—All files marked "Not Transmitted" for a destination may be retransmitted by selecting the Retransmit button in the Transmission module for a given destination. The database is updated to indicate that those files marked "Not Transmitted" for the destination should be retransmitted.

### 4.4.17  Product Gaps

This window displays data gaps reported by PDP for a particular product. The window can be invoked from the Product List window or the Product Monitor window.
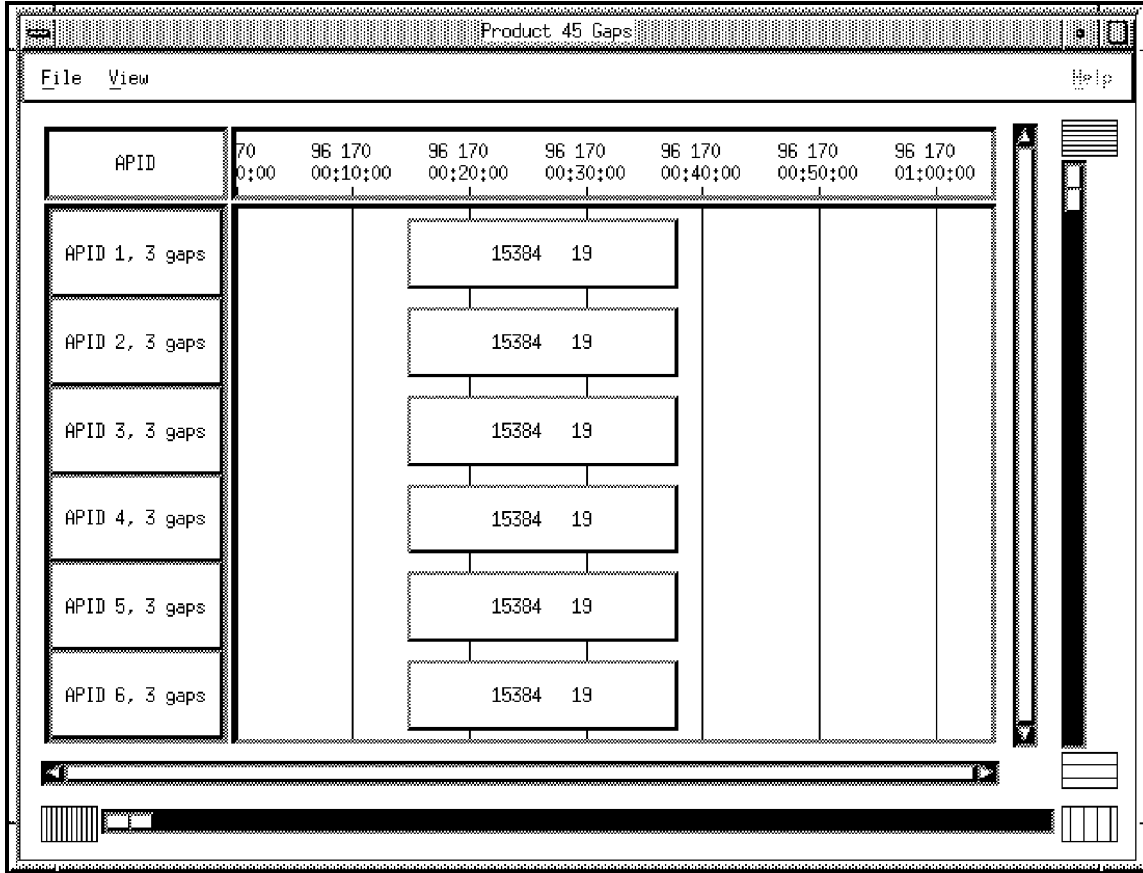


### 4.4.17.1  Pulldown Menu Options

Pulldown menu items available for items on the menu are as follows:

File               View
  Print Window        Filter
   Close

Detailed pulldown menu descriptions are as follows:

| Menu Item | Option | Description |
| --- | --- | --- |
| File | Print Window | Takes a screen dump of a window; see paragraph 4.3.7 |
| | Close | Closes the window |
| View | Filter | Brings up the Product Gaps Filter Dialog Window |

### 4.4.17.2  Selectable Items

*   Displayed Application ID—Clicking the mouse on one of the displayed APIDs will bring up a popup menu displaying the total number of missing packets in the product for that APID.
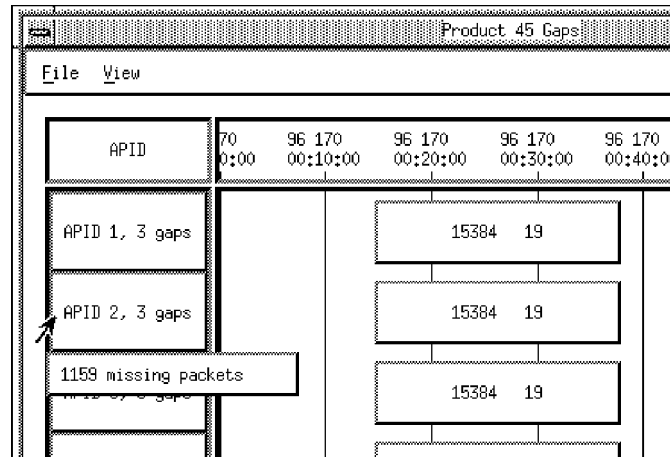


*   Displayed Gap—Clicking the mouse on one of the displayed data gaps will bring up a popup menu displaying the following fields:

    –   Start Time—Last packet time before the gap

    –   Stop Time—First packet time after the gap

    –   First Sequence Count—First sequence count in the gap

    –   Last Sequence Count—Last sequence count in the gap

    –   Gap Size—Number of missing packets in the gap
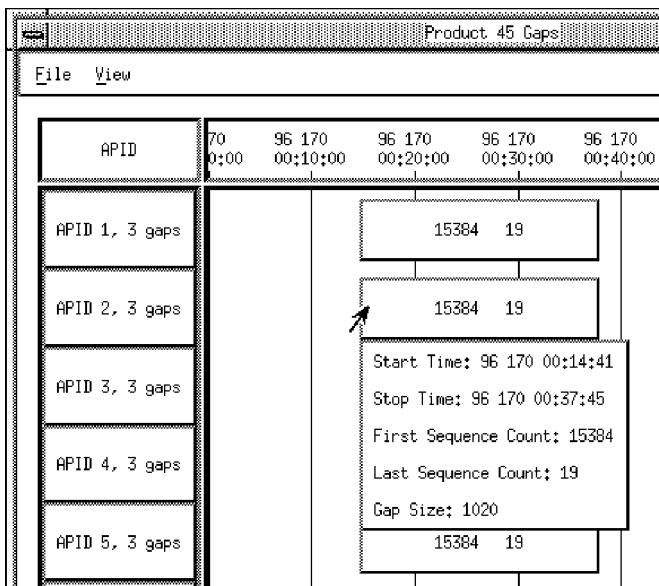
### 4.4.17.3  Detailed Descriptions

**Window Areas**
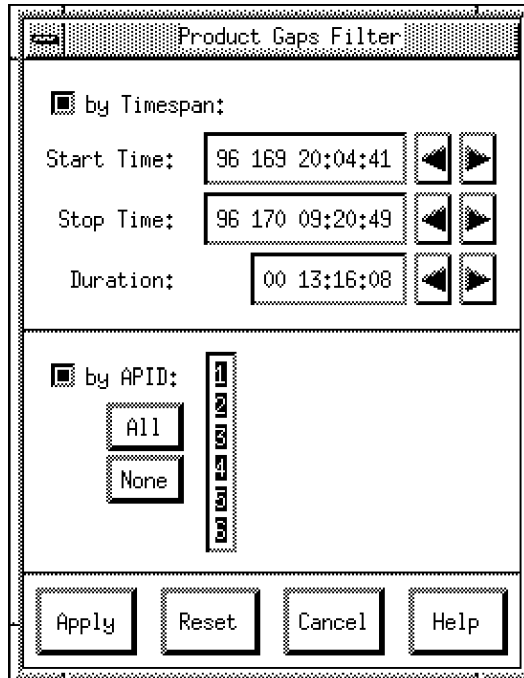
This window is divided into three areas:

1. Application ID—Displays all the APIDs in this particular product that were reported by PDP to have data gaps. The number of gaps for each APID is also displayed.

2. Time Scale—Displayed across the top of the graph and may be changed by bringing up the Product Gaps Filter window from the View menu.

3. Data Gap Information—Shows gaps for each APID.

**Control Functions**

There are no control functions for this window.

### 4.4.18  Product Gaps Filter

This window allows the analyst to select which data gaps will be displayed in the Product Gaps window. The window is invoked from the Product Gaps window.



#### 4.4.18.1  Pulldown Menu Options

There are no pulldown menu options.

#### 4.4.18.2  Selectable Items

There are no selectable items.

#### 4.4.18.3  Detailed Description

**Window Areas**

This window is divided into two areas:

1. Timespan Selection

2. APID Selection

This window allows the analyst to filter the schedules displayed in the Product Gaps window by timespan and/or by APID.

**Control Functions**

The control function for this window is

Apply—After the filtering options have been selected, the analyst can use the Apply button to apply the selected filtering to the gaps displayed by the Product Gaps window and to close the window.

# Section 5.  Online User Tasks

## 5.1    Alarms, Advisories, and Notifications

The message types stored in the database event log are alarms, advisories, and notifications. The message type is configurable by the DBA. When system conditions necessitate sending a message to the user, a message is written to the event log. The DPS Main window, when invoked, polls the event log and displays messages in the order received. Alarms and advisories are added to the bottom of the corresponding display area. Notifications are written to the event log, but are not displayed in the DPS main window. The Event List window will display all alarms, advisories, and notifications for a given session ID, product ID, or resource/time range. Appendix B provides a complete listing of all alarms, advisories, and notifications.

### 5.1.1    Viewing the Alarms and Advisories

To view the system operational messages, the user displays the DPS Main window as described in Section  4.4.1. The latest alarms and advisories are displayed based on a display limit that is currently set to 100 each. The alarms appear in the top portion of the window; advisories are displayed in the bottom portion. The alarm and advisory message areas can be increased or decreased by adjusting the window sash. A PDP error log file may also be examined.

### 5.1.2    Acknowledge Alarms

The alarms are designated by double asterisks to the left of the alarm messages. The number of unacknowledged alarms is specified in the area above the alarms. The alarms can be acknowledged by double-clicking on the alarm message. The number of unacknowledged alarms decreases as the alarms are acknowledged. After an alarm has been acknowledged, the user ID and date of the acknowledgment are written to the event log, and the asterisks next to the message are removed. When an alarm has been acknowledged by one user, other users viewing the DPS Main window also will be able to see that the alarm has been acknowledged.

## 5.2    Acquisition Sessions

### 5.2.1    Monitor a Session

To monitor an acquisition session, bring up the Acquisition Session Monitor window from the PDP Session List window (see Section 4.4.9). To monitor the session from the PDP Session List, select the specific session in the list and choose the Session Monitor menu option.

```
┌──────────────────────────────────────────────────────────────────────────────────┐
│ ▣  │             Acquisition Session Monitor - Session 412 / Data Stream ID 1 / Spacecraft          │ ▣ │ □ │
├──────────────────────────────────────────────────────────────────────────────────┤
│  File   Session   View                                                             │
│  ┌───────────────────────────────────────┐                                         │
│  Actual AOS: 96 1│▣ PDP Packet Statistics │ Session has Terminated          Actual LOS: 96 185 12:59:48 │
│  Update Time: 96 185 12:59:48                        Last Data Capture Receipt Time: 96 185 12:59:48 │
│  ┌──────────────────────────────────────────────────────────────────────────────┐ │
│  Data Unit Count: 220530                                        Preprocessing State: Complete │
│  ┌──────────────────────────────────────────────────────────────────────────────┐ │
│  ▣ PDPStatistics                                                                   │
│             Data Units                           Lowest Source  Highest Source    Good        Fill     Data Un  │
│      VC/App Received  First S/C Time  Last S/C Time   Sequence Cnt  Sequence Cnt   Data Units  Data Units  w/Err  │
│      Totals   220530                                                              220530           0     │
│      0/1      12179   96 169 20:04:41  96 170 09:20:49          22        15383   12179           0     │
│      0/2      12179   96 169 20:04:41  96 170 09:20:49          22        15383   12179           0     │
│      0/3      12179   96 169 20:04:41  96 170 09:20:49          22        15383   12179           0     │
│      0/4      12179   96 169 20:04:41  96 170 09:20:49          22        15383   12179           0     │
└──────────────────────────────────────────────────────────────────────────────────┘
```

## 5.2.2   Monitor PDP Statistics

To monitor the PDP statistics for this session, select the PDP statistics toggle selection from the View pulldown menu. Complete PDP statistics will not be available until after PDP has preprocessed this session.

Column headings for the PDP statistics optional module are as follows:

- VCID/APID.
- Data Units Received—Total data units received for VCID/APID pair.
- First S/C Time—Earliest spacecraft time in VCID/APID pair.
- Last S/C Time—Latest spacecraft time in VCID/APID pair.
- Lowest Source Sequence Count—Lowest source sequence count in VCID/APID pair.
- Highest Source Sequence Count—Highest source sequence count in VCID/APID pair.
- Good Data Units—Total data units without errors in VCID/APID pair.
- Fill Data Units—Total data units with fill data in VCID/APID pair.
- Data Units With Errors—Total data units with errors in VCID/APID pair.
- Data Units With CRC Frame Errors—Total data units with frame errors in VCID/APID pair.
- Data Units With CRC Block Errors—Total data units with block errors in VCID/APID pair.
- Data Units With Uncorrected RS Errors—Total data units with uncorrected RS errors in VCID/APID pair.
- Data Units With Source Sequence Count Errors—Total data units with source sequence count errors in VCID/APID pair.
- Data Units With Length Errors—Total data units with length errors in VCID/APID pair.
- Data Units With Corrected RS Errors—Total data units with corrected RS errors in VCID/APID pair
- Data Units With Packet Frame Errors—Total data units with packet frame errors in VCID/APID pair
- Number of Discontinuities— Total number of data gaps in VCID/APID pair
- Percent Missing—Percentage of missing packets for a VCID/APID pair

- Unique Data Units—Total unique data units in VCID/APID pair.
- Good Unique Data Units—Total unique data units without errors in VCID/APID pair.
- Data Unit Bytes—Byte count of all data units in VCID/APID pair.
- First Ground Time—Earliest ground time in VCID/APID pair.
- Last Ground Time—Latest ground time in VCID/APID pair.
- Available Only for Receive Order Products—This VCID/APID pair is only available for products that were created with the receive-order option.

## 5.3 Routine/Quicklook Products

### 5.3.1 Locate a Product Specification

Locate a specific product specification by bringing up the Product Specification List window (see Section 4.4.12) to view all available existing product specifications.

### 5.3.2 Create a Product Specification

To create a product specification, select the Add option from the Specification pulldown menu in the Product Specification List window. This option will bring up the Product Specification window. The following examples show windows used in creating quicklook and routine product specifications.

**Example 1: TRACE Quicklook Specification**



The specification name must be entered. All specifications must have a name before they can be saved to the databases. Other information fields in this window are as follows:

- Specification State: Inactive.
- Product Type: Quicklook—Will be a quicklook product.
- Generation Mode: Automatic—Product will be generated automatically.
- Delivery Mode: Manual—Product will be transmitted manually.
- Resource: dptrace1—Product will be generated on this resource.
- Dataset Type: Multiplexed—Product will be multiplexed into a single file.
- Select Group Option: VC/App—Data will be grouped by VCID and APID.
- Order Option: Spacecraft Time—Data will be ordered by spacecraft time.
- Merge Option: Redundant Data Deletion—Redundant data will be deleted.
- Maximum File Size: No Limit.

- Data Type: All.
- Data Selection: VCID/APID pairs 0/3, 0/7, 0/11, and 0/13 only.
- Trailer Contents: None—No QAC or MDUL will be appended to the product.
- Threshold Checks: None—No percent of good or missing data unit checking will be performed.
- Scheduling Option: Single Session—A single session must be selected from the Available Sessions list.
- Time Range: None
- Partial Data Duration: Portion of the data to select from the beginning for each session. If a zero is left in this field, the whole session will be selected.
- Sequence Count Selection: None—No range of sequence counts is specified.

## Example 2: TRACE Routine Product Specification

The specification name must be entered. All specifications must have a name before they can be saved to the databases. Other information fields in this window are as follows:



- Specification State: Active—Will be monitored by PDPS.

- Product Type: Routine Production—This will be a routine product.

- Generation Mode: Automatic—The product will be generated automatically.

- Delivery Mode: Automatic—The product will be transmitted automatically.

- Resource: dptrace1—The product will be generated on this resource.

- Dataset Type: Single—Each source ID will be in a separate output file.

- Select Group Option: App ID—Data will be grouped by APID.

- Order Option: Spacecraft Time—Data will be ordered by spacecraft time.

- Merge Option: Redundant Data Deletion—Redundant data will be deleted.

- Maximum File Size: No Limit.

- Data Type: Playback—Only playback data will be selected for the product.

- Data Selection: APID 3 only.

- Trailer Contents: Both—QAC list and the MDUL will be included in the product.

- Threshold Checks: Percent of missing data unit checking will be performed.

- Scheduling Option: Schedule Count—A product is generated every nth scheduled session (i.e., for a schedule count of 3, a product is generated for every third session captured).

- Schedule Start Time: Desired start time for the product specification.

- Expiration Time: Desired time for which the product specification is no longer valid. This time must be in the future.

- Partial Data Duration: Portion of the data to select from the beginning for each session. If a zero is left in this field, the whole session will be selected.

- Repeat Option: Repeat—This product specification is repeatable based upon the Repeat Count.

### 5.3.3 Locate a Specific Product

When session data being captured and preprocessed by the PDPS fulfills a product specification, PDPS creates a unique product for the instance of the product specification. This new product can be viewed from the Product List window. A selected product can be monitored by selecting Monitor from the Product menu.

### 5.3.4 Monitor a Product

Products can be monitored from the Product Monitor (see Section 4.4.16) window. Products can be in the following three stages that represent the life of the product:

1. Product Assessment—Before the product is created.
2. Product Generation—During and after creation.
3. Product Delivery—During and after delivery.

The Product Mode displayed in the Product Monitor overview module can be set to two different modes: manual and automatic. These modes allow the analyst to control product generation. The generation mode is set in the product specification (Generation Mode) and can be changed at any time from the Product Specification window. The Product Specification window can be displayed from the Product Monitor window by selecting Product Specification from the Miscellaneous menu.

The Generation Mode (displayed as the Product Mode in the Product Monitor window and set in the Product Specification window) determines the manner in which the product is generated (i.e., manual or automatic). Similarly, the Delivery Mode (not directly displayed in the Product Monitor window but set in the Product Specification window) determines the manner in which the product, once generated, will be transmitted to its configured destinations (i.e., manual or automatic). It should be

noted that unlike the Generation Mode, the Delivery Mode cannot be changed via the Product Specification window once the product specification has been created.

When the Product Mode (or Generation Mode) is set to automatic, the analyst cannot control product generation unless the assessment of the product by PDPS fails or the generation of the product fails. The analyst may change from automatic mode to manual mode at any time by changing the product specification. By switching from automatic to manual mode, the analyst will be able to override automatic generation.

Likewise, when the Delivery Mode is set to automatic, the analyst cannot control product transmission unless the transmission fails for one or more files in the product. Manual transmission of products will be covered in a later section.

As the product is being monitored in automatic mode, the Product Monitor window will display the pregeneration processing and assessment done by PDPS before the product is generated. This information will be the sessions included in the product, the corresponding session processing status, the processing thresholds for each group ID (APID, VCID, or VCID/APID pair), and the data gaps for each APID. The data gaps and percent of missing data units will only be available when the product is grouped by APID and sorted by spacecraft time and the time window is based on spacecraft time. When the product is ready to be generated, the PDPS will automatically generate the product if the PDPS assessment passes.

As the product is being generated, the Product Monitor window (following page) will display the product generation statistics placed in the DPS database by PDPS. The statistics are contained in modules that can be shown or hidden by selecting the corresponding toggle button in the View pulldown menu. After the product is generated successfully, it will either automatically be delivered to its configured destinations or the analyst can approve it for delivery by using the Transmission pulldown menu.

### 5.3.5  Manually Create a Product

In manual mode, the analyst will control when the product is generated. The analyst must specify to generate a product or the product will never be generated.

The Product Monitor Window will display the pregeneration processing and assessment done by PDPS before the product is generated, as in automatic mode. When the product is ready to be generated, the analyst will use the information displayed to assess the product quality and decide whether to generate the product or not. The information supplied by PDPS could show that the product assessment has failed. This would happen if any sessions included in the product failed the quality check or the product generation threshold test fails.

If the assessment fails because one or more session(s) fail the quality check, the analyst will be able to (1) generate the product with the qualified sessions only, (2) check the product threshold with the qualified sessions only, and (3) pass a failed session as qualified.

```
┌─────────────────────────────────────────────────────────────────────┐
│ ▨        Product Monitor - TRACE Routine Product 55          ▼ □     │
├─────────────────────────────────────────────────────────────────────┤
│  File   View   Assessment   Generation   Transmission   Miscellaneous│
├─────────────────────────────────────────────────────────────────────┤
│ Processing Status: Generation in Progress       Product Mode: Manual │
│                                                 Product Spec: realSC  │
│                                                    Resource: dptrace1 │
└─────────────────────────────────────────────────────────────────────┘
```

▣ Assessment

Sessions:                Threshold Test Results:
Session ID  Quality        VC ID    App ID   %GOOD   %MISSING  Complete
   43751    PASS            255        1     100.0%    0.0%      PASS
   43755    PASS            255        2     100.0%    0.0%      PASS
   43761    PASS            255        3     100.0%    0.0%      PASS

Data Gaps:
       App ID  Gap Size    Seq Cnt  Begin Time        End Time
         47        1         4051   96 272 19:49:31  96 272 19:49:39

▣ Generation

            Start Time:  96 288 13:13:59
             Stop Time:  96 288 13:24:28
 Total Files Generated:  182
      Total DSFDU Files:  91
    Total Dataset Files:  91
       Total Data Units:  1945841
 Total Data Unit Bytes:  199587684
       LDU Receipt Time:  96 333 22:02:02

▣ File Group Statistics

                      Dataset File  Short          Total Data
Group ID   DAN ID   Serial Number  Filename           Units   File Size  Start
  G098       63          1                            21383    299418   96 272
  G099       63          1                            21383    299418   96 272

▣ Dataset Message Statistics

                                            Total Data  Data Unit  First
Message ID  Group ID    VC ID    App ID        Units      Bytes    S/C Time
    1        G001        255        1          21383    15352994  96 272 00:0

▣ Session Statistics

                                          Spacecraft Time  Spacecraft Time
Group ID  Message ID  Session ID  Total DU  Earliest DU      Latest DU
  G001        1        43751       17643   Invalid Format   Invalid Format

▣ pdp6 Transmission Statistics                              [ Retransmit ]

                                                          Transmit
File Name                                   Group ID     Count      Transi

If the analyst chooses to generate the product with the qualified sessions, the product will then be generated with just the sessions that passed the quality check. This can be done by selecting Generate from the Generation pulldown menu.
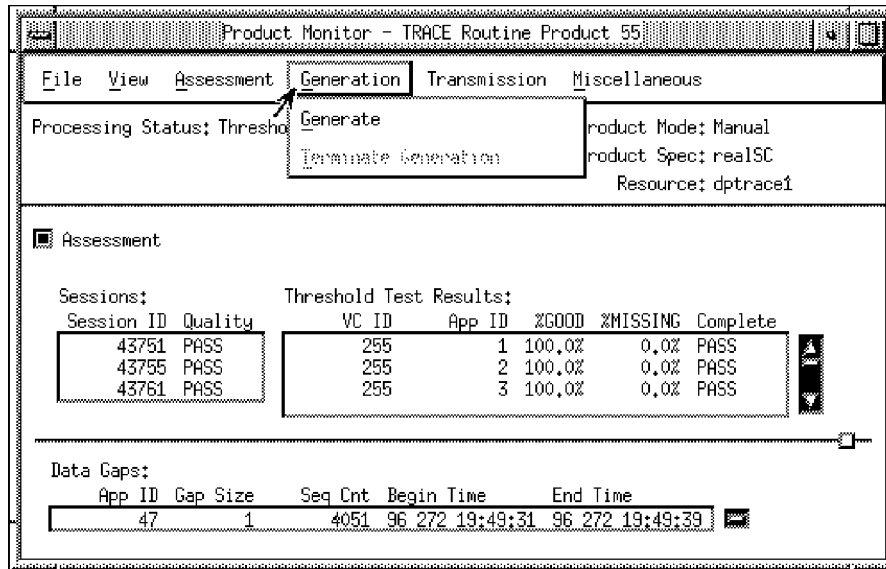


If the analyst chooses to check the product threshold with the qualified sessions only, the PDPS will check the product threshold and report the results of the threshold checking. This can be done by selecting Check Thresholds from the Assessment pulldown menu. If the result of the threshold check is satisfactory, the analyst can then generate the product.
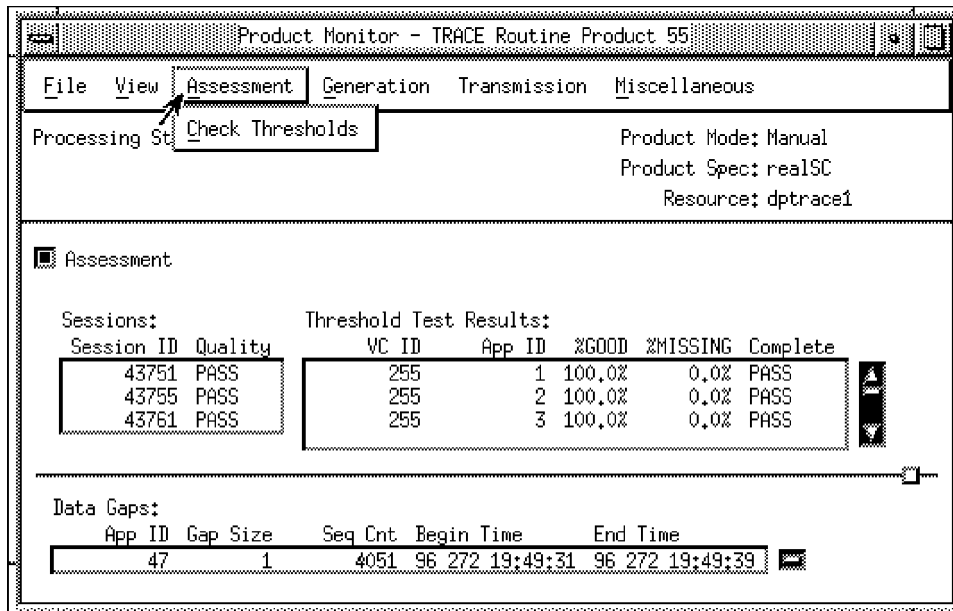


The Session Monitor window must be used if the analyst decides to pass a failed session as qualified. The analyst can bring up the Session Monitor window with the specified session by selecting Session Monitor from the popup menu in the Session Quality list, as illustrated in the following figure.

```
┌─────────────────────────────────────────────────────────────────────┐
│ ▣ Assessment                                                         │
│                                                                      │
│   Sessions:              Threshold Test Results:                     │
│    Session ID  Quality       VC ID     App ID  %GOOD  %MISSING  Complete │
│   ┌──────────────────┐   ┌─────────────────────────────────────┐  ▲  │
│    43751  PASS            255        1  100.0%    0.0%  PASS       ███ │
│    43755  PASS            255        2  100.0%    0.0%  PASS           │
│   ┌──────────────────┐    255        3  100.0%    0.0%  PASS       ▼  │
│   Session Monitor...  └─────────────────────────────────────┘       │
│                                                                   ▭  │
│   Data Gaps:                                                         │
│      App ID  Gap Size     Seq Cnt  Begin Time      End Time          │
│        47         1        4051  96 272 19:49:31  96 272 19:49:39  ▣ │
└─────────────────────────────────────────────────────────────────────┘
```

The analyst can then pass the session as qualified (refer to Section 5.3.8). This will cause PDPS to reassess the product if the session is in the product, and the Product Monitor window will redisplay the pregeneration and assessment done by the PDPS. If there are still failed sessions, the analyst can then continue to pass failed sessions, generate the product with the qualified sessions only, or check the product threshold with the qualified sessions. If all sessions have passed the quality check, the analyst can then check the threshold test results for the product. If the product passed the threshold test, the analyst can then generate the product. If the product failed the threshold test, the product threshold test fails or if the assessment fails because the product threshold test failed, the analyst can generate the product anyway or start over and perform another action, such as replay a session.

As the product is being generated, the Product Monitor window will display the product generation statistics placed in the DPS database by PDPS, as in automatic mode. After the product is generated, the analyst may use the statistics provided to evaluate the product and decide whether or not to deliver the product if the Delivery Mode is manual.

If the product is not generated successfully, then this product is finished. The problem that caused the product not to be generated must be fixed, and a new product must be created by the analyst.

### 5.3.6   Manually Transmit a Product

If automatic delivery is not set up to occur, the analyst must manually select a product for delivery. To transmit a product, the analyst must bring up the Product Monitor window for the desired product and select the Transmit All Files For Product option from the Transmission pulldown menu.  Once this occurs, the transmission status of each file in the product can be displayed for each configured destination by selecting the Transmission Statistics selection for the desired destination from the View pulldown menu.

When manual transmission of a product or file(s) is selected, PTT will add the product or file(s) to its list of files to transmit. The next time the PTT is configured to transmit data, it will transmit these products and/or files. The time between transmission attempts is a database configured item, "totalsleeptime" (in seconds), found in the DB_PTTCONFIGURATION table.

```
┌─────────────────────────────────────────────────────────────────────┐
│ ▣│▓▓ Product Monitor - TRACE Routine Product 55 ▓▓▓▓▓▓▓ │▼│□│        │
│                                                                       │
│  File   View   Assessment   Generation │Transmission│ Miscellaneous  │
│                                    ┌───────────────────────────────┐  │
│ Processing Status: Generation Complete│ Transmit All Files for Product │
│                                    │                               │  │
│                                    │ Retransmit All Files Marked 'Not Transmitted' for Product │
│                                    └───────────────────────────────┘  │
│                                         Resource: dptrace1             │
│                                                                       │
│  ▣ Generation                                                         │
│            Start Time:   96 288 13:13:59                               │
│             Stop Time:   96 288 13:24:28                               │
│   Total Files Generated: 182                                          │
│       Total DSFDU Files: 91                                           │
│     Total Dataset Files: 91                                           │
│        Total Data Units: 1945841                                      │
│   Total Data Unit Bytes: 199587684                                    │
│       LDU Receipt Time:  96 333 22:02:02                              │
└─────────────────────────────────────────────────────────────────────┘
```
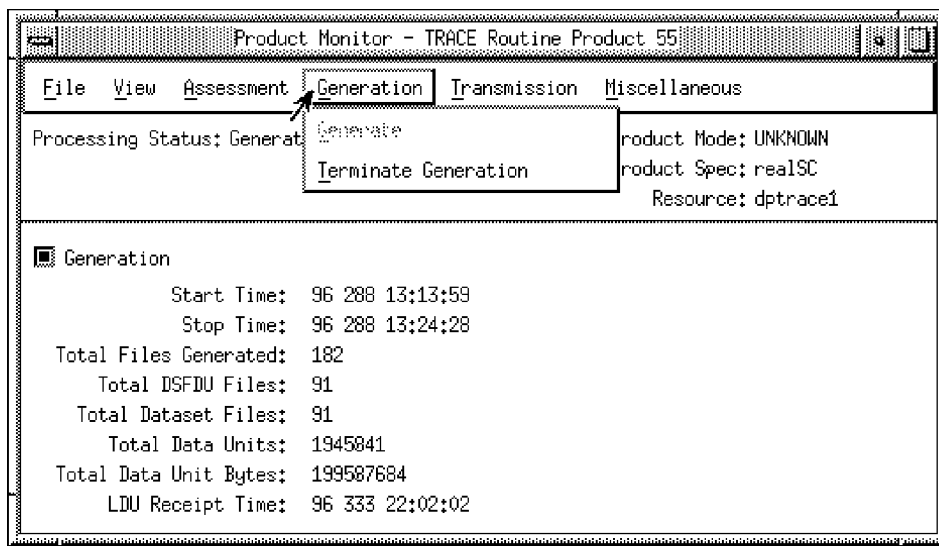
The analyst may retransmit the product for all failed groups by selecting the Retransmit All Files Marked 'Not Transmitted' for the Product from the Transmission pulldown menu (if the first delivery failed overall). A product can also be retransmitted by destination only by selecting Retransmit from the Transmission Statistics module. When a product is retransmitted for failed groups, only the failed groups will be included. The analyst will not have the ability to choose which groups will be retransmitted. When the analyst retransmits a product, a new DAN ID will be generated for the retransmission. The analyst may continue to retransmit products until all groups of the product are delivered successfully. The retransmission of products will always be manual.
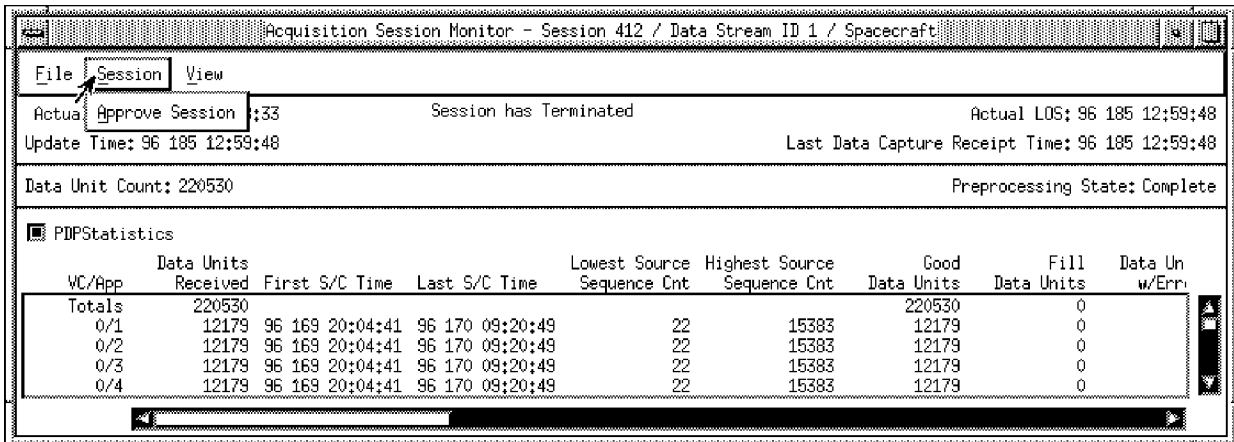
### 5.3.7   Terminate Product Generation

A product that is being generated can be terminated at any time by selecting Terminate from the Generation pulldown menu in the Product Monitor window, as illustrated in the following figure.

```
┌─────────────────────────────────────────────────────────────────────┐
│ ▣│▓▓ Product Monitor - TRACE Routine Product 55 ▓▓▓▓▓▓ │▼│□│         │
│                                                                       │
│  File   View   Assessment │Generation│ Transmission   Miscellaneous  │
│                      ┌─────────────────────────┐                      │
│ Processing Status: Generat│ Generate             │roduct Mode: UNKNOWN │
│                      │                         │roduct Spec: realSC  │
│                      │ Terminate Generation    │                     │
│                      └─────────────────────────┘  Resource: dptrace1 │
│                                                                       │
│  ▣ Generation                                                         │
│            Start Time:   96 288 13:13:59                               │
│             Stop Time:   96 288 13:24:28                               │
│   Total Files Generated: 182                                          │
│       Total DSFDU Files: 91                                           │
│     Total Dataset Files: 91                                           │
│        Total Data Units: 1945841                                      │
│   Total Data Unit Bytes: 199587684                                    │
│       LDU Receipt Time:  96 333 22:02:02                              │
└─────────────────────────────────────────────────────────────────────┘
```
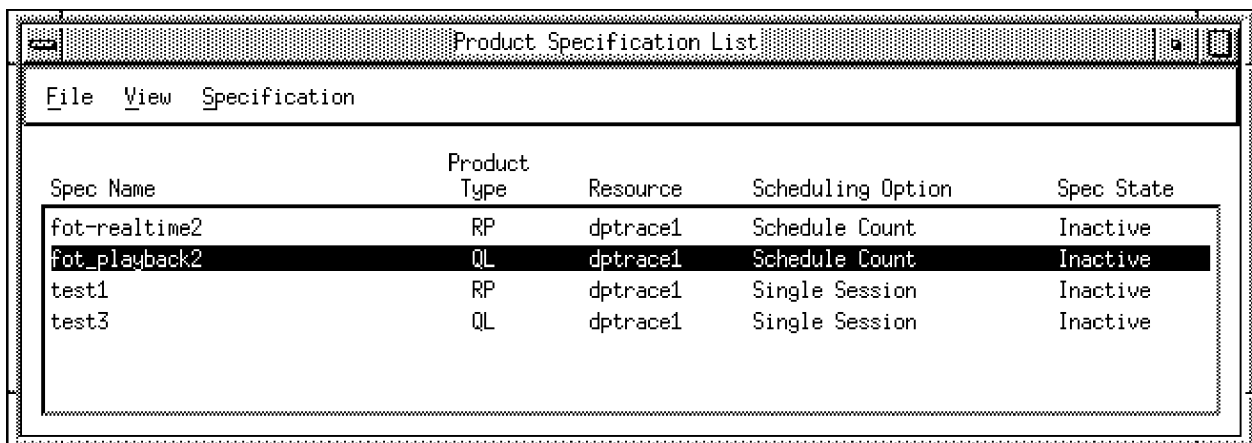
### 5.3.8 Approve a Session as Qualified

Sessions that have failed the quality check can be approved from the Session Monitor window. This can be done by selecting Approve Session from the Session pulldown menu (see the following illustration).

```
┌─────────────────────────────────────────────────────────────────────────────────┐
│ ◄│         Acquisition Session Monitor - Session 412 / Data Stream ID 1 / Spacecraft   │▼│□│
├─────────────────────────────────────────────────────────────────────────────────┤
│  File │Session│ View                                                              │
│ ┌────────────────┐                                                                │
│ Actua│Approve Session│:33        Session has Terminated          Actual LOS: 96 185 12:59:48 │
│ Update Time: 96 185 12:59:48              Last Data Capture Receipt Time: 96 185 12:59:48 │
│                                                                                   │
│ Data Unit Count: 220530                                    Preprocessing State: Complete │
│ ┌───────────────────────────────────────────────────────────────────────────┐   │
│ │ ▣ PDPStatistics                                                             │   │
│ │         Data Units                        Lowest Source Highest Source    Good    Fill   Data Un│
│ │   VC/App  Received  First S/C Time  Last S/C Time  Sequence Cnt Sequence Cnt Data Units Data Units  w/Err│
│ │   Totals   220530                                                        220530       0        │
│ │     0/1    12179  96 169 20:04:41  96 170 09:20:49      22        15383    12179       0        │
│ │     0/2    12179  96 169 20:04:41  96 170 09:20:49      22        15383    12179       0        │
│ │     0/3    12179  96 169 20:04:41  96 170 09:20:49      22        15383    12179       0        │
│ │     0/4    12179  96 169 20:04:41  96 170 09:20:49      22        15383    12179       0        │
│ └───────────────────────────────────────────────────────────────────────────┘   │
└─────────────────────────────────────────────────────────────────────────────────┘
```

### 5.3.9 View/Modify a Product Specification

To look at or modify an existing product specification, select a product specification from the Product Specification List window and choose View/Modify from the Specification pulldown menu. Modifications can then be made and saved from the Product Specification window. Only specification state, generate mode, and threshold checks can be modified.

```
┌─────────────────────────────────────────────────────────────────────────────────┐
│ ◄│                        Product Specification List                        │▪│□│
├─────────────────────────────────────────────────────────────────────────────────┤
│  File   View   Specification                                                      │
│                                                                                   │
│                          Product                                                  │
│   Spec Name               Type      Resource    Scheduling Option    Spec State   │
│  ┌──────────────────────────────────────────────────────────────────────────┐    │
│  │ fot-realtime2          RP        dptrace1    Schedule Count      Inactive  │    │
│  │ fot_playback2          QL        dptrace1    Schedule Count      Inactive  │    │
│  │ test1                  RP        dptrace1    Single Session      Inactive  │    │
│  │ test3                  QL        dptrace1    Single Session      Inactive  │    │
│  │                                                                            │    │
│  └──────────────────────────────────────────────────────────────────────────┘    │
└─────────────────────────────────────────────────────────────────────────────────┘
```

### 5.3.10 Copy a Product Specification

To copy an existing product specification, select a product specification from the Product Specification List window and choose Copy from the Specification pulldown menu. A copy of the

selected product specification will be displayed with the specification name blank. Then modify the specification as desired and save it to the database as a new specification.

### 5.3.11 Delete a Product Specification

To delete a product specification, locate the correct one from the Product Specification List window and choose Delete from the Specification pulldown menu.

## 5.4 Activity Log

This release does not currently contain any automated method for viewing notification messages in the db_EventLog table in the database. The analyst may, however, review the db_EventLog by selecting the desired fields through SQLPLUS.

## 5.5 Failover Situation

### 5.5.1 Failover Overview

The basic strategy for DPS is to try to continue flowing data even if part of the system has failed. System failures can occur at different levels. There are facility failures, network failures, resource failures, and software failures. Facility failures and resource failures are unrecoverable and can result in data loss. Resource and software failures are compensated for as much as possible to prevent loss of data. This is achieved by decoupling data flow from the database.

### 5.5.2 How To Identify and Respond to General Failures

#### 5.5.2.1 PDPS Resource

Alarms may occur that will lead the analyst to believe a subsystem is down. Depending on the subsystem, these alarms will vary. One type is an alarm related to communication problems; other subsystems will report inability to send messages or data to the failed subsystem.

#### 5.5.2.2 PDPS Ethernet Network Interface Card

To the DPS, a failure of this type will appear the same as a host failure.

#### 5.5.2.3 Ethernet Backbone Cable

A failure of this type constitutes a failure of the entire DPS system. Service within DPS cannot be restored without repair of the backbone because this represents the control mechanism of the network.

#### 5.5.2.4 UTC Board

In this case, the UTC board fails to return a time code because of a failure in the UTC board. UTC will notify the analyst that UTC system time is now in a flywheel mode. At the next convenient time, the analyst should initiate failover to the backup UTC.

### 5.5.3 How To Identify and Respond to Software Failures

Tasks currently running are displayed in the Resource Monitor window. Because the Resource Monitor window must be refreshed manually, the operator may not notice the failed software until a refresh occurs. Alarms on the DPS Main window will more likely lead the analyst to believe a software failure has occurred. The analyst can then refresh the Resource Monitor window to see

which failures occurred. The following sections identify alarms that may occur after failure and explain how to respond to the failure.

### 5.5.3.1 PDPS Capture Session Data Task (CSD)

- Failure detection: Session Capture Complete Notification with abnormal completion status.
- Prerecovery: PPA will process all capture data written to disk and generate a session quality evaluation.
- Recovery: GBRS replay from stop point. Stop point identified from pdp_sessionsacct and file write timeout in db_missiondatastreamidcatalog.

### 5.5.3.2 PDPS Capture Acquisition Server Task (CAS)

- Failure detection: PDPErrorNotification indicating Process group leader aborted.
- Prerecovery: No new FES/PDP connections can be started. All in-progress capture sessions continue until FES terminates session or CAS task restart.
- Recovery: Analyst sends a Task Restart Directive to restart the CAS task. The CAS task restart will kill all active capture sessions with FES. The CAS task will initialize PDPSessionState column in db_AcqSessionCharactersitics table during initialization.
- Postrecovery: Analyst must replay all terminated sessions from GBRS.

### 5.5.3.3 PDPS Preprocess Acquisition Server Task (PAS)

- Failure detection: PDPErrorNotification indicating Process group leader aborted.
- Prerecovery: No new capture sessions can be preprocessed.
- Recovery: Analyst sends a Task Restart Directive to restart the PAS task. The PAS task restart requires killing all active PPA tasks. During PAS task initialization, all aborted PPA tasks will be identified and those sessions will be removed from hash tables. (An event is sent to database identifying which sessions were deleted from hash tables.)
- Postrecovery: Analyst must send StartPreprocessing Directive for each session removed from hash tables.

### 5.5.3.4 PDPS Preprocess Acquisition Task (PPA)

- Failure detection: Session Preprocessing Complete Notification with abnormal completion status.
- Prerecovery: The PAS task sends messages to the PSC to the RM task to remove the session from hash files. The RM sends the message to PSC when the session is removed from hash files. PSC "delays" the Start Session Preprocessing directive until the RM has removed the session. PAS removes the session from the db_dpsessvcappidacct and db_sessiondatadiscont tables.
- If PAS and PPA abort simultaneously (e.g., PDP shutdown, processor failure, PAS task restart), PAS will perform the above mentioned steps during the subsequent PAS initialization.
- Recovery: Analyst sends a SessionPreprocessingStart directive.

At the point of PPA failure, if a CGP task is building a quicklook product from the session, the CGP task will fail as well because the resource monitor task will be removing the session from the hash tables.

### 5.5.3.5    PDPS Create Group Product Server Task (CGS)

- Failure detection:  PDPErrorNotification indicating the process group leader aborted.

- Prerecovery:  In-progress CGP task status not reported to database.

- Recovery:  Analyst sends a Task Restart Directive to restart CGS task. CGS task restart will kill all active CGP tasks. CGS task initialization will retrieve all user product specifications and their corresponding product windows. If any product windows are currently satisfied, CGS will fork off CGP to build the product corresponding to the product window.

### 5.5.3.6    PDPS Create Group Product Task (CGP)

- Failure detection: Product Complete Notification sent to database with an abnormal completion status.

- Prerecovery: If CGP aborts, is a partial success, or is terminated via analyst directive, CGS will

  – Provide a one-time-only UPS in the DPS database  (with valid-flag turned off) to rebuild the failed product.

  – Close out the failed product window by updating the db-wductIndex table to identify the method of failure.

- If CGP and CGS abort simultaneously (e.g., PDP shutdown, processor failure, CGS task restart), CGS will fork off all necessary CGP tasks during the subsequent CGS initialization.

NOTE

```
In this scenario for CGP
restart, the product ID will
not change between the failed
and restart CGP run.
```

- Recovery: Analyst turns on the valid-flag of the new UPS, which results in a directive sent to the CGS task to rebuild the product.

NOTE

```
On product retransmission
failure, the analyst simply
resends the product
retransmission directive.
```

### 5.5.3.7    PDP Software Control Task (PSC)

- Failure detection: PDPErrorNotification indicating process group leader aborted.

- Prerecovery: All PDP process group leaders receive EOF on PSC socket and proceed to kill all child tasks and exit.

- Recovery: Analyst must restart the PDP application software.

### 5.5.3.8 PDPS Resource Monitor Task (RM)

- Failure detection: PDPErrorNotification indicating process group leader aborted.
- Prerecovery: No resource monitoring or session/product deletion can take place.
- Recovery: Analyst sends a Task Restart Directive to restart resource monitor task. After resource monitor initializes, the PSC task forwards any pending session deletions to resource monitor (i.e., session deletion due to PPA task abort).

### 5.5.3.9 TAP Task

- Failure detection: Log/Recovery Complete Notification with abnormal completion status.
- Recovery: Reissue the directive.

### 5.5.3.10 PEP Task

- Failure detection: PEP error advisory sent to DPS Main window.
- Prerecovery: None.
- Recovery: Attempt to restart PEP. If successful, replay data from stop point.

### 5.5.3.11 PEI Task

- Failure detection: PEI error advisory sent to DPS Main window.
- Prerecovery: None.
- Recovery: Attempt to restart PEI. If successful, replay data from stop point.

### 5.5.3.12 PTT Task

- Failure Detection: PTT alarm notification on DPS Main window.
- Prerecovery: None.
- Recovery: Attempt to restart PTT subsystem.

### 5.5.3.13 ORACLE Database Server

The ORACLE database server runs continuously on the DPS platform. Analysts will identify a database server failure in the same way as a general DPS failure. The other subsystems—PEI, PDPS, and PTT—will treat a database server failure as if the DPS had failed. DPS automated processes will continue to store event information until the database recovers. When the database server comes back, the automated processes will dump these events to the database.

# Appendix A.  DPS Resource File

The following is the complete listing of the DPS resource file as of Release 2.0.  Resources that are listed in bold type may be reconfigured by the user (see Section 4.2, How To Customize the CHI Interface).  All other resources should not be modified by the user because doing so could cause the window to be inoperable.

\*appDefaultsFound: true
**\*background: grey 83**
\*foreground: black
**\*XmMenuShell\*background: DarkGoldenrod 1**
\*FontList: fixed
\*Font: fixed
\*XmText.fontList: fixed

\*XmPushButton\*marginWidth: 5
\*XmPushButton\*marginHeight: 3

\*XmMessageBox.XmPushButtonGadget\*marginWidth: 5
\*XmMessageBox.XmPushButtonGadget\*marginHeight: 5

\*buttonBox.XmPushButton.topOffset: 5
\*buttonBox.XmPushButton.bottomOffset: 5
\*buttonBox.XmPushButton.leftOffset: 5
\*buttonBox.XmPushButton.rightOffset: 5
\*buttonBox.XmPushButton.marginHeight: 8

\*XmToggleButton.indicatorSize: 15
\*XmRowColumn.tearOffModel: TEAR_OFF_ENABLED

**\*XbaeMatrix.clip.background: white**
\*XbaeMatrix.cellShadowThickness: 0
\*XbaeMatrix.cellHighlightThickness: 0
\*XbaeMatrix.cellMarginHeight: 0
\*XbaeMatrix.cellMarginWidth: 5

**\*timeBeep: true**

\*activityDetail\*mainTable\*marginHeight: 5
\*activityDetail\*mainTable\*topOffset: 5
\*activityDetail\*mainTable\*bottomOffset: 5

\*activityDetail\*buttonBox.XmPushButton.leftOffset: 10
\*activityDetail\*buttonBox.XmPushButton.rightOffset: 10

*activityDetail*buttonBox.helpButton.sensitive: FALSE

*activityDetail*logTimeLabel.leftOffset: 10
*activityDetail*messageTypeLabel.leftOffset: 10
*activityDetail*messageLabel.leftOffset: 10
*activityDetail*expandedMessageLabel.leftOffset: 10
*activityDetail*analystNotesLabel.leftOffset: 10
*activityDetail*ccrNumberLabel.leftOffset: 10
*activityDetail*marNumberLabel.leftOffset: 10
*activityDetail*messageIDLabel.leftOffset: 10
*activityDetail*resourceLabel.leftOffset: 10
*activityDetail*additionalInfoLabel.leftOffset: 10

*activityDetail*logTimeValue.leftOffset: 10
*activityDetail*messageTypeValue.leftOffset: 10
*activityDetail*messageValue.leftOffset: 10
*activityDetail*expandedMessageValue.leftOffset: 10
*activityDetail*analystNotesValue.leftOffset: 10
*activityDetail*ccrNumberValue.leftOffset: 10
*activityDetail*marNumberValue.leftOffset: 10
*activityDetail*messageIDValue.leftOffset: 10
*activityDetail*sessionIDValue.leftOffset: 10
*activityDetail*productIDValue.leftOffset: 10
*activityDetail*resourceValue.leftOffset: 10
*activityDetail*additionalInfoValue.leftOffset: 10

*activityDetail*logTimeValue.rightOffset: 10
*activityDetail*messageTypeValue.rightOffset: 10
*activityDetail*messageValue.rightOffset: 10
*activityDetail*expandedMessageValue.rightOffset: 10
*activityDetail*analystNotesValue.rightOffset: 10
*activityDetail*ccrNumberValue.rightOffset: 10
*activityDetail*marNumberValue.rightOffset: 10
*activityDetail*messageIDValue.rightOffset: 10
*activityDetail*resourceValue.rightOffset: 10
*activityDetail*additionalInfoValue.rightOffset: 10

**\*dps_main\*qawHostName: qaw2**

*dps_main*unackAlarmsValue.topOffset: 5
*dps_main*unackAlarmsValue.rightOffset: 10
*dps_main*unackAlarmsLabel.rightOffset: 5

*dps_main*advisoriesLabel.topOffset: 5
*dps_main*advisoriesLabel.leftOffset: 10
*dps_main*alarmsLabel.topOffset: 5

*dps_main*alarmsLabel.leftOffset: 10

*dps_main*timeValue.topOffset: 5
*dps_main*timeValue.rightOffset: 10
*dps_main*timeLabel.rightOffset: 5

*dps_main*userLabel.topOffset: 5
*dps_main*userLabel.leftOffset: 10
*dps_main*userValue.leftOffset: 5

*dps_main*XmScrolledWindow.leftOffset: 5
*dps_main*XmScrolledWindow.rightOffset: 5
*dps_main*XmScrolledWindow.bottomOffset: 5
*dps_main*alarmScrolledWindow.height: 200
*dps_main*advisoryScrolledWindow.height: 100

*eventList*listWindow.topOffset: 10
*eventList*listWindow.leftOffset: 10
*eventList*listWindow.rightOffset: 10
*eventList*listWindow.bottomOffset: 10
*eventList*eventLists.height: 200
*eventList*eventLists.width: 900

*eventListFilter.filterForm.defaultPosition: true
*eventListFilter.shadowThickness: 0
*eventListFilter*timeRangeToggle.topOffset: 10
*eventListFilter*timeRangeToggle.leftOffset: 10
*eventListFilter*sessionBox.marginWidth: 10
*eventListFilter*sessionBox.marginHeight: 10
*eventListFilter*sessionBox.spacingWidth: 10
*eventListFilter*resourceBox.marginWidth: 10
*eventListFilter*resourceBox.marginHeight: 10
*eventListFilter*resourceBox.spacingWidth: 10
*eventListFilter*resourceBox.resourceLabel.marginWidth: 24
*eventListFilter*resourceBox.resourceLable.marginHeight: 10
*eventListFilter*resourceBox.resourceText.leftOffset: 10
*eventListFilter*resourceBox.timeRangeTable.marginWidth: 10
*eventListFilter*resourceBox.timeRangeTable.spacingWidth: 10
*eventListFilter*productBox.marginWidth: 10
*eventListFilter*productBox.marginHeight: 10
*eventListFilter*productBox.spacingWidth: 10
*eventListfilter*timeRangeTable*.leftArrowDirection: XmARROW_DOWN

**\*pdpsDataMaint\*.updateInterval: 10**
*pdpsDataMaint*XmList.visibleItemCount: 5
**\*pdpsDataMaint\*XmList.background: white**

```
*pdpsDataMaint*XchiTable.spacingHeight: 5
*pdpsDataMaint*XmSeparator.width: 20
*pdpsDataMaint*XbaeMatrix.cellMarginWidth: 10

*pdpsDataMaint*overviewForm.marginWidth: 10
*pdpsDataMaint*overviewForm.marginHeight: 10
*pdpsDataMaint*overviewForm*dataTable.spacingWidth: 10
*pdpsDataMaint*overviewForm*dataLabel.marginHeight: 8
*pdpsDataMaint*dataForm.marginHeight: 10
*pdpsDataMaint*dataForm.marginWidth: 10
*pdpsDataMaint*dataForm.dataButtonTable.marginHeight: 10
*pdpsDataMaint*dataForm*dataMatrix.leftOffset: 10
*pdpsDataMaint*dataForm*dataMatrix.leftOffset: 10


!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
! PDPS Data Maintenance Filter Dialog resources
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
*pdpsDataMaintFilter*XmList.visibleItemCount: 5
**pdpsDataMaintFilter*XmList.background: white**
*pdpsDataMaintFilter.filterForm.defaultPosition: true
*pdpsDataMaintFilter.shadowThickness: 0
*pdpsDataMaintFilter*deletionStatusForm.topOffset: 10
*pdpsDataMaintFilter*deletionStatusForm.marginWidth: 10
*pdpsDataMaintFilter*deletionStatusTable.leftOffset: 25
*pdpsDataMaintFilter*deletionStatusTable.spacingWidth: 10
*pdpsDataMaintFilter*logStatusForm.topOffset: 10
*pdpsDataMaintFilter*logStatusForm.marginWidth: 10
*pdpsDataMaintFilter*logStatusTable.leftOffset: 25
*pdpsDataMaintFilter*logStatusTable.spacingWidth: 10
*pdpsDataMaintFilter*topSeparator.topOffset: 10
*pdpsDataMaintFilter*middleSeparator.topOffset: 10
*pdpsDataMaintFilter*missionBox.marginWidth: 10
*pdpsDataMaintFilter*missionBox.marginHeight: 10
*pdpsDataMaintFilter*missionBox.spacingWidth: 10
*pdpsDataMaintFilter*missionForm.width: 55


!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
! PDPS Data Maintenance Log Dialog resources
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
**pdpsDataMaintLog*XmList.background: white**
*pdpsDataMaintLog*logForm.marginHeight: 10
*pdpsDataMaintLog*logForm.marginWidth: 10
*pdpsDataMaintLog*logTable.spacingHeight:  10
*pdpsDataMaintLog*logTable.marginHeight: 10
*pdpsDataMaintLog*logTable.leftOffset: 10
*pdpsDataMaintLog*connectionWindow.leftOffset: 10
```

```
*pdpsDataMaintLog*dataWindow.leftOffset: 10
*pdpsDataMaintLog*logTapeLabel.bottomOffset: 10
```

```
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
! PDPS Data Maintenance Recover Dialog resources
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
```
**\*pdpsDataMaintRecover\*XmList.background: white**
```
*pdpsDataMaintRecover*recoverForm.marginHeight: 10
*pdpsDataMaintRecover*recoverResourceTable.marginWidth: 10
*pdpsDataMaintRecover*XmSeparator.height: 10
*pdpsDataMaintRecover*recoverTopSeparator.height: 20
*pdpsDataMaintRecover*recoverSelectTable.marginWidth: 10
*pdpsDataMaintRecover*recoverSelectTable.bottomOffset: 10
*pdpsDataMaintRecover*recoverSelectTable.spacingWidth: 20
*pdpsDataMaintRecover*recoverStatusLabel.marginWidth:     10
*pdpsDataMaintRecover*XmList.visibleItemCount: 5
*pdpsDataMaintRecover*recConnectionList*width: 20
*pdpsDataMaintRecover*recoverOverwriteToggle.bottomOffset: 10
*pdpsDataMaintRecover*recoverOverwriteToggle.marginWidth: 10
```

```
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
! PDPS Data Maintenance Disk Dialog resources
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
*pdpsDataMaintDisk*diskForm.marginHeight: 10
*pdpsDataMaintDisk*diskForm.marginWidth: 10
*pdpsDataMaintDisk*diskDataForm.topOffset: 10
*pdpsDataMaintDisk*diskDataForm*XmForm.marginWidth: 10
*pdpsDataMaintDisk*XbaeMatrix.leftOffset: 10
*pdpsDataMaintDisk*XbaeMatrix.bottomOffset: 10
```

```
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
! PDPS Data Maintenance Tape Dialog resources
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
*pdpsDataMaintTape*tapeForm.marginHeight: 10
*pdpsDataMaintTape*tapeForm.marginWidth: 10
*pdpsDataMaintTape*XmList.visibleItemCount: 5
*pdpsDataMaintTape*tapeWindow*topOffset: 10
```

```
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
! Product Gaps resources
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
*productGaps*gapWindow.topOffset: 10
*productGaps*gapWindow.leftOffset: 10
*productGaps*gapWindow.rightOffset: 10
*productGaps*gapWindow.bottomOffset: 10
*productGaps*gapWindow.width: 600
```

*productGaps*gapWindow.height: 400
*productGaps*gapTable.spacingWidth: 2
*productGaps*gapTable.spacingHeight: 2

*productGaps*timeScale.marginHeight: 5
*productGaps*timeScale.spacingHeight: 2
*productGaps*timeScale.majorGridHeight: 5
*productGaps*timeScale.majorGridWidth: 1

*productGaps*horizontalScaleForm.bottomOffset: 10
*productGaps*horizontalScaleForm.leftOffset: 10
*productGaps*horizontalScaleForm.rightOffset: 10

*productGaps*verticalScaleForm.topOffset: 10
*productGaps*verticalScaleForm.bottomOffset: 10
*productGaps*verticalScaleForm.rightOffset: 10

*productGaps*topLeftLabel.background: white

*productGaps*XchiTimeScale.background: white
*productGaps*XchiTimeScale.indicatorColor: red
*productGaps*XchiTimeScale.indicatorWidth: 2
*productGaps*XchiTimeScale.textColor: blue
*productGaps*XchiTimeScale.majorGridColor: blue

*productGaps*XchiScheduleView*XmCascadeButton.background: orchid2
*productGaps*leftForm*XmCascadeButton.height: 50

*productGaps*XchiScheduleView.background: white
*productGaps*XchiScheduleView.indicatorColor: red
*productGaps*XchiScheduleView.indicatorWidth: 2
*productGaps*XchiScheduleView.majorGridColor: blue
*productGaps*XchiScheduleView.minorGridColor: grey90
*productGaps*XchiScheduleView.marginHeight: 5
*productGaps*XchiScheduleView.minGridSpacing: 20

*productGapsFilter.filterForm.defaultPosition: true
*productGapsFilter.shadowThickness: 0
*productGapsFilter*timeRangeToggle.topOffset: 10
*productGapsFilter*timeRangeToggle.leftOffset: 10
*productGapsFilter*timeRangeBox.timeRangeTable.marginWidth: 10
*productGapsFilter*timeRangeBox.timeRangeTable.spacingWidth: 10
*productGapsFilter*topSeparator.topOffset: 10
*productGapsFilter*apidBox.marginWidth: 10

*productGapsFilter*apidBox.marginHeight: 10
*productGapsFilter*apidBox.spacingWidth: 10

*productList*productListLabel.topOffset: 10
*productList*productListLabel.leftOffset: 13

*productList*listWindow.leftOffset: 10
*productList*listWindow.rightOffset: 10
*productList*listWindow.bottomOffset: 10
*productList*productLists.height: 200

*productListFilter.filterForm.defaultPosition: true
*productListFilter.shadowThickness: 0
*productListFilter*timeRangeToggle.topOffset: 10
*productListFilter*timeRangeToggle.leftOffset: 10
*productListFilter*timeRangeBox.timeRangeTable.marginWidth: 10
*productListFilter*timeRangeBox.timeRangeTable.spacingWidth: 10
*productListFilter*topSeparator.topOffset: 10
*productListFilter*statusBox.marginWidth: 10
*productListFilter*statusBox.marginHeight: 10
*productListFilter*statusBox.spacingWidth: 10
*productListFilter*productTypeBox.marginWidth: 10
*productListFilter*productTypeBox.marginHeight: 10
*productListFilter*productTypeBox.spacingWidth: 10
*productListFilter*productButtonTable.leftOffset: 58
*productListFilter*timeRangeTable*.leftArrowDirection: XmARROW_DOWN

product_monitor.updateInterval: 10
product_monitor.matrixHighlightColor: firebrick

*productMonitor*overviewForm.marginWidth: 5
*productMonitor*overviewForm.topOffset: 5
*productMonitor*overviewForm.processingStatusValue.rightOffset: 10
*productMonitor*overviewSeparator.height: 10
*productMonitor*panedWindow*XmForm.marginHeight: 5
*productMonitor*panedWindow*XmForm.marginWidth: 5

*productMonitor*generationForm*XchiTable.marginWidth: 10
*productMonitor*generationForm*startTimeValue.leftOffset: 10
*productMonitor*generationForm*stopTimeValue.leftOffset: 10
*productMonitor*generationForm*numberOfFilesGeneratedValue.leftOffset: 10
*productMonitor*generationForm*numberOfSFDUValue.leftOffset: 10
*productMonitor*generationForm*numberOfDatasetFilesValue.leftOffset: 10
*productMonitor*generationForm*numberOfDataUnitsValue.leftOffset: 10
*productMonitor*generationForm*numberOfDataUnitBytesValue.leftOffset: 10
*productMonitor*generationForm*LDUReceiptTimeValue.leftOffset: 10

*productMonitor*generationForm*evalStatusOption.marginHeight: 0
*productMonitor*generationForm*failureReasonOption.marginHeight: 0

*productMonitor*panedWindow*tearOffModel: TEAR_OFF_DISABLED
*productMonitor*XbaeMatrix.visibleRows: 4
*productMonitor*deliveryMatrix.cellMarginWidth: 10

*productSpec*XchiTable.spacingHeight: 3
*productSpec*XmOptionMenu.leftOffset: 10
*productSpec*XmOptionMenu.rightOffset: 10
*productSpec*XmToggleButton.leftOffset: 10
*productSpec*XmToggleButton.rightOffset: 10
*productSpec*XmText.leftOffset: 10
*productSpec*XmText.rightOffset: 10
**\*productSpec\*XmText.background: white**
*productSpec*XmLabel.leftOffset: 10
*productSpec*XchiTime.leftOffset: 10
*productSpec*XchiTime.rightOffset: 10
*productSpec*XmList.visibleItemCount: 5
**\*productSpec\*XmList.background: white**

*productSpec*leftTable.marginHeight: 10
*productSpec*leftTable*XmSeparator.height: 22
*productSpec*middleForm.marginHeight: 10
*productSpec*middleForm*XmSeparator.height: 5
*productSpec*rightForm.marginHeight: 10

*productSpec*middle.marginHeight: 10
*productSpec*scheduleButton.rightOffset: 10
*productSpec*scheduleButton.bottomOffset: 25
*productSpec*scheduleLabel.topOffset: 7
*productSpec*sessionWindow.width: 100
*productSpec*sessionWindow.leftOffset: 10
*productSpec*sessionWindow.rightOffset: 10
*productSpec*durationValue.leftOffset: 34
*productSpec*partialDurationValue.leftOffset: 34
*productSpec*repeatDurationValue.leftOffset: 34
*productSpec*dataDurationValue.leftOffset: 34

*productSpec*rightTable.marginHeight: 10
*productSpec*topMiddleBox.bottomOffset: 10
*productSpec*topMiddleBox.spacingWidth: 10
*productSpec*lowerMiddleBox.topOffset: 10
*productSpec*lowerMiddleBox.bottomOffset: 10
*productSpec*lowerMiddleBox.spacingWidth: 10

*productSpec*middleMiddleBox.marginHeight: 10
*productSpec*middleMiddleBox.topOffset: 10

*productSpec*sessionTable.spacingWidth: 20
*productSpec*sessionTable.marginWidth: 30
*productSpec*sessionTable.marginHeight: 10

*productSpec*thresholdTable.marginHeight: 10
*productSpec*trailerTable.marginHeight: 10
*productSpec*seqCntBox.leftOffset: 10
*productSpec*selectBox.spacingWidth: 20
*productSpec*selectBox.marginWidth: 10
*productSpec*selectBox.marginHeight: 10
*productSpec*apidWindow.width: 60
*productSpec*vcidWindow.width: 60
*productSpec*apidVcidWindow.width: 80

*productSpecList*productSpecLabel.topOffset: 10
*productSpecList*productSpecLabel.leftOffset: 13
*productSpecList*productSpecLabel.rightOffset: 13
*productSpecList*specWindow.leftOffset: 10
*productSpecList*specWindow.rightOffset: 10
*productSpecList*specWindow.bottomOffset: 10
*productSpecList*specWindow.width: 532
*productSpecList*specWindow.height: 200

*productSpecListFilter.filterForm.defaultPosition: true
*productSpecListFilter.shadowThickness: 0
*productSpecListFilter*topSeparator.topOffset: 10
*productSpecListFilter*productTypeBox.marginWidth: 10
*productSpecListFilter*productTypeBox.marginHeight: 10
*productSpecListFilter*productTypeBox.spacingWidth: 10
*productSpecListFilter*productButtonTable.leftOffset: 58
*productSpecListFilter*specTypeBox.marginWidth: 10
*productSpecListFilter*specTypeBox.marginHeight: 10
*productSpecListFilter*specTypeBox.spacingWidth: 10
*productSpecListFilter*specButtonTable.leftOffset: 58

resource_monitor*XbaeMatrix.visibleRows: 10
resource_monitor*XbaeMatrix.topOffset: 5
resource_monitor*XbaeMatrix.leftOffset: 5
resource_monitor*XbaeMatrix.rightOffset: 5
resource_monitor*statusMatrix.topOffset: 10
resource_monitor*XmLabel.leftOffset: 6
resource_monitor*XmLabel.topOffset: 10
resource_monitor*timeLabel.leftOffset: 15

resource_monitor*timeLabel.bottomOffset: 5
resource_monitor*timeValue.leftOffset: 15
resource_monitor*timeValue.bottomOffset: 5

*sessionList*sessionListLabel.topOffset: 10
*sessionList*sessionListLabel.leftOffset: 13
*sessionList*listWindow.topOffset: 10
*sessionList*listWindow.leftOffset: 10
*sessionList*listWindow.rightOffset: 10
*sessionList*listWindow.bottomOffset: 10
*sessionList*sessionLists.height: 200

*sessionListFilter.filterForm.defaultPosition: true
*sessionListFilter.shadowThickness: 0
*sessionListFilter*timeRangeToggle.topOffset: 10
*sessionListFilter*timeRangeToggle.leftOffset: 10
*sessionListFilter*timeRangeBox.timeRangeTable.marginWidth: 10
*sessionListFilter*timeRangeBox.timeRangeTable.spacingWidth: 10
*sessionListFilter*topSeparator.topOffset: 10
*sessionListFilter*pdpCaptureStateBox.marginWidth: 10
*sessionListFilter*pdpCaptureStateBox.marginHeight: 10
*sessionListFilter*pdpCaptureStateBox.spacingWidth: 10
*sessionListFilter*pdpCaptureStateButtonTable.leftOffset: 58
*sessionListFilter*preProcStateBox.marginWidth: 10
*sessionListFilter*preProcStateBox.marginHeight: 10
*sessionListFilter*preProcStateBox.spacingWidth: 10
*sessionListFilter*preProcStateButtonTable.leftOffset: 58
*sessionListFilter*timeRangeTable*.leftArrowDirection: XmARROW_DOWN

*session_monitor*XbaeMatrix.visibleRows: 5
session_monitor*XmSeparator*topOffset: 5
session_monitor*XchiTable.marginWidth: 4
**session_monitor*XmScrolledWindow*XchiTable*background: white**
session_monitor*XmScrolledWindow*XchiTable*spacingWidth: 10
**session_monitor*XmScrolledWindow*XmDrawingArea.background: white**
session_monitor*overviewForm*allocatedResourceTable*XmRowColumn*marginHeight: 0
session_monitor*overviewForm*XchiTable*topOffset: 2
session_monitor*overviewForm*totalsLabel.topOffset: 5
session_monitor*overviewForm*totalsLabel.leftOffset: 5
session_monitor*overviewForm*totalsScrolledWindow.leftOffset: 1
session_monitor*overviewForm*blockFrameTable*psnJumpsLabel.leftOffset: 20
session_monitor*overviewForm*blockFrameTable*pedLabel.leftOffset: 20
session_monitor*overviewForm*blockFrameTable*filteredLabel.leftOffset: 20
session_monitor*overviewForm*blockFrameTable*dropLocksLabel.leftOffset: 20
session_monitor*overviewForm*blockFrameTable*crcLabel.leftOffset: 20
session_monitor*overviewForm*blockFrameTable*inBlocksWPSNJumpsLabel.leftOffset: 20

session_monitor*overviewForm*blockFrameTable*inBlockWPEDErrorsLabel.leftOffset: 20
session_monitor*overviewForm*currentStatusLabel*leftOffset: 90
session_monitor*overviewForm*currentStatusLabel*rightOffset:    90
session_monitor*panedWindow*XmForm*XmLabel*topOffset: 5
session_monitor*panedWindow*XmForm*XmScrolledWindow*topOffset: 0
*session_monitor*panedWindow*tearOffModel: TEAR_OFF_ENABLED
*session_monitor*matrixHighlightColor: firebrick
**session_monitor*updateInterval: 5**

# Appendix B.  Alarms, Advisories, and Notifications

The following table provides the complete listing of all alarms (alr), advisories (adv), and notifications (not) generated by the DPS software as of Release 2.0.  As messages are generated, they are stored in the database table db_EventLog. The DPS Main window will display the 100 most recent alarms and the 100 most recent advisories stored in this table.

| Msg ID | Type | Message Text | Sub-system | Reason Why Message Generated | Action To Be Taken by Operator in Response to Message |
|--------|------|--------------|------------|------------------------------|-------------------------------------------------------|
| 171 | Not | Session Connection Established Notification | PDPS | Socket connection made with FES for a session | No action necessary |
| 172 | Not | Session Capture Start Notification | PDPS | First DUS read in from socket | No action necessary |
| 173 | Not | Session Capture Complete Notification | PDPS | FES has closed socket connection with PDPS normally | If text of message says Failure, then search eventlog for error events |
| 174 | Alr | PDP Error Notification:  <text 1> <text 2> <text 3> | PDPS | Generic error message; used for any error encountered by PDPS | 1st text message: where error occurred 2nd text message: what error was 3rd text message: action taken |
| 175 | Not | PDP Software Initialization Notification | PDPS | PDP started successfully or restart for a task was successful | No action necessary |
| 176 | Adv | Flushing queued up messages to database | All | Database has just started to work again, and FIFO file of database updates is going to be written to database | This marker shows the user where queued up events started |
| 177 | Adv | Flush over | All | Indicates status of FIFO flush (e.g., success, failure) | This marker shows the user where last queued up event stops |
| 182 | Adv | Trouble information received | PDPS | PDP has received trouble information from FES | Review eventlog for FES error message, analyze "TIF" file on PDP, and check FES statistics for session |
| 183 | Not | PDP shutdown completed | PDPS | PDP has shut down successfully | No action necessary |
| 193 | Alr | Invalid data captured | PDPS | Invalid data captured from FES (e.g., invalid APID) | Verify FES session statistics |

| Msg ID | Type | Message Text | Sub-system | Reason Why Message Generated | Action To Be Taken by Operator in Response to Message |
|---|---|---|---|---|---|
| 214 | Not | PDP Preprocessing Start | PDPS | Preprocessing started for a session | No action necessary |
| 215 | Not | PDP Preprocessing Complete | PDPS | Preprocessing completed for a session | If abnormal termination, user should find out why |
| 216 | Not | PDP Product Create Start | PDPS | Product generation has started for Product ID X | No action necessary |
| 217 | Not | PDP Product Create Complete | PDPS | Product generation has completed for a product | If abnormal termination, user should find out why |
| 218 | Not | PDP New Product Window | PDPS | There is data for a valid product on CGS List | No action necessary |
| 219 | Not | PDP Telemetry Deletion | PDPS | Indicates status of a session deletion. Type Auto, Manual, PPA cleanup indicated | If failure, user should find out why |
| 241 | Alr | Session passed threshold checking | PDPS | Session quality is good | Include session in products |
| 242 | Alr | Session failed threshold checking | PDPS | Session failed quality assessment; second text field describes why session failed | Take action to improve session quality, or else approve quality manually if desired |
| 261 | Alr | An unrecoverable error occurred while getting the host name in <UnitName> | CHI | System call gethostname failed | Contact system administrator |
| 262 | Alr | An unrecoverable error occurred while closing a socket in <TaskName> <UnitName> | CHI | Socket error occurred in <TestName> | 1. Try restarting task in <TaskName><br>2. Try restarting task it was connected to<br>3. See system administrator |
| 263 | Alr | An unrecoverable error occurred while connecting as a client socket in <TaskName> <UnitName> | CHI | See message 262 | See message 262 |
| 264 | Alr | An attempt to send a message on a socket failed in <TaskName> <UnitName> | CHI | See message 262 | See message 262 |

| Msg ID | Type | Message Text | Sub-system | Reason Why Message Generated | Action To Be Taken by Operator in Response to Message |
|---|---|---|---|---|---|
| 286 | Not | Product ready for creation waiting for analyst directive | PDPS | Only in manual mode; all sessions in product passed quality checking, threshold checking passed (if flag is set), and product ready for creation | Send create product directive |
| 287 | Not | Product scheduled for creation | PDPS | Product is in queue; scheduled for creation | No action necessary |
| 342 | Not | PDP Product has passed retention time | PDPS | Product has not been transmitted to its destination after 72 hours | Send product or put product on hold |
| 343 | Not | PDP All files have been checked for pre-deletion | PDPS | Auto checking for delete has just been done | No action necessary |
| 344 | Not | PDP Directory of files on disk is available in database | PDPS | Scan of disk sessions and product has just been completed as requested | See PDPS Data Maintenance window for list |
| 345 | Alr | PDP 80-percent disk capacity for mission has been reached | PDPS | First alarm to user | Delete something or increase kbyte per mission in db_MissionCatalog |
| 346 | Alr | PDP 90-percent disk capacity for mission has been reached | PDPS | Second alarm to user | Delete something or increase kbyte per mission in db_MissionCatalog |
| 347 | Alr | PDP Disk capacity for mission has been reached | PDPS | Logical disk is over the maximum limit; out of disk space or soon will be | Delete something quickly or increase kilobytes per mission in db_MissionCatalog |
| 348 | Alr | PDP Logical disk is full | PDPS | Total logical disk (e.g., capture) is over the limit and no more disk space is available | Logical disk is full; data will be lost unless something is delete |
| 349 | Not | PDP Logging has started | PDPS | Logging to tape has started | No action necessary |
| 350 | Not | PDP Logging is complete | PDPS | Indicates status of completed logging process | If failure, find out why |
| 353 | Not | PDP Telemetry recovery has started | PDPS | Recovery of tape has started | No action necessary |
| 354 | Not | PDP Telemetry recovery is complete | PDPS | Indicates status of completed recovery process | If failure, find out why |

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| Msg ID | Type | Message Text | Sub-system | Reason Why Message Generated | Action To Be Taken by Operator in Response to Message |
|---|---|---|---|---|---|
| 355 | Not | PDP Tape directory has started | PDPS | Process to read tape directory has started | No action necessary |
| 356 | Not | PDP Tape directory is complete | PDPS | Indicates status of completed tape directory retrieval process | If failure, find out why |
| 357 | Not | PDP Product threshold checking completed | PDPS | Threshold checking complete | If failure, use generate product to force product generation or replay a session and threshold will be rechecked |
| 358 | Not | PDP Product window has completed and has been removed | PDPS | Product generation completed | If failed and repeatable product spec, one-time only specification will automatically be inserted into database |
| 360 | Not | PDP Product specification has been removed | PDPS | Product spec is expired or invalid | No action necessary |
| 361 | Not | PDP All products for mission have been removed | PDPS | Processing for directive to remove mission products and product specifications is complete | No action necessary |
| 363 | Not | PDP Product specification successfully updated | PDPS | Processing for directive to update produce speci-fication is complete | No action necessary |
| 393 | Alr | Environment variable INITIALORACLE-LOGIN does not exist | All | The variable INITIALORACLELOGIN is not set in the users .cshrc file | Set variable INITIALORACLELOGIN to the subsystems' decrypt file path |
| 394 | Alr | Error occurred in opening the decrypted DBMS login file | All | Could not open the password file pointed to by INITIALORACLELOGIN | Make sure the file exists and the proper encryption key was used |
| 395 | Alr | Database login unsuccessful with initial DBMS login ID | All | Could not connect to database with login from password file | Make sure userid/password in password file exist in database |
| 396 | Alr | Received Oracle error while retrieving task login ID | All | Could not retrieve a userid/password for requesting task | Contact DBA |
| 397 | Alr | Bad product spec: <text 1> <text 2> <text 3> | PDPS | The products' product spec is invalid | Reenter product spec |

| Msg ID | Type | Message Text | Sub-system | Reason Why Message Generated | Action To Be Taken by Operator in Response to Message |
|---|---|---|---|---|---|
| 398 | Alr | Time convert error: <text 1> <text 2> <text 3> | PDPS | The spacecraft time is invalid in the DUS | None - product generation will continue |
| 399 | Adv | Deleting group not sent: <text 1> <text 2> <text 3> | PDPS | This message indicates that the group was never sent to its destination when the product was deleted from the system | Identify why DDF didn't receive product and re-create product if necessary |
| 400 | Alr | Requirement warning: <text 1> <text 2> <text 3> | PDPS | Generic error message indicating that a system requirement was reached | 1st text message: where error occurred<br><br>2nd text message: what error was<br><br>3rd text message: action taken |
| 401 | Alr | Bad product spec command: <text 1> <text 2> <text 3> | PDPS | The product spec is invalid | Reenter product spec |
| 402 | Alr | Logic warning: <text 1> <text 2> <text 3> | PDPS | The software is unable to find information that should be in memory. This should never happen | 1st text message: where error occurred<br><br>2nd text message: what error was<br><br>3rd text message: action taken |
| 403 | Adv | DAN missing: <text 1> <text 2> <text 3> | PDPS | The DAN index record does not exist for the product | 1st text message: where error occurred<br><br>2nd text message: what error was<br><br>3rd text message: action taken |
| 404 | Not | No spec for mission: <text 1> <text 2> <text 3> | PDPS | A notification to the users that a mission has been preproccessed that has no product specs | Enter product specs for mission |
| 405 | Alr | File not found: <text 1> <text 2> <text 3> | PDPS | The file to be tared is not on the disk (for logging) or on tape (for recovery) | Locate file on disk. Use tape with the correct file |

| Msg ID | Type | Message Text | Sub-system | Reason Why Message Generated | Action To Be Taken by Operator in Response to Message |
|---|---|---|---|---|---|
| 406 | Alr | TAR error: <text 1> <text 2> <text 3> | PDPS | The tar command failed | 1st text message: where error occurred<br><br>2nd text message: what error was<br><br>3rd text message: action taken<br><br>Check the tape to make sure it is loaded properly. |
| 408 | Alr | Socket error: <text 1> <text 2> <text 3> | PDPS | A socket related error as occurred | 1st text message: where error occurred<br><br>2nd text message: what error was<br><br>3rd text message: action taken |
| 409 | Alr | Abnormal termination: <text 1> <text 2> <text 3> | PDPS | A child process has aborted, <text 1> indicates signal which killed task. Signals 9 or 15 indicate process killed by external force (e.g., CHI directive). Signals 10 or 11 indicate software error (or disk full) | Restart task if necessary or notify sys. engineering for signals 10 and 11 |
| 410 | Adv | Checking product quality: <product spec> | PDPS | The CGS task is starting to check the products quality | No action necessary |
| 411 | Adv | Session quality failed for <product spec>, reason: <text> | PDPS | A session has failed quality checking | If you want the product to pass quality checking, the user must manually pass quality for the failed session. |
| 412 | Adv | Session added to product window: <product spec> | PDPS | A session has been added to the product window | By seeing which sessions have not been added to the product window, the user can see why the product window is not completing |
| 413 | Alr | No EOS token found: <text 1> <text 2> <text 3> | PDPS | The FES did not send an end of session token to the PDPS | Determine if any data was lost, if so, then replay |

| Msg ID | Type | Message Text | Sub-system | Reason Why Message Generated | Action To Be Taken by Operator in Response to Message |
|---|---|---|---|---|---|
| 414 | Alr | Invalid capture data: <text 1> <text 2> <text 3> | PDPS | PDP failed to parse a block of data received from FES. Most likely a data unit had an invalid data unit length | Replay session |
| 417 | Alr | Invalid data: <text 1> <text 2> <text 3> | PDPS | Packet has invalid field, such as: invalid VC/AP, invalid mission_id, S/C time is all zeroes, invalid session ID | None |
| 418 | Alr | Capture setup error: <text 1> <text 2> <text 3> | PDPS | The database is not correctly set up to capture the session | Replay session |
| 419 | Alr | Maximum hash expansion: <text 1> <text 2> <text 3> | PDPS | The PPA task has expanded the hash tables the maximum number of times for an application ID | Generate receive order product for APID mentioned in <text 1> |
| 420 | Adv | PPA maximum discontinuities: <text 1> <text 2> <text 3> | PDPS | Session contained more than 500 gaps for an APID | Identify cause of missing packets, approve session quality |
| 1001 | Adv | PEP task error: <text 1> <text 2> <text 3> | PEP | No child tasks available or child process not started | Check for zombie tasks and available memory |
| 1002 | Adv | PEP reports session terminated: <text 1> <text 2> <text 3> | PEP | Child task (PEI) abnormally terminated | Check event log for cause of PEI task's terminating abnormally |
| 1003 | Adv | Error closing socket to PDP capture: <text 1> <text 2> <text 3> | PEI | Capture task (CSD) no longer available | Replay session |
| 1004 | Adv | Cannot get time information for apps: <text 1> <text 2> <text 3> | PEI | Error in accessing db_PacketizationPath database table | Contact DBA; replay session at a later time |
| 1005 | Adv | Cannot put FE accounting: <text 1> <text 2> <text 3> | PEI | Error in updating/ creating record in db_FESessionAcct database table | Contact DBA; replay session at a later time |
| 1006 | Adv | Cannot update session FE state: <text 1> <text 2> <text 3> | PEI | Error in updating db_ AsqSession-Characteristics database table | Contact DBA; replay session at a later time |

| Msg ID | Type | Message Text | Sub-system | Reason Why Message Generated | Action To Be Taken by Operator in Response to Message |
|---|---|---|---|---|---|
| 1007 | Adv | Cannot insert acquisition session: <text 1> <text 2> <text 3> | PEI | Error in adding to db_acqSession-Characteristics database table | Contact DBA; replay session at a later time |
| 1008 | Adv | Cannot add PDP to resource schedule: <text 1> <text 2> <text 3> | PEI | Error in adding to db_ ResourceSchedule database table | Contact DBA; replay session at a later time |
| 1009 | Adv | Cannot update session PDP state: <text 1> <text 2> <text 3> | PEI | Error in updating db_ acqSession-Characteristics database table | Contact DBA; replay session at a later time |
| 1010 | Adv | Cannot add PE to resource schedule: <text 1> <text 2> <text 3> | PEI | ORACLE error in adding entry to db_Resource Schedule database table | Contact DBA; replay session at a later time |
| 1011 | Adv | Cannot commit changes to database: <text 1> <text 2> <text 3> | PEI | ORACLE unable to apply new session setup to database | Contact DBA; replay session at a later time |
| 1012 | Adv | Cannot roll back changes to database: <text 1> <text 2> <text 3> | PEI | Error occurred while trying to undo changes for a new session | Contact DBA; replay session at a later time |
| 1013 | Adv | Cannot get default resource string: <text 1> <text 2> <text 3> | PEI | Error in db_ Resource-Constituent Defaults database table | Run configure_dps script to ensure correct setup |
| 1014 | Adv | Cannot generate next schedule ID: <text 1> <text 2> <text 3> | PEI | | Contact DBA |
| 1015 | Adv | Cannot generate next session ID: <text 1> <text 2> <text 3> | PEI | | Contact DBA |
| 1016 | Adv | Cannot allocate memory for xxx List: <text 1> <text 2> <text 3> | PEI | Not enough free memory for PEI task | Terminate non-DPS processes; replay session at a later time |
| 1017 | Adv | PE connection terminated: <text 1> <text 2> <text 3> | PEI | PEI determined end of session due to PE error | Check IMOC event log |
| 1018 | Adv | PE timeout detected: <text 1> <text 2> <text 3> | PEI | Normal end of session | No action |

| Msg ID | Type | Message Text | Sub-system | Reason Why Message Generated | Action To Be Taken by Operator in Response to Message |
|---|---|---|---|---|---|
| 1019 | Adv | Cannot add entries to Constituent Schedule | PEI | ORACLE unable to add new rows to db_ ResourceConstituent-Schedule table | Create special product specification for session |
| 1100 | Alr | PTT unknown ftp error: <text 1> <text 2> <text 3> | PTT | Unable to process FTP Log File. Transfer status unknown | Contact Formats to determine file transmit status for product in question. Set status manually |
| 1101 | Alr | PTT transmit failed: <text 1> <text 2> <text 3> | PTT | PTT transmit failed for a known reason | Investigate error; inform system engineering |
| 1102 | Alr | PTT fatal signal received: <text 1> <text 2> <text 3> | PTT | PTT software terminated for an unknown reason | Restart PTT if desired |
| 1103 | Alr | PTT database error occurred: <text 1> <text 2> <text 3> | PTT | PTT cannot access database | Inform DBA |

# Abbreviations and Acronyms

ACS                Attitude Control System

ADC               attitude determination and control

ADS               attitude determination system

AOS               acquisition of signal

APID              applications process identifier

ATSC              AlliedSignal Technical Services Corporation

CADU            channel access data unit

CAS               Capture Acquisition Session (task)

CCR               configuration change request

CCSDS           Consultative Committee for Space Data Systems

C&DH             command and data handling

CDR               central data recording

CDS               Comprehensive Discrepancy System

CGP               Create Group Product (task)

CGS               Create Group Product Server (task)

CHI                computer-human interface

CLCW            command link control word

CLTU             command link transmission unit

CMB               Configuration Management Board

CMS               Command Management System

CPU               central processing unit

CRC               cyclical redundancy check

CSD               Capture Session Data (task)

CTT               compatibility test trailer

CVCDU          coded virtual channel data unit

DAN               Data Availability Notice

DBA               database administrator

DGIB             DSN-GSFC interface block

DHSS             data handling and software subsystem

DMR              detailed mission requirements

| | |
|---|---|
| DOY | day of year |
| DPS | Data Processing System |
| DSFDU | detached standard formatted data unit |
| DSID | data stream identification |
| DSN | Deep Space Network |
| DU | data unit |
| DUS | Data Unit Summary |
| ECS | EOF Core System |
| ELV | expendable launch vehicle |
| EOF | Experimenter's Operations Facility |
| EOS | end-of-session |
| EPS | Electric Power Subsystem |
| ESA | European Space Agency |
| FDDI | fiber-distributed data interface |
| FDF | Flight Dynamics Facility |
| FES | Front-End Subsystem |
| FIFO | first-in-first-out |
| FOT | Flight Operations Team |
| FTP | File Transfer Protocol |
| GCF | Ground Communications Facility |
| GDS | ground data system |
| GMT | Greenwich mean time |
| GN | Ground Network |
| GOF | Guest Observer Facility |
| GOLF | global oscillations at low frequencies |
| GOTS | Government off-the-shelf |
| GSE | ground support equipment |
| GSFC | Goddard Space Flight Center |
| GSTDN | Ground Spaceflight Tracking and Data Network |
| GTAS | Generic Trend Analysis System |
| GTM | Greenwich mean time |
| GUI | Graphical User Interface |
| HGA | high-gain antenna |

| | |
|---|---|
| HOI | halo orbit insertion |
| ID | identifier |
| IGSE | Instrument Ground System Equipment |
| IMOC | Integrated Mission Operations Center |
| IOC | in-orbit checkout |
| IP | Internet Protocol |
| I&T | integration and test |
| ITOS | Integrated Test and Operations System |
| JAD | Joint Application Development |
| JPL | Jet Propulsion Laboratory |
| LAN | local area network |
| L&EO | launch and early orbit |
| LIFO | last-in-first-out |
| LOS | loss of signal |
| LZP | level-zero processing |
| MA | multiple access |
| MAR | mission analysis room |
| MDUL | missing data unit list |
| MIT | Massachusetts Institute of Technology |
| MOC | Mission Operations Control Center |
| MO&DSD | Mission Operations and Data Systems Directorate |
| MODNET | MO&DSD Operational/Development Network |
| MOR | mission operations room |
| MOT | mission operations team |
| MP | mission planning |
| mux | multiplexed |
| NASA | National Aeronautics and Space Administration |
| Nascom | NASA Communications |
| NASDA | National Space Development Agency |
| NCC | Network Control Center |
| NFS | Network File System |
| NGT | NASA Ground Terminal |
| NOCC | Network Operations Control Center |

| | |
|---|---|
| NMOS | Network and Mission Operations Support |
| NRT | near-real time |
| NRZ-L | non-return to zero level |
| NSSC-I | Nasa Standard Spacecraft Computer Model-I |
| NSSDC | National Space Science Data Center |
| OBDH | onboard data handling |
| PAS | Preprocess Acquisition Session (task) |
| PDB | project database |
| PDP | production data processor |
| PDPS | Production Data Processor Subsystem |
| PE | packet extraction |
| PEI | Packet Extraction Interface |
| PEP | Packet Extraction Parent |
| PER | Packet Extraction Replay |
| PI | principal investigator |
| PLM | payload module |
| PM | preventative maintenance |
| PN | Pseudo-random Noise |
| PPA | Preprocess Acquisition (task) |
| PSC | PDP Software Control (task) |
| PSN | port sequence number |
| PTT | Product Transfer Task |
| Q&A | quality and accounting |
| QAC | quality accounting capsule |
| QAW | quality analysis workstation |
| QAWS | quality analysis workstation subsystem |
| RAID | redundant array of inexpensive disks |
| RF | radio frequency |
| RM | Resource Monitor (task) |
| RS | Reed-Solomon |
| RT | real time |
| RTSW | Real Time Solar Wind |
| SAA | South Atlantic Anomaly |

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|---|---|
| SAOSOC | Smithsonian Astrophysical Observatory Science Operations Center |
| SCAMA | switching, conferencing, and monitoring arrangement |
| SCID | spacecraft identifier |
| SCS | Spacecraft Computer System |
| SDF | Science Data Formatter |
| SDOC | Science Data Operations Center |
| SDPF | Sensor Data Processing Facility |
| SDS | Spacecraft Data System |
| SEAS | Systems, Engineering, and Analysis Support |
| SFDU | Standard Formatted Data Unit |
| SI | Scientific Instrument |
| SMEX | Small Explorer Project |
| SN | Space Network |
| SOCC | Science Operations Control Center |
| SOF | Science Operations Facility |
| SOTA | Special Operations and Test Area |
| SSA | S-band single access |
| SSR | solid state recorder |
| STGT | Second TDRS Ground Terminal |
| STR | Science Tape Recorder |
| TAP | Tape log/recovery (task) |
| TCD | tape contents directory |
| TCS | thermal control subsystem |
| TDRS | Tracking and Data Relay Satellite |
| TDRSS | Tracking and Data Relay Satellite System |
| TIF | Trouble Information File |
| TOO | target of opportunity |
| TRACE | Transition Region and Coronal Explorer |
| TTR | tape transaction request; TDRS Trouble Report |
| UDP | User Datagram Protocol |
| UPS | uninterruptible power supply |
| UTC | universal time coordinated |
| VC | virtual channel |

| | |
|---|---|
| VCDU | virtual channel data unit |
| VCID | virtual channel identifier |
| WFF | Wallops Flight Facility |
| WPS | Wallops Island Orbital Tracking Station |
| WSG | Wallop Scheduling Group |
| WSGT | White Sands Ground Terminal |
| WWW | World Wide Web |
| ZOE | zone of exclusion |