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EOSDIS Core System Project

Release 6B Planning and Data Processing Subsystem Database Design and Schema Specifications for the ECS Project

October 2002

Raytheon Company
Upper Marlboro, Maryland

Release 6B Planning and Data Processing Subsystem Database Design and Schema Specifications for the ECS Project

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RESPONSIBLE ENGINEER

Peter MacHarrie /s/ 10/24/02

Peter MacHarrie, Database Development Manager Date
EOSDIS Core System Project

SUBMITTED BY

Mark McBride /s/ 10/25/02

Mark McBride, Development Engineering Manager Date
EOSDIS Core System Project

Raytheon Company
Upper Marlboro, Maryland

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Preface

This document describes the data design and database specification for the Subscription Server subsystem. It is one of eleven documents comprising the detailed database design specifications for each of the ECS subsystems.

The subsystem database design specifications for the as delivered system include:

311-CD-620-001	Release 6B Data Management (DM) Subsystem Database Design and Database Schema Specifications for the ECS Project
311-CD-621-001	Release 6B Ingest Subsystem Database Design and Database Schema Specifications for the ECS Project
311-CD-622-001	Release 6B Interoperability Subsystem (IOS) Database Design and Database Schema Specifications for the ECS Project
311-CD-623-001	Release 6B Planning and Data Processing Subsystem (PDPS) Database Design and Database Schema Specifications for the ECS Project
311-CD-624-001	Release 6B Science Data Server (SDSRV) Subsystem Database Design and Database Schema Specifications for the ECS Project
311-CD-625-001	Release 6B Storage Management (STMGMT) Subsystem Database Design and Database Schema Specifications for the ECS Project
311-CD-626-001	Release 6B Subscription Server (SUBSRV) Subsystem Database Design and Database Schema Specifications for the ECS Project
311-CD-627-001	Release 6B Management Support Subsystem (MSS) Database Design and Database Schema Specifications for the ECS Project
311-CD-628-001	Release 6B Configuration Registry Subsystem (CONFIG) Database Design and Database Schema Specifications for the ECS Project
311-CD-630-001	Release 6B PDS Subsystem Database Design and Database Schema Specification
311-CD-631-001	Release 6B Name Server Subsystem Database Design and Database Schema Specification

This document is a contract deliverable with an approval code 2. As such, it does not require formal Government acceptance. Contractor approved changes to this document are handled in accordance with change control requirements described in the EOS Configuration Management Plan. Changes to this document will be made by document change notice (DCN) or by complete revision.

Entity Relationship Diagrams (ERDs) presented in this document have been exported directly from tools and some cases contain too much detail to be easily readable within hard copy page constraints. The reader is encouraged to view these drawings on-line using the Portable Document Format (PDF) electronic copy available via the ECS Data Handling System (ECS) on the world wide web at http://edhs1.gsfc.nasa.gov.

Any questions should be addressed to:

Data Management Office
The ECS Project Office
Raytheon Company
1616 McCormick Drive
Upper Marlboro, MD 20774-5301

Abstract

This document outlines Release 6A.06 “as-built” database design and database schema of the Planning and Data Processing Subsystem database, including the physical layout of the database and initial installation parameters.

Keywords: data**,** database, design, configuration, database installation, scripts, security, data model, data dictionary, replication, performance tuning, SQL server, database security, replication, database scripts

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Appendix A- PDPS Database Schema Diagrams

Abbreviations and Acronyms

1. Introduction

1.1 Identification

This Planning and Data Processing Subsystem (PDPS) Database Design and Database Schema Specification document, Contract Data Requirement List (CDRL) Item #050, whose requirements are specified in Data Item Description (DID) 311/DV2, is a required deliverable under the Earth Observing System (EOS) Data and Information System (EOSDIS) Core System (ECS), Contract NAS5-60000.

1.2 Scope

The PDPS Database Design and Database Schema Specification document describes the data design and database specifications to support the data requirements of Release 6A PDPS software.

1.3 Purpose

The purpose of the PDPS Database Design and Database Schema Specification document is to support the maintenance of PDPS data and databases throughout the life cycle of ECS. This document communicates the database implementation in sufficient detail to support ongoing configuration management.

1.4 Audience

This document is intended to be used by ECS maintenance and operations staff. The document is organized as follows:

Section 1 provides information regarding the identification, scope, purpose and audience of this document.

Section 2 provides a listing of the related documents, which were used as a source of information for this document.

Section 3 contains the PDPS physical data model, which is the database tables, triggers, stored procedures, and flat file usage.

Section 4 provides a description of database performance and tuning features such as indexes, caches, and segments.

Section 5 provides a description of the database security infrastructure used and list of the approach, users, groups, and object permissions available upon initial installation.

Section 6 provides a description of installation, de-installation, backup/recovery and miscellanenous scripts.

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2. Related Documents

2.1 Applicable Documents

The following documents, including Internet links, are referenced in this document, or are directly applicable, or contain policies or other directive matters that are binding upon the content of this volume.

305-CD-610	Release 6B Segment Design Specification for the ECS Project
920-TDG-009	DAAC Hardware Database Mapping/GSFC
920-TDN-009	DAAC Hardware Database Mapping/NSIDC
920-TDE-009	DAAC Hardware Database Mapping/EDC
920-TDL-009	DAAC Hardware Database Mapping/LARC
920-TDS-009	DAAC Hardware Database Mapping/SMC
920-TDG-010	DAAC Database Configuration/GSFC
920-TDN-010	DAAC Database Configuration/NSIDC
920-TDE-010	DAAC Database Configuration/EDC
920-TDL-010	DAAC Database Configuration/LARC
920-TDS-010	DAAC Database Configuration/SMC
920-TDG-011	DAAC Sybase Log Mapping/GSFC
920-TDN-011	DAAC Sybase Log Mapping/NSIDC
920-TDE-011	DAAC Sybase Log Mapping/EDC
920-TDL-011	DAAC Sybase Log Mapping/LARC
920-TDS-011	DAAC Sybase Log Mapping/SMC
922-TDG-013	Disk Partitions/GSFC
922-TDN-013	Disk Partitions/NSIDC
922-TDE-013	Disk Partitions/EDC
922-TDL-013	Disk Partitions/LARC
922-TDS-013	Disk Partitions/SMC

These documents are maintained as part of the ECS baseline and available on the world wide web at the URL: http://cmdm.east.hitc.com/baseline. Please note that this is a partial mirror site in that some items are not available (they are identified) since this is OPEN to all. This site may also be reached through the EDHS homepage. Scroll page to the connections line and click on the ECS Baseline Information System link.

2.2 Information Documents

The following documents, although not directly applicable, amplify or clarify the information presented in this document. These documents are not binding on this document.

313-CD-610	Release 6B CSMS/SDPS Internal ICD for the ECS Project
609-CD-610	Release 6B Operations Tools Manual for the ECS Project
611-CD-610	Release 6B Mission Operation Procedures for the ECS Project

3. Data Design

3.1 Design Overview

The PDPS database implements the large majority of the persistent data requirements for the PDPS subsystem. The database is designed in such a manner as to satisfy business policy while maintaining data integrity and consistency. Database tables are implemented using the Sybase Relational Database Management system (DBMS). All components of the PDPS database are described in the sections; information is presented in sufficient detail to support maintenance needs.

3.1.1 Physical Data Model Entity Relationship Diagram

Entity relationship diagrams (ERDs) were developed for use as a "roadmap" to the PDPS database. These ERDs are found in Appendix A. An ERD is a schematic of the physical data structure that illustrates the dependencies and relationships between database entities (i.e., tables). On ERDs, database entities are represented by rectangles and relationships are represented by arrows as shown by the key in Figure 3-1. Details on the syntax used by the *Power Designer Data Architect* Computer Aided Software Engineering (CASE) tool may be found in the *Powersoft: Power Designer for PowerBuilder* Reference Guide. The ERDs presented in Appendix A for the PDPS database were produced using the *Power Designer* tool.

The ECS Conceptual Model for the Science Data Processing Segment (SDPS) was developed using an Object Oriented (OO) CASE tool. However; since Sybase implements a RDBMS with an Object wrapper, the syntax (model notation) is converted from OO to relational and the terminology changes-the "attribute" becomes "column" and "class" becomes "table." Since the specifications of some entities in this document are transferred from the OO Conceptual Model repository, there are many cases where the OO terminology is retained—as, for example, in the table and column names and definitions.

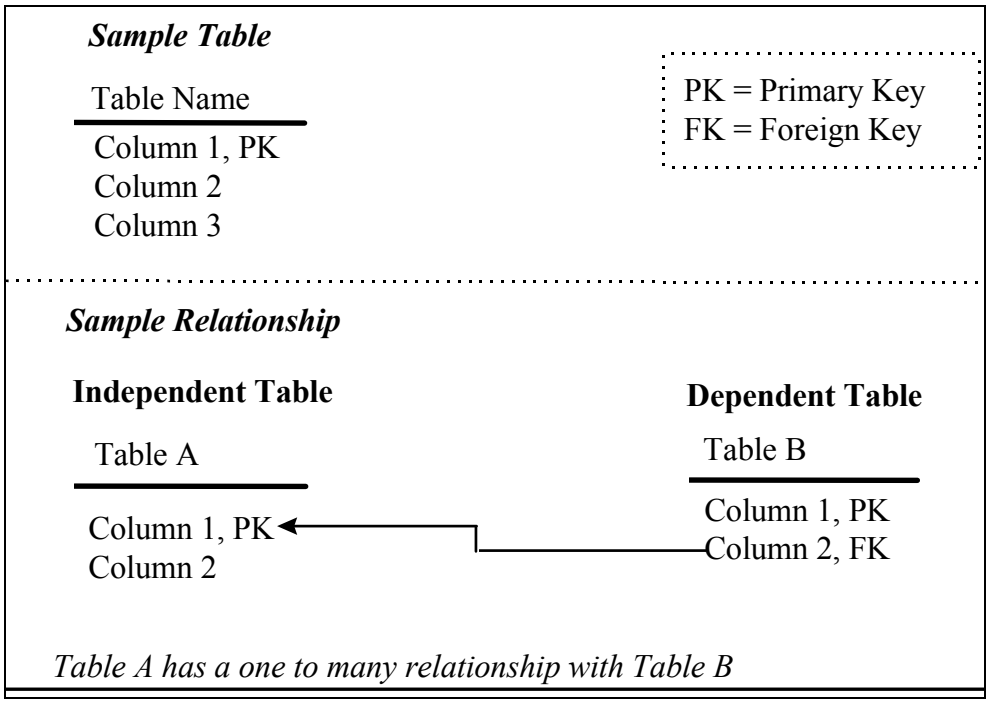

Figure 3-1. ERD Key

Table 3-1 contains a listing of all the database tables named within the PDPS database. This list is presented in alphabetical order corresponding to the database tables illustrated in the ERD (reference Figure 3-1). The database tables listed immediately following Table 3-1 are presented in the same order as the table.

Table 3-1. Data Tables Listing (1 of 2)

Table	Logical Category
DpPrAutosysMapList	Data Processing Data
DpPrClassSchedulingLimits	Data Processing Data
DpPrDeletableGranules	Data Processing Data
DpPrDiskAllocation	Data Processing Data
DpPrDprDependList	Data Processing Data
DpPrExecutable	Data Processing Data
DpPrFile	Data Processing Data
DpPrGranuleLocation	Data Processing Data
DpPrPcf	Data Processing Data
DpPrPge	Data Processing Data
DpPrPgePromotion	Data Processing Data
DpPrPgeExitDependency	Data Processing Data
DpPrPgeExitMessage	Data Processing Data
DpPrPgeLimits	Data Processing Data
DpPrResourceLock	Data Processing Data

Table 3-1. Data Tables Listing (2 of 3)

Table	Logical Category
DpPrRpcID	Data Processing Data
DpPrRscCpuRamAllocation	Data Processing Data
DpPrTrace	Data Processing Data
EcDbDatabaseVersions	Database Versioning
PlAlternate	Planning Data
PlAlternateInputValues	Planning Data
PlAssociatedScienceData	Planning Data
PlAuxiliaryLogicalIds	Planning Data
PlDataGranuleShort	Planning Data
PlDataGranuleShort_Archive	Planning Data
PlDataProcessingRequest	Planning Data
PlDataSourceMaster	Planning Data
PlDataTypeFiles	Planning Data
PlDataTypeMaster	Planning Data
PlDataTypeReq	Planning Data
PlDprCompletion	Planning Data
PlDprCompletion_Archive	Planning Data
PlDprData	Planning Data
PlEsdtParam	Planning Data
PlEsdtParmValues	Planning Data
PlFileTypeReq	Planning Data
PlGroundEvent	Planning Data
PlGroundEventResourceExplosion	Planning Data
PlMetadataChecks	Planning Data
PlNotification	Planning Data
PlOnDemandPR	Planning Data
PlOnDemandStore	Planning Data
PlOrder	Planning Data
PlOutputDataYield	Planning Data
PlOutputFileType	Planning Data
PlPathModel	Planning Data
PlPgeChain	Planning Data
PlPgeDetailParameters	Planning Data
PlPgeDetailTile	Planning Data
PlPgeDetailTime	Planning Data
PlPgeMaster	Planning Data
PlPgeOrbitModel	Planning Data
PlPgePerformance	Planning Data
PlPgePriority	Planning Data
PlPlans	Planning Data
PlPrMetadataValue	Planning Data
PlProductionRequest	Planning Data
PlProductionStrategy	Planning Data
PlPrParameter	Planning Data
PlPRPriority	Planning Data

Table 3-1. Data Tables Listing (3 of 3)

Table	Logical Category
PlPrVsPlan	Planning Data
PlResource	Planning Data
PlResourceRequirement	Planning Data
PlRoutineArrival	Planning Data
PlRscComputer	Planning Data
PlRscDiskPartition	Planning Data
PlRscRealComputer	Planning Data
PlRscString	Planning Data
PlStandingOrder	Planning Data
PlStandingOrderGranules	Planning Data
PlTileCoordinates	Planning Data
PlTileSchemaShort	Planning Data
PlTimer	Planning Data
PlUsedByCenter	Planning Data
PlUserPriority	Planning Data
RpActivityType	Planning Data
RpReservationInterval	Planning Data
RpResourceReservation	Planning Data
RpRscPlanComments	Planning Data
RpRsvRscExplosion	Planning Data

Table 3-2 maintains a mapping of instances of Autosys to physical resources.

Table 3-2. DpPrAutosysMapList

Name	Code	Type	Primary Key	Mandatory
autosysId	autosysId	varchar(20)	No	Yes
autosysIdKey	autosysIdKey	int	Yes	Yes
resourceString	resourceString	varchar(20)	Yes	Yes

Table 3-3 maintains a list of Data Processing Requests (DPRs) currently being processed by Autosys.

Table 3-3. DpPrClassSchedulingLimits

Name	Code	Type	Primary Key	Mandatory
dprClass	dprClass	int	Yes	Yes
maxDprs	maxDprs	int	No	Yes
minDprs	minDprs	int	No	Yes
currentDprs	currentDprs	int	No	Yes

Table 3-4 identifies granules which are candidates for deletion.

Table 3-4. DpPrDeletableGranules

Name	Code	Type	Primary Key	Mandatory
sequence	sequence	numeric (9)	No	Yes
granuleId	granuleId	varchar (130)	No	Yes
granuleSize	granuleSize	float	No	Yes
machineId	machineId	varchar (60)	No	Yes
partitionSize	partitionSize	float	No	Yes
diskUsage	diskUsage	float	No	Yes

Table 3-5 describes the disk resources allocated for a job.

Table 3-5. DpPrDiskAllocation

Name	Code	Type	Primary key	Mandatory
diskAllocationId	diskAllocationId	numeric(9)	No	Yes
computerId	computerId	int	No	Yes
diskPartitionId	diskPartitionId	int	No	Yes
diskAllocationType	diskAllocationType	smallint	No	Yes
path	path	varchar(255)	No	No
diskAllocationSize	diskAllocationSize	float	No	No
diskAllocationUser	diskAllocationUser	varchar(29)	No	No
diskAllocationActual	diskAllocationActual	float	No	No
fileName	fileName	varchar(14)	No	No

Table 3-6 defines a list of DPRs which depend on the completion of the current DPR.

Table 3-6. DpPrDprDependList

Name	Code	Type	Primary Key	Mandatory
dependentDprId	dependentDprId	Varchar(29)	Yes	Yes
dprId	dprId	Varchar(29)	Yes	Yes

Table 3-7 contains information about a particular execution of a Product Generation Executive (PGE).

Table 3-7. DpPrExecutable

Name	Code	Type	Primary Key	Mandatory
sswId	sswId	varchar(21)	Yes	Yes
execName	execName	varchar(60)	Yes	Yes
execLocation	execLocation	varchar(240)	No	No
execMachine	execMachine	varchar(60)	Yes	Yes
operatingSystem	operatingSystem	varchar(60)	No	No
execLayer	execLayer	int	No	No
execPermission	execPermission	char(5)	No	Yes
execShell	execShell	varchar(10)	No	Yes

Table 3-8 contains information about files housing data granules.

Table 3-8. DpPrFile

Name	Code	Type	Primary Key	Mandatory
fileName	fileName	varchar(140)	No	Yes
machineId	machineId	varchar(60)	No	Yes
universalReference	universalReference	varchar(255)	No	Yes
path	path	varchar(255)	No	No
fileSize	fileSize	float	No	No
fileType	fileType	int	No	No
fileNumber	fileNumber	int	No	No
sequenceNumber	sequenceNumber	int	No	No
diskPartitionId	diskPartitionId	int	No	No
dateLastAccessed	dateLastAccessed	datetime	No	No
fileId	fileId	numeric(9)	Yes	No

Table 3-9 contains information about the physical location of a data granule.

Table 3-9. DpPrGranuleLocation

Name	Code	Type	Primary Key	Mandatory
dprId	dprId	varchar(29)	No	No
granuleId	granuleId	varchar(130)	Yes	Yes
machineId	machineId	varchar(60)	Yes	Yes
stageState	stageState	int	No	Yes

Table 3-10 contains information about a Process Control File (PCF).

Table 3-10. DpPrPcf

Name	Code	Type	Primary Key	Mandatory
dprId	dprId	varchar(29)	Yes	Yes
pcfLocation	pcfLocation	varchar(240)	No	No
pcfName	pcfName	varchar(60)	No	Yes
pcfPermission	pcfPermission	char(5)	No	Yes
pcfType	pcfType	int	Yes	Yes

Table 3-11 contains information describing a PGE.

Table 3-11. DpPrPge

Name	Code	Type	Primary Key	Mandatory
dprId	dprId	varchar(29)	Yes	Yes
execMachine	execMachine	varchar(60)	No	No
execName	execName	varchar(60)	No	No
pgeCommands	pgeCommands	varchar(120)	No	Yes
pgeEnvironment	pgeEnvironment	varchar(240)	No	No
pgeShell	pgeShell	varchar(30)	No	Yes
pgeState	pgeState	int	No	Yes
pgeCpu	pgeCpu	int	No	No
sswId	sswId	varchar(21)	No	No

Table 3-12 contains information describing a PGE.

Table 3-12. DpPrPgePromotion

Name	Code	Type	Primary Key	Mandatory
dataTypeId	dataTypeId	varchar(20)	No	Yes
inserted	inserted	int	No	No
mode	mode	varchar(25)	No	No
pgeId	pgeId	varchar(25)	No	Yes
scienceGroup	scienceGroup	varchar(5)	No	No
insertTime	insertTime	datetime	No	No
topLevelShell	topLevelShell	varchar(30)	No	No
promotionId	promotionId	numeric(9)	No	No
universalReference	universalReference	varchar(255)	Yes	Yes

Table 3-13 contains information about PGE dependencies upon termination.

Table 3-13. DpPrPgeExitDependency

Name	Code	Type	Primary Key	Mandatory
dependencySswId	dependencySswId	varchar(21)	Yes	Yes
exitCode	exitCode	int	Yes	Yes
exitOperation	exitOperation	varchar(3)	No	No
pgeSswId	pgeSswId	varchar(21)	Yes	Yes

Table 3-14 defines messages associated with the termination of a PGE.

Table 3-14. DpPrPgeExitMessage

Name	Code	Type	Primary Key	Mandatory
exitCode	exitCode	int	Yes	Yes
exitMessage	exitMessage	varchar(240)	No	No
pgeSswId	pgeSswId	varchar(21)	Yes	Yes

Table 3-15 contains information about PGEs that will run in Autosys.

Table 3-15. DpPrPgeLimits

Name	Code	Type	Primary Key	Mandatory
pgeId	pgeId	varchar(25)	Yes	Yes
computerName	computerName	Varchar(60)	Yes	Yes
maxConcurrent	maxConcurrent	int	No	No
numConcurrent	numConcurrent	int	No	No
numScheduled	numScheduled	int	No	No

Table 3-16 contains information for managing resource locking during data processing.

Table 3-16. DpPrResourceLock (1 of 2)

Name	Code	Type	Primary Key	Mandatory
queuePosition	queuePosition	numeric(16,0)	No	Yes
attempts	attempts	int	No	No
ecsUnit	ecsUnit	int	No	No
jobId	jobId	varchar(40)	Yes	Yes

Table 3-16. DpPrResourceLock (2 of 2)

Name	Code	Type	Primary Key	Mandatory
priority	priority	int	No	No
pid	pid	int	No	Yes
state	state	int	No	No

Table 3-17 defines processing table used in fault recovery.

Table 3-17. DpPrRpcID

Name	Code	Type	Primary Key	Mandatory
object	object	varchar(200)	No	Yes
readableTag	readableTag	varchar(70)	Yes	Yes

Table 3-18 contains information about memory allocation for data processing.

Table 3-18. DpPrRscCpuRamAllocation

Name	Code	Type	Primary Key	Mandatory
computerId	computerId	int	Yes	Yes
cpuRamAllocationCpuCount	CpuRamAllocationCpuCount	int	No	No
cpuRamAllocationJobId	CpuRamAllocationJobId	varchar(40)	Yes	Yes
cpuRamAllocationRamSize	cpuRamAllocationRamSize	float	No	No
allocState	allocState	int	No	No

Table 3-19 contains executed trigger information.

Table 3-19. DpPrTrace

Name	Code	Type	Primary Key	Mandatory
time	time	datetime	No	No
procName	procName	varchar(32)	No	No
calledFrom	calledFrom	varchar(40)	No	No
dprId	dprId	varchar(29)	No	No
message	message	varchar(160)	No	No

Table 3-20 identifies the current version level of the PDPS database.

Table 3-20. EcDbDatabaseVersions

Name	Code	Type	Primary Key	Mandatory
EcDbSchemaVersionID	EcDbSchemaVersionID	smallint	Yes	Yes
EcDbDropVersion	EcDbDropVersion	char(64)	No	Yes
EcDbDropDescription	EcDbDropDescription	varchar(255)	No	Yes
EcDbCurrentVersionFlag	EcDbCurrentVersionFlag	char(1)	No	Yes
EcDbDatabaseName	EcDbDatabaseName	varchar(255)	No	No
EcDbDropInstallDate	EcDbDropInstallDate	datetime	No	No
EcDbSybaseVersion	EcDbSybaseVersion	varchar(255)	No	No
EcDbSybaseServer	EcDbSybaseServer	varchar(255)	No	No
EcDbComments	EcDbComments	varchar(255)	No	No
EcDbUpdateProcess	EcDbUpdateProcess	varchar(255)	No	No

Table 3-21 contains information about alternate inputs to PGEs.

Table 3-21. PlAlternate

Name	Code	Type	Primary Key	Mandatory
dataTypeId	dataTypeId	varchar(20)	Yes	Yes
defaultOrder	defaultOrder	int	No	No
defaultTimer	defaultTimer	integer	No	No
logicalId	logicalId	int	Yes	Yes
pgeId	pgeId	varchar(25)	Yes	Yes
primaryType	primaryType	varchar(20)	No	No
runTimeId	runTimeId	int	No	No
temporalFlag	temporalFlag	bit	No	Yes
waitForFlag	waitForFlag	bit	No	Yes

Table 3-22 contains information about alternate inputs to a production request.

Table 3-22. PlAlternateInputValues (1 of 2)

Name	Code	Type	Primary Key	Mandatory
dataType	dataType	varchar(20)	Yes	Yes
logicalId	logicalId	int	Yes	Yes
theOrder	theOrder	int	No	No

Table 3-22. PlAlternateInputValues (2 of 2)

Name	Code	Type	Primary Key	Mandatory
primaryType	primaryType	varchar(20)	No	No
productionRequestId	productionRequestId	varchar(20)	Yes	Yes
temporalFlag	temporalFlag	bit	No	Yes
timerWait	timerWait	int	No	No
type	type	int	No	No

Table 3-23 associates a list of science data with an output granule.

Table 3-23. PlAssociatedScienceData

Name	Code	Type	Primary Key	Mandatory
pgeId	pgeId	varchar(25)	Yes	Yes
dataTypeId	dataType	varchar(20)	Yes	Yes
associatedScienceId	associatedScienceId	int	Yes	Yes
logicalId	logicalId	int	Yes	Yes

Table 3-24 contains lists of auxiliary logical IDs associated with input granules.

Table 3-24. PlAuxiliaryLogicalIds

Name	Code	Type	Primary Key	Mandatory
pgeId	pgeId	varchar(25)	Yes	Yes
primaryLogicalId	PrimarylogicalId	int	Yes	Yes
auxiliaryLogicalId	auxiliaryLogicalId	int	Yes	Yes
auxiliarySequenceNumber	auxiliarySequence-Number	int	No	Yes

Table 3-25 contains basic information describing a data granule.

Table 3-25. PlDataGranuleShort (1 of 2)

Name	Code	Type	Primary Key	Mandatory
absoluteDeletionTime	absoluteDeletionTime	datetime	No	No
availability	availability	bit	No	Yes
availabilityActual	availabilityActual	datetime	No	No
availabilityPredicted	availabilityPredicted	datetime	No	No
baselineTime	baselineTime	datetime	No	No

Table 3-25. PIDataGranuleShort (2 of 2)

Name	Code	Type	Primary Key	Mandatory
dataTypeId	dataTypeId	varchar(20)	No	Yes
granuleId	granuleId	varchar(130)	Yes	Yes
granuleSize	granuleSize	float	No	No
insertTime	insertTime	datetime	No	No
predictedStagingTime	predictedStagingTime	integer	No	No
scienceGroup	scienceGroup	varchar(5)	No	No
stageState	stageState	int	No	No
startTime	startTime	datetime	No	No
stopTime	stopTime	datetime	No	No
tileId	tileId	int	No	No
universalReference	universalReference	varchar(255)	No	No
version	version	int	No	No
timeStamp	timeStamp	datetime	No	No

Table 3-26 contains archive for basic information describing a data granule.

Table 3-26. PIDataGranuleShort_Archive

Name	Code	Type	Primary Key	Mandatory
absoluteDeletionTime	absoluteDeletionTime	datetime	No	No
archivalDate	archivalDate	datetime	No	No
availability	availability	bit	No	Yes
availabilityActual	availabilityActual	datetime	No	No
availabilityPredicted	availabilityPredicted	datetime	No	No
baselineTime	baselineTime	datetime	No	No
dataTypeId	dataTypeId	varchar(20)	No	Yes
granuleId	granuleId	varchar(130)	Yes	Yes
granuleSize	granuleSize	float	No	No
insertTime	insertTime	datetime	No	No
predictedStagingTime	predictedStagingTime	integer	No	No
scienceGroup	scienceGroup	varchar(5)	No	No
timeStamp	timeStamp	datetime	No	Yes
version	version	int	No	No
stageState	stageState	int	No	No
tileId	tileId	int	No	No
stopTime	stopTIme	datetime	No	No
startTime	startTime	datetime	No	No
universalReference	universalReference	varchar(255)	No	No

Table 3-27 contains information describing a Data ProcessingRequest (DPR).

Table 3-27. PIDataProcessingRequest

Name	Code	Type	Primary Key	Mandatory
actualStart	actualStart	datetime	No	No
alarmTime	alarmTime	datetime	No	No
autosysId	autosysId	varchar(20)	No	No
baselineTime	baselineTime	datetime	No	No
completionState	completionState	varchar(10)	No	No
dataStartTime	dataStartTime	datetime	No	No
dataStopTime	dataStopTime	datetime	No	No
dprCollectionId	dprCollectionId	varchar(10)	No	No
dprId	dprId	varchar(29)	Yes	Yes
lateMessagesSent	LateMessagesSent	int	No	No
mssRequestId	mssRequestId	varchar(20)	No	No
name	Name	varchar(27)	No	No
onDemandDistribution	onDemandDistribution	varchar(10)	No	No
pgeId	PgeId	varchar(17)	No	Yes
predictedStart	PredictedStart	datetime	No	No
priority	Priority	int	No	No
productionRequestId	ProductionRequestId	varchar(20)	No	Yes
dprState	dprState	int	No	No
sswId	sswId	varchar(17)	No	Yes
timeStamp	timeStamp	Datetime	No	No
chainFlag	chainFlag	bit	No	No
tileId	tileId	int	No	No
chainId	chainId	varchar(29)	No	No
scheduledMachine	scheduledMachine	varchar(60)	No	No

Table 3-28 contains information about when external data will arrive in ECS.

Table 3-28. PIDataSourceMaster

Name	Code	Type	Primary Key	Mandatory
dataTypeId	dataTypeId	varchar(20)	Yes	Yes
predictionMethod	predictionMethod	varchar(18)	No	No
supplierName	supplierName	varchar(30)	No	No

Table 3-29 contains information about multi-file data types.

Table 3-29. PIDataTypeFiles

Name	Code	Type	Primary Key	Mandatory
dataTypeId	dataTypeId	varchar(20)	Yes	Yes
fileTypeId	fileTypeId	int	No	No
fileTypeName	fileTypeName	varchar(40)	Yes	Yes
maxNumfFiles	MaxNumFiles	int	No	No

Table 3-30 contains basic information about a data type.

Table 3-30. PIDataTypeMaster

Name	Code	Type	Primary Key	Mandatory
archiveCenter	archiveCenter	varchar(20)	No	No
catalogueCategory	catalogueCategory	varchar(15)	No	No
dataTypeId	dataTypeId	varchar(20)	Yes	Yes
dataTypeName	dataTypeName	varchar(20)	No	No
dataTypeDescription	dataTypeDescription	varchar(60)	No	No
dataServUrString	dataServUrString	varchar(255)	No	No
dynamicFlag	dynamicFlag	int	No	Yes
dynamicType	dynamicType	int	No	No
hdfFlag	hdfFlag	bit	No	Yes
instrument	instrument	varchar(20)	No	No
interimLastPgeToUse	interimLastPgeToUse	varchar(17)	No	No
interimLongDuration	interimLongDuration	int	No	No
interimShortDuration	interimShortDuration	int	No	No
maxFilesOfAnyType	maxFilesOfAnyType	int	No	No
maxFileTypes	maxFileTypes	int	No	No
nominalSize	nominalSize	float	No	No
platformName	platformName	varchar(25)	No	No
processingCenter	processingCenter	varchar(20)	No	No
processingLevel	processingLevel	varchar(6)	No	No
provider	provider	varchar(50)	No	No
qaSubscription	qaSubscription	bit	No	Yes
spatialFlag	spatialFlag	bit	No	Yes
subscriptionFlag	subscriptionFlag	int	No	No
version	version	varchar(20)	No	No
distParameter	distParameter	varchar(80)	No	No
onDemandCopy	onDemandCopy	bit	No	Yes

Table 3-31 contains information about the association between a PGE and its input data types.

Table 3-31. PlDataTypeReq

Name	Code	Type	Primary Key	Mandatory
closestGranDelta	closestGranDelta	int	No	No
closestGranMaxTries	closestGranMaxTries	int	No	No
dataTypeId	dataTypeId	varchar(20)	Yes	Yes
distValue	distValue	varchar(80)	No	No
dprAlignFlag	dprAlignFlag	bit	No	No
endTimeOffset	endTimeOffset	integer	No	No
inputType	inputType	int	No	Yes
linkId	linkId	int	No	No
logicalId	logicalId	int	Yes	Yes
maxGranReq	maxGranReq	int	No	No
minGranReq	minGranReq	int	No	No
numNeeded	numNeeded	int	No	No
pcfFileType	pcfFileType	int	No	No
pgeId	pgeId	varchar(25)	Yes	Yes
qaThreshold	qaThreshold	varchar(40)	No	No
queryType	queryType	int	No	No
scienceGroup	scienceGroup	varchar(5)	No	No
spatialPadKM	spatialPadKM	float	No	No
startTimeOffset	startTimeOffset	integer	No	No
timeDelta	timeDelta	int	No	No
whereClause	whereClause	varchar(255)	No	No

Table 3-32 contains statistics on the execution of a DPR entered after its completion.

Table 3-32. PlDprCompletion (1 of 2)

Name	Code	Type	Primary Key	Mandatory
completionDate	completionDate	datetime	Yes	Yes
dprElapsedTime	dprElapsedTime	float	No	No
dprId	dprId	varchar(27)	Yes	Yes
exitCode	exitCode	int	No	No
pgeBlockInputOperations	pgeBlockInputOperations	int	No	No
pgeBlockOutputOperations	pgeBlockOutputOperations	int	No	No
pgeCpuTime	pgeCpuTime	float	No	No
pgeElapsedTime	pgeElapsedTime	float	No	No
pgeMaxMemoryUse	pgeMaxMemoryUse	float	No	No

Table 3-32. PlDprCompletion (2 of 2)

Name	Code	Type	Primary Key	Mandatory
pgePageFaults	pgePageFaults	int	No	No
pgeSharedMemoryUse	pgeSharedMemoryUse	float	No	No
pgeSwaps	pgeSwaps	int	No	No
platform	platform	varchar(60)	No	No
systemCpuTime	systemCpuTime	float	No	No

Table 3-33 contains archived statistics on the execution of a DPR entered after its completion.

Table 3-33. PlDprCompletion_Archive

Name	Code	Type	Primary Key	Mandatory
archivalDate	archivalDate	datetime	No	No
completionDate	completionDate	datetime	Yes	Yes
dprElapsedTime	dprElapsedTime	float	No	No
dprId	dprId	varchar(27)	Yes	Yes
exitCode	exitCode	int	No	No
pgeBlockInputOperations	pgeBlockInputOperations	int	No	No
pgeBlockOutputOperations	pgeBlockOutputOperations	int	No	No
pgeCpuTime	pgeCpuTime	float	No	No
pgeElapsedTime	pgeElapsedTime	float	No	No
pgeMaxMemoryUse	pgeMaxMemoryUse	float	No	No
pgePageFaults	pgePageFaults	int	No	No
pgeSharedMemoryUse	pgeSharedMemoryUse	float	No	No
pgeSwaps	pgeSwaps	int	No	No
platform	platform	varchar(60)	No	No
systemCpuTime	systemCpuTime	float	No	No

Table 3-34 contains information about the relationship between a DPR and a data granule.

Table 3-34. PlDprData (1 of 2)

Name	Code	Type	Primary Key	Mandatory
accepted	accepted	int	No	Yes
dprId	dprId	varchar(29)	Yes	Yes
granuleId	granuleId	varchar(130)	Yes	Yes
ioFlag	ioFlag	int	Yes	Yes
linkId	linkId	int	No	No

Table 3-34. PlDprData (2 of 2)

Name	Code	Type	Primary Key	Mandatory
logicalId	logicalId	int	Yes	Yes
minGranReq	minGranReq	int	Yes	Yes
numNeeded	numNeeded	int	No	No
onDemandFlag	onDemandFlag	int	Yes	Yes
theOrder	theOrder	int	No	No
primaryType	primaryType	varchar(20)	No	No
temporalFlag	temporalFlag	bit	No	Yes
timerExp	timerExp	bit	No	Yes
timerStart	timerStart	bit	No	Yes
timeWait	timeWait	int	No	No
type	type	int	No	No
waitForFlag	waitForFlag	bit	No	Yes

Table 3-35 is an explosion table for PlDataTypeMaster. It contains the parameter list used to retrieve the metadata associated with a newly arrived instance of the data type.

Table 3-35. PlEsdtParam

Name	Code	Type	Primary Key	Mandatory
containerName	containerName	varcahr(100)	No	Yes
dataTypeId	dataTypeId	varchar(20)	Yes	Yes
paramName	paramName	varchar(20)	Yes	Yes
paramType	paramType	varchar(20)	No	No
secondParm	secondParm	varchar(40)	Yes	Yes
secondValue	secondValue	varchar(80)	Yes	Yes

Table 3-36 is an explosion table for PlDataGranuleShort. Contains lists of ESDT parameter values associated with a data granule, i.e. metadata values associated with the data type used to determine the suitability of the data granule for production.

Table 3-36. PlEsdtParmValues

Name	Code	Type	Primary Key	Mandatory
esdtParmName	esdtParmName	varchar(40)	Yes	Yes
esdtParmVal	esdtParmVal	varchar(80)	No	No
granuleId	granuleId	varchar(130)	Yes	Yes
secondParm	secondParm	varchar(40)	No	Yes
secondValue	secondValue	varchar(80)	Yes	Yes

Table 3-37 is an explosion table for PlDataTypeReq showing the various file types associated with a data type that is input to a PGE.

Table 3-37. PlFileTypeReq

Name	Code	Type	Primary Key	Mandatory
dataTypeId	dataTypeId	varchar(20)	Yes	Yes
fileType	fileType	int	Yes	Yes
logicalId	logicalId	int	Yes	Yes
maxNumFiles	maxNumFiles	int	No	No
pgeId	pgeId	varchar(17)	Yes	Yes

Table 3-38 contains information about a ground event, i.e. the allocation of resources to some non-production task such as maintenance.

Table 3-38. PlGroundEvent

Name	Code	Type	Primary Key	Mandatory
groundEventActivation	groundEventActivation	int	No	Yes
groundEventDescription	groundEventDescription	varchar(40)	No	No
groundEventDuration	groundEventDuration	int	No	No
groundEventId	groundEventId	int	Yes	Yes
groundEventName	groundEventName	varchar(40)	No	No
groundEventPriority	groundEventPriority	int	No	No
groundEventEnd	groundEventEnd	datetime	No	No
groundEventStart	groundEventStart	datetime	Yes	Yes

Table 3-39 maps PlGroundEvent to PlResource.

Table 3-39. PlGroundEventResourceExplosion

Name	Code	Type	Primary Key	Mandatory
groundEventId	groundEventId	int	Yes	Yes
resourceId	resourceId	int	Yes	Yes
groundEventStart	groundEventStart	datetime	Yes	Yes

Table 3-40 provides a metadata field and its corresponding value to be checked against the actual metadata of the specified input data granule when deciding if a particular input should be used or if its corresponding PGE should be executed.

Table 3-40. PlMetadataChecks

Name	Code	Type	Primary Key	Mandatory
dataTypeId	dataTypeId	varchar(20)	Yes	Yes
ioFlag	ioFlag	int	Yes	Yes
logicalId	logicalId	int	Yes	Yes
operator	operator	varchar(3)	No	No
paraName	paraName	varchar(20)	Yes	Yes
queryFlag	queryFlag	int	No	No
queryType	queryType	int	No	No
pgeId	pgeId	varchar(25)	Yes	Yes
type	type	varchar(5)	No	No
value	value	varchar(40)	No	No
secondParm	secondParm	varchar(40)	Yes	Yes
secondValue	secondValue	varchar(80)	Yes	Yes

Table 3-41 is a planning table used in fault recovery.

Table 3-41. PlNotification

Name	Code	Type	Primary Key	Mandatory
notificationMsg	notificationMsg	varchar(255)	Yes	Yes
insertTime	insertTime	datetime	No	Yes
noOfRetry	noOfRetry	int	No	Yes
processingStatus	processingStatus	int	No	Yes

Table 3-42 contains all the OnDemand production requests.

Table 3-42. PlOnDemandPR

Name	Code	Type	Primary Key	Mandatory
orderId	orderId	varchar(20)	No	Yes
standingOrderId	standingOrderId	varchar(20)	No	No
productionRequestId	productionRequestId	varchar(20)	Yes	Yes

Table 3-43 contains all the OnDemand order information coming from the user.

Table 3-43. PlOnDemandStore

Name	Code	Type	Primary Key	Mandatory
orderId	orderId	varchar(20)	Yes	Yes
requestId	requestId	varchar(20)	Yes	Yes
pgeId	pgeId	varchar(25)	No	Yes
dataTypeId	dataTypeId	varchar(20)	No	Yes
granuleUr	granuleUr	varchar(255)	No	Yes
orderType	orderType	int	No	Yes
state	state	int	No	Yes
insertTime	insertTime	datetime	No	Yes

Table 3-44 contains all the OnDemand orders.

Table 3-44. PlOrder

Name	Code	Type	Primary Key	Mandatory
dataTypeId	dataTypeId	varchar(20)	No	Yes
mssOrderId	mssOrderId	varchar(20)	Yes	Yes
orderType	orderType	int	No	No
originalOrder	originalOrder	text	No	No
userEmail	userEmail	varchar(100)	No	No
userId	userId	varchar(20)	No	No

Table 3-45 Provides information about the output data granules associated with a PGE.

Table 3-45. PlOutputDataYield (1 of 2)

Name	Code	Type	Primary Key	Mandatory
dataTypeId	dataTypeId	varchar(20)	Yes	Yes
linkId	linkId	int	No	No
logicalId	logicalId	int	Yes	Yes
maxSize	maxSize	int	No	No
metadataLogId	metadataLogId	int	No	No
minGranYield	minGranYield	int	No	No
minSize	minSize	int	No	No
pcfFileType	pcfFileType	int	No	No
pgeId	pgeId	varchar(25)	Yes	Yes

Table 3-45. PlOutputDataYield (2 of 2)

Name	Code	Type	Primary Key	Mandatory
scienceGroup	scienceGroup	varchar(5)	No	No
maxGranYield	maxGranYield	int	No	No
distValue	distValue	varchar(80)	No	No

Table 3-46 provides information about file types associated with an output data granule.

Table 3-46. PlOutputFileType

Name	Code	Type	Primary Key	Mandatory
dataTypeId	dataTypeId	varchar(20)	Yes	Yes
fileType	fileType	int	Yes	Yes
logicalId	logicalId	int	Yes	Yes
maxNumFiles	maxNumFiles	int	No	No
pgeId	pgeId	varchar(25)	Yes	Yes

Table 3-47 maps the current absolute path number to the instrument-specific path number.

Table 3-47. PlPathModel

Name	Code	Type	Primary Key	Mandatory
platform	platform	varchar(25)	Yes	Yes
pathMapName	pathMapName	varchar(25)	Yes	Yes
absolutePathNum	absolutePathNum	int	Yes	Yes
pathMapNum	pathMapNum	int	No	Yes

Table 3-48 contains all the OnDemand product names and associated PGE names.

Table 3-48. PlPgeChain

Name	Code	Type	Primary Key	Mandatory
dataTypeId	dataTypeId	varchar(20)	Yes	Yes
pgeName	pgeName	varchar(10)	Yes	Yes
pgeVersion	pgeVersion	varchar(10)	Yes	Yes
sequenceNumber	sequenceNumber	Int	No	Yes

Table 3-49 provides details regarding the user-defined parameters associated with a PGE.

Table 3-49. PlPgeDetailParameters

Name	Code	Type	Primary Key	Mandatory
pgeParameterDefault	pgeParameterDefault	varchar(200)	No	No
description	description	varchar(80)	No	No
pgeParameterLogicalId	pgeParameterLogicalId	int	Yes	Yes
pgeId	pgeId	varchar(25)	Yes	Yes
pgeParameterName	pgeParameterName	varchar(50)	No	No
pgeParametersDbQuery	pgeParametersDbQuery	int	No	No
pgeParameterSelectorFlag	pgeParameterSelectorFlag	bit	No	Yes

Table 3-50 contains details of time associated with the scheduling of a PGE.

Table 3-50. PlPgeDetailTile

Name	Code	Type	Primary Key	Mandatory
pgeId	pgeId	varchar(25)	Yes	Yes
schemaName	processingPeriod	varchar(20)	No	Yes

Table 3-51 contains details of time associated with the scheduling of a PGE.

Table 3-51. PlPgeDetailTime

Name	Code	Type	Primary Key	Mandatory
orbitOffset	orbitOffset	int	No	No
pgeId	pgeId	varchar(25)	Yes	Yes
processingBoundary	processingBoundary	varchar(40)	No	No
processingPeriod	processingPeriod	varchar(20)	No	No

Table 3-52 is the main source of information about a PGE.

Table 3-52. PlPgeMaster (1 of 2)

Name	Code	Type	Primary Key	Mandatory
defaultProfileFlag	defaultProfileFlag	bit	No	Yes
instrument	instrument	varchar(20)	No	No
minNumOutputs	minNumOutputs	int	No	No
deleteFlag	deleteFlag	int	No	No

Table 3-52. PIPgeMaster (2 of 2)

Name	Code	Type	Primary Key	Mandatory
normalStagingTime	normalStagingTime	integer	No	No
keyLogicalId	keyLogicalId	int	No	No
pgeId	pgeId	varchar(25)	Yes	Yes
pgeName	pgeName	varchar(10)	No	Yes
pgeTestOperational	pgeTestOperational	int	No	Yes
pgeVersion	pgeVersion	varchar(10)	No	Yes
compoundFlag	compoundFlag	int	No	Yes
pgeScheduleType	pgeScheduleType	char(1)	No	No
platform	platform	varchar(25)	No	No
profileDescription	profileDescription	varchar(255)	No	No
profileId	profileId	int	No	No
reprocessStagingTime	reprocessStagingTime	integer	No	No
sswId	sswId	varchar(17)	No	No
delayBeforeQuery	delayBeforeqUERY	int	No	No
pathMapName	pathMapName	varchar(25)	No	No
checkOutputs	checkOutputs	bit	No	Yes

Table 3-53 is used to calculate the estimated times for an orbit.

Table 3-53. PIPgeOrbitModel

Name	Code	Type	Primary Key	Mandatory
orbitNumber	orbitNumber	int	Yes	Yes
orbitLength	orbitLength	int	No	No
orbitStart	orbitStart	datetime	No	No
platform	platform	varchar(25)	Yes	Yes
pathNumber	pathNumber	int	No	Yes

Table 3-54 contains performance statistics for a PGE.

Table 3-54. PIPgePerformance (1 of 2)

Name	Code	Type	Primary Key	Mandatory
blockInputOperation	blockInputOperation	int	No	No
blockOutputOperation	blockOutputOperation	int	No	No
cpuTime	cpuTime	float	No	No

Table 3-54. PlPgePerformance (2 of 2)

Name	Code	Type	Primary Key	Mandatory
dprElapsedTime	dprElapsedTime	float	No	No
faults	faults	int	No	No
maxMemory	maxMemory	float	No	No
pgeId	pgeId	varchar(25)	Yes	Yes
pgeElapsedTime	pgeElapsedTime	float	No	No
runBlockInOperation	runBlockInOperation	int	No	No
runBlockOutOperation	runBlockOutOperation	int	No	No
runCpuTime	runCpuTime	float	No	No
runMaxMemory	runMaxMemory	float	No	No
runSharedMemory	runSharedMemory	float	No	No
runSwaps	runSwaps	int	No	No
runDprElapsed	runDprElapsed	int	No	No
runFaults	runFaults	int	No	No
runPgeElapsed	runPgeElapsed	int	No	No
sharedMemory	sharedMemory	float	No	No
swaps	swaps	int	No	No

Table 3-55 relates a particular PGE to a particular priority. Used by production planning to determine the priority of jobs that use that PGE.

Table 3-55. PlPgePriority

Name	Code	Type	Primary Key	Mandatory
pgeId	pgeId	varchar(25)	Yes	Yes
priority	priority	int	No	Yes
strategyId	strategyId	varchar(20)	Yes	Yes

Table 3-56 describes a production plan.

Table 3-56. PlPlans (1 of 2)

Name	Code	Type	Primary Key	Mandatory
planActiveStatus	planActiveStatus	char(1)	No	Yes
planDescription	planDescription	varchar(255)	No	No
planCreation	planCreation	datetime	No	No
planName	planName	varchar(20)	No	Yes
planEnd	planEnd	datetime	No	No

Table 3-56. PlPlans (2 of 2)

Name	Code	Type	Primary Key	Mandatory
planId	planId	varchar(20)	Yes	Yes
planStart	planStart	datetime	No	No
planActivation	planActivation	datetime	No	No
strategyId	strategyId	varchar(20)	No	Yes

Table 3-57 contains expected values of parameters associated with a production request.

Table 3-57. PlPrMetadataValue

Name	Code	Type	Primary Key	Mandatory
dataTypeId	dataTypeId	varchar(20)	Yes	Yes
ioFlag	ioFlag	int	Yes	Yes
metadataValue	metadataValue	varchar(80)	No	Yes
paraName	paraName	varchar(40)	Yes	Yes
productionRequestId	productionRequestId	varchar(20)	Yes	Yes
secondParm	secondParm	varchar(40)	Yes	Yes
secondValue	secondValue	varchar(80)	Yes	Yes

Table 3-58 contains information associated with a production request.

Table 3-58. PlProductionRequest (1 of 2)

Name	Code	Type	Primary Key	Mandatory
description	description	varchar(255)	No	No
numDprToKeep	numDprToKeep	int	No	No
numDprToSkip	numDprToSkip	int	No	No
originationDate	originationDate	datetime	No	No
saveState	saveState	char(1)	No	No
pgeIdentifier	pgeIdentifier	varchar(25)	No	Yes
prCollectionId	prCollectionId	varchar(10)	No	No
prType	prType	int	No	No
productionRequestPriority	productionRequestPriority	int	No	No
productionRequestId	productionRequestId	varchar(20)	Yes	Yes
requesterId	requesterId	varcahr(25)	No	Yes
requestStopTime	requestStopTime	datetime	No	No

Table 3-58. PlProductionRequest (2 of 2)

Name	Code	Type	Primary Key	Mandatory
requestStartTime	requestStartTime	datetime	No	No
chainFlag	chainFlag	bit	No	Yes
requestTimeType	requestTimeType	int	No	Yes
skipFirstFlag	skipFirstFlag	bit	No	Yes
targetDate	targetDate	datetime	No	No
targetDelta	targetDelta	int	No	No
scheduleMachine	scheduleMachine	varchar(60)	No	No
multipleDprsFlag	multipleDprsFlag	bit	no	Yes
userType	userType	varchar(20)	No	No
tileId	tileId	int	No	No

Table 3-59 describes a production strategy used by a DAAC to determine priorities for data processing requests.

Table 3-59. PlProductionStrategy

Name	Code	Type	Primary Key	Mandatory
agingDelta	agingDelta	int	No	No
defaultPGEPriority	defaultPGEPriority	int	No	No
defaultPRPriority	defaultPRPriority	int	No	No
defaultUserPriority	defaultUserPriority	int	No	No
pgeWeight	pgeWeight	float	No	No
prTypeWeight	prTypeWeight	float	No	No
strategyId	strategyId	varchar(20)	Yes	Yes
userSelectedPriorityWeight	userSelectedPriorityWeight	float	No	No
userWeight	userWeight	float	No	No

Table 3-60 contains a description of a parameter associated with a production request.

Table 3-60. PlPrParameter

Name	Code	Type	Primary Key	Mandatory
parameterValue	parameterValue	varchar(200)	No	No
pgeId	pgeId	varchar(25)	Yes	Yes
pgeParameterLogicalId	pgeParameterLogicalId	int	Yes	Yes
productionRequestId	productionRequestId	varchar(20)	Yes	Yes

Table 3-61 contains a list of PR-based priorities associated with a production strategy.

Table 3-61. PlPRPriority

Name	Code	Type	Primary Key	Mandatory
priority	priority	int	No	Yes
prType	prType	int	Yes	Yes
strategyId	strategyId	varchar(20)	Yes	Yes

Table 3-62 Maps production requests to production plans.

Table 3-62. PlPrVsPlan

Name	Code	Type	Primary Key	Mandatory
planId	planId	varchar(20)	No	Yes
priority	priority	int	No	No
prVsPlanId	prVsPlanId	numeric(9,0)	No	Yes
productionRequestId	productionRequestId	varchar(20)	Yes	Yes

Table 3-63 is a base table for a physical resource.

Table 3-63. PlResource

Name	Code	Type	Primary Key	Mandatory
activityTypeId	activityTypeId	int	No	No
resourceId	resourceId	int	Yes	Yes
resourceName	resourceName	varchar(60)	No	Yes
resourceState	resourceState	int	No	No
resourceType	resourceType	varchar(15)	No	No
onLineState	onLineState	int	No	Yes

Table 3-64 describes the resource requirements of a PGE.

Table 3-64. PlResourceRequirement (1 of 2)

Name	Code	Type	Primary Key	Mandatory
computer	computer	varchar(60)	No	No
numOfCPUs	numOfCPUs	int	No	No

Table 3-64. PlResourceRequirement (2 of 2)

Name	Code	Type	Primary Key	Mandatory
diskSpace	diskSpace	float	No	No
exeTarFileDiskSpace	exeTarFileDiskSpace	float	No	No
exeTarUR	exeTarUR	varchar(255)	No	No
exeUntarFileDiskSpace	exeUntarFileDiskSpace	float	No	No
mcfName	mcfName	varchar(30)	No	No
pgeId	pgeId	varchar(25)	No	No
ramSize	ramSize	float	No	No
sswId	sswId	varchar(21)	Yes	Yes
string	string	varchar(60)	No	No
topLevelShellName	topLevelShellName	varchar(30)	No	No
toolkitArchitecture	toolkitArchitecture	varchar(20)	No	Yes
pgeCommands	pgeCommands	char(4)	No	Yes

Table 3-65 describes the most frequent method for predicting data arrivals within ECS.

Table 3-65. PlRoutineArrival

Name	Code	Type	Primary Key	Mandatory
boundary	boundary	varchar(40)	No	No
dataTypeId	dataTypeId	varchar(20)	Yes	Yes
delay	delay	int	No	No
period	period	varchar(20)	No	No
duration	duration	varchar(20)	No	No

Table 3-66 describes the computers in the resource configuration for the production system.

Table 3-66. PlRscComputer (1 of 2)

Name	Code	Type	Primary Key	Mandatory
computerId	computerId	int	Yes	Yes
computerName	computerName	varchar(60)	No	No
totalCpu	totalCpu	int	No	No
cpuAllocation	cpuAllocation	int	No	No
maxDiskSpace	maxDiskSpace	int	No	No
operatingSys	operatingSys	varchar(60)	No	No
ramAllocation	ramAllocation	float	No	No
realComputerId	realComputerId	int	No	No

Table 3-66. PlRscComputer (2 of 2)

Name	Code	Type	Primary Key	Mandatory
stringId	stringId	int	No	No
totalRam	totalRam	int	No	No
cpuInUse	cpuInUse	int	No	Yes
ramInUse	ramInUse	float	No	Yes

Table 3-67 describes the disk resources for data production.

Table 3-67. PlRscDiskPartition

Name	Code	Type	Primary Key	Mandatory
blockSize	blockSize	int	No	No
computerId	computerId	int	No	No
partitionName	partitionName	varchar(60)	No	No
diskPartitionId	diskPartitionId	int	Yes	Yes
diskUsage	diskUsage	float	No	Yes
partitionSize	partitionSize	float	No	No
sysAllocation	sysAllocation	float	No	No
userAllocation	userAllocation	float	No	No

Table 3-68 describes a real (as opposed to virtual) computer that is part of the resource configuration for production.

Table 3-68. PlRscRealComputer

Name	Code	Type	Primary Key	Mandatory
realComputerId	realComputerId	int	Yes	Yes
realComputerName	realComputerName	varchar(60)	No	No

Table 3-69 describes a string, i.e. a logical collection of resources allocated for processing the data collected by an instrument.

Table 3-69. PlRscString

Name	Code	Type	Primary Key	Mandatory
autosysIdkey	autosysIdKey	int	No	No
stringId	stringId	int	Yes	Yes
stringName	stringName	varchar(60)	No	Yes

Table 3-70 describes the standing orders and their associated DAR information.

Table 3-70. PIStandingOrder

Name	Code	Type	Primary Key	Mandatory
darId	darId	varchar(20)	No	Yes
darExpirationTime	darExpirationTime	datetime	No	Yes
dataTypeId	dataTypeId	varchar(20)	No	Yes
requestId	requestId	varchar(20)	No	Yes
standingOrderId	standingOrderId	varchar(20)	Yes	Yes
standingOrderText	standingOrderText	text	No	No
userEmail	userEmail	varchar(100)	No	No
userId	userId	varchar(20)	No	No

Table 3-71 describes the granules associated with a particular standing order.

Table 3-71. PIStandingOrderGranules

Name	Code	Type	Primary Key	Mandatory
darId	darId	varchar(20)	No	Yes
processStatus	processStatus	bit	No	Yes
standingOrderId	standingOrderId	varchar(20)	No	Yes
standingOrderIndex	standingOrderIndex	numeric(9)	No	Yes
universalReference	universalReference	varchar(255)	No	Yes

Table 3-72 contains the list of coordinates associated with a tile.

Table 3-72. PITileCoordinates

Name	Code	Type	Primary Key	Mandatory
tileId	tileId	int	Yes	Yes
tileCoordinates	tileCoordinates	varchar(255)	No	Yes
description	description	varchar(255)	No	No

Table 3-73 associates a tile with a schema.

Table 3-73. PlTileSchemaShort

Name	Code	Type	Primary Key	Mandatory
schemaName	schemaName	varchar(20)	Yes	Yes
tileId	tileId	int	Yes	Yes

Table 3-74 contains information about a timer for a data granule for which a DPR is waiting.

Table 3-74. PlTimer

Name	Code	Type	Primary Key	Mandatory
dprId	DprId	varchar(29)	Yes	Yes
granuleId	GranuleId	varchar(130)	Yes	Yes
logicalId	LogicalId	int	Yes	Yes
timeWait	TimeWait	datetime	No	Yes
timerType	TimerType	int	No	Yes

Table 3-75 is an explosion table for PlDataTypeMaster, containing a list of DAACs that employ the data type.

Table 3-75. PlUsedByCenter

Name	Code	Type	Primary Key	Mandatory
daacName	daacName	varchar(20)	Yes	Yes
dataTypeId	dataTypeId	varchar(20)	Yes	Yes

Table 3-76 describes a user-based priority for a production strategy.

Table 3-76. PlUserPriority

Name	Code	Type	Primary Key	Mandatory
priority	priority	int	No	Yes
strategyId	strategyId	varchar(20)	Yes	Yes
userType	userType	varchar(20)	Yes	Yes

Table 3-77 describes an activity type associated with a resource plan.

Table 3-77. RpActivityType

Name	Code	Type	Primary Key	Mandatory
activityName	activityName	varchar(20)	No	No
activityTypeId	activityTypeId	int	Yes	Yes

Table 3-78 describes an interval used in resource planning.

Table 3-78. RpReservationInterval

Name	Code	Type	Primary Key	Mandatory
flag	flag	int	No	No
reservationId	reservationId	int	Yes	Yes
startTime	startTime	datetime	Yes	Yes
stopTime	stopTime	datetime	No	No

Table 3-79 describes a resource reservation used in resource planning.

Table 3-79. RpResourceReservation

Name	Code	Type	Primary Key	Mandatory
activityTypeId	activityTypeId	int	No	No
actualEnd	actualEnd	datetime	No	No
actualStart	actualStart	datetime	No	No
description	description	varchar(30)	No	No
editedDate	editedDate	datetime	No	No
endTime	endTime	datetime	No	No
everyN	everyN	int	No	No
xclusive	exclusive	int	No	No
frequency	frequency	varchar(20)	No	No
name	name	varchar(60)	No	No
originator	originator	varchar(30)	No	No
priority	priority	int	No	No
reservationId	reservationId	int	Yes	Yes
sponsor	sponsor	varchar(30)	No	No
startTime	startTime	datetime	No	No
state	state	varchar(15)	No	No

Table 3-80 contains comments for a resource plan.

Table 3-80. RpRscPlanComments

Name	Code	Type	Primary Key	Mandatory
comment	comment	varchar(255)	No	No
commentId	commentId	int	Yes	Yes
commentType	commentType	varchar(20)	Yes	Yes
orderNum	orderNum	int	Yes	Yes

Table 3-81 associates reservation Ids with resource IDs.

Table 3-81. RpRsvRscExplosion

Name	Code	Type	Primary Key	Mandatory
reservationId	reservationId	int	Yes	Yes
resourceId	resourceId	int	Yes	Yes

3.1.2 Columns

Brief definitions of each of the columns present in the database tables defined above are contained in Table 3-82 Column Definitions.

Table 3-82. Column Definitions (1 of 25)

Column Code	Table	Description
absoluteDeletionTime	PlDataGranuleShort PlDataGranuleShort_Archive	Actual delete time for an interim data granule.
absolutePathNum	PlPathModel	The path number corresponding to PlPgeOrbitModel orbitNumber.
accepted	PlDprData	Indicates whether the data granule, when available has passed metadata checks.
activityName	RpActivityType	Name of an valid activity type.
activityTypeId	RpActivityType RpResourceReservation PlResource	Identifier for a valid activity type.
actualEnd	RpResourceReservation	Actual end time of the reservation.
actualStart	PlDataProcessingRequest	The date and time when the DPR is actually processed.
actualStart	RpResourceReservation	Actual starting time of the reservation.

Table 3-82. Column Definitions (2 of 25)

Column Code	Table	Description
agingDelta	PlProductionStrategy	The amount to be added to a priority for an older DPR that still has not completed.
alarmTime	PlDataProcessingRequest	Reserved for future use.
allocState	DpPrRscCpuRamAllocation	Current state of allocation.
archivalDate	PlDataGranuleShort_Archive PlDprCompletion_Archive	The date and time when the granule inserted into archive tables.
archiveCenter	PlDataTypeMaster	DAAC where the data type is archived.
associatedScienceId	PlAssociatedScienceData	Science data identifier.
attempts	DpPrResourceLock	Number of attempts.
autosysId	DpPrAutosysMapList PlDataProcessingRequest	The identifier of an Autosys instance.
autosysIdKey	DpPrAutosysMapList	Identifies the instance of Autosys mapped to a given physical resource.
autosysIdKey	PlRscString	Identifies the instance of Autosys that is using this string (collection of logical resources) for data processing.
auxiliaryLogicalId	PlAuxiliaryLogicalIds	Contains lists of auxiliary logical IDs associated with input granules.
auxiliarySequenceNumber	PlAuxiliaryLogicalIds	Contains lists of auxiliary logical IDs associated with input granules.
availability	PlDataGranuleShort PlDataGranuleShort_Archive	Flag to indicate availability of the data.
availabilityActual	PlDataGranuleShort PlDataGranuleShort_Archive	The date and time when data was actually made available to the subscription manager.
availabilityPredicted	PlDataGranuleShort PlDataGranuleShort_Archive	The predicted date and time when data will be available to the subscription manager.
baselineTime	PlDataGranuleShort PlDataGranuleShort_Archive	The date and time the DPR was predicted to begin in the latest plan.
baselineTime	PlDataProcessingRequest	The availability date and time of the data granule according to the baselined active plan, agreed to by the DAACs requiring the granule.
blockInputOperation	PlPgePerformance	Number of input blocks used by the PGE during SSI&T.

Table 3-82. Column Definitions (3 of 25)

Column Code	Table	Description
blockOutputOperation	PlPgePerformance	Number of output blocks used by the PGE during SSI&T.
blockSize	PlRscDiskPartition	Block size for the partition.
boundary	PlRoutineArrival	A boundary time form which predicted times can be derived.
calledFrom	DpPrTrace	Executable name from which the stored procedure is called.
catalogueCategory	PlDataTypeMaster	Indicates whether the data type is generated from a PGE, an intermediate file, an input file recievd from another site, etc.
chainFlag	PlDataProcessingRequest, PlProductionRequest	Flag indicating whether this DPR/PR is associated with a chained PGE.
chainId	PlDataProcessingRequest	Value used to associate parent and dependent DPR(s).
checkOutputs	PlPgeMaster	A flag indicating that the output granules generated by this PGE require special checking.
closestGranDelta	PlDataTypeReq	Most recent query delta.
closestGranMaxTries	PlDataTypeReq	Most recent tries.
comment	RpRscPlanComments	Text of the comment.
commentId	RpRscPlanComments	Comment identifier.
commentType	RpRscPlanComments	Type of comment.
completionDate	PlDprCompletion PlDprCompletion_Archive	Date DPR completed.
completionState	PlDataProcessingRequest	A status indicator describing the current status of the DPR.
compoundFlag	PlPgeMaster	Flag that indicates the PGE contains multiple executables.
computer	PlResourceRequirement	A computer within the string (collection of logical resources) required by the PGE.
computerId	DpPrDiskAllocation DpPrRscCpuRamAllocation PlRscComputer PlRscDiskPartition	Identifier for the computer.
computerName	PlRscComputer DpPrPgeLimits	Name for the computer.
containerName	PlEsdtParam	Container name.
cpuAllocation	PlRscComputer	The number of CPUs allocated.
cpuInUse	PlRscComputer	Number of processors already in use.
cpuRamAllocationCpuCount	DpPrRscCpuRamAllocation	CPU count.

Table 3-82. Column Definitions (4 of 25)

Column Code	Table	Description
cpuRamAllocationJobId	DpPrRscCpuRamAllocation	Identifier uniquely defining a particular memory allocation within a computer.
cpuRamAllocationRamSize	DpPrRscCpuRamAllocation	Amount of RAM used.
cpuTime	PlPgePerformance	Amount of CPU time used during SSI&T.
currentDprs	DpPrClassSchedulingLimits	The number of DPRs currently in the system for each DPR class (routine, ondemand, reprocessing.)
daacName	PlUsedByCenter	Name of the DAAC.
darExpirationTime	PlStandingOrder	Standing order on demand capability expiration time.
darId	PlStandingOrder PlStandingOrderGranules	Identifier for the DAR.
dataServUrString	PlDataTypeMaster	Science Data Server UR String.
dataStartTime	PlDataProcessingRequest	The start time for the data that is input to the DPR.
dataStopTime	PlDataProcessingRequest	The stop time for the data that is input to the DPR.
dataType	PlAlternateInputValues	Data Type of the alternate input.
dataTypeDescription	PlDataTypeMaster	A textual description of the data type.

Table 3-82. Column Definitions (5 of 25)

Column Code	Table	Description
dataTypeId	DpPrPgePromotion PlDataGranuleShort_Archive PlOrder PlAlternate PlAssociatedScienceData PlDataGranuleShort PlDataSourceMaster PlDataTypeFiles PlDataTypeMaster PlDataTypeReq PlEsdtParam PlFileTypeReq PlMetadataChecks PlOutputDataYield PlOutputFileType PlPgeChain PlPrMetadataValue PlRoutineArrival PlStandingOrder PlUsedByCenter	Identifier for the data type.
dataTypeName	PlDataTypeMaster	The short name, descriptive acronym, of a data type.
dateLastAccessed	DpPrFile	Date and time when file was last accessed.
defaultOrder	PlAlternate	Default priority of an alternate input earth science data type.
defaultPGEPriority	PlProductionStrategy	Default value for the PGE-based priority.
defaultProfileFlag	PlPgeMaster	Indicates if this is a Default PGE Profile entry.
defaultPRPriority	PlProductionStrategy	Default value for the PR-based priority.
defaultTimer	PlAlternate	The default length of time that the Subscription Manager will wait for an alternate input earth science data type to arrive.
defaultUserPriority	PlProductionStrategy	Default value for the user-based priority.
delay	PlRoutineArrival	The average delay between data collection and the arrival in ECS of the corresponding data granule.

Table 3-82. Column Definitions (6 of 25)

Column Code	Table	Description
delayBeforeQuery	PlPgeMaster	Minimum wait in seconds after the data collection stop time before a query is done on the data server for the input data.
deleteFlag	PlPgeMaster	Indicates that the PGE is waiting for notification from the Subscription Manager that input data is available.
dependentDprId	DpPrDprDependList	Identifier for a dependent DPR.
dependencySswId	DpPrPgeExitDependency	Science software ID of a dependent PGE.
description	PlTileCoordinates	Description of the tile.
description	RpResourceReservation	Description of the reservation.
description	PlPgeDetailParameters	A description of the user parameter.
description	PlProductionRequest	A textual description of the production request.
diskAllocationActual	DpPrDiskAllocation	The actual amount of disk space being consumed by the allocated file.
diskAllocationId	DpPrDiskAllocation	Internal identifer to uniquely track disk allocations.
diskAllocationSize	DpPrDiskAllocation	The amount of disk space specified for the original allocation request.
diskAllocationType	DpPrDiskAllocation	The type of allocation, system files or user (science software) files.
diskAllocationUser	DpPrDiskAllocation	This is the DPR ID associated with allocated disk portion.
diskPartitionId	DpPrDiskAllocation DpPrFile PlRscDiskPartition	Identifier of a disk partition.
diskSpace	PlResourceRequirement	The amount of disk space required for a PGE.
diskUsage	PlRscDiskPartition DpPrDeletableGranules	Current amount of disk resources allocated for science processing.
distParameter	PlDataTypeMaster	Distinguishing parameter.
distValue	PlDataTypeReq PlOutputDataYield	Distinguishing value.
dprAlignFlag	PlDataTypeReq	Indicates whether or not the PGE takes the data best fits the DPR or DPR needs to get any data.

Table 3-82. Column Definitions (7 of 25)

Column Code	Table	Description
dprClass	DpPrClassSchedulingLimits	Type of PR associated with a DPR (ondemand routine reprocessing.)
dprCollectionId	PlDataProcessingRequest	The collection identifier, if this DPR is part of a collection.
dprElapsedTime	PlDprCompletion PlPgePerformance PlDprCompletion_Archive	Elapsed time of DPR execution.
dprId	DpPrTrace DpPrDprDependList DpPrGranuleLocation DpPrPcf DpPrPge PlDataProcessingRequest PlDprCompletion PlDprData PlTimer PlDprCompletion_Archive	Identifier of the DPR.
dprState	PlDataProcessingRequest	Shows the current processing state a dpr has successfully completed.
duration	PlRoutineArrival	Duration of data arrival.
dynamicFlag	PlDataTypeMaster	Tells whether the earth science data type is staic or dynamic.
dynamicType	PlDataTypeMaster	Indicates the type of dynamic data.
EcDbComments	EcDbDatabaseVersions	The software release version of the Sybase SQL server in place when this database version level was initially installed.
EcDbCurrentVersionFlag	EcDbDatabaseVersions	The official description of the ECS software drop for this database version level.
EcDbDatabaseName	EcDbDatabaseVersions	The date and time that the database version level was installed.
EcDbDropDescription	EcDbDatabaseVersions	The name of the database for which this database version level is applied.
EcDbDropInstallDate	EcDbDatabaseVersions	The official name of the ECS software drop for this database version level.
EcDbDropVersion	EcDbDatabaseVersions	Flag indicating if this row represents the current database version entry.

Table 3-82. Column Definitions (8 of 25)

Column Code	Table	Description
EcDbSchemaVersionId	EcDbDatabaseVersions	Notes or comments on the database version level.
EcDbSybaseServer	EcDbDatabaseVersions	The name of the baseline Sybase SQL server controlling this database.
EcDbSybaseVersion	EcDbDatabaseVersions	The subsystem-specific identifier for this database schema version.
EcDbUpdateProcess	EcDbDatabaseVersions	The installation method by which this database version level was installed.
ecsUnit	DpPrResourceLock	ECS identification number.
editedDate	RpResourceReservation	Date on which reservation was last edited.
endTime	RpResourceReservation	End time of the reservation.
endTimeOffset	PlDataTypeReq	Number of seconds to add or subtract from the end time when acquiring this input.
esdtParmName	PlEsdtParamValues	Name of the earth science data type parameter.
esdtParmVal	PlEsdtParamValues	The earth science data type parameter value.
everyN	RpResourceReservation	Reserved for future use.
execLayer	DpPrExecutable	Layer of execution.
execLocation	DpPrExecutable	The disk location of the executable.
execMachine	DpPrExecutable DpPrPge	The machine on which a job execution is performed.
execName	DpPrExecutable DpPrPge	The name of the executable file.
execPermission	DpPrExecutable	The file system permissions setting for the executable.
execShell	DpPrExecutable	For exceutables which are shell scripts, the type of shell for which the script was written.
exeTarFileDiskSpace	PlResourceRequirement	Disk space required for the tar file containng the executable.
exeTarUR	PlResourceRequirement	Universal reference for the tar image containing the executable.
exeUntarFileDiskSpace	PlResourceRequirement	Disk space required for the executable after it has been extracted from the tar file.

Table 3-82. Column Definitions (9 of 25)

Column Code	Table	Description
exitCode	DpPrPgeExitDependency DpPrPgeExitMessage PlDprCompletion PlDprCompletion_Archive	Draft exit condition returned by the PGE to the processing system.
exitMessage	DpPrPgeExitMessage	Text of message upon termination.
exitOperation	DpPrPgeExitDependency	Description of the exit operation.
faults	PlPgePerformance	Number of page faults during SSI&T.
fileId	DpPrFile	A numerical identifier of a file containing (part of) a data granule.
FileName	DpPrFile DpPrDiskAllocation	The name of a data granule file.
fileNumber	DpPrFile	The number identifying granules of a specific ESDT type.
fileSize	DpPrFile	Size of a file.
fileType	DpPrFile PlFileTypeReq PlOutputFileType	Type of file.
fileTypeId	PlDataTypeFiles	Numerical identifier for a file type.
fileTypeName	PlDataTypeFiles	Name of a file type associated with the data type.
flag	RpReservationInterval	Reserved for future use.
frequency	RpResourceReservation	Frequency of the reservation.
granuleId	DpPrDeletableGranules DpPrGranuleLocation PlDataGranuleShort PlDataGranuleShort_Archive PlDprData PlEsdtParmValues PlTimer	Identifier of a data granule.
granuleSize	DpPrDeletableGranules PlDataGranuleShort_Archive PlDataGranuleShort	The storage requirements of the data granule.
groundEventActivation	PlGroundEvent	Start date and time for a ground event.
groundEventDescription	PlGroundEvent	Description of a ground event.
groundEventDuration	PlGroundEvent	The duration of a ground event.
groundEventEnd	PlGroundEvent	End date and time for a ground event.

Table 3-82. Column Definitions (10 of 25)

Column Code	Table	Description
groundEventId	PlGroundEvent PlGroundEventResourceExplosion	Identifier of the ground event.
groundEventName	PlGroundEvent	Name for a ground event.
groundEventPriority	PlGroundEvent	The priority of the ground event.
groundEventStart	PlGroundEvent PlGroundEventResourceExplosion	Starting date and time for a ground event.
hdfFlag	PlDataTypeMaster	Indicates whether this data type contains HDF data.
inputType	PlDataTypeReq	Type of input (required, primary, of backup).
inserted	DpPrPgePromotion	PGE inserted into operational mode from test mode.
insertTime	PlDataGranuleShort PlDataGranuleShort_Archive DpPrPgePromotion PlNotification	Time stamp for the insertion of a granule from science data server into PDPS.
instrument	PlDataTypeMaster PlPgeMaster	The short name or acronym by which an instrument is known.
interDaacDelta	PlProductionStrategy	Amount to add to the calculated priority of an activity if the DPR produces data that is needed at a remote DAAC.
interimLastPageToUse	PlDataTypeMaster	ID of the last PGE to use this interim data type.
interimLongDuration	PlDataTypeMaster	Longest duration this interim data should last until it is deleted from the data server.
interimShortDuration	PlDataTypeMaster	Shortest duration this interim data could last before it is deleted from the data server.
ioFlag	PlDprData	ioFlag indicates whether metadata check should be performed on input or output.
ioFlag	PlMetadataChecks	Used to distinguish between input and output parameters.
ioFlag	PlPrMetadataValue	Indicates whether the granule is input or output with respect to this DPR.
jobId	DpPrResourceLock	Identifier of the current job.

Table 3-82. Column Definitions (11 of 25)

Column Code	Table	Description
keyLogicalId	PlPgeMaster	Indicates which input in the list of inputs for this PGE should be treated as the key when perfoming a spatial query.
lateMessagesSent	PlDataProcessingRequest	Reserved for future use.
linkId	PlDataTypeReq	Reserved for future use.
linkId	PlDprData	Reserved for future use.
linkId	PlOutputDataYield	Indicates which instance of data is to be assigned to the ID.
logicalId	PlAlternate PlAlternateInputValues PlAssociatedScienceData	Identifier to distinguish among multiple instances of a PGE/datatype combination.
logicalId	PlDataTypeReq	The SDP toolkit logical identifier through which the data type is referenced.
logicalId	PlDprData	Identifies which multiple instances of DPR/granule pairs is meant.
logicalId	PlFileTypeReq	Used to distinguish among multiple granules of the same data type and associated PGE.
logicalId	PlMetadataChecks PlTimer	Identifier which singles out an instance of a (DPR, data granule) pairing.
logicalId	PlOutputDataYield	Numerical identifier for distinguishing among multiple alternate inputs having the same data type and referring to the same PGE.
logicalId	PlOutputFileType	The SDP toolkit through which the data type is referenced.
machineId	DpPrDeletableGranules DpPrFile DpPrGranuleLocation	Name or identifier of a machine where a data granule or file resides.
maxConcurrent	DpPrPgeLimits	Max numbered DPRs associated with a particular PGE/computer name.
maxDiskSpace	PlRscComputer	Maximum disk spce (storage) on this computer.
maxDprs	DpPrClassSchedulingLimits	Max of number of DPRs allowed for a DPR class.

Table 3-82. Column Definitions (12 of 25)

Column Code	Table	Description
maxFilesOfAnyType	PlDataTypeMaster	The maximum number of files corresponding to this data type, regardless of file type.
maxfileTypes	PlDataTypeMaster	Maximum number of file types for the ESDT.
maxGranReq	PlDataTypeReq	Maximum number of granules of this input type.
maxGranYield	PlOutputDataYield	The number of data granules produced from the DPR.
maxMemory	PlPgePerformance	Maximum amount of memory required by the PGE duirng SSI&T.
maxNumFiles	PlDataTypeFiles PlFileTypeReq PlOutputFileType	The maximum number of files for a particular file type.
maxSize	PlOutputDataYield	Maximum size of the output data granule.
mcfName	PlResourceRequirement	Name of the metadata control file associated with the PGE.
message	DpPrTrace	Informational messages from stored procedures.
metadataLogId	PlOutputDataYield	Logical ID of the MCF for this output.
metadataValue	PlPrMetadataValue	The metadata value.
minDprs	DpPrClassSchedulingLimits	Minimum number of DPRs allocated for a DPR class.
minGranReq	PlDprData PlDataTypeReq	Minimum number of granules of this input type required by the PGER when forming a DPR.
minGranYield	PlOutputDataYield	Minimum number of output granules produced.
minNumOutputs	PlPgeMaster	The minimum number of data granules the PGE PGE should generate.
minSize	PlOutputDataYield	Minimum size of the output data granule.
mode	DpPrPgePromotion	Indicates the source's mode.
mssOrderId	PlOrder	Identifier for a MSS on-demand order.
mssRequestId	PlDataProcessingRequest	The MSS request Id associated with this on demand DPR.

Table 3-82. Column Definitions (13 of 25)

Column Code	Table	Description
multipleDprsFlag	PlProductionRequest	A flag which allows the generation of multiple DPRs for the same time frame.
name	PlDataProcessingRequest	Name for reservation.
name	RpResourceReservation	Same as the DPR identifier.
nominalSize	PlDataTypeMaster	The nominal size of the data type.
noOfRetry	PlNotification	Number of retry of notifications.
normalStagingTime	PlPgeMaster	The time normally required to stage (make local) the input data for the PGE.
notificationMsg	PlNotification	Notification message.
numConcurrent	DpPrPgeLimits	Number of DPRs currently running in Autosys for each PGE ID/Computer name combination.
numDprToKeep	PlProductionRequest	For intermittently activated PGEs, the number of DPRs to be kept for this PR.
numDprToSkip	PlProductionRequest	For intermittently activated DPRs, the number of DPRs to skip (after the number to keep have been created).
numNeeded	PlDataTypeReq	The number of inputs granules required by the DPR.
numNeeded	PlDprData	The number of inputs required by the PGE.
numOfCPUs	PlResourcesRequirement	Number of CPUs required to run a PGE.
numScheduled	DpPrPgeLimits	The number of DPRs scheduled to run for a given PGE ID/computer name combination.
object	DpPrRpcId	Object name.
onDemandCopy	PlDataTypeMaster	Flag for DPS to be able to copy files to other science processor when a PGE that uses them is runing on the science processor.
onDemandDistribution	PlDataProcessingRequest	The status field to indicate the output product distribution status and expiration of the on demand DPR.

Table 3-82. Column Definitions (14 of 25)

Column Code	Table	Description
onDemandFlag	PlDprData	Indicate whether the data granule associated with this dprData is the on-demand product order by the user.
onLineState	PlResource	Indicates whether the resource is online or offline.
operatingSys	PlRscComputer	The operating system name and version running on this computer.
operatingSystem	DpPrExecutable	Target operating system for the executable.
operator	PlMetadataChecks	The operation (=,>,<) for the comparison of the metatdata field.
orbitLength	PlPgeOrbitModel	The length of the orbit.
orbitNumber	PlPgeOrbitModel	The number of the orbit.
orbitOffset	PlPgeDetailTime	Orbit offset.
orbitStart	PlPgeOrbitModel	The starting time of the orbit.
orderI	PlOnDemandPR	Identifier for a MSS on-demand order.
orderNum	RpRscPlanComments	Order number associated with the production request.
orderType	PlOrder	The type of order. (Current types include “Higher Level, DEM, non-standard L1B).
originalOrder	PlOrder	The original order user supplied.
originationDate	PlProductionRequest	Date and time when the production request was entered.
originator	RpResourceReservation	Originator of the reservation.
parameterValue	PlPrParameter	Value for the parameter.
paramName	PlEsdtParam	The parameter name.
paramType	PlEsdtParam	The parameter type.
paraName	PlMetadataChecks PlPrMetadataValue	The name of the parameter (metadata field).
partitionName	PlRscDiskPartition	Name for the partition.
partitionSize	PlRscDiskPartition DpPrDeletableGranules	Total size of the partition.
path	DpPrDiskAllocation DpPrFile	Location of the file as a path name.
pathMapName	PlPathModel	Name of the mapping.
pathMapName	PlPgeMaster	Mapping name used to identify the path number.

Table 3-82. Column Definitions (15 of 25)

Column Code	Table	Description
pathMapNum	PlPathModel	Mapping from the absolute path number.
pathNumber	PlPgeOrbitModel	Similar to the absolute orbitNumber field, but refers to the 1-233 repeating orbit cycle inherent in the AM1 spacecraft.
pcfFileType	PlOutputDataYield	Provides information to DPS as to which portion of the PCF the data file is referenced from in the SDP toolkit.
pcfFileType	PlDataTypeReq	Indicates the portion of the Process Control File from which the data file is referenced in the SDP toolkit.
pcfLocation	DpPrPcf	Pathname fo the directory containg the PCF.
pcfName	DpPrPcf	Filename of the PCF.
pcfPermission	DpPrPcf	File permissions that need to be placed on the PCF.
pcfType	DpPrPcf	Indicates the type of PCF.
period	PlRoutineArrival	The time period used in predicting arrivals (hour, day, set of orbits, etc.)
pgeBlockInputOperations	PlDprCompletion PlDprCompletion_Archive	Number of block input operations.
pgeBlockOutputOperations	PlDprCompletion PlDprCompletion_Archive	Number of block output operations.
pgeCollectionId	PlPgeMaster	If the PGE belongs to a collection, the identifier for that collection.
pgeCommands	DpPrPge PlResourceRequirement	Startup condition information for the activation shell.
pgeCpu	DpPrPge	CPU associated with the PGE.
pgeCpuTime	PlDprCompletion PlDprCompletion_Archive	Amount of CPU time used by the PGE.
pgeElapsedTime	PlDprCompletion PlDprCompletion_Archive PlPgePerformance	Elapsed time of PGE execution.
pgeEnvironment	DpPrPge	Environment variables that need to be set prior to running the PGE.

Table 3-82. Column Definitions (16 of 25)

Column Code	Table	Description
pgeId	DpPrPgePromotion PlAlternate PlAssociatedScienceData PlAuxiliaryLogicalIds PlDataProcessingRequest PlDataTypeReq PlFileTypeReq PlMetadataChecks PlOutputDataYield PlOutputFileType PlPgeDetailParameters PlPgeDetailTile PlPgeDetailTime PlPgeMaster PlPgePerformance PlPgePriority PlPrParameter PlResourceRequirement DpPrPgeLimits	Unique identifier for the PGE.
pgeIdentifier	PlProductionRequest	Identifier for the associated PGE.
pgeMaxMemoryUse	PlDprCompletion PlDprCompletion_Archive	Maximum memory used by the PGE.
pgeName	PlPgeChain PlPgeMaster	The PGE Name used to produce the Data Type.
pgePageFaults	PlDprCompletion PlDprCompletion_Archive	Number of page faults during PGE execution.
pgeParameterDefault	PlPgeDetailParameters	Default value for the user parameter.
pgeParameterLogicalId	PlPrParameter PlPgeDetailParameters	ID of the parameter for this PGE.
pgeParameterName	PlPgeDetailParameters	Name of the user parameter.
pgeParametersDbQuery	PlPgeDetailParameters	Indicates whether a PGE parameter needs to look in the database for a value.
pgeParameterSelectorFlag	PlPgeDetailParameters	Determines if this PGE Parameter entry can be used to select a PGE Profile.
pgeScheduleType	PlPgeMaster	Indicates whether the PGE will be scheduled by time, by data arrival, or by some other method.

Table 3-82. Column Definitions (17 of 25)

Column Code	Table	Description
pgeSharedMemoryUse	PlDprCompletion PlDprCompletion_Archive	Amount of shared memory used by the PGE.
pgeShell	DpPrPge	The processing shell which activates the science software's outer shell.
pgeSswId	DpPrPgeExitDependency	Science software ID associated with the PGE.
pgeSswId	DpPrPgeExitMessage	Science software ID associated with the PGE.
pgeState	DpPrPge	Current state of the PGE.
pgeSwaps	PlDprCompletion PlDprCompletion_Archive	Number of swaps during PGE execution.
pgeTestOperational	PlPgeMaster	Indicates if the PGE's status is test or operational.
pgeVersion	PlPgeMaster	Version number of the PGE.
pgeVersion	PlPgeChain	The PGE Version of the PGE Name.
pgeWeight	PlProductionStrategy	The weight given to the priority, based on the PGE.
pid	DpPrResourceLock	Process identifier.
planActivation	PlPlans	The start date and time for the data granule.
planActiveStatus	PlPlans	Indicates whether the plan is currently active.
planCreation	PlPlans	When the plan was created.
planDescription	PlPlans	Description of the purpose of the plan.
planEnd	PlPlans	Ending point of the time frame for the plan.
planId	PlPlans PlPrVsPlan	Identifier for a production plan.
planName	PlPlans	Name for the plan.
planStart	PlPlans	Starting point of the time frame for the plan.
platform	PlDprCompletion PlDprCompletion_Archive	Actual science processing hardware used for this execution.
platform	PlPathModel PlPgeMaster PlPgeOrbitModel	The applicable spacecraft/satellite.
platformName	PlDataTypeMaster	The spacecraft/satellite associated with the instrument.
prCollectionId	PlProductionRequest	Identifier for a collection, if PR belongs to a collection.

Table 3-82. Column Definitions (18 of 25)

Column Code	Table	Description
predictedStagingTime	PlDataGranuleShort PlDataGranuleShort_Archive	An estimate of the length of time that it will take to stage this data granule prior to data processing.
predictedStart	PlDataProcessingRequest	The predicted date and time when this DPR will be run by Data Processing.
predictionMethod	PlDataSourceMaster	The method by which data availability prediction occurs (e.g. routine arrival, FOS-based).
primaryLogicalId	PlAuxiliaryLogicalIds	Identifiers for the primary alternate input.
primaryType	PlAlternate	The data type of the primary alternate input associated with this data granule.
primaryType	PlAlternateInputValues	A reference to the primary input for which this input is alternate.
primaryType	PlDprData	ID of the primary data type for this alternate input.
priority	DpPrResourceLock	The priority associated with the production request type.
priority	PlPgePriority	The priority associated with the PGE.
priority	PlPrVsPlan	The priority of the production request within the production plan.
priority	PlDataProcessingRequest	Priority for this DPR.
priority	PlPRPriority	Priority associated with a production strategy.
priority	PlUserPriority	The user-based priority.
priority	RpResourceReservation	Priority of the current job.
processingBoundary	PlPgeDetailTime	Identifies the time needed for data for extrapolation purposes.
processingCenter	PlDataTypeMaster	The name of the DAAC that produces this data type.
processingLevel	PlDataTypeMaster	Indicates processing level of the data (L0, for example.)
processingPeriod	PlPgeDetailTime	Identifies the acquisition period for the input data.
processingStatus	PlNotification	Processing status.
processStatus	PlStandingOrderGranules	Standing Order Granules process Status.
procName	DpPrTrace	Name of stored name procedure.

Table 3-82. Column Definitions (19 of 25)

Column Code	Table	Description
productionRequestId	PlAlternateInputValues PlPrParameter	Identifier for the production request.
productionRequestId	PlOnDemandPR	The production request ID of an on-demand production request. It usually is the same as the MSS request ID.
productionRequestId	PlDataProcessingRequest PlPrMetadataValue PlProductionRequest PlPrVsPlan	Identifier for the production request.
productionRequestPriority	PlProductionRequest	The priority requested by the user when submitting the production request.
profileDescription	PlPgeMaster	The pathname of the PGE profile.
profileId	PlPgeMaster	An identifier for the profile information associated with the PGE.
promotionID	DpPrPgePromotion	Unique identifier for each PGE promotion.
provider	PlDataTypeMaster	The DAAC that is maintaining the data.
prType	PlProductionRequest	Indicates the production type: routine, on-demand, or reprocessing.
prType	PlPRPriority	The production request type: standard, on-demand, or reprocessing.
prTypeWeight	PlProductionStrategy	The weight given to the priority, based on the production request type.
prVsPlanId	PlPrVsPlan	An identity for this table.
qaSubscription	PlDataTypeMaster	Flag indicating whether a subscription has been set up for the QA of this data type.
qaThreshold	PlDataTypeReq	The quality threshold to be applied to the data granules as a test of their suitability as input to the PGE.
queryFlag	PlMetadataChecks	Indicates whether metadata is query-based.
queryType	PlDataTypeReq	Defines what type of query will be performed on this input.
queryType	PlMetadataChecks	Type of query to be performed.

Table 3-82. Column Definitions (20 of 25)

Column Code	Table	Description
queuePosition	DpPrResourceLock	The position of the DPRs in the queue for resource allocation.
ramAllocation	PlRscComputer	Available RAM.
ramInUse	PlRscComputer	Amount of RAM marked as currently in use and hence unavailable for other processes.
ramSize	PlResourceRequirement	Amount of RAM required for the PGE.
readableTag	DpPrRpcId	Readable tag.
realComputerId	PlRscComputer PlRscRealComputer	Identifier for the real as opposed to virtual computer.
realComputerName	PlRscRealComputer	Name of the real as opposed to virtual computer.
reprocessStagingTime	PlPgeMaster	The staging time normally required for reprocessing.
requesterId	PlProductionRequest	Identifies the person entering the production request.
requestId	PlStandingOrder	Identifier for Standing Order request.
requestStartTime	PlProductionRequest	Start time of production request.
requestStopTime	PlProductionRequest	Stop time of production request.
requestTimeType	PlProductionRequest	Flag indication whether PR is based on collection or insert time.
reservationId	RpReservationInterval RpResourceReservation RpRsvRscExplosion	Identifier for a resource reservation.
resourceId	PlGroundEventResourceExplosion	Numeric identifier for the resource.
resourceId	PlResource RpRsvRscExplosion	Identifier for the resource.
resourceName	PlResource	Name for the resource.
resourceState	PlResource	Current state of the resource.
resourceString	DpPrAutoSysMapList	Name of computer string employed by this instance of Autosys.
resourceType	PlResource	Type of resource.
runBlockInOperation	PlPgePerformance	Number of input blocks required during production.
runBlockOutOperation	PlPgePerformance	Number of output blocks required during production.
runCpuTime	PlPgePerformance	Amount of CPU time required by the PGE during production.

Table 3-82. Column Definitions (21 of 25)

Column Code	Table	Description
runDprElapsed	PlPgePerformance	Elapsed time required by the DPR during production.
runFaults	PlPgePerformance	Number of page faults during production.
runMaxMemory	PlPgePerformance	Maximum amount of memory required by the PGE during production.
runPgeElapsed	PlPgePerformance	Elapsed time required by the PGE during production.
runSharedMemory	PlPgePerformance	Amount of shared memory used during production.
runSwaps	PlPgePerformance	Number of swaps during production.
runTimeId	PlAlternate	Logical ID of the PCF entry which tells the PGE which alternate was chosen.
saveState	PlProductionRequest	Saves the current state of the production request editor.
scheduledMachine	PlDataProcessingRequest PlProductionRequest	The machine where the DPR job is going to run.
schemaName	PlTileSchemaShort PlPgeDetailTile	Name for the tile schema.
scienceGroup	DpPrPgePromotion PlDataGranuleShort PlDataGranuleShort_Archive PlDataTypeReq PlOutputDataYield	Describes the data group that a file or granule is associated with, science data, browse, QA.
secondParm	PlEsdtParam PlEsdtParmValues PlMetadataChecks PlPrMetadataValue	Identifier of the second metadata parameter.
secondValue	PlEsdtParam PlEsdtParmValues PlMetadataChecks PlPrMetadataValue	Value of a second metadata parameter.
sequence	DpPrDeletableGranules	Sequence number of the data granule file.
sequenceNumber	DpPrFile	Sequence number of the data granule file.

Table 3-82. Column Definitions (22 of 25)

Column Code	Table	Description
sequenceNumber	PlPgeChain	The Order in which this PGE Name/Version pair is execute to produce the Data Type.
sharedMemory	PlPgePerformance	Amount of shared memory used during SSI&T.
skipFirstFlag	PlProductionRequest	Indicates whether we skip DPR first or keep DPR first.
spatialFlag	PlDataTypeMaster	Flag indicating spatial data, i.e. data that requires spatial coordinates in addition to start and stop times.
spatialPadKM	PlDataTypeReq	Size of the spatial pad represented in kilometers.
sponsor	RpResourceReservation	Sponsor for the reservation.
sswId	DpPrExecutable DpPrPge PlDataProcessingRequest PlPgeMaster PlResourceRequirement	Science software identifier.
stageState	PlDataGranuleShort PlDataGranuleShort_Archive	Indicates the progress towards staging the file locally.
stageState	DpPrGranuleLocation	Location state of the data granule: staging, local, destaging, etc.
standingOrderId	PlOnDemandPR PlStandingOrder PlStandingOrderGranules	Identifier for Standing Order.
standingOrderIndex	PlStandingOrderGranules	Auto numbering to uniquely identify entreies.
standingOrderText	PlStandingOrder	Standing Order Text.
startTime	RpResourceReservation PlDataGranuleShort PlDataGranuleShort_Archive RpReservationInterval	Start time of the reservation.
startTimeOffset	PlDataTypeReq	Number of seconds to add or subtract from the start time when acquiring this input.
state	DpPrResourceLock	Current state of a data processing job.
state	RpResourceReservation	Current state of the reservation.
stopTime	RpReservationInterval PlDataGranuleShort_Archive	The stop date and time for the data granule.
stopTime	PlDataGranuleShort	Stop time for the interval.

Table 3-82. Column Definitions (23 of 25)

Column Code	Table	Description
strategyId	PlPgePriority PlPlans PlProductionStrategy PlPRPriority PlUserPriority	Identifier of the associated production strategy.
string	PlResourceRequirement	The string (collection of logical resources) required by the PGE.
stringId	PlRscComputer PlRscString	Identifier for the string (collection logical of resources) containing the computer.
stringName	PlRscString	Name for the string.
subscriptionFlag	PlDataTypeMaster	Flag indicating whether Planning currently holds a subscription on this data type.
supplierName	PlDataSourceMaster	Name of the supplier of the data.
swaps	PlPgePerformance	Number of swaps during SSI&T.
sysAllocation	PlRscDiskPartition	Size within the partition allocated for system usage.
systemCpuTime	PlDprCompletion PlDprCompletion_Archive	Amount of system time spent during execution.
targetDate	PlProductionRequest	The desired time for completion of the production request.
targetDelta	PlProductionRequest	Elapsed time from the original target date.
temporalFlag	PlAlternate PlAlternateInputValues PlDprData	A flag indicating whether the most recent alternate input can be used if a primary granule of the same data type cannot be found for the production request time frame.
theOrder	PlAlternateInputValues	The relative priority of an alternate input data granule.
theOrder	PlDprData	Order number associated with production request.
tileCoordinates	PlTileCoordinates	Coordinates defining the tile.
tileId	PlDataGranuleShort PlDataGranuleShort_Archive PlDataProcessingRequest PlProductionRequest PlTileCoordinates PlTileSchemaShort DpPrTrace	For data granules that are geographical tiles rather than time-continuous data, the identifier of the tile within the start and stop time of the orbit set.

Table 3-82. Column Definitions (24 of 25)

Column Code	Table	Description
timeDelta	PlDataTypeReq	Length of time we must spend waiting for the data to arrive.
timerExp	PlDprData	Indicates whether the timer has expired.
timerStart	PlDprData	Indicates whether the timer has started.
timerType	PlTimer	Indicates the type of timer, for use by Subscription Manager.
timerWait	PlAlternateInputValues	Length of time to wait for this data type.
timeStamp	PlDataGranuleShort PlDataGranuleShort_Archive PlDataProcessingRequest	The date and time this table row was last modified.
timeWait	PlTimer PlDprData	The associated timer.
toolkitArchitecture	PlResourceRequirement	Which toolkit architecture was used to generate the PGE.
topLevelShellName	PlResourceRequirement	Description of the shell in which the PGE is executed.
topLevelShell	DpPrPgePromotion	Name of the PGE executable.
totalCpu	PlRscComputer	Total number of CPUs for this computer.
totalRam	PlRscComputer	Total RAM for this computer.
type	PlAlternateInputValues	Alternate input type (required/primary/backup).
type	PlDprData PlMetadataChecks PlAlternateInputValues	The type (int, string, etc.) of the metadata parameter to be compared.
universalReference	DpPrFile DpPrPgePromotion PlDataGranuleShort_Archive PlStandingOrderGranules	Location of the file as a Universal Reference.
universalReference	PlDataGranuleShort	The Universal Reference associated with this data granule.
userAllocation	PlRscDiskPartition	Size within the partition allocated for production usage.
userEmail	PlOrder PlStandingOrder	The user's email address for on-demand request status notification purpose.

Table 3-82. Column Definitions (25 of 25)

Column Code	Table	Description
userId	PlOrder PlStandingOrder	The user ID on-demand user has supplied.
userSelectedPriorityWeight	PlProductionStrategy	The weight assigned to the priority by the user.
userType	PlProductionRequest	The type of user submitting the production request.
userType	PlUserPriority	Type of user.
userWeight	PlProductionStrategy	The weight given to the priority, based on the user.
value	PlMetadataChecks	The value for the metadata parameter to be compared with the actual metadata value.
version	PlDataGranuleShort PlDataGranuleShort_Archive	Used to distinguish between two granules having the same data type and start time as the result of reprocessing.
version	PlDataTypeMaster	Version of the data type.
waitForFlag	PlAlternate	A flag indicating whether Planning should wait for this alternate input after the timer has expired. If FALSE, then Planning will permit the PGE to run without this input.
waitForFlag	PlDprData	Indicates whether DPR should be released after last timer, even if the chain is incomplete.
whereClause	PlDataTypeReq	An alternative search criterion for selecting input data associated with a DPR.
xclusive	RpResourceReservation	Value indicating whether exclusively is required for requested resources.

3.1.3 Column Domains

Domains specify the ranges of values allowed for a given table column. Sybase supports the definition of specific domains to further limit the format of data for a given column. Sybase domains are, in effect, user-defined data types. There are no domains defined in the PDPS database.

3.1.4 Rules

Sybase supports the definitions of rules. Rules provide a means for enforcing domain constraints on a given column. All rules defined in Sybase in the form of check constraints for the PDPS database are described in Table 3-83 – Check Constraints.

Table 3-83. Check Constraints

Column	Rule
pathNumber	>= 0
userWeight	between 0 and 100
prTypeWeight	between 0 and 100
agingDelta	between 0 and 100
userSelectedPriorityWeight	between 0 and 100
defaultPGEPriority	between 0 and 10
defaultPRPriority	between 0 and 10
defaultUserPriority	between 0 and 10
pgeTestOperational	= 0 or 1
inputType	= 0, 1, or 2
diskUsage	!< 0
prType	= 0, 1, or 2
pcfType	= 0, 1, or 2

3.1.5 Defaults

Defaults are used to supply a value for a column when one is not defined at insert time. All defaults defined in Sybase for the PDPS database are described in Table 3-84 - Defaults.

Table 3-84. Defaults (1 of 2)

Table	Column	Value
PlNotification	insertTime	getdate()
PlNotification	noOfRetry	0
DpPrExecutable	execPermission	'500'
PlProductionRequest	requesttimeType	0
PlProductionRequest	chainFlag	0
PlProductionRequest	multipleDprsFlag	0
PlProductionRequest	userType	0
DpPrClassSchedulingLimits	dprClass	0
DpPrClassSchedulingLimits	minDprs	0
DpPrClassSchedulingLimits	maxDprs	0
DpPrPgeLimits	maxConcurrent	0
DpPrPgeLimits	numConcurent	0
DpPrPgeLimits	numScheduled	0
DpPrTrace	time	getdate()
DpPrClassSchedulingLimits	currentDprs	0
DpPrExecutable	execShell	'csh'
DpPrPcf	pcfPermission	'600'

Table 3-84. Defaults (2 of 2)

Table	Column	Value
DpPrPcf	pcfType	0
DpPrPge	pgeCommands	‘1011 50’
DpPrPge	pgeShell	‘PGS_PC_Shell.sh’
DpPrRscCpuRamAllocation	allocState	0
PlDataGranuleShort_Archive	insertTime	“”
PlDataGranuleShort_Archive	archivalDate	detdate()
PlDprCompletion_Archive	archivalDate	getdate()
PlGroundEvent	groundEventActivation	0
PlDataGranuleShort	timeStamp	getdate()
PlDprData	onDemandFlag	0
PlDataGranuleShort	insertTime	“”
PlDataTypeMaster	onDemandCopy	0
PlDataTypeMaster	subscriptionFlag	0
PlDataTypeReq	closesGranDelta	0
PlDataTypeReq	closestGranMaxTries	0
PlDataTypeReq	dprAlignFlag	0
PlDataTypeReq	spatialPadKM	0.0
PlPgeMaster	compoundFlag	0
PlPgeMaster	defaultProfileFlag	0
PlPgeMaster	delayBeforeQuery	0
PlPgeDetailParameters	pgeParameterSelectorFlag	0
PlPgeOrbitModel	pathNumber	0
PlResource	onLineState	0
PlRscComputer	cpuInUse	0
PlRscComputer	ramInUse	0.0
PlRscDiskPartition	diskUsage	0.0
PlDataProcessingRequest	tileId	0
PlDataProcessingRequest	timeStamp	getdate()
PlDataProcessingRequest	chainFlag	0
PlDataProcessingRequest	dprState	0

3.1.6 Views

Sybase allows the definition of views as a means of limiting an application or users access to data in a table or tables. Views create a logical table from columns found in one or more tables. All views defined in the PDPS databases are described in Table 3-85 – View List.

Table 3-85. View List

Name	Code	Upd	Gen
PlDataGranule	PlDataGranule	Yes	Yes
PlTileSchema	PlTileSchema	No	Yes

3.1.7 Integrity Constraints

Sybase allows the enforcement of referential integrity via the use of declarative integrity constraints. Integrity constraints allow the SQL server to enforce primary and foreign key integrity checks automatically without requiring programming. Sybase is only ANSI-92 compliant, however, therefore its constraints support "restrict-only" operations. This means that a row cannot be deleted or updated if there are rows in other tables having a foreign key dependency on that row. Cascade delete and update operations cannot be performed if a declarative constraint has been used. Tables 3-86, 3-87, and 3-88 describe the declarative integrity constraints (foreign key constraints) contained in the PDPS database.

Table 3-86. Dependencies on Table: PlResource

Referenced by	Primary Key	Foreign Key
PlRscComputer	resourceId	computerId
PlGroundEventResourceExplosion	resourceId	resourceId
RpRsvRscExplosion	resourceId	resourceId
PlRscDiskPartition	resourceId	diskPartitionId
PlRscString	resourceId	stringId

Table 3-87. Dependencies on Table: PlRscDiskPartition

Referenced by	Primary Key	Foreign Key
DpPrDiskAllocation	diskPartitionId	diskPartitionId

Table 3-88. Dependencies on Table: PlRscComputer

Referenced by	Primary Key	Foreign Key
DpPrRscCpuRamAllocation	computerId	computerId

3.1.8 Triggers

Sybase supports the enforcement of business policy via the use of triggers. A trigger is best defined as set of activities or checks that should be performed automatically whenever a row is inserted, updated, or deleted from a given table. Sybase allows the definition of insert, update, and delete trigger per table. A listing of each the triggers in the PDPS database is given in Table 3-89 Trigger List.

Table 3-89. Trigger List (1 of 4)

Table	Trigger	Description
DpPrDiskAllocation	TrigDelDpPrDiskAllocation	DeleteTrigger
DpPrExecutable	TrigDelDpPrExecutable	DeleteTrigger
DpPrPge	TrigDelDpPrPge	DeleteTrigger
DpPrRscCpuRamAllocation	TrigDelDpPrRscCpuRamAllocation	DeleteTrigger
PlDataGranuleShort	TrigDelPlDataGranuleShort	DeleteTrigger
PlDataProcessingRequest	TrigDelPlDataProcessingRequest	DeleteTrigger
PlDataSourceMaster	TrigDelPlDataSourceMaster	DeleteTrigger
PlDataTypeMaster	TrigDelPlDataTypeMaster	DeleteTrigger
PlDataTypeReq	TrigDelPlDataTypeReq	DeleteTrigger
PlDprData	TrigDelPlDprData	DeleteTrigger
PlOrder	TrigDelPlOrder	DeleteTrigger
PlOutputDataYield	TrigDelPlOutputDataYield	DeleteTrigger
PlPgeDetailParameters	TrigDelPlPgeDetailParameters	DeleteTrigger
PlPgeMaster	TrigDelPlPgeMaster	DeleteTrigger
PlPlans	TrigDelPlPlans	DeleteTrigger
PlProductionRequest	TrigDelPlProductionRequest	DeleteTrigger
PlProductionStrategy	TrigDelPlProductionStrategy	DeleteTrigger
PlResource	TrigDelPlResource	DeleteTrigger
PlResourceRequirement	TrigDelPlResourceRequirement	DeleteTrigger
PlRscComputer	TrigDelPlRscComputer	DeleteTrigger
PlRscDiskPartition	TrigDelPlRscDiskPartition	DeleteTrigger
PlRscString	TrigDelPlRscString	DeleteTrigger
PlTileCoordinates	TrigDelPlTileCoordinates	DeleteTrigger
PlTileSchemaShort	TrigDelPlTileSchemaShort	DeleteTrigger
DpPrAutosysMapList	TrigInsDpPrAutosysMapList	InsertTrigger
DpPrDiskAllocation	TrigInsDpPrDiskAllocation	InsertTrigger
DpPrRscCpuRamAllocation	TrigInsDpPrRscCpuRamAllocation	Insert Trigger
DpPrGranuleLocation	TrigInsDpPrGranuleLocation	InsertTrigger
DpPrFile	TrigInsDpPrFile	Insert Trigger
DpPrPcf	TrigInsDpPrPcf	InsertTrigger
DpPrPge	TrigInsDpPrPge	InsertTrigger
DpPrPgePromotion	TrigInsDpPrPgePromotion	InsertTrigger
DpPrResourceLock	TrigInsDpPrResourceLock	InsertTrigger
DpPrTrace	TrigInsDpPrTrace	InsertTrigger
EcDbDatabaseVersions	TrigInsEcDbDatabaseVersions	InsertTrigger
PlAlternate	TrigInsPlAlternate	InsertTrigger
PlAlternateInputValues	TrigInsPlAlternateInputValues	InsertTrigger
PlAssociatedScienceData	TrigInsPlAssociatedScienceData	InsertTrigger
PlAuxiliaryLogicalIds	TrigInsPlAuxiliaryLogicalIds	InsertTrigger

Table 3-89. Trigger List (2 of 4)

Table	Trigger	Description
PlDataGranuleShort	TrigInsPlDataGranuleShort	InsertTrigger
PlDataProcessingRequest	TrigInsPlDataProcessingRequest	InsertTrigger
PlDataSourceMaster	TrigInsPlDataSourceMaster	InsertTrigger
PlDataTypeReq	TrigInsPlDataTypeReq	InsertTrigger
PlDprCompletion	TrigInsPlDprCompletion	InsertTrigger
PlDprData	TrigInsPlDprData	InsertTrigger
PlEsdtParam	TrigInsPlEsdtParam	InsertTrigger
PlEsdtParmValues	TrigInsPlEsdtParmValues	InsertTrigger
PlMetadataChecks	TrigInsPlMetadataChecks	InsertTrigger
PlOnDemandPR	TrigInsPlOnDemandPR	InsertTrigger
PlOrder	TrigInsPlOrder	InsertTrigger
PlOutputDataYield	TrigInsPlOutputDataYield	InsertTrigger
PlPRPriority	TrigInsPlPRPriority	InsertTrigger
PlPgeChain	TrigInsPlPgeChain	InsertTrigger
PlPgeDetailParameters	TrigInsPlPgeDetailParameters	InsertTrigger
PlPgeDetailTile	TrigInsPlPgeDetailTile	InsertTrigger
PlPgeDetailTime	TrigInsPlPgeDetailTime	InsertTrigger
PlPgePerformance	TrigInsPlPgePerformance	InsertTrigger
PlPgePriority	TrigInsPlPgePriority	InsertTrigger
PlPlans	TrigInsPlPlans	InsertTrigger
PlPrMetadataValue	TrigInsPlPrMetadataValue	InsertTrigger
PlPrParameter	TrigInsPlPrParameter	InsertTrigger
PlPrVsPlan	TrigInsPlPrVsPlan	InsertTrigger
PlProductionRequest	TrigInsPlProductionRequest	InsertTrigger
PlResourceRequirement	TrigInsPlResourceRequirement	InsertTrigger
PlRoutineArrival	TrigInsPlRoutineArrival	InsertTrigger
PlRscComputer	TrigInsPlRscComputer	InsertTrigger
PlRscDiskPartition	TrigInsPlRscDiskPartition	InsertTrigger
PlRscString	TrigInsPlRscString	InsertTrigger
PlStandingOrderGranules	TrigInsPlStandingOrderGranules	InsertTrigger
PlTileSchemaShort	TrigInsPlTileSchemaShort	InsertTrigger
PlUsedByCenter	TrigInsPlUsedByCenter	InsertTrigger
PlUserPriority	TrigInsPlUserPriority	InsertTrigger
DpPrAutosysMapList	TrigUpdDpPrAutosysMapList	UpdateTrigger
DpPrDiskAllocation	TrigUpdDpPrDiskAllocation	UpdateTrigger
DpPrExecutable	TrigUpdDpPrExecutable	UpdateTrigger
DpPrFile	TrigUpdDpPrFile	UpdateTrigger
DpPrPcf	TrigUpdDpPrPcf	UpdateTrigger

Table 3-89. Trigger List (3 of 4)

Table	Trigger	Description
DpPrPge	TrigUpdDpPrPge	UpdateTrigger
DpPrResourceLock	TrigUpdDpPrResourceLock	UpdateTrigger
DpPrRscCpuRamAllocation	TrigUpdDpPrRscCpuRamAllocation	UpdateTrigger
PlAlternate	TrigUpdPlAlternate	UpdateTrigger
PlAlternateInputValues	TrigUpdPlAlternateInputValues	UpdateTrigger
PlAssociatedScienceData	TrigUpdPlAssociatedScienceData	UpdateTrigger
PlAuxiliaryLogicalIds	TrigUpdPlAuxiliaryLogicalIds	UpdateTrigger
PlDataGranuleShort	TrigUpdPlDataGranuleShort	UpdateTrigger
PlDataProcessingRequest	TrigUpdPlDataProcessingRequest	UpdateTrigger
PlDataSourceMaster	TrigUpdPlDataSourceMaster	UpdateTrigger
PlDataTypeMaster	TrigUpdPlDataTypeMaster	UpdateTrigger
PlDataTypeReq	TrigUpdPlDataTypeReq	UpdateTrigger
PlDprCompletion	TrigUpdPlDprCompletion	UpdateTrigger
PlDprData	TrigUpdPlDprData	UpdateTrigger
PlEsdtParam	TrigUpdPlEsdtParam	UpdateTrigger
PlEsdtParmValues	TrigUpdPlEsdtParmValues	UpdateTrigger
PlMetadataChecks	TrigUpdPlMetadataChecks	UpdateTrigger
PlOnDemandPR	TrigUpdPlOnDemandPR	UpdateTrigger
PlOrder	TrigUpdPlOrder	UpdateTrigger
PlOutputDataYield	TrigUpdPlOutputDataYield	UpdateTrigger
PlPRPriority	TrigUpdPlPRPriority	UpdateTrigger
PlPgeChain	TrigUpdPlPgeChain	UpdateTrigger
PlPgeDetailParameters	TrigUpdPlPgeDetailParameters	UpdateTrigger
PlPgeDetailTile	TrigUpdPlPgeDetailTile	UpdateTrigger
PlPgeDetailTime	TrigUpdPlPgeDetailTime	UpdateTrigger
PlPgeMaster	TrigUpdPlPgeMaster	UpdateTrigger
PlPgePerformance	TrigUpdPlPgePerformance	UpdateTrigger
PlPgePriority	TrigUpdPlPgePriority	UpdateTrigger
PlPlans	TrigUpdPlPlans	UpdateTrigger
PlPrMetadataValue	TrigUpdPlPrMetadataValue	UpdateTrigger
PlPrParameter	TrigUpdPlPrParameter	UpdateTrigger
PlPrVsPlan	TrigUpdPlPrVsPlan	UpdateTrigger
PlProductionRequest	TrigUpdPlProductionRequest	UpdateTrigger
PlProductionStrategy	TrigUpdPlProductionStrategy	UpdateTrigger
PlResource	TrigUpdPlResource	UpdateTrigger
PlResourceRequirement	TrigUpdPlResourceRequirement	UpdateTrigger
PlRoutineArrival	TrigUpdPlRoutineArrival	UpdateTrigger
PlRscComputer	TrigUpdPlRscComputer	UpdateTrigger

Table 3-89. Trigger List (4 of 4)

Table	Trigger	Description
PlRscDiskPartition	TrigUpdPlRscDiskPartition	UpdateTrigger
PlRscString	TrigUpdPlRscString	UpdateTrigger
PlTileCoordinates	TrigUpdPlTileCoordinates	UpdateTrigger
PlTileSchemaShort	TrigUpdPlTileSchemaShort	UpdateTrigger
PlUsedByCenter	TrigUpdPlUsedByCenter	UpdateTrigger
PlUserPriority	TrigUpdPlUserPriority	UpdateTrigger

3.1.9 Stored Procedures

Sybase also includes support for business policy via the use of stored procedures. Stored procedures are typically used to capture a set of activities or checks that will be performed on the database repeatedly to enforce business policy and maintain data integrity. Stored procedures are parsed and compiled SQL code that reside in the database and may be called by name by an application, trigger or another stored procedure. A listing of the stored procedures in the PDPS database is given in Table 3-90 Procedure List. A brief definition of each of these stored procedures follows.

Table 3-90. Procedure List (1 of 2)

Name	Description
Datawarning	Notifies DBA when a data segment threshold is crossed.
InsertGroundEvent	Constructs a working ground event table based on information in resource planning tables.
logdump	Dumps the transaction log when a threshold is crossed.
logwarning	Issues a warning when a threshold is crossed.
Construct_DprGransToDelete	Creats temp. tables to store granules to be cleaned out of the PDPS database.
Construct_DprGransToDeleteDPR	Creats temp. tables to store granules to be cleaned out of the PDPS database by DPR.
GetReadyDPRsByPriority	Gets next DPR to release to autosys.
ProcAllocateCpuRam	Inserts RAM and CPU requirements in the DpPrRscCpuRamAllocation table for a job.
ProcAssignMachineToChain	Assigns a machine for all DPRs in a particular chain.
ProcCleanArchives	Cleans EDGR's archives tables of granules older than 7 days.
ProcCleanup	Cleans PlDataProcessingRequest, PlProductionRequest, PlDatagranuleShort, PlPgeMaster, PlResourceRequirement.
ProcFindMachineFromLimitsTable	Determine which machine is resource ready to accept a DPR.
ProcFindMachineFromRscReq	Allows DPRs to be scsheduled using load balancing algorithm.
ProcFindPrimaryInput	

Table 3-90. Procedure List (2 of 2)

Name	Description
ProcGetComments	Retrieves comment from RpRscPlanComments.
ProcGetDeletableGranules	Deletes PDPS/DPS table entries for disk space garbage collection for all DPR's not in the current plan.
ProcGetReadyDPRs	Retrieves DPRS in CQ-RELEASE state.
ProcGetResources	Retrieves data from RscString,RscComputer and RscDiskPartition tables.
ProcInsertTrace	Inserts into DpPrTrace table to trace procedure execution.
ProcMachineAssignment	Assigns a specific machine for all DPRS.
ProcMakeComputerInUseByThisDpr	Updates the allocState to 1 for a job in DpPrRscCpuRamAllocation when computer resources have been allocated to allow PGE execution to start. Those resources are added to the total number of CPUs and the total amount of RAM in use in PlRscComputer.
ProcMakeComputerNotInUseByThisDpr	Updates DpPrRscCpuRamAllocation setting allocState = 0 when a job's computer resources are freed after PGE execution. The amount of resources freed are decremented from cpuInUse and ramInUse in PlRscComputer.
ProcReleasedJobs	Returns DPRS in CQ_RELEAS which do not have a machine assignment.
ProcSetMaxDprs	Updates ClassSchedulingLimits.
ProcSetMinDprs	Update ClassSchedulingLimits.
ProcTraceBrokenLink	

3.2 Flat File Usage

A flat file is an operating system file that is written and subsequently read, generally independent of other files that exist, and usually static in nature. There are cases when the implementation of persistent data is better suited to a flat file than to a database (e.g., system configuration data, external interface data). PDPS Subsystem file usage is detailed in this section.

3.2.1 File Descriptions

A summary listing of the files in the PDPS Subsystem is given in Table 3-91 together with a brief description of the file usage. Many different record formats are used in ECS including ODL, HDF, HDF-EOS, block, fixed length, variable length, etc.

Table 3-91. Flat File Descriptions

File Name	File Type	Record Format	File Description
PGE_ODL.template	text	ODL	template for science metadata ODL file

3.2.2 Field Specifications

Brief specifications of the fields present within the PDPS Subsystem flat files are contained in Table 3-92. The fields are ordered alphabetically by File Name.

Table 3-92. Flat File Field Specifications (1 of 3)

File Name/ Block Name	Field Name	Data Type	Field Description
PGE_ODL	PGE_NAME	string (max 10)	PGE name
PGE_ODL	PGE_VERSION	string (max 5)	PGE version
PGE_ODL	PROFILE_ID	integer between 0 and 999	PGE profile identifier
PGE_ODL	PROFILE_DESCRIPTION	string (max 255)	PGE profile description
PGE_ODL	PGE_DEFAULT_PROFILE	string (max 1)	Boolean “Y” or “N”
PGE_ODL	PLATFORM	string (max 25)	Spacecraft platform name
PGE_ODL	INSTRUMENT	string (max 20)	Instrument name
PGE_ODL	MINIMUM_OUTPUTS	integer (max 3 digits)	Minimum number of outputs
PGE_ODL	SCHEDULE_TYPE	“Time”, “Data”, “Tile”, “Orbit”, “Snapshot”	Type of PGE scheduling
PGE_ODL	PROCESSING_PERIOD	String of the form “P=V” where P must be one of {YEARS, MONTHS, THIRDS, WEEKS, DAYS, HOURS, MINS, SECS, ORBITS}	Nominal time interval between start of PGE runs. e.g. “DAYS=1”
PGE_ODL	PROCESSING_ BOUNDARY	String of the form P(+ or - n) where n is an optional number of integer seconds. P must be one of {START_OF_HOUR, START_OF_6HOUR, START_OF_MINUTE, START_OF_DAY, START_OF_WEEK, START_OF_ONE_THIRD_MONTH, START_OF_MONTH, START_OF_YEAR, START_DATE, START_OF_ORBIT}	Nominal time boundary on which PGE processing begins. Not needed for PGEs where SCHEDULE_TYPE = “Snapshot” or “Data”. For PGEs based on an orbit model, this value will always be START_OF_ORBIT.
PGE_ODL	PGE_SSW_VERSION	String (max 5)	Software version
PGE_ODL	QUERY_DELAY	Integer >= 0	Amount of time in seconds that the query for input data should be delayed.
PGE_ODL	TILE_SCHEME_NAME	String (max 20), spaces not permitted	Name of the tiling scheme used.
PGE_ODL	PATHMAP_NAME	String (max 25), spaces not permitted	Name of pathmap used.

Table 3-92. Flat File Field Specifications (2 of 3)

File Name/ Block Name	Field Name	Data Type	Field Description
PGE_ODL	CHECK_FOR_OUTPUTS	string (max 1)	When set to Y, a DPR for the PGE will only be scheduled if the output of the PGE has not been produced. Boolean.
PGE_ODL	COMPOUND_PGE	string (max 2)	Boolean. Value of Y means PGE is made up of multiple executables.
PGE_ODL	EXIT_MESSAGE	Object comprised of CLASS, EXIT_CODE, and EXIT_MESSAGE	Exit message object: defines a possible PGE exit code and associates a message with it.
PGE_ODL	CLASS	Integer > 0	An object counter used to distinguish objects.
PGE_ODL	EXIT_CODE	Integer = 0 or between 200 and 239	Exit code for this PGE.
PGE_ODL	EXIT_MESSAGE	String (max 240)	Message corresponding to an exit code.
PGE_ODL	EXIT_DEPENDENCY	Object comprised of DEPENDENCY_ PGE_NAME, DEPENDENCY_ SSW_VERSION, EXIT_OPERATION, EXIT_CODE	Exit dependency object.
PGE_ODL	DEPENDENCY_ PGE_NAME	String (max 10)	Name of PGE upon which this PGE depends.
PGE_ODL	DEPENDENCY_ SSW_VERSION	String (max 5)	Version of SSW on which this SSW depends.
PGE_ODL	EXIT_OPERATION	One of { >, <, >=, <=, =, !=}	Operator for exit code dependency condition.

Table 3-92. Flat File Field Specifications (3 of 3)

File Name/ Block Name	Field Name	Data Type	Field Description
PGE ODL	PCF_ENTRY	Object comprised of CLASS, LOGICAL_ID, PCF_FILE_TYPE, DATA_TYPE_NAME, DATA_TYPE_VERSION, MIN_GRANULES_REQUIRED, MAX_GRANULE_REQUIRED, BEGIN_PERIOD_OFFSET, END_PERIOD_OFFSET, SCIENCE_GROUP, INPUT_TYPE, ALIGN_DPR_TIME_WITH_INPUT_TIME, NUMBER_NEEDED, DISTINCT_VALUE, QUERY_TYPE, SPATIAL_TIME_DELTA, SPATIAL_PAD, KEY_INPUT, CLOSEST_QUERY_OFFSET, CLOSEST_WUERY_DIRECTION, CLOSEST_QUERY_RETRIES, FILETYPE (class, filetype_name), ALTERNATE_INPUT (class, category, order, runtime_parm_id, timer, waitfor, temporal), OPTIONAL_INPUT(class, category, order, runtime_parm_id, timer, temporal), METADATA_CHECKS (class, parm_name, operator, value, database_query), METADATA_QUERY(class, parm_name, operator, value, database_query). Optional additional fields are MIN_GRANULE_YIELD, MAX_GRANULE_YIELD, ASSOCIATED_MCF_ID, INSTANCE, DISTINCT_VALUE, MINIMUM_SIZE, MAXIMUM_SIZE. Support input and output types may also have DATA_TYPE_NAME, DATA_TYPE_VERSION, DATA_TYPE_REQUIREMENT, PGE_PARAMETER_NAME, PGE_PARAMETER_DEFAULT, PGE_PARAMETER_DYNAMIC_VALUE. An interim or intermediate input will also have INTERIM_LAST_PGE_TO_USE.	Possible entries in a process control file.

4. Performance and Tuning Factors

4.1 Indexes

An index provides a means of locating a row in a database table based on the value of a specific column(s), without having to scan all data in the table. When properly implemented, indexes can significantly decrease the time it takes to retrieve data, thereby increasing performance. Sybase allows the definition of two types of indexes, clustered and non-clustered.

In a clustered index, the rows in a database table are physically stored in sequence-determined by the index. Clustered indexes are particularly useful, when the data is frequently retrieved in sequential order. Only one clustered index may be defined per table.

Non-clustered indexes differ from their clustered counterpart, in that, data is not physically stored in sorted order—newly added rows are stored at the end of the related database table.

A key of the types of indexes found in PDPS is provided in Table 4-1 Index Type Key. A list a description of each of the defined indexes is given in Table 4-2 Index List.

Table 4-1. Index Type Key

Index Type Key	Description
P	Primary Key
F	Foreign Key
U	Unique - Only one for the column code combination
C	Clustered or non-clustered index

Table 4-2. Index List (1 of 4)

Table Code	Index Code	P	F	U	C
DpPrAutosysMapList	PK_DPPRAUTOSYSMAPLIST	Yes	No	Yes	Yes
DpPrClassSchedulingLimits	PK_DPPRCLASSSCHEDULINGLIMITS	Yes	No	Yes	Yes
DpPrDiskAllocation	DpPrDiskAllocation_OC1 DpPrDiskAllocation_OC2 DpPrDiskAllocation_OC3 DpPrDiskAllocation_OC4	No No No No	No No No No	No No No No	No No No No
DpPrDprDependList	PK_DPPRDPRDEPENDLIST	Yes	No	Yes	Yes
DpPrRpcID	PK_DPPRRPCID	Yes	No	Yes	Yes
DpPrExecutable	PK_DPPREXECUTABLE	Yes	No	Yes	Yes
DpPrFile	DpPrFile_OC1	No	No	No	No
DpPrFile	DpPrFile_OC2	No	No	No	No

Table 4-2. Index List (2 of 4)

Table Code	Index Code	P	F	U	C
DpPrFile	DpPrFile_OC3	No	No	No	No
DpPrFile	DpPrFile_OC4	No	No	No	No
DpPrGranuleLocation	PK_DPPRGRANULELOCATION	Yes	No	Yes	Yes
DpPrPcf	PK_DPPRPCF	Yes	No	Yes	Yes
DpPrPge	PK_DPPRPGE	Yes	No	Yes	Yes
DpPrPge	DpPrPge_FK DpPrPge_OC	No No	No No	No No	No No
DpPrPgeExitDependency	PK_DPPRPGEEXITDEPENDENCY	Yes	No	Yes	Yes
DpPrPgeExitMessage	PK_DPPRPGEEXITMESSAGE	Yes	No	Yes	Yes
DpPrPgeLimits	PK_DPPRHEADSOFCHAINLIMITS	Yes	No	Yes	Yes
DpPrPgePromotion	xDpPrPgePromotion	No	No	No	No
DpPrResourceLock	PK_DPPRRESOURCELOCK	Yes	No	Yes	Yes
DpPrResourceLock	DpPrResourceLock_OC1 DpPrResourceLock_OC2	No No	No No	No No	No No
DpPrRscCpuRamAllocation	PK_DPPRRSCCPURAMALLOCATION	Yes	No	Yes	Yes
DpPrRscCpuRamAllocation	DpPrRscCpuRamAllocation_OC	No	No	No	No
DpPrTrace	DpPrTrace_OC	No	No	No	No
EcDbDatabaseVersions	PK_ECDBVERSIONS	Yes	No	Yes	Yes
PlAlternate	PK_PLALTERNATE	Yes	No	Yes	Yes
PlAlternateInputValues	PK_PLALTERNATEINPUTVALUES	Yes	No	Yes	Yes
PlAlternateInputValues	PlAlternateInputValues_OC	No	No	No	No
PlAssociatedScienceData	PK_PlAssociatedScienceData	Yes	No	Yes	Yes
PlAuxiliaryLogicalIds	PK_PlAuxiliaryLogicalIds	Yes	No	Yes	Yes
PlDataGranuleShort	PK_PLDATAGRANULESHORT	Yes	No	Yes	Yes
PlDataGranuleShort	DATA_TYPE_GRANULE_FK1 DATA_TYPE_GRANULE_FK2 DATA_TYPE_GRANULE_START_TIM E DATA_TYPE_GRANULE_STOP_TIME PlDataTypeGranule_UI	No No No No No No	No No No No No No	No No No No No Yes	No No No No No No
PlDataGranuleShort_Archive	PK_PLDATAGRANULESHORT_Archiv e	Yes	No	Yes	Yes
PlDataProcessingRequest	PK_PLDATAPROCESSINGREQUEST	Yes	No	Yes	Yes
PlDataProcessingRequest	DATA_PROCESSING_REQUEST_FK1 DATA_PROCESSING_REQUEST_FK2 DATA_PROCESSING_REQUEST_FK3 PlDataProcessingRequest_OC DATA_PROCESSING_REQUEST_OC 2	No No No No No	No No No No No	No No No No No	No No No No No
PlDataSourceMaster	PK_PLDATASOURCEMASTER	Yes	No	Yes	Yes

Table 4-2. Index List (3 of 4)

Table Code	Index Code	P	F	U	C
PlDataTypeFiles	PK_PLDATATYPEFILES	Yes	No	Yes	Yes
PlDataTypeMaster	PK_PLDATATYPEMASTER	Yes	No	Yes	Yes
PlDataTypeMaster	PlDataTypeMaster_OC1 PlDataTypeMaster_OC2	No No	No No	No No	No No
PlDataTypeReq	PK_PLDATATYPEREQ	Yes	No	Yes	Yes
PlDataTypeReq	PlDataTypeReq_OC	No	No	No	No
PlDprCompletion	PK_PLDPRCOMPLETION	Yes	No	Yes	Yes
PlDprCompletion_Archive	PK_PLDPRCOMPLETION_ARCHIVE	Yes	No	Yes	Yes
PlDprData	PK_PLDPRDATA	Yes	No	Yes	Yes
PlDprData	ALTERNATE_DATA_GRANULE_FK PlDprData_OC	No No	No No	No No	No No
PlEsdtParam	PK_PLESDTPARAM	Yes	No	Yes	Yes
PlEsdtParmValues	PK_PLESDTPARMVALUES	Yes	No	Yes	Yes
PlFileTypeReq	PK_PLFILETYPEREQ	Yes	No	Yes	Yes
PlGroundEvent	PK_PLGROUNDEVENT	Yes	No	Yes	Yes
PlGroundEventResourceExplosion	PK_PLGROUNDEVENTRESOURCEEXPLOS	Yes	No	Yes	Yes
PlMetadataChecks	PK_PLMETADATACHECKS	Yes	No	Yes	Yes
PlNotification	PK_PLNOTIFICATION	Yes	No	Yes	Yes
PlOnDemandPR	PK_PLONDEMANDPR	Yes	No	Yes	Yes
PlOrder	PK_PLORDER	Yes	No	Yes	Yes
PlOutputDataYield	PK_PLOUTPUTDATAYIELD	Yes	No	Yes	Yes
PlOutputDataYield	PlOutputDataYield_OC	No	No	No	No
PlOutputFileType	PK_PLOUTPUTFILETYPE	Yes	No	Yes	Yes
PlPathModel	PK_PLPATHMODEL	Yes	No	Yes	Yes
PlPgeChain	PK_PLPGECHAIN	Yes	No	Yes	Yes
PlPgeDetailParameters	PK_PLPGEDETAILPARAMETERS	Yes	No	Yes	Yes
PlPgeDetailTile	PK_PLPGEDETAILTILE	Yes	No	Yes	Yes
PlPgeDetailTime	PK_PLPGEDETAILTIME	Yes	No	Yes	Yes
PlPgeMaster	PK_PGEMASTER	Yes	No	Yes	Yes
PlPgeMaster	PGE_TITLE PlPgeMaster_OC	No No	No No	No No	No No
PlPgeOrbitModel	PK_PLPGEORBITMODEL	Yes	No	Yes	Yes
PlPgePerformance	PK_PLPGEPERFORMANCE	Yes	No	Yes	Yes
PlPgePriority	PK_PLPGEPRIORITY	Yes	No	Yes	Yes
PlPlans	PK_PLPLANS	Yes	No	Yes	Yes
PlPlans	PLAN_PK	Yes	No	No	No
PlPlans	PLAN_FK1	No	Yes	No	No
PlPrMetadataValue	PK_PLPRMETADATAVALUE	Yes	No	Yes	Yes

Table 4-2. Index List (4 of 4)

Table Code	Index Code	P	F	U	C
PlProductionRequest	PK_PLPRODUCTIONREQUEST	Yes	No	Yes	Yes
PlProductionRequest	PRODUCTION_REQUEST_FK1	No	Yes	No	No
PlProductionStrategy	PK_PLPRODUCTIONSTRATEGY	Yes	No	Yes	Yes
PlPrParameter	PK_PLPRPARAMETER	Yes	No	Yes	Yes
PlPrParameter	PR_PARAMETER_FK PlPrParameter_OC	No No	Yes No	No No	No No
PlPRPriority	PK_PLPRPRIORITY	Yes	No	Yes	Yes
PlPrVsPlan	PlPrVsPlan_OC1 PlPrVsPlan_OC2	No No	No No	No No	No No
PlResource	PK_PLRESOURCE	Yes	No	Yes	Yes
PlResource	PlResource_OC	No	No	No	No
PlResourceRequirement	PK_PLRESOURCEREQUIREMENT	Yes	No	Yes	Yes
PlRoutineArrival	PK_PLROUTINEARRIVAL	Yes	No	Yes	Yes
PlRscComputer	PK_PLRSCCOMPUTER	Yes	No	Yes	Yes
PlRscComputer	COMPUTER_LIST_EXPLOSION_FK PlRscComputer_OK PlRscComputer_FK2	No No No	Yes No No	No Yes No	No No No
PlRscDiskPartition	PK_PLRSCDISKPARTITION	Yes	No	Yes	Yes
PlRscDiskPartition	PlRscDiskPartition_OC	No	No	No	No
PlRscRealComputer	PK_PLRSCREALCOMPUTER	Yes	No	Yes	Yes
PlRscString	PK_PLRSCSTRING	Yes	No	Yes	Yes
PlRscString	PlRscString_OK PlRscString_OC	No No	No No	Yes No	No No
PlStandingOrder	PK_PLSTANDINGORDER	Yes	No	Yes	Yes
PlTileCoordinates	PK_PLTILECOORDINATES	Yes	No	Yes	Yes
PlTileSchemaShort	PK_PLTILESCHEMASHORT	Yes	No	Yes	Yes
PlTimer	PlTimer_PK PlTimer_OC	Yes No	No No	Yes No	No Yes
PlUsedByCenter	PK_PLUSEDBYCENTER USED_BY_CENTER_FK1	Yes Yes	No No	Yes No	Yes No
PlUserPriority	PK_PLUSERPRIORITY	Yes	No	Yes	Yes
RpActivityType	PK_RPACTIVITYTYPE	Yes	No	Yes	Yes
RpActivityType	RpActivityType_OC	No	No	No	No
RpReservationInterval	PK_RPRESERVATIONINTERVAL	Yes	No	Yes	Yes
RpResourceReservation	rpresourcereservation_fk PK_RPRESOURCERESERVATION RpResourceReservation_Cluster	No No No	Yes No No	No Yes No	No No Yes
RpRscPlanComments	PK_RPRSCPLANCOMMENTS	Yes	No	Yes	Yes
RpRsvRscExplosion	PK_RPRSVRSCEXPLOSION	Yes	No	Yes	Yes

4.2 Segments

Sybase supports the declaration of segments. A segment is a named pointer to a storage device(s). Segments are used to physically allocate a database object to a particular storage device. Segments defined for the PDPS are described in Table 4-3.

Table 4-3. Segment Descriptions

Segment Name	Description
default	Default data segment used if no other segment specified in the create statement.
logsegment	SYSLOGS, Transaction Logs.
systemsegment	System tables and indexes.
PLSOPSDAT01	PDPS OPS mode data segment.
PLSOPSIDX01	PDPS OPS mode index segment.
PLSTS1DAT01	PDPS TS1 mode data segment.
PLSTS1IDX01	PDPS TS1 mode index segment.
PLSTS2DAT01	PDPS TS2 mode data segment.
PLSTS2IDX01	PDPS TS2 mode index segment.

4.3 Caches

A cache is a block of memory that is used by Sybase to retain and manage pages that are currently being processed. By default, each database contains three caches:

Data cache – retains most recently accessed data and index pages

Procedure cache – retains most recently accessed stored procedure pages

User transaction log cache – transaction log pages that have not yet been written to disk for each user

The size of each of these default caches is a configurable item which must be managed on a per DAAC basis. These caches may be increased or decreased by the DAAC DBA as needed.

The data cache can be further subdivided into named caches. A named cache is a block of memory that is named and used by the DBMS to store data pages for select tables and/or indexes. Assigning a database table to named cache causes accessed pages to be loaded into memory and retained. The named cache does not need to be allocated to accommodate the entire database table since the DBMS manages the cache according to use. Named caches greatly increase performance by eliminating the time associated for disk input and output (I/O). There are no named caches that are currently defined for the PDPS Subsystem database. Named caches may be defined as the memory usage of the PDPS database becomes more well known and the DAACs move into an operational environment. As named caches are defined this portion of the document will be updated.

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5. Database Security

5.1 Approach

The database security discussed within this section is bounded to security implementation within the Sybase SQL Server DBMS. A Sybase general approach to security is adopted as illustrated in Figure 5-1.

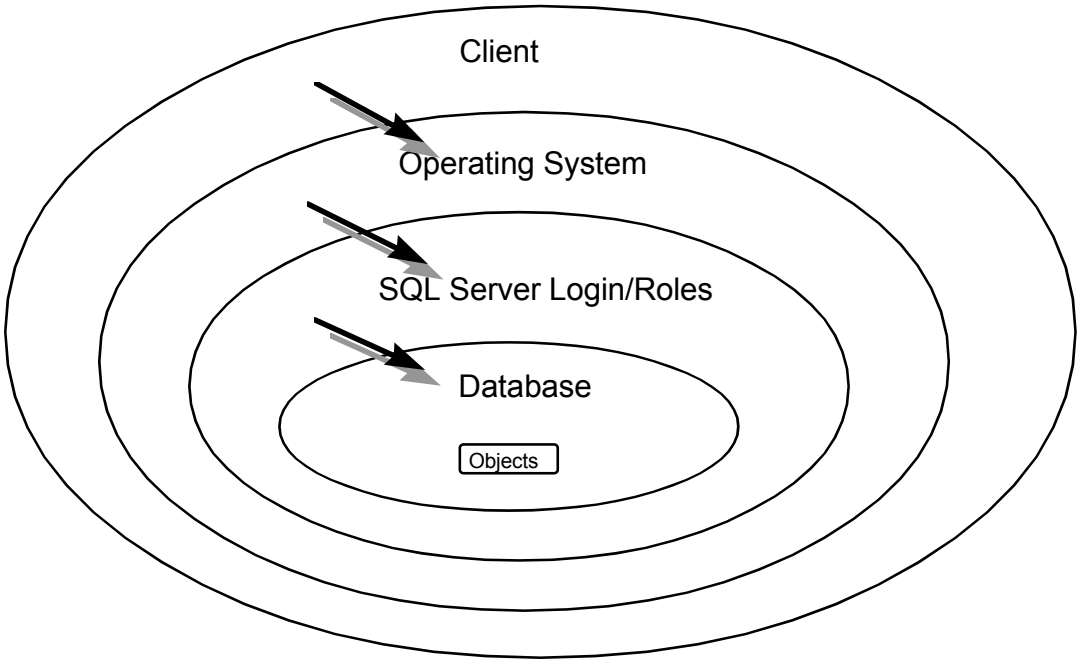

Figure 5-1. Sybase General Approach to SQL Server Security[1]

The client (user) requires a SQL Server login to access the DBMS. The login is assigned to a user with certain related permissions for gaining access to particular objects (e.g., database tables, views, commands) within the database. The System Administrator may grant or revoke objects permissions for a login individually or based on defined group or roles.

Groups are a means of logically associating users with similar data access needs. Once a group has been defined, object and command permissions can be granted to that group. A user who is member of a group inherits all of the permissions granted to that group. No groups have been initially defined in the PDPS Subsystem “default database". The DAACs should define database

[1] Reference Sybase Student Guide: *Advanced SQL Server Administration*.

groups to support the database security requirements of their individual DAACs. Security for local DAAC users should be controlled by assigning each user to the appropriate group.

Roles were introduced in Sybase to allow a structured means for granting users the permissions needed to perform standard database administration activities and also provide a means for easily identifying such users. There are six pre-defined roles that may be assigned to a user. A definition of each of these roles follows, as well as a description of the types of activities that may be performed by each role.

System Administrator (*sa_role*): This role is used to grant a specific user permissions needed to perform standard system administrator duties including:

- installing SQL server and specific SQL server modules
- managing the allocation of physical storage
- tuning configuration parameters
- creating databases

Site Security Officer (*sso_role*): This role is used to grant a specific user the permissions needed to maintain SQL server security including:

- adding server logins
- administrating passwords
- managing the audit system
- granting users all roles except the *sa_role*

Operator (*oper_role*): This role is used to grant a specific user the permissions needed to perform standard functions for the database including:

- dumping transactions and databases
- loading transactions and databases

Navigator (*navigator_role*): This role is used to grant a specific user the permissions needed to manage the navigation server.

Replication (*replication_role*): This role is used to grant a specific user the permissions needed to manage the replication server.

Sybase Technical Support (*sybase_ts_role*): This role is used to grant a specific user the permissions needed to execute *database consistency checker (dbcc)*, a Sybase supplied utility supporting commands that are normally outside of the realm of routine system administrator activities.

The DAACs should review these roles and assign them to the appropriate login and/or groups.

5.2 Login/Group Object Permissions

During initial database installation logins used by the ECS custom code were created and permissions assigned for access to the <PDPS> Subsystem database. In addition, special database installation login, <pdps>_role, was created to support database installation needs. For each login, the level of access is limited to that associated with their login, group or assigned group/role. Object Permissions are set within the installation scripts of the <SUBSYS> Subsystem for each object and group/role.

Permissions are identified in Table 5-1. A specification of the object permissions is contained in Table 5-2.

Table 5-1. Permission Key

Permission	Description
A	All
S	Select
I	Insert
U	Update
D	Delete
E	Execute

Table 5-2. Object Permissions

Group/Role	SYBASE LOGIN	Object	Permissions Granted					
			A	S	I	U	D	E
pdps	**EcDpAtCheckODL**	All	X					
	EcDpAtCreateODLTemplate							
	EcDpAtGetMCF							
	EcDpAtInsertExeTarFile							
	EcDpAtInsertStaticFile							
	EcDpAtInsertTestFile							
	EcDpAtOpDbGui							
	EcDpAtRegisterPGE							
	EcDpAtSSAPGui							
	EcDpAtStageDAP							
	EcDpPrCompression							
	EcDpPrDM							

Group/Role	SYBASE LOGIN	Object	Permissions Granted					
			A	S	I	U	D	E
	EcDpPrDeletion							
	EcDpPrDeletionClient							
	EcDpPrEM							
	EcDpPrGE							
	EcDpPrJobMgmt							
	EcDpPrJobMgmtClient							
	EcDpPrQaMonitorGUI							
	EcDpPrViewJobStates							
	EcPlOdMgr							
	EcPlOdMgrClient							
	EcPlPREditor							
	EcPlPREditor_IF							
	EcPlPREditor_SUB							
	EcPlPREditor_ReadOnly							
	EcPlProdStrat							
	EcPlRm							
	EcPlRpRe							
	EcPlRpRm							
	EcPlRpSi							
	EcPlRpTl							
	EcPlSubMgr							
	EcPlSubsEdit							
	EcPlTl							
	EcPlWb							
	pdpsUsers							

6. Scripts

6.1 Installation and De-Installation Scripts

Scripts used to support installation of the PDPS database are described in Table 6-1. These files may be found in the directory /ecs/formal/PDPS/PLS/Sybase

Table 6-1. Installation and De-Installation Scripts

Script File	Description
EcPlDbLogins	Adds login Ids needed by various PDPS clients and applications.
EcPlDbDrop	Drops all objects in the database.
EcPlDbBuild	Creates new database schema (selected within EcCoAssist.)
EcPlDbPatch	Modifies a database schema (selected within EcCoAssist.)
EcPlDbDump	Dumps the PDPS planning database to a flat file that can be used to recover.
EcPlDbLoad	Recovers (loads) the PDPS planning database from a database dump flat file.
EcDbDesc	List and detail the structure of all database objects in the specified ECS database.
EcDbChecksum	Provide row count totals for each of the tables in a specific ECS database.

6.2 Backup/Recovery Scripts

Scripts developed to perform backup and recovery of the PDPS Subsystem database are listed in Table 6-2. These scripts should be configured to run automatically using the Unix chron facility. It is recommended that, transaction logs dumps (incremental dumps) are performed a minimum of 3 times each day. It is recommended that database dumps (full database dumps) are performed a minimum of once each day. Backup and recovery are M&O activities. At their discretion, DAACs may modify these backup/recoverscripts or utilize backup/recovery scripts developed by their local M&O staff.

Table 6-2. Backup/Recovery Scripts

Script File	Description
EcCoDbSyb_DumpDb	Dumps all databases for managed by the SQL server instance.
EcCoDbSyb_DumpTran	Dumps the transaction log for all databases managed by the SQL server.

6.3 Miscellaneous Scripts

Miscellaneous scripts applicable to the PDPS database are described in Table 6-3.

Table 6-3. Miscellaneous Scripts

Script File	Description
EcPlDbStat	Updates the Sybase statistics for the PDPS planning database.
EcPlDbCleanArchive	Cleans up data in archives older than 7 days for EDGR's.

Appendix - PDPS Entity Relationship Diagrams

Figures A-1 represents the ERD for the PDPS database.

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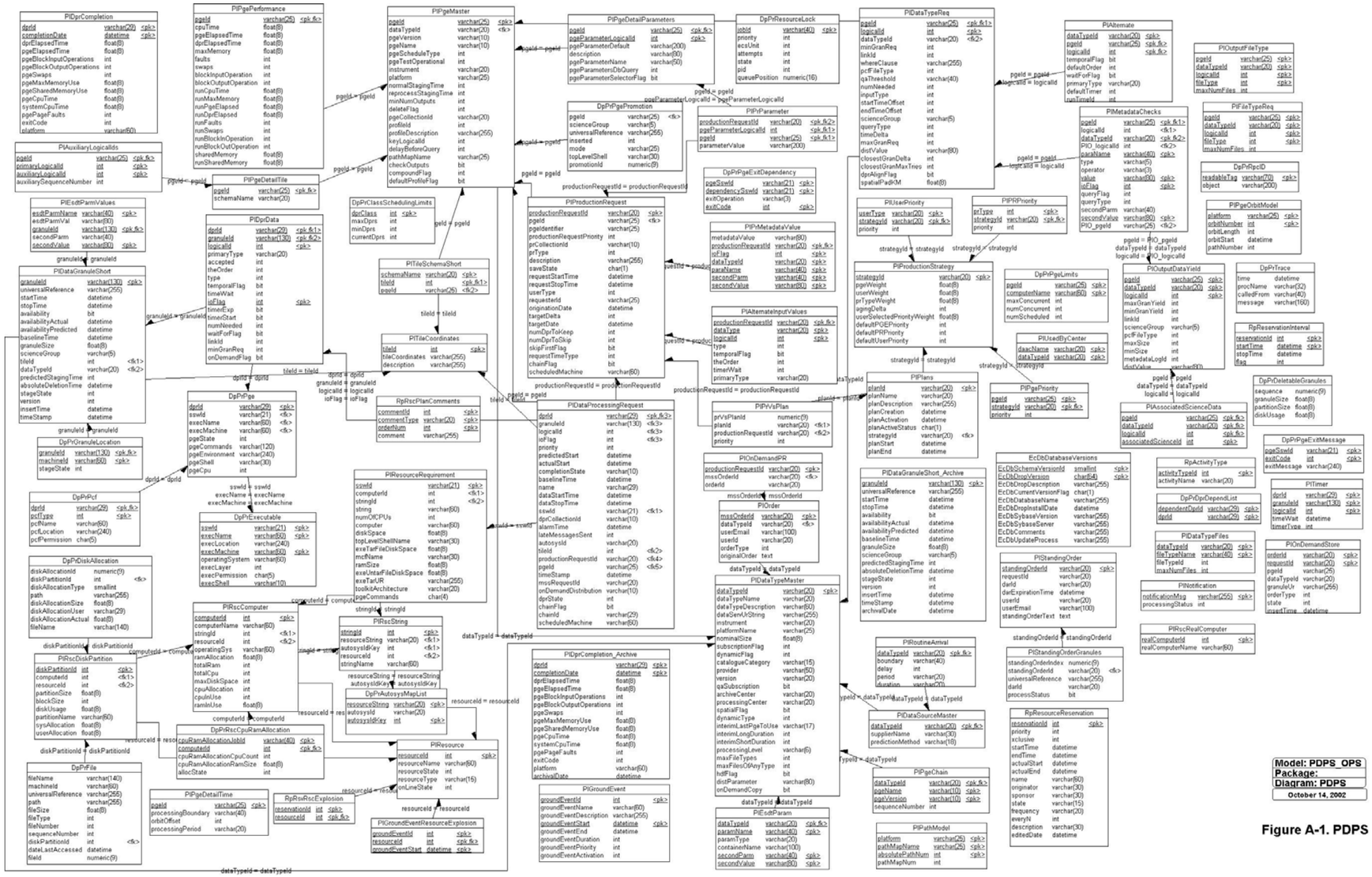

Figure A-1. PDPS

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Abbreviations and Acronyms

ANSI	American National Standards Institute
ASCII	American Standard Code for Information Exchange
CASE	Computer Aided Software Engineering
CD	contractual delivery 213-001
CDRL	contract data requirements list
CI	configuration item
COTS	commercial off-the-shelf (hardware or software)
CSCI	computer software configuration item
DAAC	Distributed Active Archive Center
DBCC	Database Consistency Checker
DBMS	Database Management System
DCN	Document Change Notice
DID	data item description
DMS	Data Management Subsystem
ECS	EOSDIS Core System
EDC	EROS Data Center
EDHS	ECS Data Handling System
EOSDIS	Earth Observing System Data and Information System
EROS	Earth Resources Observation System
ERD	Entity Relationship Diagram
ESDIS	Earth Science Data and Information System (GSFC)
ESDT	Earth science data types
ESN	EOSDIS Science Network (ECS)
FK	Foreign Key
GSFC	Goddard Space Flight Center
GUI	graphic user interface
HDF	hierarchical data format
HDF-EOS	an EOS proposed standard for a specialized HDF data format

HTML	HyperText Markup Language
HTTP	Hypertext Transport Protocol
I/O	input/output
ICD	interface control document
INGST	Ingest Services CSCI
IOS	Interoperability Subsystem
LaRC	Langley Research Center (DAAC)
MSS	Management Support Subsystem
N/A	not applicable
NAS	National Academy of Science
NASA	National Aeronautics and Space Administration
NSIDC	National Snow and Ice Data Center (DAAC)
ODL	Object Definition Language
PCF	Process Control File
PDF	Portable Document Format
PDPS	Planning and Data Processing Subsystem
PGE	Product Generation Executive
PK	Primary Key
QA	Quality Assurance
SDSRV	Science Data Server CSCI
SQL	Structured Query Language
STMGT	Storage Management Software CSCI
SUBSRV	Subscription Server
WWW	World-Wide Web