5. Performance and Tuning Factors

5.1 Indexes

An index provides a means of locating a row in a table based on the value of specific columns, without having to scan each row in the table. If used appropriately, indexes can significantly decrease data retrieval time. Sybase allows the definition of two types of indexes, clustered and non-clustered. In a clustered index, the rows in tables are physically stored in the sort order determined by the index. Clustered indexes are particularly useful, when the data is frequently retrieved in order. Non-clustered indexes differ from their clustered counterpart, in that data is not physically stored in sort order. Only one clustered index may be defined per table. A list of all the indexes defined against tables in the SDSRV database is given here along with a description of each index.

Index List

Table Name	Index Name	Primary Key	Foreign Key	Unique	Clustered
DsDeDictionaryAttribute	PK_DSDBDICTIONARYATTRIBUTE xDsDeDictionaryAttribute	Yes No	No No	Yes Yes	Yes No
DsDeDictionaryContent	PK_DSDBDICTIONARYCONTENT xDsDeDictionaryContent	Yes No	No No	Yes Yes	Yes No
DsDeDictionaryRule	PK_DSDBDICTIONARYRULE	Yes	No	Yes	Yes
DsDeECSKeywordValids	PK_DSDEECSKEYWORDVALIDS	Yes	No	Yes	Yes
DsGeESDTConfiguredType	PK_DSGEESDTCONFIGUREDTYPE	Yes	No	Yes	Yes
DsMdAdditionalAttributes	PK_DSMDADDITIONALATTRIBUTES xDsMdAdditionalAttributes xDsMdAdditionalAttributesID	Yes No Yes	No No No	Yes Yes Yes	Yes No No
DsMdAlgorithmPackage	PK_DSMDALGORITHMPACKAGE xDsMdAlgorithmPackageDate xDsMdAlgorithmPackageNameVers	Yes No No	No No No	Yes No No	Yes No No
DsMdAltitudeResolution	PK_DSMDALTITUDERESOLUTION	Yes	No	Yes	Yes
DsMdAnalysisSource	PK_DSMDANALYSISSOURCE xDsMdAnalysisSource	Yes No	No No	Yes Yes	Yes No
DsMdAncillaryInput	xDsMdAncillaryGranuleId xDsMdAncillaryInputPointer	No No	No No	No No	Yes No
DsMdAncillaryInputGranule	PK_DSMDANCILLARYINPUTGRANULE xDsMdAncillaryInputGranuleDate	Yes No	No No	Yes No	Yes No
DsMdApContactXref	PK_DSMDAPCONTACTXREF	Yes	No	Yes	Yes
DsMdAPSAPComponentXref	PK_DSMDAPSAPCOMPONENTXREF xDsMdAPSAPComponentXrefSsapId	Yes No	No Yes	Yes No	Yes No
DsMdAttributeConversion	pk_dsmdattributeconversion	Yes	No	Yes	Yes
DsMdAttributeList	PK_DSMDATTRIBUTELIST	Yes	No	Yes	Yes

Table Name	Index Name	Primary Key	Foreign Key	Unique	Clustered
DsMdAttributeTableXref	PK_DSMDATTRIBUTETABLEXREF	Yes	No	Yes	Yes
DsMdBaseDependent	pk_dsmdbasedependent	Yes	No	Yes	Yes
DsMdBrowse	PK_DSMDBROWSE xDsMdBrowseBrowsePointer xDsMdBrowseDate	Yes No No	No No No	Yes No No	Yes No No
DsMdBrowseGranuleXref	PK_DSMDBROWSEGRANULEXREF xDsMdBrowseGranuleXref	Yes No	No No	Yes No	Yes No
DsMdCampaign	PK_DSMDCAMPAIGN xDsMdCampaign	Yes No	No No	Yes Yes	Yes No
DsMdClBoundingRectangle	PK_DSMDCLBOUNDINGRECTANGLE	Yes	Yes	Yes	Yes
DsMdClCircle	PK_DSMDCLCIRCLE	Yes	Yes	Yes	Yes
DsMdClGPolygGPolygonContainer	DsMdClGPolygGPolygonCont_ind1	No	No	Yes	Yes
DsMdClGPolygon	PK_DSMDCLGPOLYGON	Yes	Yes	Yes	Yes
DsMdClPoint	PK_DSMDCLPOINT	Yes	Yes	Yes	Yes
DsMdCollBrowseXref	PK_DSMDCOLLBROWSEXREF	Yes	No	Yes	Yes
DsMdCollDisciplineKeywordXref	PK_DSMDCOLLDISCIPLINEKEYWORDXR	Yes	No	Yes	Yes
DsMdCollectionAddnlAttribsXref	PK_DSMDCOLLECTIONADDNLATTRIBSX xDsMdCollectionAddnlAttribsXrf	Yes No	No No	Yes No	Yes No
DsMdCollectionAnalysisXref	PK_DSMDCOLLECTIONANALYSISXREF	Yes	No	Yes	Yes
DsMdCollectionAPXref	PK_DSMDCOLLECTIONAPXREF idx1_dsmdcollectionapxref	Yes No	No Yes	Yes No	Yes No
DsMdCollectionAssociation	PK_DSMDCOLLECTIONASSOCIATION xDsMdCollectionAssociation xDsMdCollectionAssociationType	Yes No No	No No No	Yes No No	Yes No No
DsMdCollectionCampaignXref	PK_DSMDCOLLECTIONCAMPAIGNXREF	Yes	No	Yes	Yes
DsMdCollectionContactXref	PK_DSMDCOLLECTIONCONTACTXREF	Yes	No	Yes	Yes
DsMdCollectionGranuleXref	PK_DSMDCOLLECTIONGRANULEXREF xDsMdCollectionGranuleXref	Yes No	No Yes	Yes No	Yes No
DsMdCollectionInstrumentXref	PK_DSMDCOLLECTIONINSTRUMENTXRE	Yes	No	Yes	Yes
DsMdCollectionPlatformXref	PK_DSMDCOLLECTIONPLATFORMXREF	Yes	No	Yes	Yes
DsMdCollections	PK_DSMDCOLLECTIONS xDsMdCollectionsType	Yes No	No No	Yes No	Yes No
DsMdCollectionSensorXref	PK_DSMDCOLLECTIONSENSORXREF	Yes	No	Yes	Yes
DsMdCollFloatInfoContent	PK_DSMDCOLLFLOATINFOCONTENT xDsMdCollFloatInfoContAttrId	Yes No	No No	Yes No	Yes No
DsMdCollIntegerInfoContent	PK_DSMDCOLLINTEGERINFOCONTENT xDsMdCollIntInfoContentAttrId	Yes No	No No	Yes No	Yes No
DsMdCollReview	PK_DSMDCOLLREVIEW	Yes	No	Yes	Yes
DsMdCollStorageMedium	PK_DSMDCOLLSTORAGEMEDIUM xDsMdCollStorageMedium	Yes No	No No	Yes No	Yes No
DsMdCollStringInfoContent	PK_DSMDCOLLSTRINGINFOCONTENT xDsMdCollStringInfoContAttrId	Yes No	No Yes	Yes No	Yes No
DsMdCollVerticalSpatialDomain	PK_DSMDCOLLVERTICALSPATIALDOMA	Yes	No	Yes	Yes

Table Name	Index Name	Primary Key	Foreign Key	Unique	Clustered
DsMdCollZoneIdentifier	PK_DSMDCOLLZONEIDENTIFIER	Yes	No	Yes	Yes
DsMdCommandConversion	pk_dsmdcommandconversion	Yes	No	Yes	Yes
DsMdContact	PK_DSMDCONTACT xDsMdContactRole	Yes No	No No	Yes No	Yes No
DsMdContactAddress	PK_DSMDCONTACTADDRESS	Yes	No	Yes	Yes
DsMdContactOrganizations	PK_DSMDCONTACTORGANIZATIONS xDsMdContactOrgName	Yes No	Yes No	Yes No	Yes No
DsMdContactPersons	PK_DSMDCONTACTPERSONS xDsMdContactPersonsLastName	Yes No	Yes No	Yes No	Yes No
DsMdCSDTDescription	PK_DSMDCSDTDESCRIPTION	Yes	No	Yes	Yes
DsMdDAP	PK_DSMDDAP	Yes	No	Yes	Yes
DsMdDepthResolution	PK_DSMDDEPTHRESOLUTION	Yes	No	Yes	Yes
DsMdDisciplineKeywords	PK_DSMDDISCIPLINEKEYWORDS xDsMdDisciplineKeywords	Yes No	No No	Yes No	Yes No
DsMdECSParameterKeywords	PK_DSMDECSPARAMETERKEYWORDS xDsMdECSParameterKeywords	Yes No	No No	Yes No	Yes No
DsMdEmailAddress	PK_DSMDEMAILADDRESS xDsMdEmailAddress	Yes No	No No	Yes No	Yes No
DsMdFileStorage	PK_DSMDFILESTORAGE	Yes	No	Yes	Yes
DsMdGranuleAnalysisXref	PK_DSMDGRANULEANALYSISXREF xDsMdGranuleAnalysisXref	Yes No	No Yes	Yes No	Yes No
DsMdGranuleCampaignXref	PK_DSMDGRANULECAMPAIGNXREF xDsMdGranuleCampaignXref	Yes No	No Yes	Yes No	Yes No
DsMdGranuleInstrumentXref	PK_DSMDGRANULEINSTRUMENTXREF	Yes	No	Yes	Yes
DsMdGranuleLocality	PK_DSMDGRANULELOCALITY	Yes	No	Yes	Yes
DsMdGranulePlatformXref	PK_DSMDGRANULEPLATFORMXREF	Yes	No	Yes	Yes
DsMdGranuleReview	PK_DSMDGRANULEREVIEW	Yes	No	Yes	Yes
DsMdGranules	PK_DSMDGRANULES xDsMdGranulesDate xDsMdGranulesEndingDT xDsMdGranulesPHID xDsMdGranulesPrimCIId xDsMdGranulesShNameVidBegEnd	Yes No No No No No	No No No No Yes No	Yes No No No No No	Yes No No No No No
DsMdGranulesAncillaryInputXref	PK_DSMDGRANULESANCILLARYINPUTX xDsMdGranulesAncillaryInputXrf	Yes No	No No	Yes No	Yes No
DsMdGranuleSensorXref	PK_DSMDGRANULESENSORXREF	Yes	No	Yes	Yes
DsMdGranulesOrbitParmXref	PK_DSMDGRANULESORBITPARMXREF xDsMdGranulesOrbitParmXref	Yes No	No No	Yes No	Yes No
DsMdGranuleVersions	PK_DSMDGRANULEVERSIONS	Yes	No	Yes	Yes
DsMdGrBoundingRectangle	PK_DSMDGRBOUNDINGRECTANGLE xDsMdGrBoundingRectangle	Yes No	Yes No	Yes No	No Yes

Table Name	Index Name	Primary Key	Foreign Key	Unique	Clustered
DsMdGrCircle	PK_DSMDGRCIRCLE xDsMdGrCircle	Yes No	Yes No	Yes No	No Yes
DsMdGrFloatInfoContent	PK_DSMDGRFLOATINFOCONTENT xDsMdGrFloatInfoContent	Yes No	No No	Yes No	Yes No
DsMdGrGPolygGPolygonContainer	DsMdGrGPolygGPolygonCont_ind1	No	No	Yes	Yes
DsMdGrGPolygon	PK_DSMDGRGPOLYGON xDsMdGrPolygon	Yes No	Yes No	Yes No	No Yes
DsMdGrIntegerInfoContent	PK_DSMDGRINTEGERINFOCONTENT xDsMdGrIntegerInfoContent	Yes No	No No	Yes No	Yes No
DsMdGrPoint	PK_DSMDGRPOINT xDsMdGrPoint	Yes No	No No	Yes No	No Yes
DsMdGrSensorCharacteristics	PK_DSMDGRSENSORCHARACTERISTICS	Yes	No	Yes	Yes
DsMdGrStorageMedium	PK_DSMDGRSTORAGEMEDIUM	Yes	No	Yes	Yes
DsMdGrStringInfoContent	xDsMdGrStringInfoContent xDsMdGrStringInfoContentAttrId	No No	No Yes	No No	Yes No
DsMdGrVerticalSpatialDomain	PK_DSMDGRVERTICALSPATIALDOMAIN	Yes	No	Yes	Yes
DsMdIdentifier	PK_DSMDIDENTIFIER	Yes	No	Yes	Yes
DsMdInputGranule	PK_DSMDINPUTGRANULE xDsMdInputPointer	Yes No	No No	Yes No	Yes No
DsMdInsertSequence	pk_dsmdoperatorconversion	Yes	No	Yes	Yes
DsMdInstrument	PK_DSMDINSTRUMENT xDsMdInstrument	Yes No	No No	Yes Yes	Yes No
DsMdInstrumentCharacteristic	PK_DSMDINSTRUMENTCHARACTERISTI	Yes	No	Yes	Yes
DsMdJoins	PK_DSMDJOINS	Yes	No	Yes	Yes
DsMdKeyDependency	pk_dsmdkeydependency	Yes	No	Yes	Yes
DsMdLocality	PK_DSMDLOCALITY	Yes	No	Yes	Yes
DsMdMeasuredParameter	PK_DSMDMEASUREDPARAMETER	Yes	No	Yes	Yes
DsMdMultipleDateTimePeriod	PK_DSMDMULTIPLEDATETIMEPERIOD	Yes	No	Yes	Yes
DsMdMultipleTypeCollection	PK_DSMDMULTIPLETYPECOLLECTION	Yes	No	Yes	Yes
DsMdOperationMode	PK_DSMDOPERATIONMODE	Yes	No	Yes	Yes
DsMdOperatorConversion	pk_dsmdoperatorconversion	Yes	No	Yes	Yes
DsMdOrbitCalcSpatialDomain	PK_DSMDORBITCALCSPATIALDOMAIN	Yes	No	Yes	Yes
DsMdOrbitCalculatedSpatial	PK_DSMDORBITCALCULATEDSPATIAL xDsMdOrbitCalculatedSpatial	Yes No	No Yes	Yes Yes	Yes No
DsMdOrbitParametersGranule	PK_DSMDORBITPARAMETERSGRANULE xDsMdOrbitParamGranule xDsMdOrbitParamGranuleDate	Yes No No	No No No	Yes No No	Yes No No
DsMdOrbitPolygons	PK_DSMDORBITPOLYGONS xDsMdOrbitPolygons	Yes No	No No	Yes No	Yes No
DsMdOrbitPolygons__Orbit	DsMdOrbitPolygons__Orbit_ind1	No	No	Yes	Yes
DsMdParmToTableVector	PK_DSMDPARMTOTABLEVECTOR	Yes	No	Yes	Yes
DsMdPersonOrganizationXref	PK_DSMDPERSONORGANIZATIONXREF	Yes	No	Yes	Yes
DsMdPGEGroup	PK_DSMDPGEGROUP	Yes	No	Yes	Yes

Table Name	Index Name	Primary Key	Foreign Key	Unique	Clustered
DsMdPlanarCoordinateSystems	PK_DSMDPLANARCOORDINATESYSTEMS	Yes	No	Yes	Yes
DsMdPlatform	PK_DSMDPLATFORM	Yes	No	Yes	Yes
	xDsMdPlatform	No	No	Yes	No
DsMdPlatformCharacteristic	PK_DSMDPLATFORMCHARACTERISTIC	Yes	No	Yes	Yes
DsMdPlatInstrCode	PK_DSMDPLATINSTRCODE	Yes	No	Yes	Yes
DsMdProcessingHistory	PK_DSMDPROCESSINGHISTORY	Yes	No	Yes	Yes
	xDsMdProcessingHistoryDate	No	No	No	No
	xDsMdProcessingHistoryPointer	No	No	No	No
DsMdProcessingQA	PK_DSMDPROCESSINGQA	Yes	No	Yes	Yes
DsMdProductDbXref	PK_DSMDPRODUCTDBXREF	Yes	No	Yes	Yes
DsMdQaGranule	PK_DSMDQAGRANULE	Yes	No	Yes	Yes
	xDsGranuleDate	No	No	No	No
	xDsMdGranuleGranuleId	No	No	No	No
	xDsMdQaGranulePointer	No	No	No	No
DsMdQualityTextComment	PK_DSMDQUALITYTEXTCOMMENT	Yes	No	Yes	Yes
DsMdRangeDateTime	PK_DSMDRANGEDATETIME	Yes	No	Yes	Yes
DsMdRegularPeriodic	PK_DSMDREGULARPERIODIC	Yes	No	Yes	Yes
DsMdSDSRVLookup	PK_DSMDLOOKUP	Yes	No	Yes	Yes
DsMdSDSRVVersions	PK_DSMDSDSRVVERSIONS	Yes	No	Yes	Yes
DsMdSensor	PK_DSMDSENSOR	Yes	No	Yes	Yes
	xDsMdSensor	No	No	Yes	No
DsMdSensorCharacteristic	PK_DSMDSENSORCHARACTERISTIC	Yes	No	Yes	Yes
DsMdSingleDateTime	PK_DSMDSINGLEDATETIME	Yes	No	Yes	Yes
DsMdSpatial	PK_DSMDSPATIAL	Yes	No	Yes	Yes
DsMdSpatialKeyword	PK_DSMDSPATIALKEYWORD	Yes	No	Yes	Yes
DsMdSSAPComponent	PK_DSMDSSAPCOMPONENT	Yes	No	Yes	Yes
DsMdSSAPComponentAPVersion	PK_DSMDSSAPCOMPONENTAPVERSION	Yes	No	Yes	Yes
DsMdTelephoneNumbers	PK_DSMDTELEPHONENUMBERS	Yes	No	Yes	Yes
DsMdTemporal	PK_DSMDTEMPORAL	Yes	No	Yes	Yes
DsMdTemporalKeyword	PK_DSMDTEMPORALKEYWORD	Yes	No	Yes	Yes
DsMdUnloadList	pk_dsmdunloadlist	Yes	No	Yes	Yes
DsMdUpdateXref	pk_dsmdupdatexref	Yes	No	Yes	Yes
DsMdUserCommentDocument	PK_DSMDUSERCOMMENTDOCUMENT	Yes	No	Yes	Yes
DsMdValidationDocument	PK_DSMDVALIDATIONDOCUMENT	Yes	No	Yes	Yes
DsMdXAR	PK_DSMDXAR	Yes	No	Yes	Yes
	xDsMdXARId	No	No	No	No
DsSiReqDomain	PK_DSSIREQDOMAIN	Yes	No	Yes	Yes
DsSiRequest	PK_DSSIREQUEST	Yes	No	Yes	Yes

5.2 Segments

Sybase supports the definition of segments. A segment is a named pointer to a storage device or devices. Segments are used to manually place database objects onto particular storage devices. All segments explicitly defined in the SDSRV database are described herein. SDSRV is defined to use the Sybase default, logsegment, and system segments.

5.3 Named Caches

A cache is a block of memory that is used by Sybase to house data pages that are currently being accessed. A named cache is a named block of memory that the SQL server can use to house frequently accessed tables. Assigning a table to cache causes it to be loaded into memory. This greatly increases performance by eliminating the time expense normally associated with disk i/o. Named caches used in the SDSRV databases have not been defined at this time.

6. Database Security

6.1 Initial Users

Upon initial installation the following users will have access to SDSRV database. The level of access is limited to that associated with their assigned group and/or role. A complete definition of each if these groups and roles is given below.

Login Name	Default Database	Group
EcDsScienceDataServer	EcDsScienceDataServer1	sdsrv
EcDsHdfEosServer	EcDsScienceDataServer1	sdsrv

6.2 Groups

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. Two groups have been defined in the SDSRV database upon initial installation. A definition of each of these groups is contained herein. A user who is a member of the sdsrv group has the permissions of the public group also.

Group Name	Database	Permission
public	EcDsScienceDataServer1	see Object Permissions
sdsrv	EcDsScienceDataServer1	see Object Permissions

6.3 Roles

Roles were introduced in Sybase 10 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 a 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 to permissions needed to perform standard system administrator duties including:

a. installing SQL server and specific SQL server modules

b. managing the allocation of physical storage

c. tuning configuration parameters

d. 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:

a. adding server logins

b. administrating passwords

c. managing the audit system

d. granting users all roles except sa_role

Operator (oper_role) - This role is used to grant a specific user the permissions needed to manage backup and recovery of the database including;

a. dumping transactions and databases

b. 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 perform database consistency checker (dbcc), a sybase supplied utility, commands that are considered outside of the realm of normal system administrator activities.

6.4 Object Permissions

SDSRV Group ListTable Permissions

Name	Delete	Insert	Select	Update
DsDeDictionaryAttribute				
DsDeDictionaryContent				
DsDeDictionaryRule				
DsDeECSKeywordValids				
DsGeESDTConfiguredType	X	X		X
DsMdAdditionalAttributes	X	X		X
DsMdAlgorithmPackage	X	X		X
DsMdAltitudeResolution	X	X		X
DsMdAnalysisSource	X	X		X
DsMdAncillaryInput	X	X		X
DsMdAncillaryInputGranule	X	X		X
DsMdApContactXref	X	X		X
DsMdAPSAPComponentXref	X	X		X
DsMdAttributeConversion				
DsMdAttributeList				
DsMdAttributeTableXref				
DsMdBaseDependent				
DsMdBrowse	X	X		X
DsMdBrowseGranuleXref	X	X		X

Name	Delete	Insert	Select	Update
DsMdCampaign	X	X		X
DsMdClBoundingRectangle	X	X		X
DsMdClCircle	X	X		X
DsMdClGPolygGPolygonContainer	X	X		X
DsMdClGPolygon	X	X		X
DsMdClPoint	X	X		X
DsMdCollBrowseXref	X	X		X
DsMdCollDisciplineKeywordXref	X	X		X
DsMdCollectionAddnlAttribsXref	X	X		X
DsMdCollectionAnalysisXref	X	X		X
DsMdCollectionAPXref	X	X		X
DsMdCollectionAssociation	X	X		X
DsMdCollectionCampaignXref	X	X		X
DsMdCollectionContactXref	X	X		X
DsMdCollectionGranuleXref	X	X		X
DsMdCollectionInstrumentXref	X	X		X
DsMdCollectionPlatformXref	X	X		X
DsMdCollections				
DsMdCollectionSensorXref	X	X		X
DsMdCollFloatInfoContent	X	X		X
DsMdCollIntegerInfoContent	X	X		X
DsMdCollReview	X	X		X
DsMdCollStorageMedium	X	X		X
DsMdCollStringInfoContent	X	X		X
DsMdCollVerticalSpatialDomain	X	X		X
DsMdCollZoneIdentifier	X	X		X
DsMdCommandConversion				
DsMdContact	X	X		X
DsMdContactAddress	X	X		X
DsMdContactOrganizations	X	X		X
DsMdContactPersons	X	X		X
DsMdCSDTDescription	X	X		X
DsMdDAP	X	X		X
DsMdDepthResolution	X	X		X
DsMdDisciplineKeywords	X	X		X
DsMdECSParameterKeywords	X	X		X
DsMdEmailAddress	X	X		X
DsMdFileStorage	X	X		X
DsMdGranuleAnalysisXref	X	X		X
DsMdGranuleCampaignXref	X	X		X
DsMdGranuleInstrumentXref	X	X		X
DsMdGranuleLocality	X	X		X
DsMdGranulePlatformXref	X	X		X
DsMdGranuleReview	X	X		X
DsMdGranules				
DsMdGranulesAncillaryInputXref	X	X		X
DsMdGranuleSensorXref	X	X		X
DsMdGranulesOrbitParmXref	X	X		X

Name	Delete	Insert	Select	Update
DsMdGranuleVersions	X	X		X
DsMdGrBoundingRectangle	X	X		X
DsMdGrCircle	X	X		X
DsMdGrFloatInfoContent	X	X		X
DsMdGrGPolygGPolygonContainer	X	X		X
DsMdGrGPolygon	X	X		X
DsMdGrIntegerInfoContent	X	X		X
DsMdGrPoint	X	X		X
DsMdGrSensorCharacteristics	X	X		X
DsMdGrStorageMedium	X	X		X
DsMdGrStringInfoContent	X	X		X
DsMdGrVerticalSpatialDomain	X	X		X
DsMdIdentifier	X	X		X
DsMdInputGranule	X	X		X
DsMdInsertSequence				
DsMdInstrument	X	X		X
DsMdInstrumentCharacteristic	X	X		X
DsMdJoins				
DsMdKeyDependency				
DsMdLocality	X	X		X
DsMdMeasuredParameter	X	X		X
DsMdMultipleDateTimePeriod	X	X		X
DsMdMultipleTypeCollection	X	X		X
DsMdOperationMode	X	X		X
DsMdOperatorConversion				
DsMdOrbitCalcSpatialDomain	X	X		X
DsMdOrbitCalculatedSpatial	X	X		X
DsMdOrbitParametersGranule	X	X		X
DsMdOrbitPolygons	X	X		X
DsMdOrbitPolygons__Orbit	X	X		X
DsMdParmToTableVector				
DsMdPersonOrganizationXref	X	X		X
DsMdPGEGroup	X	X		X
DsMdPlanarCoordinateSystems	X	X		X
DsMdPlatform	X	X		X
DsMdPlatformCharacteristic	X	X		X
DsMdPlatInstrCode	X	X		X
DsMdProcessingHistory	X	X		X
DsMdProcessingQA	X	X		X
DsMdProductDbXref	X	X		X
DsMdQaGranule	X	X		X
DsMdQualityTextComment	X	X		X
DsMdRangeDateTime	X	X		X
DsMdRegularPeriodic	X	X		X
DsMdSDSRVLookup				
DsMdSDSRVVersions				
DsMdSensor	X	X		X
DsMdSensorCharacteristic	X	X		X

Name	Delete	Insert	Select	Update
DsMdSingleDateTime	X	X		X
DsMdSpatial	X	X		X
DsMdSpatialKeyword	X	X		X
DsMdSSAPComponent	X	X		X
DsMdSSAPComponentAPVersion	X	X		X
DsMdTelephoneNumbers	X	X		X
DsMdTemporal	X	X		X
DsMdTemporalKeyword	X	X		X
DsMdUnloadList				
DsMdUpdateXref				
DsMdUserCommentDocument	X	X		X
DsMdValidationDocument	X	X		X
DsMdXAR	X	X		X

Public Group ListTable Permissions

Name	Delete	Insert	Select	Update
DsDeDictionaryAttribute			X	
DsDeDictionaryContent			X	
DsDeDictionaryRule			X	
DsDeECSKeywordValids			X	
DsGeESDTConfiguredType			X	
DsMdAdditionalAttributes			X	
DsMdAlgorithmPackage			X	
DsMdAltitudeResolution			X	
DsMdAnalysisSource			X	
DsMdAncillaryInput			X	
DsMdAncillaryInputGranule			X	
DsMdApContactXref			X	
DsMdAPSAPComponentXref			X	
DsMdAttributeConversion			X	
DsMdAttributeList			X	
DsMdAttributeTableXref			X	
DsMdBaseDependent			X	
DsMdBrowse			X	
DsMdBrowseGranuleXref			X	
DsMdCampaign			X	
DsMdClBoundingRectangle			X	
DsMdClCircle			X	
DsMdClGPolygGPolygonContainer			X	
DsMdClGPolygon			X	
DsMdClPoint			X	
DsMdCollBrowseXref			X	
DsMdCollDisciplineKeywordXref			X	
DsMdCollectionAddnlAttribsXref			X	
DsMdCollectionAnalysisXref			X	
DsMdCollectionAPXref			X	
DsMdCollectionAssociation			X	
DsMdCollectionCampaignXref			X	

Name	Delete	Insert	Select	Update
DsMdCollectionContactXref			X	
DsMdCollectionGranuleXref			X	
DsMdCollectionInstrumentXref			X	
DsMdCollectionPlatformXref			X	
DsMdCollections				
DsMdCollectionSensorXref			X	
DsMdCollFloatInfoContent			X	
DsMdCollIntegerInfoContent			X	
DsMdCollReview			X	
DsMdCollStorageMedium			X	
DsMdCollStringInfoContent			X	
DsMdCollVerticalSpatialDomain			X	
DsMdCollZoneIdentifier			X	
DsMdCommandConversion			X	
DsMdContact			X	
DsMdContactAddress			X	
DsMdContactOrganizations			X	
DsMdContactPersons			X	
DsMdCSDTDescription			X	
DsMdDAP			X	
DsMdDepthResolution			X	
DsMdDisciplineKeywords			X	
DsMdECSParameterKeywords			X	
DsMdEmailAddress			X	
DsMdFileStorage			X	
DsMdGranuleAnalysisXref			X	
DsMdGranuleCampaignXref			X	
DsMdGranuleInstrumentXref			X	
DsMdGranuleLocality			X	
DsMdGranulePlatformXref			X	
DsMdGranuleReview			X	
DsMdGranules				
DsMdGranulesAncillaryInputXref			X	
DsMdGranuleSensorXref			X	
DsMdGranulesOrbitParmXref			X	
DsMdGranuleVersions			X	
DsMdGrBoundingRectangle			X	
DsMdGrCircle			X	
DsMdGrFloatInfoContent			X	
DsMdGrGPolygGPolygonContainer			X	
DsMdGrGPolygon			X	
DsMdGrIntegerInfoContent			X	
DsMdGrPoint			X	
DsMdGrSensorCharacteristics			X	
DsMdGrStorageMedium			X	
DsMdGrStringInfoContent			X	
DsMdGrVerticalSpatialDomain			X	
DsMdIdentifier			X	

Name	Delete	Insert	Select	Update
DsMdInputGranule			X	
DsMdInsertSequence			X	
DsMdInstrument			X	
DsMdInstrumentCharacteristic			X	
DsMdJoins			X	
DsMdKeyDependency			X	
DsMdLocality			X	
DsMdMeasuredParameter			X	
DsMdMultipleDateTimePeriod			X	
DsMdMultipleTypeCollection			X	
DsMdOperationMode			X	
DsMdOperatorConversion			X	
DsMdOrbitCalcSpatialDomain			X	
DsMdOrbitCalculatedSpatial			X	
DsMdOrbitParametersGranule			X	
DsMdOrbitPolygons			X	
DsMdOrbitPolygons__Orbit			X	
DsMdParmToTableVector			X	
DsMdPersonOrganizationXref			X	
DsMdPGEGroup			X	
DsMdPlanarCoordinateSystems			X	
DsMdPlatform			X	
DsMdPlatformCharacteristic			X	
DsMdPlatInstrCode			X	
DsMdProcessingHistory			X	
DsMdProcessingQA			X	
DsMdProductDbXref			X	
DsMdQaGranule			X	
DsMdQualityTextComment			X	
DsMdRangeDateTime			X	
DsMdRegularPeriodic			X	
DsMdSDSRVLookup			X	
DsMdSDSRVVersions			X	
DsMdSensor			X	
DsMdSensorCharacteristic			X	
DsMdSingleDateTime			X	
DsMdSpatial			X	
DsMdSpatialKeyword			X	
DsMdSSAPComponent			X	
DsMdSSAPComponentAPVersion			X	
DsMdTelephoneNumbers			X	
DsMdTemporal			X	
DsMdTemporalKeyword			X	
DsMdUnloadList			X	
DsMdUpdateXref			X	
DsMdUserCommentDocument			X	
DsMdValidationDocument			X	
DsMdXAR			X	

This page intentionally left blank.

. Scripts

7.1 Installation Scripts

Sub-directories that support the creation of the SDSRV database are found in the ClearCase /ecs/formal/DSS/sdsrv/sybase/db directory. Each sub-directory has its own Imakefile. The entire schema is delivered by using the Makefile in the /ecs/formal/DSS/sdsrv/sybase/db directory which allows all the sub-directories to be delivered at the same time. The README file found in the Ö/sybase/db directory provides information necessary to understand prior to running the scripts. The DsDbREADME file found in the ../sybase/db/tools directory contains documentation relevant to the installation process.

The directories have the following structure:

proc = stored procedures

tables = table definitions,

triggers = trigger definitions

data = important schema data inputs

tools = tool kit, including DsDbbuild_relb0_schema

doc = documentation (includes schema - pdm files from S-designor)

ruldflt = rule/default definitions.

The content of these directories necessary for building a working schema are delivered by the .../sybase/db/Makefile and .../sybase/db/proc/Imakefile, .../sybase/db/tables/Imakefile,, .../sybase/db/triggers/Imakefile, .../sybase/db/tools/Imakefile into a single target directory.

Scripts used to support installation of the SDSRV database are described below. These scripts are found in the directory /ecs/formal/DSS/sdsrv/sybase/db/tools

Script File	Description
../tools/EcDsSrDbBuild	Build a SDSRV database by running the DsDbbuild_relb0_schema
../tools/DsDbbuild_relb0_schema	Korn-Shell script which generates the full sdsrv database schema. Drops any existing objects within the database, generates groups, datatypes, defaults, tables, stored procedures, triggers, and appropriate grants.
../tools/DsDbUpdateSchema	Used for updating SDSRV database schema from Drop2 compliant drop3 compliant.

7.2 De-Installation Scripts

Any scripts used to support de-installation of the SDSRV database are described below.

Script File	Description
../tools/EcDsSrDbMigrate	Migrate a SDSRV database from one mode to another by running the DsDbbuild_relb0_schema
../tools/EcDsSrDbDrop	
../tables/DsDbDropSchema	Drops all objects from the database. Called prior to building the schema.

7.3 Backup/Recovery Scripts

Any scripts used to facilitate backup or recovery of the SDSRV database are described below.

Script File	Description
../tools/EcDsSrDbLoad	Load a SDSRV database
../tools/EcDsSrDbDump	Dump a SDSRV database

7.4 Miscellaneous Scripts

Miscellaneous scripts applicable to the SDSRV database are described below. The SDSRV DB Tools directory contains tools used to assist in development and management of the database schema. Other scripts are found within their respective subdirectory.

Script File	Description
../tools/EcDsSrDbPatch	Apply patch to a SDSRV database by running the DsDbBuildSchemaPatch.
../tools/DsDbUserCheck	Check DsDbUserList
../tools/DsDbUserList	Contains a list of valid usernames
../tools/DsDbSybaseLogins.csh	adds logins to the SYBASE SQL Server
../tools/DsDbisql	preprocessor for isql
../tools/DsDbCleanGranules	Used for testing. Deletes all granules associated with a given ESDT name. Included for SDSRV testing engineers.
../tools/DsDbCleanCollection	Used for testing. Deletes the Collection associated with a given ESDT name. Included for SDSRV testing engineers.
../tools/DsDbCleanSingleGranule	Used for testing. Deletes a single granule given a dbID. (You must look at the database to get the dbID for a granule). Included for SDSRV testing engineers.

Script File	Description
../tools/DsDbMocExt	Used by MOC to extract Landsat 7 metadata from SDSRV database and transfer data to remote site.
../tools/DsDbMocRc	Used by DsDbMocExt to extract Landsat 7 metadata from SDSRV database. This is a template to be customized at the sites.
../tables/DsDbB0DataTypes.sql	Creates user defined data types and defaults with any bindings.
../tables/DsDbB0DAPTables.sql	Generates the Delivered Algorithm Package tables.
../tables/DsDbB0SpatialTables.sql	Generates the Spatial tables.
../tables/DsDbB0TemporalTables.sql	Generates the Temporal tables.
../tables/DsDbB0GranuleTables.sql	Generates the Granule tables.
../tables/DsDbB0CollectionTables.sql	Generates the Collection tables.
../tables/DsDbB0DataOrigTables.sql	Generates the Data Originator tables.
../tables/DsDbB0ContactTables.sql	Generates the Contact tables.
../tables/DsDbB0DictionaryTables.sql	Generates the Data Dictionary tables.
../tables/DsDbB0SystemTables.sql	Generates the system tables.
../tables/DsDbB0SystemWrapperTables.sql	Generates the system wrapper tables
../proc/DsDbDeleteProcs.sql	Generates all delete stored procedures.
../proc/DsDbInsertProcs.sql	Generates all insert stored procedures.
../proc/DsDbSelectProcs.sql	Generates all select stored procedures.
../proc/DsDbUpdateProcs.sql	Generates all update stored procedures.
../proc/DsDbOtherProcs.sql	Generates all other stored procedures that are used for various purposes other than delete, insert, select, or update.
../triggers/DsDbTriggers.sql	Generates all the triggers on the tables.
../data/DsDbGenGrants.sql	Generates the grants on all objects and assigns the permissions.
../data/DsDbDictionaryData.sql	Installs system level metadata for the data dictionary tables. Required to make SDSRV properly work.
../data/DsDbGenSystemData.sql	Installs system level metadata for the data dictionary tables. Required to make SDSRV properly work.
../data/DsDbGenWrapCommands.sql	Installs system level metadata for wrapper tables. Required to make SDSRV properly work.
../tools/DsDbChange_DB_Schema.sql	SQL used to do schema convert from drop2 - drop3

Script File	Description
../patches/DsDbBuildSchemaPatch	Korn shell script used to run the patches
../patches/DsDbPatch301.sql	SQL used to do schema convert from drop3 - drop3.01
../patches/DsDbPatch350.sql	SQL used to do schema convert from drop3.02 - drop3.50
../patches/DsDbPatch40.sql	SQL used to do schema convert from drop3.50 - drop4.0
../patches/DsDbPatch40A.sql	SQL used to do schema convert from drop4.0 - drop4.0A
../patches/DsDbPatch40B.sql	SQL used to do schema convert from drop4.0 - drop4.0B
../tools/DsDbBuildConstraints.sql	SQL used to rebuild all RI constraints. Used by Build and Update scripts.

Appendix A. Science Data Server ERDs

This page intentionally left blank.

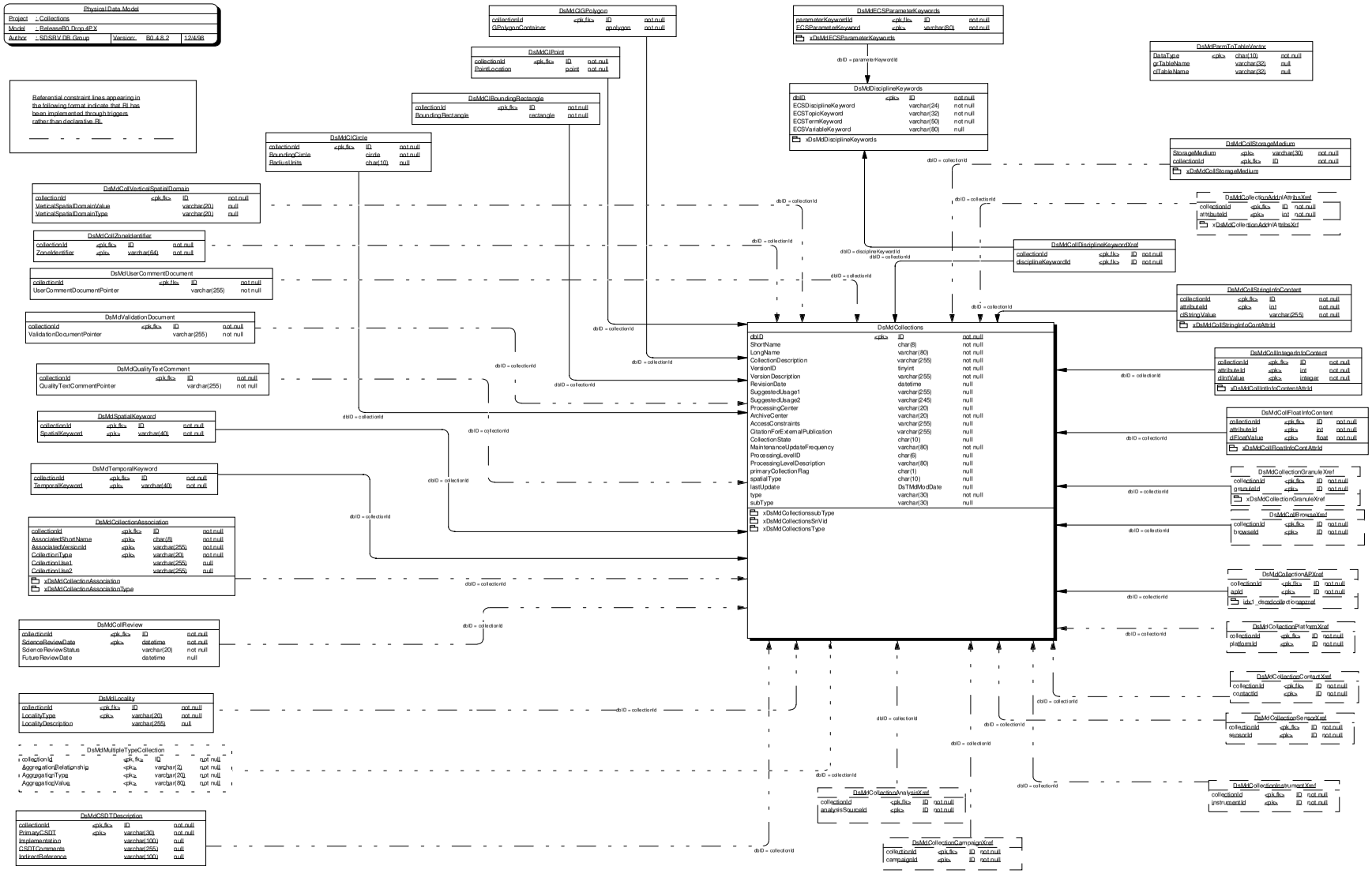

Figure A-1. Collections

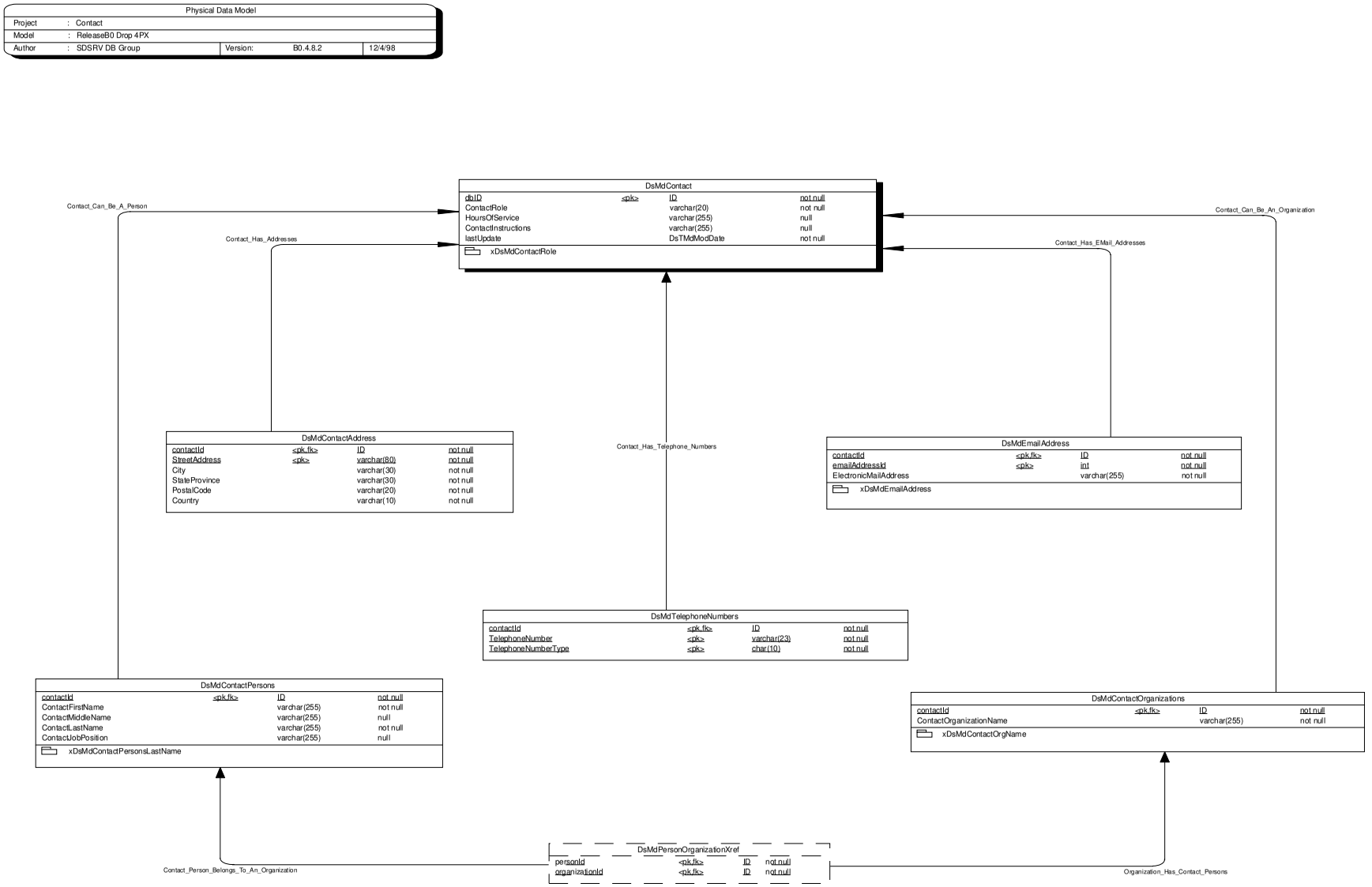

Figure A-2. Contact

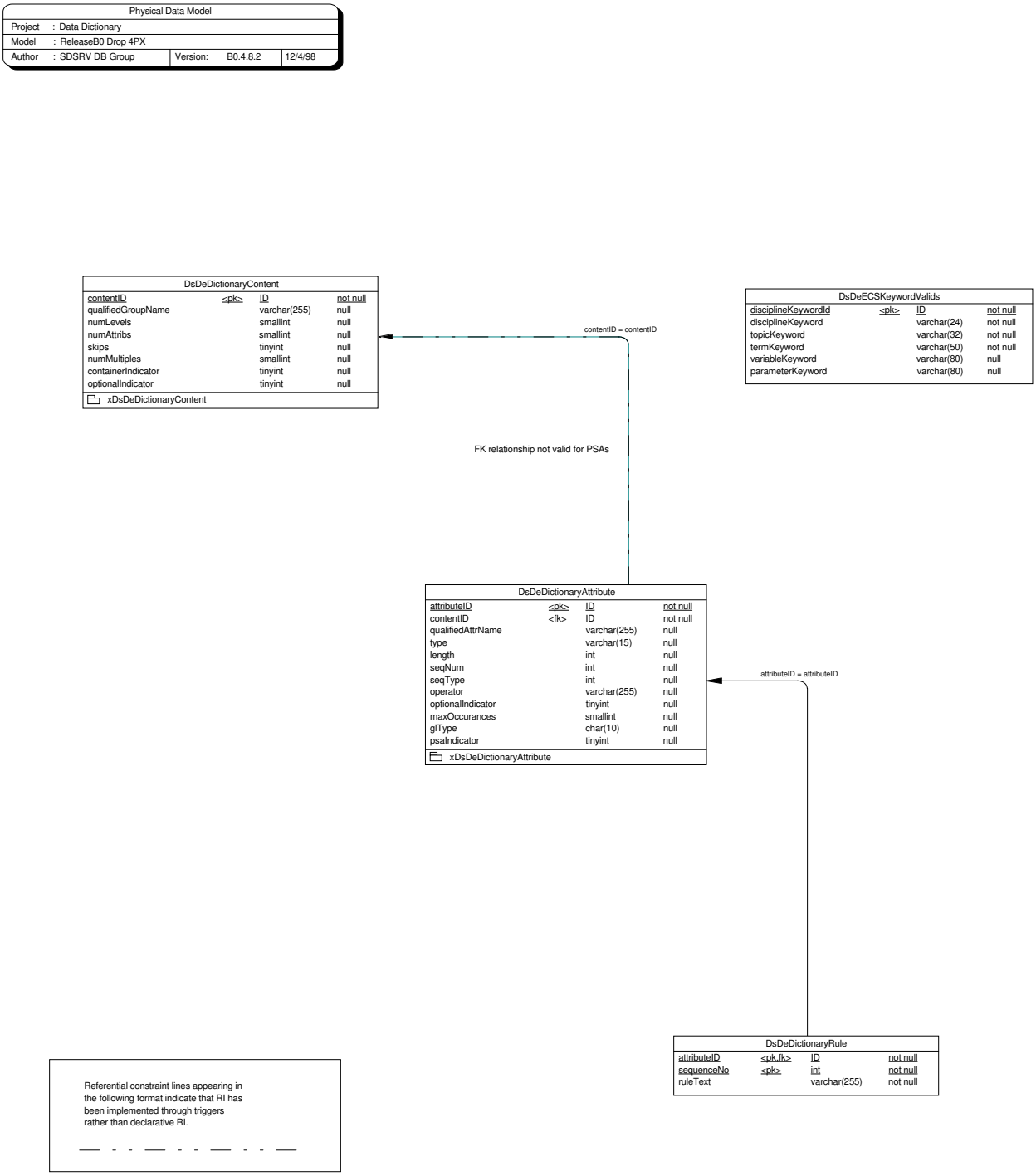

Figure A-3. Data Dictionary

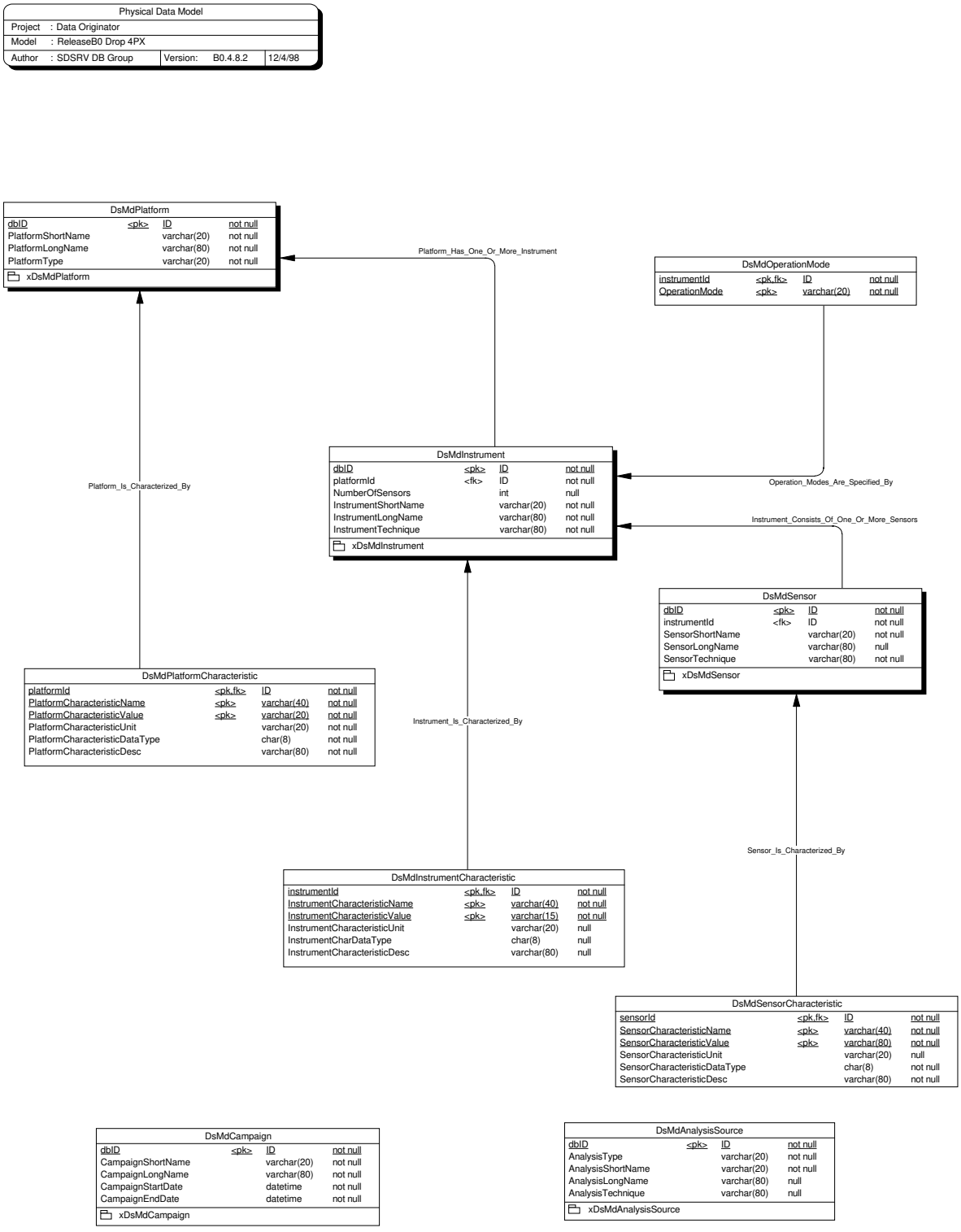

Figure A-4. Data Originator

Physical Data Model		
Project : ESDT Configuration Type		
Model : ReleaseB0 Drop 4PX		
Author : SDSRV DB Group	Version: B0.4.8.2	12/4/98

DsGeESDTConfiguredType			
configuredName	<pk>	varchar(20)	not null
versionID	<pk>	tinyint	not null
archiveIdentifier		varchar(20)	not null
description		varchar(255)	null
descriptorFileName		varchar(80)	null
dllFileName		varchar(80)	null
eventFileName		varchar(80)	null
backupIdentifier		varchar(20)	null
offsiteIdentifier		varchar(20)	null

Figure A-5. ESDT Configured Type

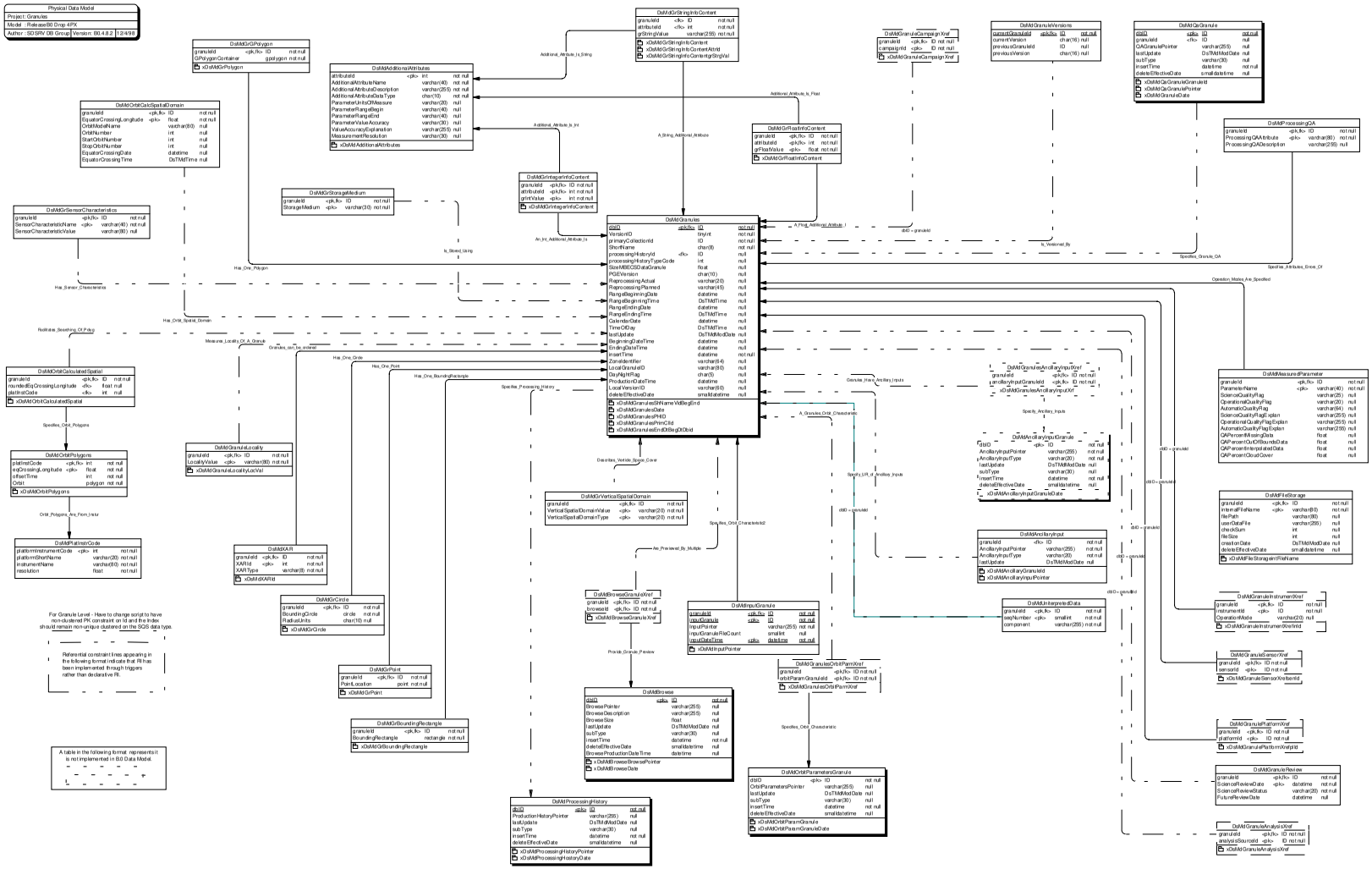

Figure A-6. Granules

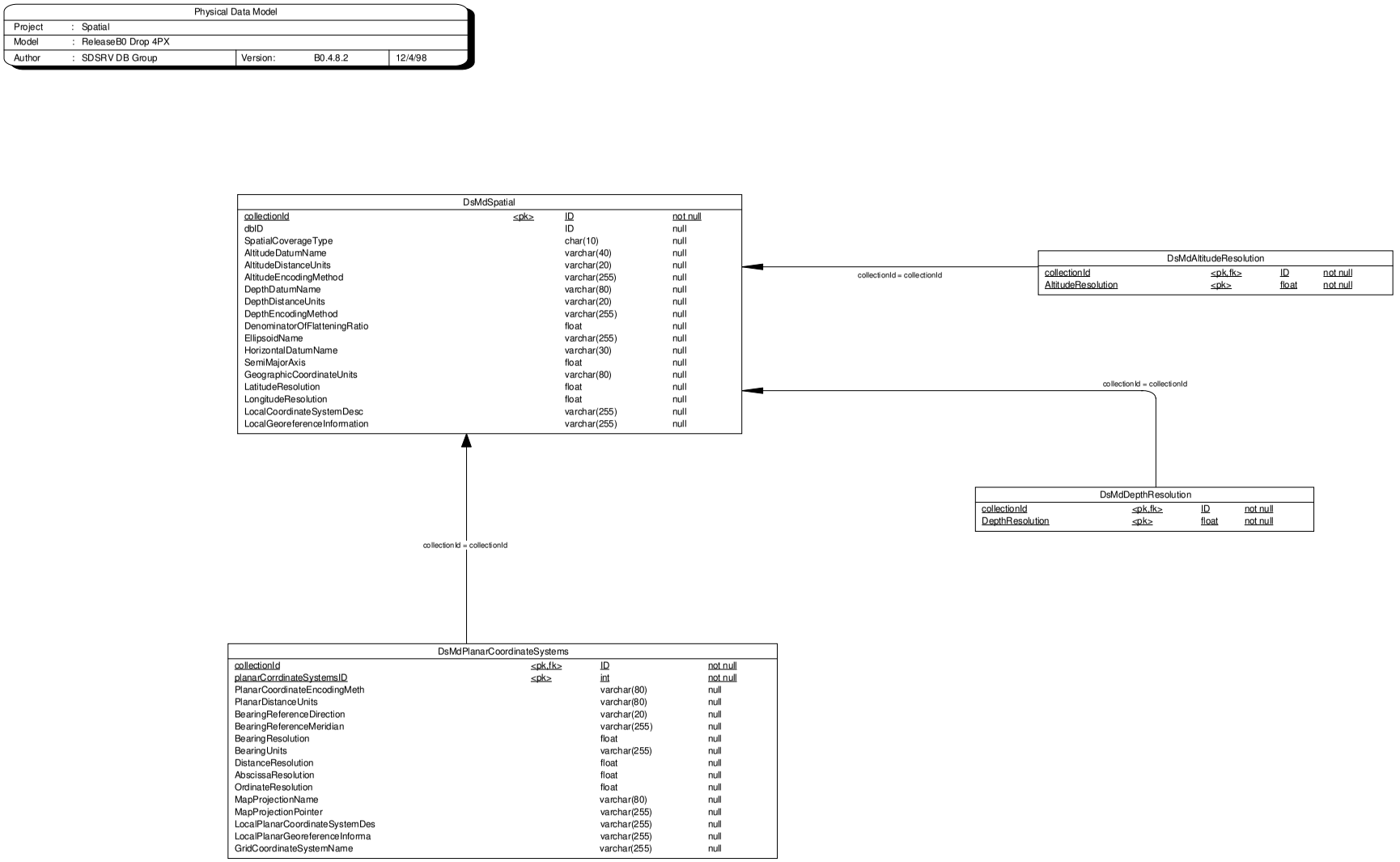

Figure A-7. Spatial

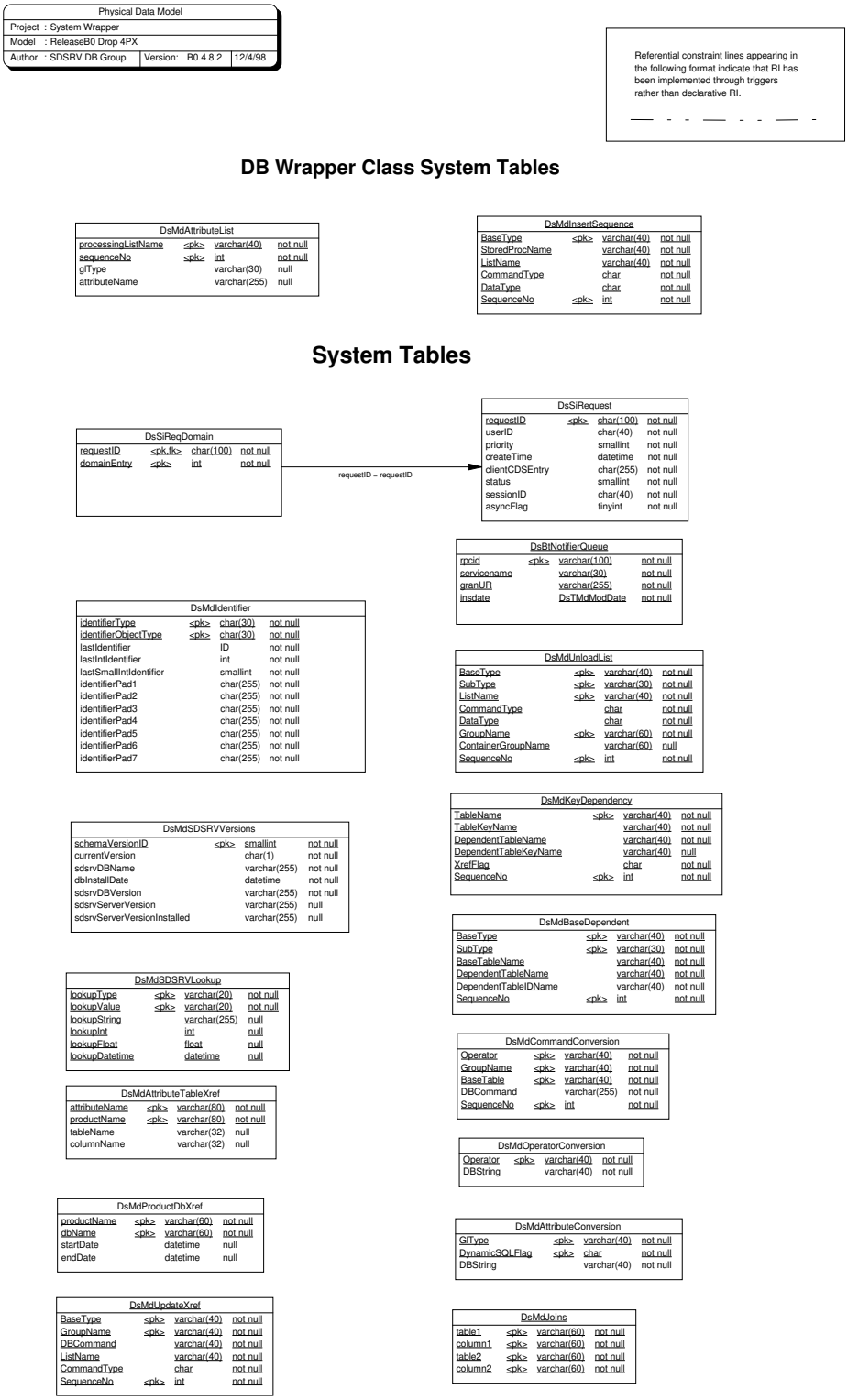

Figure A-8. System Wrapper

Physical Data Model			
Project	: Temporal		
Model	: ReleaseB0 Drop 4PX		
Author	: SDSRV DB Group	Version: B0.4.8.2	12/4/98

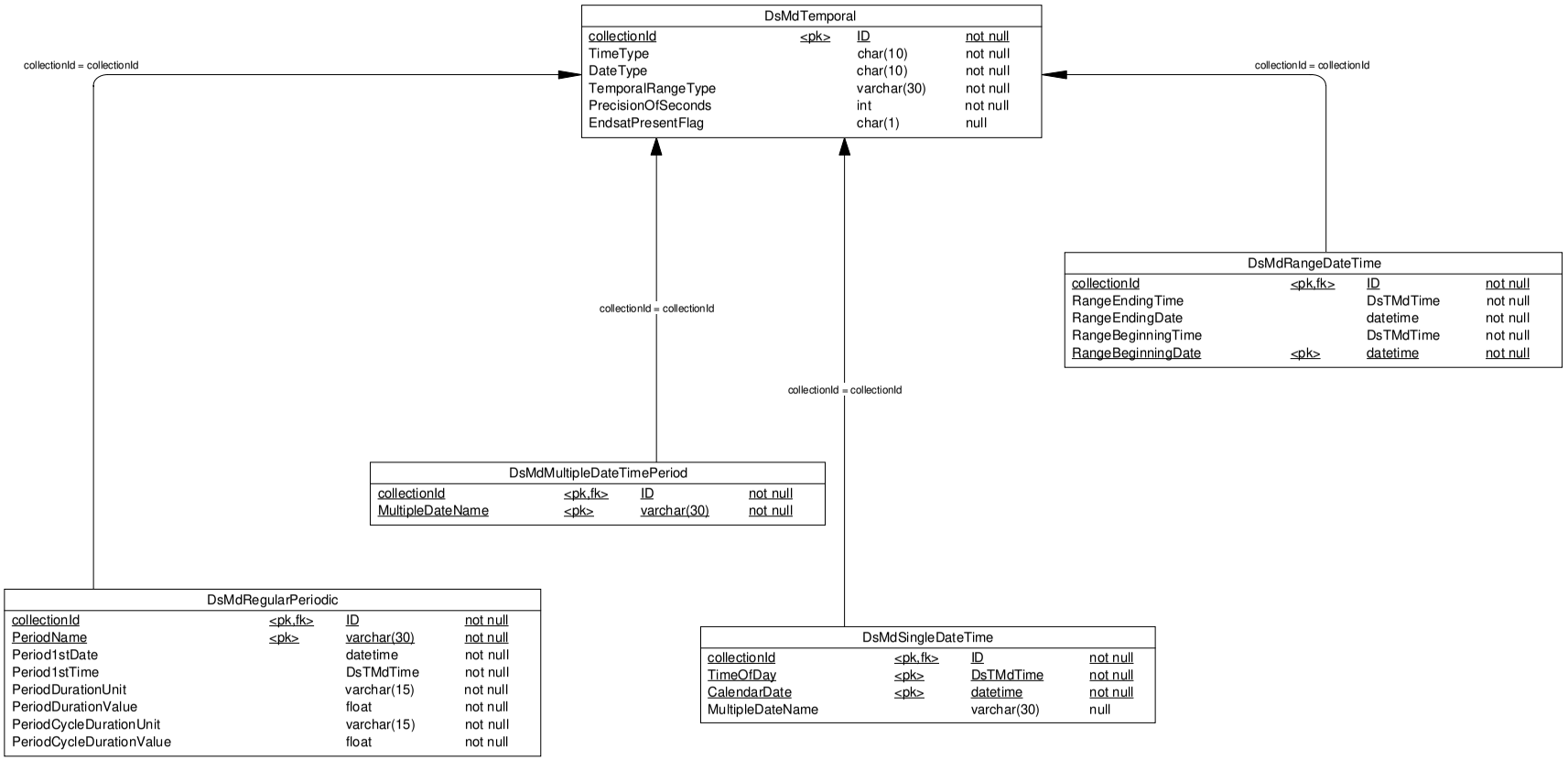

Figure A-9. Temporal

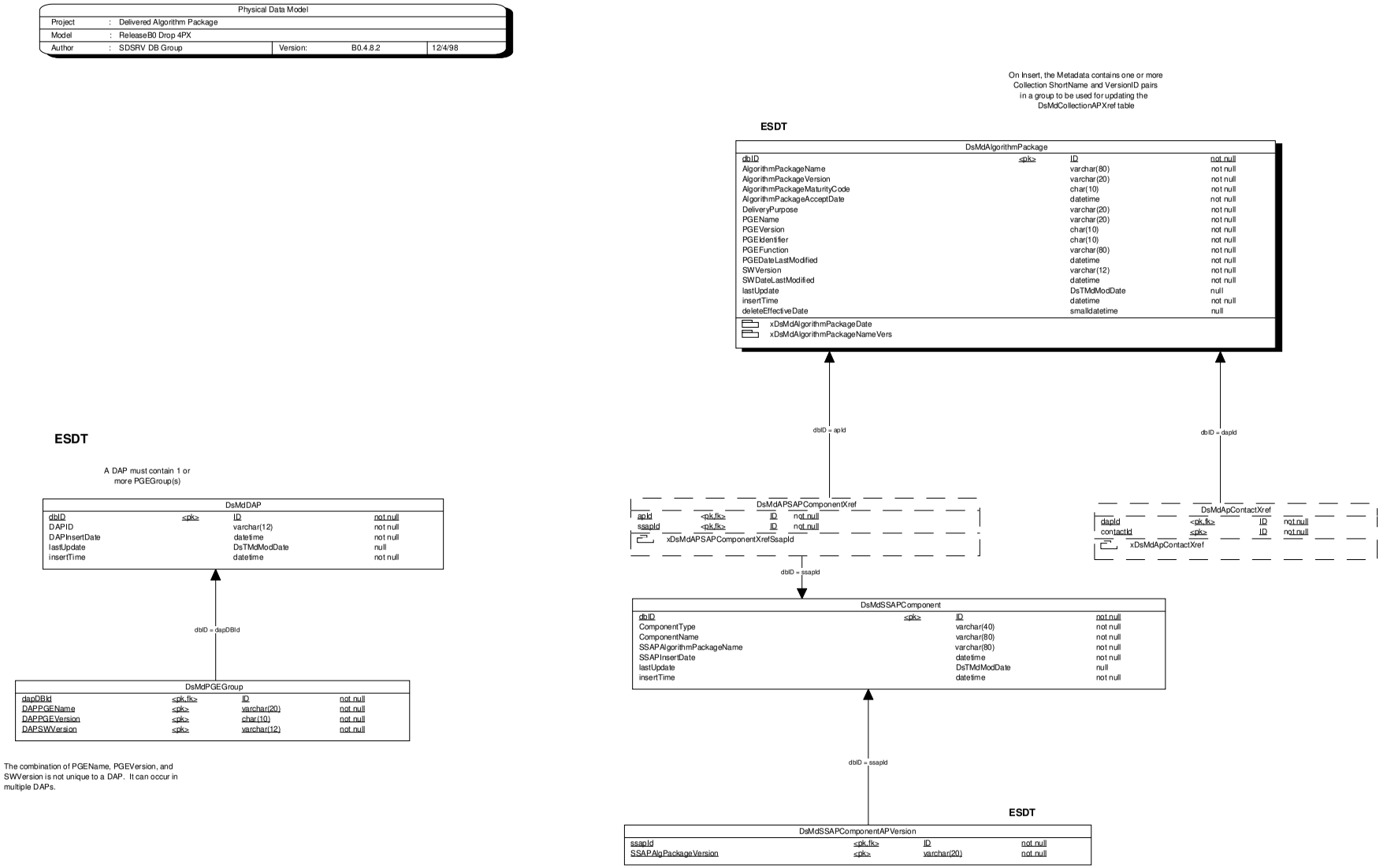

Figure A-10. Delivered Algorithm Package

Abbreviations and Acronyms

ACL	Access Control List
ACMHW	Access and Control Management HWCI
ADC	affiliated data center
ADSHW	Advertising Server HWCI
ADSRV	Advertising Service CSCI
AI&T	algorithm integration and test
AITHW	Algorithm Integration and Test HWCI
AITTL	Algorithm Integration and Test CSCI
AM-1	EOS AM Project spacecraft 1, morning spacecraft seriesóASTER, CERES, MISR, MODIS and MOPITT instruments
ANSI	American National Standards Institute
API	application program (or programming) interface
APID	application's process ID
AQAHW	Algorithm QA HWCI
ASCII	American Standard Code for Information Exchange
ASTER	Advanced Spaceborne Thermal Emission and Reflection Radiometer (formerly ITIR)
AVHRR	Advanced Very High-Resolution Radiometer
BER	bit error rate
BUFR	binary universal format for representation of data
CASE	Computer Aided Software Engineering
CCSDS	Consultative Committee for Space Data Systems
CD	contractual delivery 214-001
CD-ROM	compact diskóread only memory
CDR	Critical Design Review
CDRL	contract data requirements list
CERES	Clouds and Earthís Radiant Energy System
CI	configuration item

COTS	commercial off-the-shelf (hardware or software)
CPU	central processing unit
CSCI	computer software configuration item
CSDT	Computer Science Data Type
CSMS	Communications and Systems Management Segment (ECS)
CSS	Communications Subsystem
DAAC	Distributed Active Archive Center
DAN	data availability notice
DAO	Data Assimilation Office
DAR	data acquisition request
DAS	data availability schedule
DBMS	Database Management System
DDICT	Data Dictionary CSCI
DDIST	Data Distribution Services CSCI
DDSRV	Document Data Server CSCI
DESKT	Desktop CSCI
DID	data item description
DIM	distributed information manager (SDPS)
DIMGR	Distributed Information Manager CSCI
DIPHW	Distribution and Ingest Peripheral Management HWCI
DMGHW	Data Management HWCI
DMS	Data Management Subsystem
DMWG	Data Management Working Group
DP	Data Provider
DPR	data processing request
DPREP	Science Data Preprocessing CSCI
DPS	Data Processing Subsystem
DRPHW	Data Repository HWCI
DSS	Data Server Subsystem
ECS	EOSDIS Core System

EDC	EROS Data Center
EDHS	ECS Data Handling System
EDOS	EOS Data and Operations System
EOS	Earth Observing System
EOS-AM	EOS Morning Crossing (Descending) Missionósee AM-1
EOSDIS	Earth Observing System Data and Information System
EROS	Earth Resources Observation System
ESDIS	Earth Science Data and Information System (GSFC)
ESDT	Earth science data types
ESN	EOSDIS Science Network (ECS)
FDDI	fiber distributed data interface
FDF	flight dynamics facility
FDFEPHEM	FDF-generated definitive orbit data
FGDC	Federal Geographic Data Commuittee
FK	Foreign Key
FOO	Flight of Opportunity
FOS	Flight Operations Segment (ECS)
GB	gigabyte (10^9)
GNU	(recursive acronym: "GNU's Not Unix"); a project supported by the Free Software Foundation dedicated to the delivery of free software
GPCP	Global Precipitation Climatology Project
GPCP	Global Precipitation Climatology Project
GPI	GOES Precipitation Index
GRIB	GRid In Binary
GSFC	Goddard Space Flight Center
GTWAY	Version 0 Interoperability Gateway CSCI
GUI	graphic user interface
GV	ground validation
HDF	hierarchical data format
HDF-EOS	an EOS proposed standard for a specialized HDF data format

HIPPI	high performance parallel interface
HMI	human machine interface
HTML	HyperText Markup Language
HTTP	Hypertext Transport Protocol
HWCI	hardware configuration item
I&T	integration and test
I/F	interface
I/O	input/output
ICD	interface control document
ICLHW	Ingest Client HWCI
ID	identification
IDE	Interactive Development Environments
IDG	Infrastructure Development Group
IDR	Incremental Design Review
IERS	International Earth Rotation Service
IMS	Information Management System (obsolete ECS element name)
INGST	Ingest Services CSCI
IOS	Interoperability Subsystem
IP	international partners
IR-1	Interim Release 1
IRD	interface requirements document
ISO	International Standards Organization
ISS	Internetworking Subsystem
IV&V	independent verification and validation
JPL	Jet Propulsion Laboratory
L0-L4	Level 0 (zero) through Level 4
LaRC	Langley Research Center (DAAC)
LIM	local information manager (SDPS)
LIMGR	Local Information Manager CSCI
LIS	Lightning Imaging Sensor

LSM	local system management (ECS)
MB	megabyte (10^6)
MDT	mean downtime
MDT	mean downtime
MFLOPS	mega (millions of) floating-point operations (10^6) per second
MISR	Multi-Angle Imaging SpectroRadiometer
MODIS	Moderate-Resolution Imaging Spectrometer
MOPITT	Measurements of Pollution in the Troposphere
MSFC	Marshall Space Flight Center
MSS	Management Support Subsystem
MTBF	mean time between failure
MTPE	Mission to Planet Earth
MTTR	mean time to restore
N/A	not applicable
NAS	National Academy of Science
NASA	National Aeronautics and Space Administration
NESDIS	National Environmental Satellite Data and Information Service
NMC	National Meteorological Center (NOAA)
NOAA	National Oceanic and Atmospheric Administration
NSIDC	National Snow and Ice Data Center (DAAC)
O/A	orbit/altitude
ODC	other data center
OSI	Open System Interconnect
PDPS	Planning and Data Processing Subsystem
PDR	Preliminary Design Review
PDS	production data set
PGE	Product Generation Executive
PGS	Product Generation System (obsolete ECS element name) (ASTER)
PK	Primary Key
PLANG	Production Planning CSCI

PLNHW	Planning HWCI
PLS	Planning Subsystem
POSIX	Portable Operating System Interface for Computer Environments
PR	Precipitation Radar (TRMM)
PRONG	Processing CSCI
QA	quality assurance
RMA	reliability, maintainability, availability
RTF	rich text format
SAA	satellite active archive
SAGE	Stratospheric Aerosol and Gas Experiment
SCF	Science Computing Facility
SDP	Science Data Processing
SDPF	Sensor Data Processing Facility (GSFC)
SDPS	Science Data Processing Segment (ECS)
SDPTK	SDP Toolkit CSCI
SDSRV	Science Data Server CSCI
SeaWIFS II	Sea-Viewing Wide Field-of-View Sensor II
SFDU	Standard Format Data Unit
SMC	System Management Center (ECS)
SPRHW	Science Processing HWCI
SRS	software requirements specification
SSM/I	Special Sensor for Microwave/Imaging (DMSP)
SST	sea surface temperature
STMGMT	Storage Management
STMGT	Storage Management Software CSCI
SUBSRV	Subscription Server
TMI	TRMM Microwave Image
TOMS	Total Ozone Mapping Spectrometer
TONS	TDRS On-board Navigational System
TRMM	Tropical Rainfall Measuring Mission (joint US-Japan)

TSDIS	TRMM Science Data and Information System
USNO	US Naval Observatory
UT	universal time
UTC	universal time code
V0	Version 0
VIRS	Visible Infrared Scanner (TRMM)
WAIS	Wide Area Information Server
WKBCH	Workbench CSCI
WKSHW	Working Storage HWCI
WWW	World-Wide Web

This page intentionally left blank.