

3.6 Landsat-7 Scenario

3.6.1 Landsat-7 Scenario Description

This scenario shows how ECS supports the archival and retrieval of Landsat-7 data. Landsat-7 data is provided to ECS from one of three primary sources: Landsat 7 Archive Management System (LAMS), Image Assessment System (IAS), and International Ground Stations (IGS). The LAMS provides Landsat-7 L0R (Level 0 Reformatted) subinterval data and Metadata Browse to ECS. IAS provides the Landsat-7 Calibration Parameter files and Reports to ECS. IGS provides inventory metadata and browse for IGS Landsat-7 data holdings. The interfaces between LAMS and ECS and between IAS and ECS are through a standard polling mechanism managed by Ingest. The interface between IGS and ECS is via either a standard polling mechanism or hard media. The hard media and polling mechanism are documented in the ECS-Landsat-7 ICD. ECS does not process Landsat-7 data.

There are some notable data issues related to the Landsat-7 L0R subintervals. Actually, the Landsat-7 L0R data is produced by Landsat Processing System (LPS) in two independent parts, Format 1 and Format 2. While both parts are required to make a complete Landsat-7 L0R granule, these parts are provided to ECS independent from each other. Additionally, there is no guarantee of the delivery order of the parts: Format 1 could precede or follow the delivery of its corresponding Format 2. The deliveries might be separated by delivery of parts of other granules. This requires ECS to ensure each received part's (L0R subinterval) corresponding part has already been delivered. If so, further internal processing is performed to match the parts and to create the complete Landsat-7 L0R subinterval granule.

Another point of interest is that while LAMS provides ECS with all Landsat-7 L0R data, which is subinterval data, ECS provides access to standard L70R WRS Scenes* and Floating Scenes* within the subinterval data. When LAMS provides a subinterval, all L70R WRS Scene data is embedded in the subinterval and metadata is provided to derive those scenes. The current ECS approach to storing and accessing subintervals and scenes is to store all subinterval data, and to derive scenes from the subinterval when ECS users request the scenes. To support this two things occur: First when subinterval data is entered into the Data Server, references to all scenes that are available within that subinterval are also created. These scenes are "virtual granules", insofar as they are referenced as granules, and are searchable, but the granule itself is not archived, per se. Rather it is created upon access. Secondly, upon access the scenes are derived from their "parent" subinterval by using internal subinterval subsetting services. Effectively, each scene knows which subinterval it is part of, and it knows what to ask its subinterval to do in order to complete creation of itself.

(*Note: Standard L70R WRS Scenes are defined by specific ground distances from a center point defined by the intersection of an orbit path and a latitude (row) in a set latitude grid. This scene is "fixed" and it would include overlap scans, meaning a length max of 375 scans (335 plus 20 scans top and 20 scans bottom). A Floating Scene, a subtype of subinterval, desired by user is a scene with the center not on one of these "fixed" scene centers.)

The following system functionality is exercised in this scenario:

- User Profile Registration (see Thread A)
- LAMS-driven data ingest (see Thread B)
- IGS-driven media ingest (see Thread C)
- IAS-driven data ingest (see Thread D)
- Access to WRS Scenes (see Thread F)
- EDG browse of granules (see Thread E)
- 8mm, CD-ROM and DLT data distribution (see Threads, F & H)
- Access to Floating Scenes and Floating Scene Price Estimation (see Threads H & I)
- Operator ability to status an order (see Threads, F, G & H)
- Landsat-7 Error Handling (see Thread J)

3.6.2 Landsat-7 Scenario Preconditions

The following ESDTs have been inserted into the ECS:

- L70R (Complete L70R subinterval)
- L70RF1 (Format 1 of a L70R subinterval)
- L70RF2 (Format 2 of a L70R subinterval)
- L70RWRS (Complete L7 WRS Scene)
- L70RWRS1 (Format 1 part of a L70R WRS Scene)
- L70RWRS2 (Format 2 part of a L70R WRS Scene)
- L7IGS
- L7IGSWRS
- L7CPF (Landsat-7 Calibration Parameter File)
- Browse (Generic Browse file)

Other Preconditions are as follows:

- Subscription for Landsat-7 subintervals entered on behalf of Instrument Team.
- Standing order for L70R WRS Scene, to be delivered on 8mm, DTF and DLT tapes and CD-ROMs.

3.6.3 Landsat-7 Scenario Partitions

The Landsat-7 scenario has been partitioned into the following threads:

- **L-7 User Registration** (Thread A) - This thread shows the processing required for registering as a new ECS User (see section 3.6.4).
- **L-7 LAMS Data Insertion** (Thread B) - This thread shows how the ECS inserts data provided by LAMS (see section 3.6.5).
- **L-7 IGS Tape Insertion** (Thread C) - This thread shows how the ECS inserts data provided by IGS via 8mm tape (see section 3.6.6).
- **L-7 IAS Data Insertion** (Thread D) - This thread shows how the ECS inserts data provided by IAS (see section 3.6.7).
- **L-7 Search and Browse** (Thread E) - This thread shows how the ECS supports users searching for and browsing data holdings (see section 3.6.8).
- **L-7 Ordering WRS Scene** (Thread F) - This thread shows how the ECS supports user orders for L70R WRS scene (see section 3.6.9).
- **L-7 MOC Interface Thread** (Thread G) – This thread shows the interface between the ECS and the MOC for Cloud Cover Assessment (CCA) data (see section 3.6.10).
- **L-7 Ordering Floating Scene** (Thread H) – This thread shows how the ECS supports user orders for L70R Floating Scene (see section 3.6.11).
- **L-7 Floating Scene Price Estimation** (Thread I) – This thread shows how the ECS supports price estimation for orders of L70R Floating Scene (see section 3.6.12).
- **L-7 Error Handling** (Thread J) – This thread shows how the ECS supports operator requests for Merging/De-Merging/Delete of L-7 granules in the Science Data Server database. (See section 3.6.13)

3.6.4 Landsat-7 User Registration Thread

This thread shows the processing required for registering as a new ECS User.

3.6.4.1 Landsat-7 User Registration Interaction Diagram - Domain View

Figure 3.6.4.1-1 depicts the L-7 User Registration Interaction - Domain View.

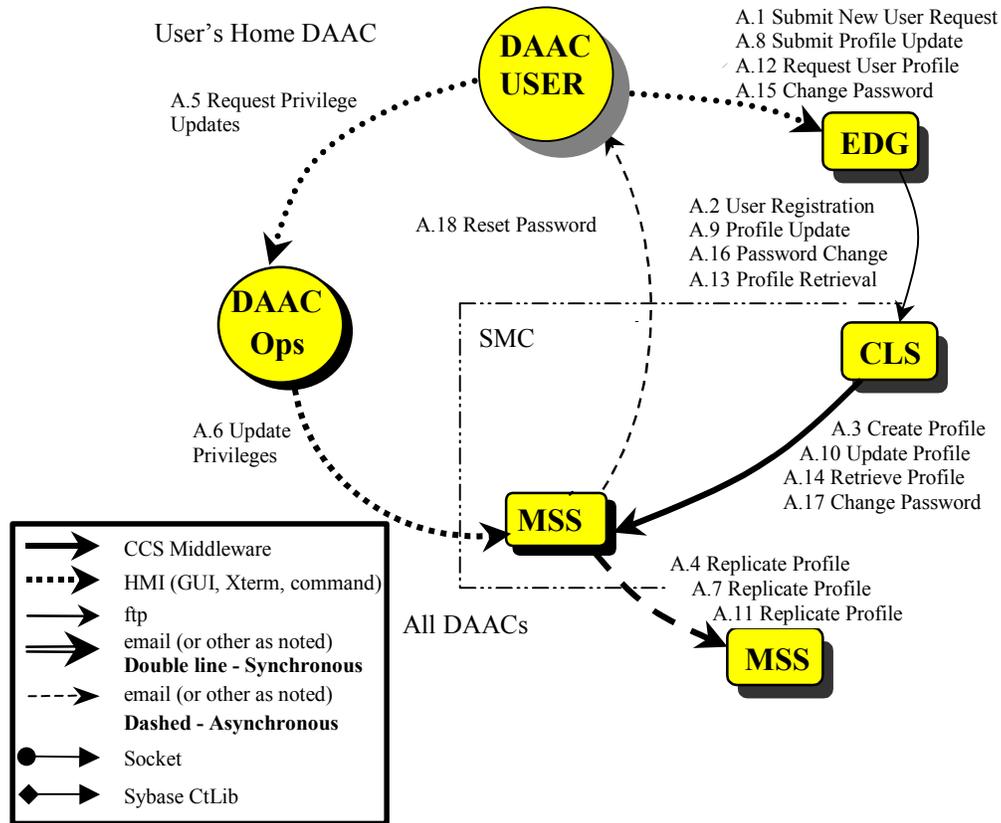


Figure 3.6.4.1-1. L-7 User Registration Interaction Diagram

3.6.4.2 Landsat-7 User Registration Interaction Table - Domain View

Table 3.6.4.2-1 provides the Interaction - Domain View: L-7 User Registration.

Table 3.6.4.2-1. Interaction Table - Domain View: L7 User Registration (1 of 3)

Step	Event	Interface Client	Interface Provider	Data Issues	Step Precon- ditions	Description
A.1	Submit New User Request	Science User	EOS Data Gateway (EDG)	None	None	The science user goes to the User Registration form for the first time from the EOS Data Gateway (EDG), via its Universal Resource Locator (URL), from their favorite Web Browser. The Science User fills in the form with initial registration information.
A.2	User Registration	EDG	CLS (User Profile Gateway)	None	None	The EOS Data Gateway submits the new user's registration request to the Client Subsystem User Profile Gateway in ODL format, via a specific socket.
A.3	Create Profile	CLS (User Profile Gateway)	MSS (User Registration Server)	None	None	The Client Subsystem User Profile Gateway translates the profile request to a profile object and submits the request to the System Management Subsystem User Registration Server. The results of this request are returned synchronously, and are passed back to the EOS Data Gateway, which displays them to the Science User.
A.4	Replicate Profile	SMC MSS	All remote MSS	None	None	The new profile is replicated at each remote DAAC.
A.5	Request Privilege Updates	Science User	DAAC Ops	None	None	The Science User needs access to restricted granules or ASTER L1B on-demand privilege, so the user telephones user services at his home DAAC to request the privileges.
A.6	Update Privileges	DAAC Ops	SMC MSS	None	None	The user services at the home DAAC uses the System Monitoring and Coordination Center Graphical User Interface for updating the System Management Subsystem User Profile to grant the requested privileges.
A.7	Replicate Profile	SMC MSS	Remote MSS	None	None	The updated profile is replicated at each remote DAAC.
A.8	Submit Profile Update	Science User	EDG	None	None	A Science User goes to the User Registration Update Form through the EOS Data Gateway, via its URL, using their favorite Web Browser. The Science User fills in the form with updated registration information.

Table 3.6.4.2-1. Interaction Table - Domain View: L7 User Registration (2 of 3)

Step	Event	Interface Client	Interface Provider	Data Issues	Step Preconditions	Description
A.9	Profile Update	EDG	CLS (User Profile Gateway)	None	None	The EOS Data Gateway submits the updated user's registration request to the Client Subsystem User Profile Gateway in ODL format, via a specific socket.
A.10	Update Profile	CLS (User Profile Gateway)	MSS (User Registration Server)	None	None	The Client Subsystem User Profile Gateway translates the Profile Update Request to a profile object and submits the request to the System Management Subsystem User Registration Server. The results of this request are returned synchronously and are passed back to the EOS Data Gateway, which displays them to the Science User.
A.11	Replicate Profile	SMC MSS	Remote MSS	None	None	The updated profile is replicated at each remote DAAC.
A.12	Request User Profile	Science User	EDG	None	None	A Science User goes to the User Profile Retrieval Form through the EOS Data Gateway, via its Universal Resource Locator (URL), using their favorite Web Browser. The Science User fills in the form with userid and password information.
A.13	Profile Retrieval	EDG	CLS (User Profile Gateway)	None	None	The EOS Data Gateway submits the profile retrieval request to the Client Subsystem User Profile Gateway in ODL format, via a specific socket.
A.14	Retrieve Profile	CLS (User Profile Gateway)	MSS (User Registration Server)	None	None	The Client Subsystem User Profile Gateway submits the request to the System Management Subsystem User Registration Server. The results of this request are returned synchronously and are passed back to the EOS Data Gateway, which displays them to the Science User.
A.15	Change Password	Science User	EDG	None	None	A Science User goes to the User Profile Password Change Form through the EOS Data Gateway, via its URL, using their favorite Web Browser. The Science User fills in the form with userid, old password and new password information.

Table 3.6.4.2-1. Interaction Table - Domain View: L7 User Registration (3 of 3)

Step	Event	Interface Client	Interface Provider	Data Issues	Step Preconditions	Description
A.16	Password Change	EDG	CLS (User Profile Gateway)	None	None	The EOS Data Gateway submits the password change request to the Client Subsystem User Profile Gateway in ODL format, via a specific socket.
A.17	Change Password	CLS (User Profile Gateway)	MSS (User Registration Server)	None	None	The Client Subsystem User Profile Gateway submits the request to the System Management Subsystem User Registration Server. The results of this request are returned synchronously and are passed back to the EOS Data Gateway, which displays them to the Science User.
A.18	Reset Password	MSS	DAAC User	None	None	The System Management Subsystem changes the password in its profile database.

3.6.4.3 Landsat-7 User Registration Component Interaction Table

Table 3.6.4.3-1 provides the Component Interaction: L7 User Registration.

Table 3.6.4.3-1. Component Interaction Table: L7 User Registration (1 of 5)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
A.1.1	Connect Web Browser to EDG	Science User	EDG	Web Browser	A Science User goes to the User Registration Form through the EOS Data Gateway (EDG), via its URL, using their favorite Web Browser.
A.1.2	Input User Registration Information	Science User	EDG	Web Browser	The Science User populates the User Registration Form with the required ECS registration information. The user submits this information to the EOS Data Gateway.
A.2.1	Create User Registration Request	iPlanet web server	EDG	CGI	The EOS Data Gateway generates the authenticator from the User ID and Password and creates the user registration message containing the profile information plus the User ID and authenticator (but not the password).

Table 3.6.4.3-1. Component Interaction Table: L7 User Registration (2 of 5)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
A.2.2	Submit User Registration Request	EDG	EcCIDtUserProfile Gateway	V0 protocols via Secure Socket Link (SSL)	The EOS Data Gateway sends the user registration message to the Client Subsystem User Profile Gateway at the System Monitoring and Coordination Center. Upon receipt of the successful registration response, the EOS Data Gateway updates its local profiles file with the new ECS User ID, authenticator and other profile information. This information is used on subsequent access to the ECS requiring a user profile.
A.3.1	Validate User Registration Request	EcCIDtUserProfile Gateway	EcCIDtUserProfile Gateway	Internal	The Client Subsystem User Profile Gateway converts the User Registration Request to a System Management Subsystem Profile object and validates that required information is present.
A.3.2	Create Profile	EcCIDtUserProfile Gateway	EcMsAc RegUser Srvr	CCS Middlewa re	The Client Subsystem User Profile Gateway sends the User Registration Request to the System Management Subsystem User Profile Server for approval. The response to the Registration Request is transmitted to the EOS Data Gateway to be displayed to the user.
A.4.1	Validate User Registration Request	EcMsAc RegUser Srvr	EcMsAc RegUser Srvr	Internal	The System Management Subsystem User Profile Server begins new account creation. The System Management Subsystem User Profile Server checks for duplicate User Ids. If the User ID already exists, the System Management Subsystem returns an error to the Data Management Subsystem, which constructs and sends a message to the EOS Data Gateway client asking the user to submit another User ID in his/her request.
A.4.2	Process a User Registration Request	EcMsAc RegUser Srvr	EcMsAc RegUser Srvr	Internal	If the User ID is unique, the System Management Subsystem generates a new user profile using the information from the Data Management Subsystem. A default set of information is used for the rest of the users profiles, withholding any special data access or request privileges.
A.4.3	Complete a User Registration Request	EcMsAc RegUser Srvr	EcCIDtUserProfile Gateway	CCS Middlewa re	The System Management Subsystem returns the profile to the Client Subsystem User Profile Gateway.

Table 3.6.4.3-1. Component Interaction Table: L7 User Registration (3 of 5)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
A.5.1	Replicate User Profile	Sybase ASE	Sybase ASE	EcMsRs Db	The user profile insert into the System Management Subsystem profile database triggers its replication to each remote site via the Sybase ASE Replication Server.
A.6.1	Request Privilege Updates	Science User	DAAC Ops - User Services privileges	Telephone	If the user requires access to restricted granules or ASTER L1B on-demand privileges, the user calls user services at their Home DAAC, and makes the request.
A.7.1	Update Privileges	DAAC Ops - User Services	SMC GUI	Xterm	The User Services at the Home DAAC uses the System Monitoring and Coordination Center Graphical User Interface for updating the privileges in the System Management Subsystem user profiles to perform the update.
A.9.1	Replicate User Profile	Sybase ASE	Sybase ASE	EcMsRs Db	The profile update also triggers its replication to each remote site via the Sybase ASE Replication Server.
A.10.1	Connect Web Browser To EDG	Science User	EcCIDtUserProfile Gateway	Web Browser	A Science User goes to the User Registration Update Form through the EOS Data Gateway, via its Universal Resource Locator (URL), using their favorite Web Browser.
A.10.2	Input User Registration Information	Science User	EcCIDtUserProfile Gateway	Web Browser	The Science User populates the forms with updated ECS registration information. The user submits this information to the EOS Data Gateway.
A.11.1	Create User Profile Update Request	iPlanet web server	EDG	CGI	The EOS Data Gateway (EDG) generates the authenticator from the User ID and Password. The EOS Data Gateway creates a user registration update message containing the updated profile information plus the User ID and authenticator (but not the password).
A.11.2	Submit User Profile Update Request	EDG	EcCIDtUserProfile Gateway	V0 protocols via SSL	The EOS Data Gateway sends the user profile update message to the Client Subsystem User Profile Gateway at the System Monitoring and Coordination Center. Upon receipt of the successful update response, the EOS Data Gateway updates its local profiles file with the updated profile information.
A.12.1	Validate User Registration Request	EcCIDtUserProfile Gateway	EcCIDtUserProfile Gateway	Internal	The Client Subsystem User Profile Gateway converts the User Registration Request to a System Management Subsystem Profile object, populating updated information.

Table 3.6.4.3-1. Component Interaction Table: L7 User Registration (4 of 5)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
A.12.2	Create Profile	EcCIDtUserProfile Gateway	EcMsAc RegUser Srvr	CCS Middlewa re	The Client Subsystem User Profile Gateway sends the User Profile Update Request to the System Management Subsystem User Profile Server for approval. The response to the Registration Request is transmitted to the EOS Data Gateway to be displayed to the user.
A.12.3	Validate User Registration Request	EcMsAc RegUser Srvr	Sybase ASE	Sybase ASE	The System Management Subsystem User Registration Server inserts updated user profile information into its database.
A.12.4	Process a User Registration Request	EcMsAc RegUser Srvr	EcCIDtUserProfile Gateway	CCS Middlewa re	The System Management Subsystem returns the status to the Client Subsystem User Profile Gateway.
A.13.1	Replicate User Profile	Sybase ASE	Sybase ASE	EcMsRs Db	The user profile update in the System Management Subsystem profile database triggers its replication to each remote site via the Sybase ASE Replication Server.
A.14.1	Load Profile Retrieval Form	Science User	EcCIDtUserProfile Gateway	Web Browser	A Science User goes to the Profile Retrieval Form through the EOS Data Gateway, via its Universal Resource Locator (URL), using their favorite Web Browser.
A.14.2	Submit Retrieve Profile	Science User	EcCIDtUserProfile Gateway	Web Browser	The Science User populates the Profile Retrieval Form with User ID and password.
A.15.1	Create Profile Retrieval Request	iPlanet web server	EDG	CGI	The EOS Data Gateway (EDG) generates the authenticator from the User ID and Password. The EOS Data Gateway creates a profile retrieval message containing the User ID and authenticator (but not the password).
A.15.2	Submit User Profile Retrieval Request	EDG	EcCIDtUserProfile Gateway	V0 protocols via SSL	The EOS Data Gateway sends the profile retrieval message to the Client Subsystem User Profile Gateway at the System Monitoring and Coordination Center (SMC). Upon receipt of the successful retrieval response, the EOS Data Gateway updates its local profiles file with the retrieved profile information.

Table 3.6.4.3-1. Component Interaction Table: L7 User Registration (5 of 5)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
A.16.1	Retrieve Profile	EcCIDtUserProfile Gateway	EcMsAc RegUser Srvr	CCS Middlewa re	The Client Subsystem User Profile Gateway sends the User Profile Retrieve Request to the System Management Subsystem (MSS) User Profile Server for processing. The profile received from the System Management Subsystem is transmitted to the EOS Data Gateway to be displayed to the user.
A.17.1	Load Password Change Form	Science User	EcCIDtUserProfile Gateway	Web Browser	A Science user goes to the Password Change Form through the EDG, via its URL, using their favorite Web Browser.
A.17.2	Submit Password Change	Science User	EcCIDtUserProfile Gateway	Web Browser	The Science User populates the Password Change Form with User ID and old and new passwords.
A.18.1	Create Password Change Request	EDG	iPlanet web server	CGI	The EOS Data Gateway generates the old and new authenticators from the User ID and Passwords. The EOS Data Gateway creates a password change message containing the User ID and authenticators (but not the password).
A.18.2	Submit Password Change Request	iPlanet web server	EcCIDtUserProfile Gateway	V0 protocols via SSL	The EOS Data Gateway sends the change password message to the Client Subsystem User Profile Gateway at the System Monitoring and Coordination Center. Upon receipt of the successful password change response, the EOS Data Gateway notifies the user of the success of the request.
A.19.1	Change Password	EcCIDtUserProfile Gateway	EcMsAc RegUser Srvr	CCS Middlewa re	The Client Subsystem User Profile Gateway sends the Password Change Request to the System Management Subsystem User Profile Server for approval. The status received from the System Management Subsystem is transmitted to the EOS Data Gateway to be displayed to the user.

3.6.5 Landsat-7 LAMS Data Insertion Thread

This thread shows how the ECS inserts data provided by LAMS.

3.6.5.1 Landsat-7 LAMS Data Insertion Thread Interaction Diagram - Domain View

Figure 3.6.5.1-1 depicts the L-7 LAMS Data Insertion Interaction - Domain View.

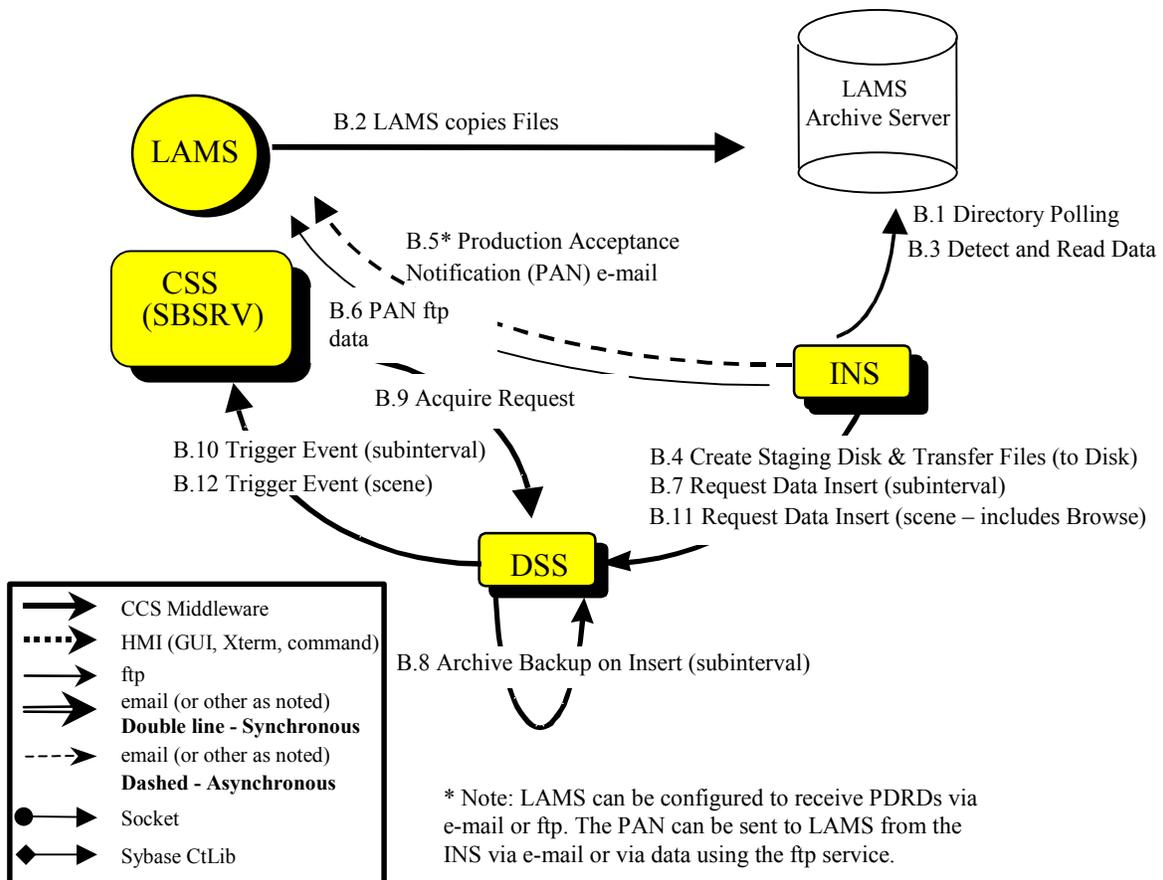


Figure 3.6.5.1-1. L-7 LAMS Data Insertion Interaction Diagram

3.6.5.2 Landsat-7 LAMS Data Insertion Thread Interaction Table - Domain View

Table 3.6.5.2-1 provides the Interaction - Domain View: L-7 LAMS Data Insertion.

Table 3.6.5.2-1. Interaction Table - Domain View: L-7 LAMS Data Insertion (1 of 3)

Step	Event	Interface Client	Interface Provider	Data Issues	Step Preconditions	Description
B.1	Directory Polling	INS (INGST)	Directory	None	Entire step is really a precondition.	When the system is started, the Ingest Subsystem (INS) begins polling a directory, looking for files that meet the following standard: *.PDR, in the pre-configured directory.
B.2	LAMS Copies Files	LAMS	Directory	None	The LAMS knows the host and directory in which to place files.	LAMS copies the data, metadata, browse and Product Delivery Record files to the directory, which the Ingest Subsystem is polling.
B.3	Detect and Read Data	INS (INGST)	Directory	None	None	The Ingest Subsystem Polling detects data in the directory and reads the data.
B.4	Create Staging Disk & Transfer Files	INS (INGST)	DSS (SDSRV)	None	None	The Ingest Subsystem interfaces with the Data Server Subsystem (DSS) Science Data Server (SDSRV) to request staging disk space within the Data Server Subsystem and transfers the files to this staging disk area.
B.5	Production Acceptance Notification	INS (INGST)	LAMS	None	The data ingest must be completed	The Ingest Subsystem generates the completion status in a Production Acknowledgment Notice (PAN), which is sent via email to the LAMS.
B.6	Ftp data	INS (INGST)	LAMS	None	The data ingest must be completed	The Ingest Subsystem generates the completion status in a Production Acknowledgment Notice (PAN) file, which is sent to LAMS via the File Transfer Protocol (FTP) service.

Table 3.6.5.2-1. Interaction Table - Domain View: L-7 LAMS Data Insertion (2 of 3)

Step	Event	Interface Client	Interface Provider	Data Issues	Step Preconditions	Description
B.7	Request Data Insert (subinterval)	INS (INGST)	DSS (SDSRV)	For 3 scenes:1 3 L70RF1 files @ 732MB, or 7 L70RF2 @ 387MB, from Landsat- 7 Team	L70RF1, L70RF2 and L70R ESDTs.	When complete L70R data is transferred to the Data Server Subsystem (DSS) staging disk areas, Ingest validates information (preprocessing) and sends a request for the data to be read by the Data Server Subsystem for archival. The Data Server Subsystem reads the data from the designated staging disk area. Note the number of files depends on the number of scenes. L70RF1 files = 10 +1 browse file per scene. L70RF2 files = 7 to 9 depending whether Band 8 is processed with 1, 2, or 3 files.
B.8	Archive Backup on Insert (subinterval)	DSS (SDSRV)	DSS (STMGT)	None	None	The Data Server Subsystem (DSS - SDSRV) tells the Data Server Subsystem Storage Management (STMGT) to store the files in the archive. A list of files is passed with the location of each file.

Table 3.6.5.2-1. Interaction Table - Domain View: L-7 LAMS Data Insertion (3 of 3)

Step	Event	Interface Client	Interface Provider	Data Issues	Step Preconditions	Description
B.9	Acquire Request	CSS (SBSRV)	DSS (SDSRV)	None	None	The Communications Subsystem's Subscription Server (SBSRV) sends an acquire request to the Data Server Subsystem (DSS - SDSRV) to get the subscribed granules for a user subscription.
B.10	Trigger Event (subinterval)	DSS (SDSRV)	CSS (SBSRV)	None	None	Upon successful completion of insertion of L70RF1, L70RF2, or complete L70R subinterval in the Data Server Subsystem, the appropriate Insert event is triggered in the Communications Subsystem Subscription Server (SBSRV).
B.11	Request Data Insert (scene – includes Browse)	INS (INGST)	DSS (SDSRV DB)	3 L70RWRS(F1/F2) virtual granules, Browse granules (F1)	None	The Ingest Subsystem (INS) derives L70R WRS scene information from the subinterval metadata. Virtual scene granules (metadata only) are inserted into the Data Server Subsystem (DSS), and Browse data are inserted into the Data Server Subsystem archive. Each scene is done separately. After combining L70RF1 & L70RF2 to form L70R data and combining L70RWRS1 & L70RWRS2 to form L70RWRS data, the L70RF1, L70RF2, L70RWRS1 and L70RWRS2 metadata are deleted from the Data Server Subsystem (SDSRV DB).
B.12	Trigger Event (scene)	DSS (SDSRV)	CSS (SBSRV)	None	None	The Data Server Subsystem triggers the scene's Insert event when the scene and Browse data are successfully saved.

3.6.5.3 Landsat-7 LAMS Data Component Interaction Table

Table 3.6.5.3-1 provides the Component Interaction: L-7 LAMS Data Insertion.

Table 3.6.5.3-1. Component Interaction Table: L-7 LAMS Data Insertion (1 of 6)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
B.1.1	Ingest Polling	EclnPolling	Polling Directory	Ftp	The Ingest Polling (EclnPolling) process begins polling the configured directory. It periodically looks for files named *.PDR. The polling periodicity is determined from a configuration file. The mask of the file to look for is determined by the Notify Type of the data provider in the Ingest database.
B.2.1	LAMS Copies Files	LAMS	Polling Directory	Ftp	The LAMS copies (via the File transfer protocol (Ftp) service) the data and metadata files and the Product Delivery Record (PDR) file to the predetermined directory. Location, directory, user name and password are as per the L7-Operations Agreement.
B.3.1	Polling Detects Files	EclnPolling	Polling Directory	Ftp	The Ingest Polling (EclnPolling) process detects files matching the *.PDR mask.
B.3.2	Send Request	EclnPolling	EclnReqMgr	CCS Middleware	The Ingest Polling process copies the PDR file to the Ingest remote directory and sends a Create Request message to the Ingest Request Manager (EclnReqMgr).
B.3.3	Granule Process Request	EclnReqMgr	EclnGran	CCS Middleware	The Ingest Request Manager sends the message to the Ingest Granule (EclnGran) Processor.
B.4.1	Create Staging Disk	EclnGran	EcDsStRequestManagerServer	CCS Middleware	The Ingest Granule Processor sends a request to the Storage Management Request Manager Server, which are forwarded to the Staging Disk Server to obtain a staging disk area, which allocates space and passes back a reference to that disk space. The appropriate staging disk server is obtained from the Ingest database, based on data type. The amount of staging disk to request is determined from the Product Delivery Record (PDR).

Table 3.6.5.3-1. Component Interaction Table: L-7 LAMS Data Insertion (2 of 6)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
B.4.2	Allocate Media Resource	EclnGran	EcDsStRequestManagerServer	CCS Middleware	The Ingest Granule Processor sends a request to the Storage Management Request Manager Server, which are forwarded to the Ftp Server for its Ftp service via a Storage Management Resource Manager Factory. The Ingest Granule Processor knows this request via an Ftp from a database lookup, keyed on the data provider. The appropriate resource manager is determined from the media type handed to the resource factory.
B.4.3	Ftp Get files	EclnGran	EcDsStRequestManagerServer	CCS Middleware	The Ingest Granule (EclnGran) Processor sends requests to the Storage Management Request Manager Server, via the FTP server, to transfer the files from the LAMS host and location, as indicated in the Product Delivery Record (PDR) file, placing them in the staging disk area.
B.5.1	Production Acceptance Notification e-mail	EclnReqMgr	LAMS	E-mail	The Ingest Request Manager (EclnReqMgr) creates a Production Acceptance Notification message indicating successful insertion of the LAMS data and sends it to the LAMS via e-mail.
B.6.1	Ftp data	EclnReqMgr	LAMS	Ftp	The Ingest Request Manager creates a Production Acceptance Notification file indicating successful insertion of the LAMS data and sends it to the LAMS via the Ftp service.
B.7.1	Connect to SDSRV	EclnGran	EcDsScienceDataServer	CCS Middleware	The Ingest Granule Processor begins a session with the Science Data Server (EcDsScienceDataServer) by connecting. The appropriate Science Data Server is determined during Ingest Request Manager startup, from a configuration file. This is pertinent if there are multiple Science Data Servers in use at one DAAC in one mode.

Table 3.6.5.3-1. Component Interaction Table: L-7 LAMS Data Insertion (3 of 6)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
B.7.2	Request Metadata Configuration File	EcInGran	EcDsScienceDataServer	CCS Middleware	The Ingest Granule Processor requests the metadata configuration file (MCF) for the data being inserted from the Science Data Server. The data types being inserted are derived from the PDR file sent by the LAMS. The Ingest Granule Processor performs preprocessing (current number of files for data type, extraction of metadata, etc.).
B.7.3	Validate Metadata	EcInGran	EcDsScienceDataServer	CCS Middleware	After building the granule's metadata file, the Ingest Granule Processor asks the Science Data Server to validate the metadata, based on the granule's data type.
B.7.4	Request Data Insert	EcInGran	EcDsScienceDataServer	CCS Middleware	The Ingest Granule Processor sends an insert request for the LAMS Landsat-7 LOR Subinterval to be inserted into the Science Data Server. An insert request, containing the names of the files comprising the subinterval, is created. The Science Data Server validates metadata and determines the archived names of the files. (Note this validation is on a different level than the Ingest validation.)
B.7.5	Request STMGT Store	EcDsScienceDataServer	EcDsStRequestManagerServer	CCS Middleware	The Science Data Server (EcDsScienceDataServer) sends requests to the Storage Management Request Manager Server (EcDsStRequestManagerServer) for the files to be archived.
B.7.6	STMGT Store	EcDsStRequestManagerServer	EcDsStArchiveServer	CCS Middleware	The Storage Management Request Manager Server receives the request for the files to be archived and routes the request to the Storage Management Archive Server (EcDsStArchiveServer). The Archive Server copies the inserted files directly from the Ingest staging disks they are residing on.

Table 3.6.5.3-1. Component Interaction Table: L-7 LAMS Data Insertion (4 of 6)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
B.8.1	Establish backup files IDs	EcDsScienceDataServer	EcDsStArchiveServer	CCS Middleware	When the Science Data Server indirectly requests the Archive Server to store the files in the archive, a list of files is passed with the location of each file. Backups are performed on an Earth Science Data Type (ESDT) basis. The checksum, file size, and status for each file are returned to the Science Data Server along with a status for the request.
B.8.2	Move to Primary	EcDsStArchiveServer	System Call (read and write service call)	CtLib	The file is copied from where Ingest placed it originally to the AMASS cache by the Archive Server. The archive ID indicates which archive server is used and which directory path is used within the archive. If the Backup Archive ID is blank, the next file in the request is processed.
B.8.3	Move to Backup	EcDsStArchiveServer	System Call (read and write service call)	CtLib	The file is copied from where Ingest placed it originally to the AMASS cache for the backup archive server. The Backup Archive ID indicates which Archive Server is used for backup and the directory path within that archive. This is done only if the Backup Archive ID is not empty. The operator is notified of an archive failure and is able to see the file and its backup status. The operator can reinitiate the backup of the file at a later time.

Table 3.6.5.3-1. Component Interaction Table: L-7 LAMS Data Insertion (5 of 6)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
B.8.4	Move to Offsite	EcDsStArchiveServer	System Call (read and write service call)	CtLib	The file is copied from where Ingest placed it originally to the AMASS cache for the off-site Storage Management Archive Server (EcDsStArchiveServer). The off-site Archive Server is determined by the value for the Offsite Archive ID. This is done only if the Offsite Archive ID is not empty. The operator is notified of an archive failure and is able to see the file and its backup status. The operator can reinitiate the backup of the file at a later time.
B.8.5	Adding a Granule to Inventory	EcDsScienceDataServer	Sybase ASE/SQS	CtLib	The validated metadata is parsed and added to the inventory of the Science Data Server (EcDsScienceDataServer). The Science Data Server queries the DB for L70RF1 and L70RF2 and creates L70R data. After combining L70RF1 and L70RF2, it deletes the metadata for L70RF1 and L70RF2.
B.9.1	Acquire Data	EcSbSubServer	EcDsScienceDataServer	CCS Middleware	The Subscription Server (EcSbSubServer) acquires the granules needed to fulfill the subscription from the Science Data Server.
B.10.1	Trigger Event	EcDsScienceDataServer	EcSbSubServer	CCS Middleware	Upon successful insertion of the Landsat-7 L0R subinterval granule, the L70R Insert event is triggered. The appropriate Subscription Server is determined from the Science Data Server configuration. The correct event to trigger is determined from the "events" file, which was populated during ESDT installation. The inserted granule's UR is provided when the event is triggered.
B.10.2	Retrieve Subscriptions	EcSbSubServer	Sybase ASE	CtLib	The Subscription Server queries the Sybase ASE database determining which subscriptions need to be activated, or fired. Each query "hit" is an activated subscription and executes independently.
B.11.1	Derive Scenes	EcInGran	EcInGran	Internal	The Ingest Granule (EcInGran) Processor component is hard-coded to derive and insert scene data whenever a LAMS subinterval is inserted.
B.11.2	Request Metadata Configuration File	EcInGran	EcDsScienceDataServer	CCS Middleware	The Ingest Granule Processor requests the metadata configuration files (MCF) for the scene and Browse data being inserted from the Science Data Server.

Table 3.6.5.3-1. Component Interaction Table: L-7 LAMS Data Insertion (6 of 6)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
B.11.3	Validate Metadata	EcInGran	EcDsScienceDataServer	CCS Middleware	After building a metadata file for each virtual scene and Browse granule, the Ingest Granule (EcInGran) Processor asks the Science Data Server (EcDsScienceDataServer) to validate the metadata, based on the granule's data type.
B.11.4	Request Data Insert	EcInGran	EcDsScienceDataServer	CCS Middleware	The Ingest Granule Processor sends requests to the Science Data Server to insert the virtual scene and Browse granules. An insert request, containing the names of the metadata files is created. The Science Data Server validates the metadata file.
B.11.5	Adding a Granule to Inventory	EcDsScienceDataServer	Sybase ASE/SQS	CtLib	The validated metadata is parsed and added to the inventory of the Science Data Server. The Science Data Server queries the DB for L70RWRS1 and L70RWRS2 and creates L70RWRS data. After combining L70RWRS1 and L70RWRS2, it then deletes the metadata for L70RWRS1 and L70RWRS2.
B.11.6	Completion Callback	EcInReqMgr	EcInGran	CCS Middleware	The Ingest Granule Processor sends a completion callback to the Ingest Request Manager (EcInReqMgr) when the processing of the granule is complete.
B.12.1	Trigger Event	EcDsScienceDataServer	EcSbSubServer	CCS Middleware	Upon successful insertion of each Landsat-7 scene virtual granule, the L70RWRS Insert event is triggered. This is a qualified event. The scene's spatial metadata is passed along with the trigger. The correct subscription server is determined from the Science Data Server configuration. The correct events to trigger are determined from the "events" file, which was populated when the ESDT was installed. The inserted granule's UR is provided when the event is triggered.
B.12.2	Retrieve Subscriptions	EcSbSubServer	Sybase ASE	CtLib	The Subscription Server (EcSbSubServer) queries the Sybase ASE database determining which subscriptions need to be activated or fired. Each query "hit" is an activated subscription and executes independently.

3.6.6 Landsat-7 IGS Tape Insertion Thread

This thread shows how the ECS inserts data provided by Landsat-7 IGS on 8mm tape.

3.6.6.1 Landsat-7 IGS Tape Insertion Thread Interaction Diagram - Domain View

Figure 3.6.6.1-1 depicts the Landsat-7 IGS Tape Insertion Interaction.

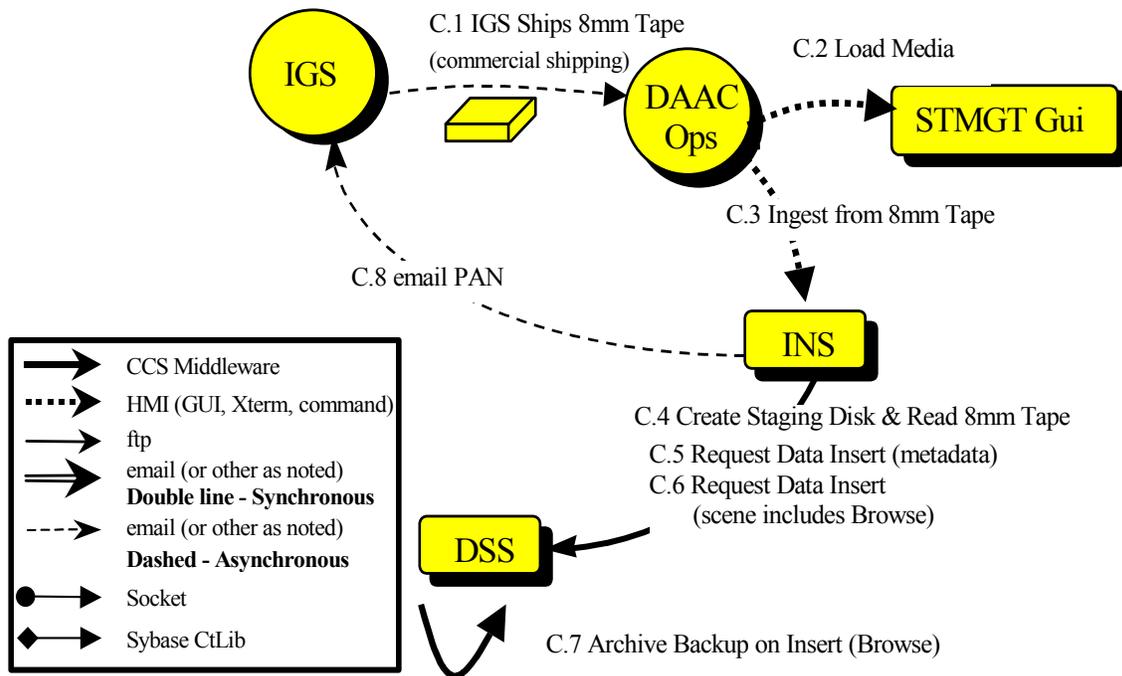


Figure 3.6.6.1-1. Landsat-7 IGS Tape Insertion Interaction Diagram

3.6.6.2 Landsat-7 IGS Tape Insertion Thread Interaction Table - Domain View

Table 3.6.6.2-1 provides the Interaction - Domain View: Landsat-7 IGS Tape Insertion.

**Table 3.6.6.2-1. Interaction Table - Domain View: Landsat-7 IGS Tape Insertion
(1 of 2)**

Step	Event	Interface Client	Interface Provider	Data Issues	Step Preconditi ons	Description
C.1	IGS Ships 8mm Tape	IGS	DAAC Ops	None	None	The International Ground Station (IGS) uses commercial shipping vendors for sending 8mm tapes containing metadata or metadata and browse data.
C.2	Load Media	DAAC Ingest/Distribution Technician	DSS (STMGT)	None	8mm tape is loaded in device	The Distributed Active Archive Center (DAAC) Ingest/Distribution Technician loads the 8mm tape using the Storage Management (STMGT) GUI.
C.3	Ingest from 8mm Tape	DAAC Ingest/Distribution Technician	INS (INGST)	None	None	The DAAC Ingest/Distribution Technician, using an Ingest Subsystem Graphical User Interface (GUI), prepares to read the tape.
C.4	Create Staging Disk & Read 8mm Tape	INS (INGST)	DSS (STMGT)	None	None	The Ingest Subsystem (INS) interfaces with the Data Server Subsystem to request a staging disk area and reads the data on the 8mm tape into this staging disk area.
C.5	Request Data Insert	INS (INGST)	DSS (STMGT)	None	L7IGS ESDT	The Ingest Subsystem validates information (preprocessing) and sends a request for the data to be read by the Data Server Subsystem for archival. The Data Server Subsystem reads the data from the designated staging disk area.
C.6	Request Data Insert (scene – one at a time)	INS (INGST)	DSS (SDSRV)	None	L7IGSWRS ESDT	The Ingest Subsystem derives L7IGS WRS Scene information from the metadata. Virtual scene granules (metadata only) are inserted into the Data Server Subsystem Science Data Server (SDSRV), and Browse data are inserted into the archive. Each scene is done separately.

**Table 3.6.6.2-1. Interaction Table - Domain View: Landsat-7 IGS Tape Insertion
(2 of 2)**

Step	Event	Interface Client	Interface Provider	Data Issues	Step Preconditi ons	Description
C.7	Archive Backup on Insert	DSS (SDSRV)	DSS (STMGT)	None	None	The Data Server Subsystem Science Data Server tells the Data Server Subsystem Storage Management (STMGT) process to store the browse files in the archive. A list of files is passed with the location of each file, the archive id associated with the file, and the backup archive id for each file.
C.8	Email PAN	INS (INGST)	IGS	None	None	The Ingest Subsystem generates the completion status in a Production Acknowledgment Notice (PAN) file, which is emailed to the International Ground Station.

3.6.6.3 Landsat-7 IGS Tape Insertion Thread Component Interaction Table

Table 3.6.6.3-1 provides the Component Interaction: Landsat-7 IGS Tape Insertion.

**Table 3.6.6.3-1. Component Interaction Table: Landsat-7 IGS Tape Insertion
(1 of 6)**

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.1.1	IGS Ships 8mm Tape	IGS	DAAC Ops	Internal	The International Ground Station (IGS) uses commercial shipping vendors for sending 8mm tapes containing metadata or metadata and browse data.
C.2.1	Start up STMGT GUI	DAAC Ingest Technician	EcDsStmgtGui	Command	The DAAC Ingest Technician invokes the Storage Management Graphical User Interface (GUI) using the startup script. The DAAC Ingest Technician selects the Resource Management tab on the Storage Management GUI.
C.2.2	Select Media Type	DAAC Ingest Technician	EcDsStmgtGui	GUI	The DAAC Ingest Technician selects 8MM from the Media Type Pulldown menu. The DAAC Ingest Technician clicks the Server ID and selects the Manage Hardware Button.
C.2.3	Select Load Media	DAAC Ingest Technician	EcDsStmgtGui	GUI	The DAAC Ingest Technician clicks the Drive Name and selects Load Media from the Media Operations pulldown menu.

**Table 3.6.6.3-1. Component Interaction Table: Landsat-7 IGS Tape Insertion
(2 of 6)**

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.2.4	Enter Media ID	DAAC Ingest Technician	EcDsStmgtGui	GUI	The DAAC Ingest Technician fills in the Media Id on the Load Media window. The DAAC Ingest Technician also selects the OK button.
C.3.1	Startup Ingest GUI	DAAC Ingest Technician	EcInGUI	Command	The DAAC Ingest Technician invokes the Ingest Graphical User Interface (EcInGUI) using the start script. The DAAC Ingest Technician selects the Media Ingest tab on the Ingest GUI.
C.3.2	Select Ingest Device	DAAC Ingest Technician	EcInGUI	GUI	The DAAC Ingest Technician selects the media device (8mm) to read data from and selects the data provider. The DAAC Ingest Technician also selects the location of the Product Delivery Record (PDR) as embedded in the media and enters the PDR name. The Technician gets the Media ID from the Storage Management GUI.
C.4.1	Allocate Media Resource	EcInGUI	EcDsStRequestManagerServer	CCS Middleware	The Ingest GUI (EcInGUI) sends requests to the Request Manager Server to prepare the 8mm resource for data transfer from tape to a staging disk area. The Request Manager Server sends the requests to the appropriate 8mm Server.
C.4.2	Create Staging Disk	EcInGUI	EcDsStRequestManagerServer	CCS Middleware	The Ingest GUI sends a request to the Request Manager Server to allocate a staging disk area for transfer of the delivery record file.

**Table 3.6.6.3-1. Component Interaction Table: Landsat-7 IGS Tape Insertion
(3 of 6)**

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.4.3	Read 8mm Tape	EclnGUI	EcDsStRequestManagerServer	CCS Middleware	The Ingest GUI sends a request to the Request Manager Server to read the delivery record file from the hard media. From this file, the type and amount of data to be read is determined. There is only one tar set on the tape and the delivery record file is the first file on the tape.
C.4.4	Create Staging Disk	EclnGUI	EcDsStRequestManagerServer	CCS Middleware	The Ingest GUI sends a request to allocate a staging disk area for the transfer of data from hard media. The appropriate Staging Disk Server is determined from the Ingest Database. The amount of staging disk area to request is determined from the delivery record file.
C.4.5	Read 8mm Tape	EclnGUI	EcDsStRequestManagerServer	CCS Middleware	The Ingest GUI sends a request to the Request Manager Server to read data files from the 8mm tape.
C.4.6	Send Request	EclnGUI	EclnReqMgr	CCS Middleware	The Ingest GUI copies the (Physical Media Product Delivery Record (PMPDR) file read into the remote directory and sends an Ingest Request to the Ingest Request Manager.
C.4.7	Request Granule Processing	EclnReqMgr	EclnGran	CCS Middleware	The Ingest Request Manager packages the request into granules and sends them to the Ingest Granule Processor.
C.5.1	Connect to SDSRV	EclnGran	EcDsScienceDataServer	CCS Middleware	The Ingest Granule Processor begins a session with the Science Data Server by connecting. The appropriate Science Data Server is selected during the Ingest Request Manager startup, from a configuration file. This is pertinent if there are multiple Science Data Servers in use at one DAAC in one mode. The data type is determined from the delivery record file.
C.5.2	Request Metadata Configuration File	EclnGran	EcDsScienceDataServer	CCS Middleware	The Ingest Granule Processor requests the metadata configuration file (MCF) for the data being inserted from the Science Data Server. The Ingest Granule Processor performs preprocessing (current number of files for data type, extraction of metadata, etc.).

**Table 3.6.6.3-1. Component Interaction Table: Landsat-7 IGS Tape Insertion
(4 of 6)**

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.5.3	Validate Metadata	EcInGran	EcDsScienceData Server	CCS Middleware	After building the granule's metadata file, the Ingest Granule Processor sends a request to the Science Data Server to validate the metadata, based on the granule's data type.
C.5.4	Request Data Insert	EcInGran	EcDsScienceData Server	CCS Middleware	The Ingest Granule Processor sends requests to the Science Data Server for the insert of the received metadata file for the L7IGS into the Data Server archive. An insert request, containing the names of the files comprising the granule, is created. The Science Data Server validates the metadata and determines the archived names of the files. (Note this validation is on a different level than the Ingest validation.)
C.5.5	Request STMGT Store	EcDsScienceDataServer	EcDsStRequestManagerServer	CCS Middleware	The Science Data Server sends requests to the Storage Management Request Manager Server for the files to be archived. The Request Manager Server forwards the request to the Archive Server.
C.5.6	STMGT Store	EcDsStRequestManagerServer	EcDsStArchiveServer	CCS Middleware	The Archive Server receives the request to archive files from the Request Manager Server and copies the inserted files directly from the Ingest staging disk on which they are residing.
C.5.7	Adding a Granule to Inventory	EcDsScienceDataServer	Sybase ASE/SQS	CtLib	The validated metadata is parsed and added to the inventory of the Science Data Server.
C.6.1	Derive Scenes	EcInGran	EcInGran	Internal	The Ingest Granule Processor server derives and inserts scene data whenever an IGS granule is inserted.
C.6.2	Request Metadata Configuration File	EcInGran	EcDsScienceData Server	CCS Middleware	The Ingest Granule Processor requests the metadata configuration files (MCF) for the scene and Browse data being inserted from the Science Data Server.
C.6.3	Validate Metadata	EcInGran	EcDsScienceData Server	CCS Middleware	After building a metadata file for each virtual scene and browse granule, the Ingest Granule Processor sends requests to the Science Data Server to validate the metadata, based on the granule's data type.

**Table 3.6.6.3-1. Component Interaction Table: Landsat-7 IGS Tape Insertion
(5 of 6)**

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.6.4	Request Data Insert	EcInGran	EcDsScienceDataServer	CCS Middleware	The Ingest Granule Processor sends requests to the Science Data Server for the virtual scene and Browse granules to be inserted into the Data Server archive. An insert request, containing the names of the metadata and browse files is created. The Science Data Server validates the metadata file.
C.6.5	STMGT Store	EcDsScienceDataServer	EcDsStRequestManagerServer	CCS Middleware	The Science Data Server sends requests to the Request Manager Server to archive the browse files. The Request Manager Server forwards the requests to the Archive Server. The Archive Server copies the inserted files directly from the Ingest staging disk on which they are residing. The appropriate archive object to request is obtained by the archive ID configured via the Storage Management Graphical User Interface.
C.7.1	Request Establish backup files IDs	EcDsScienceDataServer	EcDsStRequestManagerServer	CCS Middleware	The Science Data Server sends a request to the Request Manager Server to forward to the Archive Server to store the files in the archive.
C.7.2	Establish backup files IDs	EcDsStRequestManagerServer	EcDsStArchiveServer	CCS Middleware	The Request Manager Server requests the Archive Server to store the files in the archive. A list of files is passed with the location of each file. The backup archive id may be null strings if the file is not to be backed up. Backups are performed on an Earth Science Data Type (ESDT) basis. The checksum, file size, and status for each file are returned to the Science Data Server along with a status for the request.
C.7.3	Move to Primary	EcDsStArchiveServer	EcUtCopyExec	CtLib	A file is copied by the Copy Exec utility (an IDG provided executable - EcUtCopyExec) from where Ingest placed it originally to the AMASS cache for that Archive Server. The archive id indicates which archive server is used and which directory path is used within the archive. If the Backup Archive id is blank, the next file in the request is processed.

**Table 3.6.6.3-1. Component Interaction Table: Landsat-7 IGS Tape Insertion
(6 of 6)**

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.7.4	Move to Backup	EcDsStArchiveServer	EcUtCopyExec	CtLib	A file is copied by the Copy Exec utility (an IDG provided executable - EcUtCopyExec) from where Ingest placed it originally to the AMASS cache for the backup archive server. The Backup Archive Id indicates which Archive Server is used for backup and the directory path within that archive. This is done only if the Backup Archive id is not empty. The operator is notified of an archive failure and is able to see the file and its backup status. The operator can reinitiate the backup of the file at a later time.
C.7.5	Move to Offsite	EcDsStArchiveServer	EcUtCopyExec	CtLib	A file is copied by the Copy Exec utility (an IDG provided executable) from where Ingest placed it originally to the AMASS cache for the offsite archive server. The offsite Archive Server is determined by the value for the Offsite Archive id. This is done only if the Offsite Archive id is not empty. The operator is notified of an archive failure and is able to see the file and its backup status. The operator can reinitiate the backup of the file at a later time.
C.7.6	Notify of Completion	EcInReqMgr	EcInGran	CCS Middleware	The Ingest Granule Processor sends a completion notice to the Ingest Request Manager.
C.8.1	IGS Data Response	EcInReqMgr	IGS	E-mail	The Ingest Request Manager generates the completion status in a Production Acceptance Notice (PAN) file, which is emailed to the IGS. The e-mail address is retrieved from the Ingest database.

3.6.6.3 Landsat-7 IGS Tape Insertion Thread Component Interaction Table

Table 3.6.6.3-1 provides the Component Interaction: Landsat-7 IGS Tape Insertion.

3.6.7 Landsat-7 IAS Data Insertion Thread

This thread shows how the ECS inserts data provided by IAS.

3.6.7.1 Landsat-7 IAS Data Insertion Thread Interaction Diagram - Domain View

Figure 3.6.7.1-1 depicts the Landsat-7 IAS Data Insertion Interaction.

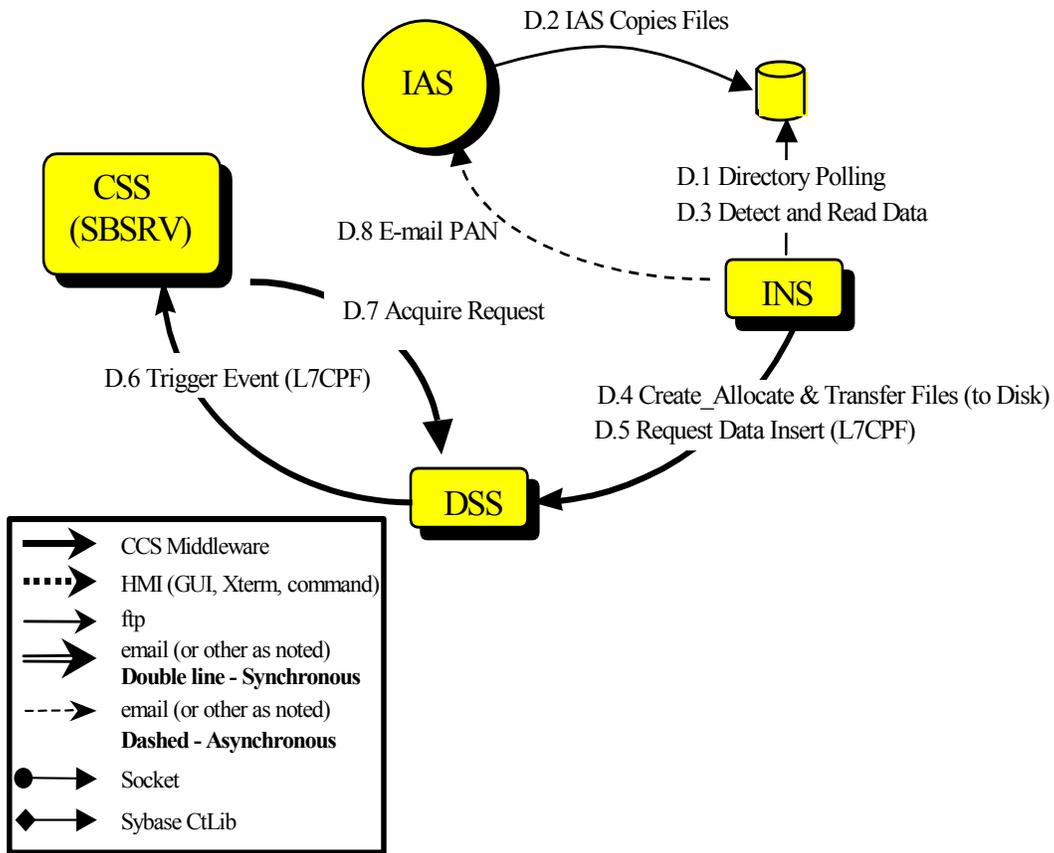


Figure 3.6.7.1-1. Landsat-7 IAS Data Insertion Interaction Diagram

3.6.7.2 Landsat-7 IAS Data Insertion Thread Interaction Table - Domain View

Table 3.6.7.2-1 provides the Interaction - Domain View: L-7 IAS Data Insertion.

Table 3.6.7.2-1. Interaction Table - Domain View: L-7 IAS Data Insertion

Step	Event	Interface Client	Interface Provider	Data Issues	Step Preconditions	Description
D.1	Polling	INS (INGST)	Directory	None	Entire step is really a precondition.	When the system is started, the Ingest Subsystem (INS) begins polling a directory, looking for files that meet the following standard: *.PDR, in the pre-configured directory.
D.2	Copy Files	IAS	Directory	None	IAS knows the host and directory to place files.	The Image Assessment System (IAS) copies the CPF, PDR and metadata files to the directory, which the Ingest Subsystem is polling.
D.3	Detect & Read Data	INS (INGST)	Directory	None	None	The Ingest Subsystem Polling detects data in the directory and reads the data.
D.4	Create_ Allocate & Transfer Files	INS (INGST)	DSS (SDSRV)	None	None	The Ingest Subsystem interfaces with the Data Server Subsystem to allocate an Ingest Subsystem staging disk area and transfers the files to this staging disk area.
D.5	Request Data Insert	INS (INGST)	DSS (SDSRV DB)	1 L7CPF @ 127MB	L7CPF ESDT	The Ingest Subsystem inserts the new Calibration Parameter File (CPF) granule into the Data Server Subsystem Science Data Server archive.
D.6	Trigger Event	DSS (SDSRV)	CSS (SBSRV)	None	None	Upon successful completion of insertion of L7CPF into the Data Server Subsystem, the L7CPF: Insert event is triggered and sent to the Communications Subsystem.
D.7	Acquire Request	CSS (SBSRV)	DSS (SDSRV)	None	None	The Subscription Server sends an acquire request to the Science Data Server for data needed for a subscription.
D.8	E-mail PAN	INS (INGST)	IAS	None	None	The Ingest Subsystem generates the completion status in a Production Acknowledgment Notice (PAN) file, which is emailed to the IAS.

3.6.7.3 Landsat-7 IAS Data Insertion Thread Component Interaction Table

Table 3.6.7.3-1 provides the Component Interaction: L-7 IAS Data Insertion.

Table 3.6.7.3-1. Component Interaction Table: L-7 IAS Data Insertion (1 of 4)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
D.1.1	Ingest Polling	EclnPolling	Polling Directory	Ftp	The Ingest Polling (EclnPolling) process begins polling the configured directory. It periodically looks for files named *.PDR. The polling periodicity is determined from a configuration file. The mask of the file to look for is determined by the Notify Type of the data provider in the Ingest database.
D.2.1	IAS Copies Files	IAS	Polling Directory	Ftp	Image Assessment System (IAS) transfers (via the ftp service) the Calibration Parameter File to the predetermined directory. Location, directory, user name and password are as per the L7-Operations Agreement.
D.3.1	Polling Detects Files	EclnPolling	Polling Directory	Ftp	The Ingest Polling process detects files matching the *.PDR mask.
D.3.2	Send Request	EclnPolling	EclnReqMgr	CCS Middleware	The Ingest Polling process copies the Product Delivery Record (PDR) file to the Ingest remote directory and sends a Create Request message to the Ingest Request Manager (EclnReqMgr).
D.3.3	Granule Process Request	EclnReqMgr	EclnGran	CCS Middleware	The Ingest Request Manager packages the request into granules and sends them to the Ingest Granule (EclnGran) Processor.
D.4.1	Create Staging Disk	EclnGran	EcDsStRequestManagerServer	CCS Middleware	The Ingest Granule (EclnGran) Processor sends a request to the Storage Management Request Manager Server (EcDsStRequestManagerServer) to allocate staging disk space. The appropriate Staging Disk Server is determined from the Ingest Database. The amount of staging disk space to request is determined from the *.PDR file.

Table 3.6.7.3-1. Component Interaction Table: L-7 IAS Data Insertion (2 of 4)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
D.4.2	Allocate Media Resource	EclnGran	EcDsStRequestManagerServer	CCS Middlewa re	The Ingest Granule (EclnGran) Processor sends requests to the Storage Management Request Manager Server (EcDsStRequestManagerServer) to transfer files via the Ftp service. Ingest knows that this request is via an Ftp from a database lookup, keyed on the data provider. The appropriate resource manager is determined from the media type handed to the resource factory. The appropriate FTP Server resource is determined from the configuration within the Ingest Database.
D.4.3	Ftp Get files	EclnGran	EcDsStRequestManagerServer	CCS Middlewa re	The Ingest Granule (EclnGran) Processor directs the ftp server (EcDsStFtpServer) through the Storage Management Request Manager Server (EcDsStRequestManagerServer) to get the files from the host and location, as indicated in the *.PDR file, placing them on the staging disk.
D.5.1	Connect to SDSRV	EclnGran	EcDsScienceDataServer	CCS Middlewa re	The Ingest Granule Processor begins a session with the Science Data Server (EcDsScienceDataServer) by connecting. The appropriate Science Data Server is selected during the Ingest Request Manager startup, from a configuration file. This is pertinent if there are multiple Science Data Servers in used at one DAAC in one mode.
D.5.2	Request Metadata Configuration File	EclnGran	EcDsScienceDataServer	CCS Middlewa re	The Ingest Granule Processor requests the metadata configuration file (MCF) for the data being inserted. The data types being inserted are derived from the *.PDR file sent by the Image Assessment System (IAS). Ingest performs preprocessing (current number of files for data type, metadata extraction, etc.).
D.5.3	Validate Metadata	EclnGran	EcDsScienceDataServer	CCS Middlewa re	After building a metadata file for the Calibration Parameter File (CPF) granule, the Ingest Granule Processor sends a request to the Science Data Server to validate the metadata, based on the granule's data type.

Table 3.6.7.3-1. Component Interaction Table: L-7 IAS Data Insertion (3 of 4)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
D.5.4	Request Data Insert	EcInGran	EcDsScienceDataServer	CCS Middleware	The Ingest Granule Processor requests that the received files for the L7CPF are inserted into the Science Data Server inventory. An insert request, containing the names of the files comprising the CPF granule, is created. The Science Data Server validates metadata and determines the archived names of the files.
D.5.5	Request STMGT Store	EcDsScienceDataServer	EcDsStRequestManagerServer	CCS Middleware	The Science Data Server (EcDsScienceDataServer) sends a request that the Calibration Parameter File (CPF) be archived to the Storage Management Request Manager Server (EcDsStRequestManagerServer).
D.5.6	STMGT Store	EcDsStRequestManagerServer	EcDsStArchiveServer	CCS Middleware	The Request Manager Server sends the request that the CPF be archived to the Archive Server (EcDsStArchiveServer). The Archive Server copies the files directly from the Ingest staging disks that they are residing on.
D.5.7	Adding a Granule to Inventory	EcDsScienceDataServer	Sybase ASE/SQS	CtLib	The validated metadata is parsed and added to the inventory of the Science Data Server.
D.5.8	Completion Callback	EcInReqMgr	EcInGran	CCS Middleware	The Ingest Granule (EcInGran) Processor sends a completion notice to Ingest Request Manager (EcInReqMgr).
D.6.1	Trigger Event	EcDsScienceDataServer	EcSbSubServer	CCS Middleware	Upon successful insertion of L7 CPF granule, the L7CPF Insert event is triggered. The appropriate Subscription Server (EcSbSubServer) is determined from the Science Data Server configuration. The appropriate events to trigger are determined from the "events" file, which was populated during the Earth Science Data Type (ESDT) installation. The inserted granule Universal Reference (UR) is provided when the event is triggered.

Table 3.6.7.3-1. Component Interaction Table: L-7 IAS Data Insertion (4 of 4)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
D.6.2	Retrieve Subscriptions	EcSbSubServer	Sybase ASE	CtLib	The Subscription Server queries the Sybase ASE database determining which subscriptions need to be activated or fired. Each query "hit" is an activated subscription and executes independently.
D.7.1	IAS Data Response	EcInReqMgr	IAS	E-mail	The Ingest Request Manager generates the completion status in a Production Acceptance Notice (PAN) file, which is emailed to the Image Assessment System (IAS). The e-mail address is retrieved from the Ingest database.

3.6.8 Landsat-7 Search and Browse Thread

This thread shows how the ECS supports users searching for and browsing data holdings.

3.6.8.1 Landsat-7 Search and Browse Thread Interaction Diagram - Domain View

Figure 3.6.8.1-1 depicts the L-7 Search and Browse Interaction.

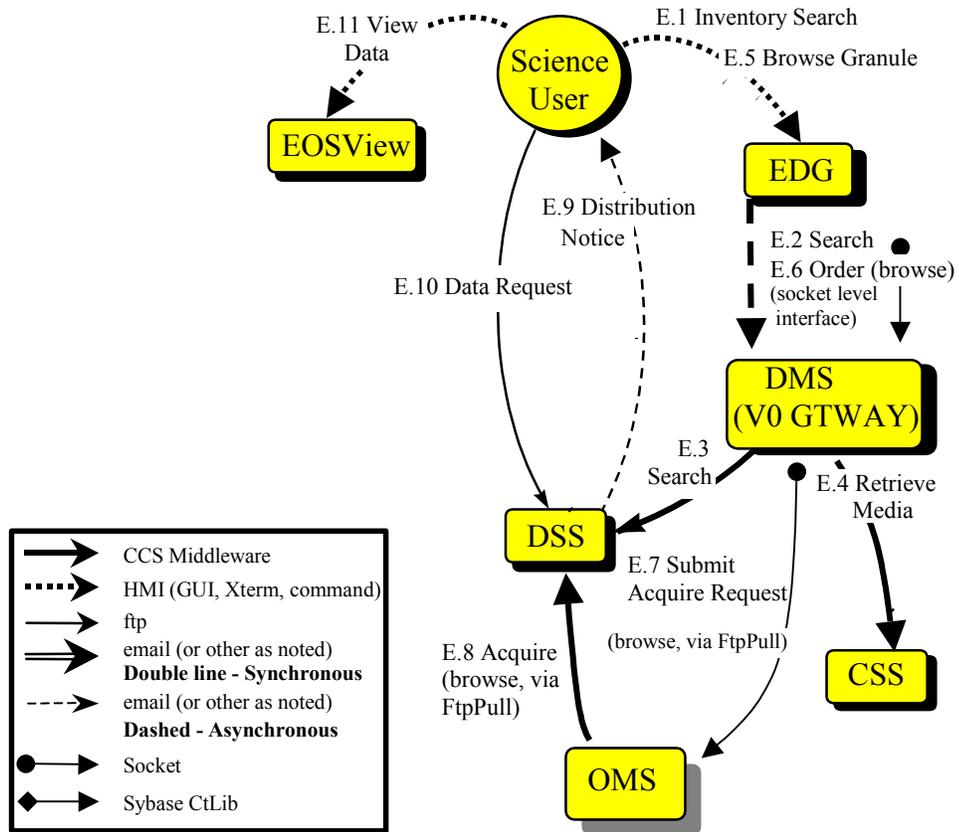


Figure 3.6.8.1-1. L-7 Search and Browse Interaction Diagram

3.6.8.2 Landsat-7 Search and Browse Thread Interaction Table - Domain View

Table 3.6.8.2-1 provides the Interaction - Domain View: L-7 Search and Browse.

Table 3.6.8.2-1. Interaction Table - Domain View: L-7 Search and Browse (1 of 2)

Step	Event	Interface Client	Interface Provider	Data Issues	Step Precondi tions	Description
E.1	Inventory Search	Science User	EDG	None	None	Upon notification from the Subscription Server, via e-mail, that a subscription for a particular Earth Science Data Type (ESDT) is now available and there are new scenes available, the Science User decides to look for additional scenes of interest. First, the user invokes Netscape, navigates to the EOS Data Gateway (EDG) and searches for scenes over another area of interest.
E.2	Search	EDG	DMS (V0 GTWAY)	None	None	The EOS Data Gateway submits the Science User's search criteria to the Data Management Subsystem (V0 Gateway) in ODL format, via a specific socket.
E.3	Search	DMS (V0 GTWAY)	DSS (SDSRV)	None	None	The Data Management Subsystem translates the Search criteria from ODL to a query object (using GIParameters), and submits that query to the Search service. The chunk size is one of the search constraints. This determines the number of granules returned to the V0 Gateway at one time.
E.4	Retrieve Media	DMS (V0 GTWAY)	CSS (Registry Server)	None	None	The results of this Search are returned synchronously. The media options are returned from the Communications Subsystem's (CSS) Registry Server and the results are passed back to the EOS Data Gateway, which displays them to the Science User.
E.5	Browse Granule	Science User	EDG	None	None	The User decides some of these granules might be of interest, so before ordering them he/she decides to get a browse image of one to verify.
E.6	Order	EDG	DMS (V0 GTWAY)	None	None	The EOS Data Gateway submits an FTP Browse Request to the V0 Gateway in ODL format via a specific socket-level interface.
E.7	Submit Acquire Request	DMS (V0 GTWAY)	OMS	None	None	The Data Management Subsystem submits an acquire request to the Order Manager Server (OMS).

Table 3.6.8.2-1. Interaction Table - Domain View: L-7 Search and Browse (2 of 2)

Step	Event	Interface Client	Interface Provider	Data Issues	Step Preconditions	Description
E.8	Acquire (browse, via FtpPull)	OMS	DSS (SDSRV)	None	None	The Order Manager Server (OMS) submits an acquire request for the browse granule, via an FTP Pull to the Data Server Subsystem (DSS) Science Data Server (SDSRV). If the request fails, a failed acquire e-mail notification is sent to the user.
E.9	Distribution Notice	DSS	Science User	None	None	The Data Server Subsystem sends an e-mail notification to the Science User, to notify him/her the browse granule is now available for Ftp access.
E.10	Data Request	Science User	DSS	1 browse granule @ 1MB	None	The Scientist transfers the browse granule (via the Ftp service) from the Data Server Subsystem to their workstation via a request.
E.11	View Data	Science User	EOSView	None	None	The Science User invokes EOSView, and views the selected scene's browse image.

3.6.8.3 Landsat-7 Search and Browse Thread Component Interaction Table

Table 3.6.8.3-1 provides the Component Interaction: L-7 Search and Browse.

Table 3.6.8.3-1. Component Interaction Table: L-7 Search and Browse (1 of 8)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
E.1.1	Startup EDG	Science User	iPlanet web server	Command	A Science User invokes a Netscape browser and navigates to the EOS Data Gateway home page.
E.1.2	Select Inventory Search, Provide Query constraints, Submit Query	Science User	iPlanet web server	GUI	The Science User provides search constraints and the products desired. When query constraints are completed, the query is submitted via the Netscape browser.

Table 3.6.8.3-1. Component Interaction Table: L-7 Search and Browse (2 of 8)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
E.2.1	V0 GTWAY Inventory Search	iPlanet web server	EcDmV0 ToEcsGateway	ODL, over sockets	The EOS Data Gateway submits a search to the V0 Gateway, by converting the search criteria into an ODL structure and passing that structure to a socket provided by the V0 Gateway. The correct socket is determined from configuration information in the Valids file.
E.3.1	Establish ECS User	EcDmV0 ToEcsGateway	EcMsAc RegUser Srvr	CCS Middleware	The V0 Gateway retrieves the User Profile using the ECS Authenticator from an ODL message, which includes an encrypted User ID and Password. The User Registration database is replicated across DAACs, so the connection is made to the local User Registration Server.
E.3.2	Translate Query	EcDmV0 ToEcsGateway	EcDmDictServer	CtLib (RWDBTool)	The V0 Gateway translates the V0 terms from ODL into ECS names for query submittal using the Data Dictionary database. The interface currently is directly to the Data Dictionary database. The database name is retrieved from the configuration file.
E.3.3	Connect to SDSRV	EcDmV0 ToEcsGateway	EcDsScienceData Server	CCS Middleware	The V0 Gateway first connects to the Science Data Server. The correct Science Data Server is determined from a configuration file.
E.3.4	SDSRV Query	EcDmV0 ToEcsGateway	EcDsScienceData Server	CCS Middleware	The V0 Gateway translates the query into a DsCIQuery object. This object is handed to the Search interface of the DsCI ESDT ReferenceCollector. This Search method is synchronous, so the results of the search are returned to the calling function. After the search, the V0 Gateway receives a list of Universal References (URs). Then it does an "Inspect" to the Science Data Server to get the metadata. It first performs a GetQueryableParameter to determine all attributes associated with each granule. The V0 Gateway optionally configures a chunk size, which determines the number of granules returned to the V0 Gateway at one time.

Table 3.6.8.3-1. Component Interaction Table: L-7 Search and Browse (3 of 8)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
E.3.5	Request Metadata	EcDsScienceDataServer	Sybase ASE/SQS	CtLib	The Science Data Server breaks down the Query object and translates it into a sequence of calls to the inventory database. Resultant rows are converted into data granules, each with their metadata extracted from the database. These results are packaged and returned to the Query client.
E.3.6	Result Retrieval	iPlanet web server	EcDmV0ToEcsGateway	ODL, over Sockets	When the V0 Gateway gets the results, they are translated into Object Description Language (ODL), and passed back to the EOS Data Gateway tool. The correct socket for sending results to the EOS Data Gateway is the one used to submit the query. The EOS Data Gateway displays the results of the query to the user.
E.4.1	Retrieve Media	EcDmV0ToEcsGateway	EcCsRegistry	CCS Middleware	The V0 Gateway retrieves the media types from the Registry Server. The media types are translated into ODL, and the ODL is put into the search result.
E.5.1	EDG Ftp Browse	Science User	iPlanet web server	GUI	A Science User decides to browse a specified granule. They click the Browse field, then "Go To Browse".
E.6.1	V0 Ftp Browse	iPlanet web server	EcDmV0ToEcsGateway	ODL, over sockets	The EOS Data Gateway submits an Ftp Pull request for the browse to the V0 Gateway. The correct socket is determined from the Valids file.
E.6.2	Establish ECS User	EcDmV0ToEcsGateway	EcMsAcRegUserSrvr	CCS Middleware	The V0 Gateway retrieves the User Profile using the ECS Authenticator from the ODL message, which includes an encrypted User ID and Password. The User Registration database is replicated across DAACs, so the connection is made to the local User Registration Server.
E.6.3	Connect to SDSRV	EcDmV0ToEcsGateway	EcDsScienceDataServer	CCS Middleware	The V0 Gateway begins a session with the Science Data Server, on behalf of the science user. The correct Science Data Server is determined from the UR of the granule whose browse is being requested. This is pertinent if there are multiple Science Data Servers in use at one DAAC in one mode.

Table 3.6.8.3-1. Component Interaction Table: L-7 Search and Browse (4 of 8)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
E.6.4	Add granule's UR to the Session for a PGE	EcDmV0ToEcsGateway	EcDsScienceDataServer	CCS Middleware	The V0 Gateway establishes the data context of the session with the Science Data Server by adding granules to the session. The Granule UR of the granule to be browsed is added to the Earth Science Data Type (ESDT) ReferenceCollector.
E.6.5	Retrieve Granule Metadata from Inventory	EcDsScienceDataServer	Sybase ASE/SQS	CtLib	The Science Data Server completes establishing the data context by retrieving the metadata for the requested granules from the Sybase ASE/SQS database. The metadata for each granule is passed back to the reference objects for each granule.
E.6.6	Inspect Granule Value Parameters	EcDmV0ToEcsGateway	EcDsScienceDataServer	CCS Middleware	The V0 Gateway determines the Universal Reference (UR) of the Browse granule to acquire by inspecting the "browsed" metadata attribute of the granule to be browsed.
E.6.7	Add granule's UR to the Session for a PGE	EcDmV0ToEcsGateway	EcDsScienceDataServer	CCS Middleware	The V0 Gateway adds the Browse granule to the data context of the session with the Science Data Server by adding its UR to the session.
E.6.8	Retrieve Granule Metadata from Inventory	EcDsScienceDataServer	Sybase ASE/SQS	CtLib	The Science Data Server completes adding the browse granule to the session by retrieving the metadata for the requested granules from the Sybase ASE/SQS database. The metadata for each granule is passed back to the reference objects for each granule.
E.7.1	Submit acquire request	EcDmV0ToEcsGateway	EcOmOrderManager	Socket	The V0 Gateway submits an acquire request to the Order Manager via a Socket.
E.7.2	Save Request into OMS DB	EcOmOrderManager	Sybase ASE	CtLib	The Order Manager saves the request into the OMS DB.
E.8.1	Validate Request	EcOmOrderManager	Sybase ASE	CtLib	The Order Manager retrieves the order request from its Database, validates the order request and saves it back to the database (DB) marked as ready to distribute if it passed validation.

Table 3.6.8.3-1. Component Interaction Table: L-7 Search and Browse (5 of 8)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
E.8.2	Dispatch Electronic Media Request	EcOmOrderManager	EcOmSrCLI	Unix	The Order Manager dispatches an electronic media request by forking a child process to invoke the Order Manager Command Line interface (EcOmSrCLI).
E.8.3	Acquire Data	EcOmSrCLI	EcDsScienceDataServer	CCS Middleware	The Order Manager Command Line interface submits an acquire request for the granule. The acquire request is for an Ftp Pull of the browse granule in the Earth Science Data Type (ESDT) ReferenceCollector. This request is asynchronous, meaning that the return of the "submit" call of the request only contains the status of the request's submittal. This request asks for a distribution notice to be emailed. The e-mail address is obtained from the User Profile. The acquire request structure is hard coded using the constants in the Data Distribution provided header file.
E.8.4	Create Staging Disk	EcDsScienceDataServer	EcDsStRequestManagerServer	CCS Middleware	The Science Data Server requests the Storage Management to create a staging disk for the browse granule's metadata file, which allocates space and passes back a reference to that disk space. The reference to the staging disk is determined from the Science Data Server configuration. The amount of staging disk to request is determined by the size of the metadata file.
E.8.5	Create Metadata file	EcDsScienceDataServer	EcDsScienceDataServer	CCS Middleware	For the browse granule referenced in the acquire request, the Science Data Server creates a file containing the granule's metadata before passing to the Data Distribution Server and placing the file in the staging disk area.
E.8.6	Distribute Granules, Asynchronous	EcDsScienceDataServer	EcDsDistributionServer	CCS Middleware	The Science Data Server submits a request to the Data Distribution Server. The request includes, for the granule, a reference to the metadata file as well as the data file. Other parameters from the acquire request are passed to the Data Distribution Server.

Table 3.6.8.3-1. Component Interaction Table: L-7 Search and Browse (6 of 8)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
E.8.7	Request Create Staging Disk	EcDsDistributionServer	EcDsStorageRequestManagerServer	CCS Middleware	The Data Distribution Server sends a request to the Storage Management Request Manager Server to create a staging disk for the granule files in the archive.
E.8.8	Create Staging Disk	EcDsStorageRequestManagerServer	EcDsStorageDiskServer	CCS Middleware	The Storage Management Request Manager Server sends a request to the Staging Disk Server to create a staging disk. This allocates space and passes back a reference to that disk space. The reference to the staging disk is determined from the information passed by the Science Data Server in the distribution request, which is the Science Data Server configuration. The amount of staging disk to request is determined by the size of the metadata file.
E.8.9	Request STMGT Retrieve	EcDsDistributionServer	EcDsStorageRequestManagerServer	CCS Middleware	The Data Distribution Server sends a request to the Request Manager Server for the Archive Server to retrieve the browse granule file that is archived.
E.8.10	STMGT Retrieve	EcDsStorageRequestManagerServer	EcDsStorageArchiveServer	CCS Middleware	The Archive Server (EcDsStorageArchiveServer) receives a request to retrieve the browse granule file archived. This results in the file being staged to read-only cache disks. The Archive Server informs the Data Distribution Server through the Request Manager Server of the file sizes. This means all files needed to fulfill the distribution request are on disk, and ready to be linked. The correct archive object to request is determined from the information provided by the Science Data Server in the distribution request. This returns references to the files in the read-only cache.
E.8.11	Request Claim Ownership	EcDsDistributionServer	EcDsStorageRequestManagerServer	CCS Middleware	The Data Distribution Server sends a request to the Storage Management Request Manager Server to claim ownership of the staging disk created by the Science Data Server.
E.8.12	Claim Ownership	EcDsStorageRequestManagerServer	EcDsStorageDiskServer	CCS Middleware	The Staging Disk Server receives the request from the Storage Management Request Manager Server to claim ownership of the staging disk created by the Science Data Server.

Table 3.6.8.3-1. Component Interaction Table: L-7 Search and Browse (7 of 8)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
E.8.1 3	Request Link files to Staging Disk	EcDsDist ributionS erver	EcDsStR equestMa nagerSer ver	CCS Middleware	The Data Distribution Server sends a request to the Storage Management Request Manager Server to have the Staging Disk Server link the browse file from the read-only cache into the staging disk.
E.8.1 4	Link files to Staging Disk	EcDsStR equestM anagerS erver	EcDsStSt agingDisk Server	CCS Middleware	The Staging Disk Server receives a request from the Storage Management Request Manager Server sent by the Data Distribution Server to link the browse file from the read-only cache into the staging disk.
E.8.1 5	Request Files linked to Staging Disk	EcDsDist ributionS erver	EcDsStR equestMa nagerSer ver	CCS Middleware	The Data Distribution Server sends a request to the Storage Management Request Manager Server to the Staging Disk Server to link the browse metadata file from the Science Data Server into the staging disk.
E.8.1 6	Link files to Staging Disk	EcDsStR equestM anagerS erver	EcDsStSt agingDisk Server	CCS Middleware	The Staging Disk Server receives the request from the Storage Management Request Manager Server to link the browse metadata file from the Science Data Server into the staging disk.
E.8.1 7	Request Distribution Pull	EcDsDist ributionS erver	EcDsStR equestM anagerS erver	CCS Middleware	The Data Distribution Server sends a request to the Storage Management Request Manager Server to perform an Ftp Pull.
E.8.1 8	DDIST Pull	EcDsStR equestM anagerS erver	EcDsStFt pServer	CCS Middleware	The FTP Server receives a request from the Request Manager Server to perform an Ftp Pull. The Data Distribution Server now creates the Resource manager for an Ftp Pull via a Storage Management Resource Manager Factory. The correct resource manager is determined from the media type handed to the resource factory (Ftp Pull, in this case). The correct FTP Server is determined from configuration within the resource factory.
E.9.1	Build Distribution Notice	EcDsDist ributionS erver	EcDsDist ributionS erver	Internal	The Data Distribution Server builds a distribution notice indicating that the browse data is now available. The notice includes the Universal Reference (UR) of the browse granule, name of the browse file, the host and directory names where it is available and how long it is available.

Table 3.6.8.3-1. Component Interaction Table: L-7 Search and Browse (8 of 8)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
E.9.2	Send E-mail	EcDsDistributionServer	Science User	E-mail	The distribution notice is emailed to the Science User.
E.10.1	User Transfers Data (via the ftp service)	Scientist's ftp utility	ftp_popen	Ftp	The scientist uses Ftp to get the browse file.
E.11.1	Invoke EOSView	Science User	EOSView	Command	A Science User begins the EOSView application by double clicking the EOSView icon.
E.11.2	Display Browse File	Science User	EOSView	GUI	The Science User specifies which file to display and sets visualization parameters. The browse file is now displayed for the user.

3.6.9 Landsat-7 Ordering WRS Scenes Thread

This thread shows how the ECS supports user orders for L70R WRS Scenes. This utilizes an exclusive EDC Distributed Ordering, Reporting, Researching, and Accounting Network (DORRAN) process.

3.6.9.1 Landsat-7 Ordering WRS Scenes Thread Interaction Diagram - Domain View

Figure 3.6.9.1-1 depicts the L-7 Ordering WRS Scenes Interaction, where hard media (HM) denotes 8mm, DTF, DLT and CD-ROM.

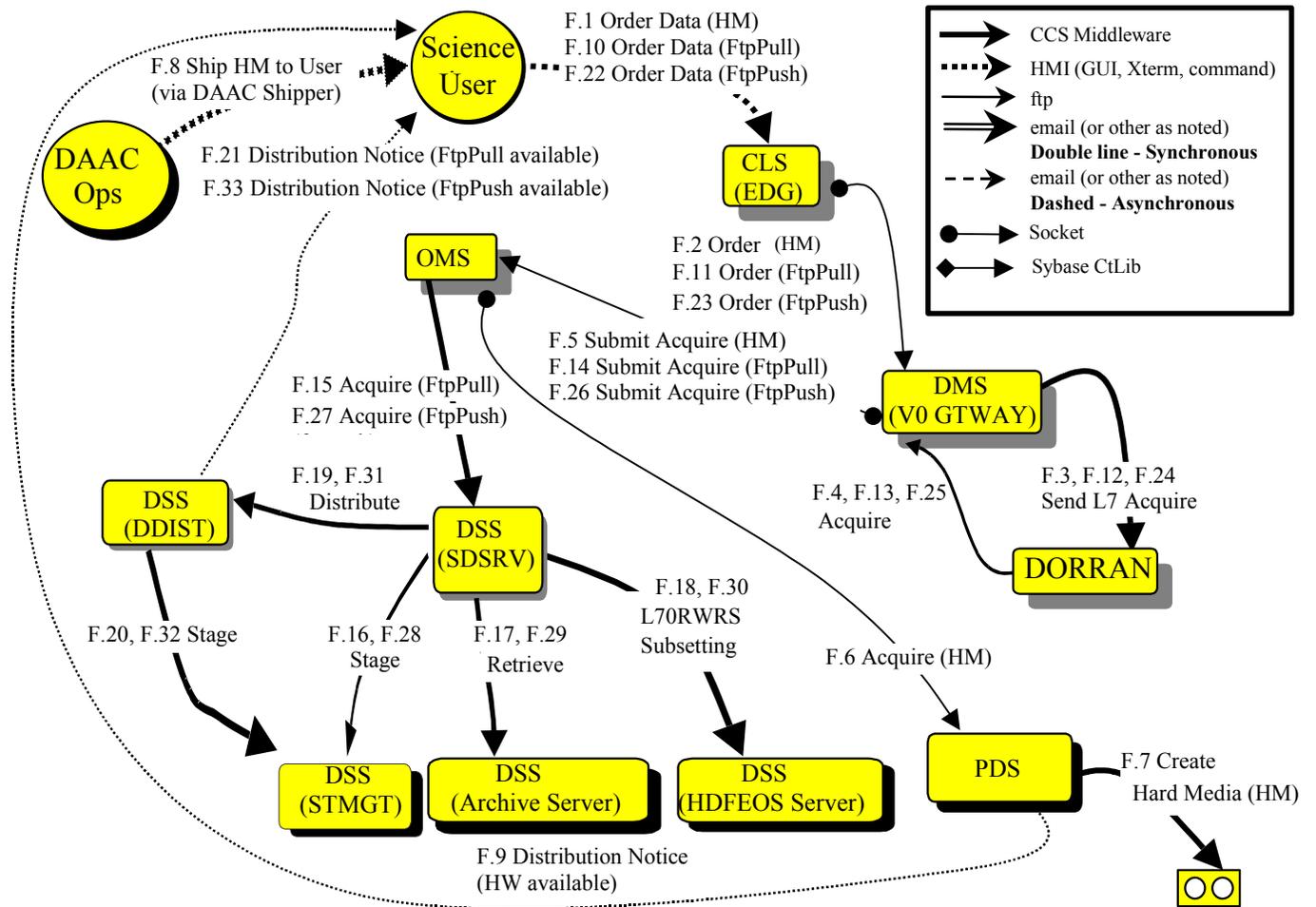


Figure 3.6.9.1-1. L-7 Ordering WRS Scenes Interaction Diagram

3.6.9.2 Landsat-7 Ordering WRS Scenes Thread Interaction Table - Domain View

Table 3.6.9.2-1 provides the Interaction - Domain View: Landsat L-7 Ordering WRS Scenes.

**Table 3.6.9.2-1. Interaction Table - Domain View: L-7 Ordering WRS Scenes
(1 of 5)**

Step	Event	Interface Client	Interface Provider	Data Issues	Step Precondit ions	Description
F.1	Order Data (HM)	Science User	CLS (EDG)	None	None	A Scientist decides to order a number of L70R WRS scenes. Using the EOS Data Gateway (EDG), the scientist selects the scenes of interest and selects an order via one of the hard media.
F.2	Order (HM)	CLS (EDG)	DMS (V0 GTWAY)	None	None	The EOS Data Gateway submits the science user's order to the V0 Gateway in Object Description Language (ODL) format, via a specific socket.
F.3	Send L7 Acquire	DMS (V0 GTWAY)	DORRAN	None	None	The V0 Gateway sends the product request to the DORRAN system.
F.4	Acquire	DORRAN	DMS (V0 GTWAY)	None	None	The operator validates the order and the DORRAN system sends back all the remaining granules to the V0 Gateway over a specific socket. The DORRAN system performs a billing & accounting verification.
F.5	Submit Acquire (HM)	DMS (V0 GTWAY)	OMS	1 L7WRS granules @ 812 MB	None	The V0 Gateway translates the order into an acquire request and submits it to the Order Manager. The request is for a set of L70R WRS scenes, via one of the hard media.
F.6	Acquire (HM)	OMS	PDS (PDSIS)	1 L7WRS granules @ 812 MB	None	The Order Manager retrieves request from its Database and sends an acquire request in ODL format to the Product Distribution System (PDS).
F.7	Create Hard Media (HM)	PDS	Tape Device	None	None	The Product Distribution System copies the L70R WRS Scene granule's files to the selected hard media.
F.8	Ship HM to User (via DAAC Shipper)	DAAC Ingest/ Distribution Technician	Science User	None	None	The DAAC Ingest/Distribution Technician collects the hard media (HM) and the packing list, and generates a media-shipping label. He labels the HM, encloses the HM and packing list in a shipping container and labels the shipping container. The DAAC uses a commercial shipping vendor for delivery to the Science User.

**Table 3.6.9.2-1. Interaction Table - Domain View: L-7 Ordering WRS Scenes
(2 of 5)**

Step	Event	Interface Client	Interface Provider	Data Issues	Step Preconditions	Description
F.9	Distribution Notice (HW available)	PDS	Science User	None	None	Send e-mail notification to the Science User, notifying that the ordered L70R WRS scenes have been shipped to their shipping address.
F.10	Order Data (FtpPull)	Science User	CLS (EDG)	None	None	A Scientist decides to order a particular scene of high interest, via an Ftp Pull.
F.11	Order (FtpPull)	CLS (EDG)	DMS (V0 GTWAY)	None	None	The EOS Data Gateway (EDG) submits the Science User's order to the V0 Gateway in ODL format, via a specific socket.
F.12	Send L7 Acquire	DMS (V0 GTWAY)	DORRAN	None	None	The V0 Gateway sends the product request to the DORRAN system.
F.13	Acquire	DORRAN	DMS (V0 GTWAY)	None	None	The operator validates the order and the DORRAN system sends back all the remaining granules to the V0 Gateway over a specific socket. The DORRAN system performs a billing & accounting verification.
F.14	Submit Acquire (FtpPull)	DMS (V0 GTWAY)	OMS (Order Manager)	1 L70R WRS scene @812 MB (nominally)	None	The V0 Gateway translates the order into an acquire request and submits it to the Order Manager (OMS). The request is for a set of L70R WRS scenes, via Ftp Pull.
F.15	Acquire (FtpPull)	OMS (Order Manager)	DSS (SDSRV)	1 L70R WRS scene @812 MB (nominally)	None	The Order Manager retrieves the order request from its database and submits it to the Data Server Subsystem Science Data Server (SDSRV). To fulfill the "acquire" of L70R WRS scenes, which are virtual granules, the Science Data Server derives the scenes from their parent subinterval, using internally available subsetting services.

**Table 3.6.9.2-1. Interaction Table - Domain View: L-7 Ordering WRS Scenes
(3 of 5)**

Step	Event	Interface Client	Interface Provider	Data Issues	Step Preconditions	Description
F.16	Stage	DSS (SDSRV)	DSS (STMGT)	1 L70R granule between 406MB to the whole subinterval	None	The Science Data Server requests the Storage Management to create a staging disk for working space.
F.17	Retrieve	DSS (SDSRV)	Archive Server	1 L70R granule between 406MB to the whole subinterval	None	The Science Data Server requests the Storage Management to retrieve the subinterval granule files to be subsetted.
F.18	L70R WRS Subsetting	DSS (SDSRV)	DSS (HDF EOS Server)	1 L70R granule between 406MB to the whole subinterval	None	The Data Server Subsystem (DSS) Science Data Server (SDSRV) requests the HDF EOS Server to subset L70R files according to standard WRS scene information as well as reformat the output files from HDFEOS to HDF.
F.19	Distribute	DSS (SDSRV)	DSS (DDIST)	1 L70R granule between 406MB to the whole subinterval	None	The Science Data Server requests the Data Distribution Server (DDIST) to distribute subsetted granules.
F.20	Stage	DSS (DDIST)	DSS (STMGT)	1 L70R granule between 406MB to the whole subinterval	None	The Data Distribution Server requests the Storage Management to create staging disks for the subsetted files. The Data Distribution Server links the subsetted files from the Science Data Server to the staging disk created by the Staging Disk Server.
F.21	Distribution Notice (FtpPull available)	DSS (DDIST)	Science User	None	None	Send email notification to Science Users, notifying them that the requested scene is now available for Ftp access.
F.22	Order Data (FtpPush)	Science User	CLS (EDG)	None	None	A Scientist decides to order a particular scene of high interest, via an Ftp Push.

**Table 3.6.9.2-1. Interaction Table - Domain View: L-7 Ordering WRS Scenes
(4 of 5)**

Step	Event	Interface Client	Interface Provider	Data Issues	Step Preconditions	Description
F.23	Order (FtpPush)	CLS (EDG)	DMS (V0 GTWAY)	None	None	The EOS Data Gateway (EDG) submits the science user's order to the V0 Gateway in Object Description Language (ODL) format, via a specific socket.
F.24	Send L7 Acquire	DMS (V0 GTWAY)	DORRAN	None	None	The V0 Gateway sends the product request to the DORRAN system.
F.25	Acquire	DORRAN	DMS (V0 GTWAY)	None	None	The operator validates the order and the DORRAN system sends back all the remaining granules to the V0 Gateway over a specific socket. The DORRAN system performs a billing & accounting verification.
F.26	Submit Acquire (FtpPush)	DMS (V0 GTWAY)	OMS (Order Manager)	1 L70R WRS scene @812MB (nominally)	None	The V0 Gateway translates the order into an acquire request. The request is for a set of L70R WRS scenes, via an Ftp Push.
F.27	Acquire (FtpPush)	OMS (Order Manager)	DSS (SDSRV)	1 L70R WRS scene @812MB (nominally)	None	The Order Manager retrieves the request from its database and submits it to the Data Server Subsystem (DSS) Science Data Server (SDSRV). To fulfill the "acquire" of L70R WRS scenes, which are virtual granules, the Science Data Server derives the scenes from their parent subinterval, using internally available subsetting services.
F.28	Stage	DSS (SDSRV)	DSS (STMGT)	1 L70R granule between 406MB to the whole subinterval	None	The Science Data Server requests the Storage Management to create a staging disk area for working space.
F.29	Retrieve	DSS (SDSRV)	DSS (Request Manager Server)	1 L70R granule between 406MB to the whole subinterval	None	The Science Data Server requests the Storage Management to retrieve the subinterval granule files to be subsetted.

**Table 3.6.9.2-1. Interaction Table - Domain View: L-7 Ordering WRS Scenes
(5 of 5)**

Step	Event	Interface Client	Interface Provider	Data Issues	Step Preconditions	Description
F.30	L70R WRS Subsetting	DSS (SDSRV)	DSS (HDF EOS Server)	1 L70R granule between 406MB to the whole subinterval	None	The Science Data Server sends requests to the HDF EOS Server to subset L70R files according to standard WRS scene information as well as reformats the output files from HDF EOS to HDF.
F.31	Distribute	DSS (SDSRV)	DSS (DDIST)	1 L70R granule between 406MB to the whole subinterval	None	The Data Server Subsystem (DSS) Science Data Server sends requests to the Data Server Subsystem (DSS) Data Distribution (DDIST) Server to distribute subsetted granules.
F.32	Stage	DSS (DDIST)	DSS (STMGT)	1 L70R granule between 406MB to the whole subinterval	None	The Data Server Subsystem (DSS) Data Distribution Server requests staging disk areas for the subsetted files and links the subsetted files from the Science Data Server to the staging disk created by the Staging Disk Server.
F.33	Distribution Notice (FtpPush available)	DSS (DDIST)	Science User	None	None	Send an email notification to the Science User notifying him/her that an Ftp Push now provides the requested scene.

3.6.9.3 Landsat-7 Ordering WRS Scenes Thread Component Interaction Table

Table 3.6.9.3-1 provides the Component Interaction: L-7 Ordering WRS Scenes.

Note that for distribution via one of the hard media (HM) means 8mm tape, DLT, DVD or CD-ROM. As an example the interface provider is shown for 8mm tape.

Table 3.6.9.3-1. Component Interaction Table: L-7 Ordering WRS Scenes (1 of 15)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
F.1.1	Select data to be ordered via hard media (HM)	Science User	iPlanet web server	GUI	The Science User selects a set of L70R WRS scenes to order for delivery via one of the hard media (HM). When the order is complete it is submitted to the V0 Gateway.
F.2.1	V0 Gateway Order	iPlanet web server	EcDmV0ToEcsGateway	ODL, over sockets	The EOS Data Gateway submits an order to the V0 Gateway, by converting the order into an ODL structure and passing that structure to a socket provided by the V0 Gateway. The correct socket is determined from configuration information in the Valids file. The order contains billing information including billing ID.
F.2.2	Establish ECS User	EcDmV0ToEcsGateway	EcMsAcRegUserServer	CCS Middleware	The V0 Gateway retrieves the User Profile using the ECS Authenticator from an Object description Language (ODL) message, which is an encrypted User ID and Password. The User Registration database is replicated across DAACs, so the connection is made to the local User Registration Server.
F.2.3	Request Attribute Mapping	EcDmV0ToEcsGateway	EcDmDictServer	CtLib (RWDBTool)	The V0 Gateway translates the V0 terms from Object Description Language (ODL) into ECS names for request submittal using the Data Dictionary database. The interface is directly to the Data Dictionary database. The database name is retrieved from a configuration file.
F.3.1	Request L7 Product	EcDmV0ToEcsGateway	DORRAN	CCS Middleware	The V0 Gateway sends the request to the DORRAN system because the order is for L70R WRS data and there is no order ID in the message.
F.3.2	B & A Verification	EcDmV0ToEcsGateway	DORRAN	CCS Middleware	The DORRAN system validates the request by checking the account level of the requester and the required funding level of the request.
F.4.1	Acquire Return	DORRAN	EcDmV0ToEcsGateway	CCS Middleware	The Operator validates the order and the DORRAN system sends back all the remaining granules to the V0 Gateway over a specific socket.
F.4.2	Create Tracked Order	EcDmV0ToEcsGateway	EcMsAcOrderSrvr	CCS Middleware	Create an order to be tracked within ECS. Initial status set to "Pending."

Table 3.6.9.3-1. Component Interaction Table: L-7 Ordering WRS Scenes (2 of 15)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
F.4.3	Store Tracked Order	EcMsAcOrderSrvr	Sybase ASE	CtLib	Save the tracked order to the order database.
F.4.4	Create Tracked Request	EcDmV0ToEcsGateway	EcMsAcOrderSrvr	CCS Middleware	Create the Tracked Request within the Order. Initial status set to "Pending."
F.4.5	Store Tracked Request	EcMsAcOrderSrvr	Sybase ASE	CtLib	Save the tracked request to the order database.
F.5.1	Submit Acquire Request	EcDmV0ToEcsGateway	EcOmOrderManager	Socket	The V0 Gateway submits an acquire request to the Order Manager via a socket.
F.5.2	Save Request into OMS DB	EcOmOrderManager	Sybase ASE	CtLib	The Order Manager saves the request in the OMS database (DB).
F.6.1	Validate Request	EcOmOrderManager	Sybase ASE	CtLib	The Order Manager retrieves a request from its DB, validates it and saves it back to the DB marked as ready to distribute if the request passes validation.
F.6.2	Acquire data	EcOmOrderManager	UNIX	TCP/IP Socket	The Order Manager submits a request in Object Description Language (ODL) format to the Product Distribution System Internal Server (PDSIS)
F.10.1	Select data to be ordered via Ftp Pull	Science User	iPlanet web server	GUI	The Science User selects a specific L70R WRS scene to order for delivery via an Ftp Pull while the tape order is being processed. When the order is complete it is submitted to the V0 Gateway.
F.11.1	V0 Gateway Order	iPlanet web server	EcDmV0ToEcsGateway	ODL, over sockets	The EOS Data Gateway submits an order to the V0 Gateway, by converting the order into an Object Description Language (ODL) structure and passing the structure to a socket provided by the V0 Gateway. The correct socket is determined from configuration information in the Valids file. The order contains billing information including billing ID.

Table 3.6.9.3-1. Component Interaction Table: L-7 Ordering WRS Scenes (3 of 15)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
F.11.2	Establish ECS User	EcDmV0ToEcsGateway	EcMsAcRegUserSrvr	CCS Middleware	The V0 Gateway retrieves the User Profile using the ECS Authenticator from an ODL message, which includes an encrypted User ID and Password. The User Registration database is replicated across DAACs, so the connection is made to the local User Registration Server.
F.11.3	Request Attribute Mapping	EcDmV0ToEcsGateway	EcDmDictServer	CtLib (RWDBTool)	The V0 Gateway translates the V0 terms from ODL into ECS names for request submittal using the Data Dictionary database. The interface is directly to the Data Dictionary database. The database name is retrieved from a configuration file.
F.12.1	Send L7 Acquire	EcDmV0ToEcsGateway	DORRAN	CCS Middleware	The V0 Gateway sends the request to the DORRAN because the order is for L7OR WRS data and there is no order ID in the message.
F.12.2	B & A Verification	EcDmV0ToEcsGateway	DORRAN Comp.	CCS Middleware	The DORRAN system validates the request by checking the account level of the requester and the required funding level of the request.
F.13.1	DORRAN Return	DORRAN	EcDmV0ToEcsGateway	CCS Middleware	The operator validates the order and the DORRAN system sends back all the remaining granules to the V0 Gateway over a specific socket.
F.13.2	Create Tracked Order	EcDmV0ToEcsGateway	EcMsAcOrderSrvr	CCS Middleware	Create an order to be tracked within ECS. Initial status set to "Pending."
F.13.3	Store Tracked Order	EcMsAcOrderSrvr	Sybase ASE	CtLib	Create a tracked order in the database.

Table 3.6.9.3-1. Component Interaction Table: L-7 Ordering WRS Scenes (4 of 15)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
F.13.4	Create Tracked Request	EcDmV0ToEcsGateway	EcMsAcOrderSrvr	CCS Middleware	Create the Tracked Request within the Order. Initial status set to "Pending."
F.13.5	Store Tracked Request	EcMsAcOrderSrvr	Sybase ASE	CtLib	Create a tracked request in the order database.
F.14.1	Submit Acquire Request	EcDmV0ToEcsGateway	EcOmOrderManager	Socket	The V0 Gateway submits an acquire request to the Order Manager (EcOmOrderManager) via a Socket.
F.14.2	Save Request into OMS DB	EcOmOrderManager	Sybase ASE	CtLib	The Order Manager saves the request in the OMS database (DB).
F.15.1	Validate Request	EcOmOrderManager	Sybase ASE	CtLib	The Order Manager retrieves the request from its DB, validates it and saves it back to the DB marked as ready to distribute if it passes validation.
F.15.2	Dispatch Electronic Media request	EcOmOrderManager	EcOmSrCLI	UNIX	The Order Manager dispatches electronic media requests by forking a child process to execute the Order Manager Command Line Interface (EcOmSrCLI), which actually interfaces with the Science Data Server.
F.15.3	Connect to SDSRV	EcOmSrCLI	EcDsScienceDataServer	CCS Middleware	The Order Manager first connects to the Science Data Server (EcDsScienceDataServer). The UR of a granule being ordered determines the correct Science Data Server to choose. This is pertinent if there are multi-Science Data Servers in use at one DAAC in one mode.
F.15.4	Add granules to Session	EcOmSrCLI	EcDsScienceDataServer	CCS Middleware	The Order Manager Command Line Interface establishes the data context of the session with the Science Data Server by adding granules to the session. The Granule UR of the L70R WRS Scene granules to be ordered is added to the ESDT Reference Collector.
F.15.5	Retrieve Granule Metadata from Inventory	EcDsScienceDataServer	Sybase ASE/SQS	CtLib	The Science Data Server completes establishing the data context by retrieving the metadata for the requested granules from the Sybase ASE/SQS database. The metadata for each granule is passed back to the reference objects for each granule.

Table 3.6.9.3-1. Component Interaction Table: L-7 Ordering WRS Scenes (5 of 15)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
F.15.6	Acquire Data	EcOmSrCLI	EcDsScienceDataServer	CCS Middleware	The Order Manager Command Line Interface submits the order for L70R WRS Scene granules by submitting an acquire request for the granules. The acquire request is for an Ftp Pull of a specified granule in the Earth Science Data Type (ESDT) ReferenceCollector. This request is asynchronous meaning the return of the "submit" call of the request only contains the status of the request's submittal.
F.16.1	Request Create Staging Disk	EcDsScienceDataServer	EcDsStRequestManagerServer	CCS Middleware	The Science Data Server verifies access privileges for the granule and sends a request to the Storage Management Request Manager to create a staging disk for working space, scene files and metadata files, which allocates space and passes back a reference to that disk space.
F.16.2	Create Staging Disk	EcDsStRequestManagerServer	EcDsStStagingDiskServer	CCS Middleware	The Request Manager sends a request to the Staging Disk Server to create a staging disk for working space, scene files and metadata files, which allocates space and passes back a reference to that disk space. The reference to the staging disk is determined from the Science Data Server configuration. The amount of staging disk to request is determined on a band-by-band basis. The Science Data Server requests twice the size of the first band, from metadata in the database, and requests more as needed in order to subset the subsequent files. Each request is for twice the size of the file to be subsetted.
F.17.1	Request STMGT Retrieve	EcDsScienceDataServer	EcDsStRequestManagerServer	CCS Middleware	The Science Data Server sends a request to the Request Manager so that Storage Management can retrieve the subinterval granule files to be subsetted.

Table 3.6.9.3-1. Component Interaction Table: L-7 Ordering WRS Scenes (6 of 15)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
F.17.2	STMGT Retrieve	EcDsStRequestManagerServer	EcDsStArchiveServer	CCS Middleware	The Storage Management Request Manager passes on a request from the Science Data Server to the Archive Server so that Storage Management can retrieve the subinterval granule files to be subsetted. For a L70R WRS Scene, these files include band files, calibration files, Landsat Processing System Metadata (MTA), Mirror Scan Correction Data (MSCD) and Payload Correction Data (PCD) files. This results in the files being staged to the working staging disk area. The correct archive object to request is determined from the information provided by the Science Data Server in the distribution request.
F.18.1	L7 Scene creation	EcDsScienceDataServer	EcDsHdfEoSServer	CCS Middleware	Since L7 WRS Scenes are virtual granules (i.e., the granules are represented in the inventory with their metadata, but the files which contain the data do not actually exist), the scene files must be extracted from the scene's parent subinterval. The scenes files are created using internal subinterval subsetting methods. The subsetted files include band files, calibration files, Landsat Processing System Metadata (MTA), Mirror Scan Correction Data (MSCD), Payload Correction Data (PCD), and Calibration Parameter File (CPF) files. A metadata file for the L70R WRS Scene is created. Also the Science Data Server searches the database for a comparable L7CPF file before performing reformatting. It keys the complete Distribution Product Metadata file (file extension is .MTP) and creates a Format 1 / Format 2 file. Then the subsetted data is reformatted before passing it to the Data Distribution Server.

Table 3.6.9.3-1. Component Interaction Table: L-7 Ordering WRS Scenes (7 of 15)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
F.19.1	Distribute Granules, Synchronous	EcDsScienceDataServer	EcDsDistributionServer	CCS Middleware	The Science Data Server submits a request to the Data Distribution Server. The request includes, for the granule, a reference to the metadata file. Other parameters from the acquire request are passed to the Data Distribution Server.
F.19.2	Update Tracked Request Status	EcDsDistributionServer	EcMsAcOrderSrvr	CCS Middleware	Update the status of the tracked request to "Active."
F.19.3	Update Tracked Status	EcMsAcOrderSrvr	Sybase ASE	CtLib	Update the Order Tracking Database with new status.
F.19.4	Request Claim Ownership	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Data Distribution Server sends a request to the Storage Management Request Manager to claim ownership of the staging disk created by the Science Data Server.
F.19.5	Claim Ownership	EcDsStRequestManagerServer	EcDsStStagingDiskServer	CCS Middleware	The Staging Disk Server receives a request from the Storage Management Request Manager Server to claim ownership of the staging disk created by the Science Data Server.
F.20.1	Create Staging Disk	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Data Distribution Server sends a request to the Storage Management Request Manager to create staging disk areas for the granule files in the archive.
F.20.2	Create Staging Disk	EcDsStRequestManagerServer	EcDsStStagingDiskServer	CCS Middleware	The Request Manager passes on the Distribution Server's request to the Staging Disk Server to create staging disk for the granule files in the archive. This allocates space and passes back a reference to that disk space. The reference to the staging disk is determined from the information passed by the Science Data Server in the distribution request, which is the Science Data Server configuration. The amount of staging disk to request is determined by the size of the subsetted/reformatted data.

**Table 3.6.9.3-1. Component Interaction Table: L-7 Ordering WRS Scenes
(8 of 15)**

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
F.20.3	Update Tracked Request Status	EcDsDistributionServer	EcMsAcOrderSrvr	CCS Middleware	Update the status of the tracked request to "Staging."
F.20.4	Update Tracked Status	EcMsAcOrderSrvr	Sybase ASE	CtLib	Update the Order Tracking Database with new status.
F.20.5	Request Link files to Staging Disk	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Data Distribution Server (DDIST) sends a request to the Request Manager to ask the Staging Disk Server to link the subsetted and metadata files from the Science Data Server into the staging disk created by the Staging Disk Server.
F.20.6	Link files to Staging Disk	EcDsStRequestManagerServer	EcDsStStagingDiskServer	CCS Middleware	The Staging Disk Server receives the request forwarded by the Request Manager from the Data Distribution Server to link the subsetted and metadata files from the Science Data Server into the staging disk created by the Staging Disk Server.
F.20.7	Update Tracked Request Status	EcDsDistributionServer	EcMsAcOrderSrvr	CCS Middleware	Update the status of the tracked request to "Transferring."
F.20.8	Update Tracked Status	EcMsAcOrderSrvr	Sybase ASE	CtLib	Update the Order Tracking Database with new status.
F.20.9	Update Tracked Request Status	EcDsDistributionServer	EcMsAcOrderSrvr	CCS Middleware	Update the status of the tracked request to "Shipped." Update the media quantity.
F.20.10	Update Tracked Status	EcMsAcOrderSrvr	Sybase ASE	CtLib	Update the Order Tracking Database with the media quantity and the new status.
F.21.1	Build Distribution Notice	EcDsDistributionServer	EcDsDistributionServer	Internal	The Data Distribution Server builds a distribution notice indicating that the L70R WRS Scene data is now available. The notice includes the Universal Reference (UR) of the Scene granule, name of the Scene's files, size of files, the host and directory names where it is available and how long it is available.

**Table 3.6.9.3-1. Component Interaction Table: L-7 Ordering WRS Scenes
(9 of 15)**

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
F.21.2	Send E-mail	EcDsDistributionServer	Science User	E-mail	The distribution notice is emailed to the Science User. The e-mail address is obtained from the User Profile.
F.22.1	Select data to be ordered via Ftp Push	Science User	iPlanet web server	GUI	The Science User selects a specific L7OR WRS scene to order for delivery via an Ftp Push while the tape order is being processed. When the order is completed, it is submitted to the V0 Gateway.
F.23.1	V0 Gateway Order (FtpPush)	iPlanet web server	EcDmV0ToEcsGateway	ODL, over sockets	The EOS Data Gateway submits an order to the V0 Gateway, by converting the order into an Object Description Language (ODL) structure and passing that structure to a socket provided by the V0 Gateway. The correct socket is determined from configuration information in the Valids file. The order contains billing information including billing ID.
F.23.2	Establish ECS User	EcDmV0ToEcsGateway	EcMsAcRegUserSrvr	CCS Middleware	The V0 Gateway retrieves the User Profile using an ECS Authenticator from an ODL message, which includes an encrypted User ID and Password. The User Registration database is replicated across DAACs, so the connection is made to the local User Registration Server.
F.23.3	Request Attribute Mapping	EcDmV0ToEcsGateway	EcDmDictServer	CtLib (RWDBTool)	The V0 Gateway translates the V0 terms from ODL into ECS names for request submittal using the Data Dictionary database. The interface is directly to the Data Dictionary database. The Database name is retrieved from a configuration file.
F.24.1	Send L7 Acquire	EcDmV0ToEcsGateway	DORRAN	CCS Middleware	The V0 Gateway sends the request to the DORRAN system because the order is for L7OR WRS data and there is no order ID in the message.
F.24.2	B & A Verification	EcDmV0ToEcsGateway	DORRAN	CCS Middleware	The DORRAN system validates the request by checking the account level of the requester and the required funding level of the request.

**Table 3.6.9.3-1. Component Interaction Table: L-7 Ordering WRS Scenes
(10 of 15)**

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
F.25.1	DORRAN Return	DORRAN	EcDmV0ToEcsGateway	CCS Middleware	The operator validates the order and the DORRAN system sends back all the remaining granules to the V0 Gateway over a specific socket.
F.25.2	Create Tracked Order	EcDmV0ToEcsGateway	EcMsAcOrderSrvr	CCS Middleware	Create an order to be tracked within ECS. Initial status set to "Pending."
F.25.3	Store Tracked Order	EcMsAcOrderSrvr	Sybase ASE	CtLib	Create a tracked order in the database.
F.25.4	Create Tracked Request	EcDmV0ToEcsGateway	EcMsAcOrderSrvr	CCS Middleware	Create the Tracked Request within the Order. Initial status set to "Pending."
F.25.5	Store Tracked Request	EcMsAcOrderSrvr	Sybase ASE	CtLib	Create a tracked request in the order database.
F.26.1	Submit Acquire Request	EcDmV0ToEcsGateway	EcOmOrderManager	Socket	The V0 Gateway submits a request to the Order Manager via a Socket.
F.26.2	Save Request into OMS DB	EcOmOrderManager	Sybase ASE	CtLib	The Order Manager saves the request in the OMS database (DB).
F.27.1	Validate Request	EcOmOrderManager	Sybase ASE	CtLib	The Order Manager retrieves a request from its DB, validates it and saves it back to the DB marked as ready to distribute if the request has passed validation.
F.27.2	Dispatch Electronic Media Request	EcOmOrderManager	EcOmSrCLI	UNIX	The Order Manager dispatches electronic media requests by forking a child process to execute the Order Manager command line interface, which actually interfaces with the Science Data Server.
F.27.3	Connect to SDSRV	EcOmSrCLI	EcDsScienceDataServer	CCS Middleware	The Order Manager command line interface first connects to the Science Data Server. The Universal Reference (UR) of a granule being ordered determines the correct Science Data Server to choose. This is pertinent if there are multiple Science Data Servers in use at one DAAC in one mode.

**Table 3.6.9.3-1. Component Interaction Table: L-7 Ordering WRS Scenes
(11 of 15)**

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
F.27.4	Add granules to Session	EcOmSrCLI	EcDsScienceDataServer	CCS Middleware	The Order Manager command line interface establishes the data context of the session with the Science Data Server by adding granules to the session. The Granule UR of the L70R WRS Scene granules to be ordered is added to the Earth Science Data Type (ESDT) ReferenceCollector.
F.27.5	Retrieve Granule Metadata from Inventory	EcDsScienceDataServer	Sybase ASE/SQS	CtLib	The Science Data Server completes establishing the data context by retrieving the metadata for the requested granules from the Sybase ASE/SQS database. The metadata for each granule is passed back to the reference objects for each granule.
F.27.6	Acquire Data	EcOmSrCLI	EcDsScienceDataServer	CCS Middleware	The Order Manager command line interface submits the order for L70R WRS Scene granules by submitting an acquire request for the granules. The acquire request is for an Ftp Push of a specified granule in the Earth Science Data Type (ESDT) ReferenceCollector. This request is asynchronous, meaning that the return of the "submit" call of the request only contains the status of the request's submittal.
F.28.1	Request Create Staging Disk	EcDsScienceDataServer	EcDsStRequestManagerServer	CCS Middleware	The Science Data Server (EcDsScienceDataServer) sends a request to the Storage Management Request Manager (EcDsStRequestManagerServer) to ask the Staging Disk Server to create a staging disk for working space, scene files and metadata files, which allocates space and passes back a reference to that disk space.

**Table 3.6.9.3-1. Component Interaction Table: L-7 Ordering WRS Scenes
(12 of 15)**

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
F.28.2	Create Staging Disk	EcDsStRequestManagerServer	EcDsStStagingDiskServer	CCS Middleware	The Request Manager forwards a Science Data Server request to the Staging Disk Server. The Staging Disk Server verifies access privileges for the granule and creates a staging disk for working space, scene files and metadata files, which allocates space and passes back a reference to that disk space. The reference to the staging disk is determined from the Science Data Server configuration. The amount of staging disk to request is determined on a band-by-band basis. The Science Data Server requests twice the size of the first band, from metadata in the database, and requests more as needed in order to subset the subsequent files. Each request is for twice the size of the file to be subsetting.
F.29.1	Request STMGT Retrieve	EcDsScienceDataServer	EcDsStRequestManagerServer	CCS Middleware	The Science Data Server sends a request to the Storage Management Request Manager to be forwarded to the Archive Server so that Storage Management can retrieve the subinterval granule files to be subsetting.
F.29.2	STMGT Retrieve	EcDsStRequestManagerServer	EcDsStArchiveServer	CCS Middleware	The Storage Management Request Manager (EcDsStRequestManagerServer) forwards the Science Data Server request to the Archive Server (EcDsStArchiveServer) so that Storage Management can retrieve the subinterval granule files to be subsetting. For a L70R WRS Scene, these files include band files, calibration files, Landsat Processing System Metadata (MTA), Mirror Scan Correction Data (MSCD) and Payload Correction Data (PCD) files. This results in the files being staged to the working staging disk area. The correct archive object to request is determined from the information provided by the Science Data Server in the distribution request.

**Table 3.6.9.3-1. Component Interaction Table: L-7 Ordering WRS Scenes
(13 of 15)**

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
F.30.1	L7 Scene creation	EcDsScienceDataServer	EcDsHdfEoSServer	CCS Middleware	Since L7 WRS Scenes are virtual granules (i.e., the granules are represented in the inventory with their metadata, but the files which contain the data do not actually exist), the scene files must be extracted from the scene's parent subinterval. The scenes files are created using internal subinterval subsetting methods. The subsetting files include band files, calibration files, Landsat Processing System Metadata (MTA), Mirror Scan Correction Data (MSCD), Payload Correction Data (PCD) and Calibration Parameter File (CPF) files. A metadata file for the L70R WRS Scene is created. Also the Science Data Server searches the database for a comparable L7CPF file before performing reformatting. It keys the complete Distribution Product Metadata file (file extension is .MTP) and creates a Format 1 / Format 2 file. Then the subsetting data is reformatted before passing it to the Data Distribution Server.
F.30.2	Update Tracked Request Status	EcDsDistributionServer	EcMsAcOrderSrvr	CCS Middleware	Update the status of the tracked request to "Active."
F.30.3	Update Tracked Status	EcMsAcOrderSrvr	Sybase ASE	CtLib	Update the Order Tracking Database with new status.

**Table 3.6.9.3-1. Component Interaction Table: L-7 Ordering WRS Scenes
(14 of 15)**

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
F.30.4	Request Claim Ownership	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Data Distribution Server (EcDsDistributionServer) sends a request to the Storage Management Request Manager (EcDsStRequestManagerServer) to claim ownership of the staging disk created by the Science Data Server.
F.30.5	Claim Ownership	EcDsStRequestManagerServer	EcDsStStagingDiskServer	CCS Middleware	The Staging Disk Server (EcDsStStagingDiskServer) receives a request from the Request Manager to claim ownership of the staging disk created by the Science Data Server.
F.32.1	Request Create Staging Disk	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Data Distribution Server sends a request to the Request Manager for the Staging Disk Server to create staging disk areas for the granule files in the archive.
F.32.2	Create Staging Disk	EcDsStRequestManagerServer	EcDsStStagingDiskServer	CCS Middleware	The Request Manager forwards the Data Distribution Server's request to the Staging Disk Server to create a staging disk for the granule files in the archive. This allocates space and passes back a reference to that disk space. The reference to the staging disk area is determined from the information passed by the Science Data Server in the distribution request, which was determined by the Science Data Server configuration. The amount of staging disk area to request is determined by the size of the subsetted/reformatted data.
F.32.3	Update Tracked Request Status	EcDsDistributionServer	EcMsAcOrderSrvr	CCS Middleware	Update the status of the tracked request to "Staging." Update the media quantity.
F.32.4	Update Tracked Status	EcMsAcOrderSrvr	Sybase ASE	CtLib	Update the Order Tracking Database with the media quantity and the new status.
F.32.5	Link files to Staging Disk	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Data Distribution Server sends a request to the Request Manager for the Staging Disk Server to link the subsetted and metadata files from the Science Data Server into the staging disk created by the Staging Disk Server.

**Table 3.6.9.3-1. Component Interaction Table: L-7 Ordering WRS Scenes
(15 of 15)**

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
F.32.6	Link files to Staging Disk	EcDsStRequestManagerServer	EcDsStStagingDiskServer	CCS Middleware	The Storage Management Request Manager (EcDsStRequestManagerServer) forwards the Data Distribution Server's request to the Staging Disk Server (EcDsStStagingDiskServer) to link the subsetted and metadata files from the Science Data Server into the staging disk created by the Staging Disk Server.
F.32.7	Update Tracked Request Status	EcDsDistributionServer	EcMsAcOrderSrvr	CCS Middleware	Update the status of the tracked request to "Transferring."
F.32.8	Update Tracked Status	EcMsAcOrderSrvr	Sybase ASE	CtLib	Update the Order Tracking Database with new status.
F.32.9	Update Tracked Request Status	EcDsDistributionServer	EcMsAcOrderSrvr	CCS Middleware	Update the status of the tracked request to "Shipped."
F.32.10	Update Tracked Status	EcMsAcOrderSrvr	Sybase ASE	CtLib	Update the Order Tracking Database with new status.
F.33.1	Build Distribution Notice	EcDsDistributionServer	EcDsDistributionServer	Internal	The Data Distribution Server (EcDsDistributionServer) builds a distribution notice indicating that the L7OR WRS Scene data has been pushed up to the user-specified host machine. The notice includes the order ID, the Universal Reference (UR) of the Scene granule, name of the Scene's files, size of files, and the host and directory names.
F.33.2	Send E-mail	EcDsDistributionServer	Science User	E-mail	The distribution notice is emailed to the Science User. The e-mail address is obtained from the User Profile.

3.6.10 Landsat-7 MOC Interface Thread - Deleted

3.6.11 Landsat-7 Ordering L70R Floating Scenes Thread

This thread shows how the ECS supports user orders for L70R floating scenes where hard media (HM) denotes 8mm, DTF, DLT and CD-ROM.

3.6.11.1 Landsat-7 Ordering L70R Floating Scenes Thread Interaction Diagram - Domain View

Figure 3.6.11.1-1 depicts the L-7 Ordering L70R Floating Scenes Interaction

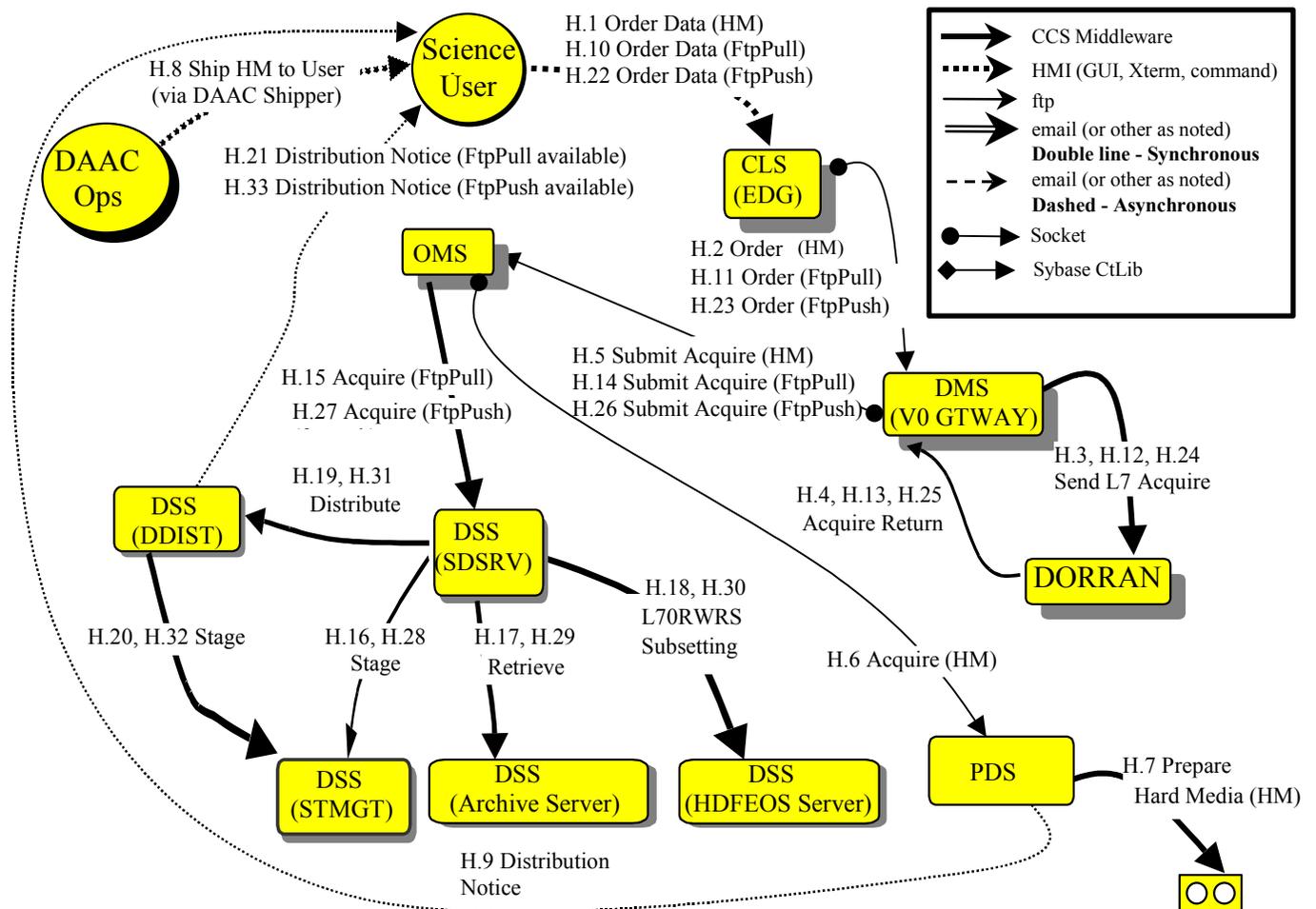


Figure 3.6.11.1-1. L-7 Ordering L70R Floating Scenes Interaction Diagram

3.6.11.2 Landsat-7 Ordering L70R Floating Scenes Thread Interaction Table - Domain View

Table 3.6.11.2-1 provides the Interaction – Domain View: Landsat L-7 Ordering L70R Floating Scenes.

Table 3.6.11.2-1. Interaction Table - Domain View: L-7 Ordering L70R Floating Scenes (1 of 6)

Step	Event	Interface Client	Interface Provider	Data Issues	Step Precondi tions	Description
H.1	Order Data (HM)	Science User	CLS (EDG)	None	None	A Scientist decides to order a number of L70R Floating Scenes. Using the EOS Data Gateway (EDG), the scientist selects the scenes of interest and selects an order via one of the hard media.
H.2	Order (HM)	CLS (EDG)	DORRAN	None	None	The EOS Data Gateway submits the Science User's order to the DORRAN system in Object Description Language (ODL) format, via a specific socket.
H.3	Send L7 Acquire	DMS (V0 GTWAY)	DORRAN	None	None	The V0 Gateway (V0 GTWAY) sends the product request to the DORRAN system.
H.4	Acquire Return	DORRAN	DMS (V0 GTWAY)	None	None	The Operator validates the order and DORRAN sends back all the remaining granules to the V0 Gateway over a specific socket. The DORRAN system performs a billing & accounting verification.
H.5	Submit Acquire (HM)	DMS (V0 GTWAY)	OMS	1 L70R granule between 406MB to the whole subinterval	None	The V0 Gateway translates the order into an acquire request and submits it to the Order Manager Server. The spatial and band subsetting parameters are part of the request order. The request is for a set of L70R Floating Scenes, via one of the hard media.
H.6	Acquire (HM)	OMS (Order Manager)	PDS (PDSIS)	1 L70R granule between 406MB to the whole subinterval	None	The Order Manager retrieves an order request from its database and submits it to the Product Distribution System (PDS). The request is for a set of L70R Floating Scenes, via one of the hard media.
H.7	Prepare Hard Media (HM)	PDS	HM Device	None	None	The Product Distribution System copies the L70R Floating Scenes granule's files to the requested hard media.

Table 3.6.11.2-1. Interaction Table - Domain View: L-7 Ordering L70R Floating Scenes (2 of 6)

Step	Event	Interface Client	Interface Provider	Data Issues	Step Precondi tions	Description
H.8	Ship HM to User (via DAAC Shipper)	DAAC Ingest Distribution Technician	Science User	None	None	The DAAC Ingest/Distribution Technician collects the hard media (HM) and the packing list, and generates a media, shipping label. He labels the HM, encloses the HM and packing list in a shipping container and labels the shipping container. The DAAC uses the commercial shipping vendor for delivery to the Science User.
H.9	Distribution Notice (HW available)	PDS	Science User	None	None	Send e-mail notification to the Science User, notifying that the ordered L70R WRS scenes have been shipped to their shipping address.
H.10	Order Data (FtpPull)	Science User	CLS (EDG)	None	None	A Scientist decides to order a particular scene of high interest, via an Ftp Pull.
H.11	Order (FtpPull)	CLS (EDG)	DMS (V0 GTWAY)	None	None	The EOS Data Gateway (EDG) submits the Science User's order to the V0 Gateway (V0 GTWAY) in Object Description Language (ODL) format, via a specific socket.
H.12	Send L7 Acquire	DMS (V0 GTWAY)	DORRAN	None	None	The V0 Gateway sends the product request to the DORRAN system.
H.13	Acquire Return	DORRAN	DMS (V0 GTWAY)	None	None	The Operator validates the order and the DORRAN system sends back all the remaining granules to the V0 Gateway over a specific socket. The DORRAN system performs a billing & accounting verification.
H.14	Submit Acquire (FtpPull)	DMS (V0 GTWAY)	OMS	1 L70R scene between 406MB to the whole subinterval	None	The V0 Gateway translates the order into an acquire request and submits it to the Order Manager Server (OMS). The request is for a set of L70R floating scenes, via an Ftp Pull.

Table 3.6.11.2-1. Interaction Table - Domain View: L-7 Ordering L70R Floating Scenes (3 of 6)

Step	Event	Interface Client	Interface Provider	Data Issues	Step Preconditions	Description
H.15	Acquire (FtpPull)	OMS (Order Manager)	DSS (SDSRV)	1 L70R scene between 406MB to the whole subinterval	None	The Order Manager retrieves a request from its database and submits it to the Data Server Subsystem (DSS) Science Data Server (SDSRV). To fulfill the "acquire" of floating scenes, which are virtual granules, the SDSRV derives the scenes from their parent subinterval, using internally available subsetting services.
H.16	Stage	DSS (SDSRV)	DSS (STMGT)	1 L70R granule between 406MB to the whole subinterval	None	The Science Data Server requests Data Server Subsystem Storage Management to create a staging disk area for working space.
H.17	Retrieve	DSS (SDSRV)	DSS (Request Manager)	1 L70R granule between 406MB to the whole subinterval	None	The Science Data Server sends requests to the Storage Management Request Manager to retrieve the subinterval granule files to be subsetting.
H.18	L70RWRS Subsetting	DSS (SDSRV)	DSS (HDF EOS Server)	1 L70R granule between 406MB to the whole subinterval	None	The Science Data Server sends requests to the HDF EOS Server to subset L70R files according to user defined floating scene spatial and band constraints, as well as, reformat the output files from HDF EOS to HDF.
H.19	Distribute	DSS (SDSRV)	DSS (DDIST)	1 L70R granule between 406MB to the whole subinterval	None	The Science Data Server sends requests to the Data Distribution Server to distribute subsetting granules.

Table 3.6.11.2-1. Interaction Table - Domain View: L-7 Ordering L70R Floating Scenes (4 of 6)

Step	Event	Interface Client	Interface Provider	Data Issues	Step Precondi tions	Description
H.20	Stage	DSS (DDIST)	DSS (STMGT)	1 L70R granule between 406MB to the whole subinterval	None	The Data Distribution (DDIST) Server sends requests to the Storage Management (STMGT) Request Manager to create staging disks for the subsetted files. The Data Distribution Server links the subsetted files from the Science Data Server into the staging disks created by the Staging Disk Server.
H.21	Distribution Notice (FtpPull available)	DSS (DDIST)	Science User	None	None	Send an email notification to the Science User, notifying him/her that the requested scene is now available for Ftp access.
H.22	Order Data (FtpPush)	Science User	CLS (EDG)	None	None	A Scientist decides to order a particular scene of high interest, via an Ftp Push.
H.23	Order (FtpPush)	CLS (EDG)	DMS (V0 GTWAY)	None	None	The EOS Data Gateway (EDG) submits the Science User's order to the V0 Gateway (V0 GTWAY) in Object Description Language (ODL) format, via a specific socket.
H.24	Send L7 Acquire	DMS (V0 GTWAY)	DORRAN	None	None	The V0 Gateway sends the product request to the DORRAN system.
H.25	Acquire Return	DORRAN	DMS (V0 GTWAY)	None	None	The Operator validates the order and the DORRAN system sends back all the remaining granules to the V0 Gateway over a specific socket. The DORRAN system performs a billing & accounting verification.
H.26	Submit Acquire (FtpPush)	DMS (V0 GTWAY)	OMS	1 WRS scene @812MB (nominally)	None	The V0 Gateway translates the order into an acquire request and submits it to the Order Manager Server (OMS). The request is for a set of L70R floating scenes, via an ftp Push.

Table 3.6.11.2-1. Interaction Table - Domain View: L-7 Ordering L70R Floating Scenes (5 of 6)

Step	Event	Interface Client	Interface Provider	Data Issues	Step Preconditions	Description
H.27	Acquire (FtpPush)	OMS (Order Manager)	DSS (SDSRV)	1 WRS scene @812MB (nominally)	None	The Order Manager retrieves a request from its database and submits it to the Data Server Subsystem (DSS) Science Data Server (SDSRV). To fulfill the "acquire" of L70R floating scenes, which are virtual granules, the Science Data Server derives the scenes from their parent subinterval, using internally available subsetting services.
H.28	Stage	DSS (SDSRV)	DSS (STMGT)	1 L70R granule between 406MB to the whole subinterval	None	The Science Data Server sends requests to the Storage Management (STMGT) Request Manager to create a staging disk for working space.
H.29	Retrieve	DSS (SDSRV)	DSS (Request Manager)	1 L70R granule between 406MB to the whole subinterval	None	The Science Data Server sends requests to the Request Manager to retrieve the subinterval granule files to be subsetted.
H.30	L70RWRS Subsetting	DSS (SDSRV)	DSS (HDF EOS Server)	1 L70R granule between 406MB to the whole subinterval	None	The Science Data Server sends requests to the HDF EOS Server to subset L70R files according to user defined floating scene spatial and band constraints, as well as, reformat the output files from HDF EOS to HDF.
H.31	Distribute	DSS (SDSRV)	DSS (DDIST)	1 L70R granule between 406MB to the whole subinterval	None	The Science Data Server sends requests to the Data Distribution (DDIST) Server to distribute subsetted granules.
H.32	Stage	DSS (DDIST)	DSS (STMGT)	1 L70R granule between 406MB to the whole subinterval	None	The Data Distribution Server creates staging disks for the subsetted files and links the subsetted files from the Science Data Server into the staging disks created by the Staging Disk Server.

Table 3.6.11.2-1. Interaction Table - Domain View: L-7 Ordering L70R Floating Scenes (6 of 6)

Step	Event	Interface Client	Interface Provider	Data Issues	Step Preconditions	Description
H.33	Distribution Notice (FtpPush available)	DSS (DDIST)	Science User	None	None	Send e-mail notification to a Science User, notifying him/her that the requested scene is now available for Ftp access.

3.6.11.3 Landsat-7 Ordering L70R Floating Scenes Thread Component Interaction Table

Table 3.6.11.3-1 provides the Component Interaction: L-7 Ordering L70R Floating Scenes.

Note that for distribution via one of the hard media means 8mm tape, DLT, DTF or CD-ROM. As an example the interface provider is shown for 8mm tape.

Table 3.6.11.3-1. Component Interaction Table: L-7 Ordering L70R Floating Scenes (1 of 16)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
H.1.1	Select data to be ordered via hard media	Science User	iPlanet web server	GUI	The Science User selects a set of floating scenes to order for delivery via hard media. When the order is completed, it is submitted to the V0 Gateway.
H.2.1	V0 Gateway Order	iPlanet web server	EcDmV0ToEcs Gateway	ODL, over sockets	The EOS Data Gateway submits an order to the V0 Gateway (EcDmV0ToEcsGateway), by converting the order into an Object Language Description (ODL) structure and passing that structure to a socket provided by the V0 Gateway. The correct socket is determined from configuration information in the Valids file.

Table 3.6.11.3-1. Component Interaction Table: L-7 Ordering L70R Floating Scenes (2 of 16)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
H.2.2	Establish ECS User	EcDmV0ToEcsGateway	EcMsAcRegUse rSrvr	CCS Middleware	The V0 Gateway retrieves the User Profile using an ECS Authenticator from the ODL message, which is an encrypted User ID and Password. The User Registration database is replicated across DAACs, so the connection is made to the local User Registration Server.
H.2.3	Request Attribute Mapping	EcDmV0ToEcsGateway	EcDmDictServer	CtLib (RWDBTool)	The V0 Gateway translates the V0 terms from ODL into ECS names for request submittal using the Data Dictionary database. The interface is directly to the Data Dictionary database. The database name is retrieved from a configuration file.
H.3.1	Request L7 Product	EcDmV0ToEcsGateway	DORRAN	CCS Middleware	The V0 Gateway sends the request to the DORRAN system because the order is for L70R WRS data and there is no order ID in the message.
H.3.2	B & A Verification	EcDmV0ToEcsGateway	DORRAN	CCS Middleware	The DORRAN system validates the request by checking the account level of the requester and the required funding level of the request.
H.4.1	Acquire Return	DORRAN	EcDmV0ToEcs Gateway	CCS Middleware	The Operator validates the order and the DORRAN system sends back all the remaining granules to the V0 Gateway over a specific socket.
H.4.2	Create Tracked Order	EcDmV0ToEcsGateway	EcMsAcOrderSr vr	CCS Middleware	Create an order to be tracked within ECS. Initial status set to "Pending."
H.4.3	Store Tracked Order	EcMsAcOrderSrvr	Sybase ASE	CtLib	Save the tracked order to the order database.
H.4.4	Create Tracked Request	EcDmV0ToEcsGateway	EcMsAcOrderSr vr	CCS Middleware	Create the Tracked Request within the Order. Initial status set to "Pending."
H.4.5	Store Tracked Request	EcMsAcOrderSrvr	Sybase ASE	CtLib	Save the tracked request to the order database.
H.5.1	Submit Acquire Request	EcDmV0ToEcsGateway	EcOmOrderManager	Socket	The V0 Gateway (EcDmV0ToEcsGateway) submits an acquire request to the Order Manager (EcOmOrderManager) via a socket.

Table 3.6.11.3-1. Component Interaction Table: L-7 Ordering L70R Floating Scenes (3 of 16)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
H.5.2	Save Request into OMS DB	EcOmOrder Manager	Sybase ASE	CtLib	The Order Manager saves the request in the OMS database (DB).
H.6.1	Validate Request	EcOmOrder Manager	Sybase ASE	CtLib	The Order Manager retrieves a request from its DB, validates it and saves it back to the DB marked as ready to distribute if the request passes validation.
H.6.2	Acquire data	EcOmOrder Manager	UNIX	TCP/IP Socket	The Order Manager submits a request in Object Description Language (ODL) format to the Product Distribution System Internal Server.
H.10.1	Select data to be ordered via ftp Pull	Science User	iPlanet web server	GUI	The Science User selects a specific floating scene to order for delivery via Ftp Pull while the tape order is being processed. When the order is complete it is submitted to the V0 Gateway.
H.11.1	V0 Gateway Order	iPlanet web server	EcDmV0ToEcs Gateway	ODL, over sockets	The EOS Data Gateway submits an order to the V0 Gateway, by converting the order into an ODL structure and passing that structure to a socket provided by the V0 Gateway. The correct socket is determined from configuration information in the Valids file.
H.11.2	Establish ECS User	EcDmV0ToEcsGateway	EcMsAcRegUse rSrvr	CCS Middleware	The V0 Gateway retrieves the User Profile using an ECS Authenticator from the ODL message, which includes an encrypted User ID and Password. The User Registration database is replicated across DAACs, so the connection is made to the local User Registration Server.
H.11.3	Request Attribute Mapping	EcDmV0ToEcsGateway	EcDmDictServer	CtLib (RWDBTool)	The V0 Gateway translates the V0 terms from Object Description Language (ODL) into ECS names for request submittal using the Data Dictionary database. The interface is directly to the Data Dictionary database. The database name is retrieved from a configuration file.

Table 3.6.11.3-1. Component Interaction Table: L-7 Ordering L70R Floating Scenes (4 of 16)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
H.12.1	Send L7 Acquire	EcDmV0ToEcsGateway	DORRAN	CCS Middleware	The V0 Gateway sends the request to the DORRAN system because the order is for L70R WRS data and there is no order ID in the message.
H.12.2	B & A Verification	EcDmV0ToEcsGateway	DORRAN Comp.	CCS Middleware	The DORRAN system validates the request by checking the account level of the requester and the required funding level of the request.
H.13.1	DORRAN Return	DORRAN	EcDmV0ToEcs Gateway	CCS Middleware	The Operator validates the order and the DORRAN system sends back all the remaining granules to the V0 Gateway over a specific socket.
H.13.2	Create Tracked Order	EcDmV0ToEcsGateway	EcMsAcOrderSrvr	CCS Middleware	Create an order to be tracked within ECS. Initial status set to "Pending."
H.13.3	Store Tracked Order	EcMsAcOrderSrvr	Sybase ASE	CtLib	Create a tracked order in the database.
H.13.4	Create Tracked Request	EcDmV0ToEcsGateway	EcMsAcOrderSrvr	CCS Middleware	Create the Tracked Request within the Order. Initial status set to "Pending."
H.13.5	Store Tracked Request	EcMsAcOrderSrvr	Sybase ASE	CtLib	Create a tracked request in the order database.
H.14.1	Submit Acquire Request	EcDmV0ToEcsGateway	EcOmOrderManager	Socket	The V0 Gateway submits a request to the Order Manager (EcOmOrderManager) via a socket.
H.14.2	Save Request into OMS DB	EcOmOrderManager	Sybase ASE	CtLib	The Order Manager (EcOmOrderManager) saves the request in the OMS database (DB).
H.15.1	Validate Request	EcOmOrderManager	Sybase ASE	CtLib	The Order Manager retrieves a request from its DB, validates it and saves it back to the DB marked as ready to distribute if the request passes validation.
H.15.2	Dispatch Electronic Media Request	EcOmOrderManager	EcOmSrCLI	UNIX	The Order Manager dispatches an electronic media request by forking a child process to execute Order Manager command line interface, which actually interfaces with the Science Data Server.

Table 3.6.11.3-1. Component Interaction Table: L-7 Ordering L70R Floating Scenes (5 of 16)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
H.15.3	Connect to SDSRV	EcOmSrCLI	EcDsScienceDataServer	CCS Middleware	The Order Manager command line interface (EcOmSrCLI) first connects to the Science Data Server. The Universal Reference (UR) of a granule being ordered determines the correct Science Data Server to choose. This is pertinent if there are multiple Science Data Servers in use at one DAAC in one mode.
H.15.4	Add granules to Session	EcOmSrCLI	EcDsScienceDataServer	CCS Middleware	The Order Manager command line interface establishes the data context of the session with the Science Data Server by adding granules to the session. The Granule UR of the L70R Floating Scene granules to be ordered is added to the Earth Science Data Type (ESDT) ReferenceCollector.
H.15.5	Retrieve Granule Metadata from Inventory	EcDsScienceDataServer	Sybase ASE/SQS	CtLib	The Science Data Server completes establishing the data context by retrieving the metadata for the requested granules from the Sybase ASE/SQS database. The metadata for each granule is passed back to the reference objects for each granule.
H.15.6	Acquire Data	EcOmSrCLI	EcDsScienceDataServer	CCS Middleware	The Order Manager command line interface (EcOmSrCLI) submits the order for Floating Scene granules by submitting an acquire request for the granules which consist of GIPolygon and band files to be included in the "acquire." The acquire request is for an Ftp Pull of a specified granule in the Earth Science Data Type (ESDT) ReferenceCollector. This request is asynchronous, meaning that the return of the "submit" call of the request only contains the status of the request's submittal.

Table 3.6.11.3-1. Component Interaction Table: L-7 Ordering L70R Floating Scenes (6 of 16)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
H.16.1	Create Staging Disk	EcDsScienceDataServer	EcDsStRequestManagerServer	CCS Middleware	The Science Data Server (EcDsScienceDataServer), via a request to the Storage Management Request Manager (EcDsStRequestManagerServer), forwarded to the Staging Disk Server, creates a staging disk (if local staging disk area is available, use local one) for working space, scene files and metadata files, which allocates space and passes back a reference to that disk space. The reference to the staging disk is determined from the Science Data Server configuration. The amount of staging disk space to request is determined on a band-by-band basis. The Science Data Server requests twice the size of the first band, from metadata in the database, and requests more as needed to subset the subsequent files. Each request is for twice the size of the file to be subsetted. The availability of local staging disk area is determined by the Science Data Server configuration.
H.17.1	STMGT Retrieve	EcDsScienceDataServer	EcDsStRequestManagerServer	CCS Middleware	The Science Data Server (EcDsScienceDataServer) requests via the Request Manager (EcDsStRequestManagerServer) that the Archive Server retrieves the subinterval granule files to be subsetted. For a Floating Scene, these files include band files, calibration files, Landsat Processing System Metadata (MTA), Mirror Scan Correction Data (MSCD) and Payload Correction Data (PCD) files. This results in the files being staged to the working staging disk area. The correct archive object to request is determined from the information provided by the Science Data Server in the distribution request.

Table 3.6.11.3-1. Component Interaction Table: L-7 Ordering L70R Floating Scenes (7 of 16)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
H.18.1	L7 Scene creation	EcDsScienceDataServer	EcDsHdfEosServer	CCS Middleware	Since L7 Floating Scenes are virtual granules (i.e., the granules are represented in the inventory with their metadata, but the files which contain the data do not actually exist), the scene files must be extracted from the scene's parent subinterval. The scenes files are created using internal subinterval subsetting methods. The Science Data Server (EcDsScienceDataServer) calculates the start and stop scan lines for floating scene subsets. The Science Data Server's HDF EOS Server (EcDsHdfEosServer) accepts and passes on scan lines delimited subsetting requests from L70R Acquire Dynamic Link Library (DLL) service. The subsetted files include band files and between 0.5 & 37 scenes, calibration files, Landsat Processing System Metadata (MTA), Mirror Scan Correction Data (MSCD), Payload Correction Data (PCD) and Calibration Parameter File (CPF) files. A metadata file for the L70R Floating Scene is created. Also, the Science Data Server searches the database for a comparable L7CPF file before performing reformatting. Then the subsetted data is reformatted before passing it to the Data Distribution Server.
H.19.1	Distribute Granules, Synchronous	EcDsScienceDataServer	EcDsDistributionServer	CCS Middleware	The Science Data Server submits a request to the Data Distribution Server (EcDsDistributionServer). The request includes, for the granule, a reference to the metadata file. Other parameters from the acquire request are passed to the Data Distribution Server.
H.19.2	Update Tracked Request Status	EcDsDistributionServer	EcMsAcOrderServer	CCS Middleware	Update the status of the tracked request to "Active."

Table 3.6.11.3-1. Component Interaction Table: L-7 Ordering L70R Floating Scenes (8 of 16)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
H.19.3	Update Tracked Status	EcMsAcOrderSrvr	Sybase ASE	CtLib	Update the Order Tracking Database with new status.
H.19.4	Request Claim Ownership	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Data Distribution Server sends a request to the Storage Management Request Manager to claim ownership of the staging disk created by the Science Data Server.
H.19.5	Claim Ownership	EcDsStRequestManagerServer	EcDsStStagingDiskServer	CCS Middleware	The Staging Disk Server (EcDsStStagingDiskServer) receives a request from the Storage Management Request Manager (EcDsStRequestManagerServer) to claim ownership of the staging disk created by the Science Data Server.
H.20.1	Create Staging Disk	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Data Distribution Server (EcDsDistributionServer), via a request to the Request Manager, creates staging disks for the granule files in the archive. This allocates space and passes back a reference to that disk space. The reference to the staging disk is determined from the information passed by the Science Data Server in the distribution request, which is determined from the Science Data Server configuration. The amount of staging disk area to request is determined by the size of the subsetted/reformatted data.
H.20.2	Update Tracked Request Status	EcDsDistributionServer	EcMsAcOrderSrvr	CCS Middleware	Update the status of the tracked request to "Staging."
H.20.3	Update Tracked Status	EcMsAcOrderSrvr	Sybase ASE	CtLib	Update the Order Tracking Database with new status.
H.20.4	Link data files to Staging Disk	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Data Distribution Server links the data files in the read-only cache to the staging disk area.
H.20.5	Update Tracked Request Status	EcDsDistributionServer	EcMsAcOrderSrvr	CCS Middleware	Update the status of the tracked request to "Transferring."

Table 3.6.11.3-1. Component Interaction Table: L-7 Ordering L70R Floating Scenes (9 of 16)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
H.20.6	Update Tracked Status	EcMsAcOrderSrvr	Sybase ASE	CtLib	Update the Order Tracking Database with new status.
H.20.7	Update Tracked Request Status	EcDsDistributionServer	EcMsAcOrderSrvr	CCS Middleware	Update the status of the tracked request to "Shipped." Update the media quantity.
H.20.8	Update Tracked Status	EcMsAcOrderSrvr	Sybase ASE	CtLib	Update the Order Tracking Database with the media quantity and the new status.
H.21.1	Build Distribution Notice	EcDsDistributionServer	EcDsDistributionServer	Internal	The Data Distribution Server (EcDsDistributionServer) builds a distribution notice indicating that the Floating Scene data is now available. The notice includes the Universal Reference (UR) of the Scene granule, name of the Scene's files, size of files, the host and directory names where it is available and how long it is available.
H.21.2	Send E-mail	EcDsDistributionServer	Science User	E-mail	The distribution notice is emailed to the Science User. The e-mail address is obtained from the User Profile.
H.22.1	Select data to be ordered via Ftp Push	Science User	iPlanet web server	GUI	The Science User selects a specific L70R floating scene to order for delivery via an Ftp Push while the tape order is being processed. When the order is complete it is submitted to the V0 Gateway.
H.23.1	V0 Gateway Order	iPlanet web server	EcDmV0ToEcs Gateway	ODL, over sockets	The EOS Data Gateway submits an order to the V0 Gateway (EcDmV0ToEcsGateway), by converting the order into an Object Description Language (ODL) structure and passing that structure to a socket provided by the V0 Gateway. The correct socket is determined from configuration information in the Valids file. The order contains billing information including billing ID.

Table 3.6.11.3-1. Component Interaction Table: L-7 Ordering L70R Floating Scenes (10 of 16)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
H.23.2	Establish ECS User	EcDmV0ToEcsGateway	EcMsAcRegUserSrvr	CCS Middleware	The V0 Gateway retrieves the User Profile using an ECS Authenticator from the ODL message, which includes an encrypted User ID and Password. The User Registration database is replicated across DAACs, so the connection is made to the local User Registration Server.
H.23.3	Request Attribute Mapping	EcDmV0ToEcsGateway	EcDmDictServer	CtLib (RWDBTool)	The V0 Gateway translates the V0 terms from ODL into ECS names for request submittal using the Data Dictionary database. The interface is directly to the Data Dictionary database. The database name is retrieved from a configuration file.
H.24.1	Send L7 Acquire	EcDmV0ToEcsGateway	DORRAN	CCS Middleware	The V0 Gateway sends the request to the DORRAN system because the order is for L70R floating scene data and there is no order ID in the message.
H.24.2	B & A Verification	EcDmV0ToEcsGateway	DORRAN Comp.	CCS Middleware	The DORRAN system validates the request by checking the account level of the requester and the required funding level of the request.
H.25.1	DORRAN Return	DORRAN	EcDmV0ToEcsGateway	CCS Middleware	The operator validates the order and the DORRAN system sends back all the remaining granules to the V0 Gateway (EcDmV0ToEcsGateway) over a specific socket.
H.25.2	Create Tracked Order	EcDmV0ToEcsGateway	EcMsAcOrderSrvr	CCS Middleware	Create an order to be tracked within ECS. Initial status set to "Pending."
H.25.3	Store Tracked Order	EcMsAcOrderSrvr	Sybase ASE	CtLib	Create a tracked order in the database.
H.25.4	Create Tracked Request	EcDmV0ToEcsGateway	EcMsAcOrderSrvr	CCS Middleware	Create the Tracked Request within the Order. Initial status set to "Pending."
H.25.5	Store Tracked Request	EcMsAcOrderSrvr	Sybase ASE	CtLib	Create a tracked request in the order database.
H.26.1	Submit Acquire Request	EcDmV0ToEcsGateway	EcOmOrderManager	Socket	The V0 Gateway submits a request to the Order Manager via a socket.

Table 3.6.11.3-1. Component Interaction Table: L-7 Ordering L70R Floating Scenes (11 of 16)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
H.26.2	Save Request into OMS DB	EcOmOrder Manager	Sybase ASE	CtLib	The Order Manager (EcOmOrderManager) saves the request in the OMS database (DB).
H.27.1	Validate Request	EcOmOrder Manger	Sybase ASE	CtLib	The Order Manager retrieves a request from its DB, validates it and saves it back to the DB marked as ready to distribute if the request passes validation.
H.27.2	Dispatch Electronic Media Request	EcOmOrder Manager	EcOmSrCLI	UNIX	The Order Manager dispatches an electronic media request by forking a child process to execute the Order Manager command line interface, which actually interfaces with the SDSRV.
H.27.3	Connect to SDSRV	EcOmSrCLI	EcDsScience DataServer	CCS Middleware	The Order Manager command line interface (EcOmSrCLI) first connects to the Science Data Server (EcDsScienceDataServer). The Universal Reference (UR) of a granule being ordered determines the correct Science Data Server to choose. This is pertinent if there are multiple Science Data Servers in use at one DAAC in one mode.
H.27.4	Add granules to Session	EcOmSrCLI	EcDsScience DataServer	CCS Middleware	The Order Manager command line interface establishes the data context of the session with the Science Data Server by adding granules to the session. The Granule UR of the L70R floating Scene granules to be ordered is added to the Earth Science Data Type (ESDT) ReferenceCollector.

Table 3.6.11.3-1. Component Interaction Table: L-7 Ordering L70R Floating Scenes (12 of 16)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
H.27.5	Retrieve Granule Metadata from Inventory	EcDsScienceDataServer	Sybase ASE/SQS	CtLib	The Science Data Server completes establishing the data context by retrieving the metadata for the requested granules from the Sybase ASE/SQS database. The metadata for each granule is passed back to the reference objects for each granule.
H.27.6	Acquire Data	EcOmSrCLI	EcDsScienceDataServer	CCS Middleware	The Order Manager command line interface submits the order for L70R floating Scene granules by submitting an acquire request for the granules. The acquire request is for an Ftp Push of a specified granule in the ESDT ReferenceCollector. This request is asynchronous; meaning the return of the "submit" call of the request only contains the status of the request's submittal.

Table 3.6.11.3-1. Component Interaction Table: L-7 Ordering L70R Floating Scenes (13 of 16)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
H.28.1	Create Staging Disk	EcDsScienceDataServer	EcDsStRequestManagerServer	CCS Middleware	The Science Data Server (EcDsScienceDataServer) verifies access privileges for the granule and requests, via the Storage Management Request Manager (EcDsStRequestManagerServer), for the Staging Disk Server to create staging disk for working space, scene files and metadata files, which allocates space and passes back a reference to that disk space. The reference to the staging disk is determined from the Science Data Server configuration. The amount of staging disk to request is determined on a band-by-band basis. The Science Data Server requests twice the size of the first band, from metadata in the database, and requests more as needed to subset the subsequent files. Each request is for twice the size of the file to be subsetted.
H.29.1	STMGT Retrieve	EcDsScienceDataServer	EcDsStRequestManagerServer	CCS Middleware	The Science Data Server requests, via the Request Manager to the Archive Server, to retrieve the subinterval granule files to be subsetted. For a L70R floating Scene, these files include band files, calibration files, Landsat Processing System Metadata (MTA), Mirror Scan Correction Data (MSCD) and Payload Correction Data (PCD) files. This results in the files being staged to the working staging disk area. The correct archive object to request is determined from the information provided by the Science Data Server in the distribution request.

Table 3.6.11.3-1. Component Interaction Table: L-7 Ordering L70R Floating Scenes (14 of 16)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
H.30.1	L7 Scene creation	EcDsScienceDataServer	EcDsHdfEosServer	CCS Middleware	Since L70R Floating Scenes are virtual granules (i.e., the granules are represented in the inventory with their metadata, but the files which contain the data do not actually exist), the scene files must be extracted from the scene's parent subinterval. The scene files are created using internal subinterval subsetting methods. The subsetted files include band files, calibration files, Landsat Processing System Metadata (MTA), Mirror Scan Correction Data (MSCD), Payload Correction Data (PCD), and Calibration Parameter File (CPF) files. A metadata file for the L70R Floating Scene is created. Also, the Science Data Server searches the database for a comparable L7CPF file before performing reformatting. It keys the complete Distribution Product Metadata file (file extension is .MTP) and creates a Format 1 / Format 2 file. Then the subsetted data is reformatted before passing it to the Data Distribution Server.
H.31.1	Distribute Granules, Synchronous	EcDsScienceDataServer	EcDsDistributionServer	CCS Middleware	The Science Data Server submits a request to the Data Distribution Server. The request includes, for the granule, a reference to the metadata file. Other parameters such as FtpPushUserID, FtpPushPassword, FtpPushHostName, and FtpPushDestination from the acquire request are passed to The Data Distribution Server (EcDsDistributionServer).

Table 3.6.11.3-1. Component Interaction Table: L-7 Ordering L70R Floating Scenes (15 of 16)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
H.31.2	Update Tracked Request Status	EcDsDistributionServer	EcMsAcOrderSrvr	CCS Middleware	Update the status of the tracked request to "Active."
H.31.3	Update Tracked Request Status	EcMsAcOrderSrvr	Sybase ASE	CtLib	Update the Order Tracking Database with new status.
H.31.4	Request Claim Ownership	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Data Distribution Server sends a request to the Storage Management Request Manager to claim ownership of the staging disk created by the Science Data Server.
H.31.5	Claim Ownership	EcDsStRequestManagerServer	EcDsStStagingDiskServer	CCS Middleware	The Staging Disk Server (EcDsStStagingDiskServer) receives a request from the Storage Management Request Manager (EcDsStRequestManagerServer) to claim ownership of the staging disk created by the Science Data Server.
H.32.1	Create Staging Disk	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Data Distribution Server (EcDsDistributionServer), via a request to the Storage Management Request Manager (EcDsStRequestManagerServer), creates staging disks for the granule files in the archive. This allocates space and passes back a reference to that disk space. The reference to the staging disk is determined from the information passed by the Science Data Server in the distribution request, which is determined from the Science Data Server configuration. The amount of staging disk area to request is determined by the size of the subsetted/reformatted data.
H.32.2	Update Tracked Request Status	EcDsDistributionServer	EcMsAcOrderSrvr	CCS Middleware	Update the status of the tracked request to "Staging."

Table 3.6.11.3-1. Component Interaction Table: L-7 Ordering L70R Floating Scenes (16 of 16)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
H.32.3	Update Tracked Status	EcMsAcOrderSrvr	Sybase ASE	CtLib	Update the Order Tracking Database with new status.
H.32.4	Link files to Staging Disk	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Data Distribution Server links the subsetted and metadata files from the Science Data Server into the staging disk area created by the Staging Disk Server. This is accomplished with a request sent to the Request Manager and forwarded to the Staging Disk Server.
H.32.5	Update Tracked Request Status	EcDsDistributionServer	EcMsAcOrderSrvr	CCS Middleware	Update the status of the tracked request to "Transferring."
H.32.6	Update Tracked Status	EcMsAcOrderSrvr	Sybase ASE	CtLib	Update the Order Tracking Database with new status.
H.32.7	Update Tracked Request Status	EcDsDistributionServer	EcMsAcOrderSrvr	CCS Middleware	Update the status of the tracked request to "Shipped." Update the media quantity.
H.32.8	Update Tracked Status	EcMsAcOrderSrvr	Sybase ASE	CtLib	Update the Order Tracking Database with the media quantity and the new status.
H.33.1	Build Distribution Notice	EcDsDistributionServer	EcDsDistributionServer	Internal	The Data Distribution Server (EcDsDistributionServer) builds a distribution notice indicating that the L70R Floating Scene data has been pushed up to the user-specified host machine. The notice includes the order ID, the Universal Reference (UR) of the Scene granule, name of the Scene's files, size of files, and the host and directory names.
H.33.2	Send E-mail	EcDsDistributionServer	Science User	E-mail	The distribution notice is emailed to the Science User. The e-mail address is obtained from the User Profile.

3.6.12 L-7 Floating Scene Price Estimation Thread

This thread shows how the ECS supports price estimation of L-7 floating scenes.

3.6.12.1 L-7 Floating Scene Price Estimation Interaction Diagram - Domain View

Figure 3.6.12.1-1 depicts the L-7 floating scene price estimation interaction.

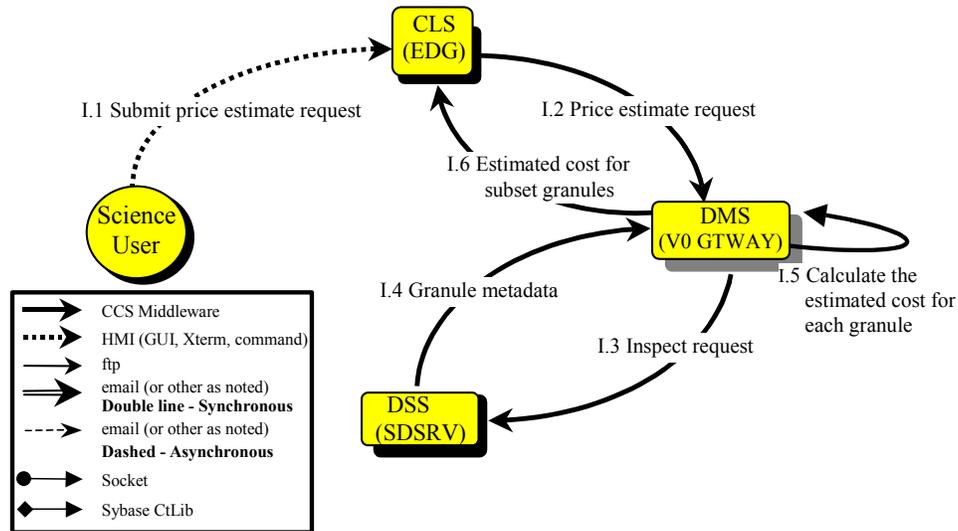


Figure 3.6.12.1-1. L-7 Floating Scenes Price Estimation Interaction Diagram

3.6.12.2 L-7 Floating Scenes Price Estimation – Domain View

Table 3.6.12.2-1 provides the Interaction – Domain View: L-7 Floating Scenes Price Estimation.

Table 3.6.12.2-1. Interaction Table - Domain View: L-7 Floating Scenes Price Estimation

Step	Event	Interface Client	Interface Provider	Data Issues	Step Preconditions	Description
I.1	Submit price estimate request	Science User	CLS (EDG)	None	Some L70R granules are selected	A Scientist selects the L70R granules of interest to get a price estimate. The Scientist clicks the "Price Estimate" button on the EOS Data Gateway's (EDG's) results screen.
I.2	Price estimate request	CLS (EDG)	DMS (V0 GTWAY)	None	None	The EOS Data Gateway submits the Science user's price estimate request in Object Description Language (ODL) form to the V0 Gateway.
I.3	Inspection request	DMS (V0 GTWAY)	DSS (SDSRV)	None	None	For each granule selected by the Science User, the V0 Gateway sends an inspect request to the Science Data Server (SDSRV) to get granule metadata.
I.4	Granule metadata	DSS (SDSRV)	DMS (V0 GTWAY)	None	None	The Science Data Server sends granule metadata to the V0 Gateway.
I.5	Estimated cost for each granule	DMS (V0 GTWAY)	DMS (V0 GTWAY)	None	Granule metadata is provided	The V0 Gateway calculates the estimated cost for each granule that has been subsetted by passing the granule's spatial extent and user provided spatial and band constraints to the pricing algorithm.
I.6	Estimated cost for all the granules in the request	DMS (V0 GTWAY)	CLS (EDG)	None	All the estimated costs have been calculated	The V0 Gateway sends the Price Estimate result back to the EOS Data Gateway.

3.6.12.3 L-7 Floating Scenes Price Estimation Component Interaction Table

Table 3.6.12.3-1 provides the Component Interaction: L-7 Floating Scene Price Estimate

**Table 3.6.12.3-1. Component Interaction Table: L-7 Floating Scene Price Estimate
(1 of 2)**

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
I.1.1	Startup EDG	Science User	iPlanet web server	Command	The Science User invokes a Netscape browser and navigates to the EOS Data Gateway home page.
I.1.2	Provide Query constraints. Submit Query, and Select Order	Science User	iPlanet web server	GUI	The Science User formulates and submits the query, waits for results and then selects the granules, their spatial and band sub-settings and places a price estimate request through the EOS Data Gateway.
I.2.1	V0 Gateway Price Estimate Request	iPlanet web server	EcDmV0 ToEcsGateway	ODL, over sockets	The EOS Data Gateway submits a price estimate request to the V0 Gateway, by converting the request criteria into an Object Description Language (ODL) structure and passing that structure to a socket provided by the V0 Gateway. The correct socket is determined from configuration information in the Valids file.
I.2.2	Establish ECS User	EcDmV0 ToEcsGateway	EcMsAc RegUser Srvr	CCS Middleware	The V0 Gateway retrieves the User Profile using an ECS Authenticator from the ODL message, which includes an encrypted User ID and Password. The User Registration database is replicated across DAACs, so the connection is made to the local User Registration Server.

**Table 3.6.12.3-1. Component Interaction Table: L-7 Floating Scene Price Estimate
(2 of 2)**

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
I.3.1	Connect to SDSRV	EcDmV0ToEcsGateway	EcDsScienceDataServer	CCS Middleware	The V0 Gateway (EcDmV0ToEcsGateway) first connects to the Science Data Server (EcDsScienceDataServer). The correct Science Data Server is determined from a configuration file.
I.3.2	SDSRV Query	EcDmV0ToEcsGateway	EcDsScienceDataServer	CCS Middleware	The V0 Gateway translates the query into a DsShESDTUR object. This object is handed to the search interface of the DsCI ESDT ReferenceCollector. This search method is synchronous, so the results of the search are returned to the calling function. It does an "Inspect" to the Science Data Server to get the spatial metadata. It first performs a GetQueryableParameter to determine all attributes associated with each granule.
I.3.3	Request Metadata	EcDsScienceDataServer	Sybase ASE/SQS	CtLib	The Science Data Server breaks down the Query object and translates it into a sequence of calls to the inventory database. The resultant row is converted into a data granule, with its metadata extracted from the database. This result is packaged and returned to the Query client.
I.4.1	Metadata Retrieval	EcDsScienceDataServer	EcDmV0ToEcsGateway	CCS Middleware	The V0 Gateway gets the Granule Spatial Extent for the granule.
I.5.1	Price Estimate	EcDmV0ToEcsGateway	EcDmV0ToEcsGateway	CCS Middleware	The V0 Gateway passes the Granule Spatial extent and the User specified spatial constraint to the scanline size algorithm to calculate the scanline size. Once the scanline size is calculated its price is calculated from a table look up in a configuration file.
I.6.1	Price Estimate Result	EcDmV0ToEcsGateway	iPlanet web server	ODL, over Sockets	When the V0 Gateway calculates the price, it is translated into Object Description Language (ODL) and passed back to the EOS Data Gateway. The correct socket for sending results to the EOS Data Gateway is the one used to submit the query. The EOS Data Gateway then displays the results of the query to the user.

3.6.13 Landsat-7 Error Handling

In Landsat operations, the system merges Format 1 data sets with Format 2 data sets. Since these data sets can be delivered at different times, the merge activity may or may not be completed correctly during an operational period of time. This capability allows the operator to invoke various commands to handle database merge “Errors.”

3.6.13.1 Landsat-7 Error Handling Thread Interaction Diagram - Domain View

Figure 3.6.13.1-1 depicts the L-7 Error Handling Interaction - Domain View.

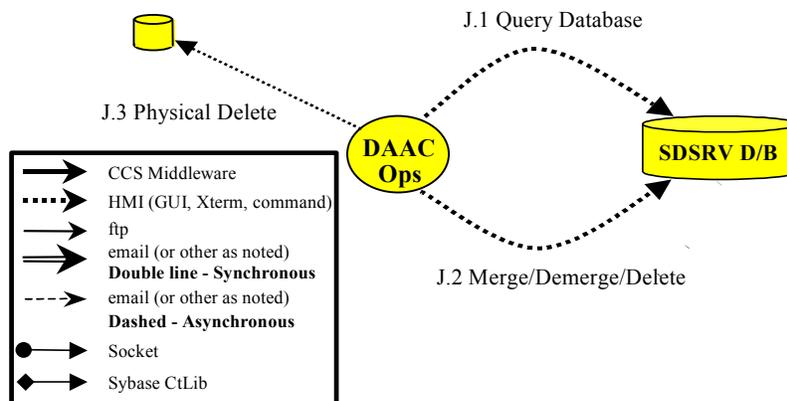


Figure 3.6.13.1-1. L-7 Error Handling Interaction Diagram

3.6.13.2 Landsat-7 Error Handling Thread Interaction Table - Domain View

Table 3.6.13.2-1 provides the Interaction – Domain View: L-7 Error Handling.

Table 3.6.13.2-1. Interaction Table - Domain View: L-7 Error Handling

Step	Event	Interface Client	Interface Provider	Data Issues	Step Preconditions	Description
J.1	Query Database	DAAC Ops	SDSRV Database	None	Invoke Utility	A DAAC Operator chooses a command to execute, a utility returns a list of candidate granules, and the operator selects from the listed granules.
J.2	Merge/De-merge/Delete	DAAC Ops	SDSRV Database	None	None	The utility executes a command on selected granules and updates a candidate granules list. The Delete command sets the DeleteFromArchive flag to Y.
J.3	Delete	DAAC Ops	Archive	None	None	The utility executes a command on selected granules and deletes them from the Archive.

3.6.13.3 Landsat-7 Error Handling Interaction Table

Table 3.6.13.3-1 provides the Component Interaction: L-7 Error Handling.

Table 3.6.13.3-1. Component Interaction Table: L-7 Error Handling

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
J.1.1	Select command choice	DAAC operator	Command Line Utility	Command	An Operator selects a command from the menu displayed by the command line utility.
J.1.2	Query Database	Command Line Utility	Sybase ASE SQL	CCS Middleware	The utility queries the Science Data Server database for granules satisfying the request and returns granules to the utility.
J.2.1	Select granules to update	DAAC operator	Command Line Utility	Command	An Operator selects granules to update and selects more granules, chooses another command or exits the utility.
J.2.2	Update Database	SDSRV Database	Sybase ASE SQL	CCS Middleware	The utility updates the Science Data Server database on selected granules.
J.3.1	Select granules to delete	DAAC operator	Command Line Utility	Command	An Operator selects granules to delete, chooses another command or exits the utility.
J.3.2	Update Database	SDSRV Database	Sybase ASE SQL	CCS Middleware	The utility updates the Science Data Server database on selected granules. It sets the deleteEffectiveDate flag.
J.3.3	Physical delete	DAAC operator	Command Line Utility	Command	An Operator runs the Deletion Cleanup utility.