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EOSDIS
Information Management System

EOS Data Gateway Messages and Development Data Dictionary

V0 and ASTER/ECS Message Passing Protocol Specification

Revision B

November 2002

National Aeronautics and Space Administration

Goddard Space Flight Center
Greenbelt, Maryland

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EOSDIS
Information Management System

EOS Data Gateway
Messages and Development
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V0 and ASTER/ECS Message Passing Protocol Specification

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Preface

This document is issued and maintained by the Flight Projects Code 423. Proposed changes shall be submitted to the CMO or the ESDIS Configuration Manager, along with supportive material justifying the proposed change. Changes to this document will be made by Documentation Change Notice (DCN) or by complete revision.

Questions or comments concerning this document should be addressed to:

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Change Record Page

ISSUE	DATE	PAGES AFFECTED	DESCRIPTION
Original	11/10/1999	All	CCR 423-42-06-001
Revision A	07/25/2000	All	CCR 423-42-06-002
CH01	01/28/2001	v, vii, ix, xi, 2-6, A-6, A-12, A-13, A-15, A-18, A-19, A-20, A-21, A-22, A-23, A-25, A-27, A-30, A-40, A-41, A-44, A-47, A-49, B-3, B-5, B-6, B-7, B-8, B-12, B-13	CCR 423-42-06-003
Revision B	11/01/2002	All	CCR 423-42-06-004-R1
CH01	10/20/2003	v, vii, ix, xi, xii, 2-7, 2-8, 2-9, 2-10, A-2, A-4, A-5, A-7, A-11, A-12, A-15, A-16, A-18, A-21, A-25 A-28, A-29, A-30, A-34, A-39, A-40, A-42, A-43, B-1, B-2, B-4, B-5, B-7, B-8, B-11, B-12	CCR 423-42-06-005

ISSUE	EFFECTIVE DATE	PAGES AFFECTED	DESCRIPTION	CCR APPROVED DATE
Retired	05/12/2010	All	CCR 423-0026	05/11/2010

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EOSDIS IMS
Message and Development
Data Dictionary
Change History

Change #	Changes	Date
1	Changes to ODL search structure INV, DIR, Prod Request, Browse	4/21/94
2	Changes to ODL search structure INV, DIR, Prod Request, Browse	4/22/94
3	Changes to ODL search structure Browse	5/6/94
4	Add Group=Version	5/23/94
5	Add Group = Version to Message Group Characteristics	5/25/94
6	Add Client Version, Billing ID, IMS Staff, Media Format, Protocol Version, and some other misc. changes.	7/25/94
7	Updates to RX and TX Client and Server	11/12/94
8	Delete Browse_Primary_Purpose and Browse_Production_History	12/6/94
9	Add SERVER_VERSION to VERSION Group	5/15/95
10	Add Chunking info, Package info updates, billing enhancements, ECS_AUTHENTICATOR, Interop, spec overhaul	9/18/95
11	Revisions to keywords, groups	9/28/95
12	Revisions to Message Objects, Groups	5/23/96
13	Add SESSION_ID	6/18/96
14	Add Legend and Browse_Header Groups	6/24/96
15	Extensive cleanup; addition of extended search, subsetting and processing options, data URLs, search by granule ids and by path/row, order status and cancel messages, dataset-based ordering, dataset-specific contact addresses, and ASTER/ECS modifications	5/22/97
16	Documentation of VALIDS; changes to dataset ordering; change in placement of geographic subset information; integrated browse only specification; data type of WRS_TYPE; clarification on status codes 19 and 29, new status code 30	9/12/97
17	Minor formatting modifications and typos corrected	9/24/97
18	Account-status messages, G-ring coverage, default values for specialized criteria, data center id in inventory and directory searches and in QUITs from data centers	6/17/98
19	Profile retrieval, profile update, and RESULT_GROUP messages; additional fields in LINE_ITEM, RANGE_LOC; typo corrections	5/14/1999
20	Corrections based on review of Change #19 (includes re-organization of tables in Appendix D for better printing)	8/12/99
21	Revision 3.0 to include messages for Landsat-7 subsetting (floating scenes), handling fee support, and ECS URLs and dataset disclaimers	5/17/00
22	Revision 3.1 adds support for ECS requirements of metadata tailoring in search results, additional Landsat 7 subsetting support for full subinterval ordering, and new handling fees based on media type.	10/5/00
23	Revision 3.4 rolls up changes made to support EDG 3.2, 3.3, and 3.4. This version adds message support for external subsetting, automated ECS user registration, and the ability of the client to “filter” the type of media options presented to the user based on the size of an individual granule that is being ordered.	7/1/02
24	In support of EDG 3.5, included a special authenticator field that will restrict use of some data from NASDA (Japan) to authorized users; added another ODL message that will enable data centers to provide more than one telephone contact number in Order submission message; added messages to enable data centers to restrict the size or number of granules that can be requested for a particular order media. Also, messages for URL’s (Data, Browse, Metadata) were enhanced and/or added for use with ECS Data Pools	4/18/03

CH01

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Appendix C: Status Codes

Appendix D: Client and Server State Tables

1. Introduction

This document defines the message structure to be used in the base protocol transfer between the EOS Data Gateway and Version 0 Servers and V0-ECS gateway which speak the V0 base protocol. This dictionary also includes information on messages and fields added to support the ASTER/ECS gateway. Some parts of these messages are never generated or are ignored by some of these systems. This document also defines "chunking algorithm" used to segment large inventory results messages into smaller pieces.

One advantage in processing ODL is that any added fields do not affect existing code as long as that code is not looking for those fields. Beyond this base protocol there may be additional messages and additional fields in messages passed by some V0 Clients and V0 Servers. The state machine details how to respond to unexpected requests. Additional fields in base ODL requests may be ignored; indeed, the servers will not even notice them if they do not look for them. Additional fields in replies will always be optional; servers should not need to provide information outside this base protocol.

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2. The V0 Protocol

The basic V0 Protocol consists of a set of requests sent by a client and responses sent by a server. (In some cases, a gateway may act as either client or server or both in exchanging messages. Throughout this document the term "client" should be understood to include gateways acting as clients.) Each connection is initiated by a client to a server socket, and a single ODL message is sent to make a request. The client listens for a response to its request on a socket and processes the result. For many messages, a single exchange of messages completes the transaction and the socket connection is closed. A few, notably inventory requests and integrated browse requests, require an exchange of multiple messages before the transaction is complete.

The basic messages are constructed in Object Description Language (ODL). These messages consist of an internal tree of unordered, labeled nodes. Nodes can be primitives of several types (including strings, integers, real numbers, enumerated symbols, and sequences of these) or can be subtrees (called aggregates). Aggregates may be repeated any number of times in the tree. The ODL library provides routines to translate between internal memory representations of these trees and external flat-ASCII representations. The IMS IK-library uses these routines to further provide services for transmitting and receiving trees over sockets. This forms the basis for message communication.

Appendix A lists all fields of the V0 protocol messages and describes the data type and meaning of each. Appendix B lists all aggregates and shows the subfields possible using a BNF-style notation. Because the ODL library provides routines to extract fields of interest, additional fields can be passed without problem. As a result, this document should be viewed as mainly defining the fields that must be present in each message and their meanings. As additional capabilities are added to clients and servers, an attempt has been made to keep all new fields optional so as to support backward compatibility and prevent any requirement that clients and servers be changed in lockstep.

2.1 What's New

The following items have been added or modified since the previous major release of this document (2.2) in June, 1998.

- G_RING_LOC, GLOBAL_GRANULE, PATH_ROW_LOC, POINT_LOC, POLYGON_LOC~2, and RANGE_LOC have been added as optional fields in LINE_ITEM.
- CENTROID_LAT and CENTROID_LON have been added as optional field in RANGE_LOC.
- The new messages, PROFILE_RETRIEVAL_REQUEST, PROFILE_RETRIEVAL_RESULT, PROFILE_UPDATE_REQUEST, and PROFILE_UPDATE_RESULT, have been added.
- The new message, RESULT_GROUP, has been added as an optional field in GRANULE.
- The "ODL Type" field in Appendix A for CRITERIA_DEFAULT and CRITERIA_VALUE failed to list "String" as one of the valid types. This has been corrected.
- Several typos have been corrected.
- Tables in Appendix D slightly re-organized so that they print better.

The following items have been added or modified since the previous major release of this document (2.1) in September, 1997.

- A new ACCOUNT_STATUS_REQUEST and ACCOUNT_STATUS_RESULT pair have been added to let ASF and other data centers who maintain billing account allow users to query their balance
- Coverage may now be reported using a G_RING_SPEC to provide a better description of the area covered by a granule; a bounding box for the coverage must still be supplied using a RANGE_SPEC or POLYGON_SPEC to accommodate older clients

- DATA_CENTER_ID has been added as an optional field in both INVENTORY_SEARCH and DIRECTORY_SEARCH since the Web gateway has been including this field for it's own purposes; servers should probably continue to ignore it
- DATA_CENTER_ID, while still technically optional in QUIT messages, must always be provided when the QUIT is sent by a server; it is not included in abort QUITs sent by the client; a note to this effect has been added
- The value ACADEMIC for TYPE has been replaced by K-12 and UNIVERSITY
- The value ORTHOGRAPHIC has been added to MAP_PROJECTION_TYPE
- SPATIAL and TEMPORAL in the valids file has been changed from a single 80-character string to a sequence of 256-character strings; as in all other cases, where a sequence of values is expected a single value is treated as a sequence of one, so this is backward compatible with the previous definition; the content of these fields remains freeform text
- The value **xxx* has been added to PACKAGE_ID
- A new CRITERIA_DEFAULT field has been added to SPECIALIZED_CRITERIA~1
- The following typos were corrected: VALID_ACCOUNT replaces VALID_ACCOUNTS; AUTHENTICATION replaces AUTHENTICATON; PACKAGE_ID is required in LINE_ITEM

The follow items were added or modified to the document in release 2.1 (relative to the previous release, 2.0 in May, 1997).

- The definition of the valids submission file has been added to the dictionary, along with text describing this file
- The definition of fields related to ordering by dataset have been modified in accordance with experience in implementing this feature, specifically:
  - PACKAGE_ID can be specified in a DATASET~1 or DATASET~2 to name packaging information to be associated with a dataset as a whole and to indicate it may be ordered as a whole
  - (PACKAGE)* may be specified in a DIRECTORY_RESULT or DATASET~2 to pass packaging information back with directory searches to allow ordering datasets as a whole
  - A new group, DATASET_ORDER_OPTIONS, has been added to the PACKAGE to allow specification of SPECIALIZED_CRITERIA~1 for dataset ordering in the same way SUBSET_OPTIONS and ORDER_OPTIONS are; DATASET_ORDER_SPATIAL and _TEMPORAL have been removed from DATASET~2 since they are redundant and not parallel to other option specifications
  - A new group, DATASET_ORDER_SPEC, has been added to the LINE_ITEM group to indicate the DATASET_ORDER_OPTIONS selected parallel to the SUBSET_SPEC and ORDER_SPEC, replacing the RANGE_LOC, START_DATE, and STOP_DATE fields previously provided
- The specification of geographic valued SUBSET_SPEC or ORDER_SPEC through a POINT_LOC, POLYGON_LOC~1, or RANGE_LOC has been moved inside the SPECIALIZED_CRITERIA~2 group to provide consistency with other specifications and as well as to make it available for EXTENDED_SEARCH and DATASET_ORDER_SPEC
- The new field INTEGRATED_BROWSE_ONLY was added to GRANULEs to be able to specify that integrated browse can be requested but not ftp browse; this was made a new field rather than a new value of the existing BROWSE_TYPE to improve backward compatibility
- The definition of WRS_TYPE was modified to match the implementation

- Status codes 19 and 29 have slightly changed, more precise meanings; status code 30 has been added

The follow items were added or modified to the document in release 2.0 (relative to the previous release, 1.0.18).

- Extensive cleanup; there were numerous errors in the parent/children listings, in optional fields that were not marked as being optional, and in fields that were used differently in various environments; to point out these essentially different definitions in this latter case, a new convention has been introduced using a tilde and digit following definitions that differ but use the same keyword; in addition, the data dictionary has been more rigorously defined to allow the creation of a protocol verifier tool for use in checking ODL messages being exchanged between ASTER and ECS
- Elimination of some fields that were never implemented, including XHAIRS and PACKAGE_CONTACT_ADDRESS; also elimination of ORG_CENTER in DIRECTORY_RESULT as a meaningful field and USER_AFFILIATION as a required field in BROWSE_REQUESTs
- ASTER/ECS additions; those additions that have been made for ASTER/ECS only and are not becoming a part of the basic V0 protocol have been identified in Appendix A in the notes for each field; these include:
    - Addition of optional fields XAR_ID and CLOUD_COVERAGE to INVENTORY_REQUEST
    - Addition of optional fields XAR_ID, SCENE_CLOUD_COVERAGE, and QUADRANT_CLOUD_COVERAGE to GRANULE in INVENTORY_RESULT
    - Mechanism to return multiple browse files in response to a single integrated browse request; includes an optional LAST_BROWSE=0 in INTEGRATED_BROWSE_RESULT message other than the last, ACKNOWLEDGE by the client after each image is received (other than the last), and looping in the state machine to receive additional INTEGRATED_BROWSE_RESULT messages and images
    - Change in structure of PRODUCT_REQUEST replacing LINE_ITEM and its substructure with a new aggregate called MEDIA, that insures grouping by media type and format; also use of TYPE_ID and FORMAT_ID in place of MEDIA_TYPE~2 and MEDIA_FORMAT~2 keywords, and use of INITIATOR_REQUEST_ID in place of REQUEST_ID; additional fields under MEDIA allow specification of SENSOR_TYPE, PRODUCT_TYPE, and PRODUCT_GENERATION parameters (similar to, but less flexible than, the ORDER_SPEC capabilities being added for ASF and others)
    - New PRICE_ESTIMATE_REQUEST and _RESULT added to get price estimate within the order process
    - New variation of dataset information DATASET~3 returned in DIRECTORY_RESULT that gives GCMD-like information directly without requiring separate query to GCMD
- ASTER/ECS additions also being adopted for V0 use
    - New PRODUCT_STATUS_REQUEST and PRODUCT_STATUS_INFO messages to query status of order; there are a few differences in some fields between the ASTER/ECS version and the V0 version
    - New PRODUCT_CANCEL_REQUEST and PRODUCT_CANCEL_RESULT message to cancel order or suborder; again there are a few differences
- V0 extensions that came largely out of the work of Helen Conover with the V0 DAACs and the international community, including:
    - Extended search capability: allowing users to specify extended searches using dataset-specific criteria; includes definition of new support file information containing criteria and dependencies with other valids, new optional EXTENDED_SEARCH group in INVENTORY_SEARCHES, and new optional EXTENDED_CRITERIA_USED and SPECIALIZED_RESULTS groups within INVENTORY_RESULTs returned by DAACs choosing to implement these searches
    - Search by path/row: allowing client to return Landsat path/row coordinates selected by the user in addition

to existing geographic location information; knowledgeable servers can use this to return granules specific to this measuring system; also allows coverage in GRANULE to be returned by path/row in addition to other geographic terms; in all cases clients and servers not aware of this information can ignore it and use conventional specifications

- Search by granule id: allowing user to specify one or more strings of granule ids (perhaps with wildcards embedded) for retrieval from a specific dataset; new optional field in INVENTORY_SEARCH of GRANULE_ID_REQ to specify search string; geographic information is not required for this search and servers not recognizing GRANULE_ID_REQ field will simply respond often with a message about failure to specify geographic area of search; this addition has made the geographic specification, previously required, now optional; source, sensor, campaign, processing level, and parameter are not available with search by granule id; dataset name is required in this case
- Granule subsetting during order: new optional SUBSET_OPTIONS group returned in PACKAGE information of INVENTORY_RESULT names SPECIALIZED_CRITERIA that may be used to specify subsetting during ordering; no change required by DAACs not wishing to implement this; new optional SUBSET_SPEC in LINE_ITEM returns values selected by users
- Product generation specification: new optional ORDER_OPTIONS group returned in PACKAGE information of INVENTORY_RESULT names SPECIALIZED_CRITERIA that may be used to specify product generation parameters to be used, analogous to the SUBSET_OPTIONS above; new optional ORDER_SPEC in LINE_ITEM returns values selected by users
- Dataset URLs: optional groups DATA_URL, DATASET_HOME_PAGE, SPECIALIZED_SEARCH_URL, BROWSE_URL, and MISC_UL have been added to a number of areas to allow servers to return pointers to additional capabilities to clients
- Dataset-based ordering: several new optional fields have been added to DATASET~2 to allow the possibility of ordering directly from a directory search; this is a new area being explored by the V0 team
- A new value of POLE_INCLUDED=B was added for datasets covering both poles

2.2 Basic Protocol

The basic protocol consists of a set of request and response messages implemented between V0 clients (including the Web gateway) and V0 servers (including those of various international partners), and include certain ancillary messages used to support these (such as ACKNOWLEDGE and QUIT). The structure of each message is shown in Appendix B. The definitions of the individual fields are shown in Appendix A. The state machines that control the passing of the messages is shown in Appendix D. Every message is converted from an ODL memory tree to a flat text file (called an ODL label), which is then sent on a Unix socket, preceded by a four-byte integer size field (transmitted in network order) that gives the length of the label. When received the label is converted back to a memory tree. The low-level routines of the V0 IMS IK library that transmit and receive socket information also handle conversion between trees and labels, transmission and receipt of the size field, and addition and updating of the MONITOR and VERSION groups.

Note that the basic protocol does not include support for guide document searching. These searches are performed using WAIS queries against standard WAIS servers, and http protocol for following internal hypertext linkage. No ODL messages are used to support this.

2.2.1 Inventory Searching

An inventory search is initiated by a client sending an INVENTORY_SEARCH message. Normally this includes at a minimum a source, sensor, or parameter selection and a geographic specification. Servers are expected to return information about granules that satisfy at least one of the values in each of the fields requested (i.e., the values within each field are OR'ed for the search, and the fields are AND'ed together). In addition to the traditional fields (source, sensor, parameter, processing level, data center, dataset, campaign, geographic and temporal limits, browse-

only, and day/night flag), new fields have recently been defined. For ASTER/ECS, CLOUD_COVERAGE and XAR_ID are considered to be special search criteria that may be specified and will be AND'ed with other criteria. For V0, the new EXTENDED_SEARCH group allows dataset-specific search criteria to be added; this will handle not only items like cloud cover but provide an extensible mechanism whereby new criteria can be added by the science team without requiring further changes to the protocol.

An alternative search is provided if the GRANULE_ID_REQ field is present. In this case, specific granule identifiers (possibly including wildcard characters) are being requested within specific DATASET_ID values which must accompany them. Source, sensor, campaign, parameter, and processing level may not be specified with a granule id search.

Servers respond with a sequence of zero or more INVENTORY_RESULT messages, each of which are acknowledged by the client, followed by a QUIT message (to indicate the end of the transaction). The group of INVENTORY_RESULT messages act together to form a single logical INVENTORY_RESULT, but are segmented into individual messages, or chunks, to make communications more manageable. A client can also return an ABORT message (actually a form of QUIT) at any time to request premature termination of the search. The rules for segmenting the INVENTORY_RESULT into chunks are discussed in section 3.

Included in the INVENTORY_RESULT is metadata for individual granules matching the inventory request. Information is also returned indicating which granules have browse products available. PACKAGE information is also returned that provide the information to allow the user to order packages containing the granules.

2.2.2 Directory Searching

A directory search is initiated by a client sending a DIRECTORY_SEARCH message. Servers respond with a DIRECTORY_RESULT message whose primary function is to provide the Global Change Master Directory DIF identifier for each matching dataset. Since these identifiers are unique, the formerly optional ORG_CENTER has been dropped and will be ignored if transmitted. Newly added to the DIRECTORY_RESULT are optional fields to allow data centers to provide information to allow clients to do dataset-based ordering.

2.2.3 Browse Requests

Using information returned in an inventory search, a user can request browse products either to be staged for ftp pickup or to be returned directly through the V0 protocol. The client sends a BROWSE_REQUEST message which includes a BROWSE_TYPE field to indicate whether an ftp or integrated transfer is desired. The server responds with either an FTP_BROWSE_RESULT message to acknowledge the receipt of the request (the details of the ftp pickup are transmitted in a subsequent email message to the requester) or with a sequence of browse files each prefixed by an INTEGRATED_BROWSE_RESULT message which contains the size of the file that follows it. V0 systems are normally limited to a single integrated browse file per request. The ability to handle multiple files per request was added for ASTER/ECS. A special flag LAST_BROWSE=0 is returned in all but the last INTEGRATED_BROWSE_RESULT which will prompt knowledgeable clients to return an ACKNOWLEDGE and loop for the next file. A client not programmed to handle multiple files will overlook the LAST_BROWSE=0 flag and terminate the connection after receiving the first file, which will result in the server shutting its communication with that client due to a unexpectedly closed connection. If a client that can handle multiple files talks to a server that cannot, the single file returned will not have the LAST_BROWSE=0 flag and will be treated as simply returning only a single file.

2.2.4 Product Request

Using information returned in an inventory search, a user can order product packages from the data center. A PRODUCT_REQUEST message is sent by the client to a data center which describes one or more LINE_ITEMs to be ordered. (ASTER/ECS require orders to be pre-grouped by media, so the MEDIA group replaces the V0 LINE_ITEM group.) Once the PRODUCT_REQUEST is received by a server, it returns a PRODUCT_RESULT to acknowledge the request. Tracking information is returned in the result, since there is no guarantee of acceptance of the request by the result message.

2.2.5 Account Status

While most archives do not support accounting or billing, a few do. With version 2.2 of this Data Dictionary, a new request has been added to query the status of a user's accounts. The client sends the same CONTACT_ADDRESS information in an ACCOUNT_STATUS_REQUEST that would be sent with a product request and receives back an ACCOUNT_STATUS_RESULT listing all of the user's VALID_ACCOUNTs. A new ACCOUNT_COMMENT field has been added to allow arbitrary text information to be returned providing archive-specific accounting information.

2.2.6 Price Estimate (ECS)

With version 3.0 of this Data Dictionary, a new request has been added to do a price estimate. This was implemented specifically to support Landsat 7 subsetting of subinterval data (floating scenes). Because the cost of a floating scene depends on the subsetting criteria chosen and the algorithm is complex and subject to change, it was decided that the cost calculation should be done by a special cost estimate server to be provided by the ECS system. The selected subsetting criteria, along with other packaging information, is sent in a LINE_ITEM to a price estimate server using a PRICE_ESTIMATE_REQUEST message. The response from the price estimate server with the estimated cost is sent via a PRICE_ESTIMATE_RESULT message. The estimated cost is then displayed to the user before the user places an order for the data. While this was added specifically for Landsat 7 floating scenes, the message is general enough to be used for other data if needed.

2.2.7 Handling Fee

A special feature added for EDC but able to be used by any EOS data center, handling fee is a set dollar amount that is added to the total cost of an order if a user orders items from particular datasets. For example, the handling fee for a Landsat 7 dataset is $3.50 (as of September 1999). HANDLING_FEE is applied at the dataset level and is an optional component of the DATASET~1 group. HANDLING_FEE is itself a group: the required field PRICE contains the handling fee as returned by the DAAC.

2.2.8 User Tailoring of Metadata Returned in a Search

This feature allows a user to choose what metadata will be returned from a search and displayed by the EDG. Users can choose a default list of metadata or choose specific items from a pull-down menu in the EDG. Metadata that is included as part of the default list are identified via the valids with a DEFAULT = Y flag. Metadata which can be selected via the EDG menus are identified via the valids with a RESULTS_SELECTABLE = Y flag. If a user chooses specific metadata, these metadata attributes are sent in the search ODL via RESULT_ATTRIBUTES.

2.2.9 Filtering of Media Options For Ordering

In EDG version 3.4, any order for a "large" single granule is checked against the capacity of certain DAAC-selected media options. If any of those options does not have large enough capacity to hold the desired granule, then that option is filtered out and not presented to the user. Filtering is handled via the MEDIA_MAXIMUM_CAPACITY group its MEDIA_MB_CAPACITY child. The EDG reads the MEDIA_MB_CAPACITY (from either the WWWVALIDS.conf file or directly from the INVENTORY_RESULT) for the particular TYPE_ID and compares the capacity value with the size of the granule that will be ordered.

2.2.10 External Subsetter Support

Version 3.4 of EDG supports the subsetting software systems developed by the University of Alabama and integrated with the V0/ECS Gateway. As part of the standard data ordering process in EDG, subsetting parameters needed by the external subsetter are passed to the V0/ECS gateway (which in turn submits a subset request to the subsetting software). To accomplish this, extensions to SPECIALIZED_CRITERIA were developed to include maximum and minimum values based on ECS product specific attributes.

2.2.11 Automated Registration in ECS

New ODL keywords added in release 3.4 allow a user to register automatically with ECS, and, once registered, to modify his account information. Registration functions include:

- PROFILE_SUBMIT_REQUEST: Sends user profile information to the ECS User Profile Gateway to set up a new account
- PROFILE_SUBMIT_RESULT: Acknowledges success/failure of profile submission
- USER_PASSWORD_CHANGE_REQUEST: Submits a new authenticator that is needed to change a password of an existing user profile
- USER_PASSWORD_CHANGE_RESULT: Acknowledges success/failure of password change submission
- PROFILE_RETRIEVAL_REQUEST: Request to ECS to send back to EDG a user's profile information
- PROFILE_RETRIEVAL_RESULT: The user profile information returned from ECS to EDG.
- PROFILE_UPDATE_REQUEST: A request to update the current user profile with new information
- PROFILE_UPDATE_RESULT: Acknowledges success/failure of profile update request

2.2.12 Special Authentication for NASDA (Japan) Data

CH01

Certain data available from the Japanese Space Agency will require a special user code for users to access these data. This user code is entered into an EDG field on the user interface. EDG places this code into the NASDA_AUTHENTICATION_KEY. The value in the NASDA_AUTHENTICATION_KEY is then encrypted and placed in the NASDA_AUTHENTICATOR field, which is placed in all messages sent by the EDG. This authenticator field is understood by the NASDA data server; all other servers ignore this field.

2.2.13 Media Restrictions for Ordered Granules

As a continuation to Section 2.2.9, data centers can also restrict the total volume of data or total number of granules ordered on a given media. This is done via the REQUEST_SIZE_MB and REQUEST_SIZE_GRANULES, respectively. These values are set by the data centers and represent for a given media, the maximum values (in megabytes and number of granules respectively) that can fit on that media.

2.2.14 Interaction with ECS Data Pools

For granules that reside on the ECS Data Pools, ECS returns one or more URLs that enable a user to access data, browse, or metadata information for that granule on the data pool. BROWSE_URL, DATA_URL, and/or METADATA_URL is returned to the EOS Data Gateway as part of the DIRECT_ACCESS group.

2.3 ASTER/ECS Extensions

With the exception of a few areas noted above, the ASTER/ECS uses the same protocol to accomplish the requests of the basic protocol. However a few additional messages were added for ASTER/ECS use. The messages exchanged between ASTER GDS and the ASTER Gateway provided by ECS are sometimes referred to as the V0' protocol. Some of these are also being adopted as V0 extensions as well.

2.3.1 Directory Searching

In order to avoid the need for ASTER clients to search the GCMD directly the way V0 clients do, directory information has been added to the DIRECTORY_RESULT message returned by the ASTER Gateway. These fields form the group described as DATASET~3 in the appendices.

2.3.2 Product Status

A product status request allows a client to request status on orders using request ids. In ASTER/ECS, this is the INITIATOR_REQUEST_ID assigned by the initiating side of the order. For V0 adoption, this is the REQUEST_ID~2 which may be the original REQUEST_ID~1 assigned by the client, the DAAC_ORDER_ID assigned by the data center, or a combination. Not all data centers are expected to necessarily handle all forms. In fact, the DAAC_ORDER_ID was added specifically for data centers who had no way to track orders by a client-selected id. The server returns a PRODUCT_STATUS_INFO message which may break the order into subrequests, each with their own individual status.

2.3.3 Product Cancel

A product cancel request allows a client to request cancellation of a complete order or of subrequests within an order. The operational scenario for canceling a subrequest presumes the user issues a product status request first to obtain subrequest ids for use in the cancel request. The PRODUCT_CANCEL_REQUEST can then be sent to the server for the full order or for one or more subrequests. The server returns a PRODUCT_CANCEL_RESULT to indicate its handling of the request. V0 is considering adoption of this message.

2.3.4 Price Estimate

The V0 protocol contains insufficient information in the PACKAGE group for ASTER/ECS to calculate a price estimate for the user. To provide greater flexibility in estimating the price, a new message has been added that can allow the estimate to take into account product generation parameters. The PRICE_ESTIMATE_REQUEST message is always issued before a product request in the ASTER/ECS environment by the client and the server returns a PRICE_ESTIMATE_RESULT.

2.4 Use of "&" as a Special ODL Character

CH01

The ampersand character "&" is a special ODL character that is used to denote continuation of an ODL statement onto another line. Two cases arise in the handling of this special character:

a. Quoted Strings that contain embedded ampersand characters that do not span multiple lines.
If the string does not span multiple lines then the special character is not interpreted in any special way and is part of the original string. This is shown in the ODL below.

```
GROUP                   = INVENTORY_SEARCH
      MESSAGE_ID            = "B1049131364"
      DATASET_ID            = (
                  "LAI & PAR DATA: LIGHT BAR - KSU (FIFE)")
      GRANULE_LIMIT         = 1
      GUIDE_LIMIT           = 100
      TIME_LIMIT            = 90
      DATA_CENTER_ID        = (
                  "ORNL")

GROUP                   = RANGE_LOC
      NORTH_LATITUDE        = 90.0000
      SOUTH_LATITUDE        = -90.0000
      WEST_LONGITUDE        = -180.0000
```

CH01

```
        EAST_LONGITUDE        = 180.0000
    END_GROUP               = RANGE_LOC

    END_GROUP               = INVENTORY_SEARCH

    END
```

Any code that reads this ODL fragment would treat the ampersand embedded in the DATASET_ID as part of the string value.

b. If the quoted string spans multiple lines as in the ODL below and the ampersand special character appears as the last character of any line, it is treated as a continuation character and any code that reads this ODL should delete the character from the input stream and splice the lines together, e.g.,

```
    GRANULE_ID           = "NHAH1/H1/1/N/9/HA/93-6-25-6149000/93-6-&
  25-6173000"
```

would be interpreted as:

```
    GRANULE_ID = "NHAH1/H1/1/N/9/HA/93-6-25-6149000/93-6-25-6173000"
```

and

```
    PARAMETER =
("http://pubweb.parc.xerox.com:8080/map/db=usa&s=alltypes&ht=0.7&
  5&lat=40&lon=50")
```

would be interpreted as:

```
    PARAMETER =
("http://pubweb.parc.xerox.com:8080/map/db=usa&s=alltypes&ht=0.75&lat=40&lon=
50")
```

Note:

1. the deleted "&" character from the end of the first line
2. If this ODL fragment were to be printed (or written out) the long string would be split into multiple lines as shown under where the last ampersand represents a continuation character, e.g..

```
          PARAMETER                =
("http://pubweb.parc.xerox.com:8080/map/db=us&
                  a&s=alltypes&ht=0.75&lat=40&lon=50")
```

Caveat: It has been found that some data sets with embedded "&" cause a problem in ODL, because the "&" happens to fall into a column where it is interpreted as a continuation character. The column number varies depending on how the string is shifted by the ODL library. When this happened, the data set name needed to be renamed as a workaround for this situation.

CH01

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3. Chunking Protocol

When the Inventory Results generated from a user query are large, an Inventory Results message can be broken up into "chunks" according to a set of rules. Chunking helps breakup large Inventory Results into smaller but complete trees. The chunks are composed of basic types of information; Inventory Result Prefix, Dataset group, and Granule Group. Package Information can be integrated into the tree according to three options:

Option 1. - Adding All Package Groups in front of the First Dataset Group

Option 2. - Adding Relevant Package Groups in front of each Dataset Group

Option 3. - Adding Relevant Package Groups in each Dataset Group

The following example illustrates the structure, guidelines, and options for placing Package Information for chunking:

INVENTORY RESULT PREFIX:

Info: (Message_Id, Data_Center, Status_Code, Status_Code_Comment, Unmapped_Field)

Rule: (Required for each tree/chunk)

Option 1 for Package Information (0 - many per chunk)

Option 2 for Package Information (0 - many per chunk)

DATASET GROUP

Info: (Metadata within the Dataset group)

Rule: (0 - many [current restriction is: 1 - many]; avoid repeating in other chunks)

Option 3 for Package Information (0 - many per chunk)

GRANULE GROUP

Info: (Metadata within the Granule group)

Rule: (0 - many per chunk)

The current implementation requires each chunk contain at least Inventory Result Prefix information and Dataset group metadata. When this restriction is removed, then a 0 - or - more option will permit the following combinations of information for chunks:

a. Chunk - Inv Result Prefix + Package Information

b. Chunk - Inv Result Prefix + Package Information + Dataset metadata

c. Chunk - Inv Result Prefix + Dataset metadata + Granules

d. Chunk - Inv Result Prefix + Dataset metadata + Package Information + Granules

Chunking can specify the total number of granules returned in an Inventory Results message. The size of each chunk need not be uniform in size although a past guideline constraint for a granule-per-chunk cap of 51, yielding a chunk size of 64Kbytes, is useful but not mandatory. Figure 1 depicts an example of the possible ways information in a 'chunked' Inventory Result message can be organized. Note that the number of granules per dataset may or may not fit in one chunk. The average size allowed for a chunk helps decide what combination of information will be fit

into it. This is affected by the different options selected for sending package information.

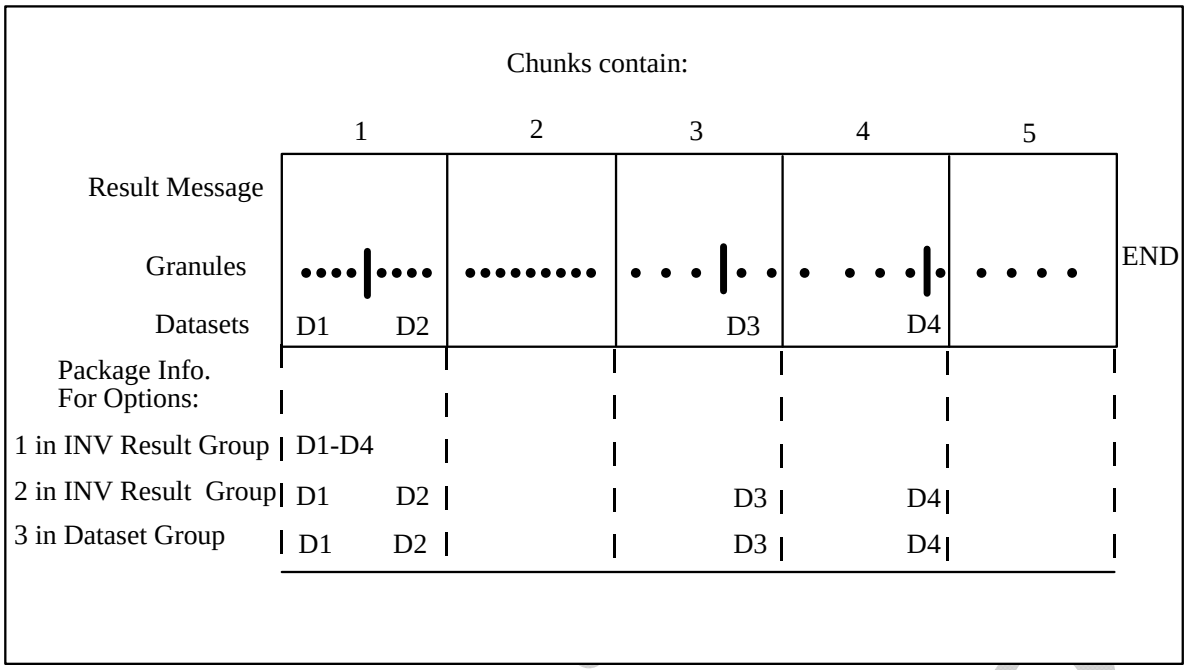

Figure 1 Illustration of Chunking an Inventory Results Message

3.1 Rules and Guidelines

Size of each chunk need not be uniform but should be moderate in size (64kbytes).

The size of the package information for granules in a particular Inventory Results message can be either consolidated in the first chunk (Option 1 if it fits within the chunk size cap) or distributed in other chunks according to Options 2 and 3.

Avoid repeating the Dataset metadata and package information once provided in an appropriate chunk.

Granules are added to a dataset group until the granules per chunk limit is reached. Remaining granules can be put into the next chunk(s).

Use the NUMBER_OF_GRANULE_HITS field to store the total granule count for the result message following the last granule of each dataset in the sequence.

An Inventory Result chunk can have several dataset groups or granules from dataset can be spread across several Inventory Result chunks.

Do not break ODL trees across groups (any chunk is a complete tree).

Chunks come in a sequence.

Each Result message is expected to have the Message_ID and Monitor group added.

Dataset metadata is included only before the first granule.

A chunk can contain more than one dataset and their granules.

4. Valids Submission

The V0 clients present users with lists of valid values for various fields from which to construct their searches. In addition to knowing these values, the clients know dependencies among them. This allows them to narrow selections for various fields based on values entered in earlier fields. It also allows the client to limit the data centers to which it sends the request even when the user does not make such limitations himself.

The basis for these valid dependencies is in information provided by the archives. Whenever an archive wants to add new datasets or otherwise change its valids, it is currently required to send to the V0 Science and Operations team a file containing an ODL tree (label) describing the valids for its entire holdings. This is combined with the most recently submitted tree from all other archives to form a set of support files used by the clients to handle query construction. While discussions are ongoing about changing this from a batch system to some form of transactional database, the current document describes the format of the ODL tree as it is currently implemented.

The submitted file contains what amounts to a single ODL group called VALIDS followed by a single line containing "END". The VALIDS group contains a DATA_CENTER_ID field naming the archive and one or more DATASET~4 groups describing the datasets available from that archive. In practice, it is preferable to submit a file which actually leaves off the surrounding GROUP=VALIDS … END_GROUP = VALIDS lines and just contains the DATA_CENTER_ID field, one or more DATASET~4 groups, and the final END line.

The DATASET~4 includes entries for SOURCE, SENSOR, PARAMETER, and a DEPENDENCY group, among others. The DEPENDENCY group can also have SOURCE, SENSOR, and PARAMETER entries, and can be repeated. This allows a data center to simply list the sources, sensors, and parameters that are available within a dataset, or to group them into dependency groups that more completely describe the connections between valids. For example,

```
GROUP = DATASET
        DATASET_ID = "GPCC GLOBAL PRECIPITATION"
                ;
        SOURCE = ("NOAA", "GMS", "METEOSAT", "GOES", "DMSP")
        SENSOR = ("SSM/I", "IR")
        PARAMETER = ("PRECIPITATION")
END_GROUP = DATASET
```

indicates that this dataset includes sensors SSM/I and IR which measure precipitation from the listed sources. However,

```
GROUP = DATASET
        DATASET_ID = "GPCC GLOBAL PRECIPITATION"
                ;
        PARAMETER = ("PRECIPITATION")
        GROUP = DEPENDENCY
                SOURCE = ("NOAA", "GMS", "METEOSAT", "GOES")
                SENSOR = ("SSM/I")
        END_GROUP = DEPENDENCY
```

```
        GROUP = DEPENDENCY
                SOURCE = ("DMSP")
                SENSOR = ("IR")
        END_GROUP = DEPENDENCY
END_GROUP = DATASET
```

further indicates the IR sensor is used only for the DMSP data. If a user selects IR and then looks at compatible sources, he will see only DMSP if the valids have been submitted in the latter way; in the former, he would see all five sensors.

Note that PARAMETERs may also be specified within the DEPENDENCY groups. Each of the three fields may be specified at either the DATASET~4 level directly or in all DEPENDENCY groups within the DATASET~4; none may be specified at both levels.

The ingest routine compares valid values to a master list maintained by the Science and Operations staff. This comparison is case blind and the case shifting provided by the master list is used in the final valids, so the case in the valids file is not important. Fields (like SENSOR) that are supposed to be sequence strings may be given as scalars (i.e., the parentheses may be omitted) if only a single value is present: SENSOR = "IR".

`

Appendix A: V0 IMS Data Dictionary

Note: Keywords containing a tilde (~) are variants. The part following the ~ is not an actual part of the keyword but is used to distinguish conflicting definitions in the data dictionary. Only the part before the tilde is used in actual ODL messages.

ABORT
Maximum length:
Possible values:
ODL Type: Aggregate
Definition: An abort message is sent by the client to request abortion of various searches. There is no literal abort message per se; in reality, it is a QUIT message with STATUS_CODE = 1000.
Parent Groups:
Children:

ACCOUNT_COMMENT
Maximum length: 256
Possible values:
ODL Type: Sequence String
Definition: Notes on the status of the account.
Parent Groups: VALID_ACCOUNT
Children:

ACCOUNT_NUMBER
Maximum length: 80
Possible values:
ODL Type: String
Definition: Account identifier provided by a DAAC.
Parent Groups: VALID_ACCOUNT
Children:

ACCOUNT_STATUS_REQUEST
Maximum length:
Possible values:
ODL Type: Aggregate
Definition: Provides data for query of account status for all accounts for the user described by the CONTACT_ADDRESS at data center.
Parent Groups:
Children: [AUTHENTICATOR], CONTACT_ADDRESS, DATA_CENTER_ID, [ECS_AUTHENTICATOR], MESSAGE_ID, MONITOR, VERSION

ACCOUNT_STATUS_RESULT
Maximum length:
Possible values:
ODL Type: Aggregate
Definition: Result of status request for this user.
Parent Groups:
Children: DATA_CENTER_ID, MESSAGE_ID, MONITOR, STATUS_CODE, [STATUS_CODE_COMMENT], [VALID_ACCOUNT], VERSION

ACKNOWLEDGE **Maximum length:**
Possible values: **ODL Type:** Aggregate
Definition: Message sent to acknowledge receipt by client of inventory search chunk or inventory browse file.

Used on inventory browse only with ASTER extensions for multiple browse files per granule.

Parent Groups:
Children: [MESSAGE_ID], MONITOR, VERSION

ADD_PHONE **Maximum length:** 80 CH01
Possible values: **ODL Type:** String
Definition: Additional telephone numbers for contacting the data center
Parent Groups: DAAC_CONTACT_ADDRESS
Children:

ADDITIONAL_INFO **Maximum length:** 80
Possible values: **ODL Type:** String
Definition: User supplied information about order, applied to each package (line item).
Parent Groups: LINE_ITEM
Children:

ADDRESS **Maximum length:** 32
Possible values: **ODL Type:** Sequence String
Definition: Mailing (street) address for parent group, up to three lines.
Should be no more than 3 strings in the sequence.
Parent Groups: BILLING_ADDRESS, CONTACT_ADDRESS, DAAC_CONTACT_ADDRESS, DATA_SET_CONTACT, SHIPPING_ADDRESS
Children:

ALL_METADATA **Maximum length:** 1
Possible values: Y, N **ODL Type:** String
Definition: Return all metadata in inventory search results.
Parent Groups: INVENTORY_SEARCH
Children:

APPLY_HANDLING_FEE **Maximum length:** 3
Possible values: Y, N **ODL Type:** String
Definition: Identifies those media types that have a charge for handling added to the total price of the product (See HANDLING_FEE).
Parent Groups: MEDIA_TYPE~1
Children:

APPROX_COST **Maximum length:** 16
Possible values: 0.0 to 9999999999999.99 **ODL Type:** Real
Definition: Estimated cost for the selected data package.
Parent Groups: MEDIA_FORMAT~1
Children:

AUTHENTICATION_KEY **Maximum length:** 16

Possible values: **ODL Type:** String

Definition: Password provided by user for accessing restricted data.

Identified on profile screen as "Restricted Data Access Key."

Parent Groups:

Children:

AUTHENTICATOR **Maximum length:** 16

Possible values: **ODL Type:** String

Definition: Encrypted value from authentication key, last name, first name. Passed with every request (if authentication key is not blank).

If AUTHENTICATION_KEY is null, so will this be. Encryption is blind to case and non-alphanumeric characters.

Parent Groups: ACCOUNT_STATUS_REQUEST, BROWSE_REQUEST, DIRECTORY_SEARCH, INVENTORY_SEARCH, PRODUCT_CANCEL_REQUEST, PRODUCT_REQUEST, PRODUCT_STATUS_REQUEST, QUIT

Children:

BALANCE **Maximum length:** 16

Possible values: **ODL Type:** Real

Definition: Dollar amount remaining for a particular account.

Parent Groups: VALID_ACCOUNT

Children:

BILLING_ADDRESS **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: Billing address for data order.

Parent Groups: PRODUCT_REQUEST, PROFILE_RETRIEVAL_RESULT, PROFILE_SUBMIT_REQUEST, PROFILE_UPDATE_REQUEST

Children: [ADDRESS], CITY, COUNTRY, [EMAIL], [FAX], FIRST_NAME, LAST_NAME, [MIDDLE_INITIAL], [ORGANIZATION], PHONE, [STATE], [TITLE], [ZIP]

BILLING_ID **Maximum length:** 80

Possible values: **ODL Type:** String

Definition: Account number that the user enters or selects from the ACCOUNT_NUMBERs in one of the VALID_ACCOUNTs.

Parent Groups: LINE_ITEM

Children:

BROWSE **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: Indicates what kinds of browse products are available from the archive for this data set.

Used for documentation only. Not a part of dependent valids support files nor in V0 protocol messages.

Parent Groups: DATASET~4

Children: FTP, INTEGRATED

BROWSE_GRANULES **Maximum length:**
Possible values: **ODL Type:** Aggregate
Definition: Granules of browse request.
In spite of name, a single granule is identified for the browse request. Each file, whether ftp or integrated, is specified in it's own request. The capability to request multiple ftp browse with a single message was discussed but never fully implemented.
Parent Groups: BROWSE_REQUEST
Children: DATASET_ID, GRANULE_ID

BROWSE_HEADER **Maximum length:**
Possible values: **ODL Type:** Aggregate
Definition: Header information prefixed to browse file.
Not used in V0 protocol messages.
Parent Groups:
Children:

BROWSE_ONLY **Maximum length:** 1
Possible values: Y **ODL Type:** Symbol
Definition: Indicates only granules having associated browse images should be returned from the inventory search.
Parent Groups: INVENTORY_SEARCH
Children:

BROWSE_PRODUCT_DESCRIPTION **Maximum length:** 80
Possible values: **ODL Type:** Sequence String
Definition: Browse product (image) description.
Parent Groups: DATASET~1
Children:

BROWSE_REQUEST **Maximum length:**
Possible values: **ODL Type:** Aggregate
Definition: Message requesting transfer of browse image(s).
In fact, no V0 system sends or requires USER_AFFILIATION in BROWSE_REQUESTs.
Parent Groups:
Children: [AUTHENTICATOR], BROWSE_GRANULES, BROWSE_TYPE, CONTACT_ADDRESS, DATA_CENTER_ID, [ECS_AUTHENTICATOR], MESSAGE_ID, MONITOR,[NASDA_AUTHENTICATOR], [USER_AFFILIATION], VERSION CH01

BROWSE_TYPE

Maximum length: 8

Possible values: Y, N, FTP_Only

ODL Type: Symbol

Definition: Type of delivery for browse image.

In a BROWSE_REQUEST, FTP_ONLY means "send ftp browse" and Y means "send integrated browse." In a GRANULE, N means "not available," FTP_ONLY means "available only as FTP," and Y means "available as integrated" (and if INTEGRATED_BROWSE_ONLY=Y, then browse is available by integrated but not ftp, otherwise it is available by both).

Parent Groups: BROWSE_REQUEST, GRANULE

Children:

BROWSE_URL

Maximum length:

Possible values:

ODL Type: Aggregate

Definition: Web URL providing access to browse images.

Parent Groups: DATASET~1, DATASET~2, DIRECT_ACCESS, GRANULE CH01

Children: URL, [URL_COMMENT]

CAMPAIGN

Maximum length: 80

Possible values:

ODL Type: String or Sequence String

Definition: Name(s) of campaign/project that gathered data associated with a dataset, granule, or search.

For backward compatibility, a single campaign value uses a string, multiple use a sequence string.

Parent Groups: DATASET~1, DATASET~4, DIRECTORY_SEARCH, GRANULE, INVENTORY_SEARCH

Children:

CATEGORY

Maximum length: 7

Possible values: USA, NOT USA

ODL Type: String

Definition: Affiliation category (USA or non-USA) for a user.

Parent Groups: USER_AFFILIATION

Children:

CATEGORY_NAME

Maximum length: 80

Possible values:

ODL Type: String

Definition: Used to associate similar variants of dataset-specific search criteria.

Presented in the user interface, assigned by science team. May be omitted when data centers initially submit new search terms to science team for consideration.

Parent Groups: SPECIALIZED_CRITERIA~3

Children:

CENTROID_LAT

Maximum length: 9

Possible values:

ODL Type: Real

Definition: Latitude of center point coordinate where coverage is described as a quadrilateral or G-ring.

Parent Groups: G_RING_LOC, POLYGON_LOC~2, RANGE_LOC

Children:

CENTROID_LON

Maximum length: 9

Possible values:

ODL Type: Real

Definition: Longitude of center point coordinate where coverage is described as a quadrilateral or G-ring.

Parent Groups: G_RING_LOC, POLYGON_LOC~2, RANGE_LOC

Children:

CITY

Maximum length: 30

Possible values:

ODL Type: String

Definition: City of the address.

Parent Groups: BILLING_ADDRESS, CONTACT_ADDRESS, DAAC_CONTACT_ADDRESS, SHIPPING_ADDRESS

Children:

CLOUD_COVERAGE

Maximum length: 3

Possible values:

ODL Type: Integer

Definition: Percent of cloud coverage for granule.

(ASTER/ECS only.) This keyword is used as user's search parameter. This value is for quadrant scene. (Used by ASTER/ECS only. Presumably this is the maximum cloud cover value to be returned, though current ASTER documentation doesn't make this clear. V0 extended search capabilities provide a more flexible search mechanism that was developed in parallel.)

Parent Groups: INVENTORY_SEARCH

Children:

COLORBAR

Maximum length: 3

Possible values:

ODL Type: Sequence Integer

Definition: May be provided to supply information needed to construct a continuous colorbar.

Each min, max pair represents a range of colors (0 through 255) used in the image. Each max must be not less than its corresponding min, but the pairs need not be in order.

Parent Groups: LEGEND

Children:

COMMENT

Maximum length: 60

Possible values:

ODL Type: Sequence String

Definition: Arbitrary text information about corresponding granule, dataset, or package provided by the data center.

Parent Groups: DAAC_CONTACT_ADDRESS, DATASET~1, GRANULE, PACKAGE, MEDIA_HANDLING_FEE, MEDIA_MAXIMUM_CAPACITY, SPECIALIZED_CRITERIA~1, SPECIALIZED_CRITERIA~3 CH01

Children:

COMPLETION_DATE

Maximum length: 10

Possible values: yyyy-mm-dd

ODL Type: String

Definition: Actual date order was completed.

Present when STATUS_CODE=COMPLETED. ASTER GDS does not return COMPLETION_DATE under SUB_REQUEST_STATUS_INFO.

Parent Groups: ORDER_STATUS_INFO, SUB_REQUEST_STATUS_INFO

Children:

CONTACT_ADDRESS

Maximum length:

Possible values:

ODL Type: Aggregate

Definition: The address portion of a user's contact information.

Parent Groups: ACCOUNT_STATUS_REQUEST, BROWSE_REQUEST, PRODUCT_REQUEST, PROFILE_RETRIEVAL_RESULT, PROFILE_SUBMIT_REQUEST, PROFILE_UPDATE_REQUEST

Children: ADDRESS, CITY, COUNTRY, EMAIL, [FAX], FIRST_NAME, LAST_NAME, [MIDDLE_INITIAL], [ORGANIZATION], PHONE, [STATE], [TITLE], [ZIP]

CONTACT_NAME

Maximum length: 80

Possible values:

ODL Type: String

Definition: Name of contact at the Data Center.

Parent Groups: DAAC_CONTACT_ADDRESS

Children:

COUNTRY

Maximum length: 30

Possible values:

ODL Type: String

Definition: Country of the address.

Parent Groups: BILLING_ADDRESS, CONTACT_ADDRESS, DAAC_CONTACT_ADDRESS, SHIPPING_ADDRESS

Children:

CRITERIA_DEFAULT

Maximum length: 30

Possible values:

ODL Type: Sequence (Real, Integer, Date, or String)

Definition: Default value(s) for criterion.

Type must match type specified in CRITERIA_TYPE. If SELECT_NUM=MANY, then CRITERIA_DEFAULT can be any number of the CRITERIA_VALUEs. If RANGE=Y, then CRITERIA_VALUE should be a sequence of two which will be the default minimum and maximum respectively. Otherwise CRITERIA_DEFAULT should be a single value.

Parent Groups: SPECIALIZED_CRITERIA~1, SPECIALIZED_CRITERIA~3

Children:

CRITERIA_DEFAULT_FROM_PSA

Maximum length: 80

Possible values:

ODL Type: String

Definition: The name of the product-specific attribute (PSA) from which to obtain the default value for the criterion.

Parent Groups: SPECIALIZED_CRITERIA~1

Children:

CRITERIA_MAX

Maximum length: 30

Possible values:

ODL Type: Real, Integer, or Date

Definition: Maximum value acceptable for criterion, or maximum value of range specified.

Type must match type specified in CRITERIA_TYPE.

Parent Groups: SPECIALIZED_CRITERIA~1, SPECIALIZED_CRITERIA~2, SPECIALIZED_CRITERIA~3

Children:

CRITERIA_MAX_FROM_CORE

Maximum length: 80

Possible values:

ODL Type: String

Definition: The name of the core metadata attribute from which to extract the maximum value acceptable for the criterion.

Parent Groups: SPECIALIZED_CRITERIA~1

Children:

CRITERIA_MAX_FROM_PSA

Maximum length: 80

Possible values:

ODL Type: String

Definition: The name of the product-specific attribute (PSA) from which to extract the maximum value acceptable for the criterion.

Parent Groups: SPECIALIZED_CRITERIA~1

Children:

CRITERIA_MIN **Maximum length:** 30
Possible values: **ODL Type:** Real, Integer, or Date
Definition: Minimum value acceptable for criterion, or minimum value of range specified.
Type must match type specified in CRITERIA_TYPE.
Parent Groups: SPECIALIZED_CRITERIA~1, SPECIALIZED_CRITERIA~2, SPECIALIZED_CRITERIA~3
Children:

CRITERIA_MIN_FROM_CORE **Maximum length:** 80
Possible values: **ODL Type:** String
Definition: The name of the core metadata attribute from which to extract the minimum value acceptable for the criterion.
Parent Groups: SPECIALIZED_CRITERIA~1
Children:

CRITERIA_MIN_FROM_PSA **Maximum length:** 80
Possible values: **ODL Type:** String
Definition: The name of the product-specific attribute (PSA) from which to extract the minimum value acceptable for the criterion.
Parent Groups: SPECIALIZED_CRITERIA~1
Children:

CRITERIA_NAME **Maximum length:** 80
Possible values: **ODL Type:** String
Definition: Name used by data center to identify specific criterion.
Parent Groups: SPECIALIZED_CRITERIA~1, SPECIALIZED_CRITERIA~2, SPECIALIZED_CRITERIA~3
Children:

CRITERIA_TYPE **Maximum length:** 13
Possible values: DATE, FLOATINGSCENE, FIXED, GEO, INTEGER, REAL, STRING **ODL Type:** String
Definition: ODL type (or GEO) allowed for this criterion.
CRITERIA_MAX, CRITERIA_MIN, and CRITERIA_VALUE must be of this type for all but GEO. If GEO, CRITERIA_VALUE in SPECIALIZED_CRITERIA~1 will be a sequence string specifying allowable geographic types. If FIXED, then CRITERIA_VALUE is of type sequence string. If the value is set to FIXED in the INVENTORY_RESULT message, no order option is offered but the client passes the value of CRITERIA_VALUE back in the PRODUCT REQUEST (used for external subsetting orders.) If FLOATINGSCENE then the SPECIALIZED_CRITERIA is complex and contains nested SPECIALIZED_CRITERIA. FLOATINGSCENE indicates to the client to display the specialized Landsat Floating Scene GUI widget.
Parent Groups: SPECIALIZED_CRITERIA~1, SPECIALIZED_CRITERIA~2, SPECIALIZED_CRITERIA~3
Children:

CRITERIA_VALUE

Maximum length: See Note

Possible values:

ODL Type: Sequence (Real, Integer, Date, or String)

Definition: List of values acceptable for criterion, or value(s) specified by user for criterion.

If CRITERIA_TYPE=GEO, then CRITERIA_VALUE in SPECIALIZED_CRITERIA~1 must be a sequence string containing one or more of "BY_POINT_LOC", "BY_RANGE_LOC", and "BY_POLYGON_LOC"; and the returning SPECIALIZED_CRITERIA~2 in the SUBSET_SPEC, ORDER_SPEC, or DATASET_ORDER_SPEC can contain a geographic specification of one of the matching types. Otherwise, type of CRITERIA_VALUE in both SPECIALIZED_CRITERIA~1 and SPECIALIZED_CRITERIA~2 must match type specified in CRITERIA_TYPE (or a sequence of that type).

Note: Maximum Length is 128 in SPECIALIZED_CRITERIA~1 or SPECIALIZED_CRITERIA~2; 30 in SPECIALIZED_CRITERIA~3.

Parent Groups: SPECIALIZED_CRITERIA~1, SPECIALIZED_CRITERIA~2, SPECIALIZED_CRITERIA~3

Children:

CRITERIA_VALUE_FROM_PSA

Maximum length: 80

Possible values:

ODL Type: String

Definition: Name of product-specific attribute (PSA) from which to get criteria values.

If CRITERIA_TYPE=GEO, then CRITERIA_VALUE_FROM_PSA in SPECIALIZED_CRITERIA~1 must be a sequence string containing one or more of "BY_POINT_LOC", "BY_RANGE_LOC", and "BY_POLYGON_LOC"; and the returning SPECIALIZED_CRITERIA~2 in the SUBSET_SPEC can contain a geographic specification of one of the matching types. Otherwise, type of CRITERIA_VALUE in SPECIALIZED_CRITERIA~2 must match type specified in CRITERIA_TYPE (or a sequence of that type).

Parent Groups: SPECIALIZED_CRITERIA~1

Children:

CRITERIA_VALUE_MATCH

Maximum length: 30

Possible values:

ODL Type: Sequence (Real, Integer, Date, or String)

Definition: Indicates that the list of values in CRITERIA_VALUE should be filtered by the item's product specific attributes (PSAs). If the value from CRITERIA_VALUE matches the name of a PSA and the value of the PSA matches one of the values given by CRITERIA_VALUE_MATCH, then keep value as one of the CRITERIA_VALUEs. If there is no match then throw it out.

Parent Groups: SPECIALIZED_CRITERIA~1

Children:

DAAC_CONTACT_ADDRESS **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: User Support contact information (including DAAC order id) for one or more data sets.

Information associated with one or more datasets. Group may be repeated in an FTP_BROWSE_RESULT or PRODUCT_RESULT, though older clients display only the first.

Parent Groups: FTP_BROWSE_RESULT, PRODUCT_RESULT, PRODUCT_STATUS_INFO, SUB_REQUEST_STATUS_INFO

Children: [ADD_PHONE], [ADDRESS], CITY, [COMMENT], CONTACT_NAME, COUNTRY, [DAAC_ORDER_ID], [DATASET_ID], [EMAIL], [FAX], ORGANIZATION, PHONE, [STATE], [ZIP] CH01

DAAC_ORDER_ID **Maximum length:** 70

Possible values: **ODL Type:** String

Definition: Optional identifier for order provided by data center.

Parent Groups: DAAC_CONTACT_ADDRESS

Children:

DAAC_REQUEST_ID **Maximum length:** 30

Possible values: **ODL Type:** String

Definition: Unique identifier for an order request.

Parent Groups: REQUEST_RESULT

Children:

DATA_CENTER_ID **Maximum length:** 10

Possible values: Must match (case blind) IMS valids name for DAAC. **ODL Type:** Sequence String

Definition: Name of data center targeted by request or transmitting results.

Not included in INTEGRATED_BROWSE_RESULT for ASTER/ECS only.

Parent Groups: ACCOUNT_STATUS_REQUEST, ACCOUNT_STATUS_RESULT, BROWSE_REQUEST, DIRECTORY_RESULT, DIRECTORY_SEARCH, FTP_BROWSE_RESULT, GCMD_SEARCH, INTEGRATED_BROWSE_RESULT, INVENTORY_RESULT, INVENTORY_SEARCH, PACKAGE, PRICE_ESTIMATE_REQUEST, PRICE_ESTIMATE_RESULT, PRODUCT_CANCEL_RESULT, PRODUCT_REQUEST, PRODUCT_RESULT, PRODUCT_STATUS_INFO, PROFILE_RETRIEVAL_REQUEST, PROFILE_RETRIEVAL_RESULT, PROFILE_SUBMIT_REQUEST, PROFILE_SUBMIT_RESULT, PROFILE_UPDATE_REQUEST, PROFILE_UPDATE_RESULT, QUIT, USER_PASSWORD_CHANGE_REQUEST, USER_PASSWORD_CHANGE_RESULT

Children:

DATA_CENTER_ID~2 **Maximum length:** 10

Possible values: **ODL Type:** String

Definition: Data center whose dependent valids are being submitted.
Not used in V0 protocol messages.

Parent Groups: VALIDS

Children:

DATA_CENTER_LONGNAME **Maximum length:** 20

Possible values: **ODL Type:** String

Definition: The name of the Data Center that archives the data set.
(ASTER/ECS only.) Examples of this would be GSFC, LaRC, etc. (Obviously the "long" is a misnomer.) Returned by ECS in ASTER directory searches.

Parent Groups: DATA_SET_CONTACT

Children:

DATA_CENTER_URL **Maximum length:** 64

Possible values: **ODL Type:** String

Definition: The Universal Reference Locator for accessing the data center.
(ASTER/ECS only.)

Parent Groups: DATA_SET_CONTACT

Children:

DATA_SET_CONTACT **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: Information for contacting data center for a particular data set.
(ASTER/ECS only.)

Parent Groups: DATASET~3

Children: ADDRESS, DATA_CENTER_LONGNAME, [DATA_CENTER_URL], EMAIL, [FAX], [FIRST_NAME], [LAST_NAME], [MIDDLE_INITIAL], PHONE

DATA_URL **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: Web URL providing additional data access.

Parent Groups: DATASET~1, DATASET~2, DIRECT_ACCESS, FTP_BROWSE_RESULT, GRANULE, MEDIA_FORMAT~1, PRODUCT_RESULT, SUB_REQUEST_STATUS_INFO CH01

Children: URL, [URL_COMMENT] CH01

DATASET_COVERAGE **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: Spatial and temporal coverage of full data set.
Used for documentation only. Not a part of dependent valids support files nor V0 in protocol messages.

Parent Groups: DATASET~4

Children: SPATIAL, TEMPORAL

DATASET_HOME_PAGE **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: URL for a dataset's home page (distinct from a Guide document).

Parent Groups: DATASET~1, DATASET~2

Children: URL, URL_COMMENT

DATASET_ID **Maximum length:** 85

Possible values: **ODL Type:** Sequence String

Definition: Names of valid IMS datasets associated with requests or results.

Each value returned in INVENTORY_RESULTS and DIRECTORY_RESULTS must match (case blind) IMS valids name for some data set.

Parent Groups: BROWSE_GRANULES, DAAC_CONTACT_ADDRESS, DATASET~1, DATASET~2, DATASET~3, DIRECTORY_SEARCH, GCMD_SEARCH, IMAGE, INVENTORY_SEARCH, LINE_ITEM, PACKAGE, PRODUCT_DELIVERY, SUB_REQUEST_STATUS_INFO

Children:

DATASET_ID~2 **Maximum length:** 80

Possible values: **ODL Type:** String

Definition: Name of dataset whose dependent valids are being provided.

Not used in V0 protocol messages.

Parent Groups: DATASET~4

Children:

DATASET_ORDER_OPTIONS **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: Indicates special order parameters for ordering dataset as a whole (including the possibility of limiting the dataset to just granules in a particular time range or geographic area).

Used in a way similar to order or subset options but dataset-based ordering. Note that a geographic specification within DATASET_ORDER_OPTIONS would presumably be used to limit to whole granules within a geographic area; but there could also be a SUBSET_OPTIONS to further subset the individual granules ordered.

Parent Groups: PACKAGE

Children: [REQUIRED], SPECIALIZED_CRITERIA~1

DATASET_ORDER_SPEC **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: Order processing/generation parameters selected by user from DATASET_ORDER_OPTIONS applicable to the dataset as a whole.

Parent Groups: LINE_ITEM

Children: [SPECIALIZED_CRITERIA~2]

DATASET~1 **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: Information about granules of a single data set in an inventory result.

Parent Groups: INVENTORY_RESULT

Children: [BROWSE_PRODUCT_DESCRIPTION], [BROWSE_URL], [CAMPAIGN], [COMMENT], [DATASET_HOME_PAGE], DATASET_ID, [DATA_URL], [DAY_NIGHT], [DISCLAIMER_COMMENT], [DISCLAIMER_URL], [EXTENDED_CRITERIA_USED], [GRANULE], [GUIDE_URL], [HANDLING FEE], [MD_ENTRY_ID], [MISC_URL], [NUMBER_OF_GRANULE_HITS], [PACKAGE], [PACKAGE_ID], [PARAMETER~1], [PROCESSING_LEVEL], [RESTRICTION], [SENSOR_NAME], [SOURCE_NAME], [SPECIALIZED_SEARCH_URL], STATUS_CODE, [VALID_ACCOUNT]

DATASET~2 **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: Data set information used to find directory information in GCMD.

Parent Groups: DIRECTORY_RESULT

Children: [BROWSE_URL], [DATASET_HOME_PAGE], DATASET_ID, [DATA_URL], MD_ENTRY_ID, [MISC_URL], [ORG_CENTER], [PACKAGE], [PACKAGE_ID], [RANGE_LOC], [SPECIALIZED_SEARCH_URL], [START_DATE], [STOP_DATE]

DATASET~3 **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: Directory information about a single dataset returned by ECS to ASTER GDS user. *(ASTER/ECS only.)*

Parent Groups: DIRECTORY_RESULT

Children: DATASET_ID, [DATA_SET_CONTACT], DESCRIPTION, DISCIPLINE, SENSOR_NAME, SOURCE_NAME, [SPATIAL_COVERAGE], [START_DATE], [STOP_DATE], TERM, TOPIC, VARIABLE

DATASET~4 **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: Contains dependent valids for a single data set being submitted by an archive. *Not used in V0 protocol messages.*

Parent Groups: VALIDS

Children: BROWSE, [CAMPAIGN], DATASET_COVERAGE, DATASET_ID~2, [DATE_AVAILABLE], [DAY_NIGHT_FLAG], [DEPENDENCY], FTP_PRODUCT_AVAILABLE, GRANULE_COVERAGE, MD_ENTRY_ID, [PARAMETER~1], PROCESSING_LEVEL, [SOURCE], [SENSOR]

DATE_AVAILABLE **Maximum length:**

Possible values: **ODL Type:** String

Definition: Date (in no particular format) when dataset will become available. *Not used in V0 protocol messages.*

Parent Groups: DATASET~4

Children:

DAY_NIGHT

Maximum length: 1

Possible values: D, N

ODL Type: Symbol

Definition: Flag requesting or specifying data gathered during daylight only or nighttime only.

Support not provided for this field by all data centers for all data sets.

Parent Groups: DATASET~1, GRANULE, INVENTORY_SEARCH

Children:

DAY_NIGHT_FLAG

Maximum length: 5

Possible values: "DAY", "NIGHT"

ODL Type: Sequence String

Definition: Indicates whether dataset is wholly daytime data, nighttime, or both.

Used for documentation only. Not a part of dependent valids support files nor in V0 protocol messages.

Parent Groups: DATASET~4

Children:

DEFAULT

Maximum length: 1

Possible values: "Y", "N"

ODL Type: String

Definition: "Y" identifies an attribute that will be returned as part of the default list used in the metadata customization tool.

Parent Groups: SPECIALIZED_CRITERIA~3

Children:

DEPENDENCY

Maximum length:

Possible values:

ODL Type: Aggregate

Definition: Groups of parameters, sources, and sensors that are logically dependent within a dataset's valids. Presence in a dependency group or a DATASET~4 determines what values are compatible for client selection.

Not used in V0 protocol messages.

Parent Groups: DATASET~4

Children: [PARAMETER~1], [SENSOR], [SOURCE]

DESCRIPTION

Maximum length: unlimited

Possible values:

ODL Type: String

Definition: Identifies the major emphasis of the content of the collection. This can be a long textual description, therefore it is left unbounded at this time.

(ASTER/ECS only.)

Parent Groups: DATASET~3

Children:

DIRECT_ACCESS

Maximum length: unlimited CH01

Possible values:

ODL Type: Aggregrate

Definition: Provides a structure for detailing the ECS data pool location of various files associated with the granule in the parent GRANULE group.

Parent Groups: GRANULE

Children: [BROWSE_URL], [DATA_URL], EXPIRATION_DATE, METADATA_URL

DIRECTORY_RESULT **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: Provides result of directory level query against data center.

V0 uses DATASET~2 and queries the GCMD for dataset information corresponding to the MD_ENTRY_IDs. ASTER/ECS uses DATASET~3 to display the information directly.

Parent Groups:

Children: DATASET~2, DATASET~3, DATA_CENTER_ID, MESSAGE_ID, MONITOR, NUMBER_OF_DATASETS, [PACKAGE], STATUS_CODE, [STATUS_CODE_COMMENT], VERSION

DIRECTORY_SEARCH **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: Provides data for directory level search of data center.

Parent Groups:

Children: [AUTHENTICATOR], [CAMPAIGN], [DATA_CENTER_ID], [DATASET_ID], [ECS_AUTHENTICATOR], MESSAGE_ID, MONITOR, [NASDA_AUTHENTICATOR], [PARAMETER~1], [PROCESSING_LEVEL], [RANGE_LOC], [SENSOR_NAME], [SOURCE_NAME], [START_DATE], [STOP_DATE], VERSION CH01

DISCIPLINE **Maximum length:** 24

Possible values: **ODL Type:** Sequence String

Definition: Keyword(s) used to describe the general discipline area of the collection. A collection can conceivably cover several disciplines. Examples include Earth Science, Space Science, etc.

(ASTER/ECS only.)

Parent Groups: DATASET~3

Children:

DISCLAIMER_COMMENT **Maximum length:** 60

Possible values: **ODL Type:** Sequence String

Definition: DAAC-generated disclaimer statement for a specific data set.

Parent Groups: DATASET~1

Children:

DISCLAIMER_URL **Maximum length:** 200

Possible values: **ODL Type:** String

Definition: URL link to a data set disclaimer (See DISCLAIMER_COMMENT). If DISCLAIMER_URL is used, then DISCLAIMER_COMMENT is required.

Parent Groups: DATASET~1

Children:

DISCRETE **Maximum length: 30**

Possible values: **ODL Type:** Sequence String

Definition: Labels for individual colorbar entries and/or to specify discrete values.

Actually sequence of pairs of integer, string, integer, string…. Each value/text pair specifies a color value (0 through 255) and its corresponding text label. If a discrete value is in one of the colorbar ranges, it will be labeled on the colorbar; otherwise, a discrete color block is created and labeled.

Parent Groups: LEGEND

Children:

EAST_LONGITUDE **Maximum length:** 9

Possible values: -180.0000 to +180.0000 **ODL Type:** Real

Definition: Easternmost longitude for a range on the globe.

Parent Groups: RANGE_LOC

Children:

EASTBOUNDINGCOORDINATE **Maximum length:** 11

Possible values: -180.0 to +180.0 **ODL Type:** Real

Definition: Easternmost limit of coverage expressed in longitude.

(ASTER/ECS only.)

Parent Groups: SPATIAL_COVERAGE

Children:

ECS_AUTHENTICATOR **Maximum length:** 32

Possible values: **ODL Type:** String

Definition: Optional in every outgoing client message. Used for interfacing with ECS registration.

Parent Groups: ACCOUNT_STATUS_REQUEST, BROWSE_REQUEST, DIRECTORY_SEARCH, INVENTORY_SEARCH, PRODUCT_CANCEL_REQUEST, PRODUCT_REQUEST, PROFILE_SUBMIT_REQUEST, PRODUCT_STATUS_REQUEST, PROFILE_RETRIEVAL_REQUEST, PROFILE_UPDATE_REQUEST, QUIT, USER_PASSWORD_CHANGE_REQUEST

Children:

EMAIL **Maximum length:** 128

Possible values: **ODL Type:** String

Definition: Internet e-mail address for associated person.

Parent Groups: BILLING_ADDRESS, CONTACT_ADDRESS, DAAC_CONTACT_ADDRESS, DATA_SET_CONTACT, SHIPPING_ADDRESS

Children:

ERROR **Maximum length:** 80

Possible values: **ODL Type:** Sequence String

Definition: Data center-provided text information about VALID_ACCOUNT details.

Parent Groups: VALID_ACCOUNT

Children:

EST_COST
Maximum length: 16
Possible values: 0.0 to 9999999999999.99
ODL Type: Real
Definition: Estimated cost of package, calculated from package's APPROX_COST.
Parent Groups: LINE_ITEM, LINE_ITEM_RESULT
Children:

ESTIMATED_PRICE
Maximum length: 10
Possible values:
ODL Type: Integer
Definition: Estimated total price of products.
(ASTER/ECS only.) The unit is Yen.
Parent Groups: PRICE_ESTIMATE_RESULT
Children:

EXPIRATION_DATE
Maximum length: 20
CH01
Possible values: yyyy-mm-ddThh:mm:ss , yyyy-mm-ddThh:mm:ssZ **ODL Type:** Date
Definition: Time at which the URLs presented in the DIRECT_ACCESS group will cease to be available to the user.
Parent Groups: DIRECT_ACCESS
Children:

EXTENDED_CRITERIA_AVAIL
Maximum length: 80
Possible values:
ODL Type: Sequence String
Definition: Extended search criteria applicable to a dataset.
Data centers provide EXTENDED_CRITERIA_AVAIL as a part of their valids submission to give CRITERIA_NAMEs of the EXTENDED_CRITERIA that may be used for each dataset. Not used in V0 protocol messages.
Parent Groups: DATASET~4
Children:

EXTENDED_CRITERIA_USED
Maximum length: 80
Possible values: CRITERIA_NAMEs from INVENTORY_SEARCH
ODL Type: Sequence String
Definition: Extended search criteria used in search at data center.
Parent Groups: DATASET~1
Children:

EXTENDED_SEARCH
Maximum length:
Possible values:
ODL Type: Aggregate
Definition: Extended criteria requested by user for search.
Multiple EXTENDED_SEARCHs within an INVENTORY_SEARCH should be ANDed along with standard fields. Multiple SPECIALIZED_CRITERIA~2 within the EXTENDED_SEARCH aggregate are normally variants to be ORed (unless several are combined to make a multiple valued criteria).
Parent Groups: INVENTORY_SEARCH
Children: SPECIALIZED_CRITERIA~2

EXTENDED_SEARCH_MASTER_LIST

Maximum length:

Possible values:

ODL Type: Aggregate

Definition: List of all approved EXTENDED_SEARCH alternatives, maintained by science team.
Not used in V0 protocol messages. Used by clients/gateways to present search alternatives.

Parent Groups:

Children: SPECIALIZED_CRITERIA~3

FAX

Maximum length: 22

Possible values:

ODL Type: String

Definition: Fax phone number for associated person.

Parent Groups: BILLING_ADDRESS, CONTACT_ADDRESS, DAAC_CONTACT_ADDRESS, DATA_SET_CONTACT, SHIPPING_ADDRESS

Children:

FIRST_NAME

Maximum length: 20

Possible values:

ODL Type: String

Definition: First name for addressed person.

Parent Groups: BILLING_ADDRESS, CONTACT_ADDRESS, DATA_SET_CONTACT, SHIPPING_ADDRESS

Children:

FORMAT_ID

Maximum length: 30

Possible values:

ODL Type: String

Definition: A valid value for media distribution format for this package.
MEDIA_FORMAT~2 is one of the FORMAT_ID strings listed in the MEDIA_FORMAT~1 group.

Parent Groups: MEDIA, MEDIA_FORMAT~1, SUB_REQUEST_STATUS_INFO

Children:

FTP

Maximum length: 5

Possible values: "yes", "true", "no", "false", ""

ODL Type: String

Definition: Indicates whether data center provides ftp browse for some granules of this dataset.
Not used in V0 protocol messages.

Parent Groups: BROWSE

Children:

FTP_BROWSE_RESULT

Maximum length:

Possible values:

ODL Type: Aggregate

Definition: Results from a BROWSE_REQUEST for BROWSE_TYPE = FTP_ONLY.

Parent Groups:

Children: DAAC_CONTACT_ADDRESS, DATA_CENTER_ID, [DATA_URL], MESSAGE_ID, MONITOR, STATUS_CODE, [STATUS_CODE_COMMENT], TOTAL_FILE_SIZE, VERSION

FTP_PRODUCT_AVAILABLE **Maximum length:** 5

Possible values: "yes", "true", "no", "false", "" **ODL Type:** String

Definition: Indicates whether the archive delivers dataset products via ftp.

Used for documentation only. Not a part of dependent valids support files nor in V0 protocol messages.

Parent Groups:

Children:

FULL_SUBINTERVAL **Maximum length:** 3

Possible values: "yes", "no" **ODL Type:** String

Definition: Specific to subsetting of Landsat 7 subinterval data for ordering. Indicates that the user selected the entire subinterval for the geo subsetting criteria. In other words, the entire subinterval was selected, so it does not need to be subsetted spatially. This may be cheaper than a subset that is just slightly smaller than the entire subinterval. Used in both PRODUCT_REQUEST and PRICE_ESTIMATE_REQUEST.

Parent Groups: SUBSET_SPEC

Children:

G_RING_LOC **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: Granule coverage described by one or more polygons, each of at least 3 sides and which contain zero or more holes, each of which is a polygon of at least 3 sides. All connecting lines are presumed to be arcs of great circles.

For backward compatibility, coverage must also be described by either a RANGE_LOC or POLYGON_LOC~2.

Parent Groups: GRANULE, LINE_ITEM

Children: CENTROID_LAT, CENTROID_LON, OUTER_RING

GCMD_SEARCH **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: Internal ODL tree used in GCMD search.

Not a part of dependent valids support files nor in V0 protocol messages.

Parent Groups:

Children: DATASET_ID, DATA_CENTER_ID, MD_ENTRY_ID, ORG_CENTER

GLOBAL_GRANULE **Maximum length:** 1

Possible values: Y **ODL Type:** Symbol

Definition: Granule has global coverage.

Used in place of xxx_LOC keywords for granules with global coverage.

Parent Groups: GRANULE, LINE_ITEM

Children:

GLOBAL_GRANULES_ONLY **Maximum length:** 1

Possible values: Y **ODL Type:** Symbol

Definition: Only granules with global coverage should be returned in the result.

Parent Groups: INVENTORY_SEARCH

Children:

GRANULE

Maximum length:

Possible values:

ODL Type: Aggregate

Definition: Collection of metadata about a single data granule.

If SENSOR_NAME and SOURCE_NAME are not given in DATASET~1, they must be included in GRANULE. If GRANULE contains no PACKAGE_ID, it cannot be ordered.

Parent Groups: DATASET~1

Children: [BROWSE_TYPE], [BROWSE_URL], [CAMPAIGN], [COMMENT], [DATA_URL], [DAY_NIGHT], [DIRECT_ACCESS], [G_RING_LOC], GLOBAL_GRANULE, GRANULE_ID, [INTEGRATED_BROWSE_ONLY], [PACKAGE_ID], [PARAMETER~1], [PATH_ROW_LOC], POINT_LOC, POLYGON_LOC~2, [PROCESSING_LEVEL], [QUADRANT_CLOUD_COVERAGE], RANGE_LOC, [RESULT_GROUP], [SCENE_CLOUD_COVERAGE], [SENSOR_NAME], [SOURCE_NAME], [SPECIALIZED_RESULTS], START_DATE, STOP_DATE, [XAR_ID] CH01

GRANULE_COVERAGE

Maximum length:

Possible values:

ODL Type: Aggregate

Definition: Spatial and temporal coverage of individual granules of a dataset.

Used for documentation only. Not a part of dependent valids support files nor in V0 protocol messages.

Parent Groups: DATASET~4

Children: SPATIAL, TEMPORAL

GRANULE_ID

Maximum length: 80

Possible values:

ODL Type: String

Definition: Granule's ID from inventory.

Parent Groups: BROWSE_GRANULES, GRANULE, IMAGE

Children:

GRANULE_ID_REQ

Maximum length: 80

Possible values:

ODL Type: Sequence String

Definition: ID of granule requested in search message (possibly containing wild card characters).

If GRANULE_ID_REQ is present in INVENTORY_SEARCH, DATASET_ID is also required; if omitted, geographic specification (GLOBAL_GRANULES_ONLY, POINT_LOC, POLYGON_LOC~1, or RANGE_LOC) is required.

Parent Groups: INVENTORY_SEARCH

Children:

GRANULE_LIMIT

Maximum length: 10

Possible values: 1 to 2147483647

ODL Type: Integer

Definition: Number of granules requested per dataset.

Parent Groups: INVENTORY_SEARCH

Children:

GUIDE_URL
Maximum length:
Possible values:
ODL Type: Aggregate
Definition: URL where the data set's guide document is located.
Parent Groups: DATASET~1
Children: URL, [URL_COMMENT]

HOME_DAAC
Maximum length: 8
Possible values:
ODL Type: String
Definition: Indicates the user's home DAAC.
Parent Groups: PROFILE_SUBMIT_REQUEST
Children:

HANDLING_FEE
Maximum length:
Possible values:
ODL Type: Aggregate
Definition: The additional handling cost (set by a DAAC) which is added to the total price of a product.
Parent Groups: DATASET~1
Children: PRICE, PRICE_COMMENT, MISC_URL

IMAGE
Maximum length:
Possible values:
ODL Type: Aggregate
Definition: Provides attributes of an integrated browse (image) file being transferred.
Parent Groups: INTEGRATED_BROWSE_RESULT
Children: DATASET_ID, GRANULE_ID, IMAGE_ID, IMAGE_SIZE

IMAGE_ID
Maximum length: 50
Possible values:
ODL Type: String
Definition: Image identifier from data center.
Parent Groups: IMAGE
Children:

IMAGE_SIZE
Maximum length: 10
Possible values: 1 to 2147483647
ODL Type: String
Definition: Image size in bytes.
Parent Groups: IMAGE
Children:

IMS_STAFF
Maximum length: 10
Possible values:
ODL Type: String
Definition: Sent with every client message. Usually blank unless the client was run by a member of the IMS Staff.

In the X client, copied from the IMS staff environment variable (as set in the shell script). In the Web gateway, set to "1" if the group "WWW_DEVELOPER" is present when loaded in the User Preferences.

Parent Groups: VERSION
Children:

INCLUDE_NON_SPATIAL **Maximum length:** 1

Possible values: **"**Y", "N" **ODL Type:** String

Definition: A value of "Y" means that the user is requesting (in the results) granules that contain spatial information and granules that do not contain spatial information in their metadata.

Parent Groups: INVENTORY_SEARCH

Children:

INCLUDE_NON_TEMPORAL **Maximum length:** 1

Possible values: **"**Y", "N" **ODL Type:** String

Definition: A value of "Y" means that the user is requesting (in the results) granules that contain temporal information and granules that do not contain temporal information in their metadata.

Parent Groups: INVENTORY_SEARCH

Children:

INFO_PROMPT **Maximum length:** 80

Possible values: **ODL Type:** String

Definition: Data center-supplied string to describe use of "additional info" when ordering.

Data center can provide usage or point to URL for help on ADDITIONAL_INFO's use.

Parent Groups: PACKAGE

Children:

INITIAL_USER_KEY **Maximum length:** 12

Possible values: **ODL Type:** String

Definition: Original password used at the data center when first registering a user for data center-hosted clients.

Set by shell for data center-hosted clients. Originally intended to help user support groups distinguish individuals with similar names. May not be used much any more.

Parent Groups: PRODUCT_REQUEST

Children:

INITIATOR_REQUEST_ID **Maximum length:** 30

Possible values: **ODL Type:** Sequence String

Definition: ID assigned by the ASTER Gateway or ASTER GDS IMS to track Product Request. This is a single value when passed in a Product Request message.

(ASTER/ECS only.) When ECS client submits Product Request, ASTER Gateway generates this ID. When ASTER GDS client submits Product Request, ASTER GDS IMS generates this ID.

Parent Groups: ORDER_STATUS_INFO, PRODUCT_CANCEL_REQUEST, PRODUCT_CANCEL_RESULT, PRODUCT_REQUEST,

PRODUCT_STATUS_REQUEST

Children:

INNER_RING **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: Data describing a ring (polygon) that is a hole in an OUTER_RING.

LATITUDE and LONGITUDE must be sequences of three or more values; both must have the same number of values. Order of points must be clockwise from a satellite view.

Parent Groups: OUTER_RING

Children: LATITUDE, LONGITUDE

INTEGRATED **Maximum length:** 5

Possible values: "yes", "true", "no", "false", "" **ODL Type:** String

Definition: Indicates whether data center provides integrated browse for some granules of this dataset.

Not used in V0 protocol messages.

Parent Groups: BROWSE

Children:

INTEGRATED_BROWSE_ONLY **Maximum length:** 1

Possible values: Y or N **ODL Type:** Symbol

Definition: Indicates that an integrated browse product is available for this granule, but not an ftp browse product. If omitted, N is assumed.

Used to disambiguate BROWSE_TYPE = Y in GRANULE. Originally integrated browse availability implied ftp as well, so no "integrated only" was provided for. This field was added rather than a new value for BROWSE_TYPE to provide greater backward compatibility.

Parent Groups: GRANULE

Children:

INTEGRATED_BROWSE_RESULT **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: Provides result of BROWSE_REQUEST where BROWSE_TYPE = Y.

Parent Groups:

Children: DATA_CENTER_ID, IMAGE, [LAST_BROWSE], MESSAGE_ID, MONITOR, STATUS_CODE, [STATUS_CODE_COMMENT], [VERSION]

INVENTORY_RESULT **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: Provides result set from inventory query.

Parent Groups:

Children: [DATASET~1], DATA_CENTER_ID, [MEDIA_HANDLING_FEE], MESSAGE_ID, [MEDIUM_MAXIMUM_CAPACITY], MONITOR, [NUMBER_OF_DATASETS], [PACKAGE], STATUS_CODE, [STATUS_CODE_COMMENT], [UNMAPPED_FIELD], [VERSION]

INVENTORY_SEARCH

Maximum length:

Possible values:

ODL Type: Aggregate

Definition: Provides data to perform inventory query.

Parent Groups:

Children: [ALL_METADATA], [AUTHENTICATOR], [BROWSE_ONLY], [CAMPAIGN], [CLOUD_COVERAGE], [DATA_CENTER_ID], [DATASET_ID], [DAY_NIGHT], [ECS_AUTHENTICATOR], [EXTENDED_SEARCH], [GLOBAL_GRANULES_ONLY], [GRANULE_ID_REQ], GRANULE_LIMIT, [INCLUDE_NON_SPATIAL], [INCLUDE_NON_TEMPORAL], MESSAGE_ID, MONITOR, [NASDA_AUTHENTICATOR], [PARAMETER~1], [PATH_ROW_LOC], [POINT_LOC], [POLYGON_LOC~1], [PROCESSING_LEVEL], [RANGE_LOC], [RESULT_ATTRIBUTES], [SENSOR_NAME], [SOURCE_NAME], [START_DATE], [START_DAY_OF_YEAR], [STOP_DATE], [STOP_DAY_OF_YEAR], VERSION, [XAR_ID] CH01

LABEL

Maximum length: 64

Possible values:

ODL Type: String

Definition: May be specified to provide a one-line descriptive label for the browse image. *This entry is optional and is most often used when there is more than one browse image in a single HDF browse image file.*

Parent Groups: LEGEND

Children:

LAST_BROWSE

Maximum length: 1

Possible values: 0, 1

ODL Type: Symbol

Definition: Indicates whether last integrated browse in a series is being transmitted. *(ASTER/ECS only.) If LAST_BROWSE=0 is present, then the image which follows is not the last browse image in the sequence; an ACK is required by the client, and following that the server will send another INTEGRATED_BROWSE_RESULT and image file. If LAST_BROWSE=1 or is omitted, the image that follows is the last (or only) one to be transmitted.*

Parent Groups: INTEGRATED_BROWSE_RESULT

Children:

LAST_NAME

Maximum length: 20

Possible values:

ODL Type: String

Definition: Last name for addressed person.

Parent Groups: BILLING_ADDRESS, CONTACT_ADDRESS, DATA_SET_CONTACT, SHIPPING_ADDRESS

Children:

LATITUDE

Maximum length: 8

Possible values: -90.0000 to +90.0000

ODL Type: Sequence Real

Definition: Latitude for a point or sequence of points on the globe.

Parent Groups: INNER_RING, OUTER_RING, POINT_LOC, POLYGON_LOC~1, POLYGON_LOC~2

Children:

LEGEND **Maximum length:**
Possible values: **ODL Type:** Aggregate
Definition: Description of a legend for a RAS8 image within an HDF browse file.
Should not be in BROWSE_HEADER structure, but associated with corresponding image.
Parent Groups:
Children: [COLORBAR], DISCRETE, [LABEL], [UNITS]

LINE_ITEM **Maximum length:**
Possible values: **ODL Type:** Aggregate
Definition: Information needed for ordering a package. Also used to get an estimated price.
Parent Groups: PRODUCT_REQUEST, PRICE_ESTIMATE_REQUEST~2, REQUEST_RESULT
Children: [ADDITIONAL_INFO], [BILLING_ID], DATASET_ID, [DATASET_ORDER_SPEC], [EST_COST], [G_RING_LOC], [GLOBAL_GRANULE], MEDIA_FORMAT~2, MEDIA_TYPE~2, [ORDER_SPEC], PACKAGE_ID, [PATH_ROW_LOC], [POINT_LOC], [POLYGON_LOC~2], PROCESSING_OPTIONS, [RANGE_LOC], [SUBSET_SPEC]

LINE_ITEMS_PER_GRANULE **Maximum length:** 1
Possible values: 1 **ODL Type:** Symbol
Definition: If keyword is present, it indicates that only one line item is allowed to be selected per granule per order.
Parent Groups: PACKAGE
Children:

LINE_ITEM_RESULT **Maximum length:**
Possible values: **ODL Type:** Aggregate
Definition: Contains the estimated cost for the corresponding line item sent in the PRICE_ESTIMATE_REQUEST plus any additional info in specialized criteria groups.
Parent Groups: PRICE_ESTIMATE_RESULT~2
Children: PACKAGE_ID, EST_COST, SPECIALIZED_CRITERIA

LONGITUDE **Maximum length:** 9
Possible values: -180.0000 to +180.0000 **ODL Type:** Sequence Real
Definition: Longitude for a point or sequence of points on the globe.
Parent Groups: INNER_RING, OUTER_RING, POINT_LOC, POLYGON_LOC~1, POLYGON_LOC~2
Children:

MAP_PROJECTION_TYPE **Maximum length:** 80
Possible values: PLATE_CARREE, NORTH_POLAR_STEREOGRAPHIC, ORTHOGRAPHIC, SOUTH_POLAR_STEREOGRAPHIC **ODL Type:** String
Definition: Map projection type under which polygon was defined.
Parent Groups: POLYGON_LOC~1
Children:

MAX_LEN **Maximum length:** 5
Possible values: **ODL Type:** Integer
Definition: Maximum length for an input character string
Parent Groups: SPECIALIZED_CRITERIA~1, SPECIALIZED_CRITERIA~3
Children:

MD_ENTRY_ID **Maximum length:** 31
Possible values: **ODL Type:** String
Definition: Global Change Master Directory entry (DIF) id.
Parent Groups: DATASET~1, DATASET~2, DATASET~4, GCMD_SEARCH
Children:

MEDIA **Maximum length:**
Possible values: **ODL Type:** Aggregate
Definition: Media information for Product Request.
(ASTER/ECS only.) ASTER groups product orders by media type. This aggregate is similar to V0 LINE_ITEM but assures all products for the same media type/format are grouped together within the ODL message.
Parent Groups: PRICE_ESTIMATE_REQUEST, PRODUCT_REQUEST
Children: FORMAT_ID, PRODUCT_DELIVERY, TYPE_ID

MEDIA_FEE **Maximum length:** 16
Possible values: 0.00 to 9999999999999.99 **ODL Type:** Real
Definition: Fee in US dollars charged by a DAAC for a particular media type.
Parent Groups: MEDIA_HANDLING_FEE
Children:

MEDIA_HANDLING_FEE **Maximum length:**
Possible values: **ODL Type:** Aggregate
Definition: Used by a DAAC to indicate that there is a fee associated with ordering data on the specified media type (indicated by TYPE_ID).
Parent Groups: INVENTORY_RESULT
Children: MEDIA_FEE, TYPE_ID, [COMMENT], [MISC_URL]

MEDIA_FORMAT~1 **Maximum length:**
Possible values: **ODL Type:** Aggregate
Definition: Description of distribution formats available for this package and media type.
MEDIA_FORMAT~2 is one of the FORMAT_ID strings listed in the MEDIA_FORMAT~1 group.
Parent Groups: MEDIA_TYPE~1
Children: APPROX_COST, [DATA_URL], FORMAT_ID

MEDIA_FORMAT~2 **Maximum length:** 30

Possible values: **ODL Type:** String

Definition: Media format selected by user for order on this line item.
MEDIA_FORMAT~2 is one of the FORMAT_ID strings listed in the MEDIA_FORMAT~1 group.

Parent Groups: LINE_ITEM

Children:

MEDIA_MAXIMUM_CAPACITY **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: Maximum capacity of the media selected under MEDIA_TYPE.

Parent Groups: INVENTORY_RESULT

Children: [COMMENT], MEDIA_MB_CAPACITY, [MISC_URL], [REQUEST_SIZE_MB], [REQUEST_SIZE_GRANULES], TYPE_ID CH01

MEDIA_MB_CAPACITY **Maximum length:** 8

Possible values: **ODL Type:** Real

Definition: Capacity, in megabytes, of the media in TYPE_ID.

Parent Groups: MEDIA_MAXIMUM_CAPACITY

Children:

MEDIA_TYPE~1 **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: Description of media on which package can be distributed.
MEDIA_TYPE~2 is one of the TYPE_ID strings listed in the MEDIA_TYPE~1 group.

Parent Groups: PROCESSING_OPTION

Children: MEDIA_FORMAT~1, NUMBER_OF_MEDIA_FORMAT, TYPE_ID, APPLY_HANDLING_FEE

MEDIA_TYPE~2 **Maximum length:** 20

Possible values: **ODL Type:** String

Definition: Medium selected by use for this line item.
MEDIA_TYPE~2 is one of the TYPE_ID strings listed in the MEDIA_TYPE~1 group.

Parent Groups: LINE_ITEM

Children:

MESSAGE_ID

Maximum length: 30

Possible values:

ODL Type: String

Definition: Identifier used to track messages.

Generated by the client or Web gateway.

Parent Groups: ACCOUNT_STATUS_REQUEST, ACCOUNT_STATUS_RESULT, ACKNOWLEDGE, BROWSE_REQUEST, DIRECTORY_RESULT, DIRECTORY_SEARCH, FTP_BROWSE_RESULT, INTEGRATED_BROWSE_RESULT, INVENTORY_RESULT, INVENTORY_SEARCH, PRICE_ESTIMATE_REQUEST, PRICE_ESTIMATE_RESULT, PRODUCT_CANCEL_REQUEST, PRODUCT_CANCEL_RESULT, PRODUCT_REQUEST, PRODUCT_RESULT, PRODUCT_STATUS_INFO, PRODUCT_STATUS_REQUEST, PROFILE_RETRIEVAL_REQUEST, PROFILE_RETRIEVAL_RESULT, PROFILE_SUBMIT_REQUEST, PROFILE_SUBMIT_RESULT, PROFILE_UPDATE_REQUEST, PROFILE_UPDATE_RESULT, QUIT, USER_PASSWORD_CHANGE_REQUEST, USER_PASSWORD_CHANGE_RESULT

Children:

METADATA_URL

Maximum length:

CH01

Possible values:

ODL Type: Aggregate

Definition: Web URL providing additional access to metadata available through the ECS Data Pools.

Parent Groups: DIRECT_ACCESS

Children: URL, [URL_COMMENT]

MIDDLE_INITIAL

Maximum length: 1

Possible values:

ODL Type: String

Definition: Middle initial of name for this address.

Parent Groups: BILLING_ADDRESS, CONTACT_ADDRESS, DATA_SET_CONTACT, SHIPPING_ADDRESS

Children:

MISC_URL

Maximum length:

Possible values:

ODL Type: Aggregate

Definition: URL for additional information or services for a dataset.

Parent Groups: DATASET~1, DATASET~2, PRODUCT_RESULT, HANDLING_FEE, MEDIA_MAXIMUM_CAPACITY, [PACKAGE], REQUEST_RESULT

Children: URL, URL_COMMENT

MONITOR

Maximum length:

Possible values:

ODL Type: Aggregate

Definition: Statistics field for this message.

Parent Groups: ACCOUNT_STATUS_REQUEST, ACCOUNT_STATUS_RESULT, ACKNOWLEDGE, BROWSE_REQUEST, DIRECTORY_RESULT, DIRECTORY_SEARCH, FTP_BROWSE_RESULT, INTEGRATED_BROWSE_RESULT, INVENTORY_RESULT, INVENTORY_SEARCH, PRICE_ESTIMATE_REQUEST, PRICE_ESTIMATE_RESULT, PRODUCT_CANCEL_REQUEST, PRODUCT_CANCEL_RESULT, PRODUCT_REQUEST, PRODUCT_RESULT, PRODUCT_STATUS_INFO, PRODUCT_STATUS_REQUEST, PROFILE_RETRIEVAL_REQUEST, PROFILE_RETRIEVAL_RESULT, PROFILE_SUBMIT_REQUEST, PROFILE_SUBMIT_RESULT,

PROFILE_UPDATE_REQUEST, PROFILE_UPDATE_RESULT, QUIT, USER_PASSWORD_CHANGE_REQUEST, USER_PASSWORD_CHANGE_RESULT

Children: [RX_CLIENT], [RX_SERVER], [SESSION_ID], TX_CLIENT, [TX_SERVER]

NASDA_AUTHENTICATION_KEY **Maximum length:** 16 CH01

Possible values: **ODL Type:** String

Definition: Password provided by user for accessing restricted data at the NASDA/HEOC data center.

Parent Groups:

Children:

NASDA_AUTHENTICATOR **Maximum length:** 16

Possible values: **ODL Type:** String

Definition: Encrypted value (last name, first name) from NASDA_AUTHENTICATION_KEY. Passed with every request (if NASDA_AUTHENTICATION_KEY is not blank). If NASDA_AUTHENTICATION_KEY is null, NASDA_AUTHENTICATOR will be null. Encryption is blind to case and non-alphanumeric characters.

Parent Groups: BROWSE_REQUEST, DIRECTORY_SEARCH, INVENTORY_SEARCH, PRODUCT_REQUEST, PRODUCT_STATUS_REQUEST, QUIT

Children:

NEW_ECS_AUTHENTICATOR **Maximum length:** 32

Possible values: **ODL Type:** String

Definition: In the year 2002 implementation of ECS registration, used to replace the existing ECS_AUTHENTICATOR in an ECS User Profile.

Parent Groups: USER_PASSWORD_CHANGE_REQUEST

Children:

NORTH_LATITUDE **Maximum length:** 8

Possible values: -90.0000 to +90.0000 **ODL Type:** Real

Definition: Northernmost latitude for a range on the globe.

Parent Groups: RANGE_LOC

Children:

NORTHBOUNDINGCOORDINATE **Maximum length:** 11

Possible values: -90.0 to +90.0 **ODL Type:** Real

Definition: Northernmost coordinate of the limit of coverage expressed in geodetic latitude. *(ASTER/ECS only.)*

Parent Groups: SPATIAL_COVERAGE

Children:

NUMBER_OF_DATASETS **Maximum length:** 10

Possible values: 1 to 2147483647 **ODL Type:** Integer

Definition: Number of data sets being returned in a query result set.

Parent Groups: DIRECTORY_RESULT, INVENTORY_RESULT

Children:

NUMBER_OF_GRANULE_HITS **Maximum length:** 10

Possible values: 1 to 2147483647 **ODL Type:** Integer

Definition: Number of granules (or one more than the number) for this dataset being returned in full query result set.

Should be present only in the last chunk of granules for a data set. Used to signal all granules have been returned. Some archives send value one greater than number actually returned to flag more granules were available than were returned.

Parent Groups: DATASET~1

Children:

NUMBER_OF_GRANULES **Maximum length:** 10

Possible values: 1 to 2147483647 **ODL Type:** Integer

Definition: The number of granules included in the package.

Use of this field in SUB_REQUEST_STATUS_INFO is not well defined.

Parent Groups: PACKAGE, SUB_REQUEST_STATUS_INFO

Children:

NUMBER_OF_MEDIA_FORMAT **Maximum length:** 10

Possible values: **ODL Type:** Integer

Definition: Number of MEDIA_FORMAT~1 groups to follow.

Parent Groups: MEDIA_TYPE~1

Children:

NUMBER_OF_MEDIA_TYPE **Maximum length:** 10

Possible values: **ODL Type:** Integer

Definition: Number of MEDIA_TYPE~1 groups to follow.

Parent Groups: PROCESSING_OPTION

Children:

NUMBER_OF_OPTIONS **Maximum length:** 10

Possible values: 1 to 2147483647 **ODL Type:** Integer

Definition: Number of PROCESSING_OPTION groups to follow.

Parent Groups: PACKAGE

Children:

OBSCURED **Maximum length:** 1

Possible values: Y, N **ODL Type:** Symbol

Definition: Indicates whether a particular criteria and/or subsetting/product generation options as a whole should use a regular input field (OBSCURED=N) or a password-style input field (OBSCURED=Y) in the search client, and whether the values entered should be shown elsewhere in the client. This option only affects the presentation of data input fields to the user in the search client. It does not imply any additional security in the data transmission from the search client to the data server.

Parent Groups: SPECIALIZED_CRITERIA~1

Children:

OPTION_ID **Maximum length: 30**

Possible values: **ODL Type:** String

Definition: Description of processing option available for this package.

In spite of the name, PROCESSING_OPTIONS is one of the OPTION_ID strings listed in the PROCESSING_OPTION groups.

Parent Groups: PROCESSING_OPTION

Children:

ORDER_OPTIONS **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: Indicates special order product generation parameters for a package can be selected.

Used in a way similar to subset options but for processing other than subsetting.

Parent Groups: PACKAGE

Children: [REQUIRED], SPECIALIZED_CRITERIA~1

ORDER_SPEC **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: Order processing/generation parameters selected by user.

Parent Groups: LINE_ITEM

Children: [SPECIALIZED_CRITERIA~2]

ORDER_STATUS_CODE **Maximum length:** 10

Possible values: PROPOSED, ACCEPTED, PROCESSING, CANCELED, FAILED, COMPLETED, REJECTED, ON HOLD, CLOSED **ODL Type:** String

Definition: Provides the status for a order status request.

Original values proposed by ASTER/ECS: PROPOSED (received by data center), ACCEPTED (received by DADS and validated), PROCESSING (being processed for delivery), CANCELED (cancelled at user request), FAILED (could not be processed due to error condition), COMPLETED (order processing completed successfully), REJECTED (rejected by data center). V0 IMS has added ON HOLD (not being processed for some reason) and CLOSED (order closed by data center).

Parent Groups: ORDER_STATUS_INFO, PRODUCT_CANCEL_RESULT

Children:

ORDER_STATUS_COMMENT **Maximum length:** 1000

Possible values: **ODL Type:** Sequence String

Definition: Ancillary information concerning status or cancellation of a product request.

ASTER ICD specified this as a 128-character string. V0 IMS raised it to 1000 and made it a sequence string to allow additional detail.

Parent Groups: ORDER_STATUS_INFO, PRODUCT_CANCEL_RESULT

Children:

ORDER_STATUS_INFO **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: Status on an order for (usually) a single request id.

ASTER/ECS uses INITIATOR_REQUEST_ID; V0 uses REQUEST_ID~2.

Parent Groups: PRODUCT_STATUS_INFO

Children: [COMPLETION_DATE], INITIATOR_REQUEST_ID, ORDER_STATUS_CODE, [ORDER_STATUS_COMMENT], [PLANNED_COMPLETION_DATE], PRICE, RECEIVE_DATE, REQUEST_ID~2, SHIPPING_ADDRESS, SUB_REQUEST_STATUS_INFO

ORG_CENTER

Maximum length: 31

Possible values:

ODL Type: String

Definition: Originating center for MD search.

Obsolete; being dropped.

Parent Groups: DATASET~2, GCMD_SEARCH

Children:

ORGANIZATION

Maximum length: 60

Possible values:

ODL Type: String

Definition: Organization for address.

On DAAC_CONTACT_ADDRESS this is required field. On others, it is optional from profile.

Parent Groups: BILLING_ADDRESS, CONTACT_ADDRESS, DAAC_CONTACT_ADDRESS, SHIPPING_ADDRESS

Children:

OUTER_RING

Maximum length:

Possible values:

ODL Type: Aggregate

Definition: Data describing a ring (polygon) that is part of a G-ring, containing zero or more INNER_RING holes.

LATITUDE and LONGITUDE must be sequences of three or more values; both must have the same number of values. Order of points must be clockwise from a satellite view.

Parent Groups: G_RING_LOC

Children: [INNER_RING], LATITUDE, LONGITUDE

PACKAGE

Maximum length:

Possible values:

ODL Type: Aggregate

Definition: A collection of granules which can be ordered from an archive.

All PACKAGE groups can be included before any DATASET~1 group, or they may be intermixed; or PACKAGE groups may be included inside the corresponding DATASET~1 groups. Package information in DIRECTORY_RESULT and DATASET~2 is for dataset-based ordered.

Parent Groups: DATASET~1, DATASET~2, DIRECTORY_RESULT, INVENTORY_RESULT

Children: COMMENT, DATASET_ID, [DATASET_ORDER_OPTIONS], DATA_CENTER_ID, [INFO_PROMPT], [LINE_ITEMS_PER_GRANULE], [MISC_URL], NUMBER_OF_GRANULES, NUMBER_OF_OPTIONS, [ORDER_OPTIONS], PACKAGE_ID, PROCESSING_OPTION, [SUBSET_OPTIONS], [TITLE~2]

PACKAGE_CONTACT_ADDRESS

Maximum length:

Possible values:

ODL Type: Aggregate

Definition: Contact information for the particular package where there are multiple contacts at the Data Center. (Used mostly by international partners.)

Proposed rename of DAAC_CONTACT_ADDRESS; never processed. Now obsolete.

Parent Groups:
Children:

PACKAGE_ID
Maximum length: 50
Possible values: Identifier, "*", or "*xxx"
ODL Type: Sequence String
Definition: Name of packages in which this granule or dataset can be ordered, or name of package being described or ordered. For external subsetting PRODUCT REQUEST only, a LINE_ITEM group may contain a PACKAGE_ID consisting of multiple granules. In all other cases, the PRODUCT REQUEST will have a separate LINE_ITEM group for each granule and the PACKAGE_ID will be a single string.

Special value of "" allows a PACKAGE group to be used where granules can be ordered individually, all of which have the same characteristics. In such cases, the GRANULE_ID will be used as the PACKAGE_ID in the LINE_ITEM. "*xxx" is an asterisk followed by an identifier, which allows two or more *-type sets of package characteristics to be defined.* CH01

Parent Groups: DATASET~1, DATASET~2, GRANULE, LINE_ITEM, PACKAGE, PRODUCT_DELIVERY
Children:

PACKAGE_SIZE
Maximum length: 10
Possible values:
ODL Type: String
Definition: String describing the size of the packages perhaps with units, e.g., “127 MB.”
Parent Groups: PROCESSING_OPTION
Children:

PARAMETER~1
Maximum length: 80
Possible values:
ODL Type: Sequence String
Definition: Geophysical term(s) associated with a dataset, granule, or search.
PARAMETER~1 is required for each GRANULE, but may be given instead at the DATASET~1 level if it is the same for all GRANULEs in the DATASET~1.
Parent Groups: DATASET~1, DATASET~4, DEPENDENCY, DIRECTORY_SEARCH, GRANULE, INVENTORY_SEARCH
Children:

PARAMETER~2
Maximum length:
Possible values:
ODL Type: Aggregate
Definition: Processing parameters for product generation
(ASTER/ECS only.)
Parent Groups: PRODUCT_GENERATION
Children: PGR_CODE, PGR_VALUE

PASSWORD_RESET
Maximum length: 1
Possible values: Y/N
ODL Type: Symbol
Definition: Indicates whether this message is to be treated as a password reset or a password change request. If the flag is not present, it is interpreted as being set to “N”.
Parent Groups: USER_PASSWORD_CHANGE_REQUEST
Children:

PATH **Maximum length:** 4

Possible values: 1 to 251 **ODL Type:** Sequence Integer

Definition: WRS satellite path (single value or range).

Use one value for a single satellite path, two for a range. Any additional values will be ignored.

Parent Groups: PATH_ROW_LOC

Children:

PATH_ROW_LOC **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: Satellite path and data-take row from Worldwide Reference System developed for Landsat data.

If selected by user for search, always accompanied by another xxx_LOC as well. If returned by data center for coverage, should be accompanied by another xxx_LOC.

Parent Groups: GRANULE, INVENTORY_SEARCH, LINE_ITEM

Children: PATH, ROW, WRS_TYPE

PGR_CODE **Maximum length:** 16

Possible values: **ODL Type:** String

Definition: TBD.

(ASTER/ECS only.) The possible value of keywords in "PARAMETER~1 group" is defined by Valids. (This appears to be intended for processing options; ASTER/ECS may want to consider the ORDER_OPTIONS capability being inserted for ASF, since it is much more flexible.)

Parent Groups: PARAMETER~2

Children:

PGR_VALUE **Maximum length:** TBD

Possible values: **ODL Type:** TBD

Definition: TBD.

(ASTER/ECS only.) The possible value of keywords in "PARAMETER~1 group" is defined by Valids. (This appears to be intended for processing options; ASTER/ECS may want to consider the ORDER_OPTIONS capability being inserted for ASF, since it is much more flexible.)

Parent Groups: PARAMETER~2

Children:

PHONE **Maximum length:** 22

Possible values: **ODL Type:** String

Definition: Voice telephone number of associated person.

Parent Groups: BILLING_ADDRESS, CONTACT_ADDRESS, DAAC_CONTACT_ADDRESS, DATA_SET_CONTACT, SHIPPING_ADDRESS

Children:

PLANNED_COMPLETION_DATE **Maximum length:** 10
Possible values: yyyy-mm-dd **ODL Type:** String
Definition: Date of expected completion for product order.
Parent Groups: ORDER_STATUS_INFO
Children:

POINT_LOC **Maximum length:**
Possible values: **ODL Type:** Aggregate
Definition: Single point on the globe.
Parent Groups: GRANULE, INVENTORY_SEARCH, LINE_ITEM, SPECIALIZED_CRITERIA~2
Children: LATITUDE, LONGITUDE

POLE_INCLUDED **Maximum length:** 1
Possible values: N, S, B **ODL Type:** Symbol
Definition: Pole included in polygon (quadrilateral) region.
Field omitted if neither pole included. Some clients cannot handle B (both poles).
Parent Groups: POLYGON_LOC~1, POLYGON_LOC~2
Children:

POLYGON_LOC~1 **Maximum length:**
Possible values: **ODL Type:** Aggregate
Definition: Group of four latitude longitude pairs describing the search area.
The V0 IMS recognizes only four-sided polygons (quadrilaterals).
Parent Groups: INVENTORY_SEARCH, SPECIALIZED_CRITERIA~2
Children: LATITUDE, LONGITUDE, MAP_PROJECTION_TYPE, [POLE_INCLUDED], TANGENT_LATITUDE, TANGENT_LONGITUDE

POLYGON_LOC~2 **Maximum length:**
Possible values: **ODL Type:** Aggregate
Definition: Group of four latitude longitude pairs describing a granule's coverage.
The V0 IMS recognizes only four-sided polygons (quadrilaterals).
Parent Groups: GRANULE, LINE_ITEM
Children: CENTROID_LAT, CENTROID_LON, LATITUDE, LONGITUDE, [POLE_INCLUDED]

PREDICTED_COMPLETION_DATE **Maximum length:** 5
Possible values: 0 to 65335 **ODL Type:** Integer
Definition: Estimated number of days until product is ready for delivery.
(ASTER/ECS only.)
Parent Groups: PRICE_ESTIMATE_RESULT
Children:

PRICE
Maximum length: 10
Possible values:
ODL Type: Real
Definition: Estimated total price of products. The units are yen for ASTER products, and US dollars for all other products. Also used to designate the handling fee applied to a specific data set.
Parent Groups: ORDER_STATUS_INFO, HANDLING_FEE
Children:

PRICE_COMMENT
Maximum length: 128
Possible values:
ODL Type: Sequence String
Definition: Used to describe a DAAC's pricing policy
Parent Groups: HANDLING_FEE, PRICE_ESTIMATE_RESULT
Children:

PRICE_ESTIMATE_REQUEST
Maximum length:
Possible values:
ODL Type: Aggregate
Definition: Requests estimated total price of products that user is about to order.
(ASTER/ECS only.) This request is submitted prior to Product Request in ECS/ASTER communication.
Parent Groups:
Children: DATA_CENTER_ID, MEDIA, MESSAGE_ID, MONITOR, VERSION

PRICE_ESTIMATE_REQUEST~2
Maximum length:
Possible values:
ODL Type: Aggregate
Definition: Request to price estimate server for price estimate for each LINE_ITEM group, can contain one or more LINE_ITEMs.
Parent Groups:
Children: MESSAGE_ID, DATA_CENTER_ID, LINE_ITEM, MONITOR, VERSION

PRICE_ESTIMATE_RESULT
Maximum length:
Possible values:
ODL Type: Aggregate
Definition: Estimated total price of products for user order.
(ASTER/ECS only.)
Parent Groups:
Children: DATA_CENTER_ID, ESTIMATED_PRICE, MESSAGE_ID, MONITOR, PREDICTED_COMPLETION_DATE, [PRICE_COMMENT], STATUS_CODE, [STATUS_CODE_COMMENT], VERSION

PRICE_ESTIMATE_RESULT~2
Maximum length:
Possible values:
ODL Type: Aggregate
Definition: Result from price estimate server, can contain one or more LINE_ITEMs.
Parent Groups:
Children: MESSAGE_ID, DATA_CENTER_ID, LINE_ITEM_RESULT, MONITOR, STATUS_CODE, STATUS_CODE_COMMENT, VERSION

PROCESSING_DATA_CENTER **Maximum length:** 10

Possible values: **ODL Type:** String

Definition: Data center which is handling a processing request.

Returned by ECS to ASTER.

Parent Groups: SUB_REQUEST_STATUS_INFO

Children:

PROCESSING_LEVEL **Maximum length:** 2

Possible values: 0, 1, 1a, 1b, 2, 3, 4 **ODL Type:** Symbol, Sequence String

Definition: Level to which data has been processed associate with a dataset, granule, or search.

Search can specify one or more; DATASET~1 or GRANULE normally specifies only single value. If same for all GRANULEs of DATASET~1, can be given at DATASET~1 level. Usually SYMBOL for single value, sequence string if more than one.

Parent Groups: DATASET~1, DATASET~4, DIRECTORY_SEARCH, GRANULE, INVENTORY_SEARCH

Children:

PROCESSING_OPTION **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: Repeating group listing options available for ordering this package.

In spite of the name, PROCESSING_OPTIONS is one of the OPTION_ID strings listed in the PROCESSING_OPTION groups.

Parent Groups: PACKAGE

Children: MEDIA_TYPE~1, NUMBER_OF_MEDIA_TYPE, OPTION_ID, PACKAGE_SIZE

PROCESSING_OPTIONS **Maximum length:** 30

Possible values: **ODL Type:** String

Definition: Processing option selected by user for this LINE_ITEM.

In spite of the name, PROCESSING_OPTIONS is one of the OPTION_ID strings listed in the PROCESSING_OPTION groups.

Parent Groups: LINE_ITEM

Children:

PRODUCT_CANCEL_REQUEST **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: Requests cancellation of previous product request.

(ASTER/ECS only.)

Parent Groups:

Children: [AUTHENTICATOR], [ECS_AUTHENTICATOR], INITIATOR_REQUEST_ID, MESSAGE_ID, MONITOR, REQUEST_ID~2, SUB_REQUEST_ID, VERSION

PRODUCT_CANCEL_RESULT **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: Response to cancel request.

From ASTER GDS, a successful return code does not imply that the request will be cancelled; it simply means that ASTER GDS received the request to cancel. The user will have to check the Product Request Status periodically to see if it indeed gets cancelled.

Parent Groups:

Children: DATA_CENTER_ID, INITIATOR_REQUEST_ID, MESSAGE_ID, MONITOR, [ORDER_STATUS_CODE], [ORDER_STATUS_COMMENT], REQUEST_ID~2, STATUS_CODE, [STATUS_CODE_COMMENT], [SUB_REQUEST_INFO], VERSION

PRODUCT_DELIVERY **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: Delivered product and generated product.

(ASTER/ECS only.) When user requests delivery of product only, PRODUCT_GENERATION is omitted and DATASET_ID and PACKAGE_ID define product to be delivered. When user requests generation and delivery of product, DATASET_ID and PACKAGE_ID define source product and PRODUCT_GENERATION defines processing.

Parent Groups: MEDIA

Children: DATASET_ID, PACKAGE_ID, [PRODUCT_GENERATION], SENSOR_TYPE

PRODUCT_GENERATION **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: Processing level and parameter for product generation.

(ASTER/ECS only.)

Parent Groups: PRODUCT_DELIVERY

Children: [PARAMETER~2], PRODUCT_TYPE

PRODUCT_REQUEST **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: Provides data for product request (order).

ASTER/ECS use INITIATOR_REQUEST_ID and MEDIA group; V0 uses REQUEST_ID and LINE_ITEM group.

Parent Groups:

Children: [AUTHENTICATOR], [BILLING_ADDRESS], CONTACT_ADDRESS, DATA_CENTER_ID, [ECS_AUTHENTICATOR], [INITIAL_USER_KEY], INITIATOR_REQUEST_ID, LINE_ITEM, MEDIA, MESSAGE_ID, MONITOR, [NASDA_AUTHENTICATOR], REQUEST_ID~1, [SHIPPING_ADDRESS], USER_AFFILIATION, VERSION CH01

PRODUCT_RESULT
Maximum length:
Possible values:
ODL Type: Aggregate
Definition: Order acknowledgement, including data center contact information.
Only acknowledges receipt of order, not necessarily acceptance.
Parent Groups:
Children: DAAC_CONTACT_ADDRESS, DATA_CENTER_ID, [DATA_URL], MESSAGE_ID, [MISC_URL], MONITOR, [REQUEST_RESULT], STATUS_CODE, [STATUS_CODE_COMMENT], [VERSION]

PRODUCT_STATUS_INFO
Maximum length:
Possible values:
ODL Type: Aggregate
Definition: Response to PRODUCT_STATUS_REQUEST.
ASTER does not provide DAAC_CONTACT_ADDRESS.
Parent Groups:
Children: [DAAC_CONTACT_ADDRESS], DATA_CENTER_ID, MESSAGE_ID, MONITOR, ORDER_STATUS_INFO, STATUS_CODE, [STATUS_CODE_COMMENT], VERSION

PRODUCT_STATUS_REQUEST
Maximum length:
Possible values:
ODL Type: Aggregate
Definition: Message to request status on a product order.
ASTER uses INITIATOR_REQUEST_ID; V0 uses REQUEST_ID~2.
Parent Groups:
Children: [AUTHENTICATOR], [ECS_AUTHENTICATOR], INITIATOR_REQUEST_ID, MESSAGE_ID, MONITOR, [NASDA_AUTHENTICATOR], REQUEST_ID~2, VERSION CH01

PRODUCT_TYPE
Maximum length: 10
Possible values: 1B00, 2A02, 2A03
ODL Type: Symbol
Definition: Type of product in the case of product generation.
(ASTER/ECS only.) "1B00" means product level 1B. "2A02" and "2A03" means decorrelation stretch. Other values may be added in the future.
Parent Groups: PRODUCT_GENERATION
Children:

PROFILE_EXPIRATION_DATE
Maximum length: 10
Possible values: yyyy-mm-dd format
ODL Type: Date
Definition: Estimated date on which the user profile expires.
Parent Groups: PROFILE_SUBMIT_RESULT, PROFILE_UPDATE_RESULT
Children:

PROFILE_RETRIEVAL_REQUEST
Maximum length:
Possible values:
ODL Type: Aggregate
Definition: ECS user profile retrieve request.
Parent Groups:
Children: DATA_CENTER_ID, ECS_AUTHENTICATOR, MESSAGE_ID, MONITOR, VERSION

PROFILE_RETRIEVAL_RESULT **Maximum length:**
Possible values: **ODL Type:** Aggregate
Definition: ECS user profile retrieve result.
Parent Groups:
Children: BILLING_ADDRESS, CONTACT_ADDRESS, DATA_CENTER_ID, MESSAGE_ID, MONITOR, SHIPPING_ADDRESS, STATUS_CODE, [STATUS_CODE_COMMENT], USER_AFFILIATION, VERSION

PROFILE_SUBMIT_REQUEST **Maximum length:**
Possible values: **ODL Type:** Aggregate
Definition: Submission of user profile information for setting up an initial account.
Parent Groups:
Children: BILLING_ADDRESS, CONTACT_ADDRESS, DATA_CENTER_ID, ECS_AUTHENTICATOR, HOME_DAAC, MESSAGE_ID, MONITOR, SHIPPING_ADDRESS, USER_AFFILIATION, VERSION

PROFILE_SUBMIT_RESULT **Maximum length:**
Possible values: **ODL Type:** Aggregate
Definition: Information returned to the client after a profile submission request.
Parent Groups:
Children: DATA_CENTER_ID, MESSAGE_ID, MONITOR, PROFILE_EXPIRATION_DATE, STATUS_CODE_COMMENT, VERSION

PROFILE_UPDATE_REQUEST **Maximum length:**
Possible values: **ODL Type:** Aggregate
Definition: ECS user profile update request.
Parent Groups:
Children: BILLING_ADDRESS, CONTACT_ADDRESS, DATA_CENTER_ID, ECS_AUTHENTICATOR, MESSAGE_ID, MONITOR, SHIPPING_ADDRESS, USER_AFFILIATION, VERSION

PROFILE_UPDATE_RESULT **Maximum length:**
Possible values: **ODL Type:** Aggregate
Definition: ECS user profile update result.
Parent Groups:
Children: DATA_CENTER_ID, MESSAGE_ID, MONITOR, PROFILE_EXPIRATION_DATE, STATUS_CODE, [STATUS_CODE_COMMENT], VERSION

PROTOCOL_VERSION **Maximum length:** 10
Possible values: **ODL Type:** Real
Definition: Version of message passing protocol, e.g., 3.5.
Provided to allow changes in protocol that are not backward compatible. Since most changes have been made backward compatible, has not been used much.
Parent Groups: VERSION
Children:

QUADRANT_CLOUD_COVERAGE **Maximum length:** 3

Possible values: **ODL Type:** Sequence Integer

Definition: Percent of cloud coverage for scene quadrants.

(ASTER/ECS only.) Cloud coverage percentages for 4 quarters of a scene in the order: upper left, upper right, lower left, lower right. Returned by ASTER GDS only.

Parent Groups: GRANULE

Children:

QUIT **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: Termination message.

QUIT with STATUS_CODE 1000 used for ABORT. QUITs sent by servers should always contain a DATA_CENTER_ID to identify the source.

Parent Groups:

Children: [AUTHENTICATOR], [DATA_CENTER_ID], [ECS_AUTHENTICATOR], MESSAGE_ID, MONITOR, [NASDA_AUTHENTICATOR], STATUS_CODE, [STATUS_CODE_COMMENT], VERSION CH01

RANGE **Maximum length:** 1

Possible values: Y **ODL Type:** Symbol

Definition: Range of values required by user.

"RANGE = Y" cues the client to request minimum and maximum values from the user.

Parent Groups: SPECIALIZED_CRITERIA~1, SPECIALIZED_CRITERIA~3

Children:

RANGE_LOC **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: Rectangular geographic range described by latitude and longitude boundaries.

In DATASET~2 and LINE_ITEM for dataset-based ordering (under consideration).

Parent Groups: DATASET~2, DIRECTORY_SEARCH, GRANULE, INVENTORY_SEARCH, LINE_ITEM, SPECIALIZED_CRITERIA~2

Children: [CENTROID_LAT], [CENTROID_LON], EAST_LONGITUDE, NORTH_LATITUDE, SOUTH_LATITUDE, WEST_LONGITUDE

RECEIVE_DATE **Maximum length:** 20

Possible values: yyyy-mm-ddThh:mm:ss, yyyy-mm-ddThh:mm:ssZ **ODL Type:** Date

Definition: The date that the product request was received by the server.

Parent Groups: ORDER_STATUS_INFO

Children:

REQUEST_ID~1

Maximum length: 30

Possible values:

ODL Type: String

Definition: Identifier assigned by the client for tracking a product request (order).

Displayed on the X-client's DAAC contact screen, followed by a slash and the DAAC_ORDER_ID if the PRODUCT_RESPONSE provides one.

Parent Groups: PRODUCT_REQUEST

Children:

REQUEST_ID~2

Maximum length: 101

Possible values:

ODL Type: Sequence String

Definition: Order id(s) whose status is being queried/shown.

Data centers may allow queries on original REQUEST_ID~1, DAAC_ORDER_ID, or a combination, and may allow wild card queries.

Parent Groups: ORDER_STATUS_INFO, PRODUCT_CANCEL_REQUEST, PRODUCT_CANCEL_RESULT, PRODUCT_STATUS_REQUEST

Children:

REQUEST_RESULT

Maximum length:

Possible values:

ODL Type: Aggregate

Definition: Contains product result information for a portion of an order, i.e. a single ECS request.

Parent Groups: PRODUCT_RESULT

Children: DAAC_REQUEST_ID, LINE_ITEM, [MISC_URL], STATUS_CODE, [STATUS_CODE_COMMENT]

REQUEST_SIZE_GRANULES

Maximum length:

CH01

Possible values:

ODL Type: Integer

Definition: Represents the maximum number of granules that can fit on a given media for ordering.

Parent Groups: MEDIA_MAXIMUM_CAPACITY

Children:

REQUEST_SIZE_MB

Maximum length:

Possible values:

ODL Type: Real

Definition: Represents the maximum number of megabytes that can fit on a given media for ordering.

Parent Groups: MEDIA_MAXIMUM_CAPACITY

Children:

REQUEST_STATUS_CODE

Maximum length: 10

Possible values: PROPOSED, ACCEPTED, PROCESSING, CANCELED, FAILED, COMPLETED, REJECTED, ON HOLD, CLOSED

ODL Type: String

Definition: Status for a sub-request associated with an order request.

Original values proposed by ASTER/ECS: PROPOSED (received by data center), ACCEPTED (received by DADS and validated), PROCESSING (being processed for delivery), CANCELED (cancelled at user request), FAILED (could not be processed due to error condition), COMPLETED (order processing completed successfully), REJECTED (rejected by data center). V0 IMS has added ON HOLD

(not being processed for some reason) and CLOSED (order closed by data center).

Parent Groups: SUB_REQUEST_INFO, SUB_REQUEST_STATUS_INFO

Children:

REQUEST_STATUS_COMMENT

Maximum length: 128

Possible values:

ODL Type: String

Definition: Ancillary information concerning status or cancellation of a subrequest.

Parent Groups: SUB_REQUEST_INFO, SUB_REQUEST_STATUS_INFO

Children:

REQUIRED

Maximum length: 1

Possible values: Y, N

ODL Type: Symbol

Definition: Indicates whether particular criteria and/or subsetting/product generation options as a whole must be specified by the user.

If SUBSET_OPTIONS does not include REQUIRED=Y, then user need not subset; but if he does then any SPECIALIZED_CRITERIA with REQUIRED=Y must be specified. Similar interpretation used for ORDER_OPTIONS.

Parent Groups: DATASET_ORDER_OPTIONS, ORDER_OPTIONS, SPECIALIZED_CRITERIA~1, SUBSET_OPTIONS

Children:

RESTRICTION

Maximum length: 60

Possible values:

ODL Type: Sequence String

Definition: Details of any ordering restrictions placed on the dataset.

Parent Groups: DATASET~1

Children:

RESULT_ATTRIBUTES

Maximum length: 80

Possible values:

ODL Type: Sequence String

Definition: List of attributes that a user has selected (using the metadata customization tool) to be returned in an inventory search. This list overrides the DEFAULT list.

Parent Groups: INVENTORY_SEARCH

Children:

RESULT_GROUP

Maximum length:

Possible values:

ODL Type: Aggregate

Definition: A granule's metadata category group returned in INVENTORY_RESULTs.

This provides a way to return metadata categories for granule-specific metadata.

Parent Groups: GRANULE, RESULT_GROUP

Children: [RESULT_GROUP], RESULT_GROUP_NAME, [SPECIALIZED_RESULTS]

RESULT_GROUP_NAME

Maximum length: 256

Possible values:

ODL Type: String

Definition: Name of a granule's metadata category group.

Parent Groups: RESULT_GROUP

Children:

RESULT_NAME

Maximum length: 80

Possible values: Any previously defined extended search CRITERIA_NAME

ODL Type: String

Definition: Name of extended search or dataset-specific attribute returned in INVENTORY_RESULTs.

Parent Groups: SPECIALIZED_RESULTS

Children:

RESULT_VALUE

Maximum length: 256

Possible values:

ODL Type: String

Definition: Value of extended search or dataset-specific attribute returned in INVENTORY_RESULTs.

Parent Groups: SPECIALIZED_RESULTS

Children:

RESULTS_SELECTABLE

Maximum length: 1

Possible values: **"**Y", "N"

ODL Type: String

Definition: Identifies attributes that a user can select with the metadata customization tool.

Parent Groups: SPECIALIZED_CRITERIA~3

Children:

ROW

Maximum length: 4

Possible values: 1 to 248

ODL Type: Sequence Integer

Definition: WRS data-take row (single value or range).

Use one value for a single data-take row, two for a range. Any additional values will be ignored.

Parent Groups: PATH_ROW_LOC

Children:

RX_CLIENT

Maximum length: 20

Possible values:

ODL Type: Sequence String

Definition: Time stamp when the client received the server response.

First string is integer number of seconds since Unix epoch; second optional string is integer number of microseconds since last integer second.

Parent Groups: MONITOR

Children:

RX_SERVER

Maximum length: 20

Possible values:

ODL Type: Sequence String

Definition: Time stamp when the server received the client request.

First string is integer number of seconds since Unix epoch; second optional string is integer number of microseconds since last integer second.

Parent Groups: MONITOR

Children:

SCENE_CLOUD_COVERAGE

Maximum length: 3

Possible values:

ODL Type: Integer

Definition: Average percent of cloud coverage for scene.

(ASTER/ECS only.) This value is for the whole scene. Returned by ASTER GDS only.

Parent Groups: GRANULE

Children:

SELECT_NUM

Maximum length: 4

Possible values: ONE, MANY

ODL Type: Symbol

Definition: Indicates whether one or many values must be selected from a set of alternatives (in CRITERIA_VALUE).

Parent Groups: SPECIALIZED_CRITERIA~1

Children:

SENDER_VERSION

Maximum length: 16

Possible values:

ODL Type: String

Definition: String identifying the name and number of the sender (client or server) of the message.

Used for documentation and debugging only.

Parent Groups: VERSION

Children:

SENSOR

Maximum length: 30

Possible values:

ODL Type: Sequence String

Definition: Names of sensors associated with a dataset.

Not used in V0 protocol messages.

Parent Groups: DATASET~4, DEPENDENCY

Children:

SENSOR_NAME

Maximum length: 30

Possible values:

ODL Type: Sequence String

Definition: Names of sensors associated with a dataset, granule, or search.

SENSOR_NAME is required for each GRANULE, but may be given instead at the DATASET~1 level if it is the same for all GRANULEs in the DATASET~1.

Parent Groups: DATASET~1, DATASET~3, DIRECTORY_SEARCH, GRANULE, INVENTORY_SEARCH

Children:

SENSOR_TYPE

Maximum length: 4

Possible values: "VST", "V", "S", "T", "VS", "ST", "VT"

ODL Type: Sequence String

Definition: TBD.

(ASTER/ECS only.) The possible value of "SENSOR_TYPE" for delivery product type is defined by Valids.

Parent Groups: PRODUCT_DELIVERY

Children:

SESSION_ID **Maximum length:** 86

Possible values: **ODL Type:** String

Definition: String identifying a user session.

Used for matching purposes in SCRS statistics. Composed of the following, separated by colons: client host fully-qualified domain name, client Unix process-id, session start date and time as YYMMDD:HHMMSS. In Web gateway, every communication with servers is a unique session (INVENTORY_SEARCH will have different SESSION_ID from PRODUCT_REQUEST).

Parent Groups: MONITOR

Children:

SHIPPING_ADDRESS **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: Address where requested data is to be sent.

Parent Groups: ORDER_STATUS_INFO, PRODUCT_REQUEST, PROFILE_RETRIEVAL_RESULT, PROFILE_SUBMIT_REQUEST, PROFILE_UPDATE_REQUEST

Children: [ADDRESS], CITY, COUNTRY, [EMAIL], [FAX], FIRST_NAME, LAST_NAME, [MIDDLE_INITIAL], [ORGANIZATION], PHONE, [STATE], [TITLE], [ZIP]

SOURCE **Maximum length:** 30

Possible values: **ODL Type:** Sequence String

Definition: Name(s) of source/platform associated with a dataset.

Not used in V0 protocol messages.

Parent Groups: DATASET~4, DEPENDENCY

Children:

SOURCE_NAME **Maximum length:** 30

Possible values: **ODL Type:** Sequence String

Definition: Name(s) of source/platform associated with a dataset, granule, or search.

SOURCE_NAME is required for each GRANULE, but may be given instead at the DATASET~1 level if it is the same for all GRANULEs in the DATASET~1.

Parent Groups: DATASET~1, DATASET~3, DIRECTORY_SEARCH, GRANULE, INVENTORY_SEARCH

Children:

SOUTH_LATITUDE **Maximum length:** 8

Possible values: -90.0000 to +90.0000 **ODL Type:** Real

Definition: Southernmost latitude for a range on the globe.

Parent Groups: RANGE_LOC

Children:

SOUTHBOUNDINGCOORDINATE **Maximum length:** 11

Possible values: -90.0 to +90.0 **ODL Type:** Real

Definition: Southernmost limit of coverage expressed in geodetic latitude.

(ASTER/ECS only.) Must be less than NORTHBOUNDINGCOORDINATE.

Parent Groups: SPATIAL_COVERAGE

Children:

SPATIAL

Maximum length: 256

Possible values:

ODL Type: Sequence String

Definition: Free text used to describe spatial coverage of the dataset or granules.

Used for documentation only. Not a part of dependent valids support files nor in V0 protocol messages.

Parent Groups: DATASET_COVERAGE, GRANULE_COVERAGE

Children:

SPATIAL_COVERAGE

Maximum length:

Possible values:

ODL Type: Aggregate

Definition: TBD.

(ASTER/ECS only.)

Parent Groups: DATASET~3

Children: EASTBOUNDINGCOORDINATE, NORTHBOUNDINGCOORDINATE, SOUTHBOUNDINGCOORDINATE, WESTBOUNDINGCOORDINATE

SPECIALIZED_CRITERIA~1 (General)

Maximum length:

Possible values:

ODL Type: Aggregate

Definition: Possible criteria that can be specified by user for subsetting. SPECIALIZE_CRITERIA~1 can contain nested SPECIALIZED_CRITERIA~1, allowing for complex types.

Parent Groups: DATASET_ORDER_OPTIONS, ORDER_OPTIONS, SUBSET_OPTIONS, SPECIALIZED_CRITERIA~1

Children: COMMENT, [CRITERIA_DEFAULT], [CRITERIA_DEFAULT_FROM_PSA], [CRITERIA_MAX], [CRITERIA_MAX_FROM_CORE], [CRITERIA_MAX_FROM_PSA], [CRITERIA_MIN], [CRITERIA_MIN_FROM_CORE], [CRITERIA_MIN_FROM_PSA], CRITERIA_NAME, CRITERIA_TYPE, [CRITERIA_VALUE], [CRITERIA_VALUE_FROM_PSA], [CRITERIA_VALUE_MATCH], [MAX_LEN], [OBSCURED], [RANGE], [REQUIRED], [SELECT_NUM], [VALIDATE], SPECIALIZED_CRITERIA~1

Note: SPECIALIZED_CRITERIA~1 can be used with specific keywords to generate different types of user input forms on the EOS Data Gateway. Specific instances of SPECIALIZED_CRITERIA~1 are described below. For each, parent groups do not vary from those listed above; only the child keywords vary by specific instance

SPECIALIZED_CRITERIA~1 (Pick List)

Definition: *Display a list of values from which the user can select. SELECT_NUM=ONE allows just one value to be selected, SELECT_NUM=MANY allows one or more values to be selected.*

Children: *CRITERIA_VALUE or CRITERIA_VALUE_FROM_PSA, [CRITERIA_DEFAULT] or [CRITERIA_DEFAULT_FROM_PSA], SELECT_NUM, COMMENT, CRITERIA_NAME, CRITERIA_TYPE, REQUIRED*

SPECIALIZED_CRITERIA~1 (Enter a single number/date)

Definition: *Display a type-in box in which the user enters a single value. SELECT_NUM=ONE is required. By default the number/date entered is checked to see if it is within the min/max limits.*

Set VALIDATE=N to turn the limits checking off. Type must be either numeric or date i.e. CRITERIA_TYPE=REAL,INTEGER,FLOAT or DATE

Children: *CRITERIA_MIN or CRITERIA_MIN_FROM_PSA, CRITERIA_MAX or CRITERIA_MAX_FROM_PSA, [CRITERIA_DEFAULT] or [CRITERIA_DEFAULT_FROM_PSA], [COMMENT], CRITERIA_NAME, CRITERIA_TYPE, [REQUIRED], [VALIDATE]*

SPECIALIZED_CRITERIA~1 (Enter a number/date range)

Definition: *Display two type-in boxes in which the user enters a range of values. By default the numbers entered are checked to see if it is within the min/max limits, set VALIDATE=N to turn the limits checking off. RANGE=Y is required. Type must be either numeric or date i.e.*
CRITERIA_TYPE= REAL,INTEGER,FLOAT or DATE

Children: *CRITERIA_MIN or CRITERIA_MIN_FROM_PSA, CRITERIA_MAX or CRITERIA_MAX_FROM_PSA, [CRITERIA_DEFAULT] or [CRITERIA_DEFAULT_FROM_PSA], COMMENT, CRITERIA_NAME, CRITERIA_TYPE, [REQUIRED], [VALIDATE], RANGE*

SPECIALIZED_CRITERIA~1 (Hidden value)

Definition: *Is not shown to the user, but is used to pass some information from the package to the line_item. CRITERIA_TYPE=FIXED is required.*

Children: *CRITERIA_VALUE or CRITERIA_VALUE_FROM_PSA, CRITERIA_NAME, CRITERIA_TYPE*

SPECIALIZED_CRITERIA~1 (Input Geo)

Definition: *Display type-in boxes for entering a geographic specification. CRITERIA_TYPE=GEO. The CRITERIA_VALUE is sequence string containing one or more of BY_POINT_LOC, BY_RANGE_LOC or BY_POLYGON_LOC*

Children: *CRITERIA_TYPE, CRITERIA_VALUE, CRITERIA_NAME, [COMMENT]*

SPECIALIZED_CRITERIA~1 (Input text)

Definition: *CRITERIA_TYPE=STRING and MAX_LEN is required.*

Children: *MAX_LEN, CRITERIA_TYPE, SPECIALIZED_CRITERIA~1 (Landsat 7 Floating scene)*

SPECIALIZED_CRITERIA~2 **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: Specialized criteria selected by user to define search, subset, or product generation.

The Web gateway returns the CRITERIA_TYPE, although a server should probably know it.

Parent Groups: DATASET_ORDER_SPEC, EXTENDED_SEARCH, ORDER_SPEC, SUBSET_SPEC

Children: [CRITERIA_MAX], [CRITERIA_MIN], CRITERIA_NAME, [CRITERIA_TYPE], [CRITERIA_VALUE], [POINT_LOC], [POLYGON_LOC~1], [RANGE_LOC]

SPECIALIZED_CRITERIA~3 **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: Possible criteria that can be specified by user for searching

Parent Groups: EXTENDED_SEARCH_MASTER_LIST

Children: CATEGORY_NAME, COMMENT, [CRITERIA_DEFAULT], [CRITERIA_MAX], [CRITERIA_MIN], CRITERIA_NAME, CRITERIA_TYPE, [CRITERIA_VALUE], [DEFAULT], [MAX_LEN], [RANGE], RESULTS_SELECTABLE, [SELECT_NUM], [VARIANT]

SPECIALIZED_RESULTS **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: Actual values for extended search attributes for the matching granule.

This provides a structured way to return granule-specific metadata. The COMMENT field of GRANULE can be used to return unstructured free text.

Parent Groups: GRANULE, RESULT_GROUP

Children: RESULT_NAME, RESULT_VALUE

SPECIALIZED_SEARCH_URL **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: URL for a dataset-specific search application

Data centers may also want to provide such URLs to the science team for inclusion in the Welcome screen.

Parent Groups: DATASET~1, DATASET~2

Children: URL, URL_COMMENT

START_DATE **Maximum length:** 20

Possible values: yyyy-mm-ddThh:mm:ss, yyyy-mm-ddThh:mm:ssZ **ODL Type:** Date

Definition: Beginning date for search or granule temporal coverage.

In DATASET~2 and LINE_ITEM for dataset-based ordering (under consideration).

Parent Groups: DATASET~2, DATASET~3, DIRECTORY_SEARCH, GRANULE, INVENTORY_SEARCH

Children:

START_DAY_OF_YEAR **Maximum length:** 3

Possible values: 1 TO 366 **ODL Type:** Integer

Definition: Beginning day of seasonal interest.

Query is for granules with start dates that are between START_DATE and STOP_DATE and are between START_DAY_OF_YEAR and END_DAY_OF_YEAR in whatever year. This could involve partial "seasons" (e.g., 2/1/93-2/28/95, days 1-90 would give Feb-Mar 93, Jan-Mar 94, Jan-Feb 95).

Parent Groups: INVENTORY_SEARCH

Children:

STATE

Maximum length: 20

Possible values:

ODL Type: String

Definition: US postal state or foreign equivalent, if any, for address.

Parent Groups: BILLING_ADDRESS, CONTACT_ADDRESS, DAAC_CONTACT_ADDRESS, SHIPPING_ADDRESS

Children:

STATUS_CODE

Maximum length: 4

Possible values: 1 to 1000

ODL Type: Integer

Definition: Numeric code giving status of query and/or server.

See separate status code table for meanings. (Listed in appendix C of the printed document.)

Parent Groups: ACCOUNT_STATUS_RESULT, DATASET~1, DIRECTORY_RESULT, FTP_BROWSE_RESULT, INTEGRATED_BROWSE_RESULT, INVENTORY_RESULT, PRICE_ESTIMATE_RESULT, PRODUCT_CANCEL_RESULT, PRODUCT_RESULT, PRODUCT_STATUS_INFO, PROFILE_RETRIEVAL_RESULT, PROFILE_SUBMIT_RESULT, PROFILE_UPDATE_RESULT, QUIT, REQUEST_RESULT, USER_PASSWORD_CHANGE_RESULT

Children:

STATUS_CODE_COMMENT

Maximum length: 256

Possible values:

ODL Type: Sequence String

Definition: Free text comment provided by data center to further describe status.

Some clients present this field in place of the fixed text associated with STATUS_CODE. Text should not be worded in a way that presumes the fixed text of the STATUS_CODE is presented as well.

Parent Groups: ACCOUNT_STATUS_RESULT, DIRECTORY_RESULT, FTP_BROWSE_RESULT, INTEGRATED_BROWSE_RESULT, INVENTORY_RESULT, PRICE_ESTIMATE_RESULT, PRODUCT_CANCEL_RESULT, PRODUCT_RESULT, PRODUCT_STATUS_INFO, PROFILE_RETRIEVAL_RESULT, PROFILE_SUBMIT_RESULT, PROFILE_UPDATE_RESULT, QUIT, REQUEST_RESULT, USER_PASSWORD_CHANGE_RESULT

Children:

STOP_DATE

Maximum length: 20

Possible values: yyyy-mm-ddThh:mm:ss, yyyy-mm-ddThh:mm:ssZ

ODL Type: Date

Definition: Ending date for search or granule temporal coverage.

In DATASET~2 and LINE_ITEM for dataset-based ordering (under consideration).

Parent Groups: DATASET~2, DATASET~3, DIRECTORY_SEARCH, GRANULE, INVENTORY_SEARCH

Children:

STOP_DAY_OF_YEAR **Maximum length:** 3

Possible values: 1 to 366 **ODL Type:** Integer

Definition: Ending day of seasonal interest.

Query is for granules with start dates that are between START_DATE and STOP_DATE and are between START_DAY_OF_YEAR and END_DAY_OF_YEAR in whatever year. This could involve partial "seasons" (e.g., 2/1/93-2/28/95, days 1-90 would give Feb-Mar 93, Jan-Mar 94, Jan-Feb 95).

Parent Groups: INVENTORY_SEARCH

Children:

SUB_REQUEST_ID **Maximum length:** 10

Possible values: **ODL Type:** Sequence String

Definition: The identifier of a lower level request. This can be used to get status or cancel a portion of an order rather than the entire order.

In ECS this is a character string in order to provide uniqueness across sites. Since in ASTER GDS this is an integer, ASTER can just convert the integer to an ASCII string.

Parent Groups: PRODUCT_CANCEL_REQUEST, SUB_REQUEST_INFO, SUB_REQUEST_STATUS_INFO

Children:

SUB_REQUEST_INFO **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: Aggregate describing the result of the cancel attempt for the subrequest (as opposed to the entire order).

Parent Groups: PRODUCT_CANCEL_RESULT

Children: [REQUEST_STATUS_CODE], [REQUEST_STATUS_COMMENT], SUB_REQUEST_ID

SUB_REQUEST_STATUS_INFO **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: The status of a sub request.

Optional DATA_URL group added for V0.

Parent Groups: ORDER_STATUS_INFO

Children: [COMPLETION_DATE], [DAAC_CONTACT_ADDRESS], DATASET_ID, [DATA_URL], FORMAT_ID, [NUMBER_OF_GRANULES], [PROCESSING_DATA_CENTER], REQUEST_STATUS_CODE, [REQUEST_STATUS_COMMENT], SUB_REQUEST_ID, TYPE_ID

SUBSET_OPTIONS **Maximum length:** PACKAGE

Possible values: **ODL Type:** Aggregate

Definition: Indicates subsetting parameters for a package if subsetting is available.

Parent Groups: PACKAGE

Children: [REQUIRED], SPECIALIZED_CRITERIA~1

SUBSET_SPEC
Maximum length:
Possible values:
ODL Type: Aggregate
Definition: Subsetting parameters selected by user for ordering.
Parent Groups: LINE_ITEM
Children: [FULL_SUBINTERVAL], [SPECIALIZED_CRITERIA~2],

TANGENT_LATITUDE
Maximum length: 8
Possible values: -90.0000 to +90.0000
ODL Type: Real
Definition: Current tangent (center) latitude of projection map.
Parent Groups: POLYGON_LOC~1
Children:

TANGENT_LONGITUDE
Maximum length: 9
Possible values: -180.0000 to +180.0000
ODL Type: Real
Definition: Current tangent (center) latitude of projection map.
Parent Groups: POLYGON_LOC~1
Children:

TEMPORAL
Maximum length: 256
Possible values:
ODL Type: Sequence String
Definition: Free text used to describe temporal coverage of the dataset or granules.
Used for documentation only. Not a part of dependent valids support files nor in V0 protocol message.
Parent Groups: DATASET_COVERAGE, GRANULE_COVERAGE
Children:

TERM
Maximum length: 50
Possible values:
ODL Type: Sequence String
Definition: Keyword used to describe the science parameter area of the collection. A collection can conceivably cover many such parameters.
(ASTER/ECS only.)
Parent Groups: DATASET~3
Children:

TITLE
Maximum length: 5
Possible values:
ODL Type: String
Definition: Title for name of addressee.
Parent Groups: BILLING_ADDRESS, CONTACT_ADDRESS, SHIPPING_ADDRESS
Children:

TITLE~2
Maximum length: 80
Possible values:
ODL Type: String
Definition: Title of package. Implicitly indicates that only one line item is allowed to be selected per granule per order.
Parent Groups: PACKAGE
Children:

TOPIC
Maximum length: 32
Possible values:
ODL Type: Sequence String
Definition: Keyword used to describe the general topic area of the collection. A collection can conceivably cover several topics. Examples include: Atmospheric Science, Biosphere, Land Surface, etc.
(ASTER/ECS only.)
Parent Groups: DATASET~3
Children:

TOTAL_FILE_SIZE
Maximum length: 10
Possible values: 1 to 2147483647
ODL Type: String
Definition: Combined uncompressed byte size of all FTP requests (may be exact or approximated).
Parent Groups: FTP_BROWSE_RESULT
Children:

TX_CLIENT
Maximum length: 20
Possible values:
ODL Type: Sequence String
Definition: Time stamp when client transmitted the request.
First string is integer number of seconds since Unix epoch; second optional string is integer number of microseconds since last integer second.
Parent Groups: MONITOR
Children:

TX_SERVER
Maximum length: 20
Possible values:
ODL Type: Sequence String
Definition: Time stamp when server transmitted the response.
First string is integer number of seconds since Unix epoch; second optional string is integer number of microseconds since last integer second.
Parent Groups: MONITOR
Children:

TYPE
Maximum length: 15
Possible values: GOVERNMENT, COMMERCIAL, UNIVERSITY, K-12, ACADEMIC, OTHER
ODL Type: String
Definition: Affiliation categories: Government, Commercial, University, K-12, Other.
"University" and "K-12" replace the older "academic" value which should no longer be used.
Parent Groups: USER_AFFILIATION
Children:

TYPE_ID
Maximum length: 30
Possible values:
ODL Type: String
Definition: A valid value for media types for this PROCESSING_OPTION.
MEDIA_TYPE~2 is one of the TYPE_ID strings listed in the MEDIA_TYPE~1 group.
Parent Groups: MEDIA, MEDIA_HANDLING_FEE, MEDIA_MAXIMUM_CAPACITY, MEDIA_TYPE~1, SUB_REQUEST_STATUS_INFO
Children:

UNITS
Maximum length: 30
Possible values:
ODL Type: String
Definition: String displayed as part of the legend to specify the units of the values.
Parent Groups: LEGEND
Children:

UNMAPPED_FIELD
Maximum length: 80
Possible values: any keyword contained in the INVENTORY_SEARCH group
ODL Type: Sequence String
Definition: Fields given in query but not used by the server in an inventory search.
Parent Groups: INVENTORY_RESULT
Children:

URL
Maximum length: 200
Possible values:
ODL Type: String
Definition: Data center-supplied URL for special processing.
Parent Groups: DATASET_HOME_PAGE, DATA_URL, GUIDE_URL, MISC_URL, SPECIALIZED_SEARCH_URL
Children:

URL_COMMENT
Maximum length: 60
Possible values:
ODL Type: Sequence String
Definition: Description of corresponding URL.
Parent Groups: DATASET_HOME_PAGE, DATA_URL, GUIDE_URL, MISC_URL, SPECIALIZED_SEARCH_URL
Children:

USER_AFFILIATION
Maximum length:
Possible values:
ODL Type: Aggregate
Definition: User's self-classification from profile screen for statistics.
Was once expected in BROWSE_REQUESTs but never implemented there. Has been left as "optional".
Parent Groups: BROWSE_REQUEST, PRODUCT_REQUEST, PROFILE_RETRIEVAL_RESULT, PROFILE_SUBMIT_REQUEST, PROFILE_UPDATE_REQUEST
Children: CATEGORY, TYPE

USER_ID
Maximum length: 14
Possible values:
ODL Type: String
Definition: User identification
Parent Groups: PROFILE_SUBMIT_REQUEST, USER_PASSWORD_CHANGE_REQUEST
Children:

USER_PASSWORD_CHANGE_REQUEST
Maximum length:
Possible values:
ODL Type: Aggregate
Definition: Request to change user password.
Parent Groups:
Children: DATA_CENTER_ID, ECS_AUTHENTICATOR, MESSAGE_ID, MONITOR, NEW_ECS_AUTHENTICATOR, PASSWORD_RESET, USER_ID, VERSION

USER_PASSWORD_CHANGE_RESULT
Maximum length:
Possible values:
ODL Type: Aggregate
Definition: Result of request to change user password.
Parent Groups:
Children: DATA_CENTER_ID, MESSAGE_ID, MONITOR, STATUS_CODE, STATUS_CODE_COMMENT, VERSION

VALID_ACCOUNT
Maximum length:
Possible values:
ODL Type: Aggregate
Definition: Accounting alternative for this user in general or for a dataset for this user.
Omitted from a DATASET~1 means accounting not required. If account required for this DATASET~1 but the user has no valid account, then one VALID_ACCOUNT group should be sent containing only the ERROR parameter with information to the user. Where multiple accounts are valid, the group is repeated, with each containing mandatory account number and optional balance and error fields. Also used in ACCOUNT_STATUS_RESULT to return accounting information for the user.
Parent Groups: DATASET~1, ACCOUNT_STATUS_RESULT
Children: [ACCOUNT_COMMENT], [ACCOUNT_NUMBER], [BALANCE], [ERROR]

VALIDATE
Maximum length: 1
Possible values: Y/N
ODL Type: Symbol
Definition: If VALIDATE = Y, user-entered value must fall within the min/max range. If VALIDATE = N, user-entered value is not range-validated. Default is Y.
Parent Groups: SPECIALIZED_CRITERIA~1
Children: DATA_CENTER_ID, MESSAGE_ID, MONITOR, STATUS_CODE, STATUS_CODE_COMMENT, VERSION

VALIDS **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: Contains dependent valids for all data sets being submitted by a single archive for use in client support files.

One or more valids groups (followed by a single line containing "END") are used to build the dependency bitmap files used to support the IMS clients. Alternatively, VALIDS group itself can be omitted in file and just contents of the group (the DATA_CENTER_ID followed by one or more DATASET~4's) can be included in the valids file submitted. Not used in V0 protocol messages.

Parent Groups:

Children: DATA_CENTER_ID, DATASET~4

VARIABLE **Maximum length:** 80

Possible values: **ODL Type:** Sequence String

Definition: Keyword used to describe the specific science parameter content of the collection. A collection can conceivably cover many specific parameters.

(ASTER/ECS only.)

Parent Groups: DATASET~3

Children:

VARIANT **Maximum length:** 50

Possible values: **ODL Type:** String

Definition: Name displayed in user interface to distinguish among various EXTENDED_SEARCHs in the same CATEGORY_NAME.

Assigned by the science team; can change as new variants are added to categories. Not passed to server.

Parent Groups: SPECIALIZED_CRITERIA~3

VERSION **Maximum length:**

Possible values: **ODL Type:** Aggregate

Definition: Message version information.

Parent Groups: ACCOUNT_STATUS_REQUEST, ACCOUNT_STATUS_RESULT, ACKNOWLEDGE, BROWSE_REQUEST, DIRECTORY_RESULT, DIRECTORY_SEARCH, FTP_BROWSE_RESULT, INTEGRATED_BROWSE_RESULT, INVENTORY_RESULT, INVENTORY_SEARCH, PRICE_ESTIMATE_REQUEST, PRICE_ESTIMATE_RESULT, PRODUCT_CANCEL_REQUEST, PRODUCT_CANCEL_RESULT, PRODUCT_REQUEST, PRODUCT_RESULT, PRODUCT_STATUS_INFO, PRODUCT_STATUS_REQUEST, PROFILE_SUBMIT_REQUEST, PROFILE_SUBMIT_RESULT, PROFILE_RETRIEVAL_REQUEST, PROFILE_RETRIEVAL_RESULT, PROFILE_UPDATE_REQUEST, PROFILE_UPDATE_RESULT, QUIT, USER_PASSWORD_CHANGE_REQUEST, USER_PASSWORD_CHANGE_RESULT

Children: [IMS_STAFF], PROTOCOL_VERSION, SENDER_VERSION

WEST_LONGITUDE
Maximum length: 9
Possible values: -180.0000 to +180.0000
ODL Type: Real
Definition: Westernmost longitude for a range on the globe.
Parent Groups: RANGE_LOC
Children:

WESTBOUNDINGCOORDINATE
Maximum length: 11
Possible values: -180.0 to +180.0
ODL Type: Real
Definition: Westernmost coordinate of the limit of coverage expressed in longitude.
(ASTER/ECS only.) Must be less than EASTBOUNDINGCOORDINATE.
Parent Groups: SPATIAL_COVERAGE
Children:

WRS_TYPE
Maximum length: 10
Possible values: "WRS-1", "WRS-2"
ODL Type: String
Definition: Used to distinguish WRS coordinates for Landsat 1-3 from those for Landsat 4-5.
WRS_TYPE="WRS-1" for Landsat 1-3, ="WRS-2" for Landsat 4-5.
Parent Groups: PATH_ROW_LOC
Children:

XAR_ID
Maximum length: 4
Possible values:
ODL Type: Sequence Integer
Definition: ID for xAR that produced the granule.
(ASTER/ECS only.)
Parent Groups: GRANULE, INVENTORY_SEARCH
Children:

XHAIRS
Maximum length:
Possible values:
ODL Type: Aggregate
Definition:
Obsolete. Never implemented.
Parent Groups:
Children:

ZIP
Maximum length: 15
Possible values:
ODL Type: String
Definition: US Postal ZIP code or foreign equivalent for this address.
Parent Groups: BILLING_ADDRESS, CONTACT_ADDRESS, DAAC_CONTACT_ADDRESS, SHIPPING_ADDRESS
Children:

Appendix B: V0 IMS Data Dictionary Group Structure

ACCOUNT_STATUS_REQUEST group ::==

[AUTHENTICATOR]
CONTACT_ADDRESS group
DATA_CENTER_ID
[ECS_AUTHENTICATOR]
MESSAGE_ID
MONITOR group
VERSION group

ACCOUNT_STATUS_RESULT group ::==

DATA_CENTER_ID
MESSAGE_ID
MONITOR group
STATUS_CODE
[STATUS_CODE_COMMENT]
(VALID_ACCOUNT group)*
VERSION group

ACKNOWLEDGE group ::==

[MESSAGE_ID]
MONITOR group
VERSION group

BILLING_ADDRESS group ::==

[ADDRESS]
CITY
COUNTRY
[EMAIL]
[FAX]
FIRST_NAME
LAST_NAME
[MIDDLE_INITIAL]
[ORGANIZATION]
PHONE
[STATE]
[TITLE]
[ZIP]

BROWSE group ::==

FTP
INTEGRATED

BROWSE_GRANULES group ::==

DATASET_ID
GRANULE_ID

BROWSE_REQUEST group ::==

[AUTHENTICATOR]
BROWSE_GRANULES group
BROWSE_TYPE
CONTACT_ADDRESS group
DATA_CENTER_ID
[ECS_AUTHENTICATOR]
MESSAGE_ID
MONITOR group
[NASDA_AUTHENTICATOR]

CH01

[USER_AFFILIATION group]
VERSION group

BROWSE_URL group ::==

URL
[URL_COMMENT] | CH01

CONTACT_ADDRESS group ::==

ADDRESS
CITY
COUNTRY
EMAIL
[FAX]
FIRST_NAME
LAST_NAME
[MIDDLE_INITIAL]
[ORGANIZATION]
PHONE
[STATE]
[TITLE]
[ZIP]

DAAC_CONTACT_ADDRESS group ::==

[ADD_PHONE] | CH01
[ADDRESS]
CITY
[COMMENT] | CH01
CONTACT_NAME
COUNTRY
[DAAC_ORDER_ID]
[DATASET_ID]
[EMAIL]
[FAX]
ORGANIZATION
PHONE
[STATE]
[ZIP]

DATA_SET_CONTACT group ::==

ADDRESS
DATA_CENTER_LONGNAME
[DATA_CENTER_URL]
EMAIL
[FAX]
[FIRST_NAME]
[LAST_NAME]
[MIDDLE_INITIAL]
PHONE

DATA_URL group ::==

URL
[URL_COMMENT] | CH01

DATASET_COVERAGE group ::==

SPATIAL
TEMPORAL

DATASET_HOME_PAGE group ::==

URL
URL_COMMENT

DATASET_ORDER_OPTIONS group ::==

[REQUIRED]
(SPECIALIZED_CRITERIA~1 group)+

DATASET_ORDER_SPEC group ::==

(SPECIALIZED_CRITERIA~2 group)*

DATASET~1 group ::==

[BROWSE_PRODUCT_DESCRIPTION]
(BROWSE_URL group)*
[CAMPAIGN]
[COMMENT]
(DATA_URL group)*
(DATASET_HOME_PAGE group)*
DATASET_ID
[DAY_NIGHT]
[DISCLAIMER_COMMENT]
[DISCLAIMER_URL]
[EXTENDED_CRITERIA_USED]
(GRANULE group)*
[GUIDE_URL group]
[HANDLING_FEE group]
[MD_ENTRY_ID]
(MISC_URL group)*
[NUMBER_OF_GRANULE_HITS]
(PACKAGE group)*
[PACKAGE_ID]
[PARAMETER~1]
[PROCESSING_LEVEL]
[RESTRICTION]
[SENSOR_NAME]
[SOURCE_NAME]
(SPECIALIZED_SEARCH_URL group)*
STATUS_CODE
(VALID_ACCOUNT group)*

DATASET~2 group ::==

(BROWSE_URL group)*
(DATA_URL group)*
(DATASET_HOME_PAGE group)*
DATASET_ID
MD_ENTRY_ID
(MISC_URL group)*
[ORG_CENTER]
(PACKAGE group)*
[PACKAGE_ID]
[RANGE_LOC group]
(SPECIALIZED_SEARCH_URL group)*
[START_DATE]
[STOP_DATE]

DATASET~3 group ::==

[DATA_SET_CONTACT group]
DATASET_ID
DESCRIPTION
DISCIPLINE

SENSOR_NAME
SOURCE_NAME
[SPATIAL_COVERAGE group]
[START_DATE]
[STOP_DATE]
TERM
TOPIC
VARIABLE

DATASET~4 group ::==

BROWSE group
[CAMPAIGN]
DATASET_COVERAGE group
DATASET_ID~2
[DATE_AVAILABLE]
[DAY_NIGHT_FLAG]
(DEPENDENCY group)*
[EXTENDED_CRITERIA_AVAIL]
FTP_PRODUCT_AVAILABLE
GRANULE_COVERAGE group
MD_ENTRY_ID
[PARAMETER~1]
PROCESSING_LEVEL
[SENSOR]
[SOURCE]

DEPENDENCY group ::==

[PARAMETER~1]
[SENSOR]
[SOURCE]

DIRECT_ACCESS group ::== CH01

[BROWSE_URL]
[DATA_URL]
EXPIRATION_DATE
METADATA_URL

DIRECTORY_RESULT group ::==

DATA_CENTER_ID
(DATASET~2 group | DATASET~3 group)+
MESSAGE_ID
MONITOR group
NUMBER_OF_DATASETS
(PACKAGE group)*
STATUS_CODE
[STATUS_CODE_COMMENT]
VERSION group

DIRECTORY_SEARCH group ::==

[AUTHENTICATOR]
[CAMPAIGN]
[DATA_CENTER_ID]
[DATASET_ID]
[ECS_AUTHENTICATOR]
MESSAGE_ID
MONITOR group

[NASDA_AUTHENTICATOR]
[PARAMETER~1]
[PROCESSING_LEVEL]
[RANGE_LOC group]
[SENSOR_NAME]
[SOURCE_NAME]
[START_DATE]
[STOP_DATE]
VERSION group

EXTENDED_SEARCH group ::==

(SPECIALIZED_CRITERIA~2 group)+

EXTENDED_SEARCH_MASTER_LIST group ::==

(SPECIALIZED_CRITERIA~3 group)*

FTP_BROWSE_RESULT group ::==

(DAAC_CONTACT_ADDRESS group)+
DATA_CENTER_ID
(DATA_URL group)*
MESSAGE_ID
MONITOR group
STATUS_CODE
[STATUS_CODE_COMMENT]
TOTAL_FILE_SIZE
VERSION group

G_RING_LOC group ::==

CENTROID_LAT
CENTROID_LON
(OUTER_RING group)+

GCMD_SEARCH group ::==

DATA_CENTER_ID
DATASET_ID
MD_ENTRY_ID
ORG_CENTER

GRANULE group ::==

[BROWSE_TYPE]
(BROWSE_URL group)*
[CAMPAIGN]
[COMMENT]
(DATA_URL group)*
[DAY_NIGHT]
[DIRECT_ACCESS]
[G_RING_LOC group]
GLOBAL_GRANULE | POINT_LOC group | POLYGON_LOC~2 group | RANGE_LOC group
GRANULE_ID
[INTEGRATED_BROWSE_ONLY]
[PACKAGE_ID]
[PARAMETER~1]
[PATH_ROW_LOC group]
[PROCESSING_LEVEL]
[QUADRANT_CLOUD_COVERAGE]
(RESULT_GROUP group)*
[SCENE_CLOUD_COVERAGE]
[SENSOR_NAME]
[SOURCE_NAME]

(SPECIALIZED_RESULTS group)*
START_DATE
STOP_DATE
[XAR_ID]

GRANULE_COVERAGE group ::==

SPATIAL
TEMPORAL

GUIDE_URL group ::==

URL
[URL_COMMENT]

HANDLING_FEE group ::==

PRICE
PRICE_COMMENT
[MISC_URL group]

IMAGE group ::==

DATASET_ID
GRANULE_ID
IMAGE_ID
IMAGE_SIZE

INNER_RING group ::==

LATITUDE
LONGITUDE

INTEGRATED_BROWSE_RESULT group ::==

DATA_CENTER_ID
IMAGE group
[LAST_BROWSE]
MESSAGE_ID
MONITOR group
STATUS_CODE
[STATUS_CODE_COMMENT]
[VERSION group]

INVENTORY_RESULT group ::==

DATA_CENTER_ID
(DATASET~1 group)*
MESSAGE_ID
MONITOR group
[MEDIA_HANDLING_FEE group]
[MEDIA_MAXIMUM_CAPACITY]
[NUMBER_OF_DATASETS]
(PACKAGE group)*
STATUS_CODE
[STATUS_CODE_COMMENT]
[UNMAPPED_FIELD]
[VERSION group]

INVENTORY_SEARCH group ::==

[ALL_METADATA]
[AUTHENTICATOR]
[BROWSE_ONLY]
[CAMPAIGN]
[CLOUD_COVERAGE]

[DATA_CENTER_ID]
[DATASET_ID]
[DAY_NIGHT]
[ECS_AUTHENTICATOR]
(EXTENDED_SEARCH group)*
[GLOBAL_GRANULES_ONLY | POINT_LOC group | POLYGON_LOC~1 group | RANGE_LOC group]
[GRANULE_ID_REQ]
GRANULE_LIMIT
[INCLUDE_NON_SPATIAL]
[INCLUDE_NON_TEMPORAL]
MESSAGE_ID
MONITOR group
[NASDA_AUTHENTICATOR] CH01
[PARAMETER~1]
[PATH_ROW_LOC group]
[PROCESSING_LEVEL]
[RESULT_ATTRIBUTES]
[SENSOR_NAME]
[SOURCE_NAME]
[START_DATE]
[START_DAY_OF_YEAR]
[STOP_DATE]
[STOP_DAY_OF_YEAR]
VERSION group
[XAR_ID]

LEGEND group ::==

[COLORBAR]
DISCRETE
[LABEL]
[UNITS]

LINE_ITEM group ::==

[ADDITIONAL_INFO]
[BILLING_ID]
DATASET_ID
[DATASET_ORDER_SPEC group]
[EST_COST]
[G_RING_LOC group]
[GLOBAL_GRANULE]
MEDIA_FORMAT~2
MEDIA_TYPE~2
[ORDER_SPEC group]
PACKAGE_ID
[PATH_ROW_LOC group]
[POINT_LOC group]
[POLYGON_LOC~2 group]
PROCESSING_OPTIONS
[RANGE_LOC group]
[SUBSET_SPEC group]

LINE_ITEM_RESULT group ::==

PACKAGE_ID
EST_COST
[SPECIALIZED_CRITERIA~2]

MEDIA group ::==

FORMAT_ID
(PRODUCT_DELIVERY group)+

TYPE_ID

MEDIA_FORMAT~1 group ::==

APPROX_COST
(DATA_URL group)*
FORMAT_ID

MEDIA_HANDLING_FEE group ::==

MEDIA_FEE
TYPE_ID
[COMMENT]
[MISC_URL group]

MEDIA_MAXIMUM_CAPACITY group ::==

[COMMENT]
MEDIA_MB_CAPACITY
[MISC_URL group]
[REQUEST_SIZE_MB]
[REQUEST_SIZE_GRANULES]
TYPE_ID

CH01

MEDIA_TYPE~1 group ::==

[APPLY_HANDLING_FEE]
(MEDIA_FORMAT~1 group)+
NUMBER_OF_MEDIA_FORMAT
TYPE_ID

METADATA_URL group ::==

URL
[URL_COMMENT]

CH01

MISC_URL group ::==

URL
[URL_COMMENT]

MONITOR group ::==

[RX_CLIENT]
[RX_SERVER]
[SESSION_ID]
TX_CLIENT
[TX_SERVER]

ORDER_OPTIONS group ::==

[REQUIRED]
(SPECIALIZED_CRITERIA~1 group)+

ORDER_SPEC group ::==

(SPECIALIZED_CRITERIA~2 group)*

ORDER_STATUS_INFO group ::==

[COMPLETION_DATE]
INITIATOR_REQUEST_ID | REQUEST_ID~2
ORDER_STATUS_CODE
[ORDER_STATUS_COMMENT]
[PLANNED_COMPLETION_DATE]
PRICE
RECEIVE_DATE

SHIPPING_ADDRESS group
(SUB_REQUEST_STATUS_INFO group)+

OUTER_RING group ::==

(INNER_RING group)*
LATITUDE
LONGITUDE

PACKAGE group ::==

COMMENT
DATA_CENTER_ID
DATASET_ID
[DATASET_ORDER_OPTIONS group]
[INFO_PROMPT]
[LINE_ITEMS_PER_GRANULE]
[MISC_URL group]
NUMBER_OF_GRANULES
NUMBER_OF_OPTIONS
[ORDER_OPTIONS group]
PACKAGE_ID
(PROCESSING_OPTION group)+
[SUBSET_OPTIONS group]
[TITLE~2]

PARAMETER~2 group ::==

PGR_CODE
PGR_VALUE

PATH_ROW_LOC group ::==

PATH
ROW
WRS_TYPE

POINT_LOC group ::==

LATITUDE
LONGITUDE

POLYGON_LOC~1 group ::==

LATITUDE
LONGITUDE
MAP_PROJECTION_TYPE
[POLE_INCLUDED]
TANGENT_LATITUDE
TANGENT_LONGITUDE

POLYGON_LOC~2 group ::==

CENTROID_LAT
CENTROID_LON
LATITUDE
LONGITUDE
[POLE_INCLUDED]

PRICE_ESTIMATE_REQUEST group ::==

DATA_CENTER_ID
(MEDIA group)+
MESSAGE_ID
MONITOR group
VERSION group

PRICE_ESTIMATE_REQUEST~2 group ::==

DATA_CENTER_ID
MESSAGE_ID
(LINE_ITEM group)
MONITOR group
VERSION group

PRICE_ESTIMATE_RESULT group ::==

DATA_CENTER_ID
MESSAGE_ID
MONITOR group
PREDICTED_COMPLETION_DATE
[PRICE_COMMENT]
STATUS_CODE
[STATUS_CODE_COMMENT]
VERSION group

PRICE_ESTIMATE_RESULT~2 group ::==

DATA_CENTER_ID`
(LINE_ITEM_RESULT group)
MESSAGE_ID
MONITOR group
STATUS_CODE
[STATUS_CODE_COMMENT]
VERSION group

PROCESSING_OPTION group ::==

(MEDIA_TYPE~1 group)+
NUMBER_OF_MEDIA_TYPE
OPTION_ID
PACKAGE_SIZE

PRODUCT_CANCEL_REQUEST group ::==

[AUTHENTICATOR]
[ECS_AUTHENTICATOR]
INITIATOR_REQUEST_ID | REQUEST_ID~2
MESSAGE_ID
MONITOR group
SUB_REQUEST_ID
VERSION group

PRODUCT_CANCEL_RESULT group ::==

DATA_CENTER_ID
INITIATOR_REQUEST_ID | REQUEST_ID~2
MESSAGE_ID
MONITOR group
[ORDER_STATUS_CODE]
[ORDER_STATUS_COMMENT]
STATUS_CODE
[STATUS_CODE_COMMENT]
(SUB_REQUEST_INFO group)*
VERSION group

PRODUCT_DELIVERY group ::==

DATASET_ID
PACKAGE_ID
(PRODUCT_GENERATION group)*
SENSOR_TYPE

PRODUCT_GENERATION group ::==

(PARAMETER~2 group)*

PRODUCT_TYPE

PRODUCT_REQUEST group ::==

[AUTHENTICATOR]
[BILLING_ADDRESS group]
CONTACT_ADDRESS group
DATA_CENTER_ID
[ECS_AUTHENTICATOR]
[INITIAL_USER_KEY]
INITIATOR_REQUEST_ID | REQUEST_ID~1
(LINE_ITEM group | MEDIA group)+
MESSAGE_ID
MONITOR group
[NASDA_AUTHENTICATOR] | CH01
[SHIPPING_ADDRESS group]
USER_AFFILIATION group
VERSION group

PRODUCT_RESULT group ::==

(DAAC_CONTACT_ADDRESS group)+
DATA_CENTER_ID
(DATA_URL group)*
MESSAGE_ID
(MISC_URL group)*
MONITOR group
[REQUEST_RESULT group]+
STATUS_CODE
[STATUS_CODE_COMMENT]
[VERSION group]

PRODUCT_STATUS_INFO group ::==

[DAAC_CONTACT_ADDRESS group]
DATA_CENTER_ID
MESSAGE_ID
MONITOR group
(ORDER_STATUS_INFO group)+
STATUS_CODE
[STATUS_CODE_COMMENT]
VERSION group

PRODUCT_STATUS_REQUEST group ::==

[AUTHENTICATOR]
[ECS_AUTHENTICATOR]
INITIATOR_REQUEST_ID | REQUEST_ID~2
MESSAGE_ID
MONITOR group
[NASDA_AUTHENTICATOR] | CH01
VERSION group

PROFILE_RETRIEVAL_REQUEST group ::==

DATA_CENTER_ID
ECS_AUTHENTICATOR
MESSAGE_ID
MONITOR group
VERSION group

PROFILE_RETRIEVAL_RESULT group ::==

BILLING_ADDRESS group
CONTACT_ADDRESS group
DATA_CENTER_ID

MESSAGE_ID
MONITOR group
SHIPPING_ADDRESS group
STATUS_CODE
[STATUS_CODE_COMMENT]
USER_AFFILIATION group
VERSION group

PROFILE_SUBMIT_REQUEST group ::==

BILLING_ADDRESS group
CONTACT_ADDRESS group
DATA_CENTER_ID
ECS_AUTHENTICATOR
HOME_DAAC
MESSAGE_ID
MONITOR group
SHIPPING_ADDRESS group
USER_AFFILIATION group
USER_ID
VERSION group

PROFILE_SUBMIT_RESULT group ::==

DATA_CENTER_ID
MESSAGE_ID
MONITOR group
PROFILE_EXPIRATION_DATE
STATUS_CODE
STATUS_CODE_COMMENT
VERSION group

PROFILE_UPDATE_REQUEST group ::==

BILLING_ADDRESS group
CONTACT_ADDRESS group
DATA_CENTER_ID
ECS_AUTHENTICATOR
MESSAGE_ID
MONITOR group
SHIPPING_ADDRESS group
USER_AFFILIATION group
VERSION group

PROFILE_UPDATE_RESULT group ::==

DATA_CENTER_ID
MESSAGE_ID
MONITOR group
PROFILE_EXPIRATION_DATE
STATUS_CODE
[STATUS_CODE_COMMENT]
VERSION group

QUIT group ::==

[AUTHENTICATOR]
[DATA_CENTER_ID]
[ECS_AUTHENTICATOR]
MESSAGE_ID
MONITOR group
[NASDA_AUTHENTICATOR]
STATUS_CODE

CH01

[STATUS_CODE_COMMENT]
VERSION group

RANGE_LOC group ::==

[CENTROID_LAT]
[CENTROID_LON]
EAST_LONGITUDE
NORTH_LATITUDE
SOUTH_LATITUDE
WEST_LONGITUDE

REQUEST_RESULT group ::==

DAAC_REQUEST_ID
LINE_ITEM group
[MISC_URL group]
STATUS_CODE
[STATUS_CODE_COMMENT] Required for STATUS_CODE = 99

RESULT_GROUP group ::==

(RESULT_GROUP group)*
RESULT_GROUP_NAME
(SPECIALIZED_RESULTS group)*

SHIPPING_ADDRESS group ::==

[ADDRESS]
CITY
COUNTRY
[EMAIL]
[FAX]
FIRST_NAME
LAST_NAME
[MIDDLE_INITIAL]
[ORGANIZATION]
PHONE
[STATE]
[TITLE]
[ZIP]

SPATIAL_COVERAGE group ::==

EASTBOUNDINGCOORDINATE
NORTHBOUNDINGCOORDINATE
SOUTHBOUNDINGCOORDINATE
WESTBOUNDINGCOORDINATE

SPECIALIZED_CRITERIA~1 group ::==

COMMENT
[CRITERIA_DEFAULT]
[CRITERIA_DEFAULT_FROM_PSA]
[CRITERIA_MAX]
[CRITERIA_MAX_FROM_CORE]
[CRITERIA_MAX_FROM_PSA]
[CRITERIA_MIN]
[CRITERIA_MIN_FROM_CORE]
[CRITERIA_MIN_FROM_PSA]
CRITERIA_NAME
CRITERIA_TYPE

[CRITERIA_VALUE]
[CRITERIA_VALUE_FROM_PSA]
[CRITERIA_VALUE_MATCH]
[MAX_LEN]
[OBSCURED]
[RANGE]
[REQUIRED]
[SELECT_NUM]
[SPECIALIZED_CRITERIA~1]
[VALIDATE]

SPECIALIZED_CRITERIA~2 group ::==

[CRITERIA_MAX]
[CRITERIA_MIN]
CRITERIA_NAME
[CRITERIA_TYPE]
[CRITERIA_VALUE]
[POINT_LOC group | POLYGON_LOC~1 group | RANGE_LOC group]

SPECIALIZED_CRITERIA~3 group ::==

CATEGORY_NAME
COMMENT
[CRITERIA_DEFAULT]
[CRITERIA_MAX]
[CRITERIA_MIN]
CRITERIA_NAME
CRITERIA_TYPE
[CRITERIA_VALUE]
DEFAULT
[MAX_LEN]
[RANGE]
RESULTS_SELECTABLE
[SELECT_NUM]
[VARIANT]

SPECIALIZED_RESULTS group ::==

RESULT_NAME
RESULT_VALUE

SPECIALIZED_SEARCH_URL group ::==

URL
URL_COMMENT

SUB_REQUEST_INFO group ::==

[REQUEST_STATUS_CODE]
[REQUEST_STATUS_COMMENT]
SUB_REQUEST_ID

SUB_REQUEST_STATUS_INFO group ::==

[COMPLETION_DATE]
[DAAC_CONTACT_ADDRESS group]
(DATA_URL group)*
DATASET_ID
FORMAT_ID
[NUMBER_OF_GRANULES]
[PROCESSING_DATA_CENTER]
REQUEST_STATUS_CODE
[REQUEST_STATUS_COMMENT]
SUB_REQUEST_ID

TYPE_ID

SUBSET_OPTIONS group ::==

[REQUIRED]
(SPECIALIZED_CRITERIA~1 group)+

SUBSET_SPEC group ::==

[FULL_SUBINTERVAL]
(SPECIALIZED_CRITERIA~2 group)*

USER_AFFILIATION group ::==

CATEGORY
TYPE

USER_PASSWORD_CHANGE _REQUEST group ::==

DATA_CENTER_ID
ECS_AUTHENTICATOR
MESSAGE_ID
MONITOR group
NEW_ ECS_AUTHENTICATOR
PASSWORD_RESET
USER_ID
VERSION group

USER_PASSWORD_CHANGE_RESULT group ::==

DATA_CENTER_ID
MESSAGE_ID
MONITOR group
STATUS_CODE
STATUS_CODE_COMMENT
VERSION group

VALID_ACCOUNT group ::==

[ACCOUNT_COMMENT]
[ACCOUNT_NUMBER]
[BALANCE]
[ERROR]

VALIDS group ::==

DATA_CENTER_ID~2
(DATASET~4 group)+

VERSION group ::==

[IMS_STAFF]
PROTOCOL_VERSION
SENDER_VERSION

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Appendix C. Status Codes

Status Code	Meaning
1	Successful query; query results returned
2	No match found
3	Data for selected source are not archived at DAAC
4	Data for selected sensor are not archived at DAAC
5	Data set is not archived at DAAC
6	Data for selected parameter(s) not archived at DAAC
7	Data for selected source, sensor, parameter(s) and/or data set are not archived at DAAC
8	Pertinent inventory system unavailable; try again later
9	Bad message; message contains syntax error(s)
10	Requested function not supported by this DAAC
11	System error; please try again later
12	Search too broad; narrow spatial and/or temporal search criteria
13	No data for selected campaign archived at DAAC; please reconstruct Search Query
14	"Browse granules only" selected, but no granules having browse data match
15	"Global granules only" selected, but no granules having global coverage match
16	No data for requested processing level at this DAAC; please reconstruct Search Query
17	Bad message; protocol error
18	System busy; try again later
19	Data Center not responding to query, may be experiencing computer or network problems; try search again later
20	Data not found due to spatial and/or temporal limitation
21	Internal: GCMD database is down
22	Internal: no GCMD data
23	Internal: client error opening connection
24	Internal: client error sending message
25	Internal: client error receiving message
26	Internal: client error ingesting data
27	Internal: client error closing connection
28	Internal: client error dealing with GCMD
29	Network connection unexpectedly closed; try search again later
30	Error servicing request; contact User Services
99	Miscellaneous error; see comments (should always be accompanied by STATUS_CODE_COMMENT)
103	ASTER GDS limitation on Product Request; all products can not be accepted
104	ASTER GDS limitation on Product Request; number of product request is over the limitation for processing level
105	ASTER GDS limitation on Product Request; number of product request is over the limitation for processing level by user type
106	ASTER GDS limitation on Product Request; number of product request is over the limitation for user type
107	ASTER GDS limitation on Product Request; number of product request is over the limitation for media type
109	ASTER GDS PG parameter error
1000	User-requested abort of search

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Appendix D: Client and Server State Tables

Each time a V0 client has a transaction to perform with a server, it can be viewed as becoming a finite state machine to carry out the V0 protocol. When a transaction is targeted at several servers, each server defines a separate client machine. The machine for each type of request is shown below.

Inventory Search

Inventory Search State and Action Taken	*Event (returned by action)*	*New State*
INVSRCH_BEGIN *action: Begin Connection*	Connect in progress	INVSRCH_CONNECT
	Archive down	INVSRCH_TERMINATE
	Client system error	INVSRCH_TERMINATE
	User requested abort	INVSRCH_ABORT
INVSRCH_CONNECT *action: Establish Connection*	Connection failed	INVSRCH_CONNECT
	Connection opened	INVSRCH_SEARCH
	Archive down	INVSRCH_CLOSE
	Client system error	INVSRCH_CLOSE
	User requested abort	INVSRCH_ABORT
INVSRCH_SEARCH *action: Transmit Inventory Search tree*	Transmitted	INVSRCH_LISTEN
	Archive down	INVSRCH_CLOSE
	Client system error	INVSRCH_CLOSE
	User requested abort	INVSRCH_ABORT
INVSRCH_LISTEN *action: Listen for tree*	Got no data	INVSRCH_LISTEN
	Got inventory result	INVSRCH_ACK
	Got other result or ACK	INVSRCH_QUIT
	Got QUIT	INVSRCH_CLOSE
	Archive down	INVSRCH_CLOSE
	Client system error	INVSRCH_CLOSE
	User requested abort	INVSRCH_ABORT
INVSRCH_ACK *action: Transmit ACKNOWLEDGE*	Transmitted	INVSRCH_INGEST
	Archive down	INVSRCH_CLOSE
	Client system error	INVSRCH_CLOSE
	User requested abort	INVSRCH_ABORT
INVSRCH_INGEST *action: Ingest inventory results*	Ingest successful	INVSRCH_LISTEN
	Client system error	INVSRCH_CLOSE
	User requested abort	INVSRCH_ABORT
INVSRCH_CLOSE *action: Close connection*	Connection closed	INVSRCH_TERMINATE
	Client system error	INVSRCH_TERMINATE
	User requested abort	INVSRCH_ABORT
INVSRCH_TERMINATE *action: Terminate transaction*	Terminated	stop

Inventory Search State and Action Taken	*Event (returned by action)*	*New State*
INVSRCH_QUIT *action: Transmit QUIT*	Transmitted	INVSRCH_CLOSE
	Archive down	INVSRCH_CLOSE
	Client system error	INVSRCH_CLOSE
	User requested abort	INVSRCH_ABORT
INVSRCH_ABORT *action: Transmit ABORT*	Transmitted	INVSRCH_CLOSE
	Archive down	INVSRCH_CLOSE
	Client system error	INVSRCH_CLOSE
	User requested abort	INVSRCH_TERMINATE

Directory Search

Note: the following table describes the protocol with V0 servers when the user requests directory information. The DIRECTORY_RESULT returned provides the client with the MD_ENTRY_ID used to query the GCMD for detailed dataset information. ASTER servers provide a DATASET~3 alternative containing the detailed information directly, obviating the need for the GCMD query.

Directory Search State and Action Taken	*Event (returned by action)*	*New State*
MD_BEGIN *action: Begin Connection*	Connect in progress	MD_CONNECT
	Archive down	MD_TERMINATE
	Client system error	MD_TERMINATE
	User requested abort	MD_ABORT
MD_CONNECT *action: Establish Connection*	Connection failed	MD_CONNECT
	Connection opened	MD_SEARCH
	Archive down	MD_CLOSE
	Client system error	MD_CLOSE
	User requested abort	MD_ABORT
MD_SEARCH *action: Transmit search tree*	Transmitted	MD_LISTEN
	Archive down	MD_CLOSE
	Client system error	MD_CLOSE
	User requested abort	MD_ABORT
MD_LISTEN *action: Listen for tree*	Got no data	MD_LISTEN
	Got directory result	MD_CLOSE
	Got other result or ACK	MD_QUIT
	Got QUIT	MD_CLOSE
	Archive down	MD_CLOSE
	Client system error	MD_CLOSE
	User requested abort	MD_ABORT
MD_CLOSE *action: Close connection*	Connection closed	MD_GCMDCOMMN
	Client system error	MD_TERMINATE
	User requested abort	MD_ABORT
MD_GCMDCOMMN *action: Connect to GCMD*	GCMD ambiguous results	MD_GCMDCOMMN
	GCMD successful results	MD_INGEST
	Terminated	MD_TERMINATE
	Archive down	MD_TERMINATE
	Client system error	MD_TERMINATE
	User requested abort	MD_ABORT
MD_INGEST *action: ingest results from master directory*	MD ingest successful	MD_TERMINATE
	User requested abort	MD_ABORT
	Client system error	MD_TERMINATE
MD_TERMINATE *action: Terminate transaction*	Terminated	stop

Directory Search State and Action Taken	*Event (returned by action)*	*New State*
MD_QUIT *action: Transmit QUIT*	Transmitted	MD_CLOSE
	Archive down	MD_CLOSE
	Client system error	MD_CLOSE
	User requested abort	MD_ABORT
MD_ABORT *action: Transmit ABORT*	Transmitted	MD_CLOSE
	Archive down	MD_CLOSE
	Client system error	MD_CLOSE
	User requested abort	MD_TERMINATE

FTP Browse Request

FTP Request State and Action Taken	*Event (returned by action)*	*New State*
FTPB_BEGIN *action: Begin Connection*	Connect in progress	FTPB_CONNECT
	Archive down	FTPB_TERMINATE
	Client system error	FTPB_TERMINATE
	User requested abort	FTPB_ABORT
FTPB_CONNECT *action: Establish Connection*	Connection failed	FTPB_CONNECT
	Connection opened	FTPB_SEARCH
	Archive down	FTPB_CLOSE
	Client system error	FTPB_CLOSE
	User requested abort	FTPB_ABORT
FTPB_SEARCH *action: Transmit FTP browse request tree*	Transmitted	FTPB_LISTEN
	Archive down	FTPB_CLOSE
	Client system error	FTPB_CLOSE
	User requested abort	FTPB_ABORT
FTPB_LISTEN *action: Listen for tree*	Got no data	FTPB_LISTEN
	Got FTP result	FTPB_INGEST
	Got other result or ACK	FTPB_QUIT
	Got QUIT	FTPB_CLOSE
	Archive down	FTPB_CLOSE
	Client system error	FTPB_CLOSE
	User requested abort	FTPB_ABORT
FTPB_INGEST *action: Ingest ftp browse results*	Ingest successful	FTPB_CLOSE
	Client system error	FTPB_CLOSE
	User requested abort	FTPB_ABORT
FTPB_CLOSE *action: Close connection*	Connection closed	FTPB_TERMINATE
	Client system error	FTPB_TERMINATE
	User requested abort	FTPB_ABORT
FTPB_TERMINATE *action: Terminate transaction*	Terminated	stop
FTPB_QUIT *action: Transmit QUIT*	Transmitted	FTPB_CLOSE
	Archive down	FTPB_CLOSE
	Client system error	FTPB_CLOSE
	User requested abort	FTPB_ABORT
FTPB_ABORT *action: Transmit ABORT*	Transmitted	FTPB_CLOSE
	Archive down	FTPB_CLOSE
	Client system error	FTPB_CLOSE
	User requested abort	FTPB_TERMINATE

Integrated Browse Request

Note that this implementation does not support the Aster extension for multiple integrated browse files. If a server supporting that extension sends data to a client coded as shown below, the client will close the connection following the receipt of the first browse file and the server should presumably terminate it's discussion gracefully at that point.

Integrated Browse Request State and Action Taken	*Event (returned by action)*	*New State*
INTBROWSE_BEGIN *action: Begin Connection*	Connect in progress	INTBROWSE_CONNECT
	Archive down	INTBROWSE_TERMINATE
	Client system error	INTBROWSE_TERMINATE
	User requested abort	INTBROWSE_ABORT
INTBROWSE_CONNECT *action: Establish Connection*	Connection failed	INTBROWSE_CONNECT
	Connection opened	INTBROWSE_SEARCH
	Archive down	INTBROWSE_CLOSE
	Client system error	INTBROWSE_CLOSE
	User requested abort	INTBROWSE_ABORT
INTBROWSE_SEARCH *action: Transmit integrated browse request tree*	Transmitted	INTBROWSE_LISTEN
	Archive down	INTBROWSE_CLOSE
	Client system error	INTBROWSE_CLOSE
	User requested abort	INTBROWSE_ABORT
INTBROWSE_LISTEN *action: Listen for tree*	Got no data	INTBROWSE_LISTEN
	Got int browse result	INTBROWSE_READIMAGE
	Got other result or ACK	INTBROWSE_QUIT
	Got QUIT	INTBROWSE_CLOSE
	Archive down	INTBROWSE_CLOSE
	Client system error	INTBROWSE_CLOSE
	User requested abort	INTBROWSE_ABORT
INTBROWSE_READIMAGE *action: listen for bytes from image file*	Got no data	INTBROWSE_READIMAGE
	Image received	INTBROWSE_INGESTIMAGE
	Client system error	INTBROWSE_CLOSE
	User requested abort	INTBROWSE_ABORT
INTBROWSE_INGESTIMAGE *action: ingest bytes from image file*	Image completed	INTBROWSE_CLOSE
	Bytes written successfully	INTBROWSE_READIMAGE
	Client system error	INTBROWSE_CLOSE
	User requested abort	INTBROWSE_ABORT
INTBROWSE_CLOSE *action: Close connection*	Connection closed	INTBROWSE_TERMINATE
	Client system error	INTBROWSE_TERMINATE
	User requested abort	INTBROWSE_ABORT
INTBROWSE_TERMINATE *action: Terminate transaction*	Terminated	stop

Integrated Browse Request State and Action Taken	*Event (returned by action)*	*New State*
INTBROWSE_QUIT *action: Transmit QUIT*	Transmitted	INTBROWSE_CLOSE
	Archive down	INTBROWSE_CLOSE
	Client system error	INTBROWSE_CLOSE
	User requested abort	INTBROWSE_ABORT
INTBROWSE_ABORT *action: Transmit ABORT*	Transmitted	INTBROWSE_CLOSE
	Archive down	INTBROWSE_CLOSE
	Client system error	INTBROWSE_CLOSE
	User requested abort	INTBROWSE_TERMINATE

Product Request (Order)

Product Request State and Action Taken	*Event (returned by action)*	*New State*
PRES_BEGIN *action: Begin Connection*	Connect in progress	PRES_CONNECT
	Archive down	PRES_TERMINATE
	Client system error	PRES_TERMINATE
	User requested abort	PRES_ABORT
PRES_CONNECT *action: Establish Connection*	Connection failed	PRES_CONNECT
	Connection opened	PRES_SEARCH
	Archive down	PRES_CLOSE
	Client system error	PRES_CLOSE
	User requested abort	PRES_ABORT
PRES_SEARCH *action: Transmit product request tree*	Transmitted	PRES_LISTEN
	Archive down	PRES_CLOSE
	Client system error	PRES_CLOSE
	User requested abort	PRES_ABORT
PRES_LISTEN *action: Listen for tree*	Got no data	PRES_LISTEN
	Got product result	PRES_INGEST
	Got other result or ACK	PRES_QUIT
	Got QUIT	PRES_CLOSE
	Archive down	PRES_CLOSE
	Client system error	PRES_CLOSE
	User requested abort	PRES_ABORT
PRES_INGEST *action: Ingest order results*	Ingest successful	PRES_CLOSE
	Client system error	PRES_QUIT
	User requested abort	PRES_ABORT
PRES_CLOSE *action: Close connection*	Connection closed	PRES_TERMINATE
	Client system error	PRES_TERMINATE
	User requested abort	PRES_ABORT
PRES_TERMINATE *action: Terminate transaction*	Terminated	stop
PRES_QUIT *action: Transmit QUIT*	Transmitted	PRES_CLOSE
	Archive down	PRES_CLOSE
	Client system error	PRES_CLOSE
	User requested abort	PRES_ABORT
PRES_ABORT *action: Transmit ABORT*	Transmitted	PRES_CLOSE
	Archive down	PRES_CLOSE
	Client system error	PRES_CLOSE
	User requested abort	PRES_TERMINATE

Product Order Status

Product Order Status State and Action Taken	*Event (returned by action)*	*New State*
POSTATUS_BEGIN *action: Begin Connection*	Connect in progress	POSTATUS_CONNECT
	Archive down	POSTATUS_TERMINATE
	Client system error	POSTATUS_TERMINATE
	User requested abort	POSTATUS_ABORT
POSTATUS_CONNECT *action: Establish Connection*	Connection failed	POSTATUS_CONNECT
	Connection opened	POSTATUS_SEARCH
	Archive down	POSTATUS_CLOSE
	Client system error	POSTATUS_CLOSE
	User requested abort	POSTATUS_ABORT
POSTATUS_SEARCH *action: Transmit product order status request tree*	Transmitted	POSTATUS_LISTEN
	Archive down	POSTATUS_CLOSE
	Client system error	POSTATUS_CLOSE
	User requested abort	POSTATUS_ABORT
POSTATUS_LISTEN *action: Listen for tree*	Got no data	POSTATUS_LISTEN
	Got product status result	POSTATUS_INGEST
	Got other result or ACK	POSTATUS_QUIT
	Got QUIT	POSTATUS_CLOSE
	Archive down	POSTATUS_CLOSE
	Client system error	POSTATUS_CLOSE
	User requested abort	POSTATUS_ABORT
POSTATUS_INGEST *action: Ingest order status results*	Ingest successful	POSTATUS_CLOSE
	Client system error	POSTATUS_QUIT
	User requested abort	POSTATUS_ABORT
POSTATUS_CLOSE *action: Close connection*	Connection closed	POSTATUS_TERMINATE
	Client system error	POSTATUS_TERMINATE
	User requested abort	POSTATUS_ABORT
POSTATUS_TERMINATE *action: Terminate transaction*	Terminated	stop
POSTATUS_QUIT *action: Transmit QUIT*	Transmitted	POSTATUS_CLOSE
	Archive down	POSTATUS_CLOSE
	Client system error	POSTATUS_CLOSE
	User requested abort	POSTATUS_ABORT
POSTATUS_ABORT *action: Transmit ABORT*	Transmitted	POSTATUS_CLOSE
	Archive down	POSTATUS_CLOSE
	Client system error	POSTATUS_CLOSE
	User requested abort	POSTATUS_TERMINATE

Account Status

Account Status State and Action Taken	*Event (returned by action)*	*New State*
ACCTSTATUS_BEGIN *action: Begin Connection*	Connect in progress	ACCTSTATUS_CONNECT
	Archive down	ACCTSTATUS_TERMINATE
	Client system error	ACCTSTATUS_TERMINATE
	User requested abort	ACCTSTATUS_ABORT
ACCTSTATUS_CONNECT *action: Establish Connection*	Connection failed	ACCTSTATUS_CONNECT
	Connection opened	ACCTSTATUS_SEARCH
	Archive down	ACCTSTATUS_CLOSE
	Client system error	ACCTSTATUS_CLOSE
	User requested abort	ACCTSTATUS_ABORT
ACCTSTATUS_SEARCH *action: Transmit account status request tree*	Transmitted	ACCTSTATUS_LISTEN
	Archive down	ACCTSTATUS_CLOSE
	Client system error	ACCTSTATUS_CLOSE
	User requested abort	ACCTSTATUS_ABORT
ACCTSTATUS_LISTEN *action: Listen for tree*	Got no data	ACCTSTATUS_LISTEN
	Got account status result	ACCTSTATUS_INGEST
	Got other result or ACK	ACCTSTATUS_QUIT
	Got QUIT	ACCTSTATUS_CLOSE
	Archive down	ACCTSTATUS_CLOSE
	Client system error	ACCTSTATUS_CLOSE
	User requested abort	ACCTSTATUS_ABORT
ACCTSTATUS_INGEST *action: Ingest account status results*	Ingest successful	ACCTSTATUS_CLOSE
	Client system error	ACCTSTATUS_QUIT
	User requested abort	ACCTSTATUS_ABORT
ACCTSTATUS_CLOSE *action: Close connection*	Connection closed	ACCTSTATUS_TERMINATE
	Client system error	ACCTSTATUS_TERMINATE
	User requested abort	ACCTSTATUS_ABORT
ACCTSTATUS_TERMINATE *action: Terminate transaction*	Terminated	stop
ACCTSTATUS_QUIT *action: Transmit QUIT*	Transmitted	ACCTSTATUS_CLOSE
	Archive down	ACCTSTATUS_CLOSE
	Client system error	ACCTSTATUS_CLOSE
	User requested abort	ACCTSTATUS_ABORT
ACCTSTATUS_ABORT *action: Transmit ABORT*	Transmitted	ACCTSTATUS_CLOSE
	Archive down	ACCTSTATUS_CLOSE
	Client system error	ACCTSTATUS_CLOSE
	User requested abort	ACCTSTATUS_TERMINATE

Server State Table

Whenever a V0 server receives a request on a socket, it processes that request using a finite state machine approach. Multiple requests are interleaved by using techniques such as multitasking, but the protocol for each individual transaction is driven by the state transitions shown below. The final state "stop" can be the termination of a subtask, or the looping of that machine back to wait for a new task. Server cashes or system errors implicitly stop the subtask, but mechanisms are presumed to exist to insure the server continues to listen for new requests.

Server State and Action Taken	*Event (returned by action)*	*New State*
Accept *action: Wait for incoming messages*	Got Inventory Search	Query for Granules
	Got Directory Search	Query for MD Entries
	Got FTP Browse Request	Process FTP Browse Request
	Got Int. Browse Request	Process Int Browse Request
	Got Product Request	Process Product Request
	Got Account Status Req.	Process Account Status Request
	Got Product Status Req.	Process Product Status Request
	Got No Data	Accept
	Got ABORT	Stop
	Got QUIT	Stop
	Server Crash	Stop
	Server System Error	Stop
	Errors	Tx QUIT [status code: 17, 18]
Query for Granules *action: Query Inventory*	Query Success	Build First Chunk
	Errors	Tx QUIT [status code: 2-16, 19, 20]
Build First Chunk *action: Fetch Granule*	Fetch Granule Success	Tx Inventory Result Chunk
	Errors	Tx QUIT [status code: 11, 19]
Build Next Inv. Result Chunk *action: Check Status of Last Fetch*	Fetch Granule Success	Tx Inventory Result Chunk
	Fetch Granule Complete	Tx QUIT [status code: 1]
	Errors	Tx QUIT [status code: 11, 19]
Tx Inventory Result Chunk *action: Send Granule to Client and Fetch Next Chunk*	Client Down	Close
	Server Crash	Stop
	Send Granules Success	Listen Search ACK
	Errors	Tx QUIT [status code: 11, 19]
Listen Search ACK *action: Listen Search ACK*	Got Search Result ACK	Build Next Inv. Result Chunk
	Got QUIT	Close
	Got ABORT	Close
	Errors	Tx QUIT [status code: 17]
Query for MD Entries *action: Query Directory*	Query Success	Tx MD Result
	Errors	Tx QUIT [status code: 2-11, 13, 19, 20]

Server State and Action Taken	*Event (returned by action)*	*New State*
Tx MD Result *action: Send MD result to Client*	Send Success	Close
	Client Down	Close
	Server Crash	Stop
	Errors	Tx QUIT [status code: 11, 19]
Process FTP Browse Request *action: Process FTP Browse request*	Process success	Tx FTP Contact Info
	Errors	Tx QUIT [status code: 2, 8-11, 19]
Tx FTP Contact Info *action: Send FTP Contact Info to Client*	Send Success	Close
	Client Down	Close
	Server Crash	Stop
	Errors	Tx QUIT [status code: 11, 19]
Process Int. Browse Request *action: Get Image*	Process success	Build Integrated Browse ODL
	Errors	Tx QUIT [status code: 2, 8-11, 19]
Build Integrated Browse ODL *action: Build Int. Browse ODL*	Build success	Tx Integrated Browse ODL
	Errors	Tx QUIT [status code: 11, 19]
Tx Integrated Browse ODL *action: Send Int. Browse ODL to Client*	Send Success	Tx Integrated Browse Image
	Server Crash	Stop
	Client Down	Close
	Errors	Tx QUIT [status code: 11, 19]
Tx Integrated Browse Image *action: Send Int. Browse Image to Client*	Send Success	Tx Integrated Browse Image
	Send Complete	Close
	Server Crash	Stop
	Client Down	Close
	Got ABORT	Close
	Got QUIT	Close
	Errors	Tx QUIT [status code: 11, 19]
Process Product Request *action: Process Product Request*	Process success	Tx Product Request Contact info
	Errors	Tx QUIT [status code: 9-11, 19]
Tx Product Request Contact info *action: Send Product Request to Client*	Send Success	Close
	Client Down	Close
	Server Crash	Stop
	Errors	Tx QUIT [status code: 11, 19]
Process Account Status Request *action: Process Account Status Request*	Process success	Tx Account Status Result
	Errors	Tx QUIT [status code: 9-11, 19]
Tx Account Status Result *action: Send Account Status Result to Client*	Send Success	Close
	Client Down	Close
	Server Crash	Stop
	Errors	Tx QUIT [status code: 11, 19]
Process Product Status Request *action: Process Product Status Request*	Process success	Tx Product Status Info
	Errors	Tx QUIT [status code: 9-11, 19]

Server State and Action Taken	*Event (returned by action)*	*New State*
Tx Product Status Info *action: Send Product Status Info to Client*	Send Success	Close
	Client Down	Close
	Server Crash	Stop
	Errors	Tx QUIT [status code: 11, 19]
Tx QUIT *action: Send QUIT with Status Code to Client*	Send Success	Close
	Server Crash	Stop
	Client Down	Close
	Errors	Tx QUIT [status code: 11, 19]
Close *action: Close Communication*	Done	Stop

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