

# Task 42 – ECS Requirements Volume 1 Specification

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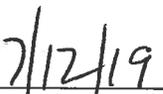
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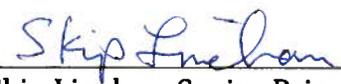
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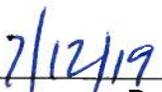
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# **ECS Requirements Volume 1 Specification**

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**Greenbelt, Maryland**

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online at: / <https://ops1-cm.ems.eosdis.nasa.gov/cm2/>**

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## Preface

This document is under ESDIS Project configuration control. Once this document is approved, ESDIS approved changes are handled in accordance with Class I and Class II change control requirements described in the ESDIS Configuration Management Procedures, and changes to this document shall be made by change bars or by complete revision.

Any questions should be addressed to: [esdis-esmo-cmo@lists.nasa.gov](mailto:esdis-esmo-cmo@lists.nasa.gov)

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## **Abstract**

This document provides the Level 4 completed ECS Requirements for the Archive Inventory Management (AIM) and Bulk Metadata Generation Tool (BMGT) subsystems.

**Keywords:** *ECS, SDPS, AIM, BMGT*

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## 1 INTRODUCTION

The EOSDIS Core System (ECS) performs information management and data archiving and distribution for Earthdata mission datasets at NASA Distributed Active Archive Center (DAAC) locations. Each DAAC performs these functions using a combination of standard capabilities provided by ESDIS, and hardware and software specific to the DAAC. The ECS was developed using special hardware and software to support the high ingest rates of Earth Observing System (EOS) instruments. ECS currently resides and operates at three DAACs: Atmospheric Science Data Center (ASDC), Land Processing (LP) DAAC and National Snow and Ice Data Center (NSIDC) DAAC.

Data products are created by NASA's Science Investigator-led Processing Systems (SIPS) or, in a few cases, by systems interfacing with the ECS at the DAACs. The ECS at the DAACs ingests the data from the processing systems and archives them. ECS has interfaces with the Common Metadata Repository (CMR) to provide metadata to support search and access through CMR clients, for example, Earthdata Search. ECS also provides software toolkits to assist instrument teams in their development of product generation software at their Science Computing Facilities (SCFs) to facilitate ingest of the resulting products into ECS or into other DAAC-specific archiving and distribution systems.

ECS is structured as two segments: the Communications and Systems Management Segment (CSMS) and the Science Data Processing Segment (SDPS).

- The Communications and Systems Management Segment (CSMS) provides the communications infrastructure for the ECS and systems management for all of the ECS hardware and software components. The CSMS provides the interconnection between users and service providers within the ECS, transfer of information between subsystems, computer software configuration items (CSCIs), computer software components (CSCs), and processes of the ECS.
- The Science Data Processing System (SDPS) provides science data ingest and production, search and access functions, data archive, and system management capabilities.

The ECS includes the following subsystems:

Subsystem	Segment	Subsystem Description
AIM	SDPS	Archive Inventory Management Subsystem
BMGT	SDPS	Bulk Metadata Generation Tool
CSS	CSMS	Communications Subsystem
Data Access	SDPS	Data Access Subsystem
DMS	SDPS	Data Management Subsystem
DPL	SDPS	Data Pool Subsystem
DPL-Ingest	SDPS	Data Pool Ingest Subsystem
DSS	SDPS	Data Server Subsystem

<b>Subsystem</b>	<b>Segment</b>	<b>Subsystem Description</b>
DTS	SDPS	Defect Tracking Subsystem
EMS	SDPS	EOSDIS Metrics Subsystem
HEG	SDPS	HDF-EOS to Geotiff Converter Subsystem
INS	SDPS	Ingest Subsystem
ISS	CSMS	Internetworking Subsystem
MGS	SDPS	Map Generation Service
MSS	SDPS	System Management Subsystem
OMS	SDPS	Order Manager Subsystem
SSS	SDPS	Spatial Subscription Server Subsystem
TKD	SDPS	Toolkit Subsystem for DAACs
TKS	SDPS	Toolkit Subsystem for Science Teams

### 1.1 Purpose

The purpose of the ECS Requirements Document Set is to present the system requirements that have been implemented for ECS. This document is one volume of the set.

### 1.2 Scope

Because the number of requirements is large, this Requirements documentation set has been divided in to a series of Volumes, partitioned by subsystem. This is one volume in the set.

Volume	Subsystems	Requirements
1	AIM, BMGT	462
2	CSS, DMS, Data Access	249
3	DPL	1,670
4	DTS, HEG	125
5	DSS	1,245
6	INS, DPL Ingest	180
7	ISS, MGS, MSS, EMS	374
8	OMS	817
9	SSS	160
10	TKD, TKS	335
	total	5,617

### 1.3 Related Documentation

The latest versions of all documents below should be used. The latest Earth Science Data and Information System (ESDIS) Project documents can be obtained from Uniform Resource Locator (URL): <https://ops1-cm.ems.eosdis.nasa.gov>. ESDIS documents have a document number starting with either 423 or 505. Other documents are available for reference in the ESDIS project library website at: [http://esdisfmp01.gsfc.nasa.gov/esdis\\_lib/default.php](http://esdisfmp01.gsfc.nasa.gov/esdis_lib/default.php) unless indicated otherwise.

#### 1.3.1 Applicable Documents

The following document contains policies or other directive matters that are binding upon the content of this document.

Document Number	Document Title
423-46-01	Functional and Performance Requirements Specification for the ECS Science Data Processing System

#### 1.3.2 Reference Documents

The following documents are not binding on the content but referenced herein and amplify or clarify the information presented in this document.

Document Number	Document Title
NPR 2810.1A	Security of Information Technology document
170-TP-013-001	HDF-EOS Data Format Converter User's Guide', (170-TP-013-001), January 2002
170-TP-600	HDF-EOS Library Users Guide Volume 1 (170-TP-600)
n/a	BMGTCollectionMetadata.dtd <a href="https://earthdata.nasa.gov/esdis/eso/standards-and-references/echo-metadata-standard">https://earthdata.nasa.gov/esdis/eso/standards-and-references/echo-metadata-standard</a>
n/a	BMGTGranuleMetadata.dtd <a href="https://earthdata.nasa.gov/esdis/eso/standards-and-references/echo-metadata-standard">https://earthdata.nasa.gov/esdis/eso/standards-and-references/echo-metadata-standard</a>
n/a	BMGTBrowseMetadata.dtd <a href="https://earthdata.nasa.gov/esdis/eso/standards-and-references/echo-metadata-standard">https://earthdata.nasa.gov/esdis/eso/standards-and-references/echo-metadata-standard</a>
n/a	ECHO PackageManifest.xsd <a href="https://earthdata.nasa.gov/esdis/eso/standards-and-references/echo-metadata-standard">https://earthdata.nasa.gov/esdis/eso/standards-and-references/echo-metadata-standard</a>
170-WP-023	Bulk Metadata and Browse Export Capability for the ECS Project' (170-WP-023-011, 9/27/00)
209-CD-036	Interface Control Document for ECS Interfaces That Support External Subsetters Located at DAACs', ECS Project document number 209-CD-036-001

Document Number	Document Title
304-CD-002	Science and Data Processing Segment (SDPS) Requirements Specification for the ECS Project (March 1995)
311-EMD-xxx	Archive Management Inventory (AIM) Database Design Schema Specifications for the EMD Project
423-41-57	Interface Control Document between the EOSDIS Core System (ECS) and the Science Investigator-led Processing Systems (SIPS), Volume 0
423-41-58	ICD between ECS and the LP DAAC
423-41-63	ICD between EMOS and the SDPS
423-45-02	Interface Control Document between EOSDIS Core System (ECS) and EOS Clearinghouse (ECHO) for Metadata Inventory and Ordering
423-45-03	Interface Control Document for ECS ECHO WSDL Order Component (EWOC) and External Processing Systems Co-located at the DAACs
423-ICD-EDOS/EGS	Interface Control Document Between the Earth Observing System (EOS) Data and Operations System (EDOS) and the EOS Ground System (EGS) Elements, renumbered as 428-ICD-EDOS/EGS
505-41-17	Interface Requirements Document between EOSDIS Core System (ECS) and the NASA Science Internet (NSI), 505-41-17
505-41-30	Interface Control Document Between EOSDIS Core Systems (ECS) and the Version 0 System for Interoperability', ESDIS document number 505-41-30
910-TDA-042	EMD Browsers Baseline
CK_70_01	ECS Ticket: End-To-End Checksum Capability
DP_72_02	ECS Ticket: Ingest of Level 0 Data from EDOS into the Data Pool
DP_72_03	ECS Ticket: Ingest of ASTER L1A and Browse into Data Pool
DP_72_04	ECS Ticket: Data Pool Ingest of Data at the ASDC DAAC
DP_72_05	ECS Ticket: Support for MISR Browse Linkages in Release 7.20
DP_S3_01	ECS Ticket: Populate Data Pool from ECS Archive
DP_S3_02	ECS Ticket: Accommodate Non ECS Data in Data Pool
DP_S4_07	ECS Ticket: Support Compression on Data Pool Insert
DP_S6_01	ECS Ticket: SIPS Ingest Into Data Pool
DP_SY_01	ECS Ticket: Data Pool FTP Service
DP_SY_03	ECS Ticket: Data Pool Cleanup
DP_SY_04	ECS Ticket: Data Pool Insert
DP_SY_06	ECS Ticket: Update Granule Expiration in Data Pool
DP_SY_08	ECS Ticket: Compile & Examine Data Pool Access Statistics
DS_7E_01	ECS Ticket: Removal of Science Data Server
ES_SY_01	ECS Ticket: External Subsetter Support
OD_S3_01	ECS Ticket: Order Manager

Document Number	Document Title
OD_S4_01	ECS Ticket: Improve Distribution to End Users through Data Pool
OD_S5_02	ECS Ticket: Managing HEG Orders
OD_S5_06	ECS Ticket: Hiding Order-Only Granules In The Data Pool
OG_S5_01	ECS Ticket: HEG Extensions for OWS
OM_80_01	ECS Ticket: Operational Updates to OMS
OP_S4_06	ECS Ticket: Support Multiple Data Pool File Systems
WD_S3_01	ECS Ticket: HDF-EOS Format Converter Integration with Data Pool
WD_S4_02	ECS Ticket: HEG Integration Enhancements
WL_S4_01	ECS Ticket: Synergy IV 24-Hour Workload Performance

## 2 REQUIREMENTS

### 2.1 AIM

These are the completed ECS requirements for the AIM subsystem (Archive Inventory Management).

Major functionality provided by the AIM subsystem includes:

- management of the archive inventory of collections and granules
- maintaining linkage of browse files with granules
- managing tape archive vs on-line data pool contents
- providing reconciliation tools
- supporting searching of inventory based on granule coverage metadata

ID	Title	Status
ECS-L4-9584	S-AIM-00010 The AIM CI shall provide an interface to access information that identifies when a new collection was inserted into the ECS inventory.	Completed
ECS-L4-9585	S-AIM-00015 The AIM CI shall provide an interface to access information that identifies when a collection was removed from the ECS inventory, including the short name and version id of that collection	Completed
ECS-L4-9586	S-AIM-00020 The AIM CI shall provide an interface to access information that identifies when a collection was last updated.	Completed
ECS-L4-9587	S-AIM-00025 The AIM CI shall provide an interface to obtain the metadata of collections in the inventory in an XML format according to the subset of the BMGTCollectionMetadata.dtd that describes the collection information.	Completed
ECS-L4-9588	S-AIM-00030 The AIM CI shall provide an interface that allows the selection and identification of collections based upon the time interval during which a collection was inserted, last updated, or deleted. [NOTE: This supports S-BGT-00650.]	Completed
ECS-L4-9591	S-AIM-00045 The AIM CI shall provide an interface to obtain the metadata of science granules in the inventory in an XML format according to the subset of the BMGTGranuleMetadata.dtd that describes the granule information.	Completed

ID	Title	Status
ECS-L4-9592	S-AIM-00050 The AIM CI shall provide an interface to access information that identifies when the core QA metadata information of a science granule was last updated and the nature of each such updates, i.e., parameter name, QA flag name, and QA flag value.	Completed
ECS-L4-9593	S-AIM-00055 The AIM CI shall provide an interface to access information that identifies when the browse links of a science granule were last updated.	Completed
ECS-L4-9594	S-AIM-00060 The AIM CI shall provide an interface to access information that identifies whether a science granule is currently visible or hidden.	Completed
ECS-L4-9595	S-AIM-00065 The AIM CI shall provide an interface to access information that identifies when the visibility of a science granule was last updated.	Completed
ECS-L4-9596	S-AIM-00070 The AIM CI shall provide an interface to access information that identifies when a science or browse granule was inserted into the inventory.	Completed
ECS-L4-9597	S-AIM-00075 The AIM CI shall provide an interface to access information that identifies when a science or browse granule was logically deleted from the inventory or deleted from the archive and make this information available for a configurable length of time after such events occurred even if the granule is physically deleted in the meantime.	Completed
ECS-L4-9598	S-AIM-00080 The AIM CI shall provide an interface to access information that identifies when a science or browse granule that had been logically deleted from the inventory was undeleted.	Completed
ECS-L4-9599	S-AIM-00085 The AIM CI shall provide an interface to access information that identifies when the metadata of a browse granule were last updated. [NOTE: This is cannot be integration tested since there is no ECS baseline capability to update the metadata of non-science granules.]	Completed
ECS-L4-9600	S-AIM-00090 The AIM CI shall provide an interface to access information that identifies when a science granule was assigned to a different collection (i.e., its collection version ID was changed) and identifies the previous and new collection.	Completed
ECS-L4-9601	S-AIM-00095 The AIM CI shall provide an interface to access information that identifies when metadata for a science granule were last updated other than core QA metadata, browse links, granule visibility, or the collection to which the granule belongs.	Completed
ECS-L4-9602	S-AIM-00100 The AIM CI shall provide an interface that allows the selection and identification of science granules based upon the collection to which they belong. [NOTE: This supports manual export as per S-BGT-00970.]	Completed
ECS-L4-9603	S-AIM-00105 The AIM CI shall provide an interface that allows the selection and identification of science granules based upon the collection to which they belong and the time interval during which their core QA metadata was updated the last time. [NOTE: This supports automatic export as per S-BGT-00685f and S-BGT-00695b.]	Completed
ECS-L4-9604	S-AIM-00110 The AIM CI shall provide an interface that allows the selection and identification of science granules based upon the collection to which they belong and the time interval during which their browse links were updated the last time. [NOTE: This supports automatic export as per S-BGT-00685g, S-BGT-00695c, and S-BGT-00780c.]	Completed

ID	Title	Status
ECS-L4-9605	S-AIM-00115 The AIM CI shall provide an interface that allows the selection and identification of science granules based upon the collection to which they belong and the time interval during which a related browse granule was inserted into the inventory. [NOTE: This supports manual export as per S-BGT-00975.]	Completed
ECS-L4-9606	S-AIM-00120 The AIM CI shall provide an interface that allows the selection and identification of science granules based upon the collection to which they belong and time interval during which their visibility was updated the last time. [NOTE: This supports automatic export as per S-BGT-00685c and S-BGT-00695a.]	Completed
ECS-L4-9607	S-AIM-00125 The AIM CI shall provide an interface that allows the selection and identification of granules based upon the collection to which they belong and the time interval during which they were inserted into the inventory. [NOTE: This supports automatic export as per S-BGT-00685a and S-BGT-00690a and manual export as per S-BGT-00970.]	Completed
ECS-L4-9608	S-AIM-00130 The AIM CI shall provide an interface that allows the selection and identification of granules based upon the collection to which they belong and the time interval during which they were logically deleted from the inventory or deleted from the archive, and make this possible for a configurable length of time after such events occurred even if the granule is physically deleted in the meantime. [[NOTE: This supports automatic export as per S-BGT-00685b, S-BGT-00685d and S-BGT-00725a, b. The need for retaining event information is mentioned for clarity and is covered by requirements S-AIM-00150 and S-AIM-00155, as well. ]	Completed
ECS-L4-9609	S-AIM-00135 The AIM CI shall provide an interface that allows the selection and identification of granules based upon the collection to which they belong and the time interval during which their logical deletion from the inventory was undone. [NOTE: This supports automatic export as per S-BGT-00685b and S-BGT-00690d.]	Completed
ECS-L4-9610	S-AIM-00137 The AIM CI shall provide an interface that allows the selection and identification of browse granules based upon the time interval during which their metadata were last updated. [NOTE: This supports automatic export as per S-BGT-00685h and S-BGT-00690c for non-science granules.] [NOTE: This is cannot be integration tested since there is no ECS baseline capability to update the metadata of non-science granules.]	Completed
ECS-L4-9611	S-AIM-00140 The AIM CI shall provide an interface that allows the selection and identification of science granules based upon the collection to which they belong and the time interval during which their metadata - other than core QA metadata, browse links, granule visibility, or the collection to which they belong - were last updated. [NOTE: This supports automatic export as per S-BGT-00685h and S-BGT-00690c for science granules.]	Completed
ECS-L4-9612	S-AIM-00145 The AIM CI shall provide an interface that allows the selection and identification of science granules based upon the time interval during which they were last assigned to a different collection and the collection to which they currently belong, respectively the collection to which they did belong before the update. [NOTE: This supports automatic export as per S-BGT-00685e and S-BGT-00690b and S-BGT-00725c.]	Completed
ECS-L4-9613	S-AIM-00150 The AIM CI shall allow DAAC staff to configure the length of time for which valids, collection and science and browse granule event information that the AIM CI maintains for access by the BGT CI shall be retained after the event occurred.	Completed

ID	Title	Status
ECS-L4-9614	S-AIM-00155 The AIM CI shall retain valids, collection and science and browse granule event information accessed by the BGT CI for the length of time configured by DAAC staff and remove it thereafter where such information is kept in separate event tables. [NOTE: That is, event information is not subject to this cleanup requirement if it is an integral part of the inventory, such as the insertTime, lastUpdate, and deleteEffectiveDate in the various granule and collection inventory tables.]	Completed
ECS-L4-9615	S-AIM-00160 The AIM CI shall provide an interface to obtain the browse metadata required for metadata export, i.e., that is referenced by the subset of the BMGTBrowseMetadata.dtd that describes the browse granule information.	Completed
ECS-L4-9616	S-AIM-00165 The AIM CI shall provide an interface to access the information that correlates a given science granule with its browse granules	Completed
ECS-L4-9617	S-AIM-00170 The AIM CI shall provide an interface to access the information that correlates a given browse granule with its science granules	Completed
ECS-L4-9618	S-AIM-00175 The AIM CI shall provide an interface that allows the selection of browse granules based on the collection to which the associated science granules belong. [NOTE: This supports manual export as per S-BGT-00975.]	Completed
ECS-L4-9619	S-AIM-00180 The AIM CI shall provide an interface that allows the selection of browse granules based on the collection to which the associated science granules belong and the time period during which the browse granule was inserted. [NOTE: This supports automatic export as per S-BGT-00780a, S-BGT-00785, S-BGT-00800, and manual export as per S-BGT-00975.]	Completed
ECS-L4-9620	S-AIM-00185 The AIM CI shall provide an interface that allows the selection of browse granules based on the collection to which the associated science granules belong and the time period during which the browse granule was deleted. [NOTE: This supports automatic export as per S-BGT-00780b, S-BGT-00790, and S-BGT-00800.]	Completed
ECS-L4-9621	S-AIM-00190 The AIM CI shall provide an interface to access the location information that is needed to access the browse file(s) for a specific browse granule in the browse archive.	Completed
ECS-L4-9622	S-AIM-00195 The AIM CI shall provide an interface to access the file name information for browse files.	Completed
ECS-L4-9623	S-AIM-00200 The AIM CI shall support the specification of time intervals for selection purposes that are closed at the beginning date/time and open at the ending date/time, i.e., include items for a time greater than or equal to (>=) the beginning date time and less than (<) the ending date/time.	Completed
ECS-L4-9626	S-AIM-00320 The AIM CI shall identify the list of granules which it physically deletes from its inventory or flags as deleted from archive (i.e., DeleteFromArchive changed to 'Y') to the DPL CI, using the agreed interface for this purpose as per S-DPL-08120.	Completed
ECS-L4-9627	S-AIM-00330 The AIM CI shall provide a tape archive repair function that allows DAAC staff to replace the files of individual science granules in the tape archive with their copy from the Data Pool On-Line Archive.	Completed
ECS-L4-9628	S-AIM-00340 The AIM CI shall provide a tape archive bulk repair function that allows DAAC staff to replace science granule files on a specified tape volume with their copies from the Data Pool On-Line Archive.	Completed

ID	Title	Status
ECS-L4-9629	S-AIM-00350 When repairing the copy of a file in the tape archive from its copy in the Data Pool On-Line Archive, the AIM CI verify the checksum of the file and fail the tape archive repair for the corresponding granule if checksum verification fails.	Completed
ECS-L4-9630	S-AIM-00360 The AIM CI shall log each file that failed checksum verification during a tape archive repair.	Completed
ECS-L4-9631	S-AIM-00370 The AIM CI shall allow DAAC staff to invoke its tape archive repair functions via the command line.	Completed
ECS-L4-9632	S-AIM-00380 The AIM CI shall allow DAAC staff to limit the number of concurrent archive writes that it will issue during tape archive bulk repair.	Completed
ECS-L4-9633	S-AIM-00390 The AIM CI shall allow DAAC staff to identify the hosts on which it will perform checksumming operations and limit the number of concurrent checksumming operations it performs on each host during tape archive bulk repair.	Completed
ECS-L4-9634	S-AIM-00400 The AIM CI shall allow DAAC staff to perform bulk tape archive repairs for more than one tape volume in parallel.	Completed
ECS-L4-9635	S-AIM-00410 The AIM CI shall be able to perform bulk repair of a tape volume at a rate of no less than 100 MB/sec in the absence of concurrent workload.	Completed
ECS-L4-9638	S-AIM-00500 The AIM CI shall provide an interface that allows the selection and identification of science granules based upon the time interval during which a granule was inserted or its inventory metadata were last updated, optionally constrained by the collection(s) to which the granules belong and regardless of how long in the past that insert or update occurred. [NOTE: Granule deletion is not considered in update. Granule un-deletion is considered equivalent to an insert. The information must be persisted regardless of how long the event information that supports BMGT exports is kept.]	Completed
ECS-L4-9639	S-AIM-00600 The AIM CI shall include a utility that compares AIM and DPL checksum information and identifies and reports the discrepancies in accordance with Tables 1 and 2 in Ticket DS_xx_01.	Completed
ECS-L4-9640	S-AIM-00610 The AIM checksum verification utility (ACVU) shall allow DAAC staff to request a change in the AIM checksum type of a granule or list of granules.	Completed
ECS-L4-9641	S-AIM-00620 When changing a checksum origin whose current value is "DataProvider", the AIM checksum verification utility (ACVU) shall record the fact that a checksum was originally supplied by the Data Provider.	Completed
ECS-L4-9642	S-AIM-00630 The AIM physical granule deletion shall skip the deletion of a granule that is currently in use by the OMS CI and automatically remove such granules on the next physical deletion run that occurs after OMS relinquishes use of that granule.	Completed
ECS-L4-9643	S-AIM-00640 The AIM CI shall be able to support the association of a single restriction with an ECS science granule.	Completed
ECS-L4-9644	S-AIM-00650 The AIM CI shall support up to 255 different values of granule restrictions.	Completed
ECS-L4-9645	S-AIM-00670 The AIM CI shall allow DAAC staff to update the restriction associated with an ECS science granule, including whether the granule shall be hidden from public access in the On-Line Archive.	Completed
ECS-L4-9646	S-AIM-00680 The AIM CI shall allow DAAC staff to remove the restriction for an ECS science granule.	Completed

ID	Title	Status
ECS-L4-9647	S-AIM-00690 The AIM CI shall cause a granule to be unpublished if the restriction information for a science granule indicates that the granule is newly hidden from public access (i.e., when a restriction was added updated.) [NOTE: The converse, namely causing the publication of a granule when a restriction is removed or is updated to allow the granule to be visible in the On-Line Archive has been assigned to operations.]	Completed
ECS-L4-9648	S-AIM-00700 The AIM CI shall maintain information in support of a generic ESDT for HDF4 archive map files.	Completed
ECS-L4-9649	S-AIM-00710 The AIM CI shall maintain information on ECS collections which indicate whether or not HDF4 archive map generation is enabled.	Completed
ECS-L4-9650	S-AIM-00720 The AIM CI shall maintain information about HDF4 archive map granules as follows: HDF4 archive map file name Linkage between an HDF4 archive map file and its parent science granule The checksum for the HDF4 archive map file The date/time that the HDF4 archive map file was created The version of the HDF4 archive map file generation software that was used to create the HDF4 archive map file Service that was used to generate the HDF4 archive map file (NOTE: TBD by design, the service will be identified by which process queued the event for the MGS,DPL Ingest or Stand-alone MGU)	Completed
ECS-L4-9651	S-AIM-00730 The AIM CI shall maintain science granule information which indicates whether or not an associated HDF4 archive map is present.	Completed
ECS-L4-9652	S-AIM-00731 The AIM inventory catalog shall store the following information for each set of duplicate granules in the system unless excluded by S-DPL-32043: Replacement granule ID (as per S-DPL-32031) Duplicate granule ID (as per S-DPL-32032) Rule that was applied in determining the granules are duplicates of one another	Completed
ECS-L4-9653	S-AIM-00732 The AIM inventory catalog shall be able to provide the following additional granule state information for duplicate granules in a manner that does not allow for inconsistencies with DPL and AIM utilities which change the state of a granule (e.g. the state information should be derived rather than stored as part of the duplicate information). Short name Version ID DeleteEffectiveDate of replacement granule DeleteEffectiveDate of duplicate granule DeleteFromArchiveFlag of replacement granule DeleteFromArchiveFlag of duplicate granule IsOrderOnlyFlag of replacement granule IsOrderOnlyFlag of duplicate granule LocalGranuleID of replacement granule LocalGranuleID of duplicate granule ArchiveTime of replacement granule ArchiveTime of duplicate granule RegistrationTime of replacement granule RegistrationTime of duplicate granule	Completed
ECS-L4-9654	S-AIM-00733 The AIM Granule Deletion Service shall, when removing granules marked as deleted, remove the duplicate record stored in the AIM inventory catalog as stored per S-AIM-00731.	Completed
ECS-L4-9655	S-AIM-00734 The AIM CI shall provide a duplicate granule reporting utility.	Completed
ECS-L4-9656	S-AIM-00735 The AIM duplicate granule reporting utility shall be able to run on a cron without requiring interactive user input.	Completed
ECS-L4-9657	S-AIM-00736 The AIM duplicate granule reporting utility shall be able to run while the mode is operational.	Completed
ECS-L4-9658	S-AIM-00737 The AIM duplicate granule reporting utility shall allow an operator to specify the location of the output file generated by a run.	Completed

ID	Title	Status
ECS-L4-9659	S-AIM-00738 The AIM duplicate granule reporting utility shall by default report all duplicate granules in the system based on the information stored in the AIM inventory catalog per S-AIM-00731.	Completed
ECS-L4-9660	S-AIM-00739 The AIM duplicate granule reporting utility shall allow an operator to only report duplicate granules for a specified collection.	Completed
ECS-L4-9661	S-AIM-00740 The AIM duplicate granule reporting utility shall allow an operator to only report duplicate granules for a specified collection group.	Completed
ECS-L4-9662	S-AIM-00741 The AIM duplicate granule reporting utility shall create a new timestamped log for each run of the utility with the timestamp in the format YYYYMMDDhhmmss.	Completed
ECS-L4-9663	S-AIM-00742 The AIM duplicate granule reporting utility shall include a timestamp in the format MM/DD/YYYY hh:mm:ss for every log entry.	Completed
ECS-L4-9664	S-AIM-00743 The AIM duplicate granule reporting utility shall log a line for each duplicate pair of granules including: The ECS granule ID of the granule being kept The ECS granule ID of the granule to be deleted The LocalGranuleID of the granule being kept The LocalGranuleID of the granule to be deleted	Completed
ECS-L4-9665	S-AIM-00744 The AIM duplicate granule reporting utility shall log the starting and end time of each run.	Completed
ECS-L4-9666	S-AIM-00745 The AIM duplicate granule reporting utility shall log a summary at the end of each run containing the following: The total number of granules identified as duplicates not currently hidden or logically deleted The total number of granules identified as duplicates and currently marked as logically deleted The total number of granules identified as duplicates and currently marked as hidden	Completed
ECS-L4-9667	S-AIM-00746 The AIM duplicate granule reporting utility shall log a summary at the end of each run to include the following grouped by ESDT: The total number of granules identified as duplicates not currently hidden or logically deleted The total number of granules identified as duplicates and currently marked as logically deleted The total number of granules identified as duplicates and currently marked as hidden	Completed
ECS-L4-9668	S-AIM-00747 The AIM duplicate granule reporting utility shall generate an output file containing geoids, which can be used without modification as input to the bulk delete granule deletion utility. The output file should include all duplicate granules unless excluded by S-AIM-00748, S-AIM-00749, S-AIM-00750, S-AIM-00751, or S-AIM-00752.	Completed
ECS-L4-9669	S-AIM-00748 The AIM duplicate granule reporting utility shall not include any granules in the geoid output file for which either the duplicate or the replacement granule has a non-NULL DeleteEffectiveDate or DeleteFromArchive set to 'Y'.	Completed
ECS-L4-9670	S-AIM-00749 The AIM duplicate granule reporting utility shall not include any granules in the geoid output file for which the duplicate granule has a DeleteFromArchive set to 'H' unless overridden by the operator via command line options. [NOTE: This allows the operator the ability to delete the duplicate granules that were previously hidden without having to first unhide the granules.]	Completed
ECS-L4-9671	S-AIM-00750 The AIM duplicate granule reporting utility shall not include any duplicate granules in the geoid output file for which the replacement granule has a DeleteFromArchive set to 'H'.	Completed
ECS-L4-9672	S-AIM-00751 The AIM duplicate granule reporting utility shall not include any granules in the geoid output file that have a DeleteFromArchive set to 'G'.	Completed

ID	Title	Status
ECS-L4-9673	S-AIM-00752 The AIM duplicate granule reporting utility shall not include any granules in the geoid output file that have a granule restriction per S-AIM-00640 unless overridden by the operator via command line options.	Completed
ECS-L4-9674	S-AIM-00753 The ESDT Maintenance GUI shall configure the data model associated with a collection based upon a collection data model type attribute in the ESDT descriptor file.	Completed
ECS-L4-9675	S-AIM-00754 The ESDT Maintenance GUI Shall consider the data model type for an ESDT to be legacy ECS if no data type model attribute is present in the descriptor file for the ESDT.	Completed
ECS-L4-9676	S-AIM-00755 The ESDT Maintenance GUI shall consider as mandatory the following files when installing an ESDT for a collection configured as ISO-19115 conformant: An Xpath file at the collection level An Xpath files at the granule level An ISO-19115 conformant series (collection) level metadata file	Completed
ECS-L4-9677	S-AIM-00756 The ESDT Maintenance GUI shall reject the installation of an ESDT configured as ISO-19115 conformant if it is not accompanied by its mandatory files.	Completed
ECS-L4-9678	S-AIM-00757 The ESDT Maintenance GUI shall use the schema referred to by the ISO-19115 conformant series (Collection) level metadata file to validate the ISO-compliant series (collection) level metadata file itself.	Completed
ECS-L4-9679	S-AIM-00758 The ESDT Maintenance GUI shall not generate an XSD file for collections whose data model type is not ECS.	Completed
ECS-L4-9680	S-AIM-00759 The AIM CI Shall maintain information about the data model used for a collection.	Completed
ECS-L4-9681	S-AIM-00760 The ESDT Maintenance GUI shall not generate an MCF for collections whose data model type is not ECS.	Completed
ECS-L4-9682	S-AIM-00761 The AIM CI shall associate the following files with a collection if the data model type for the collection is ISO-19115: An Xpath file at the collection level An Xpath files at the granule level An ISO-19115 conformant series (collection) level metadata file	Completed
ECS-L4-9683	S-AIM-00762 The AIM CI shall inhibit the update of quality assurance flag metadata for a ganule whose collection data model type is ISO-19115.	Completed
ECS-L4-9684	S-AIM-00800 The AIM CI shall identify the list of granules which it flags as logically deleted (i.e., deleteEffectiveDate changed from NULL to non-NULL), or hidden from normal users (i.e., DeleteFromArchive flag changed to 'H'), or flagged as not present in archive (i.e., DeleteFromArchive changed to 'Y') to the DPL CI, using the agreed interface for this purpose as per S-DPL-71035. [NOTE: This replaces requirement S-AIM-00300]	Completed
ECS-L4-9685	S-AIM-00805 The AIM CI shall identify the list of granules which it flags as undeleted (deleteEffectiveDate changed from non-NULL to NULL) or unhidden from normal users (i.e., DeleteFromArchive flag changed from 'H' to a different value) or flagged as no longer deleted from archive (i.e., DeleteFromArchive flag changed from 'Y' to a different value) to the DPL CI, using the agreed interface for this purpose as per S-DPL-71050. [NOTE: This replaces requirement S-AIM-00310.]	Completed

ID	Title	Status
ECS-L4-9686	S-AIM-00810 The AIM QA Update service shall provide a utility that updates: a. the QA metadata attributes and last update time stored in XML files in the XML Archive, b. the QA attributes included in the Data Pool inventory metadata, including any QA metadata maintained for public Data Pool granules, c. the QA attributes and last update time stored in the XML metadata files within the Data Pool file systems for granules that are part of the On-Line Archive. [NOTE: This replaces requirement S-AIM-00420.]	Completed
ECS-L4-9687	S-AIM-00815 The AIM QA Update service shall, in the event that a granule included in a QA Update request is part of the On-Line Archive, update its XML file in the Data Pool file system with the new last update time and new version of the QA attributes, and apply the new version of the QA attributes to any QA attributes that may be kept in the Data Pool inventory metadata for the granule (e.g., if the granule is public). [NOTE: This replaces requirement S-AIM-00430.]	Completed
ECS-L4-9688	S-AIM-00820 The AIM Granule Deletion service, when instructed to remove a granule marked as deleted, shall remove: a. the inventory entries for the granule, b. any metadata file associated with the granule from the XML Metadata archive, c. all data files associated with the granule from the Science file archives, and d. the data files, symbolic links, and metadata file for the granule from Online Archive (including the removal of directories that become empty during that process), except under the circumstances noted in S-AIM-00885. [NOTE: This replaces requirement S-DSS-03620.]	Completed
ECS-L4-9689	S-AIM-00825 The AIM QA Update service shall, in the event that a granule included in the QA update request is made public in the Data Pool after the start of the QA Update service, update the Data Pool XML file and inventory metadata with the new QA values and in the case of the XML file, also the new lastUpdate time. [NOTE: This replaces requirement S-DSS-05480.]	Completed
ECS-L4-9690	S-AIM-00830 The AIM QA Update service shall log the time, granule ID, and Data Pool XML file name for each granule that it fails to update in the Data Pool. [NOTE: This replaces requirement S-DSS-06370.]	Completed
ECS-L4-9691	S-AIM-00835 The ACVU shall verify the computed checksum values against the corresponding values stored in the AIM Inventory Catalog using the checksum algorithm associated with the checksum type stored in the AIM Inventory Catalog. [NOTE: This replaces requirement S-DSS-11100.]	Completed
ECS-L4-9692	S-AIM-00840 The ACVU shall update the checksum verification time and status in the AIM Inventory Catalog for each file on a tape or the browse disk archive whose checksum was successfully verified. [NOTE: This replaces requirement S-DSS-11110.]	Completed
ECS-L4-9693	S-AIM-00845 The ACVU shall update the checksum status in the AIM Inventory Catalog to specify failed in the case of checksum verification failure. [NOTE: This replaces requirement S-DSS-11120.]	Completed
ECS-L4-9694	S-AIM-00850 The AIM QA Update service shall record in a history file the granule ID along with the measured parameters, the QA values, and the corresponding explanation fields before and after the update for each granule updated. [NOTE: This replaces requirement S-DSS-05450.]	Completed
ECS-L4-9695	S-AIM-00855 The AIM Inventory Catalog shall record Science Granule metadata (as specified by current release of the '311-EMD-xxx, Archive Management Inventory (AIM) Database Design Schema Specifications for the EMD Project'). [NOTE: This replaces requirement S-DSS-03920.]	Completed

ID	Title	Status
ECS-L4-9696	S-AIM-00860 The AIM Inventory Catalog shall record the Browse granule metadata, including linkage information between the Browse granule and its associated Science granules. [NOTE: This replaces requirement S-DSS-03960.]	Completed
ECS-L4-9697	S-AIM-00865 The AIM Inventory Catalog shall record the QA granule metadata, including linkage information between the QA granule and its associated Science granules in the Inventory Catalog. [NOTE: This replaces requirement S-DSS-04080.]	Completed
ECS-L4-9698	S-AIM-00870 The AIM Inventory Catalog shall record the PH granule metadata, including linkage information between the PH granule and its associated Science granules in the Inventory Catalog. [NOTE: This replaces requirement S-DSS-04090.]	Completed
ECS-L4-9699	S-AIM-00875 The AIM Inventory Catalog shall record Delivered Algorithm Package (DAP) granule metadata [NOTE: This replaces requirement S-DSS-04100.]	Completed
ECS-L4-9700	S-AIM-00880 The AIM Granule Deletion service shall, when removing granules that are marked for deletion, log an error message and quit without processing any granules if the DPL Move Collection utility is running in the same mode.	Completed
ECS-L4-9701	S-AIM-00885 The AIM Granule Deletion service shall, when removing granules that are marked for deletion, skip processing any granules that are in use by an order not yet marked shipped or whose pull time has not yet expired and granules that are in the Public Online Archive. [NOTE: This complements requirement S-DPL-14500.]	Completed
ECS-L4-9702	S-AIM-00890 The AIM Granule Deletion service shall, when removing granules that are marked for deletion, process granules that were skipped in previous runs unless they are still in the public online archive or still in use by an order that is not yet marked shipped or whose pull time has not yet expired. [NOTE: this complements requirement S-AIM-00885.]	Completed
ECS-L4-9703	S-AIM-00895 The AIM Granule Deletion service shall log granules whose removal is skipped and the reason for skipping the removal. [NOTE: This complements requirement S-DPL-14515.]	Completed
ECS-L4-9704	S-AIM-00900 The AIM Granule Deletion service shall be capable of marking granules for deletion in the AIM Catalog at a rate of no less than 20,000 granules per hour.	Completed
ECS-L4-9705	S-AIM-00905 The AIM Granule Deletion service shall be capable of physically removing granules from the AIM and DPL file systems at a rate of no less than 50,000 granules per hour.	Completed
ECS-L4-9706	S-AIM-00910 The AIM CI shall retain event information accessed by the BGT CI until it is notified by the BGT CI that event information beyond a certain age is no longer needed and remove that event information upon such notification. [NOTE: This replaces requirement S-DPL-00280.]	Completed
ECS-L4-9707	S-AIM-00915 The AIM CI shall provide an interface that can be used by the BGT CI to notify the AIM CI of event information it no longer needs, as per requirements S-AIM-00910. [NOTE: This replaces requirement S-DPL-00281]	Completed
ECS-L4-9708	S-AIM-00920 The AIM CI shall include changes to QA and PH URLs when the BMGT requests the selection and identification of science granules based upon the time interval during which they were updated. [NOTE: This replaces requirement S-DPL-10430]	Completed

ID	Title	Status
ECS-L4-9709	S-AIM-00925 The AIM CI shall provide an interface to access information that identifies when a science granule was inserted into the public Data Pool and allows the determination of its public Data Pool URL. [NOTE: This replaces requirement S-DPL-00235]	Completed
ECS-L4-9710	S-AIM-00930 The AIM CI shall provide an interface to access information that identifies when a science granule was removed from the public Data Pool. [NOTE: This replaces requirement S-DPL-00240]	Completed
ECS-L4-9711	S-AIM-00935 The AIM CI shall provide an interface to access information that identifies when a collection was moved or re-assigned in the Data Pool such that the public Data Pool URLs of its granules changed as a result. [NOTE: This replaces requirement S-DPL-00245]	Completed
ECS-L4-9712	S-AIM-00940 The AIM CI shall provide an interface that allows the selection and identification of science granules that are in the public Data Pool based upon the collection to which they belong and optionally the time interval during which they were published in the Data Pool. [NOTE: This supports automatic export as per S-BGT-00685i and S-BGT-00700a, and manual export as per S-BGT-00980 and replaces requirement S-DPL-00250]	Completed
ECS-L4-9713	S-AIM-00945 The AIM CI shall provide an interface that can be used by the BGT CI to notify the AIM CI of event information it no longer needs, as per requirements S-BGT-22055. [NOTE: This replaces requirement S-DPL-00281]	Completed
ECS-L4-9714	S-AIM-00950 For all science granules removed from the public Data Pool, the AIM CI shall provide an interface that allows their selection and identification based upon the time interval during which they were removed from the public Data Pool. [NOTE: This supports automatic export as per S-BGT-00685j, S-BGT-00700b, and S-BGT-00720 and replaces requirement S-DPL-00255.]	Completed
ECS-L4-9715	S-AIM-00955 The AIM CI shall provide an interface that allows the selection and identification of science granules based upon the time interval during which their public Data Pool URLs changed because their Data Pool collection was moved or re-assigned. [NOTE: This supports automatic export as per S-BGT-00685k and S-BGT-00700c and replaces requirement S-DPL-00270]	Completed
ECS-L4-9716	S-AIM-00960 The AIM CI shall provide an interface that allows the selection and identification of science granules that are in the public Data Pool based upon the time interval during which any of their Data Pool URLs or those of their web accessible associated granule, changed or were deleted, optionally constrained by the collection(s) to which the science granules belong and regardless of how long in the past that update occurred. [NOTE: The URLs that provide access to the files of Browse, QA, and PH granules that are associated with a science granule as considered URLs belonging to that science granule. The information must be persisted regardless of how long event information that supports BMGT exports is kept. The Data Pool URLs include all URLs exported by the BMGT as associated with the granule, for example, including Browse URLs.] [NOTE: This replaces requirement S-DPL-10600]	Completed
ECS-L4-9717	S-AIM-0660 The AIM CI shall allow DAAC staff to associate a restriction with an ECS science granule and indicate as part of the restriction information whether the granule shall also be hidden from public access in the On-Line Archive.	Completed

## 2.2 BGT

These are the completed ECS requirements for the BGT subsystem (BGT is a three-letter contraction for the Bulk Metadata Generator Tool, BMGT).

The BGT subsystem provides for the export of collection and granule metadata records to the CMR.

ID	Title	Status
ECS-L4-9718	S-BGT-00010 The ECS Bulk Metadata Generator Tool (BMGT) shall export metadata for an operator-configurable set of ESDT versions.	Completed
ECS-L4-9721	S-BGT-00040 The BMGT may be executed as a cron job.	Completed
ECS-L4-9722	S-BGT-00050 The BMGT may be executed at the discretion of the operator.	Completed
ECS-L4-9723	S-BGT-00060 The BMGT shall run in accordance to ECS mode conventions.	Completed
ECS-L4-9724	S-BGT-00070 The BMGT shall allow the operator to specify mappings between ESDT versions and groups.	Completed
ECS-L4-9728	S-BGT-00110 The BMGT shall incur no more than 10 % performance degradation on the ECS Science Data Server Database under nominal operation load during data extraction.	Completed
ECS-L4-9730	S-BGT-00130 ECSMETC granules shall be created by data group. Collection level metadata shall be grouped by instrument and mission. Metadata related to the MODIS instrument shall be grouped by mission and major discipline.	Completed
ECS-L4-9731	S-BGT-00140 Data group names and content shall be configurable by the operator.	Completed
ECS-L4-9734	S-BGT-00170 The BMGT shall generate collection level metadata for a specific collection only once per execution.	Completed
ECS-L4-9737	S-BGT-00200 The file naming convention of the ECSMETC XML files shall be in accordance of document 170-WP-023-001 (Section 2.2.2 Product Specification).	Completed
ECS-L4-9738	S-BGT-00210 Each ECSMETC product XML file shall conform to a DTD file according to the document 170-WP-023-001 (Appendix A).	Completed
ECS-L4-9742	S-BGT-00250 ECSMETG granules shall be created by data group. Granule metadata shall be grouped by instrument and mission. Metadata related to the MODIS instrument shall be grouped by mission and major discipline.	Completed
ECS-L4-9745	S-BGT-00280 The BMGT shall generate granule level metadata for a specific granule only once per execution.	Completed
ECS-L4-9746	S-BGT-00290 The BMGT shall not generate granule level metadata for a granule that was both inserted and deleted within the temporal constraint.	Completed
ECS-L4-9747	S-BGT-00300 The BMGT shall generate a subset of granule level metadata for granules that have only been deleted within the temporal constraint. The subset is defined by the granule identifier and the deletion time.	Completed
ECS-L4-9750	S-BGT-00330 The file naming convention of the ECSMETG XML files shall be in accordance of document 170-WP-023-001 (Section 2.2.2 Product Specification).	Completed
ECS-L4-9751	S-BGT-00340 Each ECSMETG product XML file shall conform to a DTD file according to the document 170-WP-023-001 (Appendix A).	Completed
ECS-L4-9758	S-BGT-00410 The file naming convention of the ECSMETV product XML files shall be in accordance of document 170-WP-023-001 ( Section 2.2.2 Product Specification).	Completed

ID	Title	Status
ECS-L4-9759	S-BGT-00420 Each ECSMETV product XML file shall conform to a DTD file according to the document 170-WP-023-001 (Appendix A).	Completed
ECS-L4-9764	S-BGT-00480 Each ECSBBR product shall consist of a single XML file called the Browse Reference File (BRF).	Completed
ECS-L4-9765	S-BGT-00490 Each ECSBBR granule shall contain the metadata specified in document 170-WP-023-001 (section 3.2).	Completed
ECS-L4-9766	S-BGT-00500 The file naming convention of the BRF files shall be in accordance of document 170-WP-023-001 (p 13).	Completed
ECS-L4-9767	S-BGT-00510 Each BRF file shall conform to a DTD file according to the document 170-WP-023-001 (Appendix A).	Completed
ECS-L4-9769	S-BGT-00530 The BMGT shall extract browse cross-reference information from the ECS Science Data Server Database at a rate of at least 25,000 granules per hour.	Completed
ECS-L4-9773	S-BGT-00605 The BMGT shall run in accordance to ECS mode conventions.	Completed
ECS-L4-9774	S-BGT-00610 The BMGT shall be able to operate automatically (automatic mode) as well as under direction of parameters provided by DAAC staff (manual mode)	Completed
ECS-L4-9775	S-BGT-00615 When started, the BMGT shall operate in automatic mode by default, i.e., unless explicitly overridden by command line parameters. [NOTE: The expectation is that all routine export in the absence of errors is performed via automatic export.]	Completed
ECS-L4-9776	S-BGT-00620 The BMGT shall allow the DAAC staff to specify mappings between ESDT versions and groups.	Completed
ECS-L4-9777	S-BGT-00625 The BMGT shall allow the DAAC staff to define the group names; group names shall consist of up to twelve characters, compatible with the Data Pool rules for collection group names specified in S-DPL-40535.	Completed
ECS-L4-9779	S-BGT-00635 The BMGT shall allow DAAC staff to enable a collection for export of collection information separately from enabling the collection for export of granule metadata; by default, new collections are not enabled for export. [NOTE: Neither the collection information nor any of the granules in the collections will be exported if a collection is currently not enabled for export of collection information.]	Completed
ECS-L4-9780	S-BGT-00640 The BMGT shall allow DAAC staff to enable a collection for export of granule metadata if the collection is enabled for export of collection metadata. [NOTE: While a collection is not enabled for export of granule metadata, metadata inserts and changes for its granules will not be included in export operations. Once a collection was enabled for granule export, it will remain so until the collection is removed from the inventory. It is assumed that if a DAAC wants to hide the collection in ECHO, it would use an ECHO provider interface in that case.]	Completed
ECS-L4-9781	S-BGT-00641 The BMGT shall allow DAAC staff to enable a collection for export of URL metadata if the collection is enabled for export of collection metadata. [NOTE: While a collection is not enabled for export of URL metadata, metadata Data Pool inserts, deletions and URL changes for its granules will not be included in export operations. DAAC staff must enable or disable a collection manually via direct interaction with the Data Pool database. When the DAAC does so, DAAC staff is also responsible for exporting the addition respectively removal of any pre-existing URLs via manual BMGT export.]	Completed

ID	Title	Status
ECS-L4-9782	S-BGT-00642 The BMGT shall not include URL metadata in the export operations referenced in S-BGT-00710, S-BGT-00715, and S-BGT-00720 for collections not enabled for URL export.	Completed
ECS-L4-9806	S-BGT-00755 The BMGT shall not report the removal of a granule from the public Data Pool if the insert of the granule into the public Data Pool has not yet been reported. [NOTE: This is to prevent reports of spurious errors. The external metadata Clearinghouse will remove the URL as part of removing the granule from its inventory.]	Completed
ECS-L4-9809	S-BGT-00780 The BMGT shall export the following changes to browse metadata: a. insertion of a browse granule into the ECS inventory once the first link for that browse granule is established b. deletion of a browse granule from the ECS inventory once the last link to that browse granule is removed c changes in cross references between science and browse granules.	Completed
ECS-L4-9818	S-BGT-00825 The BMGT shall generate a separate export package for each export cycle during automatic operation subject to the exceptions specified in S-BGT-00755.	Completed
ECS-L4-9835	S-BGT-00900 When executing in automatic mode, the BMGT shall generate one and only one metadata export package for each export cycle, except in the following case: a. the BMGT shall not generate a metadata export package for export cycles during which there were no inventory metadata changes. [NOTE: For example, if the length of an export cycle was configured to 6 hours and export operations for three cycles were missed for some reason, the next export operation would cover four cycles, i.e., 24 hours. On the other hand, if metadata generation is caught up and the BMGT is started before the end of the current cycle, no metadata package would be generated.]	Completed
ECS-L4-9838	S-BGT-00915 The BMGT shall permit DAAC staff to perform several export operations as part of a single manual invocation. [NOTE: This capability can be limited where different exports require different or conflicting options (e.g., date ranges or inclusion/exclusion of browse.)]	Completed
ECS-L4-9844	S-BGT-00945 The BMGT shall permit DAAC staff to specify a string up to 40 characters long and consisting only of valid Unix file name characters (excluding period) to be included as part of the file names in the metadata export package created by a manual export operation.	Completed
ECS-L4-9845	S-BGT-00950 The BMGT shall permit DAAC staff to request via a manual export operation the regeneration of an export package for one or several past automatic export operations. [NOTE: DAAC staff would do this if the original package was corrupted, for example, by some hardware fault. If the state of a package is EXPORTED, DAAC staff is expected to coordinate with ECHO to ensure that the package was not and will not be processes by ECHO.]	Completed
ECS-L4-9852	S-BGT-00972 The BMGT shall permit DAAC staff to request via a manual export operation the export of browse metadata, optionally for a specific time period constraining the time period during which these browse granules were inserted into the ECS inventory. [NOTE: This will produce ECSBBR export files exporting the current browse granules, and will export the all granule-browse links for the exported browse granules.]	Completed

ID	Title	Status
ECS-L4-9853	S-BGT-00975 The BMGT shall permit DAAC staff to request via a manual export operation the export of browse metadata cross referenced with granules in one or several collections, with the collections specified in an input file, optionally for a specific time period constraining the time period during which these science granules were inserted into the ECS inventory. [NOTE: This will produce ECSBBR export files exporting the current browse granules related to these collections, and will export the all granule-browse links for the exported browse granules.]	Completed
ECS-L4-9861	S-BGT-01005 The BMGT shall permit DAAC staff to request via a manual export operation the export of browse metadata for one or several browse granules, with the browse granules specified on the command line or listed in an input file. [NOTE: This will produce ECSBBR export files exporting the specified browse granules, as well as export the corresponding browse links, provided the browse granules are in the ECS inventory and not flagged deleted. Browse cross references will be exported on this occasion in an ECSMETU file.]	Completed
ECS-L4-9865	S-BGT-01020 When operating in automatic mode for export to the external clearing house, the BMGT shall not omit related inventory updates from export to the external clearing house even if the manual export included the corresponding inventory objects. [NOTE: The BMGT cannot rely on manual operations to export changes to the ECS inventory reliably and in the correct order. The BMGT must export such changes regardless of whether the changed information was included in a manual operation. ] .	Completed
ECS-L4-9867	S-BGT-01027 Upon starting a manual export operation, the BMGT shall detect concurrent manual export operations in the same mode, inform the operator, and prompt the operator as to whether to continue or exit.	Completed
ECS-L4-9868	S-BGT-01028 The BMGT shall not perform two automatic export operations concurrently, with the exception of being able to execute concurrently the automatic export for export cycles and the export of bulk granule deletions following Data Pool cleanup. [NOTE: Other kinds of concurrent automatic executions are superfluous since any automatic execution will process all past un-exported cycles. This requirement merely prevents undesirable race conditions.]	Completed
ECS-L4-9869	S-BGT-01030 If starting the automatic generation of an export package is not possible because of concurrent export operations as per requirement S-BGT-01025, the BMGT shall start the generation of that package as soon as the conflicting export operations complete package generation. [NOTE: For example, a manual export operation may prevent an automatic export operation from starting; or the regeneration of a package for which the ingest summary reported a failure may be prevented because the generation of the next export package has already started.]	Completed
ECS-L4-9876	S-BGT-01039 The BMGT shall update the status of a package to a status of 'PRODUCT GENERATE FAILED' or 'PACKAGE GENERATE FAILED' in line with requirement S-BGT-01250 when the BMGT terminates the creation of an export package prematurely.	Completed
ECS-L4-9881	S-BGT-01044 The BMGT operator GUI shall allow DAAC staff to view, define and maintain the retry delay and the number of retries to be attempted when the BMGT encounters a failure that is not a data error.	Completed
ECS-L4-9891	S-BGT-01080 The BMGT shall allow DAAC staff to determine whether a manually generated metadata export packages shall be exported to an external metadata clearinghouse.	Completed
ECS-L4-9903	S-BGT-01135 The BMGT operator GUI shall permit DAAC staff to suspend and resume the BMGT FTP service.	Completed

ID	Title	Status
ECS-L4-9920	S-BGT-01205 The BMGT shall notify DAAC staff via e-mail to an e-mail address configured by DAAC staff when an automatic export operation has started but has not begun transmission within a configurable time limit.	Completed
ECS-L4-9921	S-BGT-01210 The BMGT shall notify DAAC staff via e-mail to an e-mail address configured by DAAC staff when an ingest summary report has not been received within a configurable time limit after completion of successful transmission.	Completed
ECS-L4-9922	S-BGT-01215 The BMGT shall notify DAAC staff via e-mail to an e-mail address configured by DAAC staff when the external metadata clearing house did not process bulk metadata exports in the designated sequence.	Completed
ECS-L4-9923	S-BGT-01220 The BMGT operator GUI shall permit DAAC staff to view, define and maintain an e-mail address for notifications regarding bulk metadata export errors and alert.	Completed
ECS-L4-9925	S-BGT-01230 The BMGT shall maintain an audit trail for manual and automatic metadata export operations.	Completed
ECS-L4-9935	S-BGT-01260 The BMGT shall log all errors and related error information, including events, granules, and collections that were skipped, e.g., when their export was requested during a manual export operation but the corresponding collection was not enabled for export.	Completed
ECS-L4-9936	S-BGT-01265 The BMGT shall log all events, granules, and collections that were skipped.	Completed
ECS-L4-9939	S-BGT-01280 The BMGT shall log the manual export options upon start of a manual export operation	Completed
ECS-L4-9942	S-BGT-01285 The BMGT shall permit DAAC staff to configure the collections (shortname, version ID, and process level) whose granules are eligible for export of browse links to MISBR granules. [NOTE: The 'process level' signifies the rule that must be used to correlate MISR science granules with the MISBR granule that acts as their browse, and is referred to as 'MISR Level' in other BMGT Level 4 requirements in this ticket.]	Completed
ECS-L4-9946	S-BGT-01293 The BMGT operator GUI shall restrict the ability to define and maintain BMGT configuration parameters to DAAC staff logged in as BMGT Administrators.	Completed
ECS-L4-9951	S-BGT-01315 Except as noted in other requirements in this ticket, the BMGT shall treat the MISBR collection like any other science data collection.	Completed
ECS-L4-9952	S-BGT-01320 When a MISBR granule is inserted into the ECS inventory, the BMGT shall export it as a 'browse granule' in the ECSBBR file and provide the MISBR file as the browse file (using the same naming conventions as today), provided the corresponding MISBR collection is configured for export as browse. [NOTE: The export of MISBR as browse granules is independent of MISBR export as science granules.]	Completed
ECS-L4-9953	S-BGT-01325 When a MISBR granule is deleted from the ECS inventory, the BMGT shall export the removal of the corresponding 'browse granule' in the ECSBBR file, provided the corresponding MISBR collection is configured for export as browse.	Completed
ECS-L4-9956	S-BGT-01337 The BMGT shall permit DAAC staff to request the export of browse metadata for MISBR granules, optionally for a specific time period during which the MISBR granules were inserted into the ECS inventory. [NOTE: This extends the corresponding manual export requirement for normal browse metadata (S-BGT-00972) to MISBR browse metadata.]	Completed

ID	Title	Status
ECS-L4-9959	S-BGT-01350 When DAAC staff causes the export of browse metadata for MISBR granules as part of a manual export operation, the BMGT shall also export only the public browse links associated with each exported MISBR granule in accordance with requirement (S-BGT-01310) in this ticket such that are consistent with current browse links in the public Data Pool. [NOTE: This requirement requests that the BMGT not dynamically determine and export the browse links for non-public MISR science granules. This in turn ensures that any existing browse links which non-public MISR science granule may have in ECHO remain intact.]	Completed
ECS-L4-9967	S-BGT-01410 The BGT CI shall use the interfaces provided by the AIM CI to obtain the metadata of science granules in the inventory in an XML format according to the subset of the BMGTGranuleMetadata.dtd that describes the granule information.	Completed
ECS-L4-9977	S-BGT-01500 The BMGT shall use the MISR science and browse linkage information maintained in the AIM inventory database when exporting relationship of MISR science granules and MISBR granules to the external metadata clearinghouse.	Completed
ECS-L4-9978	S-BGT-01510 The BMGT CI shall export the results of publishing and unpublishing operations.	Completed
ECS-L4-9979	S-BGT-01520 The BMGT CI shall export the results of On-Line Archive repair functions if they affect the URL of a public ECS granule.	Completed
ECS-L4-9980	S-BGT-10300 The BMGT shall include an association between each AIRS granule and its ASBP during the generation of the ECSBBR browse XML file.	Completed
ECS-L4-9983	S-BGT-20010 The EcOsBulkURL utility shall accept a mandatory input parameter determining if the utility is to run in the 'Insert' mode or the 'Delete' mode.	Completed
ECS-L4-9985	S-BGT-20030 The BMGT shall produce a list of the data collections (ESDT shortnames and versions) that is a subset of the data collections contained in the data pool, for which the BMGT has exported metadata to ECHO.	Completed
ECS-L4-9986	S-BGT-20040 The EcOsBulkURL utility shall, when running in insert mode, generate an XML representation of the ftp URL information for granule files, metadata and browse files inserted in the Data Pool database, during the and used as parameters to run the utility, that had been previously exported to ECHO.	Completed
ECS-L4-9987	S-BGT-20050 The EcOsBulkURL utility shall use a naming convention for its generated files that includes a) DAAC id b) Indication of whether it is an update on inserts or deletes in the Data Pool c) Time stamp	Completed
ECS-L4-9988	S-BGT-20060 The EcOsBulkURL utility shall, when running in delete mode, extract and export an XML representation of the list of granuleIDs for those granule that have been removed from the Data Pool that had been previously exported to ECHO.	Completed
ECS-L4-9989	S-BGT-20070 The EcOsBulkURL utility shall place URL insert and deletion file in an area accessible to ECHO via ftp pull	Completed
ECS-L4-9990	S-BGT-20080 The EcOsBulkURL utility shall be able to detect and export URL location for DPL holdings that were populated from ECS Archive.	Completed
ECS-L4-9991	S-BGT-20090 The EcOsBulkURL utility shall start up with a check for EcDICleanupDataPool created files, which contain delete updates that were not successfully processed previously, and shall produce the delete XML file as a result.	Completed

ID	Title	Status
ECS-L4-9992	S-BGT-20100 The EcOsBulkURL utility shall log an error if during the generation of the URL Insert file it is unable to obtain the URL location from the Data Pool database for a) metadata file. b) Science granule file(s) (if available) c) Browse image(s) (if available)	Completed
ECS-L4-9993	S-BGT-20110 Each URL Insert and Delete file XML format file shall conform to a Granule-Level Metadata DTD file specified in the document 170-WP-023-005 (Appendix A).	Completed
ECS-L4-9994	S-BGT-20120 [DESIRABLE] The EcOsBulkURL utility shall provide an option that produces the XML file for all applicable URLs from the Data Pool, to enable the initial exporting of pre-existing Data Pool URLs.	Completed
ECS-L4-9995	S-BGT-20130 The EcOsBulkURL utility shall be able to be run in multiple modes concurrently.	Completed
ECS-L4-9997	S-BGT-20160 The EcOsBulkURL utility shall be able to process granule deletion information and add all associated entries to the XML delete file at the rate of 25,000 granules per hour independently of the execution of the Data Pool Cleanup Utility.	Completed
ECS-L4-10003	S-BGT-20307 The OWS Binding Utility shall export to ECHO, the WCS URL for granules in the Data Pool which are WCS ready using the ECHO Partial Record Update API.	Completed
ECS-L4-10005	S-BGT-20315 The OWS Binding Utility shall export to ECHO, the WMS URL for granules in the Data Pool that are WMS ready, using the ECHO Partial Record Update API.	Completed
ECS-L4-10006	S-BGT-20320 The OWS Binding Utility shall record the successful export of a granule's WMS PSA to ECHO, so that the OBU does not export it redundantly.	Completed
ECS-L4-10007	S-BGT-20325 The OWS Binding Utility shall record successful export of a granule's WCS PSA to ECHO, so that the OBU does not export it redundantly.	Completed
ECS-L4-10008	S-BGT-20330 The OWS Binding Utility shall be capable of exporting to ECHO, the WCS and WMS URLs that failed to export in the event the utility terminated abnormally.	Completed
ECS-L4-10009	S-BGT-20340 The OWS Binding Utility shall log the following events: Execution start date and time Detection of a granule which is ready for export and for which service Completion status of the granule to be exported Execution completion date and time Total number of granules exported for each service	Completed
ECS-L4-10010	S-BGT-20350 The Bulk URL Utility shall export to ECHO, the deletion of the WCS Coverage URL for a WCS ready granule that have been deleted from the Data Pool.	Completed
ECS-L4-10011	S-BGT-20360 The Bulk URL Utility shall export to ECHO, the deletion of the WMS Coverage URL for a WMS ready granule that has been deleted from the Data Pool.	Completed
ECS-L4-10012	S-BGT-20370 The Bulk URL Utility shall log the following events during the export of granule deletion events to ECHO: Detection of a W*S enabled granule which is to be deleted and for which service Completion status of the granule deletion event to be exported Total number of W*S enabled granule deletion events exported for each service	Completed
ECS-L4-10016	S-BGT-21010 The BMGT CI shall not export the Data Pool URLs of granules prior to the export of the granule inventory information.	Completed

ID	Title	Status
ECS-L4-10017	S-BGT-21020 The BMGT CI shall not include browse granules in the ECSBBR product until they have been copied to the archive. [NOTE: The ECSBBR granule includes the internal files names of the browse granule. ECSBBR orders assume that the browse granules can be simply copied from the STMGT disk archive location.]	Completed
ECS-L4-10018	S-BGT-21030 The BMGT CI shall be able to include in the ECSMETG product the metadata of granules that have not yet been copied to the archive, and not include them again after they have been copied to the archive.	Completed
ECS-L4-10019	S-BGT-22000 The BGT CI shall use the interfaces provided by the AIM CI to obtain the following event information maintained by the AIM CI for ECS granules: a. when the core QA metadata information of a science granule was last updated and the nature of each such updates, i.e., parameter name, QA flag name, and QA flag value, b. when the browse links of a science granule in the AIM inventory metadata were last updated, c. whether a science granule is currently visible or hidden, d. when the visibility of a science granule was last updated, e. when a science or browse granule was inserted into the AIM inventory, f. when a science or browse granule was logically deleted from the AIM inventory or deleted from the ECS archive, g. when a science or browse granule that had been logically deleted from the AIM inventory was undeleted, h. when the AIM inventory metadata of a browse granule were last updated, i. when the AIM inventory metadata for a science granule were last updated other than core QA metadata, browse links, granule visibility, or the collection to which the granule belongs. [NOTE: This replaces requirement S-BGT-01405]	Completed
ECS-L4-10020	S-BGT-22005 The BGT CI shall use the interfaces provided by the AIM CI for the selection of science granules in ECS collections based upon: a. the collection to which they belong, b. the collection to which they belong and the time interval during which their core QA metadata in the XML files were updated the last time, c. the collection to which they belong and the time interval during which their browse links in the AIM inventory metadata were updated the last time, d. the collection to which they belong and the time interval during which a related browse granule was inserted into the AIM inventory, e. the collection to which they belong and time interval during which their visibility was updated the last time, f. the collection to which they belong and the time interval during which they were inserted into the AIM inventory, g. the collection to which they belong and the time interval during which they were logically deleted from the AIM inventory or deleted from the ECS archive, h. the collection to which they belong and the time interval during which their logical deletion from the AIM inventory was undone, i. the collection to which they belong and the time interval during which their AIM inventory metadata - other than core QA metadata, browse links, granule visibility, or the collection to which they belong - were last updated, j. the time interval during which they were last assigned to a different collection and the collection to which they currently belong, respectively the collection to which they did belong before the update. [NOTE: This replaces requirement S-BGT-01415]	Completed
ECS-L4-10021	S-BGT-22010 The BGT CI shall use the interfaces provided by the AIM CI for the selection of science granules based upon the time interval during which their AIM inventory metadata were last updated. [NOTE: This replaces requirement S-BGT-01420]	Completed

ID	Title	Status
ECS-L4-10022	S-BGT-22015 The BGT CI shall use the provided AIM interfaces to access the following information maintained by the AIM CI: a. AIM inventory information that correlates a given science granule with its browse granules, b. AIM inventory information that correlates a given browse granule with its science granules, c. AIM inventory information that is needed to access the browse file(s) for a specific browse granule in the ECS browse archive, d. ECS archive file name information for browse files [NOTE: This replaces requirement S-BGT-01445]	Completed
ECS-L4-10023	S-BGT-22020 The BGT CI shall use the provided AIM interfaces to obtain the AIM inventory browse metadata it requires for export. [NOTE: This replaces requirement S-BGT-01455]	Completed
ECS-L4-10024	S-BGT-22025 The BGT CI shall use the provided AIM interfaces to access the following event information maintained by the AIM CI: a. when an ECS collection was inserted into the AIM inventory, b. when an ECS collection was removed from the AIM inventory, including the short name and version id of that collection, c. when AIM inventory metadata of an ECS collection were last updated, d. DELETED [NOTE: This replaces requirement S-BGT-01365]	Completed
ECS-L4-10025	S-BGT-22030 The BGT CI shall use the provided AIM interfaces for the selection and identification of ECS collections based upon the time interval during which a collection was inserted into the AIM inventory, deleted from the AIM inventory, or the AIM inventory metadata of a collection were last updated. [NOTE: This replaces requirement S-BGT-01370]	Completed
ECS-L4-10026	S-BGT-22035 The BGT CI shall use the provided AIM interfaces to obtain the metadata of ECS collections in the AIM inventory in an XML format according to the subset of the BMGTCollectionMetadata.dtd that describes the collection information. [NOTE: This replaces requirement S-BGT-01375]	Completed
ECS-L4-10027	S-BGT-22040 The BGT CI shall use the interfaces provided by the AIM CI to obtain the following event information maintained by the AIM CI: a. when a science granule was inserted into the public Data Pool and information that allows the determination of its public Data Pool URL, b. when a science granule was removed from the public Data Pool, c. when a collection was moved or re-assigned in the Data Pool such that the public Data Pool URLs of its granules changed as a result. [NOTE: This replaces requirement S-BGT-01425]	Completed
ECS-L4-10028	S-BGT-22045 The BGT CI shall use the interfaces provided by the AIM CI for the selection of science granules based upon: a. the collection to which they belong and the fact that they reside in the public Data Pool, b. the time interval during which they were removed from the public Data Pool, c. the time interval during which their public Data Pool URLs changed because their Data Pool collection was moved or re-assigned [NOTE: This replaces requirement S-BGT-01430]	Completed
ECS-L4-10029	S-BGT-22050 The BGT CI shall use the interfaces provided by the AIM CI for the selection of browse granules based upon: a. the collection to which the associated science granules belong and the time period during which the browse granule was inserted b. the collection to which the associated science granules belong and the time period during which the browse granule was deleted [NOTE: This replaces requirement S-BGT-01450].	Completed

ID	Title	Status
ECS-L4-10030	S-BGT-22055 Upon cleaning up audit trail information as per S-BGT-01284, the BGT CI shall notify the AIM CI that it no longer needs the related event information, using the interface identified in S-AIM-00281. [NOTE: This replaces requirement S-DPL-00282]	Completed
ECS-L4-10037	S-BGT-30140 The BMGT CI shall be able to generate the QA metadata update XML file at the rate of 100,000 QA updates per hour on an unloaded system.	Completed
ECS-L4-10038	S-BGT-30150 Each ECSMETU product XML file shall conform to a DTD file according to the document 170-WP-023-007 (Appendix A).	Completed
ECS-L4-10041	S-BGT-30300 The ECHO Interface Service shall export any changes in Data Pool URL that may result from moving a collection to a different file system to ECHO, if the collection is among those whose metadata are exported to ECHO. [NOTE: Whether this is necessary depends whether a backwards compatible directory structure can be offered for ftp users - see S-DPL-45820. To be resolved by Synergy V DDR. Development and integration cannot occur until Synergy V.]	Completed
ECS-L4-10042	S-BGT-31000 The BMGT shall support the following responses to ECHO error codes returned in the Ingest Summary Report for an automatic export operation: Responses to Package Errors: 'Retry Package' 'Regenerate Package' 'Duplicate Package' Responses to Item Errors: 'Ignore Error' 'Re-export Object' 'Re-export Associated Object' 'Re-export Object and Associated Object' 'No Object Re-export'	Completed
ECS-L4-10049	S-BGT-31062 If is the data center is configured for HTTP access, the BMGT shall export the insert of a science granule into the public Data Pool, specifying HTTP protocol for the urls of the granule.	Completed
ECS-L4-10050	S-BGT-31063 If the data center is configured for HTTP access, the BMGT shall export the update of a science granule into the public Data Pool, specifying HTTP protocol for the URL of the granule.	Completed
ECS-L4-10051	S-BGT-31064 The BMGT shall allow DAAC staff to configure the regular execution of automatic bulk metadata exports. [NOTE: This supersedes S-BGT-00865.]	Completed
ECS-L4-10052	S-BGT-31065 The BMGT shall consolidate the events for collections such that each collection is exported only once for an automatic export operation. [NOTE: This supersedes S-BGT-00665.]	Completed
ECS-L4-10053	S-BGT-31066 When executing in automatic mode, the BMGT shall determine whether there are any ECS inventory metadata events that should have been exported during previous automated export operations, and if so, log these events and then export the current state of the corresponding metadata item (collection, science granule, browse and related links) during the current export operation. [NOTE: This should never happen, but is intended to guard against errors.] [NOTE: This supersedes S-BGT-00890.]	Completed
ECS-L4-10054	S-BGT-31067 When executing in automatic mode, the BMGT shall export metadata for any past events which should have been previously exported, but for whatever reason were not. [NOTE: This supersedes S-BGT-00870.]	Completed
ECS-L4-10055	S-BGT-31068 When executing in automatic mode, for a given item the BMGT shall export a single metadata insert, update, or delete during an automatic export operation. [Note: If an item has multiple events awaiting export, BMGT shall consolidate these events in order to prevent redundant export, or the export of out dated information.] [NOTE: This supersedes S-BGT-00090.]	Completed

ID	Title	Status
ECS-L4-10056	S-BGT-31069 The BMGT shall export the relationship of a MISR Level 1 granule other than a MIB2GEOP granule with a MISBR granule to the external metadata clearinghouse using the rules specified in requirements S-DPL-46840 and S-DPL-46890 in Ticket DP_72_05 and such that the browse URL in ECHO will match the browse URL in the Data Pool while the MISR Level 1 is public, provided the corresponding collection was configured as eligible for export of browse links. [NOTE: This supersedes S-BGT-01300.]	Completed
ECS-L4-10058	S-BGT-31071 When a MISR Level 1, MISR Level 2 is published in the Data Pool, the BMGT shall export the granule, including the URL of the publicly available associated MISBR. [NOTE: This supersedes S-BGT-01312.]	Completed
ECS-L4-10059	S-BGT-31072 When a MISBR granule is published in the public Data Pool, the BMGT shall re-export any associated Level 1 or 2 granules, including the URL of the MISBR to ensure consistency between the ECHO and Data Pool Browse URLs. [NOTE: This supersedes S-BGT-01312.]	Completed
ECS-L4-10060	S-BGT-31073 The BMGT shall allow DAAC staff to remove audit trail entries, including event table entries, that are older than a specified number of days. [NOTE: This supersedes S-BGT-01284.]	Completed
ECS-L4-10061	S-BGT-31074 The BMGT operator GUI shall allow DAAC staff to view and configure the connection information for the ECHO API. [NOTE: This supersedes S-BGT-01120.]	Completed
ECS-L4-10062	S-BGT-31075 The BMGT shall use the most current ECHO API connection information for the external metadata clearing house for each automatic or manual export operation without requiring a full BMGT restart. [NOTE: This supersedes S-BGT-01125.]	Completed
ECS-L4-10063	S-BGT-31076 The BMGT operator GUI shall allow DAAC staff to view, define and update configuration parameters that determine a. the wait time between metadata export retries b. the number of retries that shall trigger an alert. [NOTE: This supersedes S-BGT-01145.]	Completed
ECS-L4-10064	S-BGT-31077 The BMGT shall use the HTTP response to the export operation to determine whether the external metadata clearing house reported any errors. [NOTE: This supersedes S-BGT-01170.]	Completed
ECS-L4-10065	S-BGT-31078 The BMGT shall generate collection level metadata based on an ESDT version constraint. Any collections that apply to that constraint shall be exported, subject to all other specified constraints. [NOTE: This supersedes S-BGT-00160.]	Completed
ECS-L4-10066	S-BGT-31079 The BMGT shall use the collection group names and mappings of ESDT version to collection groups from the Data Pool definitions. [NOTE: This supersedes S-BGT-00630.]	Completed
ECS-L4-10068	S-BGT-31081 When sending an e-mail notification regarding metadata export errors, the BMGT shall include in the e-mail body a list of the errors that caused the notification to be sent, including the classification and the number of occurrences for each. [NOTE: This supersedes S-BGT-31180 & S-BGT-01041]	Completed
ECS-L4-10069	S-BGT-31082 The BMGT shall pause an export and alert the operator in case of failures that persist once the DAAC configured number of retries has been reached. [NOTE: This supersedes S-BGT-01038.]	Completed

ID	Title	Status
ECS-L4-10070	S-BGT-31083 The BMGT shall retry a metadata export to the external metadata clearing house after an operator configurable retry delay if the clearinghouse response indicates a failure that may succeed by retrying at a later time. [Note that the list of retryable error responses is TBD by design.] [NOTE: This supersedes S-BGT-01180.]	Completed
ECS-L4-10071	S-BGT-31084 The BMGT shall not send an e-mail notification regarding metadata item export errors for errors with responses that have been classified as Ignorable Errors. [NOTE: This supersedes S-BGT-31150.]	Completed
ECS-L4-10072	S-BGT-31085 When sending e-mail notifications regarding metadata export errors, the BMGT shall include a recommendation to contact ECHO staff for errors which are classified as requiring ECHO interaction. [NOTE: This supersedes S-BGT-31170.]	Completed
ECS-L4-10073	S-BGT-31086 When encountering an error situation classified as Re-export Object or Re-export Object and Associated Object, the BMGT shall queue a re-export action for the object. [NOTE: This supersedes S-BGT-31190.]	Completed
ECS-L4-10074	S-BGT-31087 When encountering an error situation classified as Re-export Associated Object or Re-export Object and Associated Object, the BMGT shall identify the object whose reference caused the error (i.e., the referenced or browse granule) and queue a re-export action for that object. [NOTE: This supersedes S-BGT-31200.]	Completed
ECS-L4-10075	S-BGT-31088 The BMGT shall trigger an alert when the configured number of export retries has been reached for either an automatic or manual export operation, and clear the alert when a subsequent retry successfully completes. [NOTE: This supersedes S-BGT-01150.]	Completed
ECS-L4-10076	S-BGT-31089 The BMGT shall flag an export as COMPLETE_WITH_ERRORS if there were errors which cannot be corrected either by retrying the export or by re-export of the object or associated objects. [Note that this does not include failures during a retry process. This requirement is for errors for which retry is not an option.] [NOTE: This supersedes S-BGT-31130.]	Completed
ECS-L4-10078	S-BGT-31091 If a collection is configured for web/ftp access to associated QA, PH, or HDF Maps the BMGT shall export the insert of a QA, PH, or HDF Map URL for science granules that belong to these collections when: A science granule is inserted into the public Data Pool that has an association with a public QA, PH, and/or HDF Map granule. A QA, PH, or HDF Map granule is inserted into the public Data Pool that is associated with a public science granule.	Completed
ECS-L4-10079	S-BGT-31092 If a collection is configured for web/ftp access to associated QA, PH, or HDF Maps the BMGT shall export the removal of a QA, PH, or HDF Map URL for a science granule that belong to these collections when: A science granule is removed from the public Data Pool that has an association with a public QA, PH, and/or HDF Map granule. A QA, PH, or HDF Map granule is removed from the public Data Pool that is associated with a public science granule.	Completed
ECS-L4-10080	S-BGT-31093 If a collection is configured for web/ftp access to associated QA, PH, or HDF Maps, the BMGT shall export the update of an associated QA, PH, or HDF Map files for a science granule that belongs to these collections when the location of the files in the public Data Pool is changed. [NOTE: update of a link in AIM will not trigger a change in the symbolic link in the public Data Pool and thus must not trigger a URL change (to avoid discrepancies). However, if the new file is subsequently published, replacing the existing one, a URL change must be exported.]	Completed

ID	Title	Status
ECS-L4-10081	S-BGT-31094 The BMGT shall export granules that have been inserted, updated or deleted within the scope of an export operation subject to all other constraints. [NOTE: This supersedes S-BGT-00260.]	Completed
ECS-L4-10082	S-BGT-31095 The BMGT shall generate granule level metadata based on an ESDT version constraint. Any granules that apply to that constraint shall be exported, subject to all other specified constraints. [NOTE: This supersedes S-BGT-00270.]	Completed
ECS-L4-10083	S-BGT-31096 BMGT shall only export URL information for granules which are public. [NOTE: This supersedes S-BGT-20210.]	Completed
ECS-L4-10084	S-BGT-31097 The BMGT shall allow DAAC staff to enable or disable a collection for export of granule metadata. [Note that this setting only has effect if the collection is enabled for export of collection information.] [NOTE: This supersedes S-BGT-00645.]	Completed
ECS-L4-10085	S-BGT-31098 The BMGT shall not export URL metadata for a granule if at the time of the export, the granule is no longer in the public Data Pool or no longer in the ECS inventory. [NOTE: This prevents exporting URL information that is already obsolete at the time of export.] [NOTE: This supersedes S-BGT-00745.]	Completed
ECS-L4-10086	S-BGT-31099 The BMGT shall allow the concurrent execution of manual, automatic, and verification export operations in the same mode unless DAAC staff explicitly requests otherwise when starting the manual export. [NOTE: This supersedes S-BGT-01025.]	Completed
ECS-L4-10088	S-BGT-31101 The BMGT shall not export granule events if the collection was deleted subsequent to the granule event. [NOTE: This supersedes S-BGT-00735.]	Completed
ECS-L4-10089	S-BGT-31102 When executing in automatic mode, the BMGT shall export the collection metadata for collections that were enabled for collection metadata export since the last automated export operation. [NOTE: This supersedes S-BGT-00880.]	Completed
ECS-L4-10090	S-BGT-31103 When executing in automatic mode, the BMGT shall export the granule metadata for the granules that belong to collections that were newly enabled for granule metadata export since the last automated export operation. [NOTE: This supersedes S-BGT-00885.]	Completed
ECS-L4-10091	S-BGT-31104 The BMGT shall export collection deletions by including the collection deletion information in accordance with the ECHO Provider API Schema referenced in the ECS-ECHO ICD. [NOTE: This requirement replaces S-BGT-32700.]	Completed
ECS-L4-10092	S-BGT-31105 The BMGT operator GUI shall be compatible with the EED baseline versions of web browsers and operating systems in accordance with Technical Document 910-TDA-042, Browsers Baseline. [NOTE: This requirement replaces S-BGT-01292.]	Completed
ECS-L4-10093	S-BGT-31106 The BMGT operator GUI shall indicate on its main monitoring screen the status of all BMGT export operations currently in progress, including their method of initiation (e.g., manual or automatic), number of completed metadata exports, number of pending metadata exports, and statistics about retries, warnings, and errors. [Note that exact statistics to be displayed are TBD by design in conjunction with the DAACs.] [NOTE: This supersedes S-BGT-01031.]	Completed
ECS-L4-10094	S-BGT-31107 The BMGT operator GUI shall permit DAAC staff to suspend and resume the BMGT export service.	Completed
ECS-L4-10095	S-BGT-31108 For collections that are configured for ISO metadata, BMGT will export only ISO conformant metadata objects to ECHO.	Completed

ID	Title	Status
ECS-L4-10096	S-BGT-31109 For collections that are configured for ISO- metadata, when exporting granule metadata BMGT will send the provider supplied XML metadata to ECHO.	Completed
ECS-L4-10097	S-BGT-31110 The BMGT shall flag an export as 'COMPLETE' if there were no errors or only errors classified as 'Ignore Error' (see requirement S-BGT-31000d). [NOTE: This requirement modifies the corresponding portion of requirement S-BGT-01250.]	Completed
ECS-L4-10098	S-BGT-31111 When exporting provider supplied ISO XML metadata to ECHO, BMGT will not modify the XML, with the exception of adding additional metadata as needed to support ECS services, for example, online access URLs.	Completed
ECS-L4-10099	S-BGT-31112 For collections that are configured for ECHO-10 metadata format, BMGT will construct and export ECHO conformant metadata objects.	Completed
ECS-L4-10100	S-BGT-31113 The BMGT shall record the occurrence of errors in the audit trail maintained for the export operation. [NOTE: This supersedes S-BGT-01175.]	Completed
ECS-L4-10101	S-BGT-31114 The BMGT shall log the start and completion of an automatic or manual export operation. [NOTE: This supersedes S-BGT-01270.]	Completed
ECS-L4-10102	S-BGT-31115 The BMGT shall provide as part of the ECHO error statistics available for viewing as part of the audit trail information, the number of ECHO error responses for each type of Item Error classification. [NOTE: This supersedes S-BGT-31140.]	Completed
ECS-L4-10103	S-BGT-31116 The BMGT shall remove any artifacts associated with failed export operations and export operations that reported errors when removing their audit trail information. [NOTE: This supersedes S-BGT-01291.]	Completed
ECS-L4-10104	S-BGT-31117 The BMGT shall provide a 'manual operation' mode which permits the DAAC staff to request specific types of operations via command line parameters or an input file. [NOTE: The intent is to permit DAAC staff to use this capability to perform historic exports for collections newly made public; and to correct ECHO metadata holdings.] [NOTE: This supersedes S-BGT-00910.]	Completed
ECS-L4-10105	S-BGT-31118 The BMGT shall permit DAAC staff to request a manual export operation of one or several collections from the command line or from an input file. [NOTE: This supersedes S-BGT-00965.]	Completed
ECS-L4-10106	S-BGT-31119 The BMGT shall permit DAAC staff to specify a date range to be covered by a manual export operation. [NOTE: This supersedes S-BGT-00020.]	Completed
ECS-L4-10108	S-BGT-31121 When a time interval is specified by the operator, the BMGT shall interpret it as closed at the beginning date/time and open at the ending date/time, i.e., include items that occurred at a time greater than or equal to ( $\geq$ ) the beginning date time and less than ( [NOTE: This supersedes S-BGT-01015.]	Completed
ECS-L4-10109	S-BGT-31122 The BMGT shall permit DAAC staff to request via a manual export operation the export of science granule metadata for one or several collections enabled for granule metadata export, with the collections specified on the command line or listed in an input file, optionally for a specific time period of science granule insert or last update in the ECS inventory. [NOTE: The granules for a collection will not be exported unless the collection is enabled for granule metadata export.] [NOTE: This supersedes S-BGT-00970.]	Completed

ID	Title	Status
ECS-L4-10110	S-BGT-31123 The BMGT shall permit DAAC staff to request via a manual export operation the export of science granule metadata for one or several granules, with the granules specified on the command line or listed in an input file. [Note: A granule will not be exported unless its collection is enabled for granule metadata export and the granule is indeed in the inventory and neither deleted from archive nor logically deleted.] [NOTE: This supersedes S-BGT-00985.]	Completed
ECS-L4-10111	S-BGT-31124 The BMGT shall permit DAAC staff to request via a manual export operation the export of deletions of science granules from the ECS inventory for one or several granules, with the granules specified on the command line or listed in an input file. [NOTE: This will produce one or several metadata exports indicating the deletion from the ECS inventory for the specified granule(s), except for granules that are still in the inventory and not deleted from archive nor logically deleted.] [NOTE: This supersedes S-BGT-00995.]	Completed
ECS-L4-10112	S-BGT-31125 The BMGT shall permit DAAC staff to request via a manual export operation the export of deletions of science granules from the ECS inventory for one or several collections, with the collections specified on the command line. [NOTE: This will produce one or several metadata exports indicating the deletion from the ECS inventory of the granules specified, except for granules that are still in the inventory and not deleted from archive nor logically deleted.] [NOTE: This supersedes S-BGT-00996.]	Completed
ECS-L4-10113	S-BGT-31126 The BMGT shall generate collection level metadata for those collections matching the operator supplied temporal constraint. Any collections that have been inserted, or updated during that interval shall be exported, subject to all other specified constraints. [NOTE: This supersedes S-BGT-00150.]	Completed
ECS-L4-10114	S-BGT-31127 If a collection is configured for ftp or http access to associated HDF4 archive map granules, the BMGT shall export the insert of an HDF4 archive map granule URL for a science granule that belongs to such a collection when: a science granule is inserted into the public Data Pool that has an association with a public HDF4 archive map granule, or an HDF4 archive map granule is inserted into the public Data Pool that is associated with a public science granule. [NOTE: This supersedes S-BGT-31911.]	Completed
ECS-L4-10115	S-BGT-31128 If a collection is configured for ftp or http access to associated HDF4 archive map granules, the BMGT shall export the removal of an HDF4 archive map URL for a science granule that belongs to such a collection when: a science granule is removed from the public Data Pool that has an association with a public HDF4 archive map granule, or an HDF4 archive map granule is removed from the public Data Pool that is associated with a public science granule. [NOTE: This supersedes S-BGT-31921.]	Completed
ECS-L4-10116	S-BGT-31129 If a collection is configured for ftp or http access to associated HDF4 archive map granules, the BMGT shall export the update of an HDF4 archive map URL for a science granule that belongs to such a collection when: the location of the HDF4 archive map granule in the public Data Pool is changed. [NOTE: This supersedes S-BGT-31931.]	Completed
ECS-L4-10118	S-BGT-31131 When exporting granule metadata, the BMGT shall include in the XML metadata any additional metadata not in the archived XML file, but which is accepted in the ECHO metadata format. This includes but is not limited to: Datapool URLs and Restriction Flag. [NOTE: This supersedes S-BGT-00715.]	Completed

ID	Title	Status
ECS-L4-10119	S-BGT-31132 The BMGT CI shall generate an XML representation of the QA metadata update information. [Note that when a QA update is performed on a granule, the full granule metadata will be exported in response.] [NOTE: This supersedes S-BGT-30110.]	Completed
ECS-L4-10120	S-BGT-31133 For collections that are configured to export their metadata in ECHO-10 format, BMGT shall export the values for coordinate system and granule spatial representation. To the extent possible, these values should be determined automatically based on ESDT metadata and configuration. If deemed appropriate, BMGT may use a default value for these attributes.	Completed
ECS-L4-10121	S-BGT-31134 For collections that are configured to export their metadata in ECHO-10 format, BMGT shall export the metadata needed for backtrack searching for collections using orbital searching, such that the necessary metadata can be provided for each collection by the DAAC staff. [NOTE: This supersedes S-BGT-32630.]	Completed
ECS-L4-10122	S-BGT-31135 For collections that are configured to export their metadata in ECHO-10 format, BMGT shall export the metadata needed to support 2-D coordinate searches, allowing the DAAC staff to identify such collections and provide for each such collection the product specific attributes (PSA) in the granule metadata that contain this data. [NOTE: This supersedes S-BGT-32640.]	Completed
ECS-L4-10123	S-BGT-31136 For collections that are configured to export their metadata in ECHO-10 format, BMGT shall export for product specific attributes (PSA), their type and their values formatted in accordance with that type, as specified in the ECHO 10 Provider API Schema referenced in the ECS-ECHO ICD. [NOTE: This supersedes S-BGT-32650.]	Completed
ECS-L4-10124	S-BGT-31137 For collections that are configured to export their metadata in ECHO-10 format, BMGT shall use the Data Pool Cloud Cover configuration parameters for a collection to determine whether a cloud cover value needs to be exported to ECHO, and if so, use that configuration to extract the cloud cover value for export. [NOTE: This supersedes S-BGT-32660.]	Completed
ECS-L4-10125	S-BGT-31138 The BMGT operator GUI shall permit DAAC staff to view, define, and maintain the Limit for the time from queuing an automatic or manual export request until the request is exported to ECHO. Time limit to receive a synchronous response from ECHO for the ingest request Delay time before trying the regeneration and re-export of an export request which has failed export. [NOTE: This supersedes S-BGT-01200.]	Completed
ECS-L4-10126	S-BGT-31139 The BMGT shall be able to achieve the following aggregate export workload within an hour or less : a. 10,000 granule inserts b. 25,000 granule deletions c. 50,000 granule QA updates d. 10,000 granule DPL inserts e. 25,000 granule DPL deletions f. 5,000 other granule metadata updates g.. 50 collection inserts or updates h. 5,000 browse inserts and associated cross references and browse files. [NOTE: This supersedes S-BGT-00810.]	Completed
ECS-L4-10128	S-BGT-31141 The BMGT shall be able to export metadata at the indicated rates: a. granule inserts and deletions at no less than 50,000 inserts or deletions per hour b. granule core QA metadata updates at no less than 100,000 updates per hour c. public Data Pool inserts, removals, and updates at no less than 100,000 inserts or removals per hour d. other granule metadata updates at no less than 25,000 updates per hour e. collection metadata exports at a rate of no less than 900 collections per hour [Note that updates will involve transmission of the entire metadata object.] [NOTE: This supersedes S-BGT-00815.]	Completed

ID	Title	Status
ECS-L4-10129	S-BGT-31142 The BMGT shall incur no more than 10 % performance degradation on the inventory database under nominal operation load during data extraction. [NOTE: This supersedes S-BGT-00815.]	Completed
ECS-L4-10130	S-BGT-31143 The BMGT shall extract collection level metadata from the inventory database at a rate of at least 25,000 collections per hour. [NOTE: This supersedes S-BGT-00220.]	Completed
ECS-L4-10131	S-BGT-31144 The BMGT shall convert extracted collection level metadata to XML format at a rate of at least 25,000 collections per hour. [NOTE: This supersedes S-BGT-00230.]	Completed
ECS-L4-10132	S-BGT-31145 The BMGT shall convert extracted granule level metadata to XML format at a rate of at least 25,000 granules per hour for non-ISO-19115 collections. [NOTE: This supersedes S-BGT-00360.]	Completed
ECS-L4-10133	S-BGT-31146 The BMGT shall convert extracted browse cross-reference information to XML format at a rate of at least 25,000 granules per hour. [Note that browse cross references are now exported as part of a full granule metadata export.] [NOTE: This supersedes S-BGT-00540.]	Completed
ECS-L4-10134	S-BGT-31147 The BMGT shall extract granule level metadata from the inventory database at a rate of at least 25,000 granules per hour. [NOTE: This supersedes S-BGT-00350.]	Completed
ECS-L4-10135	S-BGT-31148 The BMGT shall extract and convert to XML format science granule metadata from the inventory database at a rate of at least 25,000 granules per hour, for non ISO-19115 collections. [NOTE: This supersedes S-BGT-30010.]	Completed
ECS-L4-10136	S-BGT-31149 The BMGT shall be able to achieve the following aggregate export workload within one hour: a. insertion of no less than 8,600 MISR Level 1 and Level 2 granules that are related to MISBR granules (with all collections configured for browse export), b. export of no less than 860 related MISBR inserts and their related browse granule inserts, c. deletion of no less than 8,600 MISR Level 1 and Level 2 granules that are related to MISBR granules (with all collections configured for browse export), d. export of no less than 860 MISBR deletions and their related browse granule deletions. [NOTE: This supersedes S-BGT-01330.]	Completed
ECS-L4-10138	S-BGT-31151 The BMGT shall be able to export verification exports intended to support the reconciliation of the ECS inventory information with the corresponding metadata clearing house information.	Completed
ECS-L4-10139	S-BGT-31152 The BMGT shall support the following types of verification exports: long verification operations hort verification operations	Completed
ECS-L4-10140	S-BGT-31153 The BMGT shall include all collection metadata that are subject to export to the metadata clearinghouse for each collection included in long verification operations.	Completed
ECS-L4-10141	S-BGT-31154 The BMGT shall export all science granule metadata that are subject to export to the metadata clearing house for each granule included in long verification operations, including Browse links, Data Pool URLs and restriction flags.	Completed
ECS-L4-10142	S-BGT-31155 The BMGT shall exclude collections from long verification operations for which an export event is pending. [NOTE: ECHO will compare the metadata for all collections in a long verification export operation against its existing holdings. The intent of the requirement is to prevent ECHO from reporting discrepancies that are due to pending events that have not yet been exported.]	Completed
ECS-L4-10143	S-BGT-31156 The BMGT shall construct and verify the ECHO DataSetId as specified in the ECHO-ECS ICD for each collection included in a short verification operation. [NOTE: This supersedes S-BGT-32070.]	Completed

ID	Title	Status
ECS-L4-10144	S-BGT-31157 The BMGT shall exclude collections from a short verification operation for which an insert event is pending for future export to the metadata clearinghouse. [NOTE: ECHO will verify that all collections included in a short verification operation are present in its holdings; and that its holdings do not contain extraneous collections. The intent of the requirement is to prevent ECHO from reporting discrepancies that are due to pending events that have not yet been exported.] [NOTE: This supersedes S-BGT-32100.]	Completed
ECS-L4-10145	S-BGT-31158 The BMGT shall exclude science granules from a short verification operation for which an insert event is pending for future export to the metadata clearinghouse. [NOTE: ECHO will verify that all granules for the collections included in a short verification operation are present in its holdings; and that its holdings do not contain extraneous granules not reported in the verification package. The intent of the requirement is to prevent ECHO from reporting discrepancies that are due to pending events that have not yet been exported.] [NOTE: This supersedes S-BGT-32110.]	Completed
ECS-L4-10146	S-BGT-31159 The BMGT shall allow DAAC staff to generate all types of verification exports manually via command line. [NOTE: The main intent of this capability is to permit DAAC staff to use this capability to perform bulk reconciliations after some problems have been uncovered.] [NOTE: This supersedes S-BGT-32120.]	Completed
ECS-L4-10148	S-BGT-31161 The BMGT shall allow DAAC staff to generate long verification exports automatically on a regular basis for the purpose of incrementally verifying the complete DAAC ECS inventory holdings and any subsequent changes to those holdings on a regular schedule that can be specified by the DAAC staff. [NOTE: This supersedes S-BGT-32130.]	Completed
ECS-L4-10149	S-BGT-31162 The BMGT shall allow DAAC staff to configure: the time period increment to be used during incremental verification a maximum number of granules for automatic verification . [NOTE: This supersedes S-BGT-32160]	Completed
ECS-L4-10150	S-BGT-31163 The BMGT shall terminate the generation of a verification export if the inclusion of the granules from a collection would cause the verification to exceed the configured maximum size, and resume the next iteration of automatic verification with that collection. [NOTE: This supersedes S-BGT-32170]	Completed
ECS-L4-10151	S-BGT-31164 The BMGT shall allow DAAC staff to obtain a verification status report for each collection providing information regarding the verification status at the collection, collection group and overall summary level, including the number of verified granules and the number of granules that had discrepancies. [NOTE: This supersedes S-BGT-32180]	Completed
ECS-L4-10152	S-BGT-31165 The BMGT shall permit DAAC staff to constrain long verification exports via command line parameters as follows: whether to include or exclude collections, whether to include or exclude science granules, if collections and/or science granule verification is included, an optional list of collections or collection groups to restrict the verification to the listed collections or collection groups, if science granule export is included, optional constraints for the science granules to be exported as per S-BGT-32300. [NOTE: This supersedes S-BGT-32280]	Completed
ECS-L4-10153	S-BGT-31166 The BMGT shall permit DAAC staff to specify a maximum number of granules that a long verification export operation may include. [NOTE: This supersedes S-BGT-32320]	Completed

ID	Title	Status
ECS-L4-10154	S-BGT-31167 The BMGT shall estimate the size, in terms of the maximum number of granules they may include, of a long verification export and prompt the DAAC staff for confirmation to proceed if the estimate exceeds the configured maximum size, terminating the export unless DAAC staff confirms. [NOTE: This supersedes S-BGT-32330]	Completed
ECS-L4-10155	S-BGT-31168 Upon starting a verification export operation, the BMGT shall detect concurrent manual export operations in the same mode, inform the operator, and prompt the operator as to whether to continue or exit. [NOTE: This supersedes S-BGT-32340]	Completed
ECS-L4-10156	S-BGT-31169 When displaying metadata export audit trail information, the BMGT operator GUI shall allow DAAC staff to view summary statistics for verification exports, to include at a minimum: number of collections exported for verification, number of science granules exported for verification, number of science granules skipped during export due to errors, DELETED number of collections skipped during export due to errors, number of errors reported by the metadata clearing house. [NOTE: This supersedes S-BGT-32380 and S-BGT-33000]	Completed
ECS-L4-10158	S-BGT-31171 The BMGT shall not include any collections in a short export unless it can include all collections that should currently reside in ECHO. [NOTE: The purpose of this requirement is to prevent verification errors that would be due only to the fact that the BMGT produced a list of collections that is incomplete.] [NOTE: This supersedes S-BGT-32400]	Completed
ECS-L4-10159	S-BGT-31172 The BMGT shall not include any science granules from a collection in a short export unless it can include all science granules in the collection that should currently be in the ECHO inventory. [NOTE: The purpose of this requirement is to prevent verification errors that would be due only to the fact that the BMGT produced a list of science granules that is incomplete.] [NOTE: This supersedes S-BGT-32410]	Completed
ECS-L4-10160	S-BGT-31174 The BMGT shall identify verification exports as such in the audit trail, including the type of verification export (i.e., short vs. long, manual vs. automatic). [NOTE: This supersedes S-BGT-32425]	Completed
ECS-L4-10161	S-BGT-31175 The BMGT shall prevent verification export discrepancies to be reported to operational staff if those discrepancies are due to granules being present in the metadata clearinghouse inventory for which a deletion event is pending for future export to the metadata clearinghouse. [NOTE: This supersedes S-BGT-32470]	Completed
ECS-L4-10162	S-BGT-31176 In the statistics for a long export that are maintained in the audit trail or reported in an e-mail to the operator, the BMGT shall distinguish between discrepancies that were corrected automatically by the metadata clearinghouse, discrepancies that were corrected via automatic re-export, and those that were not corrected. [NOTE: This supersedes S-BGT-32480]	Completed
ECS-L4-10163	S-BGT-31177 The BMGT shall be able to create long verification export operations for science granules at a rate of no less than 100,000 granules per hour. [NOTE: It is desirable to exceed this rate significantly.] [NOTE: This supersedes S-BGT-32570]	Completed
ECS-L4-10164	S-BGT-31178 When a granule has been deleted, and the current state of the granule is deleted (i.e., it hasn't been undeleted), the BMGT shall ignore any other events for that granule and export only the deletion.	Completed
ECS-L4-10165	S-BGT-31179 The BMGT shall notify DAAC staff via e-mail to an e-mail address configured by DAAC staff when an export operation exceeds the time limits specified in S-BGT-TBD. [NOTE: This supersedes S-BGT-01210.]	Completed

ID	Title	Status
ECS-L4-10167	S-BGT-31181 The BMGT shall allow DAAC staff to generate a re-export queue report to standard output. [NOTE: This supersedes S-BGT-31525]	Completed
ECS-L4-10168	S-BGT-31182 The BMGT shall provide a run-time option to generate a re-export queue report as specified in S-BGT-31500, S-BGT-31510 and S-BGT-31064 when performing a manual corrective export. [NOTE: This supersedes S-BGT-31535]	Completed
ECS-L4-10169	S-BGT-31183 The BMGT shall allow DAAC staff to print the re-export queue statistics report to standard output, including along with the statistics the start time of the report. [NOTE: This supersedes S-BGT-31145]	Completed
ECS-L4-10170	S-BGT-31185 If a re-export action requests the export of inventory metadata for an object that is no longer in the ECS inventory, the BMGT shall process the re-export action as a deletion. [NOTE: It is possible that the export of the removal of an object by the corrective export is redundant. This will cause ECHO to report an error because it cannot find the object to be deleted. This error is classified to be ignored and will not cause a re-export loop.] [NOTE: This supersedes S-BGT-31480]	Completed
ECS-L4-10171	S-BGT-31186 If a short verification is for science granules, the BMGT shall accept an optional list of collections or collection groups to include only science granules in the verification which belong to these collections respectively, to collections that belong to the listed collection groups. [NOTE: This supersedes S-BGT-32270]	Completed
ECS-L4-10172	S-BGT-31187 For collections with ECS metadata, the BMGT shall export collection version numbers without leading zeroes in granule and collection metadata. [NOTE: ECHO requires this for backwards compatibility.] [NOTE: This supersedes S-BGT-00662]	Completed
ECS-L4-10173	S-BGT-31188 For collections with ECS metadata, the BMGT shall export collection and granule visibility / orderability as follows: True for collection visibility False for collection orderability True for granule visibility True for granule orderability [NOTE: The ECHO API requires values for these attributes, but ECHO will ignore them. However, the specified settings are required to avoid spurious reconciliation errors when performing long verification.] [NOTE: This supersedes S-BGT-32615]	Completed
ECS-L4-10174	S-BGT-31189 For collections with ECS metadata, the BMGT shall allow DAAC staff to provide a DIF ID for the purpose of export to ECHO for a collection, which will be included in the collection metadata. Collections for which DAAC staff did not configure explicit instructions will default to not including a DIF Entry ID. [NOTE: This supersedes S-BGT-32670]	Completed
ECS-L4-10176	S-BGT-31191 The BMGT shall export QA respectively, PH URLs for a science granule as part of the OnlineResourceURLs for that granule, using 'Quality Assurance' respectively, 'Production History' as the URL type names.	Completed
ECS-L4-10177	S-BGT-31192 The BMGT shall export HDF4 archive map URLs for a science granule as part of the OnlineResourceURLs for that granule, using 'HDF Map' as the URL type name.	Completed
ECS-L4-10178	S-BGT-31193 The BMGT operator GUI shall allow DAAC staff to display metadata export audit trail information for recent and pending export operations, optionally filtered by constraints configured by DAAC staff.	Completed
ECS-L4-10179	S-BGT-31194 The BMGT operator GUI shall allow DAAC staff to display metadata export audit trail information for recent export operations that failed or encountered errors, optionally filtered by constraints configured by DAAC staff.	Completed

ID	Title	Status
ECS-L4-10180	S-BGT-31195 The BMGT operator GUI shall allow DAAC staff to view, define and maintain the filters which determine which export operations to include in the displays specified in requirements S-BGT-31193 and S-BGT-31194.	Completed
ECS-L4-10181	S-BGT-31196 The BMGT shall export the relationship of a MISR Level 2 or MIB2CEOP granule with a MISBR granule to the external metadata clearinghouse using the rules specified in requirements S-DPL-46870 and S-DPL-46890 in Ticket DP_72_05 and such that the browse URL in ECHO will match the browse URL in the Data Pool while the MISR Level 2 is public, provided the corresponding collection was configured as eligible for export of browse links. [NOTE: This supersedes S-BGT-01305.]	Completed
ECS-L4-10182	S-BGT-31197 The BMGT shall flag an export item as complete with warnings if there were errors which were correctly processed by queuing the object and/or associated objects for re-export. [NOTE: This supersedes S-BGT-31120.]	Completed
ECS-L4-10183	S-BGT-31198 The BMGT shall skip the export of inventory objects if it encounters data related errors. [NOTE: A data related error is one that occurs because the data for an ECS inventory object are invalid. For example, an ill-formed XML file or inconsistencies in some granule or collection data which make it impossible for the BMGT to create the export information for that object would be considered a data error.] [NOTE: This supersedes S-BGT-01036.]	Completed
ECS-L4-10184	S-BGT-31199 The BMGT shall detect when the generation of a previous metadata export request was started but did not complete and restart the generation [NOTE: this supersedes S-BGT-00875]	Completed
ECS-L4-10187	S-BGT-31220 The BMGT shall permit DAAC staff to request the start of a corrective metadata export operation.	Completed
ECS-L4-10192	S-BGT-31260 The BMGT shall process the re-export queue during manual corrective exports and no other types of export operations.	Completed
ECS-L4-10193	S-BGT-31270 When a corrective export is requested, the BMGT shall not accept manual export specifications that request the manual export of any other types of metadata. [NOTE: Corrective exports are limited to processing re-export actions only.]	Completed
ECS-L4-10199	S-BGT-31330 The BMGT shall remove all re-export action from the re-export queue after they were processed successfully by a manual corrective export.	Completed
ECS-L4-10207	S-BGT-31410 The BMGT shall provide a command line utility that permits DAAC staff to remove queued re-export actions by explicitly identifying these actions either on the command line or in an input file. [NOTE: The utility provides DAAC staff with the ability to clean up queued re-export actions before running a manual corrective export.]	Completed
ECS-L4-10213	S-BGT-31470 The BMGT shall include granule URL information in re-exports only if the corresponding collection is enabled for granule URL export.	Completed
ECS-L4-10217	S-BGT-31510 The BMGT shall sort the re-export queue report by initial export attempt (most recent first), collection, and type of object.	Completed
ECS-L4-10218	S-BGT-31520 The BMGT shall allow DAAC staff to filter the re-export queue report (see requirement S-BGT-31500) based on collection and collection group.	Completed
ECS-L4-10222	S-BGT-31540 The BMGT shall allow DAAC staff to obtain the reports specified in S-BGT-31500 and S-BGT-31530 on a regular basis (e.g., via cron entry), as well as on demand (e.g., via command line).	Completed

ID	Title	Status
ECS-L4-10252	S-BGT-31910 If a collection is configured for web/ftp access to associated QA respectively, PH granules, the BMGT shall export the insert of a QA respectively, PH URL for a science granules that belongs to these collections when: a science granule is inserted into the public Data Pool that has an association with a public QA and/or PH granule a QA or PH granule is inserted into the public Data Pool that is associated with a public science granule	Completed
ECS-L4-10254	S-BGT-31920 If a collection is configured for web/ftp access to associated QA respectively, PH granules, the BMGT shall export the removal of a QA respectively, PH URL for a science granules that belong to these collections when a science granule is removed from the public Data Pool that has an association with a public QA and/or PH granule a QA or PH granule is removed from the public Data Pool that is associated with a public science granule	Completed
ECS-L4-10256	S-BGT-31930 If a collection is configured for web/ftp access to associated QA respectively, PH granules, the BMGT shall export the update of a QA respectively, PH URL for a science granules that belongs to these collections when: the location of the QA or PH granules in the public Data Pool is changed [NOTE: update of a PH or QA link in AIM will not trigger a change in the symbolic link in the public Data Pool and thus must not trigger a URL change (to avoid discrepancies). However, if the new QA or PH granule is subsequently published, replacing the existing one, a URL change must be exported because of S-BGT-31920b (removal of the previous granule) and S-BGT-31920b (insertion of the replacement granule).]	Completed
ECS-L4-10260	S-BGT-31950 The BMGT shall include the QA and PH URLs for a science granule when performing a manual export of the public Data Pool URLs for science granules. [NOTE: This augments S-BGT-00980 and S-BGT-00990.]	Completed
ECS-L4-10261	S-BGT-31951 The BMGT shall include the HDF4 archive map URL for a science granule when performing a manual export of the public Data Pool URLs for science granules.	Completed
ECS-L4-10262	S-BGT-31960 The BMGT shall include the removal of the QA and PH URLs for a science granule when performing a manual export of the removal of the public Data Pool URLs for science granules. [NOTE: This augments S-BGT-01000.]	Completed
ECS-L4-10263	S-BGT-31961 The BMGT shall include the removal of the HDF4 archive map URL for a science granule when performing a manual export of the removal of the public Data Pool URLs for science granules.	Completed
ECS-L4-10264	S-BGT-32010 The BMGT shall be able to generate export packages, called 'verification export packages' intended to support the reconciliation of the ECS inventory information with the corresponding metadata clearing house information.	Completed
ECS-L4-10265	S-BGT-32020 The BMGT shall support the generation of the following types of verification export packages: long verification package short verification package	Completed
ECS-L4-10266	S-BGT-32030 The BMGT shall include all collection metadata that are subject to export to the metadata clearing house for each collection included in a long verification package.	Completed
ECS-L4-10267	S-BGT-32040 The BMGT shall export all science granule metadata that are subject to export to the metadata clearing house for each granule included in a long verification package, including Browse links, Data Pool URLs and restriction flags.	Completed

ID	Title	Status
ECS-L4-10268	S-BGT-32050 The BMGT shall exclude collections from a long verification package for which an export event is pending. [NOTE: ECHO will compare the metadata for all collections in a long verification package against its existing holdings. The intent of the requirement is to prevent ECHO from reporting discrepancies that are due to pending events that have not yet been exported.]	Completed
ECS-L4-10269	S-BGT-32060 The BMGT shall exclude granules from a long verification package for which the export of an event is pending (including updates to URL or Browse link information including links to MISR browse granules). [NOTE: ECHO will compare the metadata for all granules in a long verification package against its existing holdings. The intent of the requirement is to prevent ECHO from reporting discrepancies that are due to pending events that have not yet been exported.]	Completed
ECS-L4-10272	S-BGT-32090 The BMGT shall export the ECHO ProviderBrowseId as specified in the ECHO-ECS ICD for each browse granule included in a short verification package, organize the browse granules by collection, and construct and include the ECHO DataSetId for the collection. [NOTE: This includes the ProviderBrowseId for any MISBR granules included in the browse export.]	Completed
ECS-L4-10277	S-BGT-32140 The BMGT shall allow DAAC staff to restart the incremental long verification for the complete DAAC inventory as well as for specific collections.	Completed
ECS-L4-10278	S-BGT-32150 The BMGT shall perform incremental verification by exporting the metadata for granules that were updated within a given time interval which is incremented as the incremental verification proceeds, looping through all collections that contain granules that were updated during that time period. [NOTE: This means that the BMGT will loop through all collections that have granules updated during that time period before proceeding with the automatic verification of the next incremental time period.]	Completed
ECS-L4-10283	S-BGT-32200 The BMGT shall assign the next available export sequence number to a verification package.	Completed
ECS-L4-10284	S-BGT-32210 The BMGT shall provide the collection metadata in verification export packages in ECSMETC files.	Completed
ECS-L4-10285	S-BGT-32220 The BMGT shall provide the science granule metadata in verification export packages in ECSMETG files.	Completed
ECS-L4-10286	S-BGT-32230 The BMGT shall provide the browse granule metadata in verification export packages in ECSBBR files. [NOTE: Only short verification packages include browse granule metadata. The only metadata that is included in these packages for browse granules is the ProviderBrowseId.]	Completed
ECS-L4-10287	S-BGT-32240 The BMGT shall name the ECSMETC, ECSMETG, and ECSBBR files in a verification export package in accordance with S-BGT-00840.	Completed
ECS-L4-10288	S-BGT-32250 The BMGT shall name the consolidated compressed export files generated for verification packages in accordance with the file name patterns for manual export as per S-BGT-01110, replacing the string 'ManualExport' with the string 'ShortVerification' or 'LongVerification' for short/long verification packages. [NOTE: This extends (but does not replace) S-BGT-01110 to verification export.]	Completed

ID	Title	Status
ECS-L4-10289	S-BGT-32260 The BMGT shall permit DAAC staff to select among the following mutually exclusive short verification options: whether to include collections in the verification or not (if collection verification is requested, the package will include a complete list of the collections ECHO should have in its inventory), whether to include science granules in the verification or not, DELETED whether to include or exclude browse granules in the verification	Completed
ECS-L4-10292	S-BGT-32290 The BMGT shall permit DAAC staff to constrain long verification export packages via command line parameters as follows: whether to include or exclude collections, DELETED, whether to include or exclude science granules, if collections and/or science granule verification is included, an optional list of collections or collection groups to restrict the verification to the listed collections or collection groups, if science granule export is included, optional constraints for the science granules to be exported as per S-BGT-32300. [NOTE: Long verification packages will not include Browse granules. Note that granules for a collection not enabled for granule metadata export will not be included.]	Completed
ECS-L4-10293	S-BGT-32300 If science granule export is included in a long verification export package, the BMGT shall permit DAAC staff to constrain via command line parameters the science granules to be included as follows: an optional list of granule identifiers provided on the command line or in an input file, to constrain the export to include only the listed granules, DELETED, an optional time range applied (at DAAC staff discretion) to the insert time or last update time, to constrain the export to include only granules that meet the insert respectively last update criterion, a combination of b. and c. [NOTE: The time range may include only a beginning time or an end time. A granule qualifies if its insert (respectively lastUpdate) time $\geq$ beginning time and $<$ end time, consistent with S-BGT-01015.]	Completed
ECS-L4-10294	S-BGT-32310 Except as constrained per S-BGT-32290 and S-BGT-32300, the BMGT shall include all collections and science granules in the ECS inventory in a long export package if they should be present in the metadata clearing house inventory as per the BMGT export rules (see S-BGT-00650, S-BGT-00685, S-BGT-00780), subject to the exclusions specified in S-BGT-32050 and S-BGT-32060.	Completed
ECS-L4-10298	S-BGT-32350 Upon starting a manual export operation, the BMGT shall detect concurrent manual and verification export operations in the same mode, inform the operator, and prompt the operator as to whether to continue or exit. [NOTE: This extends (but does not replace) S-BGT-01027 to verification export. The purpose is to allow DAAC staff to exit from a manual export operation that might conflict with a concurrent export operation.]	Completed
ECS-L4-10299	S-BGT-32360 Upon starting a verification export operation, the BMGT shall detect concurrent manual export operations in the same mode, inform the operator, and prompt the operator as to whether to continue or exit. [NOTE: This extends (but does not replace) S-BGT-01027 to verification export. The purpose is to allow DAAC staff to exit from a verification export operation that might conflict with a concurrent manual export operation. The BMGT will allow DAAC staff to provide a response to use for export operations that run in background mode.]	Completed

ID	Title	Status
ECS-L4-10300	S-BGT-32370 The BMGT shall allow DAAC staff to rerun a verification export operation if the generation of the verification export package was interrupted by an error or fault prior to the start of the FTP transfer. [NOTE: This extends (but does not replace) S-BGT-01035 to verification export. The intent of this requirement is to guarantee that if the DAAC staff elects to rerun the verification export command, BMGT will not cause that export to fail just because it was attempted before, e.g., because of left-over files or rows in the database. There are separate requirements regulating recovery from errors that occur during FTP operation, see requirements S-BGT-01130 to S-BGT-01150.]	Completed
ECS-L4-10302	S-BGT-32390 The BMGT shall apply the following requirements to verification export packages: S-BGT-01036, S-BGT-01037, S-BGT-01038, S-BGT-01039, S-BGT-01041, S-BGT-01043, S-BGT-01044, S-BGT-01046 (handling metadata access errors during package creation) S-BGT-01170, S-BGT-31100 (ISR analysis and handling reported errors) S-BGT-01140 (allowing cancellation) S-BGT-01200, S-BGT-01205, S-BGT-01210 (time-out during package creation or while waiting for an ingest summary report) S-BGT-1175, S-BGT-01230, S-BGT-01240, S-BGT-01245, S-BGT-01250, S-BGT-31140 (audit trail), S-BGT-01041, S-BGT-01195, S-BGT-01225, S-BGT-31150, S-BGT-31160, S-BGT-31180 (e-mail notification contents) S-BGT-00945 (character string for inclusion in file names) S-BGT-01015 (how to interpret time intervals specified on command lines) [NOTE: In general, BMGT requirements apply to verification export unless explicitly overridden. They are expected to be verified via regression. The above requirements are called out specifically only because they are related to the analysis of metadata related errors and how they need to be handled. The analysis may be specific to verification errors and they require testing specific to metadata verification.]	Completed
ECS-L4-10307	S-BGT-32430 In addition to the BMGT responses listed in S-BGT-31000 for package errors, the BMGT shall support the following types of responses to ECHO error codes returned in Ingest Summary Reports for short and long verification exports: 'Ignore Error' –the error does not represent a true inventory discrepancy b. 'Re-export Object' – the object for which the discrepancy was reported will be re-exported 'Re-export Associated Object' – the object that is the target of an association for which the discrepancy was reported will be re-exported (e.g., a Browse granule) 'Re-export Object and Associated Object' – the object for which the error was reported as well as the object that is the target of the association that triggered the error will be re-exported (e.g., the granule and the associated Browse) 'No Re-export Needed' – the affected object does not need to be re-exported because ECHO automatically corrected the discrepancy. 'Manual Object Re-export' – the affected object needs to be corrected and re-exported by DAAC staff. [NOTE: The above list is tentative. The final list of ECHO error codes and the associated BMGT responses will be documented in Table 1 included in the Operations Concept section of this ticket, similar to Table 6-1 in the Operations Concept of Ticket BE_7F_01. The table is will be included in the ECHO-ECS ICD.]	Completed
ECS-L4-10308	S-BGT-32440 The BMGT shall flag a verification export as 'COMPLETE' if the metadata clearing house reported no discrepancies in the Ingest Summary Report or if the all of the reported errors are associated with 'Ignore Error' as per S-BGT-32430. [NOTE: This extends S-BGT-31110 to verification export packages. The referenced table will be included in the ECHO-ECS ICD.]	Completed

ID	Title	Status
ECS-L4-10309	S-BGT-32450 The BMGT shall flag a verification export as 'COMPLETE WITH WARNINGS' if the metadata clearing house reported in the Ingest Summary Report only discrepancies which were corrected by ECHO or will be corrected by the BMGT via re-export, and shall send an e-mail notification to operators for such a verification export package. [NOTE: This extends S-BGT-31120 and S-BGT-31150 to verification export packages.]	Completed
ECS-L4-10310	S-BGT-32460 The BMGT shall flag a verification export as 'COMPLETE WITH ERRORS' if the metadata clearing house reported in the Ingest Summary Report any discrepancies or errors which it could not correct and will not be corrected by the BMGT via re-export, and shall send an e-mail notification to operators for such a verification export package. [NOTE: This extends S-BGT-31130 to verification export packages. The contents of the e-mail are defined by S-BGT-31180.]	Completed
ECS-L4-10313	S-BGT-32490 The BMGT shall queue re-export actions for errors reported in the Ingest Summary Report of long and short verification export packages in accordance with the actions specified in S-BGT-32430 [NOTE: Examples of expected behavior include the following: queue a re-export action for a granule reported as missing from the metadata clearing house inventory in the Ingest Summary Report of a short verification export package if that granule is still in the ECS inventory (ECHO will automatically insert when such granules are found in a long verification export package), queue a granule deletion re-export action for a granule which the metadata clearing house reports as extraneous in the Ingest Summary Report (i.e., present in its inventory but not included in a short verification export package) if that granule is indeed not in the ECS inventory, c. queue a browse re-export action for a browse granule reported as missing from the ECHO inventory in the Ingest Summary Report of a short verification export package if that browse granule is still in the ECS inventory, queue a browse and science granule re-export action for a browse granule reported as referenced by a science granule but missing from the ECHO inventory in the Ingest Summary Report of a long verification export package if that browse granule is still in the ECS inventory, queue a browse deletion re-export action for a browse granule reported as extraneous in the ECHO inventory in the Ingest Summary Report of a short verification export package if that browse granule is indeed not in the ECS inventory, treat as errors requiring DAAC staff intervention any collections reported as missing from the metadata clearing house inventory in the Ingest Summary Report of a short verification export package if that collection is still in the ECS inventory, treat as errors requiring DAAC staff intervention any invalid collection references reported in the Ingest Summary Report of a long verification export package.]	Completed
ECS-L4-10314	S-BGT-32500 DAAC staff shall be able to configure the BMGT to save to a file the identifiers of granules for which Ingest Summary Reports for long verification exports identified a discrepancy, using a file format suitable as input to a long verification export as per S-BGT-32300a. [NOTE: The purpose of this requirement is to allow DAAC staff to use that file at some later time for a re-verification of those granules, to ensure that the necessary corrections to the ECHO metadata were made. The file would accumulate the saved granule identifiers until such time as the DAAC elects to rename or remove it.]	Completed

ID	Title	Status
ECS-L4-10315	S-BGT-32510 The BMGT shall permit DAAC staff to configure an alert threshold for the number of re-export actions queued as a result of a single verification export package.	Completed
ECS-L4-10316	S-BGT-32520 The BMGT shall notify the DAAC staff via e-mail to the configured alert e-mail address when the threshold specified in S-BGT-32510 was exceeded, identifying the reason for the alert in the e-mail subject header, and including the threshold value and an estimate for the total number of re-export actions that will be triggered.	Completed
ECS-L4-10317	S-BGT-32530 The BMGT shall continue to queue re-export actions even if the alert threshold specified in S-BGT-32510 was exceeded.	Completed
ECS-L4-10318	S-BGT-32540 The BMGT GUI shall allow DAAC staff to remove re-export actions from the re-export queue in bulk, e.g., all granules queued by a specific export cycle.	Completed
ECS-L4-10320	S-BGT-32560 The BMGT command line utility shall display the number of actions that would be bulk removed and request confirmation before proceeding with the removal.	Completed
ECS-L4-10321	S-BGT-32565 The BMGT shall be able to create short verification export packages at the following individual loads: no less than tentative target: 1.5 million science granules per hour no less than tentative target: 1.5 million Browse granules per hour no less than tentative target: 1.0 million Browse granule representations for MISBR granules per hour short collection export at a rate of no less than 3,600 per hour	Completed
ECS-L4-10323	S-BGT-32580 The BMGT shall be able to create long verification export packages for collections at a rate of no less than the rate specified for METC generation in S-BGT-00815e.	Completed
ECS-L4-10324	S-BGT-32590 The BMGT shall be able to parse Ingest Summary Reports and queue re-export actions as necessary at a rate of no less than TBD (tentative target: 5,000) object entries per minute.	Completed
ECS-L4-10328	S-BGT-32615 The BMGT shall export collection and granule visibility / orderability as follows: True for collection visibility False for collection orderability True for granule visibility False for granule orderability [NOTE: The ECHO API requires values for these attributes, but ECHO will ignore them. However, the specified settings are required to avoid spurious reconciliation errors when performing long verification.]	Completed
ECS-L4-10335	S-BGT-32680 The BMGT shall export the following changes to metadata of collections enabled for collection export: insertion of new collections into the ECS inventory, removal of collections from the ECS inventory, updates to collection metadata that are maintained in the SDPS inventory and are specified as subject to ECHO export in the ECS-ECHO ICD. [NOTE: It is assumed that DAACs will use ECHO interfaces to hide and unhide collection rather than using the BMGT export mechanism for this purpose. DAAC staff must use the manual BMGT export capabilities when they make changes to metadata configured in BMGT configuration files.] [NOTE: This requirement replaces S-BGT-00650.]	Completed
ECS-L4-10336	S-BGT-32690 The BMGT shall export collection inserts and updates to collection metadata by re-exporting all collection metadata specified as subject to ECHO export in the ECS-ECHO ICD in accordance with the ECHO Provider API Schema referenced in the ECS-ECHO ICD. [NOTE: This requirement replaces S-BGT-00655.]	Completed

ID	Title	Status
ECS-L4-10338	S-BGT-32720 The BMGT shall generate the following types of export files as necessary to meet the export requirements specified in other L4s: DELETED for collection metadata, ECSMETC files following the ECHO Provider API Schema referenced in the ECS-ECHO ICD for all granule metadata, ECSMETG files following the ECHO Provider API Schema referenced in the ECS-ECHO ICD for all granule updates, ECSMETU files following the ECHO Provider API Schema referenced in the ECS-ECHO ICD for Browse metadata, ECSBBR / BRF files following the ECHO Provider API Schema referenced in the ECS-ECHO ICD DELETED ECS browse files referenced in the ECSBBR / BRF files [NOTE: This requirement replaces S-BGT-00680.]	Completed
ECS-L4-10339	S-BGT-32730 The BMGT shall export the following changes to inventory metadata of science granules that belong to collections enabled for granule metadata export: insertion of a science granule into the ECS inventory logical deletion of a science granule from the ECS inventory and undoing of such a deletion hiding of a science granule via an update to the restriction flag using a DAAC configured value; and un hiding of a science granule via an update to the restriction flag using the current value for that flag or a Null value if there is none marking a science granule as deleted from archive moving a science granule to a different collection updating the core QA metadata of a granule adding or removing links between a science granule and browse granules updating any other granule metadata that are maintained in the SDPS inventory and are specified as subject to ECHO export in the ECS-ECHO ICD adding a science granule to the public Data Pool removing a science granule from the public Data Pool changes to public Data Pool URLs of science granules (for example, as might result from a collection move) [NOTE: DAAC staff must use the manual BMGT export capabilities when they make changes to metadata configured in BMGT configuration files.] [NOTE: This requirement replaces S-BGT-00685]	Completed
ECS-L4-10340	S-BGT-32735 The BMGT shall permit DAAC staff to configure a restriction flag value to be exported to ECHO when a granule is hidden in the ECS inventory (i.e., its DFA flag is updated to 'H').	Completed
ECS-L4-10341	S-BGT-32740 The BMGT shall export the set of science granule metadata specified in the ECS-ECHO ICD in accordance with the ECHO Provider API Schema referenced in the ECS-ECHO ICD for the following changes provided that the collection to which the granule belongs is enabled for granule metadata export: insertion of a science granule into the inventory moving a science granule to a different collection if the target collection is enabled for granule metadata export updating any science granule metadata other than those referenced in requirement S-BGT-00695 and S-BGT-00700 undoing a previous logical deletion of a science granule [NOTE: This requirement replaces S-BGT-00690.]	Completed

ID	Title	Status
ECS-L4-10342	S-BGT-32750 The BMGT shall export updates to science granule metadata that are maintained in the SDPS inventory and are specified as subject to ECHO export in the ECS-ECHO ICD in accordance with the ECHO Provider API Schema referenced in the ECS-ECHO ICD for the following changes: the restriction flag using a DAAC configured value; and un hiding of a science granule via an update to the restriction flag using the current value for that flag or a Null value if there is none updating the core QA metadata of a granule updating the links between a science granule and its browse granules adding a public Data Pool URL for a science granule deleting a public Data Pool URL for a science granule updating the public Data Pool URL of a science granules [NOTE: DAAC staff must use the manual BMGT export capabilities when they make changes to metadata configured in BMGT configuration files.] [NOTE: This requirement replaces S-BGT-00695.]	Completed
ECS-L4-10343	S-BGT-32770 The BMGT shall include in the metadata package exported after Data Pool pre-delete or cleanup runs, also any other removals of granules from the public Data Pool that were not exported before, subject to the constraints in S-BGT-00750 and S-BGT-00755. [NOTE: The intent of this requirement is to communicate granule removals to ECHO as early as possible Note that in case of a predelete / finishdelete cleanup sequence, URL removals are reported during the predelete phase, not during the finishdelete phase.] [NOTE: This requirement replaces S-BGT-00720.]	Completed
ECS-L4-10344	S-BGT-32780 The BMGT shall export granule deletion information in the ECSMETG file in accordance with the ECHO Provider API Schema referenced in the ECS-ECHO ICD, for the following changes: logical deletion of a science granule from the ECS inventory marking a science granule as deleted from archive moving a science granule to a different collection if the source collection is enabled for granule metadata export NOTE: This requirement replaces S-BGT-00725.]	Completed
ECS-L4-10345	S-BGT-32790 The BMGT shall consolidate the granule events reported in ECSMETG- or ECSMETU files within an automatically generated export package such that the granule is exported only once within the package. [NOTE: For example, if a granule is inserted, then has its core QA metadata updated, and then the cloud cover attribute is updated, only one set of metadata changes is exported for the granule - in this case, its complete set of metadata in the ECSMETG file.] [NOTE: This requirement replaces S-BGT-00730.]	Completed
ECS-L4-10346	S-BGT-32800 The BMGT shall report insertions of browse granules by providing all Browse metadata specified as subject to ECHO export in the ECS-ECHO ICD in accordance with the ECHO Provider API Schema referenced in the ECS-ECHO ICD. [NOTE: This requirement replaces S-BGT-00785.]	Completed
ECS-L4-10347	S-BGT-32810 The BMGT shall export the deletion of browse granules by including the browse deletion information in the ECSBBR file in accordance with the ECHO Provider API Schema referenced in the ECS-ECHO ICD. [NOTE: This requirement replaces S-BGT-00790.]	Completed
ECS-L4-10349	S-BGT-32830 The BMGT shall assign a consecutive sequence number to each metadata package that it generates, except in manual mode in cases where DAAC staff requests that no sequence number be assigned, or a previously generated package is re-generated as per instructions from DAAC staff (see requirements S-BGT-00955, S-BGT-00940), or the package is not exported to ECHO [NOTE: This requirement replaces S-BGT-00830.]	Completed

ID	Title	Status
ECS-L4-10350	<p>S-BGT-32840 The BMGT shall name the ECSMETC, ECSMETG, ECSMETU, and ECSBBR files in a metadata export package in accordance with the file name pattern            &lt;site&gt;&lt;type&gt;&lt;group&gt;.&lt;beginning date-time&gt;.&lt;ending date-time&gt;.&lt;creation date-time&gt;.&lt;segment number&gt;.&lt;segment count&gt;.&lt;export sequence number&gt;.XML            where:            a. &lt;site&gt; is the three letter site identifier as defined in 170-WP-023-001            b. &lt;type&gt; is 'C' for ECSMETC files, 'G' for ECSMETG files, 'U' for ECSMETU files, and 'B' for ECSBBR            c. &lt;group&gt; is the twelve letter group identification assigned by the DAAC            d. &lt;beginning date-time&gt; shall represent the start of the time period covered by the export, in the form yyyyddhh, where yyyy is the four digit year, ddd the three digit day of the year, and hh the two digit hour of the 24-hour day.            e. For automatic exports, &lt;ending date-time&gt; shall represent the end of the time period covered by the export using the same format as the &lt;beginning date-time&gt;. For automatic exports, this represents the end of the export cycle; and for manual exports, this represents the end of the time period entered manually (if present).            f. &lt;creation date-time&gt; shall represent the time the metadata export package was created, in the format yyyydddhhmmss, where yyyy is the four digit year, ddd the three digit day of the year, and hh the two digit hour of the 24-hour day, mm the 2-digit minute within the hour, and ss is the two digit second within the minute.            g. &lt;segment number&gt; shall be a three digit sequence number assigned to each file when the corresponding export type is segmented into multiple files.            h. &lt;segment count&gt; shall be a three digit number providing the total number of files into which the export type was segmented.            i. &lt;export sequence number&gt; is the 6-digit sequence number assigned to this export package            [NOTE: Note that ECSMETU files will be broken up by group similar to the other metadata files, but unlike today. Note the resultant total file name length of at most 69 characters.]            [NOTE: This requirement replaces S-BGT-00840.]</p>	Completed
ECS-L4-10351	<p>S-BGT-32850 The BMGT shall generate a separate metadata export package for each manual invocation. [NOTE: It will be the responsibility of DAAC staff to communicate with ECHO operations as necessary to ensure that they are ingested in the correct sequence.] [NOTE: This requirement replaces S-BGT-00920.]</p>	Completed
ECS-L4-10352	<p>S-BGT-32860 The BMGT shall permit DAAC staff to specify as part of the command line parameters that a manually generated metadata export package intended for export to ECHO shall not be assigned an export sequence number. [NOTE: The place in the processing sequence at which ECHO is to process this export package is subject to negotiation between DAAC and ECHO and is not subject of this ticket. Packages not exported to ECHO will never be assigned an export sequence number, as per S-BGT-32830.] [NOTE: This requirement replaces S-BGT-00935.]</p>	Completed

ID	Title	Status
ECS-L4-10353	S-BGT-32870 The BMGT shall assign the next available export sequence number to a manually generated metadata export package intended for export to ECHO unless the requested operation was to re-generate an export package for a previously processed automatic export cycle or the DAAC staff explicitly requested that no sequence number be assigned. [NOTE: This requirement replaces S-BGT-00940. Packages not exported to ECHO will never be assigned an export sequence number, s per S-BGT-32830.]	Completed
ECS-L4-10354	S-BGT-32880 The BMGT shall not permit DAAC staff to request the regeneration of an export package for one or several past automatic export operations if the state of the operation is 'COMPLETE'. [NOTE: If the state of a package is EXPORTED, DAAC staff is expected to coordinate with ECHO to ensure that the package was not and will not be processes by ECHO.] [NOTE: This requirement replaces S-BGT-00952.]	Completed
ECS-L4-10355	S-BGT-32890 When re-generating an automatic export package that was previously generated, the BMGT shall re-assign the sequence number originally assigned to that package. [NOTE: This requirement replaces S-BGT-00955.]	Completed
ECS-L4-10356	S-BGT-32900 The BMGT shall permit DAAC staff to request via a manual export operation the export of the public Data Pool URLs for the science granules of one or several collections, with the collections specified in an input file, optionally for a specific time period of science granule insert into the public Data Pool. [NOTE: This will produce a ECSMETU file containing the public Data Pool URLs for the public granules of the specified collections. [NOTE: This requirement replaces S-BGT-00980.]	Completed
ECS-L4-10357	S-BGT-32910 The BMGT shall permit DAAC staff to request via a manual export operation the export of the public Data Pool URLs for one or several science granules, with the granules specified on the command line or listed in an input file. [NOTE: This will produce a ECSMETU file containing the current public Data Pool URLs for the specified granules. A URL will not be exported if the granule is not in the public Data Pool.] [NOTE: This requirement replaces S-BGT-00990.]	Completed
ECS-L4-10358	S-BGT-32920 The BMGT shall permit DAAC staff to request via a manual export operation the export of the removal of the public Data Pool URLs for one or several science granules, with the granules specified on the command line or listed in an input file. [NOTE: This will produce a ECSMETU file exporting the deletion of the specified granules from the Data Pool. The deletion will not be exported if the granule is in the public Data Pool.] [NOTE: This requirement replaces S-BGT-01000.]	Completed
ECS-L4-10359	S-BGT-32930 The BMGT shall export all generated metadata export packages to ECHO. [NOTE: This requirement replaces S-BGT-01085.]	Completed
ECS-L4-10360	S-BGT-32940 The BMGT shall generate a manifest file that lists the ECSMETC, ECSMETG, ECSMETU, ECSBBR export files in the metadata export package in accordance with the ECHO PackageManifest.xsd. [NOTE: This requirement replaces S-BGT-01090.]	Completed
ECS-L4-10361	S-BGT-32950 The BMGT shall compress and consolidate the files in a metadata export package into a single file using the Unix zip utility. This shall exclude browse files, but shall include the manifest file. [NOTE: This requirement replaces S-BGT-01100.]	Completed

ID	Title	Status
ECS-L4-10362	S-BGT-32960 The BMGT shall regenerate, recompress, and re-transmit an automatic export package to ECHO if the ingest summary report contains one of the following error responses indicating an error reading one of the transmitted XML files ECHO did not process the package due to ECHO operator intervention a metadata file failed validation. [NOTE: Manual export processes that return these errors will be considered failed. It will be up to the operator to determine the appropriate action, e.g., re-attempting the manual run.] [NOTE: This requirement replaces S-BGT-01185.]	Completed
ECS-L4-10363	S-BGT-32970 The BMGT shall create an audit trail entry for each automatic metadata export cycle and automatic export operation for bulk DPL cleanup, whether or not it resulted in the creation of a metadata export package. [NOTE: This requirement replaces S-BGT-01235.]	Completed
ECS-L4-10364	S-BGT-32980 The BMGT shall create an audit trail entry for each manual metadata export operation if it resulted in the creation of a metadata export package. [NOTE: This requirement replaces S-BGT-01240.]	Completed
ECS-L4-10365	S-BGT-32990 The BMGT shall include the following information in each audit trail entry: metadata export sequence number (if one was assigned), start and end of the time period covered by the export (if applicable), type of export (i.e., manual or automatic, validation (long v. short, manual v. automatic), or bulk DPL cleanup), DELETED, current export status, export statistics, error statistics (if applicable) as received in the ingest summary report, other error information (if applicable), time the creation of the metadata export started, time the creation of the metadata export package completed, time the transmission of the package started, time the transmission of the package completed, time the ingest summary report from ECHO was received time of last status update name of the export directory name of the file containing the ingest summary report sent by ECHO (if received) retry count [NOTE: This requirement replaces S-BGT-01245.]	Completed
ECS-L4-10367	S-BGT-33010 The BMGT shall remove an export directory once an ingest summary report is received that confirms ingest by ECHO without errors. [NOTE: This requirement replaces S-BGT-01282.]	Completed
ECS-L4-10368	S-BGT-33020 The BMGT shall export the relationships of a MISBR granule with MISR Level 1 and MISR Level 2 granules ECHO using the rules defined in requirements S-DPL-46830, S-DPL-46860, S-DPL-46890 in DP_72_05 such that the browse links in ECHO will match the browse links in the Data Pool while the MISR Level 1 or MISR Level 2 granules are public, provided the corresponding MISBR collection was configured as eligible for export as browse and the corresponding MISR Level 1 and Level 2 collections were configured as eligible for export of browse links. [NOTE: For previously exported MISR Level 1/2 granules, the browse links will be reported in an ECSMETU file formatted in accordance with the ECHO Provider API Schema referenced in the ECS-ECHO ICD; and if the MISR Level 1/2 granules are exported in the same metadata export package, the browse links will be exported in the ECSMETG file as part of the metadata for these granules.] [NOTE: The manner in which the export is performed must ensure that a browse link in ECHO will match a browse link in the Data Pool once the URL for the MISR science granule is exported to ECHO until such time as the URL removal is exported.] [NOTE: This requirement replaces S-BGT-01310.]	Completed

ID	Title	Status
ECS-L4-10369	S-BGT-33030 The BMGT shall include the requested metadata information for all queued re-export actions in the export package generated by the current manual corrective export operation except as specified in S-BGT-31470 and S-BGT-31480. [NOTE: The BMGT will place the requested metadata into the appropriate types of export files (e.g., ECSMETG, ECSMETU, ECSBBR), but only if that is still consistent with the state of the object in the ECS inventory.] [NOTE: This requirement replaces S-BGT-31460.]	Completed
ECS-L4-10370	S-BGT-33040 The BMGT shall allow DAAC staff to obtain a re-export queue report listing the currently queued re-export actions, and including for each the referenced object and its type (collection, science granule, or browse granule), a well as the collection and collection group to which it belongs the initial export attempt (e.g., time or export cycle), the ECHO error response that caused the action to be placed on the re-export queue type of action (i.e., insert or delete) [NOTE: This requirement replaces S-BGT-31500.]	Completed
ECS-L4-10371	S-BGT-33050 The BMGT shall allow DAAC staff to obtain a statistical report of the queued re-export actions, listing each collection for which re-export actions are queued together with its collection group, and listing for each the number of re-export actions together with their type and the ECHO error response, with the report sorted according to collection, type of object and type of action. In this context, Browse shall be reported as part of the BROWSE collection, but the report shall also contain information associating the Browse with its parent collection. [NOTE: This requirement replaces S-BGT-31530.]	Completed
ECS-L4-10372	S-BGT-33100 The BGT CI shall export updates to Browse URLs that occur as a consequence of browse link replacements.	Completed
ECS-L4-10373	S-BGT-33110 The BMGT shall permit DAAC staff to specify as part of the command line parameters whether a manually generated metadata export package shall be exported to ECHO. [NOTE: This requirement replaces S-BGT-00930.]	Completed
ECS-L4-10374	S-BGT-33200 The BMGT shall permit DAAC staff to request via a manual export operation the export of the removal of one or several collections from the inventory regardless of whether the collections are indeed deleted from the ECS inventory. [NOTE: This requirement replaces S-BGT-00966. See NCR 8049291.]	Completed
ECS-L4-10375	S-BGT-33210 The BMGT shall treat incremental reconciliation like manual exports, for example, not automatically recreate or re-export packages that receive package level errors from ECHO. [NOTE: This requirement addresses NCR 8049063.]	Completed
ECS-L4-10376	S-BGT-33220 The BMGT GUI shall permit DAAC staff to cancel an export operation any time before start of transmission to ECHO. [NOTE: It is assumed that the DAAC staff will need time to fix whatever problem required the cancellation. As a result, automatic exports that are canceled are not automatically restarted next time an automatic export operation begins. Rather, the DAAC staff is expected to regenerate them by performing a manual export operation requesting regeneration of the package with the corresponding export sequence number, in accordance with S-BGT-00950). DAAC staff will need to resubmit manual exports that are cancelled if the DAAC staff wishes to re-attempt the export operation. There is no separate capability to recover or regenerate them.] [NOTE: This requirement addresses replaced S-BGT-01140. See NCR 8049320.]	Completed

ID	Title	Status
ECS-L4-10377	S-BGT-33230 The BMGT shall skip a collection export and report an error if the coordinate system and granule spatial representation are not present for a collection in the ECS metadata. [NOTE: This replaces S-BGT-32620. See NCR 8049318.]	Completed
ECS-L4-10378	S-BGT-33240 The BMGT shall not export the metadata for granules in a collection and report an error if the coordinate system and granule spatial representation are not present for the collection in the ECS metadata. [NOTE: See NCR 8049318.]	Completed
ECS-L4-10379	S-BGT-33250 The BMGT shall use the DPL FTP Service to transfer files to ECHO. [See NCR 7048116.]	Completed
ECS-L4-10381	S-BGT-33270 The BMGT shall allow DAAC staff to cancel an export package while it is one of the following states: WAITING_TO_RETRANSMIT, PACAGE_GENERATE_FAILED, or PRODUCT_GENERATE_FAILED. [NOTE: DAAC staff is responsible for ensuring that any information that the package needed to export will eventually be exported to ECHO.] [See NCR 7048126.]	Completed
ECS-L4-10382	S-BGT-33280 The BMGT operator GUI shall provide an auto-refresh function. [See NCR 8049214.]	Completed

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## Appendix A    Abbreviations and Acronyms

These are the abbreviations and acronyms used in the ECS requirements Volumes 1-10. This section is replicated in all volumes.

ACL	access control list
ACVU	AIM checksum verification utility
ADC	Affiliated Data Center
ADEOS	Advanced Earth Observing Satellite
AIM	Archive Inventory Management
AIRS	Atmospheric Infrared Sounder
AMFS	Archival Management and Storage System File System
AMSR	Advanced Microwave Scanning Radiometer
ANSI	American National Standards Institute
API	Application Program Interface
APIDs	Application Process Identifiers
APIs	Application Program Interfaces?
ARP	Address Resolution Protocol
ASDC	Atmospheric Science Data Center
ASF	Alaska Satellite Facility
ASTER	Advanced Spaceborne Thermal Emission and Reflection Radiometer
AST_L1A, AST_L1B	ASTER Level 1 A and Level 1 B data types
AVG	average
AVN	National Center for Environmental Prediction (NCEP) Aviation model, later renamed to Global Forecast System (GFS)
BGT	Bulk Metadata Generation Tool, also known as BMGT
BIL	Band Interleaved
BMGT	Bulk Metadata Generation Tool
BPI	Bits per inch
BRF	Browse Reference File
BRWS	Browse
BUFR	Binary Universal Form for the Representation of meteorological data
CCB	Configuration Control Board
CCR	Configuration Change Request
CCSDS	Consultative Committee for Space Data Systems
CD	Compact Disc

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CFG	Configuration
CI	Configuration Item
CKSUM	refers to a particular algorithm or program to calculate a file checksum
CLS	Client Subsystem
CM	Configuration Management
CMO	Configuration Management Office
CMR	Common Metadata Repository
COTS	Commercial Off-The Shelf (hardware or software)
CPU	Central Processing Unit
CRON	A linux system utility to perform time scheduled executions
CS	Client Server
CSC	Computer Software Component
CSCI	Computer Software Configuration Item
CSDT	Computer Scient Data Type
CSH	C-Shell
CSMS	Communication and Systems Management Segment
CSS	Communications Subsystem
DAAC	Distributed Active Archive Center
DADS	Data Archive and Distribution System
DAR_ID	Data Acquisition Request Identifier
DB	Database
DBID	Database Identifier
DB	Database
DCLI	DDIST (Data Distribution) Command Line Interface
DD	Data Dictionary
DDIST	Data Distribution CSCI
DDR	Detailed Design Review
DEM	Digital Elevation Model
DESKT	Desktop (Computer Software Configuration Item)
DFA	Delete From Archive
DHWM	Data High Water Mark
DIF	Directory Interchange Format
DIPHW	Distribution and Ingest Peripheral HWCI
DMS	Data Management Subsystem
DN	Delivery Notification
DORRAN	Distributed Ordering, Researching, Reporting, and Accounting Network (at EDC)

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DPAD	Data Pool Action Driver
DPCV	Data Pool Checksum Verification Utility
DPIU	Data Pool Insert Utility
DPL	Data Pool
DPLINGST	Data Pool Ingest
DPLINSERT	Data Pool Insert
DPM	Data Pool Maintenance
DRPHW	Data Repository HWCI
DSS	Data Server Subsystem
DTD	Document Type Definition (XML)
DTF	Sony Digital Tape Format Tape cartridge system
DTS	Defect Tracking Subsystem
EBNET	EOSDIS Backbone Network
ECHO	EOS Clearing House
ECI, ECR	Earth Centered Inertial, Earth Centered Rotating
ECNBDB	Spatial Subscription Server database
ECS	Earth Observing System Data and Information Core System
EDC	Earth Resource Observation System Data Center
EDOS	Earth Observing System (EOS) Data and Operations System
EDR	Expedited Data Set Request
EDS	Expedited Data Set
EED	EOSDIS Evolution and Development Project
EGS	EOSDIS Ground System
EMD	EOSDIS Maintenance and Development Project
EMOS	EOS Mission Operations System
EMS	ESDIS Metrics System
EOC	Earth Observation Center (Japan), EOS Operations Center
EOS	Earth Observing System
EOSDIS	Earth Observing System Data and Information System
EPD	External Processor Dispatcher
EPSG	European Petroleum Survey Group
ESDIS	Earth Science Data and Information System
ESDT	Earth Science Data Type
ESG	Earth Science Gateway
ESI	EOSDIS Service Interface
ETE	End to End
EWOC	ECHO WSDL Order Component

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FCAPS	Fault, Configuration, Accountability, Performance, and Security
F&PRS	Functional and Performance Requirements Specification
FDDI	Fiber Distributed Data Interface
FDF	Flight Dynamics Facility
FOS	Flight Operations Segment
FSMS	File and Storage Management System
FTP	File Transfer Protocol
FTPD	File Transfer Protocol Daemon
GB	Gigabyte or Gigabit
GBYTE	Gigabyte
GCMD	Global Change Master Directory
GDS	Ground Data System
GEOTIFF	Georeferenced Tagged Image File Format
GFE	Government Furnished Equipment
GIS	Geographical Information System
GLAS	Geoscience Laser Altimeter System
GPS	Global Positioning System
GRIB	Grid in Binary
GSFC	Goddard Space Flight Center
GUI	Graphical User Interface
GZIP	GNU zip
HDF	Hierarchical Data Format
HDF-EOS	an EOS proposed standard for a specialized HDF data format
HEG	HDF-EOS-To-Geotiff Conversion Tool
HIPPI	High Performance Parallel Interface
HIRDLS	High-Resolution Dynamics Limb Sounder
HTML	Hypertext Markup Language
HTTP	Hypertext Transfer Protocol
HTTPD	Hypertext Transfer Protocol Daemon
HWCI	Hardware Configuration Item
I/O	Input/Output
I&T	Integration and Test
IAS	Image Assessment System
ICD	Interface Control Document
ICLHW	Ingest Client HWCI
ICMP	Internet Control Message Protocol

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IDL	Interactive Data Language
ID	Identifier
IEEE	Institute of Electrical and Electronics Engineering
IGS	International Ground Station
IIU	Inventory Insert Utility
IMS	Information Management System
INCI	Internetworking Hardware HWCI
INHCI	Ingest Hardware (Configuration Item)
INHW	Ingest Hardware (Configuration Item)
INS	Ingest Subsystem
IP	Internet Protocol
IR-1	Initial Release 1
IRD	Interface Requirements Document
IRIX	Silicon Graphics version of Unix
ISS	Internetworking Subsystem
IV&V	Independent Verification and Validation
JDT	Java DAR (Data Acquisition Request) Tool
JPEG	Joint Photographic Experts Group image file format
JPG	JPEG file extension
JPL	Jet Propulsion Laboratory
KFTP	Kerberized File Transfer Protocol
LAN	Local Area Network
LARC	Langley Research Center
LAT/LON	Latitude and Longitude
LGID	Local Granule Identifier
LLBOX	Latitude/Longitude Box
LP-DAAC	Land Processes Distributed Active Archive Center
LPS	Landsat 7 Processing System
LSM	Local System Management (network)
LUNs	Logical Unit Numbers
M&O	Maintenance and Operations
MAN	Metropolitan Area Network
MAX	Maximum
MB	Megabyte (10 <sup>6</sup> )
MB/sec	Megabytes per second
MBITS/SEC	Megabits per second
MBPS	Megabytes per second

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MCF	Metadata Configuration File
MD5	Message Digest checksum algorithm number 5
MDT	Maximum Down Time
METC	refers to file containing Collection Metadata
MGS	Map Generation Subsystem
MGU	Map Generation Utility
MISBR	MISR Browse
MISR	Multi-Imaging SpectroRadiometer
MLCI	Management Logistics Configuration Item
MM	Millimeter
MM/DD/YYYY	date code representation for month, day, year
MODAPS	MODIS Adaptive Processing System
MODIS	Moderate Resolution Imaging SpectroRadiometer
MRTG	Multi Router Traffic Grapher
MSEC	Millisecond
MSM	Media Storage Manager (part of Stornext)
MSS	System Management Subsystem
MTMGW	Machine to Machine Gateway
MUTEX	Mutually Exclusive
N/A	Not Applicable/Not Available
NARA	National Archives and Records Administration
NASA	National Aeronautics and Space Administration
NBSRV	Spatial Subscription Server
NCEP	National Centers for Environmental Prediction
NCR	Non-conformance report
NESDIS	National Environmental Satellite, Data, and Information Service (NOAA)
NFS	Network File System
NIST	National Institute of Standards and Technology
NM	Name Server Subsystem
NMC	National Meteorological Center (NOAA)
NMF	Network Management Facility
NOAA	National Oceanic and Atmospheric Administration
NSBRV	Spatial Subscription Server
NSI	NASA Science Internet
NSIDC	National Snow and Ice Data Center
NTP	Network Transport Protocol

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OBU	OWS Binding Utility
ODC	Other Data Center
ODL	Object Description Language
OGC	Open GIS Consortium
OLA	On-line Archive
OMS	Order Manager Subsystem
OPS	Operations
ORNL	Oak Ridge National Laboratory
OSI	Open Systems Interconnection
OSS	Operational Support Software
OWS	OGC Web Services Subsystem
PANs	Production Acceptance Notifications
PB	Petabyte (10 <sup>15</sup> )
PC	Personal Computer
PDF	Portable Document Format
PDPS	Planning and Data Processing Subsystems
PDR	Product Delivery Record
PDRD	Product Delivery Record Discrepancy
PDSIS	Product Distribution System Information Server
PF	Process Framework
PGE	Product Generation Executable
PGEEXE	PGE executable tar file ESDT
PH	Production History
PID	Process Identifier
PO.DAAC	Physical Oceanography Distributed Active Archive Center
POSIX	Portable Operating System Interface
PREPROCERR	Preprocessing Error
PSA	Product-Specific Attribute
PTHREADS	Portable Operating System Interface (POSIX) threads
PUBERR	Publication Error
PVC	Performance Verification Center
PVL	Parameter Value Language
Q/A, QA	Quality Assurance
QAMUT	Quality Assurance Metadata Update Tool
QC	Quality Control
RARP	Reverse Address Resolution Protocol
RDBMS	Relational Database Management System

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RFC	Request for Comments
RHWM	Request High Water Mark
RLWM	Request Low Water Mark
ROM	Read Only Memory
RPC	Remote Procedure Call
RPCID	Remote Procedure Call Identifier
RTR	Requirements Technical Review
SBSRV	Subscription Server
SCF	Science Computing Facility
SCI	science
SCP	Secure Copy
SDP	Science Data Processing
SDPF	Science Data Processing Facility
SDPS	Science Data Processing Segment
SDRSV	misspelled SDSRV
SDS	Scientific Dataset(HDF-EOS term), Science Data System
SDSRV, SDSVR	Science Data Server
SIPS	Science Investigator-led Processing System
SMAP	Soil Moisture Active Passive
SNAC	StorNext Archive Cache
SNFS	StorNext File System
SNMP	Simple Network Management Protocol
SOM	Space Oblique Mercator
SORCE	Solar Radiation and Climate Experiment
SQL	Structured Query Language
SRF	Server Request Framework
SS	two digit seconds field in a time string
SSH	Secure Shell (protocol)
SSI&T	Science System Integration and Test
SSM/I	Special Sensor for Microwave/Imager
SSS	Spatial Subscription Server Subsystem
STGMT	Storage Management Subsystem
TB	Terabyte
TBD	To Be Determined/To Be Defined
TBR	To Be Resolved
TCP	Transmission Control Protocol
TCP/IP	Transmission Control Protocol/Internet Protocol

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TES	Trophospheric Emission Spectrometer
TKD	Toolkit for DAAC
TKS	Toolkit for Scientists
TOMS	Total Ozone Mapping Spectrometer
TSDIS	TRMM Science Data and Information System
TSM	Tertiary Storage Manager, component of StorNext
TTPro	TestTrack Pro
UDF	Universal Disk Format
UDP	User Datagram Protocol
UPS	Uninterruptible Power Supply
URL	Uniform Resource Locator
UR	Universal Reference, granule UR
UTC	Universal Time Coordinated/Universal Time Code
UTM	Universal Transverse Mercator
V0	Version 0, Refers to the Archive System and Protocols used in the predecessor to the ECS
VPN	Virtual Private Network
VS	versus (abbr)
W*S	refers to any member of the family of Open Geospatial Consortium (OGC) web services: WCS, WMS, WFS, WPS
WAN	Wide Area Network
WCS	Web Coverage Service
WGS84	World Geodetic System 1984
WKBCHCI	Workbench Configuration Item
WKSHW	Working Storage Hardware Configuration Item
WMS	Web Map Service
WRS	Worldwide Reference System, used by Landsat
WSDL	Web Service Definition Language
WU-FTP	Washington University File Transfer Protocol program
WWW	World Wide Web
XFR	Transfer (abbr)
XML	Extensible Markup Language
XSD	XML Schema Definition
XVU	XML Validation Utility