

## 5. System Thread/Build Plan (Release B)

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The thread/build plan created to support the AM-1, Landsat-7, COLOR, METEOR 3, ALTRADAR, ACRIMSAT and ADEOS II release was formulated using information in the Release Plan Content Description (222-TP-003-005).

Release B will support 8 DAACs plus SEDAC: MSFC, LaRC, GSFC, ASF, JPL, EDC NSIDC, and ORNL.

The System/Segments Integration and Test Plan will focus on testing data handling functions, processing support, and network communications. Landsat-7 will support ingesting and verification of Level 0-4 data for the Landsat-7 platform, ingesting and pre-processing of ancillary data, and ingesting of other native formats, and the capability to send/receive data using various network protocols.

Other launches will be supported in release B such as AM-1 and COLOR. Driven by the launch date, ECS capabilities must be operational in order for the Flight Operations Segment (FOS) to support ground system testing of the EOS AM-1 and COLOR platforms.

The following capabilities must be operational for all platforms. All data handling and processing support such as all the communication, system security, network and monitoring services must be operational. Others include search services, data access, client services, data server management functions and product generation functions.

The following missions will also be tested in release B for data handling and processing support functions:

- METEOR-3
- ADEOS II
- ALT RADAR
- ACRIMSAT

The following functions are some of the new major functions in release B that will be tested in this thread plan.

- Two way Interoperability with NOAA; added interoperability with CIESIN/SEDAC; Increased access capability to GCMD and GCDIS.
- More robust multi-DAAC planning and scheduling, including support for inter-DAAC resource conflict resolution via access to common planning data; support to Targets of Opportunity (TOOs).
- Greatly increased (by at least an order of magnitude) maximal network data rates, data processing and required data product storage, especially for AM-1 mission support.

- Predictive Staging of Processing Inputs ensures PGE input data is staged to processing disk prior to the start of execution of the PGE by performing "look ahead" analysis
- Replacement of V0 client capability with Version 1 ECS client.
- System & Network Management to include additional security features and DAACs interfaces (especially the ASTER GDS and ASF support.
- SMC capabilities for the security management, fault management and performance management are automated.
- Completion (by end of Release B operations) of data migration from V0; increased capability to translate data to HDF and other standard formats.
- Increased automated data accounting and handling of Data Availability Notices (DANs) from EDOS and from the ASTER GDS.
- Enhanced Local Information Manager (LIM) capabilities and implementation of Distributed Information Manager (DIM) capabilities; enhanced management reporting capabilities. Common data management database that will be replicated to all DAACs. A federated view of all the schemas is provided (with the core metadata integrated and product specific metadata federated) to all data servers, LIMs, and DIMs.
- More complex data searches, including multiple dataset coincident search capability. Enhanced processing on demand versus simply storage and retrieval from archive.
- Robotics control of file servers; enhanced attached storage capability; APIs for scientists to gain access to data storage and retrieval services. Enhanced metadata capabilities - expandable metadata attributes and geographic metadata search, including World Reference System parameter.
- Continued full TRMM support.
- Robotics control of file servers
- Mode Management

Some of the other capabilities that will be tested are generation handling and tracking of DARs for ASTER, Interoperability with ASTER IMS, enhanced DCE object services, accounts payable/receivable management, credit tracking, price estimation for data, invoicing and billing functions.

Other ECS functions will include: conditional product generation activation based upon metadata analysis, data size reduction before distribution to the client via subsetting and subsampling, subscriptions for distribution and processing, support of multiple/different FSMS and On-Demand production. Application programming interfaces (APIs) will be supported for update, query, and data base administration utilities. Storage system resource management, tracking of specific data granules, and automated authentication for data distribution will be enhanced.

Each segment (CSMS, and SDPS) is responsible for providing the software to support the AM-1, Landsat-7, COLOR, SAGE III, and ADEOS II.

CSMS is responsible for providing the software to support basic system and network communications support (both locally and remotely), network and system security, system monitoring (to include the capability to locate, isolate, correct fault conditions), configuration management, and history logging/reporting of system activities.

SDPS is responsible for providing the software to support to the end-to-end system processing and distribution of data. This includes the capability to ingest data, write it to a staging area, validate the data, perform pre-processing (if required), perform reformatting or data conversion (if required), process the data and archive the data. Advertising of data written to the archive to the LIM and DIM level is supported in the release B. A methodology for user/clients to generate queries, distribution requests, and perform searches as well as the ability to provide interim status updates to users/clients for pending user/client requests is required.

Each segment is responsible for providing any tools required to support data comparison, data manipulation, and statistical analysis.

System/Segments Integration and test will verify the functionality/capability of the software developed by each segment using a thread/build methodology. Elements will be tested independently as a thread with stubs being provided for interfaces/functionality not yet provided. Testing will demonstrate that each element turned over to System/Segments Integration and test meets Level 3 requirements specifications. Completed threads will be integrated into a "build" test at the system level. See Figure 5-1 Thread/Build Plan Diagram. Integration testing of a build will verify that all components function properly when integrated together, that no functionality has been lost as a result of the integration, and test new capabilities as a result of the integration effort. Interface testing will verify the handshaking between each element.

The full up system test will verify the ability to perform concurrent system activities to include: user/client logon, registration, data searches, queries, distribution requests, status requests, ingesting of data, on-going system processing, recovery from fault conditions under normal system operations, and schedule ad justifications.

Recombinant testing will verify the release A/B cross requirements. For example, if a single requirement crosses multiple releases, testing must be performed to verify a subsequent release.

### Release B System Build Plan

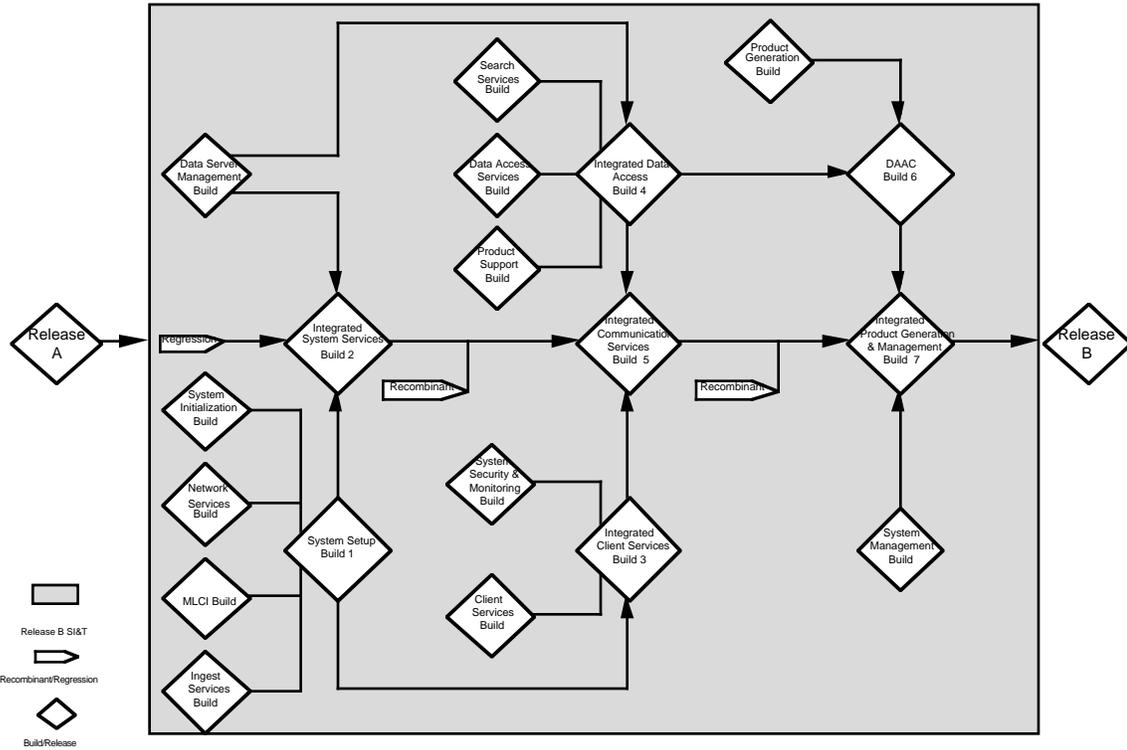


Figure 5-1. Thread/Build Plan (1 of 6)

### System Setup Build 1 Test Diagram

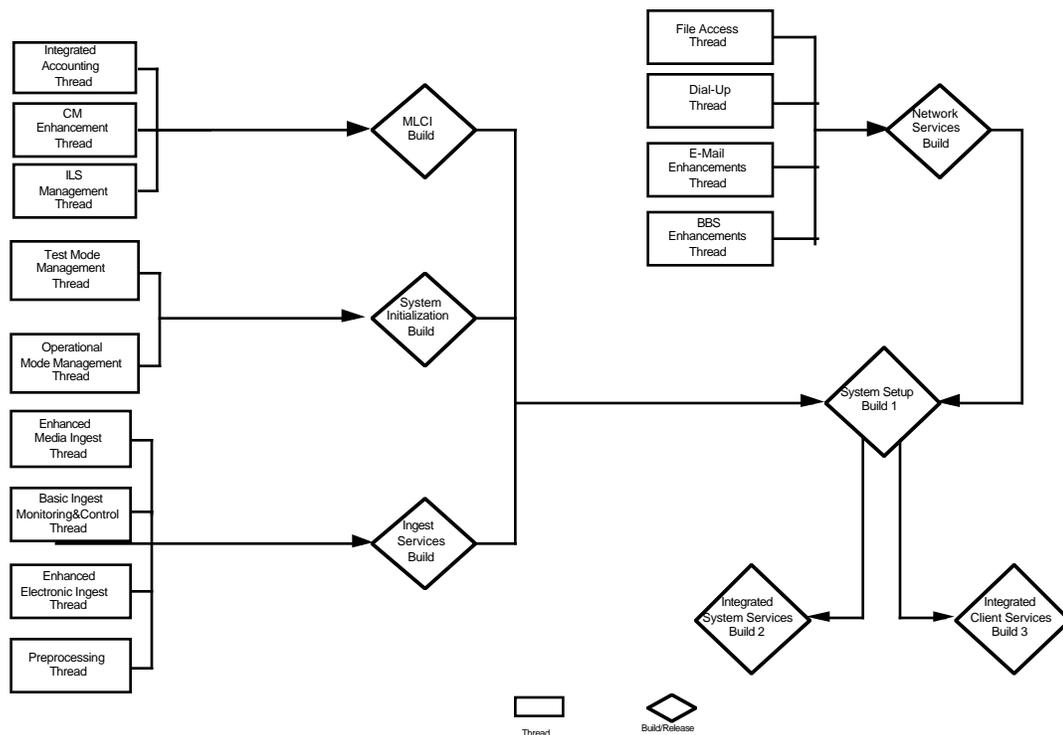
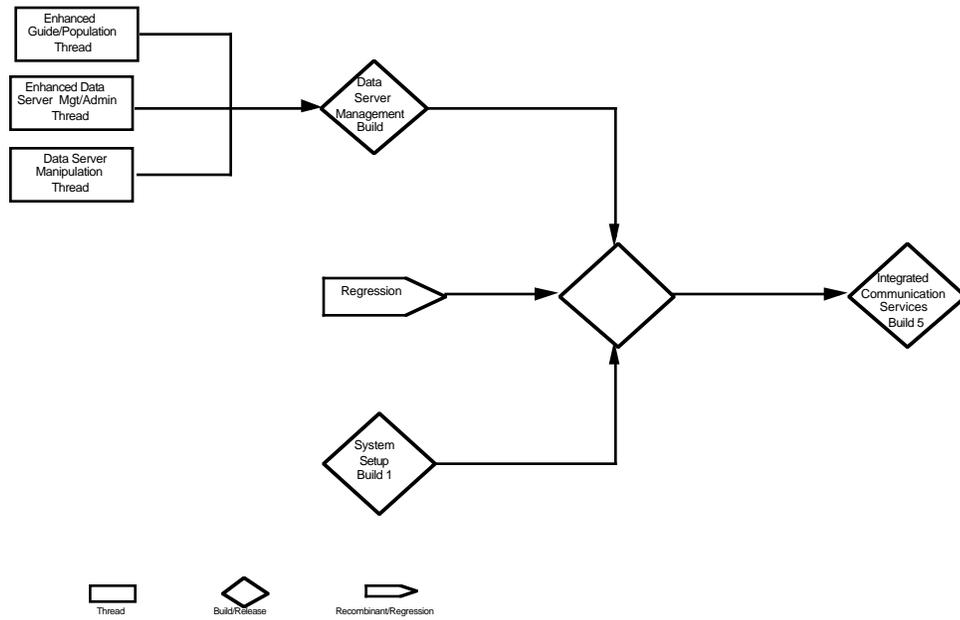
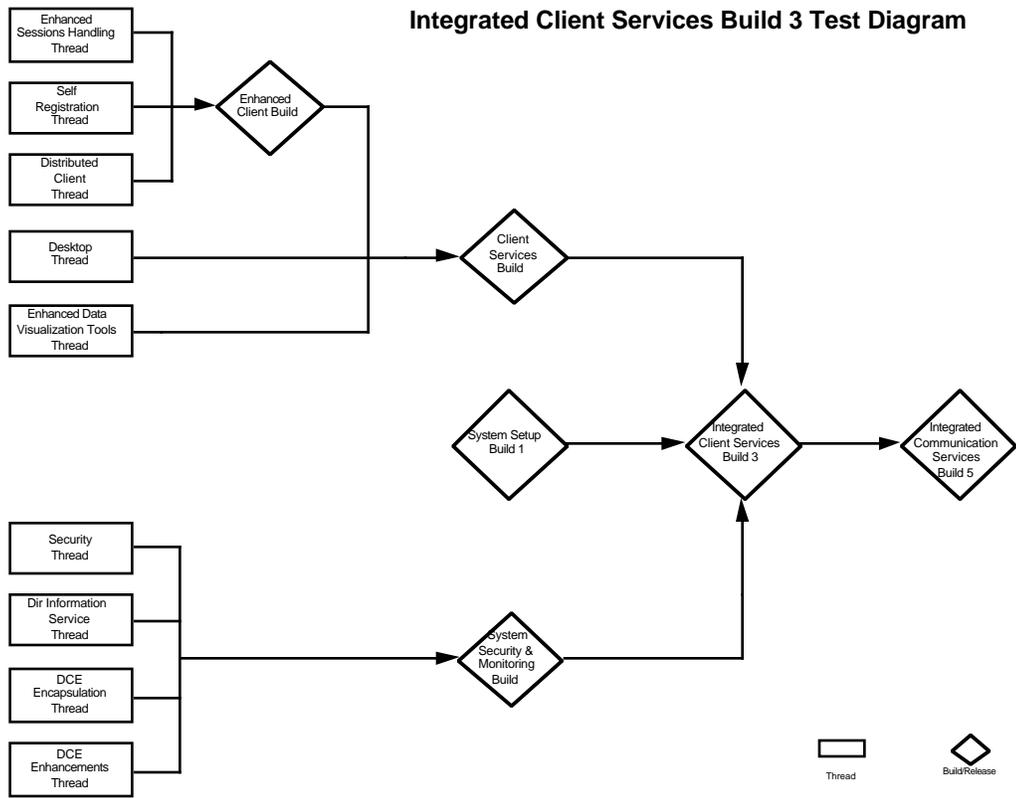


Figure 5-1. Thread/Build Plan (2 of 6)

## Integrated System Services Build 2 Test Diagram

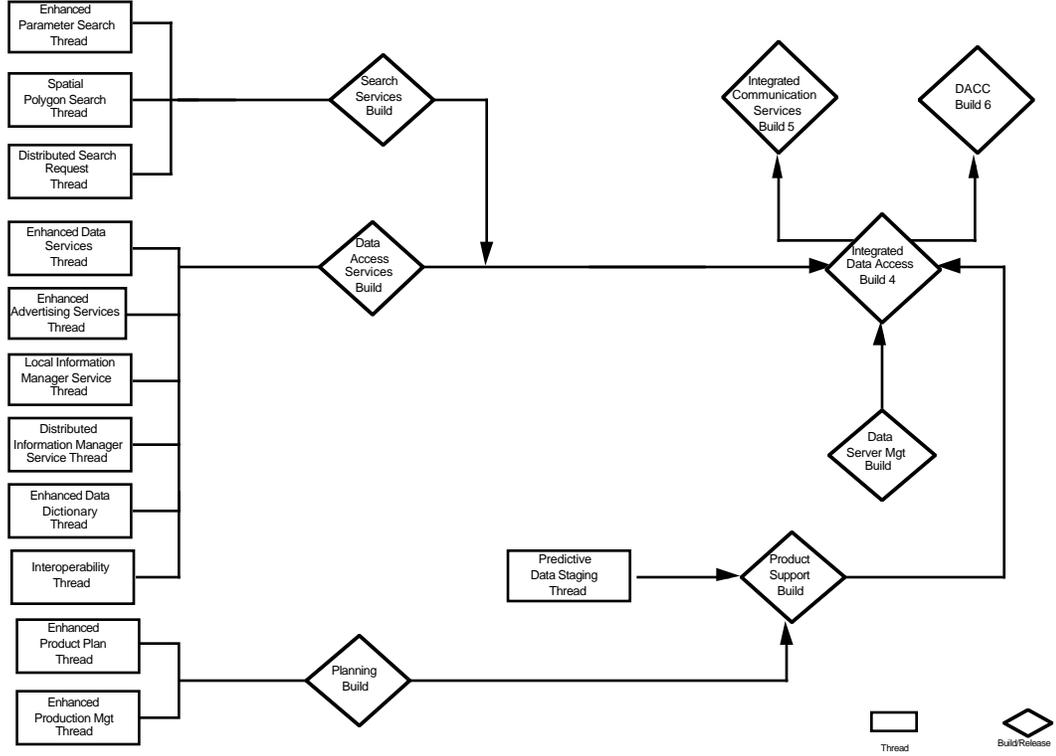


**Figure 5-1. Thread/Build Plan (3 of 6)**

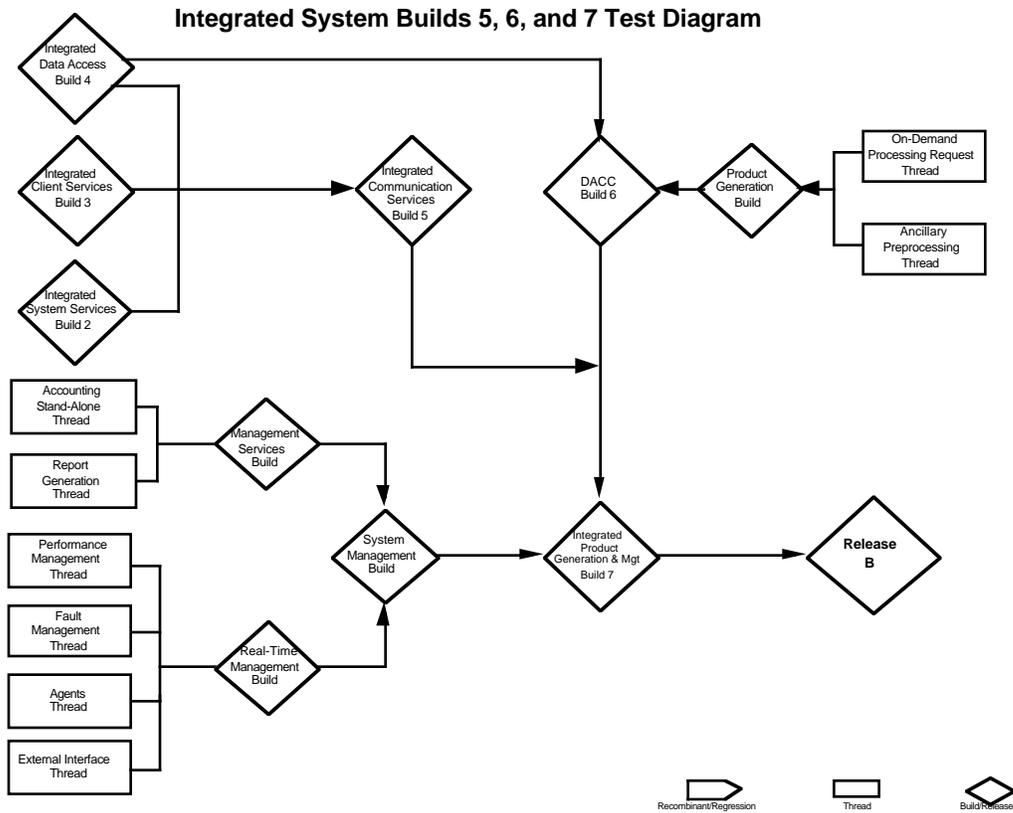


**Figure 5-1. Thread/Build Plan (4 of 6)**

### Integrated Data Access Build 4 Test Diagram



**Figure 5-1. Thread/Build Plan (5 of 6)**



**Figure 5-1. Thread/Build Plan (6 of 6)**

## 5.1 Integrated Accounting Thread

### 5.1.1 Thread Objectives

The objectives of the CSMS Integrated Accounting Thread are:

- Provide the ability to maintain accounting/accountability of system resources in support of logistics.

### 5.1.2 Thread Test Description

Testing verifies the ability to perform accounting in support of spare parts and consumable items inventories. Testing will verify that accounting information can be maintained for the spare parts and consumable items inventories. The ability of the system to track orders, suppliers, costs and the inventories for spare parts, and consumable items will be demonstrated.

## **Dependencies: (If Applicable)**

To verify the objectives of the Integrated Accounting Thread, the following interface and functional capabilities are required:

- Network environment (LAN and WAN)
- Established user accounts

### **Test Support Requirements**

- Hardware:
  - TBD
- Software:
- Data:

#### **5.1.2.1 Sequence 1 - User Profiles**

This sequence tests the Release B user profile functionality of the MSS Accountability Management Service.

##### **Test Case 1                      Modify And Delete User Profile Records (T200-1.01.01)**

This test verifies the ability of the Accountability Management Service to Allow M&O Staff to modify and delete user profile records.

Test Configuration:    Hardware - workstations

Software - MSS Accountability Management Service

Input:                      The tester will attempt to modify a user profile record, and then try to delete a user profile record.

Output:                     Messages indicating that the modifications were made to the one user profile record, and that the other was deleted.

Expected Results:        Modifications were made to the one user profile record, and that the other was deleted.

#### **5.1.2.2 Sequence 2 - System Profiles**

This sequence tests the Release B system profile functionality of the MSS Accountability Management Service.

##### **Test Case 1                      Maintain A System Profile Inventory Database (T200-1.02.01)**

This test verifies the ability of the Accountability Management Service to Maintain a system profile inventory database of system software and non product data.

Test Configuration:    Hardware - workstations

Software - MSS Accountability Management Service

Input: The tester will attempt to access and query the system profile inventory database of system software and non product data.

Output: The results of the access and queries.

Expected Results: The results of the queries contain information on system software and non product data as maintained by the system profile inventory database.

**Test Case 2**      **System Profile Inventory Database - Store Information (T200-1.02.02)**

This test verifies the ability of the Accountability Management Service system profile inventory database to store the following information for each inventory entry: Data ID, Data purpose, Data location, Data classification (proprietary, open, confidential, etc.) and Data priority.

Test Configuration: Hardware - workstations

Software - MSS Accountability Management Service

Input: The tester will review the schema for the system profile inventory database.

Output: Schema of the system profile inventory database.

Expected Results: The system profile inventory database schema supports the storage of the following information for each inventory entry: Data ID, Data purpose, Data location, Data classification (proprietary, open, confidential, etc.) and Data priority.

**Test Case 3**      **Receive New System Profile Inventory Records (T200-1.02.03)**

This test verifies the ability of the Accountability Management Service to receive new system profile inventory records entered by M&O Staff.

Test Configuration: Hardware - workstations

Software - MSS Accountability Management Service

Input: The tester, acting as a member of the M&O staff, will attempt to enter new system profile inventory records.

Output: Messages indicating that the Accountability Management Service received the new system profile inventory records.

Expected Results: The new system profile inventory records, entered by the tester, are received by the Accountability Management Service.



## Test Support Requirements

- Hardware:  
–
- Software:  
–
- Data:  
–

### 5.2.2.1 Sequence 1 - Software Distribution

The Testing will verify the Configuration Management Application Service's ability to provide the software distribution functions required within the ECS.

#### **Test Case 1                      Maintain Version Controlled Repositories for Toolkit Software (T200-2.01.01)**

This test verifies the ability of the Configuration Management Application Service to maintain version controlled repositories for toolkit software, software upgrades, and documentation.

Test Configuration:    Hardware - workstations

Software - MSS Configuration Management Application Service

Input:                      The tester attempts to access the version controlled repositories for toolkit software, software upgrades, and documentation.

Output:                    Messages indicating that the version controlled repositories for toolkit software, software upgrades, and documentation are accessed.

Expected Results:      The version controlled repositories for toolkit software, software upgrades, and documentation are accessed by the tester.

#### **Test Case 2                      Retrieve the Contents for Each Repository (T200-2.01.02)**

This test verifies the ability of the Configuration Management Application Service to retrieve the contents for each repository from the MSS Baseline Manager Service.

Test Configuration:    Hardware - workstations

Software - MSS Configuration Management Application Service,  
MSS Baseline Manager Service

Input:                      The tester attempts to retrieve the contents for each repository from the MSS Baseline Manager Service.

Output: Messages indicating that the contents for each repository from the MSS Baseline Manager Service are retrieved.

Expected Results: The contents for each repository from the MSS Baseline Manager Service are retrieved by the tester.

**Test Case 3**      **CSS Bulletin Board Access to the Toolkit Repository/Information (T200-2.01.03)**

This test verifies the ability of the Configuration Management Application Service to provide via the CSS Bulletin Board Service access to the toolkit repository/information.

Test Configuration:    Hardware - workstations  
Software - MSS Configuration Management Application Service, CSS Bulletin Board Service

Input: The tester via the CSS Bulletin Board Service attempts to access the toolkit repository/information.

Output: Messages indicating that the toolkit repository/information is accessed.

Expected Results: The toolkit repository/information is accessed by the tester via the CSS Bulletin Board Service.

**Test Case 4**      **Package Software, Databases, and Documentation for Delivery to Destinations (T200-2.01.04)**

This test verifies the ability of the Configuration Management Application Service to package software, databases, and documentation for delivery to destinations at both ECS and ECS-connected sites.

Test Configuration:    Hardware - workstations  
Software - MSS Configuration Management Application Service

Input: The tester simulating a software delivery, attempts to package software, databases, and documentation for delivery to destinations at both ECS and ECS-connected sites.

Output: Messages indicating that the software, databases, and documentation for delivery to the destinations are packaged.

Expected Results: The software, databases, and documentation for delivery to the destinations are packaged for both ECS and ECS-connected sites.



Test Configuration: Hardware - workstations  
Software - MSS Configuration Management Application Service

Input: The tester simulating a software delivery, attempts to push a software package from a central distribution point/depot to a remote target platform.

Output: Messages indicating that a software package is pushed.

Expected Results: The a software package is pushed from a central distribution point/depot to a remote target platform.

**Test Case 8**      **Pull Distribution Packages from Central Distribution Points (T200-2.01.08)**

This test verifies the ability of the Configuration Management Application Service to at the site pull distribution packages from central distribution points/depots onto individual target destinations.

Test Configuration: Hardware - workstations  
Software - MSS Configuration Management Application Service

Input: The tester simulating a software delivery, attempts to pull a software package from a central distribution point/depot onto a remote target platform.

Output: Messages indicating that a software package is pulled.

Expected Results: The software package is pulled from a central distribution point/depot onto a remote target platform.

**Test Case 9**      **Initiate Electronic Transfer of Distribution Packages Automatically or by Direct Command (T200-2.01.09)**

This test verifies the ability of the Configuration Management Application Service to initiate electronic transfer of distribution packages either automatically according to schedule or upon direct command.

Test Configuration: Hardware - workstations  
Software - MSS Configuration Management Application Service

Input: The tester simulating a software delivery, attempts to initiate electronic transfer of distribution packages both automatically according to schedule and upon direct command.

Output: Messages indicating that the transfer of distribution packages is initiated for both the automatic and direct command.

Expected Results: The transfer of distribution packages is initiated automatically according to schedule and upon direct command.

**Test Case 10                    Maintain a Record of Successful Package Transfers**  
**(T200-2.01.10)**

This test verifies the ability of the Configuration Management Application Service to maintain a record of successful package transfers as well as of each target that fails to receive a package intended for it.

Test Configuration: Hardware - workstations

Software - MSS Configuration Management Application Service

Input: The tester will attempt to successfully transfer a software package to a target, and then attempt another transfer, but induces a failure of the transfer.

Output: Messages are recorded for both the successful and the unsuccessful package transfers.

Expected Results: The messages are recorded for both the successful and the unsuccessful package transfers in the log file.

### **5.2.2.2 Sequence 2 - License Management**

The Testing will verify the Configuration Management Application Service's ability to provide the software license management functions required within the ECS.

**Test Case 1                    Maintain Information on Product Licensing (T200-2.02.01)**

This test verifies the ability of the Configuration Management Application Service to maintain information on product identification, licensing provisions, numbers and types of users.

Test Configuration: Hardware - workstations

Software - MSS Configuration Management Application Service

Input: The tester will attempt to access the product identification, licensing provisions, numbers and types of users information maintained by the Configuration Management Application Service.

Output: Results of the access of the product identification, licensing provisions, numbers and types of users information.

Expected Results: The product identification, licensing provisions, numbers and types of users information was accessed by the tester.

**Test Case 2**                    **Distribute Software License Provisions System-Wide**  
**(T200-2.02.02)**

This test verifies the ability of the Configuration Management Application Service to distribute software license provisions system-wide.

Test Configuration:    Hardware - workstations

Software - MSS Configuration Management Application Service

Input:                    The tester, using a workstation set up as a DAAC, attempts to obtain software license provisions from the Configuration Management Application Service.

Output:                  The software license provisions are displayed.

Expected Results:    The software license provisions are displayed to the tester.

**Test Case 3**                    **Create, Install, Modify, and Reinstall Software Licenses on**  
**ECS Servers (T200-2.02.03)**

This test verifies the ability of the Configuration Management Application Service to create, install, modify, and reinstall software licenses on ECS servers.

Test Configuration:    Hardware - workstations

Software - MSS Configuration Management Application Service

Input:                    The tester via the Configuration Management Application Service attempts to create, install, modify, and reinstall a software license on an ECS server.

Output:                  Messages indicating the creation, installation, modification, and the reinstallation of software license on the ECS server.

Expected Results:    The software license is created, installed, modified and reinstalled on an ECS server by the tester.

**Test Case 4**                    **Meter Use of Software Licenses, (T200-2.02.04)**

This test verifies the ability of the Configuration Management Application Service to meter use of software licenses.

Test Configuration:    Hardware - workstations

Software - MSS Configuration Management Application Service

Input:                    The tester will attempt to determine from the Configuration Management Application Service a quantitative measure of the use of software licenses.

Output:                  The metered usage of software licenses statistics are displayed.

Expected Results: A quantitative measure of the use of software licenses can be determined from the Configuration Management Application Service.

**Test Case 5**      **Notify the M&O Staff when License Metering Events Occur (T200-2.02.05)**

This test verifies the ability of the Configuration Management Application Service to notify the M&O staff when license metering events occur.

Test Configuration: Hardware - workstations  
Software - MSS Configuration Management Application Service

Input: The tester will attempt a license metering event.

Output: Notification message sent to the M&O staff for the license metering event.

Expected Results: The Configuration Management Application Service notifies the M&O staff of the license metering event.

**Test Case 6**      **Log License Management Events (T200-2.02.06)**

This test verifies the ability of the Configuration Management Application Service to log license management events.

Test Configuration: Hardware - workstations  
Software - MSS Configuration Management Application Service

Input: The tester will invoke a license management event.

Output: Log message sent to the M&O staff for the license management event.

Expected Results: The Configuration Management Application Service logs the message sent to the M&O staff for the license management event.

**Test Case 7**      **Compile License Utilization Statistics (T200-2.02.07)**

This test verifies the ability of the Configuration Management Application Service to compile license utilization statistics.

Test Configuration: Hardware - workstations  
Software - MSS Configuration Management Application Service

Input: The tester via the Configuration Management Application Service attempts to compile license utilization statistics.

Output: Compiled license utilization statistics areOutput.

Expected Results: The tester can successfully compile license utilization statistics using the Configuration Management Application Service.

**Test Case 8 Report License Utilization Statistics (T200-2.02.08)**

This test verifies the ability of the Configuration Management Application Service to report license utilization statistics.

Test Configuration: Hardware - workstations

Software - MSS Configuration Management Application Service

Input: The tester via the Configuration Management Application Service attempts to generate a report of license utilization statistics.

Output: Report of license utilization statistics areOutput.

Expected Results: The tester can successfully generate the report of license utilization statistics using the Configuration Management Application Service.

## **5.3 ILS Management Thread**

### **5.3.1 Thread Objectives**

The objectives of the ILS Management Thread are:

- Provide the ability to manage the inventories of spares and consumables

### **5.3.2 Thread Test Description**

Testing will demonstrate verification that spare parts and consumable item inventories can be monitored and replenished both system-wide and at the site level. The ability for M&O to track the management of consumable items to identify potential problem orders, and to coordinate/consolidate orders for greater efficiency and lower cost will be demonstrated.

#### **Dependencies: (If Applicable)**

To verify the objectives of the ILS Management Thread, the following interface and functional capabilities are required:

- Network environment (LAN and WAN)

#### **Test Support Requirements**

- Hardware:
- Software:
- Data:



**Output:** A report showing entries in the spare parts inventory at the site is displayed to the operator. A report showing the appropriate entry in the spare parts inventory is displayed to the operator.

**Expected Results:** An entry in the spare parts inventory is updated by the operator. The entry in the spare parts inventory information is updated by the operator including the description, quantity on hand, prescribed stock level, and operational status of the spare part. The entry in the spare parts inventory information will match the information as entered by the operator, and any fields not entered by the operator will retain their original values.

**Test Case 3      Deleting an Entry in the Spare Parts Inventory at a Site (T200-3.01.03)**

Testing will demonstrate that entries in the spare parts inventory can be deleted at the site level.

**Test Configuration:** Hardware - workstations  
Software - ILS Management

**Input:** The operator will run a report showing entries in the spare parts inventory at the site, and will select an entry in the spare parts inventory to be deleted. After the entry in the spare parts inventory is deleted, the operator will generate a report showing the appropriate entry in the spare parts inventory.

**Output:** A report showing entries in the spare parts inventory at the site is displayed to the operator. A report showing the appropriate entry in the spare parts inventory is displayed to the operator.

**Expected Results:** An entry in the spare parts inventory is deleted by the operator. The appropriate entry in the spare parts inventory is deleted.

**Test Case 4      Access Spare Parts Inventory at a Site (T200-3.01.04)**

Testing will demonstrate access to spare parts inventory information at the site level. The accessed information will include a description, quantity on hand, prescribed stock level, and operational status for a given spare part.

**Test Configuration:** Hardware - workstations  
Software - ILS Management

**Input:** The operator will select a spare part to access its inventory information.

**Output:** The description, quantity on hand, prescribed stock level, and operational status for the selected spare part at the site is displayed to the operator.

Expected Results: The site spare parts inventory is accessed to obtain the description, quantity on hand, prescribed stock level, and operational status for the selected spare part.

**Test Case 5 Custom Query of Spare Parts Inventory at a Site (T200-3.01.05)**

Testing will demonstrate the operator's ability to generate reports using operator entered criteria on the spare parts inventory information at the site level. The accessed information will include a description, quantity on hand, prescribed stock level, and operational status for a given spare part.

Test Configuration: Hardware - workstations  
Software - ILS Management

Input: The operator will enter a query using the TBD interface to create a query for spare parts to access the spare parts inventory information.

Output: The appropriate spare parts inventory information is returned and displayed to the operator according to the operator entered criteria.

Expected Results: The site spare parts inventory is accessed to obtain the appropriate spare parts inventory information according to the operator entered criteria.

**Test Case 6 Access Site Spare Parts Inventory at the SMC (T200-3.01.06)**

Testing will demonstrate the capability to access specified site's spare parts inventory information. The accessed information will include a description, quantity on hand, prescribed stock level, and operational status for a given spare part.

Test Configuration: Hardware - workstations  
Software - ILS Management

Input: A site is specified by the operator, and a spare part is selected to access it's inventory information for that site.

Output: The description, quantity on hand, prescribed stock level, and operational status for the selected spare part at the specified site is displayed to the operator.

Expected Results: The specified site's spare parts inventory is accessed to obtain the description, quantity on hand, prescribed stock level, and operational status for the selected spare part.



will generate a report showing the appropriate entry in the consumable items inventory.

**Output:** A report showing entries in the consumable items inventory at the site is displayed to the operator. A report showing the appropriate entry in the consumable items inventory is displayed to the operator.

**Expected Results:** An entry in the consumable items inventory is updated by the operator. The entry in the consumable items inventory information is updated by the operator including the description, quantity on hand, prescribed stock level, quantity on order, and quantity issued of the consumable item. The entry in the consumable items inventory information will match the information as entered by the operator, and any fields not entered by the operator will retain their original values.

**Test Case 3      Deleting an Entry in the Consumable Items Inventory at a Site (T200-3.02.03)**

Testing will demonstrate that entries in the consumable items inventory can be deleted at the site.

**Test Configuration:** Hardware - workstations  
Software - ILS Management

**Input:** The operator will run a report showing entries in the consumable items inventory at the site, and will select an entry in the consumable items inventory to be deleted. After the entry in the consumable items inventory is deleted, the operator will generate a report showing the appropriate entry in the consumable items inventory.

**Output:** A report showing entries in the consumable items inventory at the site is displayed to the operator. A report showing the appropriate entry in the consumable items inventory is displayed to the operator.

**Expected Results:** An entry in the consumable items inventory is deleted by the operator. The appropriate entry in the consumable items inventory is deleted.

**Test Case 4      Access Consumable Items Inventory at a Site (T200-3.02.04)**

Testing will demonstrate the capability to access site consumable items inventory information. The accessed information will include a description, quantity on hand, prescribed stock level, quantity on order, and quantity issued for a given consumable item.

Test Configuration: Hardware - workstations  
Software - ILS Management

Input: A consumable item is selected by the operator to access its inventory information.

Output: The description, quantity on hand, prescribed stock level, quantity on order, and quantity issued for the selected consumable item at the specified site is displayed to the operator.

Expected Results: The site consumable items inventory is accessed to obtain the description, quantity on hand, prescribed stock level, quantity on order, and quantity issued for the selected consumable item.

**Test Case 5**      **Access Site Consumable Items Inventory at the SMC**  
**(T200-3.02.05)**

Testing will demonstrate the capability to access specified site's consumable items inventory information. The accessed information will include a description, quantity on hand, prescribed stock level, quantity on order, and quantity issued for a given consumable item.

Test Configuration: Hardware - workstations  
Software - ILS Management

Input: A site is specified by the operator, and a consumable item is selected to access its inventory information for that site.

Output: The description, quantity on hand, prescribed stock level, quantity on order, and quantity issued for the selected consumable item at the specified site is displayed to the operator.

Expected Results: The specified site's consumable items inventory is accessed to obtain the description, quantity on hand, prescribed stock level, quantity on order, and quantity issued for the selected consumable item.

**5.3.2.3 Sequence 3 - Access Spare Parts Inventory for Order Information**

Testing will demonstrate that low levels of spare parts can be identified, and orders to replenish the spare parts will be generated, and the order information can be accessed both at the site level and system-wide.

**Test Case 1**      **Generating an Order for Spare Parts Inventory at a Site**  
**(T200-3.03.01)**

Testing will demonstrate that low levels of spare parts can be identified, and orders to replenish the spare parts will be generated at the site.

Test Configuration: Hardware - workstations

Software - ILS Management

Input: The operator will run a report and will select a highlighted item whose on-hand quantity has reached the reorder point to generate an order. Values for the description, quantity on hand, prescribed stock level, quantity on order, date ordered, name of supplier, location of supplier, point of contact of supplier, order status, estimated delivery date, and actual delivery date is entered by the operator or defaulted by the system. After the order is generated, the operator will generate a report showing the order information for the appropriate order.

Output: A report with at least one highlighted item whose on-hand quantity has reached the reorder point is displayed to the operator. A report showing the order information for the appropriate order is displayed to the operator.

Expected Results: An order is generated for an item whose on-hand quantity has reached the reorder point. The order information is entered by the operator or defaulted by the system including the description, quantity on hand, prescribed stock level, quantity on order, date ordered, name of supplier, location of supplier, point of contact of supplier, order status, estimated delivery date, and actual delivery date of the spare part. The order information will match the information as entered by the operator, and any fields not entered by the operator contain default system values.

**Test Case 2**      **Updating an Order for Spare Parts Inventory at a Site**  
**(T200-3.03.02)**

Testing will demonstrate that orders to replenish the spare parts can be updated at the site.

Test Configuration: Hardware - workstations

Software - ILS Management

Input: The operator will run a report showing orders at the site, and will select an order to be updated. Values for the description, quantity on hand, prescribed stock level, quantity on order, date ordered, name of supplier, location of supplier, point of contact of supplier, order status, estimated delivery date, and actual delivery date is changed by the operator. After the order is updated, the operator will generate a report showing the order information for the appropriate order.

**Output:** A report showing orders at the site is displayed to the operator. A report showing the order information for the appropriate order is displayed to the operator.

**Expected Results:** An order is updated by the operator. The order information is updated by the operator including the description, quantity on hand, prescribed stock level, quantity on order, date ordered, name of supplier, location of supplier, point of contact of supplier, order status, estimated delivery date, and actual delivery date of the spare part. The order information will match the information as entered by the operator, and any fields not entered by the operator will retain their original values.

**Test Case 3                    Canceling an Order for Spare Parts Inventory at a Site**  
**(T200-3.03.03)**

Testing will demonstrate that orders to replenish the spare parts can be canceled at the site.

**Test Configuration:** Hardware - workstations  
Software - ILS Management

**Input:** The operator will run a report showing orders at the site, and will select an order to be canceled. After the order is canceled, the operator will generate a report showing the order information for the appropriate order.

**Output:** A report showing orders at the site is displayed to the operator. A report showing the order information for the appropriate order is displayed to the operator.

**Expected Results:** An order is canceled by the operator. The appropriate order is canceled.

**Test Case 4                    Access Spare Parts Order Information at a Local Site**  
**(T200-3.03.04)**

Testing will demonstrate the capability to access a local site's spare parts inventory for order information. The accessed information will include a description, quantity on hand, prescribed stock level, quantity on order, date ordered, name of supplier, location of supplier, point of contact of supplier, order status, estimated delivery date, and actual delivery date for a given spare part.

**Test Configuration:** Hardware - workstations  
Software - ILS Management

**Input:** The operator will select a spare part to access it's order information for that site.

**Output:** The description, quantity on hand, prescribed stock level, quantity on order, date ordered, name of supplier, location of supplier, point of contact of supplier, order status, estimated delivery date, and actual delivery date for the selected spare part at the local site is displayed to the operator.

**Expected Results:** The local site's spare parts inventory order information is accessed to obtain the description, quantity on hand, prescribed stock level, quantity on order, date ordered, name of supplier, location of supplier, point of contact of supplier, order status, estimated delivery date, and actual delivery date of the spare part.

**Test Case 5      Access Site Spare Parts Order Information at the SMC**  
**(T200-3.03.05)**

Testing will demonstrate the capability to access specified site's spare parts inventory for order information. The accessed information will include a description, quantity on hand, quantity on order, prescribed stock level, name of supplier, location of supplier, point of contact for supplier, estimated delivery date, actual delivery date, and order status for a given spare part.

**Test Configuration:** Hardware - workstations  
Software - ILS Management

**Input:** A site is specified by the operator, and a spare part is selected to access it's order information for that site.

**Output:** The description, quantity on hand, quantity on order, prescribed stock level, name of supplier, location of supplier, point of contact for supplier, estimated delivery date, actual delivery date, and order status for the selected spare part at the specified site is displayed to the operator.

**Expected Results:** The specified site's spare parts inventory order information is accessed to obtain the description, quantity on hand, quantity on order, prescribed stock level, name of supplier, location of supplier, point of contact for supplier, estimated delivery date, actual delivery date, and order status for the selected spare part.

**5.3.2.4 Sequence 4 - Access of Consumable Items Inventory for Order Information**

Testing will demonstrate that low levels of consumable items can be identified, and orders to replenish the consumable items is generated, both at the site level and system-wide.

**Test Case 1**                    **Generating an Order for Consumable Items Inventory at a Site**  
**(T200-3.04.01)**

Testing will demonstrate that low levels of consumable items can be identified, and orders to replenish the consumable items is generated at the site.

Test Configuration:    Hardware - workstations

   Software - ILS Management

Input:                                    The operator will run a report and will select a highlighted item whose on-hand quantity has reached the established reorder point to generate an order. Values for the description, quantity on order, price, name of supplier, location of supplier, and point of contact of supplier is entered by the operator or defaulted by the system. After the order is generated, the operator will generate a report showing the order information for the appropriate order.

Output:                                    A report with at least one highlighted item whose on-hand quantity has reached the established reorder point is displayed to the operator. A report showing the order information for the appropriate order is displayed to the operator.

Expected Results:                    An order is generated for an item whose on-hand quantity has reached the reorder point. The order information is entered by the operator or defaulted by the system including the description, quantity on order, price, name of supplier, location of supplier, and point of contact of supplier of the consumable item. The order information will match the information as entered by the operator, and any fields not entered by the operator contain default system values.

**Test Case 2**                    **Updating an Order for Consumable Items Inventory at a Site**  
**(T200-3.04.02)**

Testing will demonstrate that orders to replenish the consumable items can be updated at the site.

Test Configuration:    Hardware - workstations

   Software - ILS Management

Input:                                    The operator will run a report showing orders at the site, and will select an order to be updated. Values for the description, quantity on hand, quantity on order, date ordered, name of supplier, location of supplier, point of contact of supplier, order status, and estimated delivery date for the consumable item is changed by the operator. After the order is updated, the operator will generate a report showing the order information for the appropriate order.

**Output:** A report showing orders at the site is displayed to the operator. A report showing the order information for the appropriate order is displayed to the operator.

**Expected Results:** An order is updated by the operator. The order information is updated by the operator including the description, quantity on hand, quantity on order, date ordered, name of supplier, location of supplier, point of contact of supplier, order status, and estimated delivery date for the consumable item. The order information will match the information as entered by the operator, and any fields not entered by the operator will retain their original values.

**Test Case 3      Canceling an Order for Consumable Items Inventory at a Site (T200-3.04.03)**

Testing will demonstrate that orders to replenish the consumable items can be canceled at the site.

**Test Configuration:** Hardware - workstations  
Software - ILS Management

**Input:** The operator will run a report showing orders at the site, and will select an order to be canceled. After the order is canceled, the operator will generate a report showing the order information for the appropriate order.

**Output:** A report showing orders at the site is displayed to the operator. A report showing the order information for the appropriate order is displayed to the operator.

**Expected Results:** An order is canceled by the operator. The appropriate order is canceled.

**Test Case 4      Access Consumable Items Order Information at a Local Site (T200-3.04.04)**

Testing will demonstrate the capability to access a local site's consumable items inventory for order information. The accessed information will include a description, quantity ordered, date ordered, name of supplier, location of supplier, point of contact for supplier, and estimated delivery date for a given consumable item.

**Test Configuration:** Hardware - workstations  
Software - ILS Management

**Input:** The operator will select a consumable item to access its order information for that site.

**Output:** The description, quantity ordered, date ordered, name of supplier, location of supplier, point of contact for supplier, and estimated

delivery date for the selected consumable item at the local site is displayed to the operator.

Expected Results: The local site's consumable items inventory order information is accessed to obtain the description, quantity ordered, date ordered, name of supplier, location of supplier, point of contact for supplier, and estimated delivery date of the consumable item.

**Test Case 5**      **Access Site Consumable Items Order Information at the SMC (T200-3.04.05)**

Testing will demonstrate the capability to access specified site's consumable items inventory for order information. The accessed information will include a description, quantity ordered, date ordered, name of supplier, location of supplier, point of contact for supplier, and estimated delivery date for a given consumable item.

Test Configuration: Hardware - workstations

Software - ILS Management

Input: A site is specified by the operator, and a consumable item is selected to access its order information for that site.

Output: The description, quantity ordered, date ordered, name of supplier, location of supplier, point of contact for supplier, and estimated delivery date for the selected consumable item at the specified site is displayed to the operator.

Expected Results: The specified site's consumable items inventory is accessed to obtain the description, quantity ordered, date ordered, name of supplier, location of supplier, point of contact for supplier, and estimated delivery date for the selected consumable item.

### **5.3.2.5 Sequence 5 - Resource Tracking**

Testing will demonstrate that non-expendable and consumable resources can be identified, and obsolete and excess inventories can be flagged and tracked, both at the site level and system-wide.

**Test Case 1**      **Add Non-Expendable and Consumable ECS Resources to System-Wide Catalog (T200-3.05.01)**

This test will demonstrate the capability to add non-expendable and consumable ECS resources to the SMC's on-line system-wide catalog.

Test Configuration: Hardware - workstations

Software - ILS Management

Input: An operator will select to add a non-expendable and a consumable ECS resource to the SMC's on-line system-wide catalog. After the

non-expendable and consumable ECS resources are entered into the SMC's on-line system-wide catalog, a report showing the catalog contents are generated by the operator.

Output: A report showing the contents of the SMC's on-line system-wide catalog is generated.

Expected Results: The non-expendable and consumable ECS resources, that are entered by the operator, will appear on the generated report.

**Test Case 2 Delete Non-Expendable and Consumable ECS Resources from System-Wide Catalog (T200-3.05.02)**

This test will demonstrate the capability to delete non-expendable and consumable ECS resources from the SMC's on-line system-wide catalog.

Test Configuration: Hardware - workstations

Software - ILS Management

Input: An operator will select to delete a non-expendable and a consumable ECS resource from the SMC's on-line system-wide catalog. After the non-expendable and consumable ECS resources are deleted from the SMC's on-line system-wide catalog, a report showing the catalog contents are generated by the operator.

Output: A report showing the contents of the SMC's on-line system-wide catalog is generated.

Expected Results: The non-expendable and consumable ECS resources, that are deleted by the operator, will not appear on the generated report.

**Test Case 3 Modify Non-Expendable and Consumable ECS Resources in System-Wide Catalog (T200-3.05.03)**

This test will demonstrate the capability to modify entries for non-expendable and consumable ECS resources in the SMC's on-line system-wide catalog.

Test Configuration: Hardware - workstations

Software - ILS Management

Input: An operator will select to modify an entry for a non-expendable and a consumable ECS resource in the SMC's on-line system-wide catalog. After the non-expendable and consumable ECS resource entries are modified in the SMC's on-line system-wide catalog, a report showing the catalog contents is generated by the operator.

Output: A report showing the contents of the SMC's on-line system-wide catalog is generated.



**Test Case 6**                    **Display and Print Site and Multi-Site Inventory Reports**  
**(T200-3.05.06)**

This test will demonstrate the capability of the MSS Inventory/Logistics Management Application Service at the SMC to generate site and multi-site inventory reports for display and printout.

Test Configuration:    Hardware - workstations

   Software - ILS Management

Input:                                    The operator selects a single site inventory report to be displayed on the operator's workstation. The same single site inventory report is selected by the operator to be printed out. The operator will select a multi-site inventory report to be displayed on the operator's workstation. The same multi-site inventory report is selected by the operator to be printed out.

Output:                                    The single site and the multi-site inventory reports selected by the operator is generated, displayed and printed.

Expected Results:                    The appropriate inventory reports are generated, displayed and printed. The corresponding displayed and printed reports will contain the same inventory information.

**Test Case 7**                    **Consolidated, System-Wide Views of ECS Site's Inventory**  
**Data (T200-3.05.07)**

This test will demonstrate the capability of the MSS Inventory/Logistics Management Application Service to provide consolidated, system-wide views of ECS site's inventory data at the SMC.

Test Configuration:    Hardware - workstations

   Software - ILS Management

Input:                                    The operator will select to view the consolidated, system-wide ECS site's inventory.

Output:                                    The consolidated, system-wide view of the ECS site's inventory data display.

Expected Results:                    The appropriate inventory data view is displayed.

**5.3.2.6    Sequence 6 - Logistics Management Reports**

Testing will demonstrate the capability of the ECS to generate reports for spare parts and consumable items both at the site level and system-wide.

**Test Case 1**                    **Report on Site Spare Parts Inventory at the SMC**  
**(T200-3.06.01)**

Testing will demonstrate the capability to generate reports on a specified site's spare parts inventory. The reported information will include a description, quantity on hand, prescribed stock level, and operational status for a given spare part.

Test Configuration:    Hardware - workstations

   Software - ILS Management

Input:                                    A site is specified by the operator, and a spare part is selected to report it's inventory information for that site.

Output:                                   A report showing the description, quantity on hand, prescribed stock level, and operational status for the selected spare part at the specified site is generated.

Expected Results:                    The specified site's spare parts inventory is accessed to generate a report showing the description, quantity on hand, prescribed stock level, and operational status for the selected spare part.

**Test Case 2**                    **Report Consolidated Spare Parts Inventories at the SMC**  
**(T200-3.06.02)**

Testing will demonstrate the capability to generate consolidated reports on site spare parts inventories. The reported information will include a description, quantity on hand, prescribed stock level, and operational status for a given spare part.

Test Configuration:    Hardware - workstations

   Software - ILS Management

Input:                                    A spare part is selected to report it's inventory information for all sites.

Output:                                   A report showing the description, quantity on hand, prescribed stock level, and operational status for the selected spare part at all sites is generated.

Expected Results:                    The spare parts inventories at all sites is accessed to generate a report showing the description, quantity on hand, prescribed stock level, and operational status for the selected spare part.

**Test Case 3**                    **Report Site Spare Parts Order Information at the SMC**  
**(T200-3.06.03)**

Testing will demonstrate the capability to generate reports on a specified site's spare parts inventory order information. The reported information will include a description, quantity on hand, quantity on order, prescribed stock level, name of supplier, location of supplier,

point of contact for supplier, estimated delivery date, actual delivery date, and order status for a given spare part.

Test Configuration: Hardware - workstations

Software - ILS Management

Input: A site is specified by the operator, and a spare part is selected to report on it's order information for that site.

Output: The description, quantity on hand, quantity on order, prescribed stock level, name of supplier, location of supplier, point of contact for supplier, estimated delivery date, actual delivery date, and order status for the selected spare part at the specified site is reported.

Expected Results: The specified site's spare parts inventory is accessed to generate a report containing the description, quantity on hand, quantity on order, prescribed stock level, name of supplier, location of supplier, point of contact for supplier, estimated delivery date, actual delivery date, and order status for the selected spare part.

**Test Case 4      Report Consolidated Spare Parts Order Information at the SMC (T200-3.06.04)**

Testing will demonstrate the capability to generate consolidated reports on site spare parts inventory order information. The reported information will include a description, quantity on hand, quantity on order, prescribed stock level, name of supplier, location of supplier, point of contact for supplier, estimated delivery date, actual delivery date, and order status for a given spare part.

Test Configuration: Hardware - workstations

Software - ILS Management

Input: A spare part is selected to report on it's order information for all sites.

Output: The description, quantity on hand, quantity on order, prescribed stock level, name of supplier, location of supplier, point of contact for supplier, estimated delivery date, actual delivery date, and order status for the selected spare part for all sites is reported.

Expected Results: The spare parts inventories at all sites is accessed to generate a report containing the description, quantity on hand, quantity on order, prescribed stock level, name of supplier, location of supplier, point of contact for supplier, estimated delivery date, actual delivery date, and order status for the selected spare part.

**Test Case 5**                    **Report on Site Consumable Items Inventory at the SMC**  
**(T200-3.06.05)**

Testing will demonstrate the capability to generate reports on a specified site's consumable items inventory. The reported information will include a description, quantity on hand, prescribed stock level, quantity on order, and quantity issued for a given consumable item.

Test Configuration:    Hardware - workstations

   Software - ILS Management

Input:                                    A site is specified by the operator, and a consumable item is selected to report it's inventory information for that site.

Output:                                   A report showing the description, quantity on hand, prescribed stock level, quantity on order, and quantity issued for the selected consumable item at the specified site is generated.

Expected Results:                    The specified site's consumable items inventory is accessed to generate a report showing the description, quantity on hand, prescribed stock level, quantity on order, and quantity issued for the selected consumable item.

**Test Case 6**                    **Report Consolidated Consumable Items Inventories at the**  
**SMC (T200-3.06.06)**

Testing will demonstrate the capability to generate consolidated reports on site consumable items inventories. The reported information will include a description, quantity on hand, prescribed stock level, quantity on order, and quantity issued for a given consumable item.

Test Configuration:    Hardware - workstations

   Software - ILS Management

Input:                                    A consumable item is selected to report it's inventory information for all sites.

Output:                                   A report showing the description, quantity on hand, prescribed stock level, quantity on order, and quantity issued for the selected consumable item at all sites is generated.

Expected Results:                    The consumable items inventories at all sites is accessed to generate a report showing the description, quantity on hand, prescribed stock level, quantity on order, and quantity issued for the selected consumable item.

**Test Case 7**                    **Report Site Consumable Items Order Information at the SMC (T200-3.06.07)**

Testing will demonstrate the capability to generate reports on a specified site's consumable items inventory order information. The reported information will include a description, quantity ordered, date ordered, name of supplier, location of supplier, point of contact for supplier, and estimated delivery date for a given consumable item.

Test Configuration:    Hardware - workstations

   Software - ILS Management

Input:                                    A site is specified by the operator, and a consumable item is selected to report on it's order information for that site.

Output:                                    The description, quantity ordered, date ordered, name of supplier, location of supplier, point of contact for supplier, and estimated delivery date for the selected consumable item at the specified site is reported.

Expected Results:                    The specified site's consumable items inventory is accessed to generate a report containing the description, quantity ordered, date ordered, name of supplier, location of supplier, point of contact for supplier, and estimated delivery date for the selected consumable item.

**Test Case 8**                    **Report Consolidated Consumable Items Order Information at the SMC (T200-3.06.08)**

Testing will demonstrate the capability to generate consolidated reports on site consumable items inventory order information. The reported information will include a description, quantity ordered, date ordered, name of supplier, location of supplier, point of contact for supplier, and estimated delivery date for a given consumable item.

Test Configuration:    Hardware - workstations

   Software - ILS Management

Input:                                    A consumable item is selected to report on it's order information for all sites.

Output:                                    The description, quantity ordered, date ordered, name of supplier, location of supplier, point of contact for supplier, and estimated delivery date for the selected consumable item for all sites is reported.

Expected Results:                    The consumable items inventories at all sites is accessed to generate a report containing the description, quantity ordered, date ordered, name of supplier, location of supplier, point of contact for

supplier, and estimated delivery date for the selected consumable item.

**Test Case 9**      **Export Spare Parts Information to Support Analysis**  
**(T200-3.06.09)**

Testing will demonstrate the capability to export statistical data on site spare parts inventory information to OA tools for analysis support. The extracted information will include quantities on hand, quantity used, and other statistics for spare parts.

Test Configuration:    Hardware - workstations

Software - ILS Management

Input:                    Spare part inventory information is selected for export to OA tools.

Output:                  The quantities on hand, quantity used, and other statistics for the selected spare parts are exported to file formats compatible with the OA tools.

Expected Results:      The spare parts inventory will be accessed to generate files in OA tools compatible formats containing the inventory information for the selected spare parts.

**Test Case 10**      **Export Consumable Items Information to Support Analysis**  
**(T200-3.06.10)**

Testing will demonstrate the capability to export statistical data on site consumable items inventory information to OA tools for analysis support. The extracted information will include quantity on hand, prescribed stock level, reorder point, shelf life, quantity issued, name of supplier, location of supplier, point of contact for supplier, quantity on order, date ordered, quantity received, date received, and other statistics for consumable items.

Test Configuration:    Hardware - workstations

Software - ILS Management

Input:                    Consumable item inventory information is selected for export to OA tools.

Output:                  The quantity on hand, prescribed stock level, reorder point, shelf life, quantity issued, name of supplier, location of supplier, point of contact for supplier, quantity on order, date ordered, quantity received, date received, and other statistics for the selected consumable items are exported to file formats compatible with the OA tools.

Expected Results:      The consumable items inventory is accessed to generate files in OA tools compatible formats containing the inventory information for the selected consumable items.

### 5.3.2.7 Sequence 7 - General Training

Testing will demonstrate that the training requirements, materials, resources, documentation, records, and scheduling can be maintained.

#### **Test Case 1            Input, Store, Maintain, and View/Print Training Information (T200-3.07.01)**

This test verifies the ability of the Training Management Application Service to input, store, maintain, and view/print training information.

Test Configuration:    Hardware - workstations

Software - MSS Training Management Application Service

Input:                    The tester, using the Training Management Application Service, attempts to input, store, maintain, and view/print training information.

Output:                  Messages indicating that the training information was stored. The training information was displayed and printed.

Expected Results:      The training information was displayed and printed, as it was input by the tester.

#### **Test Case 2            Input, Store, Maintain, and View/Print Training Records Information (T200-3.07.02)**

This test verifies the ability of the Training Management Application Service to input, store, maintain, and view/print training records information.

Test Configuration:    Hardware - workstations

Software - MSS Training Management Application Service

Input:                    The tester, using the Training Management Application Service, attempts to input, store, maintain, and view/print training records information.

Output:                  Messages indicating that the training records information was stored. The training records information was displayed and printed.

Expected Results:      The training records information was displayed and printed, as it was input by the tester.

#### **Test Case 3            Input, Store, Maintain, and View/Print Site Training Requirements Information (T200-3.07.03)**

This test verifies the ability of the Training Management Application Service to input, store, maintain, and view/print site training requirements information.

Test Configuration:    Hardware - workstations

Software - MSS Training Management Application Service

- Input: The tester, using the Training Management Application Service, attempts to input, store, maintain, and view/print training requirements information.
- Output: Messages indicating that the training requirements information was stored. The training requirements information was displayed and printed.
- Expected Results: The training requirements information was displayed and printed, as it was input by the tester.

**Test Case 4 Retrieve and View/Print Training Courses and Schedules Information (T200-3.07.04)**

This test verifies the ability of the Training Management Application Service to retrieve and view/print training courses and schedules information from a SMC training information repository.

Test Configuration: Hardware - workstations

Software - MSS Training Management Application Service

- Input: The tester, using the Training Management Application Service, attempts to retrieve and view/print training courses and schedules information from the SMC training information repository.
- Output: Messages indicating that training courses and schedules information was retrieved from the SMC training information repository and was viewed and printed.
- Expected Results: The training courses and schedules information viewed and printed as retrieved from the SMC training information repository.

**Test Case 5 Schedule Training Events via the MSS Planning and Scheduling Service (T200-3.07.05)**

This test verifies the ability of the Training Management Application Service to schedule training events via the MSS Planning and Scheduling Service.

Test Configuration: Hardware - workstations

Software - MSS Training Management Application Service

- Input: The tester, using the Training Management Application Service, attempts to schedule training events via the MSS Planning and Scheduling Service.
- Output: Messages confirming the scheduling of training events.
- Expected Results: The training events are scheduled as requested by the tester.

### 5.3.2.8 Sequence 8 - Training at the SMC

Testing will demonstrate that the training requirements, materials, resources, documentation, records, and schedules can be prepared, updated, stored and disseminated system-wide. Additionally, capture and make available suggestions/recommendations and course critiques.

#### **Test Case 1 Prepare, Update, Store, View/Print, and Disseminate Training Course Information (T200-3.08.01)**

This test verifies the ability of the Training Management Application Service at the SMC to prepare, update, store, view/print, and disseminate training courses descriptions, course prerequisites, resource requirements, and schedules.

Test Configuration: Hardware - workstations

Software - MSS Training Management Application Service

Input: The tester at a simulated SMC, using the Training Management Application Service, attempts to prepare, update, store, view/print, and disseminate a training course description, course prerequisites, resource requirements, and schedule.

Output: Messages indicating the preparation, update, and storage of training course description, course prerequisites, resource requirements, and schedule. The display and hard copy of training course description, course prerequisites, resource requirements, and schedule.

Expected Results: The tester successfully completes the preparation, update, and storage of training course description, course prerequisites, resource requirements, and schedule. The tester is able to produce a display and hard copy of training course description, course prerequisites, resource requirements, and schedule.

#### **Test Case 2 Prepare, Update, Store, and View/Print a List of Requirements for OJT Positions (T200-3.08.02)**

This test verifies the ability of the Training Management Application Service at the SMC to prepare, update, store, and view/print a list of self study, supervisory, and testing requirements for each of the OJT designated ECS positions.

Test Configuration: Hardware - workstations

Software - MSS Training Management Application Service

Input: The tester at a simulated SMC, using the Training Management Application Service, attempts to prepare, update, store, and view/print a list of self study, supervisory, and testing requirements for each of the OJT designated ECS positions.

Output: A list of self study, supervisory, and testing requirements for each of the OJT designated ECS positions is viewed and printed.

Expected Results: The tester successfully completes the preparation, update, and storage of a requirements list for self study, supervisory, and testing for each of the OJT designated ECS positions. The requirement listings are viewed and printed.

**Test Case 3 Prepare, Update, Store a Copy of, and View/Print Training Material (T200-3.08.03)**

This test verifies the ability of the Training Management Application Service at the SMC to prepare, update, store a copy of, and view/print training material.

Test Configuration: Hardware - workstations  
Software - MSS Training Management Application Service

Input: The tester at a simulated SMC, using the Training Management Application Service, attempts to prepare, update, store, and view/print training materials.

Output: Messages indicating the preparation, update, and storage of training materials. The display and hard copy of training materials.

Expected Results: The tester successfully completes the preparation, update, and storage of training materials. The tester is able to produce a display and hard copy of training materials.

**Test Case 4 Capture and Make Available Suggestions and Recommendations Concerning the Use of Training Material (T200-3.08.04)**

This test verifies the ability of the Training Management Application Service at the SMC to capture and make available suggestions/recommendations concerning the use of training material for applicable courses.

Test Configuration: Hardware - workstations  
Software - MSS Training Management Application Service

Input: The tester, acting as a students of a course, attempts toInput a suggestion/recommendation concerning the use of training material for the applicable course. Acting as an instructor/administrator, the tester will attempt to retrieve the suggestions/recommendations concerning the use of training material for the applicable course.

Output: The suggestions/recommendations concerning the use of training material for the applicable course are displayed.



**Test Case 2                    Produce PM and Corrective Maintenance Reports**  
**(T200-3.09.02)**

This test verifies the ability of the Maintenance Management Application Service to provide the M&O staff the capability to produce PM and corrective maintenance reports based on operator entered criteria.

Test Configuration:    Hardware - workstations

Software - MSS Maintenance Management Application Service

Input:                    The tester will attempt to produce PM and corrective maintenance reports by entering a criteria.

Output:                  The PM and corrective maintenance reports will be displayed.

Expected Results:    The PM and corrective maintenance reports will be displayed, and will contain information pertaining to the criteria entered by the tester.

**Test Case 3                    Receive Specified Site Maintenance Data at the SMC**  
**(T200-3.09.03)**

This test verifies the ability of the Maintenance Management Application Service to receive specified site maintenance data at the SMC for use in maintenance trends analysis.

Test Configuration:    Hardware - workstations

Software - MSS Maintenance Management Application Service

Input:                    The tester at a simulated SMC, using the MSS Maintenance Management Application Service, will attempt to receive specified site maintenance data for use in maintenance trends analysis.

Output:                  Statistics based on site maintenance data for use in maintenance trends analysis will be displayed.

Expected Results:    The tester will successfully receive specified site maintenance data into the simulated SMC, and view the statistics based on the site maintenance data.

**Test Case 4                    Input, Store, Maintain, and View/Print PM Information for**  
**Site Equipment (T200-3.09.04)**

This test verifies the ability of the Maintenance Management Application Service to input, store, maintain, and view/print Preventive Maintenance (PM) information for site equipment.

Test Configuration:    Hardware - workstations

Software - MSS Maintenance Management Application Service

**Input:** The tester will attempt to input, store, maintain, and view/print PM information for a unit of site equipment.

**Output:** Messages indicating the input, storage, and update of PM information for a unit of site equipment. The PM information will be viewed and printed.

**Expected Results:** The PM information entered by the tester will be input, stored and updated. The PM information will be viewed and printed.

**Test Case 5**      **Input, Store, Maintain, and View/Print Key Information Concerning PM Performed (T200-3.09.05)**

This test verifies the ability of the Maintenance Management Application Service to input, store, maintain, and view/print key information concerning PM performed.

**Test Configuration:** Hardware - workstations  
Software - MSS Maintenance Management Application Service

**Input:** The tester will attempt to input, store, maintain, and view/print Key information concerning PM performed for a unit of site equipment.

**Output:** Messages indicating the input, storage, and update of Key information concerning PM performed for a unit of site equipment. The Key information concerning PM performed will be viewed and printed.

**Expected Results:** The Key information concerning PM performed as entered by the tester will be input, stored and updated. The Key information concerning PM performed will be viewed and printed.

**Test Case 6**      **Display Information for PM and Corrective Maintenance Services Previously Performed (T200-3.09.06)**

This test verifies the ability of the Maintenance Management Application Service to retrieve and display information relevant to PM and corrective maintenance services previously performed via M&O Staff entered criteria.

**Test Configuration:** Hardware - workstations  
Software - MSS Maintenance Management Application Service

**Input:** The tester, acting as a member of the M&O staff, will attempt to retrieve and display information relevant to PM and corrective maintenance services previously performed based on an entered criteria.

**Output:** The information relevant to PM and corrective maintenance services previously performed will be displayed.

Expected Results: The information relevant to PM and corrective maintenance services previously performed will be displayed based on the tester entered criteria.

### 5.3.2.10 Sequence 10 - Corrective Maintenance

Testing will demonstrate the capability to manage the corrective maintenance functions at the sites and system-wide.

#### **Test Case 1                    View Specified Site's Corrective Maintenance Information (T200-3.10.01)**

This test verifies the ability of the Maintenance Management Application Service to view specified site's corrective maintenance information.

Test Configuration: Hardware - workstations

Software - MSS Maintenance Management Application Service

Input: The tester will attempt to view a specified site's corrective maintenance information.

Output: The specified site's corrective maintenance information will be displayed.

Expected Results: The specified site's corrective maintenance information will be displayed to the tester.

#### **Test Case 2                    Input, Store, Maintain, and View/Print Corrective Maintenance Performed (CMP) Information (T200-3.10.02)**

This test verifies the ability of the Maintenance Management Application Service to input, store, maintain, and view/print corrective maintenance performed (CMP) information.

Test Configuration: Hardware - workstations

Software - MSS Maintenance Management Application Service

Input: The tester will attempt to input, store, maintain, and view/print corrective maintenance performed for a unit of site equipment.

Output: Messages indicating the input, storage, and update of corrective maintenance performed for a unit of site equipment. The corrective maintenance performed will be viewed and printed.

Expected Results: The corrective maintenance performed as entered by the tester will be input, stored and updated. The corrective maintenance performed will be viewed and printed.

**Test Case 3**                    **Log Information for Operations Performed and Detected Errors (T200-3.10.03)**

This test verifies the ability of the Maintenance Management Application Service to log the following information for operations performed and detected errors: operation type, userid of initiator, date time stamp; and host name.

Test Configuration:    Hardware - workstations

Software - MSS Maintenance Management Application Service

Input:                    The tester will induce some errors with a host to test the logging of information for operations performed and detected errors. The tester will issue a query to retrieve the operations performed and detected errors information.

Output:                    Log messages for the operations performed and the errors detected.

Expected Results:      The messages for the operations performed and the errors detected will be logged and contain: operation type, userid of initiator, date time stamp; and host name.

**Test Case 4**                    **Generate Chronological Reports of Logged Events (T200-3.10.04)**

This test verifies the ability of the Maintenance Management Application Service to generate chronological reports of logged events associated with user selectable: time frames, operation types, userids, and hosts.

Test Configuration:    Hardware - workstations

Software - MSS Maintenance Management Application Service

Input:                    The tester, using the MSS Maintenance Management Application Service, will attempt to generate chronological reports of logged events according to user selectable criteria (time frames, operation types, userids, and hosts).

Output:                    Reports for each of the criteria: time frames, operation types, userids, and hosts.

Expected Results:      Reports for each of the criteria: time frames, operation types, userids, and hosts will be generated, and will contain all relevant logged events according to the appropriate criteria.

**Test Case 5**                    **Produce Maintenance Status Reports (T200-3.10.05)**

This test verifies the ability of the Maintenance Management Application Service to produce maintenance status reports.

Test Configuration:    Hardware - workstations

Software - MSS Maintenance Management Application Service

Input: The tester will attempt to produce maintenance status reports.  
Output: The maintenance status reports will be displayed.  
Expected Results: The maintenance status reports will be displayed, and will contain information pertaining to ongoing maintenance.

**Test Case 6**      **Schedule Maintenance Events via the MSS Planning and Scheduling Service (T200-3.10.06)**

This test verifies the ability of the Maintenance Management Application Service to schedule maintenance events via the MSS Planning and Scheduling Service.

Test Configuration: Hardware - workstations  
Software - MSS Maintenance Management Application Service, MSS Planning and Scheduling Service

Input: The tester, using the Maintenance Management Application Service, will attempt to schedule maintenance events via the MSS Planning and Scheduling Service.

Output: Messages indicating that maintenance events have been scheduled.

Expected Results: The requested maintenance events will be scheduled via the MSS Planning and Scheduling Service.

**5.3.2.11 Sequence 11 - Baseline Management**

Testing will demonstrate the capability to manage the baseline management functions at the sites and system-wide.

**Test Case 1**      **Maintain Replaced/Modified Equipment Information (T200-3.11.01)**

This test verifies the ability of the Maintenance Management Application Service to maintain replaced/modified equipment information in the MSS Baseline Manager Service database.

Test Configuration: Hardware - workstations  
Software - MSS Maintenance Management Application Service, MSS Baseline Manager Service

Input: The tester will attempt to update equipment information for replaced/modified equipment in the MSS Baseline Manager Service database.

Output: Messages indicating the changes to the baseline equipment.

Expected Results: Messages indicating the changes to the baseline equipment, and will be stored in the MSS Baseline Manager Service database.

### **5.3.2.12 Sequence 12 - Off-Site Maintenance**

Testing will demonstrate the capability to manage the off-site maintenance functions at the sites and system-wide.

#### **Test Case 1                    Maintain Sites' Off-Site Maintenance Information (T200-3.12.01)**

This test verifies the ability of the Maintenance Management Application Service to maintain a sites' off-site maintenance information.

Test Configuration: Hardware - workstations

Software - MSS Maintenance Management Application Service

Input: The tester will attempt to maintain, and view/print off-site maintenance information for a unit of site equipment.

Output: Messages indicating the update of off-site maintenance information for a unit of site equipment. The off-site maintenance information will be viewed and printed.

Expected Results: The off-site maintenance information as entered by the tester will be updated. The off-site maintenance information will be viewed and printed.

#### **Test Case 2                    Provide Off-Site Maintenance Reports (T200-3.12.02)**

This test verifies the ability of the Maintenance Management Application Service to provide off-site maintenance reports based on operator entered criteria.

Test Configuration: Hardware - workstations

Software - MSS Maintenance Management Application Service

Input: The tester will attempt to produce off-site maintenance reports.

Output: The off-site maintenance reports will be displayed.

Expected Results: The off-site maintenance reports will be provided, and will contain information pertaining to ongoing off-site maintenance.

#### **Test Case 3                    Record Off-Site Maintenance Information (T200-3.12.03)**

This test verifies the ability of the Maintenance Management Application Service to record off-site maintenance information: identification of component; description of problem; and corrective action taken.

Test Configuration: Hardware - workstations

Software - MSS Maintenance Management Application Service

- Input: The tester will attempt to record, and view/print off-site maintenance information for a unit of site equipment.
- Output: Messages indicating the recording of off-site maintenance information for a unit of site equipment. The off-site maintenance information will be viewed and printed.
- Expected Results: The off-site maintenance information as entered by the tester will be recorded. The off-site maintenance information will be viewed and printed.

**Test Case 4**      **Input Off-Site Corrective Hardware and Software Information (T200-3.12.04)**

This test verifies the ability of the Maintenance Management Application Service to input off-site corrective hardware and software information.

Test Configuration: Hardware - workstations

Software - MSS Maintenance Management Application Service

- Input: The tester will attempt to input, and view/print off-site maintenance information for a unit of site equipment.
- Output: Messages indicating the input of off-site maintenance information for a unit of site equipment. The off-site maintenance information will be viewed and printed.
- Expected Results: The off-site maintenance information as entered by the tester will be input. The off-site maintenance information will be viewed and printed.

**Test Case 5**      **Store Off-Site Corrective Hardware and Software Information (T200-3.12.05)**

This test verifies the ability of the Maintenance Management Application Service to store off-site corrective hardware and software information.

Test Configuration: Hardware - workstations

Software - MSS Maintenance Management Application Service

- Input: The tester will attempt to store, and view/print off-site corrective hardware and software information for a unit of site equipment.
- Output: Messages indicating the storage of off-site corrective hardware and software information for a unit of site equipment. The off-site corrective hardware and software information will be viewed and printed.







Expected Results: Modifications were made to the one user profile record, and that the other was deleted.

**Test Case 2      Receive New System Profile Inventory Records (B200.01.02)**

This test verifies the ability of the Accountability Management Service to receive new system profile inventory records entered by M&O Staff.

Test Configuration: Hardware - workstations

Software - MSS Accountability Management Service

Input: The tester, acting as a member of the M&O staff, will attempt to enter new system profile inventory records.

Output: Messages indicating that the Accountability Management Service to received the new system profile inventory records.

Expected Results: The new system profile inventory records, entered by the tester, are received by the Accountability Management Service.

**Test Case 3      Modify And Delete System Profile Inventory Records (B200.01.03)**

This test verifies the ability of the Accountability Management Service to allow M&O Staff to modify and delete system profile inventory records.

Test Configuration: Hardware - workstations

Software - MSS Accountability Management Service

Input: The tester, acting as a member of the M&O staff, will attempt to modify a system profile inventory records, and delete another.

Output: Messages indicating that the Accountability Management Service to accepted the modified system profile inventory record, and deleted the other.

Expected Results: The modified profile inventory record, as entered by the tester, is accepted by the Accountability Management Service, and the other record is deleted.

#### **5.4.2.2    Sequence 2 - Configuration Management**

This sequence tests the Release B software delivery and license management functionality of the MSS Configuration Management Application Service when integrated with the MSS Accountability and ILS Management Application Services.

**Test Case 1      Package Software, Databases, and Documentation for Delivery to Destinations (B200.02.01)**

This test verifies the ability of the Configuration Management Application Service to package software, databases, and documentation for delivery to destinations at both ECS and ECS-connected sites.

Test Configuration: Hardware - workstations

Software - MSS Configuration Management Application Service

Input: The tester simulating a software delivery, attempts to package software, databases, and documentation for delivery to destinations at both ECS and ECS-connected sites.

Output: Messages indicating that the software, databases, and documentation for delivery to the destinations are packaged.

Expected Results: The software, databases, and documentation for delivery to the destinations are packaged for both ECS and ECS-connected sites.

**Test Case 2      Schedule Automatic and Operator-Assisted Distribution of Software Packages (B200.02.02)**

This test verifies the ability of the Configuration Management Application Service to schedule via the EMC Planning and Scheduling Service automatic and operator-assisted distribution of software packages.

Test Configuration: Hardware - workstations

Software - MSS Configuration Management Application Service, EMC Planning and Scheduling Service

Input: The tester simulating a software delivery, attempts to schedule both automatic and operator-assisted distribution of software packages via the EMC Planning and Scheduling Service.

Output: Messages indicating both automatic and operator-assisted distribution of software packages are scheduled.

Expected Results: Both automatic and operator-assisted distribution of software packages are scheduled via the EMC Planning and Scheduling Service.

**Test Case 3      Retrieve the Contents for Each Repository (B200.02.03)**

This test verifies the ability of the Configuration Management Application Service to retrieve the contents for each repository from the MSS Baseline Manager Service.

Test Configuration: Hardware - workstations

Software - MSS Configuration Management Application Service, MSS Baseline Manager Service

Input: The tester attempts to retrieve the contents for each repository from the MSS Baseline Manager Service.

Output: Messages indicating that the contents for each repository from the MSS Baseline Manager Service are retrieved.

Expected Results: The contents for each repository from the MSS Baseline Manager Service are retrieved by the tester.

**Test Case 4**      **Push Software Packages from a Central Distribution Point (B200.02.04)**

This test verifies the ability of the Configuration Management Application Service to push software packages from a central distribution point/depot to remote target platforms (servers and workstations).

Test Configuration: Hardware - workstations

Software - MSS Configuration Management Application Service

Input: The tester simulating a software delivery, attempts to push a software package from a central distribution point/depot to a remote target platform.

Output: Messages indicating that a software package is pushed.

Expected Results: The software package is pushed from a central distribution point/depot to a remote target platform.

**Test Case 5**      **Pull Distribution Packages from Central Distribution Points (B200.02.05)**

This test verifies the ability of the Configuration Management Application Service to at the site pull distribution packages from central distribution points/depots onto individual target destinations.

Test Configuration: Hardware - workstations

Software - MSS Configuration Management Application Service

Input: The tester simulating a software delivery, attempts to pull a software package from a central distribution point/depot onto a remote target platform.

Output: Messages indicating that a software package is pulled.

Expected Results: The a software package is pulled from a central distribution point/depot onto a remote target platform.

**Test Case 6**      **Initiate Electronic Transfer of Distribution Packages Automatically or by Direct Command (B200.02.06)**

This test verifies the ability of the Configuration Management Application Service to initiate electronic transfer of distribution packages either automatically according to schedule or upon direct command.

Test Configuration: Hardware - workstations

Software - MSS Configuration Management Application Service

Input: The tester simulating a software delivery, attempts to initiate electronic transfer of distribution packages both automatically according to schedule and upon direct command.

Output: Messages indicating that the transfer of distribution packages is initiated for both the automatic and direct command.

Expected Results: The transfer of distribution packages is initiated automatically according to schedule and upon direct command.

**Test Case 7      Maintain Information on Product Licensing (B200.02.07)**

This test verifies the ability of the Configuration Management Application Service to maintain information on product identification, licensing provisions, numbers and types of users.

Test Configuration: Hardware - workstations

Software - MSS Configuration Management Application Service

Input: The tester will attempt to access the product identification, licensing provisions, numbers and types of users information maintained by the Configuration Management Application Service.

Output: Results of the access of the product identification, licensing provisions, numbers and types of users information.

Expected Results: The product identification, licensing provisions, numbers and types of users information is accessed by the tester.

**Test Case 8      Distribute Software License Provisions System-Wide (B200.02.08)**

This test verifies the ability of the Configuration Management Application Service to distribute software license provisions system-wide.

Test Configuration: Hardware - workstations

Software - MSS Configuration Management Application Service

Input: The tester, using a workstation set up as a DAAC, attempts to obtain software license provisions from the Configuration Management Application Service.

Output: The software license provisions are displayed.  
Expected Results: The software license provisions are displayed to the tester.

**Test Case 9**      **Create, Install, Modify, and Reinstall Software Licenses on ECS Servers (B200.02.09)**

This test verifies the ability of the Configuration Management Application Service to create, install, modify, and reinstall software licenses on ECS servers.

Test Configuration: Hardware - workstations  
Software - MSS Configuration Management Application Service

Input: The tester via the Configuration Management Application Service attempts to create, install, modify, and reinstall a software license on an ECS server.

Output: Messages indicating the creation, installation, modification, and the reinstallation of software license on the ECS server.

Expected Results: The software license will be created, installed, modified and reinstalled on an ECS server by the tester.



**Test Case 2      Access Site Spare Parts Inventory at the SMC (B200.03.02)**

Testing will demonstrate the capability to access specified site's spare parts inventory information. The accessed information will include a description, quantity on hand, prescribed stock level, and operational status for a given spare part.

Test Configuration:    Hardware - workstations

   Software - ILS Management

Input:                            A site will be specified by the operator, and a spare part will be selected to access it's inventory information for that site.

Output:                         The description, quantity on hand, prescribed stock level, and operational status for the selected spare part at the specified site will be displayed to the operator.

Expected Results:         The specified site's spare parts inventory will be accessed to obtain the description, quantity on hand, prescribed stock level, and operational status for the selected spare part.

**Test Case 3      Access Consumable Items Inventory at a Site (B200.03.03)**

Testing will demonstrate the capability to access site consumable items inventory information. The accessed information will include a description, quantity on hand, prescribed stock level, quantity on order, and quantity issued for a given consumable item.

Test Configuration:    Hardware - workstations

   Software - ILS Management

Input:                            A consumable item will be selected by the operator to access it's inventory information.

Output:                         The description, quantity on hand, prescribed stock level, quantity on order, and quantity issued for the selected consumable item at the specified site will be displayed to the operator.

Expected Results:         The site consumable items inventory will be accessed to obtain the description, quantity on hand, prescribed stock level, quantity on order, and quantity issued for the selected consumable item.

**Test Case 4      Access Site Consumable Items Inventory at the SMC (B200.03.04)**

Testing will demonstrate the capability to access specified site's consumable items inventory information. The accessed information will include a description, quantity on hand, prescribed stock level, quantity on order, and quantity issued for a given consumable item.

Test Configuration: Hardware - workstations  
Software - ILS Management

Input: A site will be specified by the operator, and a consumable item will be selected to access its inventory information for that site.

Output: The description, quantity on hand, prescribed stock level, quantity on order, and quantity issued for the selected consumable item at the specified site will be displayed to the operator.

Expected Results: The specified site's consumable items inventory will be accessed to obtain the description, quantity on hand, prescribed stock level, quantity on order, and quantity issued for the selected consumable item.

**Test Case 5**      **Generating an Order for Spare Parts Inventory at a Site (B200.03.05)**

Testing will demonstrate that low levels of spare parts can be identified, and orders to replenish the spare parts will be generated at the site.

Test Configuration: Hardware - workstations  
Software - ILS Management

Input: The operator will run a report and will select a highlighted item whose on-hand quantity has reached the reorder point to generate an order. Values for the description, quantity on hand, prescribed stock level, quantity on order, date ordered, name of supplier, location of supplier, point of contact of supplier, order status, estimated delivery date, and actual delivery date will be entered by the operator or defaulted by the system. After the order is generated, the operator will generate a report showing the order information for the appropriate order.

Output: A report with at least one highlighted item whose on-hand quantity has reached the reorder point will be displayed to the operator. A report showing the order information for the appropriate order will be displayed to the operator.

Expected Results: An order will be generated for an item whose on-hand quantity has reached the reorder point. The order information will be entered by the operator or defaulted by the system including the description, quantity on hand, prescribed stock level, quantity on order, date ordered, name of supplier, location of supplier, point of contact of supplier, order status, estimated delivery date, and actual delivery date of the spare part. The order information will match the information as entered by the operator, and any fields not entered by the operator contain default system values.

**Test Case 6**                      **Updating an Order for Spare Parts Inventory at a Site**  
**(B200.03.06)**

Testing will demonstrate that orders to replenish the spare parts can be updated at the site.

Test Configuration:    Hardware - workstations

Software - ILS Management

Input:                      The operator will run a report showing orders at the site, and will select an order to be updated. Values for the description, quantity on hand, prescribed stock level, quantity on order, date ordered, name of supplier, location of supplier, point of contact of supplier, order status, estimated delivery date, and actual delivery date will be changed by the operator. After the order is updated, the operator will generate a report showing the order information for the appropriate order.

Output:                    A report showing orders at the site will be displayed to the operator. A report showing the order information for the appropriate order will be displayed to the operator.

Expected Results:        An order will be updated by the operator. The order information will be updated by the operator including the description, quantity on hand, prescribed stock level, quantity on order, date ordered, name of supplier, location of supplier, point of contact of supplier, order status, estimated delivery date, and actual delivery date of the spare part. The order information will match the information as entered by the operator, and any fields not entered by the operator will retain their original values.

**Test Case 7**                      **Canceling an Order for Spare Parts Inventory at a Site**  
**(B200.03.07)**

Testing will demonstrate that orders to replenish the spare parts can be canceled at the site.

Test Configuration:    Hardware - workstations

Software - ILS Management

Input:                      The operator will run a report showing orders at the site, and will select an order to be canceled. After the order is canceled, the operator will generate a report showing the order information for the appropriate order.

Output:                    A report showing orders at the site will be displayed to the operator. A report showing the order information for the appropriate order will be displayed to the operator.

Expected Results: An order will be canceled by the operator. The appropriate order will be canceled.

**Test Case 8**      **Access Spare Parts Order Information at a Local Site**  
**(B200.03.08)**

Testing will demonstrate the capability to access a local site's spare parts inventory for order information. The accessed information will include a description, quantity on hand, prescribed stock level, quantity on order, date ordered, name of supplier, location of supplier, point of contact of supplier, order status, estimated delivery date, and actual delivery date for a given spare part.

Test Configuration: Hardware - workstations  
Software - ILS Management

Input: The operator will select a spare part to access it's order information for that site.

Output: The description, quantity on hand, prescribed stock level, quantity on order, date ordered, name of supplier, location of supplier, point of contact of supplier, order status, estimated delivery date, and actual delivery date for the selected spare part at the local site will be displayed to the operator.

Expected Results: The local site's spare parts inventory order information will be accessed to obtain the description, quantity on hand, prescribed stock level, quantity on order, date ordered, name of supplier, location of supplier, point of contact of supplier, order status, estimated delivery date, and actual delivery date of the spare part.

**Test Case 9**      **Access Site Spare Parts Order Information at the SMC**  
**(B200.03.09)**

Testing will demonstrate the capability to access specified site's spare parts inventory for order information. The accessed information will include a description, quantity on hand, quantity on order, prescribed stock level, name of supplier, location of supplier, point of contact for supplier, estimated delivery date, actual delivery date, and order status for a given spare part.

Test Configuration: Hardware - workstations  
Software - ILS Management

Input: A site will be specified by the operator, and a spare part will be selected to access it's order information for that site.

Output: The description, quantity on hand, quantity on order, prescribed stock level, name of supplier, location of supplier, point of contact for supplier, estimated delivery date, actual delivery date, and order status for the selected spare part at the specified site will be displayed to the operator.

Expected Results: The specified site's spare parts inventory order information will be accessed to obtain the description, quantity on hand, quantity on order, prescribed stock level, name of supplier, location of supplier, point of contact for supplier, estimated delivery date, actual delivery date, and order status for the selected spare part.

**Test Case 10**      **Generating an Order for Consumable Items Inventory at a Site (B200.03.10)**

Testing will demonstrate that low levels of consumable items can be identified, and orders to replenish the consumable items will be generated at the site.

Test Configuration: Hardware - workstations

Software - ILS Management

Input: The operator will run a report and will select a highlighted item whose on-hand quantity has reached the established reorder point to generate an order. Values for the description, quantity on order, price, name of supplier, location of supplier, and point of contact of supplier will be entered by the operator or defaulted by the system. After the order is generated, the operator will generate a report showing the order information for the appropriate order.

Output: A report with at least one highlighted item whose on-hand quantity has reached the established reorder point will be displayed to the operator. A report showing the order information for the appropriate order will be displayed to the operator.

Expected Results: An order will be generated for an item whose on-hand quantity has reached the reorder point. The order information will be entered by the operator or defaulted by the system including the description, quantity on order, price, name of supplier, location of supplier, and point of contact of supplier of the consumable item. The order information will match the information as entered by the operator, and any fields not entered by the operator contain default system values.

**Test Case 11**      **Access Consumable Items Order Information at a Local Site (B200.03.11)**

Testing will demonstrate the capability to access a local site's consumable items inventory for order information. The accessed information will include a description, quantity ordered, date ordered, name of supplier, location of supplier, point of contact for supplier, and estimated delivery date for a given consumable item.

Test Configuration: Hardware - workstations

Software - ILS Management

**Input:** The operator will select a consumable item to access its order information for that site.

**Output:** The description, quantity ordered, date ordered, name of supplier, location of supplier, point of contact for supplier, and estimated delivery date for the selected consumable item at the local site will be displayed to the operator.

**Expected Results:** The local site's consumable items inventory order information will be accessed to obtain the description, quantity ordered, date ordered, name of supplier, location of supplier, point of contact for supplier, and estimated delivery date of the consumable item.

**Test Case 12**      **Access Site Consumable Items Order Information at the SMC (B200.03.12)**

Testing will demonstrate the capability to access specified site's consumable items inventory for order information. The accessed information will include a description, quantity ordered, date ordered, name of supplier, location of supplier, point of contact for supplier, and estimated delivery date for a given consumable item.

**Test Configuration:** Hardware - workstations  
Software - ILS Management

**Input:** A site is specified by the operator, and a consumable item is selected to access its order information for that site.

**Output:** The description, quantity ordered, date ordered, name of supplier, location of supplier, point of contact for supplier, and estimated delivery date for the selected consumable item at the specified site is displayed to the operator.

**Expected Results:** The specified site's consumable items inventory is accessed to obtain the description, quantity ordered, date ordered, name of supplier, location of supplier, point of contact for supplier, and estimated delivery date for the selected consumable item.

**Test Case 13**      **Add Non-Expendable and Consumable ECS Resources to System-Wide Catalog (B200.03.13)**

This test will demonstrate the capability to add non-expendable and consumable ECS resources to the SMC's on-line system-wide catalog.

**Test Configuration:** Hardware - workstations  
Software - ILS Management

Input: An operator will select to add a non-expendable and a consumable ECS resource to the SMC's on-line system-wide catalog. After the non-expendable and consumable ECS resources are entered into the SMC's on-line system-wide catalog, a report showing the catalog contents is generated by the operator.

Output: A report showing the contents of the SMC's on-line system-wide catalog is generated.

Expected Results: The non-expendable and consumable ECS resources, entered by the operator, will appear on the generated report.

**Test Case 14**      **Delete Non-Expendable and Consumable ECS Resources from System-Wide Catalog (B200.03.14)**

This test will demonstrate the capability to delete non-expendable and consumable ECS resources from the SMC's on-line system-wide catalog.

Test Configuration: Hardware - workstations  
Software - ILS Management

Input: An operator will select to delete a non-expendable and a consumable ECS resource from the SMC's on-line system-wide catalog. After the non-expendable and consumable ECS resources are deleted from the SMC's on-line system-wide catalog, a report showing the catalog contents is generated by the operator.

Output: A report showing the contents of the SMC's on-line system-wide catalog is generated.

Expected Results: The non-expendable and consumable ECS resources, deleted by the operator, will not appear on the generated report.

**Test Case 15**      **Display and Print Site and Multi-Site Inventory Reports (B200.03.15)**

This test will demonstrate the capability of the MSS Inventory/Logistics Management Application Service at the SMC to generate site and multi-site inventory reports for display and printout.

Test Configuration: Hardware - workstations  
Software - ILS Management

Input: The operator will select a single site inventory report to be displayed on the operator's workstation. The same single site inventory report is selected by the operator to be printed out. The operator will select a multi-site inventory report to be displayed on the operator's workstation. The same multi-site inventory report is selected by the operator to be printed out.

Output: The single site and the multi-site inventory reports selected by the operator is generated, displayed and printed.

Expected Results: The appropriate inventory reports are generated, displayed and printed. The corresponding displayed and printed reports will contain the same inventory information.

**Test Case 16 Consolidated, System-Wide Views of ECS Site's Inventory Data (B200.03.16)**

This test will demonstrate the capability of the MSS Inventory/Logistics Management Application Service to provide consolidated, system-wide views of ECS site's inventory data at the SMC.

Test Configuration: Hardware - workstations  
Software - ILS Management

Input: The operator will select to view the consolidated, system-wide ECS site's inventory.

Output: The consolidated, system-wide view of the ECS site's inventory data display.

Expected Results: The appropriate inventory data view is displayed.

**Test Case 17 Report on Site Spare Parts Inventory at the SMC (B200.03.17)**

Testing will demonstrate the capability to generate reports on a specified site's spare parts inventory. The reported information will include a description, quantity on hand, prescribed stock level, and operational status for a given spare part.

Test Configuration: Hardware - workstations  
Software - ILS Management

Input: A site is specified by the operator, and a spare part is selected to report it's inventory information for that site.

Output: A report showing the description, quantity on hand, prescribed stock level, and operational status for the selected spare part at the specified site is generated.

Expected Results: The specified site's spare parts inventory is accessed to generate a report showing the description, quantity on hand, prescribed stock level, and operational status for the selected spare part.

**Test Case 18**      **Report Consolidated Spare Parts Order Information at the SMC (B200.03.18)**

Testing will demonstrate the capability to generate consolidated reports on site spare parts inventory order information. The reported information will include a description, quantity on hand, quantity on order, prescribed stock level, name of supplier, location of supplier, point of contact for supplier, estimated delivery date, actual delivery date, and order status for a given spare part.

Test Configuration:    Hardware - workstations

Software - ILS Management

Input:                    A spare part is selected to report on it's order information for all sites.

Output:                  The description, quantity on hand, quantity on order, prescribed stock level, name of supplier, location of supplier, point of contact for supplier, estimated delivery date, actual delivery date, and order status for the selected spare part for all sites is reported.

Expected Results:     The spare parts inventories at all sites will be accessed to generate a report containing the description, quantity on hand, quantity on order, prescribed stock level, name of supplier, location of supplier, point of contact for supplier, estimated delivery date, actual delivery date, and order status for the selected spare part.

**Test Case 19**      **Report Consolidated Consumable Items Inventories at the SMC (B200.03.19)**

Testing will demonstrate the capability to generate consolidated reports on site consumable items inventories. The reported information will include a description, quantity on hand, prescribed stock level, quantity on order, and quantity issued for a given consumable item.

Test Configuration:    Hardware - workstations

Software - ILS Management

Input:                    A consumable item will be selected to report it's inventory information for all sites.

Output:                  A report showing the description, quantity on hand, prescribed stock level, quantity on order, and quantity issued for the selected consumable item at all sites is generated.

Expected Results:     The consumable items inventories at all sites will be accessed to generate a report showing the description, quantity on hand, prescribed stock level, quantity on order, and quantity issued for the selected consumable item.

**Test Case 20**      **Export Consumable Items Information to Support Analysis**  
**(B200.03.20)**

Testing will demonstrate the capability to export statistical data on site consumable items inventory information to OA tools for analysis support. The extracted information will include quantity on hand, prescribed stock level, reorder point, shelf life, quantity issued, name of supplier, location of supplier, point of contact for supplier, quantity on order, date ordered, quantity received, date received, and other statistics for consumable items.

Test Configuration:    Hardware - workstations

Software - ILS Management

Input:                    Consumable item inventory information will be selected for export to OA tools.

Output:                  The quantity on hand, prescribed stock level, reorder point, shelf life, quantity issued, name of supplier, location of supplier, point of contact for supplier, quantity on order, date ordered, quantity received, date received, and other statistics for the selected consumable items will be exported to file formats compatible with the OA tools.

Expected Results:      The consumable items inventory will be accessed to generate files in OA tools compatible formats containing the inventory information for the selected consumable items.

**Test Case 21**      **Input, Store, Maintain, and View/Print Training Information**  
**(B200.03.21)**

This test verifies the ability of the Training Management Application Service to input, store, maintain, and view/print training information.

Test Configuration:    Hardware - workstations

Software - MSS Training Management Application Service

Input:                    The tester, using the Training Management Application Service, attempts to input, store, maintain, and view/print training information.

Output:                  Messages indicating that the training information is stored. The training information is displayed and printed.

Expected Results:      The training information is displayed and printed, as it is input by the tester.

**Test Case 22**            **Input, Store, Maintain, and View/Print Training Records Information (B200.03.22)**

This test verifies the ability of the Training Management Application Service to input, store, maintain, and view/print training records information.

Test Configuration:    Hardware - workstations

Software - MSS Training Management Application Service

Input:                    The tester, using the Training Management Application Service, attempts to input, store, maintain, and view/print training records information.

Output:                  Messages indicating that the training records information is stored. The training records information is displayed and printed.

Expected Results:    The training records information is displayed and printed, as it is input by the tester.

**Test Case 23**            **Retrieve and View/Print Training Courses and Schedules Information (B200.03.23)**

This test verifies the ability of the Training Management Application Service to retrieve and view/print training courses and schedules information from a SMC training information repository.

Test Configuration:    Hardware - workstations

Software - MSS Training Management Application Service

Input:                    The tester, using the Training Management Application Service, attempts to retrieve and view/print training courses and schedules information from the SMC training information repository.

Output:                  Messages indicating that training courses and schedules information is retrieved from the SMC training information repository and is viewed and printed.

Expected Results:    The training courses and schedules information viewed and printed as retrieved from the SMC training information repository.

**Test Case 24**            **Schedule Training Events via the MSS Planning and Scheduling Service (B200.03.24)**

This test verifies the ability of the Training Management Application Service to schedule training events via the MSS Planning and Scheduling Service.

Test Configuration:    Hardware - workstations

Software - MSS Training Management Application Service

Input: The tester, using the Training Management Application Service, attempts to schedule training events via the MSS Planning and Scheduling Service.

Output: Messages confirming the scheduling of training events.

Expected Results: The training events will be scheduled as requested by the tester.

**Test Case 25**      **Prepare, Update, Store, View/Print, and Disseminate Training Course Information (B200.03.25)**

This test verifies the ability of the Training Management Application Service at the SMC to prepare, update, store, view/print, and disseminate training courses descriptions, course prerequisites, resource requirements, and schedules.

Test Configuration: Hardware - workstations

Software - MSS Training Management Application Service

Input: The tester at a simulated SMC, using the Training Management Application Service, attempts to prepare, update, store, view/print, and disseminate a training course description, course prerequisites, resource requirements, and schedule.

Output: Messages indicating the preparation, update, and storage of training course description, course prerequisites, resource requirements, and schedule. The display and hard copy of training course description, course prerequisites, resource requirements, and schedule.

Expected Results: The tester successfully completes the preparation, update, and storage of training course description, course prerequisites, resource requirements, and schedule. The tester is able to produce a display and hard copy of training course description, course prerequisites, resource requirements, and schedule.

**Test Case 26**      **Capture, Summarize, and Make Available Course Critique (B200.03.26)**

This test verifies the ability of the Training Management Application Service at the SMC to capture, summarize, and make available course critique.

Test Configuration: Hardware - workstations

Software - MSS Training Management Application Service

Input: The tester, acting as a students of a course, attempts toInput a course critique for the applicable course. Acting as an instructor/administrator, the tester will attempt to retrieve the course critiques for the applicable course, in full and summarized formats.

Output: The course critique for the applicable course, in full and summarized formats, is displayed.

Expected Results: The tester is able to Input a course critique for the applicable course, and retrieve the course critiques for the applicable course, in full and summarized formats.

**Test Case 27**                    **Produce PM and Corrective Maintenance Reports**  
**(B200.03.27)**

This test verifies the ability of the Maintenance Management Application Service to provide the M&O staff the capability to produce PM and corrective maintenance reports based on operator entered criteria.

Test Configuration: Hardware - workstations

Software - MSS Maintenance Management Application Service

Input: The tester will attempt to produce PM and corrective maintenance reports by entering a criteria.

Output: The PM and corrective maintenance reports are displayed.

Expected Results: The PM and corrective maintenance reports are displayed, and will contain information pertaining to the criteria entered by the tester.

**Test Case 28**                    **Receive Specified Site Maintenance Data at the SMC**  
**(B200.03.28)**

This test verifies the ability of the Maintenance Management Application Service to receive specified site maintenance data at the SMC for use in maintenance trends analysis.

Test Configuration: Hardware - workstations

Software - MSS Maintenance Management Application Service

Input: The tester at a simulated SMC, using the MSS Maintenance Management Application Service, will attempt to receive specified site maintenance data for use in maintenance trends analysis.

Output: Statistics based on site maintenance data for use in maintenance trends analysis are displayed.

Expected Results: The tester will successfully receive specified site maintenance data into the simulated SMC, and view the statistics based on the site maintenance data.

**Test Case 29**            **Input, Store, Maintain, and View/Print PM Information for Site Equipment (B200.03.29)**

This test verifies the ability of the Maintenance Management Application Service to input, store, maintain, and view/print Preventive Maintenance (PM) information for site equipment.

Test Configuration:    Hardware - workstations

Software - MSS Maintenance Management Application Service

Input:                    The tester will attempt to input, store, maintain, and view/print PM information for a unit of site equipment.

Output:                  Messages indicating the input, storage, and update of PM information for a unit of site equipment. The PM information will be viewed and printed.

Expected Results:      The PM information entered by the tester is input, stored and updated. The PM information is viewed and printed.

**Test Case 30**            **Input, Store, Maintain, and View/Print Corrective Maintenance Performed (CMP) Information (B200.03.30)**

This test verifies the ability of the Maintenance Management Application Service to input, store, maintain, and view/print corrective maintenance performed (CMP) information.

Test Configuration:    Hardware - workstations

Software - MSS Maintenance Management Application Service

Input:                    The tester will attempt to input, store, maintain, and view/print corrective maintenance performed for a unit of site equipment.

Output:                  Messages indicating the input, storage, and update of corrective maintenance performed for a unit of site equipment. The corrective maintenance performed is viewed and printed.

Expected Results:      The corrective maintenance performed as entered by the tester is input, stored and updated. The corrective maintenance performed is viewed and printed.

**Test Case 31**            **Produce Maintenance Status Reports (B200.03.31)**

This test verifies the ability of the Maintenance Management Application Service to produce maintenance status reports.

Test Configuration:    Hardware - workstations

Software - MSS Maintenance Management Application Service

Input: The tester will attempt to produce maintenance status reports.  
Output: The maintenance status reports are displayed.  
Expected Results: The maintenance status reports are displayed, and will contain information pertaining to ongoing maintenance.

**Test Case 32**      **Schedule Maintenance Events via the MSS Planning and Scheduling Service (B200.03.32)**

This test verifies the ability of the Maintenance Management Application Service to schedule maintenance events via the MSS Planning and Scheduling Service.

Test Configuration: Hardware - workstations  
Software - MSS Maintenance Management Application Service, MSS Planning and Scheduling Service

Input: The tester, using the Maintenance Management Application Service, will attempt to schedule maintenance events via the MSS Planning and Scheduling Service.

Output: Messages indicating that maintenance events have been scheduled.

Expected Results: The requested maintenance events are scheduled via the MSS Planning and Scheduling Service.

**Test Case 33**      **Provide Off-Site Maintenance Reports (B200.03.33)**

This test verifies the ability of the Maintenance Management Application Service to provide off-site maintenance reports based on operator entered criteria.

Test Configuration: Hardware - workstations  
Software - MSS Maintenance Management Application Service

Input: The tester will attempt to produce off-site maintenance reports.

Output: The off-site maintenance reports are displayed.

Expected Results: The off-site maintenance reports are provided, and will contain information pertaining to ongoing off-site maintenance.

**Test Case 34**      **Record Off-Site Maintenance Information (B200.03.34)**

This test verifies the ability of the Maintenance Management Application Service to record off-site maintenance information: identification of component; description of problem; and corrective action taken.

Test Configuration: Hardware - workstations  
Software - MSS Maintenance Management Application Service

**Input:** The tester will attempt to record, and view/print off-site maintenance information for a unit of site equipment.

**Output:** Messages indicating the recording of off-site maintenance information for a unit of site equipment. The off-site maintenance information is viewed and printed.

**Expected Results:** The off-site maintenance information as entered by the tester is recorded. The off-site maintenance information is viewed and printed.

**Test Case 35      Generate Off-Site Maintenance Reports (B200.03.35)**

This test verifies the ability of the Maintenance Management Application Service to generate off-site maintenance reports based on operator entered criteria.

**Test Configuration:** Hardware - workstations  
Software - MSS Maintenance Management Application Service

**Input:** The tester will attempt to generate off-site maintenance reports, by entering a criteria.

**Output:** The off-site maintenance reports will be displayed.

**Expected Results:** The off-site maintenance reports are generated, and will contain information pertaining to ongoing off-site maintenance according to the tester entered criteria.

## **5.5 Test Mode Management Thread**

### **5.5.1 Thread Objectives**

The objectives of the test mode management thread are as follows:

- Provide the ability to verify the system environment of test and training modes.
- Provide the capability to verify the simultaneously execution of test/training mode and operational mode.
- Provide the capability to verify the mode management monitoring functions.

### **5.5.2 Thread Test Description**

Testing is performed to verify the test/training environment can be executed simultaneously with the operational system environment.

Testing is performed to verify the mode management service is capable of monitoring the execution of different modes.



Expected Results: The HP OpenView shows the successful execution of the training system environment.

**Test Case 3**                    **Concurrent execution of test mode and operational mode (T206-1.01.03)**

This test verifies that the capability of the concurrent execution of test mode and operational mode.

Test Configuration: Hardware - Workstation, X terminal  
Software - mode management application

Input: Initialize the test mode environment in the mode management script.

Output: The message is displayed the execution of the test mode and operational mode.

Expected Results: The HP OpenView shows the successful execution of the test and operational system environment.

**Test Case 4**                    **Concurrent execution of training mode and operational mode (T206-1.01.04)**

This test verifies that the capability of the concurrent execution of training mode and operational mode.

Test Configuration: Hardware - Workstation, X terminal  
Software - mode management application

Input: Initialize the training mode environment in the mode management script.

Output: The message is displayed the execution of the training mode and operational mode.

Expected Results: The HP OpenView shows the successful execution of the training and operational system environment.

### **5.5.2.2 Sequence 2 - Monitoring the mode environment**

The following tests verify the capability of mode management service to monitor the status of the test mode execution.

**Test Case 1**                    **Test mode performance statistics (T206-1.02.01)**

This test verifies that the capability of the mode management service to monitor and provide the test mode performance statistics.

Test Configuration: Hardware - Workstation, X terminal  
Software - mode management application

Input: To request to display the performance statistics of the test mode environment in the mode management script.

Output: The performance statistics of test mode is displayed.

Expected Results: The HP OpenView shows the statistics.

**Test Case 2      Test mode fault detection (T206-1.02.02)**

This test verifies that the capability of the mode management service to monitor and provide the test mode fault detection and isolation information.

Test Configuration: Hardware - Workstation, X terminal  
Software - mode management application

Input: To bring down the subsystem process.

Output: The message is displayed to indicate the fault occurs.

Expected Results: The HP OpenView shows the fault information.

**Test Case 3      Test mode management statistics collection (T206-1.02.03)**

This test verifies that the capability of the mode management service to monitor and provide the test mode management statistics.

Test Configuration: Hardware - Workstation, X terminal  
Software - mode management application

Input: To request to display the management statistics of the test mode environment in the mode management script.

Output: The management statistics of test mode is displayed.

Expected Results: The HP OpenView shows the statistics.

**Test Case 4      Training mode performance statistics (T206-1.02.04)**

This test verifies that the capability of the mode management service to monitor and provide the training mode performance statistics.

Test Configuration: Hardware - Workstation, X terminal  
Software - mode management application

Input: To request to display the performance statistics of the training mode environment in the mode management script.

Output: The performance statistics of training mode is displayed.

Expected Results: The HP OpenView shows the statistics.

**Test Case 5 Training mode fault detection (T206-1.02.05)**

This test verifies that the capability of the mode management service to monitor and provide the training mode fault detection and isolation information.

Test Configuration: Hardware - Workstation, X terminal  
Software - mode management application

Input: To bring down the subsystem process.

Output: The message is displayed to indicate the fault occurs.

Expected Results: The HP OpenView shows the fault information.

**Test Case 6 Training mode management statistics collection (T206-1.02.06)**

This test verifies that the capability of the mode management service to monitor and provide the training mode management statistics.

Test Configuration: Hardware - Workstation, X terminal  
Software - mode management application

Input: To request to display the management statistics of the training mode environment in the mode management script.

Output: The management statistics of training mode is displayed.

Expected Results: The HP OpenView shows the statistics.

## **5.6 Operational Mode Management Thread**

### **5.6.1 Thread Objectives**

The objectives of the operational mode management thread are as follows:

- Provide the ability to verify the system environment of operational mode.
- Provide the capability to verify the simultaneously execution of operational mode and test/training mode.
- Provide the capability to verify the mode management monitoring functions.

### **5.6.2 Thread Test Description**

Testing is performed to verify the operational environment can be executed simultaneously with the test/training system environment. Testing is performed to verify the mode management service is capable of monitoring the execution of different modes.



Input: Initialize the operational mode environment in the mode management script.

Output: The message is displayed the execution of the operational mode and test mode.

Expected Results: The HP OpenView shows the successful execution of the operational and test system environment.

**Test Case 3      Concurrent execution of operational mode and training mode (T206-1.01.03)**

This test verifies that the capability of the concurrent execution of operational mode and training mode.

Test Configuration: Hardware - Workstation, X terminal

Software - mode management application and a menu

Input: Initialize the operational mode environment in the mode management script.

Output: The message is displayed the execution of the operational mode and training mode.

Expected Results: The HP OpenView shows the successful execution of the operational and training system environment.

### **5.6.2.2 Sequence 2 - Monitoring the mode environment**

The following tests verify the capability of mode management service to monitor the status of the operational mode execution.

**Test Case 1      Operational mode performance statistics (T206-2.02.01)**

This test verifies that the capability of the mode management service to monitor and provide the operational mode performance statistics.

Test Configuration: Hardware - Workstation, X terminal

Software - mode management application

Input: To request to display the performance statistics of the operational mode environment in the mode management script.

Output: The performance statistics of operational mode is displayed.

Expected Results: The HP OpenView shows the statistics.

**Test Case 2      Operational mode fault detection (T206-2.02.02)**

This test verifies that the capability of the mode management service to monitor and provide the operational mode fault detection and isolation information.

Test Configuration: Hardware - Workstation, X terminal  
Software - mode management application

Input: To bring down the subsystem process.

Output: The message is displayed to indicate the fault occurs.

Expected Results: The HP OpenView shows the fault information.

**Test Case 3**                    **Operational mode management statistics collection (T206-2.02.03)**

This test verifies that the capability of the mode management service to monitor and provide the test mode management statistics.

Test Configuration: Hardware - Workstation, X terminal  
Software - mode management application

Input: To request to display the management statistics of the test mode environment in the mode management script.

Output: The management statistics of test mode is displayed.

Expected Results: The HP OpenView shows the statistics.

**Test Case 4**                    **Mode management for the planning of AI&T (T206-2.02.04)**

This test verifies that the capability of the PLANG CI to separate Algorithm I&T activities from the operational production environment.

Test Configuration: Hardware - Workstation, X terminal  
Software - mode management application

Input: Startup the operational and test mode, and run the algorithm in the operational mode. Then specify to run another set of algorithm in the test mode.

Output: The algorithm are running correctly on both modes.

Expected Results: The PLANG CI can direct the AI&T in test mode without interfering the first set in the operational mode..

## **5.7 System Initialization Build**

The system initialization build is an integrated build of the following threads:

- Test mode management thread
- Operational mode management thread

### 5.7.1 Build Objectives

The objectives of the System Initialization thread are as follows:

- Provide the capability to setup the system environment for test mode, training mode and operational mode.
- Provide the resources sharing for mode management so that there is no interference between the executions of two modes.
- Provide the capability of the ECS system being tested during all phases of its development.

### 5.7.2 Build Test Description

Testing is performed to verify that system services are available for the test and operational system environment, e.g. connection links, database, operating system, network management. Testing is performed to verify the mode management also detect the faults and reports the statistics.

#### Dependencies: (If Applicable)

To verify the objectives of the system initialization build, the following interface and functional capabilities are required:

- System configuration is established.
- Mode configuration is completed.

#### Test Support Requirements

- Hardware:
  - Workstation, X terminal
- Software:
  - Mode management application (HP OpenView with custom code)
- Data:
  - Test data set

#### 5.7.2.1 Sequence 1 - System components availability

The following tests verify the capability to identify components which have been taken off-line for maintenance.

##### **Test Case 1                      Test mode components off-line (B206.01.01)**

This test verifies that the mode management software has the capability to identify components that has been taken off-line.

Test Configuration: Hardware - Workstation, data storage disk  
Software - mode management application.

Input: Start test mode and disconnect the data storage disk.

Output: The message is displayed to inform the disk is off-line.

Expected Results: The HP OpenView can detect the disk is off-line and display the message.

**Test Case 2 Training mode components off-line (B206.01.02)**

This test verifies that the mode management software has the capability to identify components that has been taken off-line.

Test Configuration: Hardware - Data storage disk  
Software - mode management application.

Input: Start training mode and disconnect the data storage disk.

Output: The message is displayed to inform the disk is off-line.

Expected Results: The HP OpenView can detect the disk is off-line and display the message.

**Test Case 3 Operational mode components off-line (B206.01.03)**

This test verifies that the mode management software has the capability to identify components that has been taken off-line.

Test Configuration: Hardware - Data storage disk  
Software - mode management application.

Input: Start operational mode and disconnect the data storage disk.

Output: The message is displayed to inform the disk is off-line.

Expected Results: The HP OpenView can detect the disk is off-line and display the message.

**5.7.2.2 Sequence 2 - Concurrent execution of modes**

The following tests verify the capability to identify components which have been taken off-line for maintenance.

**Test Case 1 Concurrent execution of operational mode and test mode (B206.02.01)**

This test verifies that the capability of the concurrent execution of operational mode and test mode.

Test Configuration: Hardware - Workstation, X terminal  
Software - mode management application

Input: Initialize the operational mode environment in the mode management script.

Output: The message is displayed the execution of the operational mode and test mode.

Expected Results: The HP OpenView shows the successful execution of the operational and test system environment.

**Test Case 2                      Concurrent execution of operational mode and training mode (B206.02.02)**

This test verifies that the capability of the concurrent execution of operational mode and training mode.

Test Configuration: Hardware - Workstation, X terminal  
Software - mode management application

Input: Initialize the operational mode environment in the mode management script.

Output: The message is displayed the execution of the operational mode and training mode.

Expected Results: The HP OpenView shows the successful execution of the operational and training system environment.

### **5.7.2.3 Sequence 3 - Monitoring the mode environment**

The following tests verify the capability of mode management service to monitor the status of the operational mode execution.

**Test Case 1                      Operational mode performance statistics (B206.03.01)**

This test verifies that the capability of the mode management service to monitor and provide the operational mode performance statistics.

Test Configuration: Hardware - Workstation, X terminal  
Software - mode management application

Input: To request to display the performance statistics of the operational mode environment in the mode management script.

Output: The performance statistics of operational mode is displayed.

Expected Results: The HP OpenView shows the statistics.





Input: Logon to the remote host, and enter "cd <directory name>".  
Output: The list of directory shows the directory has been changed.  
Expected Results: The new directory is located.

## 5.9 Dial-Up Access Service Thread

### 5.9.1 Thread Objectives

The objectives of the dial-up access service enhancement thread are:

- Provide remote Internet access for the science community.

### 5.9.2 Thread Test Descriptions

Testing verifies the capability of the ECS host to accept the dial-in sessions.

#### Dependencies(If Applicable)

#### Test Support Requirements

- Hardware
  - Workstation, PC with modem.
- Software:
  - PC communication package.

#### 5.9.2.1 Sequence 1 - Host connections

The series of tests verify that the ECS host can accept the dial-up connection.

##### **Test Case 1 PC dial-up to the host (T207-2.01.01)**

This test verifies that the capability of the CSS to accept the dial-in call to host to request the remote session. Use various modems and speeds for PC to dial-up to host.

Test Configuration: Hardware - Workstation, X-terminal.  
Software - PC communication package.

Input: Dial-up the number to the port on the host.  
Output: The accepts the call and start the communications.  
Expected Results: PC user receives the system prompt from the host.



Input: Select the help symbol and click it.  
Output: The screen displays the help menu and instructions.  
Expected Results: User can select the e-mail help menu and read the instructions.

## **5.11 Bulletin Board Service Enhancements Thread**

### **5.11.1 Thread Objectives**

The objectives of the Bulletin Board Service (BBS) service enhancement thread are:

- Provide a forum for sharing ECS information with the users.
- Provide the capability to allow the user to withdraw a message from bulletin board.
- Provide on-line help functionally.

### **5.11.2 Thread Test Descriptions**

Testing verifies that the user can withdraw/delete a message after posting. Testing is performed to verify that BBS support on-line help functionality.

#### **Dependencies (If Applicable)**

#### **Test Support Requirements**

- Hardware - Workstation, X-terminal.
- Software - BBS application, XRunner.

#### **5.11.2.1 Sequence 1 - BBS message withdrawal**

This series of tests verify that the BBS enhancement services have the capability to allow user to withdraw a message after posting.

##### **Test Case 1                    User deletes a message after posting (T207-4.01.01)**

This test verifies that the capability of the BBS enhancement to allow user to delete a message after posting.

Test Configuration: Hardware - Workstation, X-terminal.  
Software - BBS application, XRunner.

Input: Create a message and post it on the BBS, then select delete to withdraw it.

Output: The BBS does not show this message.

Expected Results: User delete this message on the BBS.





Expected Results: The packet confirms the POP standard.

**Test Case 4 User deletes a message after posting (B207.01.04)**

This test verifies that the capability of the BBS enhancement to allow user to delete a message after posting.

Test Configuration: Hardware - Workstation, X-terminal.

Software - BBS application, XRunner.

Input: Create a message and post it on the BBS, then select delete function to withdraw it.

Output: The BBS does not show this message.

Expected Results: User deletes this message on the BBS.

## **5.13 Enhanced Electronic Data Ingest Thread**

### **5.13.1 Thread Objectives**

The objectives of the Electronic Data Ingest Thread are:

- Provide verification of the ability to receive and ingest data from various data providers

### **5.13.2 Thread Test Description**

Testing will demonstrate the ability to ingest instrument and spacecraft data, metadata, ancillary data, data objects and L0-L4 data. This data is monitored and checked for integrity by the system. Once the data is ingested, testers will verify its existence through examination of file directories and ingest managed lists. Data in HDF and Native formats will be ingested.

#### **Dependencies: (If Applicable)**

To verify the objectives of the Electronic Data Ingest Thread, the following interface and functional capabilities are required:

- interface to receive data products.

#### **Test Support Requirements**

- Hardware:
  - operational system
- Software:
  - operational software
- Data:
  - AM-1 L0-L4 data products and metadata
  - AM-1 L0-L4 data and metadata



Input: A series of Ingest Data requests are submitted by SCF.  
Output: Data accepted and placed on staging disk.  
Expected Results: For every Ingest Request the data is successfully accepted and placed on the staging disk.

**Test Case 4 EDC Landsat IAS FTP Test (T203-1.01.04)**

This test verifies that the Ingest software is capable of ingesting data be provided by the Landsat 7 Image Assessment System (IAS) via ESN into the EDC DAAC using a file transfer protocol.

Test Configuration: Hardware - workstation  
Software - INGST

Input: A series of Ingest Data requests are submitted by Landsat.  
Output: Data accepted and placed on staging disk.  
Expected Results: For every Ingest Request the data is successfully accepted and placed on the staging disk.

**Test Case 5 ASF RADARSAT Ingest Test (T203-1.01.05)**

This test verifies that the Ingest software is capable of ingesting data which will be provided by the RADARSAT and placed into the ASF DAAC by TBD means.

Test Configuration: Hardware - workstation  
Software - INGST

Input: A series of Ingest Data requests are submitted by RADARSAT.  
Output: Data accepted and placed on staging disk.  
Expected Results: For every Ingest Request the data is successfully accepted and placed on the staging disk.

**Test Case 6 ASF RADAR-ALT Ingest Test (T203-1.01.06)**

This test verifies that the Ingest software is capable of ingesting data which will be provided by RADAR-ALT and placed into the ASF DAAC by TBD means.

Test Configuration: Hardware - workstation  
Software - INGST

Input: A series of Ingest Data requests are submitted by RADAR-ALT.  
Output: Data accepted and placed on staging disk.

Expected Results: For every Ingest Request the data is successfully accepted and placed on the staging disk.

**Test Case 7 ASF ERS-1 /ERS-2 Ingest Test (T203-1.01.07)**

This test verifies that the Ingest software is capable of ingesting data which will be provided by ERS-1 and ERS-2 and placed into the ASF DAAC by TBD means.

Test Configuration: Hardware - workstation

Software - INGST

Input: A series of Ingest Data requests are submitted by ERS-1 and ERS-2.

Output: Data accepted and placed on staging disk.

Expected Results: For every Ingest Request the data is successfully accepted and placed on the staging disk.

**Test Case 8 ASF JERS-1 Ingest Test (T203-1.01.08)**

This test verifies that the Ingest software is capable of ingesting Data which will be provided by the JERS-1 and placed into the ASF DAAC by TBD means.

Test Configuration: Hardware - workstation

Software - INGST

Input: A series of Ingest Data requests are submitted by JERS-1.

Output: Data accepted and placed on staging disk.

Expected Results: For every Ingest Request the data is successfully accepted and placed on the staging disk.

**Test Case 9 LaRC SAGE III Ingest Test (T203-1.01.09)**

This test verifies that the Ingest software is capable of ingesting Data which will be provided by SAGE III and placed into the LaRC DAAC by TBD means.

Test Configuration: Hardware - workstation

Software - INGST

Input: A series of Ingest Data requests are submitted by SAGE III.

Output: Data accepted and placed on staging disk.

Expected Results: For every Ingest Request the data is successfully accepted and placed on the staging disk.

**Test Case 10 ACRIM Ingest Test (T203-1.01.10)**

This test verifies that the Ingest software is capable of ingesting Data which will be provided by ACRIM and placed into the TBD DAAC by TBD means.

Test Configuration: Hardware - workstation

Software - INGST

Input: A series of Ingest Data requests are submitted by ACRIM.

Output: Data accepted and placed on staging disk.

Expected Results: For every Ingest Request the data is successfully accepted and placed on the staging disk.

**Test Case 11      ASF RGS Ingest Test (T203-1.01.11)**

This test verifies that the Ingest software is capable of ingesting Data provided by the ASF Receiving Ground Station (RGS) using a file transfer protocol for a network interface.

Test Configuration: Hardware - workstation

Software - INGST

Input: A series of Ingest Data requests are submitted by RGS.

Output: Data accepted and placed on staging disk.

Expected Results: For every Ingest Request the data is successfully accepted and placed on the staging disk.

**Test Case 12      ASF SAR Ingest Test (T203-1.01.12)**

This test verifies that the Ingest software is capable of ingesting Data provided by the ASF SAR using a file transfer protocol for a network interface.

Test Configuration: Hardware - workstation

Software - INGST

Input: A series of Ingest Data requests are submitted by SAR.

Output: Data accepted and placed on staging disk.

Expected Results: For every Ingest Request the data is successfully accepted and placed on the staging disk.

**Test Case 13      ASF Metadata Ingest Test (T203-1.01.13)**

This test verifies that the Ingest software is capable of ingesting TBD film product Metadata provided by the ASF using a file transfer protocol for a network interface.

Test Configuration: Hardware - workstation

Software - INGST

Input: A series of Ingest Data requests are submitted by ASF for ingest of film product metadata.

Output: Data accepted and placed on staging disk.

Expected Results: For every Ingest Request the data is successfully accepted and placed on the staging disk.

**Test Case 14      DAO FTP Test (T203-1.01.14)**

This test verifies that the Ingest software is capable of ingesting Data provided by the DAO using a file transfer protocol for a network interface.

Test Configuration: Hardware - workstation

Software - INGST

Input: A series of Ingest Data requests are submitted by DAO.

Output: Data accepted and placed on staging disk.

Expected Results: For every Ingest Request the data is successfully accepted and placed on the staging disk.

**Test Case 15      FDF FTP Test (T203-1.01.15)**

This test verifies that the Ingest software is capable of ingesting Data provided by the FDF using a file transfer protocol for a network interface.

Test Configuration: Hardware - workstation

Software - INGST

Input: A series of Ingest Data requests are submitted by FDF.

Output: Data accepted and placed on staging disk.

Expected Results: For every Ingest Request the data is successfully accepted and placed on the staging disk.

**Test Case 16      Adeos II/SeaWinds Test (T203-1.01.16)**

This test verifies that the Ingest software is capable of ingesting Data provided by Adeos II/SeaWinds using a file transfer protocol for a network interface.

Test Configuration: Hardware - workstation

Software - INGST

Input: A series of Ingest Data requests are submitted for Adeos II/SeaWinds.

Output: Data accepted and placed on staging disk.

Expected Results: For every Ingest Request the data is successfully accepted and placed on the staging disk.

## 5.14 Enhanced Media Ingest Thread

### 5.14.1 Thread Objectives

The objectives of the Enhanced Media Ingest Thread are:

- Provide verification of the ability to ingest data from different media types.

### 5.14.2 Thread Test Description

Testing will demonstrate the ability to ingest from a variety of media types. The tester will ingest from a variety of media types such as CD-ROM, 4mm tape, 8mm tape, 6250 and bpi magnetic tape. Once the data is ingested, testers will verify its existence through direct access and by viewing the data server inventory.

#### Dependencies: (If Applicable)

To verify the objectives of the Enhanced Media Ingest Thread, the following interface and functional capabilities are required:

- interface to the data server/archive to perform data storage.

#### Test Support Requirements

- Hardware:
  - operational system
- Software:
  - operational software
- Data:
  - simulated data products and metadata

#### 5.14.2.1 Sequence 1 - Media Ingest Sequence

The following tests verify the capability to successfully ingest data from external data sources by media transfer.

##### **Test Case 1                      GSFC EDOS Media Ingest Test (T203-2.01.01)**

This test verifies that the Ingest software is capable of ingesting data which will be provided by the EDOS on TBD media.

Test Configuration: Hardware - workstation  
Software - INGST

Input: A series of data is submitted on media.  
Output: Media is mounted and accessed. Data is retrieved from the media and written to the staging disk.  
Expected Results: For every Ingest Request the data is successfully copied and placed on the staging disk.

**Test Case 2 LaRC EDOS Media Ingest Test (T203-2.01.02)**

This test verifies that the Ingest software is capable of ingesting data which will be provided by the EDOS on TBD media.

Test Configuration: Hardware - workstation  
Software - INGST

Input: A series of data is submitted on media.  
Output: Media is mounted and accessed. Data is retrieved from the media and written to the staging disk.  
Expected Results: For every Ingest Request the data is successfully copied and placed on the staging disk.

**Test Case 3 EDC ASTER GDS Media Ingest Test (T203-2.01.03)**

This test verifies that the Ingest software is capable of ingesting data which will be provided by the EDC on TBD media.

Test Configuration: Hardware - workstation  
Software - INGST

Input: A series of data is submitted on media.  
Output: Media is mounted and accessed. Data is retrieved from the media and written to the staging disk.  
Expected Results: For every Ingest Request the data is successfully copied and placed on the staging disk.

**Test Case 4 EDC Landsat IGS Test (T203-2.01.04)**

This test verifies that the Ingest software is capable of ingesting data which will be provided by the Landsat 7 International Ground Systems (IGSs) via EDC on TBD media.

Test Configuration: Hardware - workstation  
Software - INGST

Input: A series of data is submitted on media.

Output: Media is mounted and accessed. Data is retrieved from the media and written to the staging disk.

Expected Results: For every Ingest Request the data is successfully copied and placed on the staging disk.

#### **5.14.2.2 Sequence 2 - Document Scanning Sequence**

The following tests verify the capability to successfully ingest documents by means of scanning/digitizing.

##### **Test Case 1 Valid Document Scan Test (T203-2.02.01)**

This test verifies that ingest software is capable of interactively accepting requests for document scanning/digitizing. The request is authenticated to determine if it is from an authorized source. The request is verified to determine it is from a valid external source. Operational status is returned to screen.

Test Configuration: Hardware - workstations

Software - INGST

Input: A series of scanning requests are submitted. All requests submitted are valid.

Output: Scanned documents are ingested. Status is returned to screen.

Expected Results: For each scan request submitted the document is successfully ingested. Status is displayed, indicating successful ingest.

##### **Test Case 2 Invalid Document Scan Test (T203-2.02.02)**

This test verifies that ingest software is capable of recognizing invalid scanning requests and responding in an appropriate manner. Requests are verified for the following:

- hard copy scanning failure
- missing required metadata
- metadata parameters out of range
- invalid data type identifier
- data archive failure
- unauthorized hard copy media provider
- unauthorized operations staff

Test Configuration: Hardware - workstations

Software - INGST

Input:	A series of scanning requests are submitted. All requests submitted are invalid. A least one invalid request is submitted to include: hard copy scanning failure, missing required metadata, metadata parameters out of range, invalid data type identifier, data archive failure, unauthorized hard copy media provider, and unauthorized operations staff
Output:	Status messages are returned to screen.
Expected Results:	For each scan request submitted the request is recognized as invalid and appropriate status is returned to screen. All errors are recorded in an error log.

## 5.15 Basic Ingest Monitoring & Control Thread

### 5.15.1 Thread Objectives

The objectives of the Basic Ingest Monitoring & Control Thread are:

- Provide verification of the ability to suspend and resume ingest activities.
- Provide verification of the ability to operate in off-line and test mode.
- Provide verification of the ability to monitor ingest status.

### 5.15.2 Thread Test Description

Testing will demonstrate the ability to monitor status for the following: off-line test mode ingest operations, suspend and resume ingest activities, and fault detection. The ability for operators and users to monitor ingest status through the use of a GUI will be demonstrated.

#### Dependencies: (If Applicable)

To verify the objectives of the Basic Ingest Monitoring & Control Thread, the following interface and functional capabilities are required:

- interface to the data server/archive to perform data storage.

#### Test Support Requirements

- Hardware:
  - operational system
- Software:
  - operational software
  - simulated user interface for data ingest
- Data:
  - data products and metadata

### **5.15.2.1 Sequence 1 - Modal Operational Sequence**

The following tests verify the capability to successfully perform ingest operations when operating in either an off-line mode or test mode. If ingesting data presents a problem, faults are detected and fault messages are generated.



Test Configuration: Hardware - workstation  
Software - INGST

Input: A series of Ingest Requests are submitted. Operational commands are submitted to suspend the request. Some suspension requests are for all Ingest Requests. Some Suspension Requests only identify certain Ingest Requests for suspension either by request id or external provider. Commands are submitted by valid and invalid sources.

Output: The system is monitored to determine request suspension. Requests not suspended are processed.

Expected Results: All Ingest Requests are successfully received. Only those Ingest Requests which are included in the Suspension Request are suspended. All other Ingest Requests are processed. Suspension Requests submitted by invalid sources are not accepted.

**Test Case 2                      Operational Ingest Resumption Request Test (T203-3.02.02)**

This test verifies the ability to submit operational commands to resume a suspended Ingest request. The request is validated to confirm it is submitted by an authorized source. Monitoring of the ingest process verifies that only the ingest requests declared resumed, are resumed.

Test Configuration: Hardware - workstation  
Software - INGST

Input: A series of Ingest Requests are submitted. Operational commands are submitted to suspend the request. Operational commands are submitted to resume the request. Some Resumption Requests are for all Ingest Requests. Some Resumption Requests only identify certain Ingest Requests for Resumption. Commands are submitted by valid and invalid sources.

Output: The system is monitored to determine request state. Requests not resumed are not processed.

Expected Results: All Ingest Requests are successfully received. Only those Ingest Requests which are included in the Suspension Request are suspended. All Resumption Requests from valid sources result in processing of the resumed request. Resumption Requests from invalid sources are not accepted.

**Test Case 3**                    **Operational Ingest Suspension/Resumption Error Test**  
**(T203-3.02.03)**

This test verifies the ability to submit operational commands to receive status on suspension and resumption requests. The status request is validated to confirm it is submitted by an authorized source. Status is returned to the requester. Error are recorded in an error log.

Test Configuration:    Hardware - workstation

                                  Software - INGST

Input:                    A series of Ingest Requests are submitted. Operational commands are submitted to suspend and resume requests. Operational commands are submitted to obtain request status and view the error log. Commands are sent by valid and invalid sources.

Output:                    Status is sent to the requester. The error log is displayed.

Expected Results:      All Ingest Requests are successfully received. Only those Ingest Requests which are included in the Suspension Request are suspended. Only those Ingest Requests which are included in the Resumption Request are resumed. Status messages received by the requester are complete and readable. The error log correctly records and displays request status.

**Test Case 4**                    **Application Ingest Suspension Request Test (T203-3.02.04)**

This test verifies the ability for an application to submit an Ingest Suspension Request. The request is validated to confirm it is submitted by an authorized source. Monitoring of the ingest process verifies that only the ingest requests declared suspended, are suspended.

Test Configuration:    Hardware - workstation

                                  Software - INGST

Input:                    A series of Ingest Requests are submitted. Requests are submitted to suspend the Ingest request. Some suspension requests are for all Ingest Requests. Some Suspension Requests only identify certain Ingest Requests for suspension either by request id or external provider. Commands are submitted by valid and invalid sources.

Output:                    The system is monitored to determine request suspension. Requests not suspended are processed.

Expected Results:      All Ingest Requests are successfully received. Only those Ingest Requests which are included in the Suspension Request are suspended. All other Ingest Requests are processed. Suspension Requests submitted by invalid sources are not accepted.



## 5.16 Preprocessing Thread

### 5.16.1 Thread Objectives

The objectives of the Ingest Preprocessing Thread are:

- Provide verification of ingest data conversion capabilities.
- Provide verification of ingest data conversion capabilities.
- Provide verification of ingest metadata extraction capabilities.

### 5.16.2 Thread Test Description

Testing will demonstrate the ability to convert and reformat ingested data and manipulate metadata, which is not in an acceptable ECS data format, before insertion into the data server. Reformatting includes byte swapping and other functions to resolve platform incompatibilities. Conversion involves changing data to adhere to HDF or other standard ECS formats. Metadata manipulation includes metadata extraction.

#### **Dependencies: (If Applicable)**

To verify the objectives of the Ingest Preprocessing Thread, the following interface and functional capabilities are required:

- interface to simulated source for data ingest
- interface to the data server/archive to perform data storage.

#### **Test Support Requirements**

- Hardware:
  - operational system
- Software:
  - operational software
- Data:
  - data products and metadata

#### **5.16.2.1 Sequence 1 - Ingest Data Format Sequence**

The following tests verify the ability to convert ingested data and metadata into acceptable formats to be inserted by the Data Server and the Document Data Server.

##### **Test Case 1                      Ingest Data Conversion Test (T203-4.01.01)**

This test verifies the acceptance of data by ingest and the conversion of data into an acceptable data server format. The implementation of conversion services depends on the initial format of the data type and the targeted archive format. File formats to be converted include: TBD.

Test Configuration: Hardware - workstation  
Software - INGST

Input: A series of ingest requests are submitted. The data needs to be converted for acceptance by the Data Server.

Output: Converted data.

Expected Results: All ingest requests submitted are accepted and the data is converted. Data is successfully inserted into the Data Server.

**Test Case 2      Ingest Document Conversion Test (T203-4.01.02)**

This test verifies the acceptance of data by ingest and the conversion of data into an acceptable data server format. The implementation of conversion services depends on the initial format of the data type and the targeted archive format. Document formats to be converted include: TBD.

Test Configuration: Hardware - workstation  
Software - INGST

Input: A series of ingest requests are submitted. The data needs to be converted for acceptance by the Document Data Server.

Output: Converted data.

Expected Results: All ingest requests submitted are accepted and the data is converted. Data is successfully inserted into the Document Data Server.

**Test Case 3      Ingest Science Metadata Extraction Test (T203-4.01.03)**

This test verifies that the Ingest software is capable of extracting metadata into a form that is accepted by the Science Data Server. The necessity for metadata extraction depends on each data type. This is verified for the following data categories:

- Metadata parameters stored in a data-set-specific format.

Test Configuration: Hardware - workstation  
Software - INGST

Input: A series of ingest data request of the type that requires extraction.

Output: Metadata extracted and place in appropriate files.

Expected Results: For every request submitted metadata is correctly extracted.

**Test Case 4                    Ingest Document Metadata Extraction Test (T203-4.01.04)**

This test verifies that the Ingest software is capable of extracting metadata into a form that is accepted by the Document Data Server. The necessity for metadata extraction depends on each data type. This is verified for the following data categories:

- Metadata parameters stored in a data-set-specific format.

Test Configuration:    Hardware - workstation

   Software - INGST

Input:                                    A series of ingest data request of the type that requires extraction.

Output:                                   Metadata extracted and place in appropriate files.

Expected Results:        For every request submitted metadata is correctly extracted.

**Test Case 5                    Ingest Document Data Reformatting Test (T203-4.01.05)**

This test verifies that the Ingest software is capable of reformatting data into a form that is accepted by the Document Data Server.

Test Configuration:    Hardware - workstation

   Software - INGST

Input:                                    A series of ingest data requests of the type that requires data reformatting.

Output:                                   Reformatted data.

Expected Results:        For every request submitted data is correctly reformatted.

**Test Case 6                    Ingest Science Data Reformatting Test (T203-4.01.06)**

This test verifies that the Ingest software is capable of reformatting data into a form that is accepted by the Science Data Server.

Test Configuration:    Hardware - workstation

   Software - INGST

Input:                                    A series of ingest data requests of the type that requires data reformatting.

Output:                                   Reformatted data.

Expected Results:        For every request submitted data is correctly reformatted.

## 5.17 Ingest Services Build

### 5.17.1 Build Objectives

The objectives of the Ingest Services Build are:

- conduct performance analysis

### 5.17.2 Build Test Description

Performance testing is conducted for analysis of the ingest system, running under normal and maximum operating environments. Tools will be used to collect and display performance statistics, and generate hard copy performance reports. Performance testing includes : throughput, rate, storage capacity, and interface testing. After test data is collected, analysis is done to determine if the system is operating according to performance requirements.

#### **Dependencies: (If Applicable)**

To verify the objectives of the Ingest Services thread, the following interface and functional capabilities are required:

none

#### **Test Support Requirements**

- Hardware:
  - operational system
- Software:
  - operational software
  - simulated user interface for data ingest
- Data:
  - AM-1 L0-L4 data products and metadata
  - AM-1 L0-L4 data and metadata
  - Landsat 7 product data and metadata
  - COLOR data products and metadata
  - ADEOS II data products and metadata
  - SAGE III data products and metadata
  - ancillary data

#### **5.17.2.1 Sequence 1 - Ingest Throughput Performance Sequence**

The following tests verify Ingest System throughput performance. Throughput is measured under normal operating conditions. Performance data is collected and analyzed to determine throughput



Expected Results: Performance data is examined. The performance data is analyzed to determine possible expansion in throughput.

**Test Case 4 JPL Ingest Throughput Test(B203.01.04)**

This test verifies the capability for 200 percent expansion in throughput without architecture or design change.

Test Configuration: Hardware - workstation

Software - INGST

Input: A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

Output: Performance data is collected.

Expected Results: Performance data is examined. The performance data is analyzed to determine possible expansion in throughput.

**Test Case 5 GSFC Ingest Throughput Test(B203.01.05)**

This test verifies the capability for 200 percent expansion in throughput without architecture or design change.

Test Configuration: Hardware - workstation

Software - INGST

Input: A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

Output: Performance data is collected.

Expected Results: Performance data is examined. The performance data is analyzed to determine possible expansion in throughput.

**Test Case 6 LaRC Ingest Throughput Test(B203.01.06)**

This test verifies the capability for 200 percent expansion in throughput without architecture or design change.

Test Configuration: Hardware - workstation

Software - INGST

Input: A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

Output: Performance data is collected.

Expected Results: Performance data is examined. The performance data is analyzed to determine possible expansion in throughput.

**Test Case 7 MSFC Ingest Throughput Test (B203.01.07)**

This test verifies the capability for 200 percent expansion in throughput without architecture or design change.

Test Configuration: Hardware - workstation  
Software - INGST

Input: A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

Output: Performance data is collected.

Expected Results: Performance data is examined. The performance data is analyzed to determine possible expansion in throughput.

**5.17.2.2 Sequence 2 - Ingest Rate Performance Sequence**

The following tests verify the capability to successfully ingest data according to required rates. The ingested data rates range from a nominal daily rate to three times the nominal rate. Some rates are characterized by hours such as a nominal 8-hour rate.

**Test Case 1 GSFC EDOS Nominal Rate Ingest Test (B203.02.01)**

This test verifies that the GSFC DAAC has the capability of ingesting data from the EDOS at the nominal daily rate.

Test Configuration: Hardware - workstation  
Software - INGST

Input: A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

Output: Rate performance data is collected.

Expected Results: Performance data is examined. The performance data is analyzed to determine if ingest data is ingested at an acceptable nominal rate.

**Test Case 2 GSFC EDOS Maximum Rate Ingest Test(B203.02.02)**

This test verifies that the GSFC DAAC has the capability of ingesting data from EDOS at a maximum daily rate that is three times the nominal rate.

Test Configuration: Hardware - workstation

Software - INGST

Input: A series of Ingest requests are submitted continuously over timed intervals. The number of ingest requests is increased, until the system can no longer accept requests. Requests are for data of various size and type. The system is monitored during Ingest processing.

Output: Rate performance data is collected.

Expected Results: Performance data is examined. The performance data is analyzed to determine if ingest data can be ingested at a rate that is three times the acceptable nominal rate.

**Test Case 3 LaRC EDOS Nominal Rate Ingest Test (B203.02.03)**

This test verifies that the LaRC DAAC has the capability of ingesting data from the EDOS at the nominal daily rate.

Test Configuration: Hardware - workstation

Software - INGST

Input: A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

Output: Rate performance data is collected.

Expected Results: Performance data is examined. The performance data is analyzed to determine if ingest data is ingested at an acceptable nominal rate.

**Test Case 4 LaRC EDOS Maximum Rate Ingest Test (B203.02.04)**

This test verifies that the GSFC DAAC has the capability of ingesting data from EDOS at a maximum daily rate that is three times the nominal rate.

Test Configuration: Hardware - workstation

Software - INGST

Input: A series of Ingest requests are submitted continuously over timed intervals. The number of ingest requests is increased, until the system can no longer accept requests. Requests are for data of various size and type. The system is monitored during Ingest processing.

Output: Rate performance data is collected.

Expected Results: Performance data is examined. The performance data is analyzed to determine if ingest data can be ingested at a rate that is three times the acceptable nominal rate.

**Test Case 5                    EDC Landsat 7 LPs Nominal RateTest (B203.02.05)**

This test verifies that the LaRC DAAC has the capability of ingesting data from the EDC at the nominal rate.

Test Configuration: Hardware - workstation

Software - INGST

Input: A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

Output: Rate performance data is collected.

Expected Results: Performance data is examined. The performance data is analyzed to determine if ingest data is ingested at an acceptable nominal rate.

**Test Case 6                    EDC Landsat 7 IAS Nominal RateTest (B203.02.06)**

This test verifies that the EDC DAAC has the capability of ingesting data from Landsat 7 IAS at the nominal rate.

Test Configuration: Hardware - workstation

Software - INGST

Input: A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

Output: Rate performance data is collected.

Expected Results: Performance data is examined. The performance data is analyzed to determine if ingest data is ingested at an acceptable nominal rate.

**Test Case 7                    EDC Landsat 7 IGS Nominal RateTest (B203.02.07)**

This test verifies that the ECD DAAC has the capability of ingesting data from Landsat 7 IGS at the nominal rate.

Test Configuration: Hardware - workstation

Software - INGST

Input: A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

Output: Rate performance data is collected.

Expected Results: Performance data is examined. The performance data is analyzed to determine if ingest data is ingested at an acceptable nominal rate.

**Test Case 8                    GSFC NMC Nominal RateTest (B203.02.08)**

This test verifies that the GSFC DAAC has the capability of ingesting data from the NMC at the nominal rate.

Test Configuration: Hardware - workstation  
Software - INGST

Input: A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

Output: Rate performance data is collected.

Expected Results: Performance data is examined. The performance data is analyzed to determine if ingest data is ingested at an acceptable nominal rate.

**Test Case 9                    ASF RADARSAT Nominal RateTest (B203.02.09)**

This test verifies that the ASF DAAC has the capability of ingesting data from the RADARSAT at the nominal rate.

Test Configuration: Hardware - workstation  
Software - INGST

Input: A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

Output: Rate performance data is collected.

Expected Results: Performance data is examined. The performance data is analyzed to determine if ingest data is ingested at an acceptable nominal rate.

**Test Case 10                    ASF RADAR-ALT Nominal RateTest (B203.02.10)**

This test verifies that the ASF DAAC has the capability of ingesting data from the RADAR-ALT at the nominal rate.

Test Configuration: Hardware - workstation  
Software - INGST

Input: A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

Output: Rate performance data is collected.

Expected Results: Performance data is examined. The performance data is analyzed to determine if ingest data is ingested at an acceptable nominal rate.

**Test Case 11 ASF ERS-1/ERS-2 Nominal RateTest (B203.02.11)**

This test verifies that the ASF DAAC has the capability of ingesting data from the ERS-1/ERS-2 at the nominal rate.

Test Configuration: Hardware - workstation  
Software - INGST

Input: A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

Output: Rate performance data is collected.

Expected Results: Performance data is examined. The performance data is analyzed to determine if ingest data is ingested at an acceptable nominal rate.

**Test Case 12 ASF JERS-1 Nominal RateTest (B203.02.12)**

This test verifies that the ASF DAAC has the capability of ingesting data from the JERS-1 at the nominal rate.

Test Configuration: Hardware - workstation  
Software - INGST

Input: A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

Output: Rate performance data is collected.

Expected Results: Performance data is examined. The performance data is analyzed to determine if ingest data is ingested at an acceptable nominal rate.



Expected Results: Performance data is examined. The performance data is analyzed to determine if ingest data is ingested at an acceptable nominal rate.

**Test Case 16                    ACRIM Nominal Rate Test (B203.02.16)**

This test verifies that the TBD DAAC has the capability of ingesting data from the ACRIM at the nominal rate.

Test Configuration: Hardware - workstation

Software - INGST

Input: A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

Output: Rate performance data is collected.

Expected Results: Performance data is examined. The performance data is analyzed to determine if ingest data is ingested at an acceptable nominal rate.

**5.17.2.3 Sequence 3 - Ingest Resource Capability Sequence**

The following tests verify the capability to successfully support interface and ingest storage requirements for external data sources.

**Test Case 1                    Ingest GSFC TSDIS Resource Test (B203.03.01)**

This test verifies the capability for Ingest interface and storage resources to adequately support ingest functions for the TSDIS interface at GSFC.

Test Configuration: Hardware - workstation

Software - INGST

Input: A series of data request are submitted. Ingest interface and storage resources are monitored.

Output: Data interface and storage performance data is collected.

Expected Results: Interface and storage data is successfully collected and recorded. The data is analyzed to determine if hardware resources adequately support TSIDS interface and storage requirements at GSFC.

**Test Case 2                    Ingest MSFC TSDIS Resource Test(B203.03.02)**

This test verifies the capability for Ingest interface and storage resources to adequately support ingest functions for the TSDIS interface at MSFC.

Test Configuration: Hardware - workstation  
Software - INGST

Input: A series of data request are submitted. Ingest interface and storage resources are monitored.

Output: Data interface and storage performance data is collected.

Expected Results: Interface and storage data is successfully collected and recorded. The data is analyzed to determine if hardware resources adequately support TSIDS interface and storage requirements at MSFC.

**Test Case 3 Ingest GSFC AM-1 Resource Test (B203.03.03)**

This test verifies the capability for Ingest interface and storage resources to adequately support ingest functions for the AM-1 interface at GSFC.

Test Configuration: Hardware - workstation  
Software - INGST

Input: A series of data request are submitted. Ingest interface and storage resources are monitored.

Output: Data interface and storage performance data is collected.

Expected Results: Interface and storage data is successfully collected and recorded. The data is analyzed to determine if hardware resources adequately support AM-1 interface and storage requirements at GSFC.

**Test Case 4 Ingest LaRC AM-1 Resource Test (B203.03.04)**

This test verifies the capability for Ingest interface and storage resources to adequately support ingest functions for the AM-1 interface at LaRC.

Test Configuration: Hardware - workstation  
Software - INGST

Input: A series of data request are submitted. Ingest interface and storage resources are monitored.

Output: Data interface and storage performance data is collected.

Expected Results: Interface and storage data is successfully collected and recorded. The data is analyzed to determine if hardware resources adequately support AM-1 interface and storage requirements at LaRC.

#### **5.17.2.4 Sequence 4 - Ingest Sizing Sequence**

The following tests verify the capability to successfully support electronic data ingest sizing requirements or external data sources.





Expected Results: Interface data is successfully collected and recorded. The data is analyzed to determine if hardware resources adequately support EDC Landsat7 interface requirements.

**Test Case 7                    EDC Landsat 7 Hardware Sizing Test (B203.04.07)**

This test verifies that the EDC DAAC will be sized to support Landsat electronic data ingest interface at TBD bytes/second.

Test Configuration: Hardware - workstation

Software - INGST

Input: Data ingest at TBD bytes/second. Ingest interface resources are monitored.

Output: Data interface and storage performance data is collected.

Expected Results: Interface data is successfully collected and recorded. The data is analyzed to determine if hardware resources adequately support EDC Landsat interface requirements.

## **5.18 System Setup Build 1**

The System Setup Build 1 is an integrated build of the following system threads:

- Ingest Services
- Network Services
- MLCI
- System Initialization

### **5.18.1 Build Objectives**

The objective of the System Setup Build 1 is to test the essential system services needed by all subsequent SITP Threads and Builds for Release B. The objectives of the System Setup Build 1 are:

- Provide the capability to initialize the system for concurrent operational and test modes.
- Provide the capability to transfer data files and support interprocess communications per TCP/IP, and meet the performance requirements of the network and for ingest.
- Provide the capability to manage site and network communication including; configuration management, network performance monitoring and optimization, policy administration, inventory management and training management.
- Provide the capability to ingest metadata, ancillary data and Level 0 to Level 4 data through appropriate interfaces representing each of the instruments and spacecraft present in Release B, including: AM-1 (ASTER, CERES, MISR, MODIS and MOPPIT),

Landsat 7 (ETM+), FOO (COLOR), ADEOS II (SeaWinds), and Meteor-3 (SAGE III) and V0 migration.

### **5.18.2 Build Test Description**

This Build tests the connectivity of the WAN, LAN and external networks, and that data files can be effectively transported (via TCP/IP) between DAACs, SMC and EOC internally and externally. Tests will verify the interface between the ECS and the NOAA Satellite Active Archives (SAAs), and support for two-way Level 2 or 3 catalog interoperability. Testing will ensure that the transparent transfer of product data, metadata and inter-DAAC queries is supported by the ESN WANs network interprocess communications. Tests are performed to verify that effective WAN/LAN connectivity is provided to support AM-1 ground support system, ASTER GDS, ADEOS II, Meteor-3, FOO (COLOR) and Landsat 7 Production System Network. Verification testing of performance requirements for local and remote communications and database updates from the DAACs will be performed.

Testing will verify the configuration management functions: automated Software License Administration, electronic distribution of the most current software and contingencies for alternative media delivery of software. Network performance monitoring of specific network and communication services and optimization through scheduling and load-balancing of network resources will be verified. Testing will also verify that policies and procedures are appropriately distributed and maintained at the sites and across the network. Testing is performed to ensure that inventories of spare parts and consumable items and replenishment can be monitored system-wide and at the site level. Testing will verify that training management can be coordinated/supported between the SMC and the LSM.

Testing will also be performed to verify the proper archival of metadata, ancillary data and Level 0 to Level 4 data for each of the instruments and spacecraft present in Release B. Testing will also ensure that data can be received using a variety of media types. Testers will verify that data being ingested is monitored and integrity checked by the system. HDF and Native formats will be ingested for AM-1, ADEOS II, Meteor-3, FOO (COLOR) and V0 data. V0 data migration and migration coordination will be tested between V0 elements and ECS. Tests will be performed to ensure that system performance meets the requirements for ingest and archive functions.

#### **Dependencies: (If Applicable)**

In order to verify the objectives of the System Setup Build 1, the following interface and functional capabilities are required:

- Network environment (LAN and WAN)
- Established policies and procedures for EOS and individual elements
- Interface to receive AM-1 platform data products
- Interface to receive Landsat 7 platform data products
- Interface to receive FOO (COLOR) platform data products
- Interface to receive ADEOS II platform data products

- Interface to receive Meteor-3 platform data products
- Interface to receive V0 data products

The following customary service interfaces are required:

- Data server/archive interface to perform data storage
- Scheduled file transfer interface
- File transfer application interface
- Interface between CSMS and SDPS segments

The following object services are required:

- TBD

If any the above interfaces or services are not supported by this release, then a simulation must be provided.

### **Test Support Requirements**

- Hardware:
  - TBD
- Software:
- Data:
  - simulated data granules
  - metadata, ancillary data products

#### **5.18.2.1 Sequence 1 - Ingest**

This testing will verify the ingest functionality when the INGST software is integrated with the System Initialization, Network services, and MLCI Build software.

##### **Test Case 1                    GSFC EDOS Nominal Rate Ingest Test (B208.01.01)**

This test verifies that the GSFC DAAC has the capability of ingesting data from the EDOS at the nominal daily rate.

Test Configuration:    Hardware - workstation

   Software - INGST

Input:                                    A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

Output:                                    Rate performance data is collected.

Expected Results: Performance data is examined. The performance data is analyzed to determine if ingest data is ingested at an acceptable nominal rate.

**Test Case 2                    GSFC EDOS Maximum Rate Ingest Test (B208.01.02)**

This test verifies that the GSFC DAAC has the capability of ingesting data from EDOS at a maximum daily rate that is three times the nominal rate.

Test Configuration: Hardware - workstation

Software - INGST

Input: A series of Ingest requests are submitted continuously over timed intervals. The number of ingest requests is increased, until the system can no longer accept requests. Requests are for data of various size and type. The system is monitored during Ingest processing.

Output: Rate performance data is collected.

Expected Results: Performance data is examined. The performance data is analyzed to determine if ingest data can be ingested at a rate that is three times the acceptable nominal rate.

**Test Case 3                    LaRC EDOS Nominal Rate Ingest Test (B208.01.03)**

This test verifies that the LaRC DAAC has the capability of ingesting data from the EDOS at the nominal daily rate.

Test Configuration: Hardware - workstation

Software - INGST

Input: A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

Output: Rate performance data is collected.

Expected Results: Performance data is examined. The performance data is analyzed to determine if ingest data is ingested at an acceptable nominal rate.

**Test Case 4                    LaRC EDOS Maximum Rate Ingest Test (B208.01.04)**

This test verifies that the GSFC DAAC has the capability of ingesting data from EDOS at a maximum daily rate that is three times the nominal rate.

Test Configuration: Hardware - workstation

Software - INGST

**Input:** A series of Ingest requests are submitted continuously over timed intervals. The number of ingest requests is increased, until the system can no longer accept requests. Requests are for data of various size and type. The system is monitored during Ingest processing.

**Output:** Rate performance data is collected.

**Expected Results:** Performance data is examined. The performance data is analyzed to determine if ingest data can be ingested at a rate that is three times the acceptable nominal rate.

**Test Case 5 EDC Landsat 7 LPs Nominal RateTest (B208.01.05)**

This test verifies that the LaRC DAAC has the capability of ingesting data from the EDC at the nominal rate.

**Test Configuration:** Hardware - workstation

Software - INGST

**Input:** A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

**Output:** Rate performance data is collected.

**Expected Results:** Performance data is examined. The performance data is analyzed to determine if ingest data is ingested at an acceptable nominal rate.

**Test Case 6 EDC Landsat 7 IAS Nominal RateTest (B208.01.06)**

This test verifies that the EDC DAAC has the capability of ingesting data from Landsat7 IAS at the nominal rate.

**Test Configuration:** Hardware - workstation

Software - INGST

**Input:** A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

**Output:** Rate performance data is collected.

**Expected Results:** Performance data is examined. The performance data is analyzed to determine if ingest data is ingested at an acceptable nominal rate.

**Test Case 7 EDC Landsat 7 IGS Nominal RateTest (B208.01.07)**

This test verifies that the ECD DAAC has the capability of ingesting data from Landsat7 IGS at the nominal rate.

Test Configuration: Hardware - workstation

Software - INGST

Input: A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

Output: Rate performance data is collected.

Expected Results: Performance data is examined. The performance data is analyzed to determine if ingest data is ingested at an acceptable nominal rate.

**Test Case 8      GSFC NMC Nominal RateTest (B208.01.08)**

This test verifies that the GSFC DAAC has the capability of ingesting data from the NMC at the nominal rate.

Test Configuration: Hardware - workstation

Software - INGST

Input: A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

Output: Rate performance data is collected.

**Test Case 9      ASF RADARSAT Nominal RateTest (B208.01.09)**

This test verifies that the ASF DAAC has the capability of ingesting data from the RADARSAT at the nominal rate.

Test Configuration: Hardware - workstation

Software - INGST

Input: A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

Output: Rate performance data is collected.

Expected Results: Performance data is examined. The performance data is analyzed to determine if ingest data is ingested at an acceptable nominal rate.

**Test Case 10      ASF RADAR-ALT Nominal RateTest (B208.01.10)**

This test verifies that the ASF DAAC has the capability of ingesting data from the RADAR-ALT at the nominal rate.

Test Configuration: Hardware - workstation

Software - INGST

Input: A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

Output: Rate performance data is collected.

Expected Results: Performance data is examined. The performance data is analyzed to determine if ingest data is ingested at an acceptable nominal rate.

**Test Case 11 ASF ERS-1/ERS-2 Nominal RateTest (B208.01.11)**

This test verifies that the ASF DAAC has the capability of ingesting data from the ERS-1/ERS-2 at the nominal rate.

Test Configuration: Hardware - workstation

Software - INGST

Input: A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

Output: Rate performance data is collected.

Expected Results: Performance data is examined. The performance data is analyzed to determine if ingest data is ingested at an acceptable nominal rate.

**Test Case 12 ASF JERS-1 Nominal RateTest (B208.01.12)**

This test verifies that the ASF DAAC has the capability of ingesting data from the JERS-1 at the nominal rate.

Test Configuration: Hardware - workstation

Software - INGST

Input: A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

Output: Rate performance data is collected.

Expected Results: Performance data is examined. The performance data is analyzed to determine if ingest data is ingested at an acceptable nominal rate.

**Test Case 13 LaRC SAGE III Nominal RateTest (B208.01.13)**

This test verifies that the LaRC DAAC has the capability of ingesting data from the SAGE III at the nominal rate.

Test Configuration: Hardware - workstation

Software - INGST

Input: A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

Output: Rate performance data is collected.

Expected Results: Performance data is examined. The performance data is analyzed to determine if ingest data is ingested at an acceptable nominal rate.

**Test Case 14 ASF RGS Nominal RateTest (B208.01.14)**

This test verifies that the ASF DAAC has the capability of ingesting data from the RGS at the nominal rate.

Test Configuration: Hardware - workstation

Software - INGST

Input: A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

Output: Rate performance data is collected.

Expected Results: Performance data is examined. The performance data is analyzed to determine if ingest data is ingested at an acceptable nominal rate.

**Test Case 15 ASF SPS Nominal RateTest (B208.01.15)**

This test verifies that the ASF DAAC has the capability of ingesting data from the ASF SPS at the nominal rate.

Test Configuration: Hardware - workstation

Software - INGST

**Input:** A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

**Output:** Rate performance data is collected.

**Expected Results:** Performance data is examined. The performance data is analyzed to determine if ingest data is ingested at an acceptable nominal rate.

**Test Case 16      ACRIM Nominal Rate Test (B208.01.16)**

This test verifies that the TBD DAAC has the capability of ingesting data from the ACRIM at the nominal rate.

**Test Configuration:** Hardware - workstation  
Software - INGST

**Input:** A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

**Output:** Rate performance data is collected.

**Expected Results:** Performance data is examined. The performance data is analyzed to determine if ingest data is ingested at an acceptable nominal rate.

**Test Case 17      Ingest GSFC TSDIS Resource Test (B208.01.17)**

This test verifies the capability for Ingest interface and storage resources to adequately support ingest functions for the TSDIS interface at GSFC.

**Test Configuration:** Hardware - workstation  
Software - INGST

**Input:** A series of data request are submitted. Ingest interface and storage resources are monitored.

**Output:** Data interface and storage performance data is collected.

**Expected Results:** Interface and storage data is successfully collected and recorded. The data is analyzed to determine if hardware resources adequately support TSIDS interface and storage requirements at GSFC.

**Test Case 18      Ingest LaRC AM-1 Resource Test (B208.01.18)**

This test verifies the capability for Ingest interface and storage resources to adequately support ingest functions for the AM-1 interface at LaRC.

**Test Configuration:** Hardware - workstation

Software - INGST

- Input: A series of data request are submitted. Ingest interface and storage resources are monitored.
- Output: Data interface and storage performance data is collected.
- Expected Results: Interface and storage data is successfully collected and recorded. The data is analyzed to determine if hardware resources adequately support AM-1 interface and storage requirements at LaRC.

### 5.18.2.2 Sequence 2 - System Initialization

This testing will verify the System Initialization functionality when the System Initialization software is integrated with the INGST, Network services, and MLCI Build software.

#### **Test Case 1                      Concurrent execution of operational mode and test mode** **(B208.02.01)**

This test verifies that the capability of the concurrent execution of operational mode and test mode.

- Test Configuration: Hardware - Workstation, X terminal  
Software - mode management application

- Input: Initialize the operational mode environment in the mode management script.
- Output: The message is displayed the execution of the operational mode and test mode.
- Expected Results: The HP OpenView shows the successful execution of the operational and test system environment.

#### **Test Case 2                      Concurrent execution of operational mode and training mode** **(B208.02.02)**

This test verifies that the capability of the concurrent execution of operational mode and training mode.

- Test Configuration: Hardware - Workstation, X terminal  
Software - mode management application

- Input: Initialize the operational mode environment in the mode management script.
- Output: The message is displayed the execution of the operational mode and training mode.

Expected Results: The HP OpenView shows the successful execution of the operational and training system environment.

**Test Case 3 Operational mode performance statistics (B208.02.03)**

This test verifies that the capability of the mode management service to monitor and provide the operational mode performance statistics.

Test Configuration: Hardware - Workstation, X terminal  
Software - mode management application

Input: To request to display the performance statistics of the operational mode environment in the mode management script.

Output: The performance statistics of operational mode is displayed.

Expected Results: The HP OpenView shows the statistics.

**Test Case 4 Operational mode fault detection (B208.02.04)**

This test verifies that the capability of the mode management service to monitor and provide the operational mode fault detection and isolation information.

Test Configuration: Hardware - Workstation, X terminal  
Software - mode management application

Input: To bring down the subsystem process.

Output: The message is displayed to indicate the fault occurs.

Expected Results: The HP OpenView shows the fault information.

**Test Case 5 Operational mode management statistics (B208.02.05)**

This test verifies that the capability of the mode management service to monitor and provide the test mode management statistics.

Test Configuration: Hardware - Workstation, X terminal  
Software - mode management application

Input: To request to display the management statistics of the test mode environment in the mode management script.

Output: The management statistics of test mode is displayed.

Expected Results: The HP OpenView shows the statistics.

**5.18.2.3 Sequence 3 - Network Services**

This testing will verify the network services functionality when the Network services software is integrated with the INGST, System Initialization, and MLCI Build software.



This test verifies the ability of the Configuration Management Application Service to package software, databases, and documentation for delivery to destinations at both ECS and ECS-connected sites.

Test Configuration: Hardware - workstations

Software - MSS Configuration Management Application Service

Input: The tester simulating a software delivery, attempts to package software, databases, and documentation for delivery to destinations at both ECS and ECS-connected sites.

Output: Messages indicating that the software, databases, and documentation for delivery to the destinations are packaged.

Expected Results: The software, databases, and documentation for delivery to the destinations are packaged for both ECS and ECS-connected sites.

**Test Case 2**      **Schedule Automatic and Operator-Assisted Distribution of Software Packages (B208.04.02)**

This test verifies the ability of the Configuration Management Application Service to schedule via the EMC Planning and Scheduling Service automatic and operator-assisted distribution of software packages.

Test Configuration: Hardware - workstations

Software - MSS Configuration Management Application Service, EMC Planning and Scheduling Service

Input: The tester simulating a software delivery, attempts to schedule both automatic and operator-assisted distribution of software packages via the EMC Planning and Scheduling Service.

Output: Messages indicating that the both automatic and operator-assisted distribution of software packages are scheduled.

Expected Results: The both automatic and operator-assisted distribution of software packages are scheduled via the EMC Planning and Scheduling Service.

**Test Case 3**      **Push Software Packages from a Central Distribution Point (B208.04.03)**

This test verifies the ability of the Configuration Management Application Service to push software packages from a central distribution point/depot to remote target platforms (servers and workstations).

Test Configuration: Hardware - workstations

Software - MSS Configuration Management Application Service

Input: The tester simulating a software delivery, attempts to push a software package from a central distribution point/depot to a remote target platform.

Output: Messages indicating that a software package is pushed.

Expected Results: The a software package is pushed from a central distribution point/depot to a remote target platform.

**Test Case 4 Pull Distribution Packages from Central Distribution Points (B208.04.04)**

This test verifies the ability of the Configuration Management Application Service to at the site pull distribution packages from central distribution points/depots onto individual target destinations.

Test Configuration: Hardware - workstations

Software - MSS Configuration Management Application Service

Input: The tester simulating a software delivery, attempts to pull a software package from a central distribution point/depot onto a remote target platform.

Output: Messages indicating that a software package is pulled.

Expected Results: The a software package is pulled from a central distribution point/depot onto a remote target platform.

**Test Case 5 Report License Utilization Statistics (B208.04.05)**

This test verifies the ability of the Configuration Management Application Service to report license utilization statistics.

Test Configuration: Hardware - workstations

Software - MSS Configuration Management Application Service

Input: The tester via the Configuration Management Application Service attempts to generate a report of license utilization statistics.

Output: Report of license utilization statistics areOutput.

Expected Results: The tester can successfully generate the report of license utilization statistics using the Configuration Management Application Service.

**Test Case 6 Access Site Spare Parts Inventory at the SMC (B208.04.06)**

Testing will demonstrate the capability to access specified site's spare parts inventory information. The accessed information will include a description, quantity on hand, prescribed stock level, and operational status for a given spare part.

Test Configuration: Hardware - workstations  
Software - ILS Management

Input: A site is specified by the operator, and a spare part is selected to access it's inventory information for that site.

Output: The description, quantity on hand, prescribed stock level, and operational status for the selected spare part at the specified site is displayed to the operator.

Expected Results: The specified site's spare parts inventory is accessed to obtain the description, quantity on hand, prescribed stock level, and operational status for the selected spare part.

**Test Case 7 Access Consumable Items Inventory at a Site (B208.04.07)**

Testing will demonstrate the capability to access site consumable items inventory information. The accessed information will include a description, quantity on hand, prescribed stock level, quantity on order, and quantity issued for a given consumable item.

Test Configuration: Hardware - workstations  
Software - ILS Management

Input: A consumable item is selected by the operator to access it's inventory information.

Output: The description, quantity on hand, prescribed stock level, quantity on order, and quantity issued for the selected consumable item at the specified site is displayed to the operator.

Expected Results: The site consumable items inventory is accessed to obtain the description, quantity on hand, prescribed stock level, quantity on order, and quantity issued for the selected consumable item.

**Test Case 8 Generating an Order for Spare Parts Inventory at a Site (B208.04.08)**

Testing will demonstrate that low levels of spare parts can be identified, and orders to replenish the spare parts will be generated at the site.

Test Configuration: Hardware - workstations  
Software - ILS Management

Input: The operator will run a report and will select a highlighted item whose on-hand quantity has reached the reorder point to generate an order. Values for the description, quantity on hand, prescribed stock level, quantity on order, date ordered, name of supplier,

location of supplier, point of contact of supplier, order status, estimated delivery date, and actual delivery date is entered by the operator or defaulted by the system. After the order is generated, the operator will generate a report showing the order information for the appropriate order.

**Output:** A report with at least one highlighted item whose on-hand quantity has reached the reorder point is displayed to the operator. A report showing the order information for the appropriate order is displayed to the operator.

**Expected Results:** An order is generated for an item whose on-hand quantity has reached the reorder point. The order information is entered by the operator or defaulted by the system including the description, quantity on hand, prescribed stock level, quantity on order, date ordered, name of supplier, location of supplier, point of contact of supplier, order status, estimated delivery date, and actual delivery date of the spare part. The order information will match the information as entered by the operator, and any fields not entered by the operator contain default system values.

**Test Case 9**      **Updating an Order for Spare Parts Inventory at a Site**  
**(B208.04.09)**

Testing will demonstrate that orders to replenish the spare parts can be updated at the site.

**Test Configuration:** Hardware - workstations  
Software - ILS Management

**Input:** The operator will run a report showing orders at the site, and will select an order to be updated. Values for the description, quantity on hand, prescribed stock level, quantity on order, date ordered, name of supplier, location of supplier, point of contact of supplier, order status, estimated delivery date, and actual delivery date is changed by the operator. After the order is updated, the operator will generate a report showing the order information for the appropriate order.

**Output:** A report showing orders at the site is displayed to the operator. A report showing the order information for the appropriate order is displayed to the operator.

**Expected Results:** An order is updated by the operator. The order information is updated by the operator including the description, quantity on hand, prescribed stock level, quantity on order, date ordered, name of supplier, location of supplier, point of contact of supplier, order status, estimated delivery date, and actual delivery date of the spare

part. The order information will match the information as entered by the operator, and any fields not entered by the operator will retain their original values.

**Test Case 10**      **Canceling an Order for Spare Parts Inventory at a Site**  
**(B208.04.10)**

Testing will demonstrate that orders to replenish the spare parts can be canceled at the site.

Test Configuration:    Hardware - workstations

Software - ILS Management

Input:                    The operator will run a report showing orders at the site, and will select an order to be canceled. After the order is canceled, the operator will generate a report showing the order information for the appropriate order.

Output:                  A report showing orders at the site is displayed to the operator. A report showing the order information for the appropriate order is displayed to the operator.

Expected Results:      An order is canceled by the operator. The appropriate order is canceled.

**Test Case 11**      **Access Site Spare Parts Order Information at the SMC**  
**(B208.04.11)**

Testing will demonstrate the capability to access specified site's spare parts inventory for order information. The accessed information will include a description, quantity on hand, quantity on order, prescribed stock level, name of supplier, location of supplier, point of contact for supplier, estimated delivery date, actual delivery date, and order status for a given spare part.

Test Configuration:    Hardware - workstations

Software - ILS Management

Input:                    A site is specified by the operator, and a spare part is selected to access it's order information for that site.

Output:                  The description, quantity on hand, quantity on order, prescribed stock level, name of supplier, location of supplier, point of contact for supplier, estimated delivery date, actual delivery date, and order status for the selected spare part at the specified site is displayed to the operator.

Expected Results:      The specified site's spare parts inventory order information is accessed to obtain the description, quantity on hand, quantity on order, prescribed stock level, name of supplier, location of

supplier, point of contact for supplier, estimated delivery date, actual delivery date, and order status for the selected spare part.

**Test Case 12**      **Generating an Order for Consumable Items Inventory at a Site (B208.04.12)**

Testing will demonstrate that low levels of consumable items can be identified, and orders to replenish the consumable items will be generated at the site.

Test Configuration:    Hardware - workstations

Software - ILS Management

Input:                    The operator will run a report and will select a highlighted item whose on-hand quantity has reached the established reorder point to generate an order. Values for the description, quantity on order, price, name of supplier, location of supplier, and point of contact of supplier is entered by the operator or defaulted by the system. After the order is generated, the operator will generate a report showing the order information for the appropriate order.

Output:                    A report with at least one highlighted item whose on-hand quantity has reached the established reorder point is displayed to the operator. A report showing the order information for the appropriate order is displayed to the operator.

Expected Results:      An order is generated for an item whose on-hand quantity has reached the reorder point. The order information is entered by the operator or defaulted by the system including the description, quantity on order, price, name of supplier, location of supplier, and point of contact of supplier of the consumable item. The order information will match the information as entered by the operator, and any fields not entered by the operator contain default system values.

**Test Case 13**      **Access Consumable Items Order Information at a Local Site (B208.04.13)**

Testing will demonstrate the capability to access a local site's consumable items inventory for order information. The accessed information will include a description, quantity ordered, date ordered, name of supplier, location of supplier, point of contact for supplier, and estimated delivery date for a given consumable item.

Test Configuration:    Hardware - workstations

Software - ILS Management

Input:                    The operator will select a consumable item to access it's order information for that site.

**Output:** The description, quantity ordered, date ordered, name of supplier, location of supplier, point of contact for supplier, and estimated delivery date for the selected consumable item at the local site is displayed to the operator.

**Expected Results:** The local site's consumable items inventory order information is accessed to obtain the description, quantity ordered, date ordered, name of supplier, location of supplier, point of contact for supplier, and estimated delivery date of the consumable item.

**Test Case 14      Add Non-Expendable and Consumable ECS Resources to System-Wide Catalog (B208.04.14)**

This test will demonstrate the capability to add non-expendable and consumable ECS resources to the SMC's on-line system-wide catalog.

**Test Configuration:** Hardware - workstations  
Software - ILS Management

**Input:** An operator will select to add a non-expendable and a consumable ECS resource to the SMC's on-line system-wide catalog. After the non-expendable and consumable ECS resources are entered into the SMC's on-line system-wide catalog, a report showing the catalog contents is generated by the operator.

**Output:** A report showing the contents of the SMC's on-line system-wide catalog is generated.

**Expected Results:** The non-expendable and consumable ECS resources, entered by the operator, will appear on the generated report.

**Test Case 15      Delete Non-Expendable and Consumable ECS Resources from System-Wide Catalog (B208.04.15)**

This test will demonstrate the capability to delete non-expendable and consumable ECS resources from the SMC's on-line system-wide catalog.

**Test Configuration:** Hardware - workstations  
Software - ILS Management

**Input:** An operator will select to delete a non-expendable and a consumable ECS resource from the SMC's on-line system-wide catalog. After the non-expendable and consumable ECS resources are deleted from the SMC's on-line system-wide catalog, a report showing the catalog contents is generated by the operator.

**Output:** A report showing the contents of the SMC's on-line system-wide catalog is generated.

Expected Results: The non-expendable and consumable ECS resources, deleted by the operator, will not appear on the generated report.

**Test Case 16**      **Report Consolidated Spare Parts Order Information at the SMC (B208.04.16)**

Testing will demonstrate the capability to generate consolidated reports on site spare parts inventory order information. The reported information will include a description, quantity on hand, quantity on order, prescribed stock level, name of supplier, location of supplier, point of contact for supplier, estimated delivery date, actual delivery date, and order status for a given spare part.

Test Configuration: Hardware - workstations  
Software - ILS Management

Input: A spare part is selected to report on its order information for all sites.

Output: The description, quantity on hand, quantity on order, prescribed stock level, name of supplier, location of supplier, point of contact for supplier, estimated delivery date, actual delivery date, and order status for the selected spare part for all sites is reported.

Expected Results: The spare parts inventories at all sites are accessed to generate a report containing the description, quantity on hand, quantity on order, prescribed stock level, name of supplier, location of supplier, point of contact for supplier, estimated delivery date, actual delivery date, and order status for the selected spare part.

**Test Case 17**      **Input, Store, Maintain, and View/Print Training Information (B208.04.17)**

This test verifies the ability of the Training Management Application Service to input, store, maintain, and view/print training information.

Test Configuration: Hardware - workstations  
Software - MSS Training Management Application Service

Input: The tester, using the Training Management Application Service, attempts to input, store, maintain, and view/print training information.

Output: Messages indicating that the training information is stored. The training information is displayed and printed.

Expected Results: The training information is displayed and printed, as it is input by the tester.

**Test Case 18**      **Input, Store, Maintain, and View/Print Training Records Information (B208.04.18)**

This test verifies the ability of the Training Management Application Service to input, store, maintain, and view/print training records information.

Test Configuration:    Hardware - workstations

Software - MSS Training Management Application Service

Input:                    The tester, using the Training Management Application Service, attempts to input, store, maintain, and view/print training records information.

Output:                  Messages indicating that the training records information is stored. The training records information is displayed and printed.

Expected Results:    The training records information is displayed and printed, as it is input by the tester.

**Test Case 19**      **Retrieve and View/Print Training Courses and Schedules Information (B208.04.19)**

This test verifies the ability of the Training Management Application Service to retrieve and view/print training courses and schedules information from a SMC training information repository.

Test Configuration:    Hardware - workstations

Software - MSS Training Management Application Service

Input:                    The tester, using the Training Management Application Service, attempts to retrieve and view/print training courses and schedules information from the SMC training information repository.

Output:                  Messages indicating that training courses and schedules information is retrieved from the SMC training information repository and is viewed and printed.

Expected Results:    The training courses and schedules information viewed and printed as retrieved from the SMC training information repository.

**Test Case 20**      **Schedule Training Events via the MSS Planning and Scheduling Service (B208.04.20)**

This test verifies the ability of the Training Management Application Service to schedule training events via the MSS Planning and Scheduling Service.

Test Configuration:    Hardware - workstations

Software - MSS Training Management Application Service

Input: The tester, using the Training Management Application Service, attempts to schedule training events via the MSS Planning and Scheduling Service.

Output: Messages confirming the scheduling of training events.

Expected Results: The training events are scheduled as requested by the tester.

**Test Case 21 Prepare, Update, Store, View/Print, and Disseminate Training Course Information (B208.04.21)**

This test verifies the ability of the Training Management Application Service at the SMC to prepare, update, store, view/print, and disseminate training courses descriptions, course prerequisites, resource requirements, and schedules.

Test Configuration: Hardware - workstations  
Software - MSS Training Management Application Service

Input: The tester at a simulated SMC, using the Training Management Application Service, attempts to prepare, update, store, view/print, and disseminate a training course description, course prerequisites, resource requirements, and schedule.

Output: Messages indicating the preparation, update, and storage of training course description, course prerequisites, resource requirements, and schedule. The display and hard copy of training course description, course prerequisites, resource requirements, and schedule.

Expected Results: The tester successfully completes the preparation, update, and storage of training course description, course prerequisites, resource requirements, and schedule. The tester is able to produce a display and hard copy of training course description, course prerequisites, resource requirements, and schedule.

**Test Case 22 Produce PM and Corrective Maintenance Reports (B208.04.22)**

This test verifies the ability of the Maintenance Management Application Service to provide the M&O staff the capability to produce PM and corrective maintenance reports based on operator entered criteria.

Test Configuration: Hardware - workstations  
Software - MSS Maintenance Management Application Service

Input: The tester will attempt to produce PM and corrective maintenance reports by entering a criteria.

Output: The PM and corrective maintenance reports are displayed.

Expected Results: The PM and corrective maintenance reports are displayed, and will contain information pertaining to the criteria entered by the tester.

**Test Case 23**      **Receive Specified Site Maintenance Data at the SMC**  
**(B208.04.23)**

This test verifies the ability of the Maintenance Management Application Service to receive specified site maintenance data at the SMC for use in maintenance trends analysis.

Test Configuration: Hardware - workstations

Software - MSS Maintenance Management Application Service

Input: The tester at a simulated SMC, using the MSS Maintenance Management Application Service, will attempt to receive specified site maintenance data for use in maintenance trends analysis.

Output: Statistics based on site maintenance data for use in maintenance trends analysis are displayed.

Expected Results: The tester will successfully receive specified site maintenance data into the simulated SMC, and view the statistics based on the site maintenance data.

**Test Case 24**      **Input, Store, Maintain, and View/Print PM Information for**  
**Site Equipment (B208.04.24)**

This test verifies the ability of the Maintenance Management Application Service to input, store, maintain, and view/print Preventive Maintenance (PM) information for site equipment.

Test Configuration: Hardware - workstations

Software - MSS Maintenance Management Application Service

Input: The tester will attempt to input, store, maintain, and view/print PM information for a unit of site equipment.

Output: Messages indicating the input, storage, and update of PM information for a unit of site equipment. The PM information is viewed and printed.

Expected Results: The PM information entered by the tester will be input, stored and updated. The PM information will be viewed and printed.

**Test Case 25**      **Schedule Maintenance Events via the MSS Planning and**  
**Scheduling Service (B208.04.25)**

This test verifies the ability of the Maintenance Management Application Service to schedule maintenance events via the MSS Planning and Scheduling Service.

Test Configuration: Hardware - workstations  
Software - MSS Maintenance Management Application Service,  
MSS Planning and Scheduling Service

Input: The tester, using the Maintenance Management Application Service, will attempt to schedule maintenance events via the MSS Planning and Scheduling Service.

Output: Messages indicating that maintenance events have been scheduled.

Expected Results: The requested maintenance events will be scheduled via the MSS Planning and Scheduling Service.

**Test Case 26 Provide Off-Site Maintenance Reports (B208.04.26)**

This test verifies the ability of the Maintenance Management Application Service to provide off-site maintenance reports based on operator entered criteria.

Test Configuration: Hardware - workstations  
Software - MSS Maintenance Management Application Service

Input: The tester will attempt to produce off-site maintenance reports.

Output: The off-site maintenance reports will be displayed.

Expected Results: The off-site maintenance reports will be provided, and will contain information pertaining to ongoing off-site maintenance.

**Test Case 27 Record Off-Site Maintenance Information (B208.04.27)**

This test verifies the ability of the Maintenance Management Application Service to record off-site maintenance information: identification of component; description of problem; and corrective action taken.

Test Configuration: Hardware - workstations  
Software - MSS Maintenance Management Application Service

Input: The tester will attempt to record, and view/print off-site maintenance information for a unit of site equipment.

Output: Messages indicating the recording of off-site maintenance information for a unit of site equipment. The off-site maintenance information will be viewed and printed.

Expected Results: The off-site maintenance information as entered by the tester will be recorded. The off-site maintenance information will be viewed and printed.

## 5.19 Enhanced Guide Population Thread

### 5.19.1 Thread Objectives

The objectives of the Enhanced Guide Population Thread are:

- insertion of documents into the Document Data Server
- document search
- API interface for document additions

### 5.19.2 Thread Test Description

Using a simulator for data ingest, Document Data Requests are submitted to the Document Data Server software, where the documents are placed in storage. Using a simulator for client search request, document searches are performed.

#### Dependencies: (If Applicable)

To verify the objectives of the Enhanced Guide Population Thread, the following interface and functional capabilities are required:

- simulated ingest interface
- simulated client interface

#### Test Support Requirements

- Hardware:
  - operational system
- Software:
  - operational software
- Data:
  - documents

#### 5.19.2.1 Sequence 1 - Document Ingest Sequence

The following tests verify the ability of the Document Data Server to receive, and insert into the archive, documentation in various formats.

##### **Test Case 1                      Microsoft WORD Document Insert Test (T209-1.01.01)**

This test verifies the capability to insert documentation with a Microsoft WORD document format.

Test Configuration:    Hardware - workstation

   Software - DDSRV

Input: A series of Data Requests are submitted to insert documentation in Microsoft WORD document format.

Output: Notification of successful insertion into the Data Archive.

Expected Results: Documentation is successfully inserted into the Document Archive Storage.

**Test Case 2 Interleaf Document Insert Test (T209-1.01.02)**

This test verifies the capability to insert documentation in Interleaf format.

Test Configuration: Hardware - workstation

Software - DDSRV

Input: A series of Data Requests are submitted to insert documentation in Interleaf format document format.

Output: Notification of successful insertion into the Data Archive.

Expected Results: Documentation is successfully inserted into the Document Archive Storage.

**Test Case 3 WordPerfect Document Insert Test (T209-1.01.03)**

This test verifies the capability to insert documentation in WordPerfect format.

Test Configuration: Hardware - workstation

Software - DDSRV

Input: A series of Data Requests are submitted to insert documentation in WordPerfect document format.

Output: Notification of successful insertion into the Data Archive.

Expected Results: Documentation is successfully inserted into the Document Archive Storage.

**Test Case 4 Document Addition API Test (T209-1.01.04)**

This test verifies the ability to provide application programming interfaces which will support the development of extensions for additions of documents. This will be used as Guide data for DAAC-specific Data Products.

Test Configuration: Hardware - workstation

Software - DDSRV

Input: Using the API, extensions are generated to allow document additions. These additions support storage of Guide data for DAAC specific Data Products.

Output: Documents submitted are in Guide.

Expected Results: All documents submitted are in the Guide.

### **5.19.2.2 Sequence 2 - Document Server Search Sequence**

The following tests verify the ability of the Document Server to accept and appropriately respond to search requests. Search results are obtained for queries submitted, and the results are returned to the requester.

#### **Test Case 1 Guide Search Performance Test (T209-1.02.01)**

This test verifies the capability to complete a search for a guide document. The software will be able to do this by a single keyword; however, the search is not to exceed 8 seconds.

Test Configuration: Hardware - workstation

Software - DDSRV

Input: Submit single keyword searches to guide and collect information on search time.

Output: Submit searches successfully and return guide data.

Expected Results: Search will not take any longer than 8 seconds for a single keyword search.

#### **Test Case 2 Directory Single Keyword Search Performance Test (T209-1.02.02)**

This test verifies the capability to complete a directory search. The software will be able to do this by a single keyword search, not to exceed 8 seconds.

Test Configuration: Hardware - workstation

Software - DDSRV

Input: Submit single keyword searches for directories and collect information on search time.

Output: Search results are returned to the requester.

Expected Results: Single keyword search will not take any longer than 8 seconds for a directory search.

#### **Test Case 3 Directory Multiple Keyword Search Performance Test (T209-1.02.03)**

This test verifies the capability to complete a directory search. The software will be able to do this by using multiple keywords; however, the search is not to exceed 13 seconds.

Test Configuration: Hardware - workstation  
Software - DDSRV

Input: Submit multiple keyword searches for directories and collect information on search time.

Output: Search results are returned to the requester.

Expected Results: Multiple keyword search will not take any longer than 13 seconds for directory search.

**Test Case 4 Document Keyword Search Performance Test (T209-1.02.04)**

This test verifies the capability to complete a keyword search. The software will be able to do this on a 1000 page document; however, the search is not to exceed 3 seconds.

Test Configuration: Hardware - workstation  
Software - DDSRV

Input: Submit a keyword search and collect information on search time.

Output: Search results are returned to the requester.

Expected Results: Keyword search will not take any longer than 3 seconds for a 1000 page document search.

## **5.20 Enhanced Data Server Mgt/Admin Thread**

### **5.20.1 Thread Objectives**

The objectives of the Enhanced Data Server Mgt/Admin Thread are:

- archive data manipulation
- sessions management
- physical media distribution
- system performance analysis
- system fault management
- archive storage device management

### **5.20.2 Thread Test Description**

This thread contains tests that verify operational capabilities used to manage storage devices and data stored in storage devices. Storage device management capabilities include operational support for the following: session management, physical media distribution, system performance analysis, and fault management. Data manipulation capabilities include data deletion, and metadata updates.

## **Dependencies: (If Applicable)**

To verify the objectives of the Enhanced Data Server Mgt/Admin Thread, the following interface and functional capabilities are required:

- SMC for fault management
- client interface for session management

### **Test Support Requirements**

- Hardware:
  - operational system
- Software:
  - operational software
- Data:
  - file directory populated
  - metadata
  - SMC directives

## **5.20.2.1 Sequence 1 - Data Management Sequence**

The following tests verify the ability to manipulate data in the archive. This includes data updating and deletion. Data and data files are viewed before and after data manipulation.

### **Test Case 1 File Directory Record Deletion Test (T209-2.01.01)**

This test verifies the capability to provide a mechanism to delete records from the File Directory.

Test Configuration: Hardware - workstation

Software - STMGT

Input: A series of commands are submitted to view the File Directory and delete existing records from the File Directory.

Output: File Directory display.

Expected Results: All commands are received. The File Directory is viewed before and after File Directory record deletion. Appropriate files are deleted.

### **Test Case 2 Metadata Update Test (T209-2.01.02)**

This test verifies the ability of Data Server software to update metadata under the following circumstances:

- purged data item

- relocation of data item
- addition of metadata fields

Test Configuration: Hardware - workstation

Software - SDSRV

Input: Commands are submitted to view metadata. Operator requests are submitted to purge, update, and relocate data.

Output: Metadata is displayed.

Expected Results: Commands to purge, relocate and update metadata are accepted and processed. Metadata is viewed before and after purge, update, and relocate commands are processed. The appropriate metadata changes are made.

### **Test Case 3 Media Data Deletion Test (T209-2.01.03)**

This test verifies that for each piece of archive media, there is the ability to display how long data will remain on media before deletion. Also verified is the ability to change the length of time that data is stored on archive media before deletion of the data. Before the deletion of data, active users are notified when Data Products will be deleted. Notification is done directly or by bulletin board.

Test Configuration: Hardware - workstation

Software - STMGT

Input: Operational commands are submitted to display media deletion dates. Commands are submitted to modify the dates.

Output: Media is marked for deletion. Notification of data deletion is sent directly to users. Bulletin board messages of data deletion are posted.

Expected Results: Media data deletion dates are displayed and modified according to operational commands. Appropriate notifications are sent to users when data is to be deleted. Bulletin board entries are entered and displayed, telling of data deletion.

### **Test Case 4 Multiple Version Storage Test (T209-2.01.04)**

This test verifies the capability to provide to archive multiple versions of data granules.

Test Configuration: Hardware - workstation

Software - STMGT

Input: A series of commands are submitted to insert requests to store multiple versions of a data granule.

Output: Versions are indicated on inventory display.

Expected Results: All commands are received. The inventory is viewed before and after version inserts. The data granules are stored as version granules.

### **5.20.2.2 Sequence 2 - Session Sequence**

The following tests verify the ability to perform operations on sessions. Operations include session suspension, resumption, and termination. Requests are made by user clients and operations staff.

#### **Test Case 1 Operations Suspension of Client Session Test (T209-2.02.01)**

This test verifies the capability to provide the operations staff with the ability to suspend all active client sessions.

Test Configuration: Hardware - workstation  
Software - SDSRV

Input: Several client sessions are opened. Operational commands are submitted for suspension of all sessions active.

Output: Notification of session suspension.

Expected Results: All active sessions are suspended upon request. Complete and appropriate notification is sent to the requester.

#### **Test Case 2 Operations Resumption of Client Session Test (T209-2.02.02)**

This test verifies the capability to provide the operations staff with the ability to resume all active client sessions.

Test Configuration: Hardware - workstation  
Software - SDSRV

Input: Several client sessions are suspended. Operational commands are submitted for resumption of all sessions active.

Output: Notification of session resumption.

Expected Results: All active sessions are resumed upon request. Complete and appropriate notification is sent to the requester.

#### **Test Case 3 Operations Termination of Client Session Test (T209-2.02.03)**

This test verifies the capability to provide the operations staff with the ability to terminate an active client session.

Test Configuration: Hardware - workstation

Software - SDSRV

Input: Operational commands are submitted for the termination the session.

Output: Notification of session resumption.

Expected Results: All active sessions are resumed upon request. Complete and appropriate notification is sent to the requester.

**Test Case 4 Suspension of Client Session Test (T209-2.02.04)**

This test verifies the capability to accept Suspend Requests to suspend processing a client session.

Test Configuration: Hardware - workstation

Software - SDSRV

Input: A session is created. A suspend command is submitted for a session.

Output: Notification of suspension.

Expected Results: The session is suspended.

**Test Case 5 Resumption of Client Session Test (T209-2.02.05)**

This test verifies the capability to accept Resume Requests to resume processing of a client session.

Test Configuration: Hardware - workstation

Software - SDSRV

Input: Resume Request is submitted for a suspended session.

Output: Notification of resumption.

Expected Results: Requests for suspended sessions are accepted and the appropriate session is resumed. Client receive complete and appropriate notification.

**Test Case 6 User Termination of Client Session Test (T209-2.02.06)**

This test verifies the capability to provide the client the ability to terminate any or all active or suspended client sessions previously initiated by the client.

Test Configuration: Hardware - workstation

Software - SDSRV

Input: Termination Requests are submitted for active sessions.

Output: Notification is sent to requester.  
Expected Results: All requested sessions are suspended. Complete and accurate notifications are sent to the requester.

**Test Case 7                    User Resumption of Client Session Test (T209-2.02.07)**

This test verifies the capability to provide the client the ability to resume any or all active or suspended client sessions previously initiated by the client.

Test Configuration: Hardware - workstation  
Software - SDSRV

Input: Resumption Requests are submitted for suspended sessions.

Output: Notification is sent to requester.

Expected Results: All requested sessions are resumed. Complete and accurate notifications are sent to the requester.

**5.20.2.3 Sequence 3 - Media Distribution Sequence**

The following tests verify the ability to accept distribution requests for distribution of data on physical media. This includes placing data on physical media and generating appropriate media and shipping labels. Cost accounting information based on media and resources used, is recorded.

**Test Case 1                    4mm Tape Distribution Test (T209-2.03.01)**

This test verifies the capability to distribute information on 4mm tapes.

Test Configuration: Hardware - workstation  
Software - DDIST

Input: Operator commands to copy requesting physical media distribution on 4mm tape. Operator commands are submitted to retrieve data and place the data on the media.

Output: Notifications to the operators console display successful transfer of data onto media. The data requested is placed on 4mm tape.

Expected Results: Data on the physical media when compared to data in storage, finds no significant differences.

**Test Case 2                    3480/3490 Tape Distribution Test (T209-2.03.02)**

This test verifies the capability to distribute information on 3480/3490 tapes.

Test Configuration: Hardware - workstation  
Software - DDIST

**Input:** A series of data distribution requests is submitted, requesting physical media distribution on 3480/3490 tape. Operator commands are submitted to retrieve data and place the data on the media.

**Output:** Notifications to the operators console display successful transfer of data onto media. The data requested is placed on 3480/3490 tape.

**Expected Results:** Data on the physical media when compared to data in storage, finds no significant differences.

**Test Case 3 Correctable Error Threshold Test (T203-2.03.03)**

This test verifies that the operations staff has the capability to specify a threshold of correctable errors for each type of distribution media. Also, if the number of correctable errors exceed a system threshold for a piece of media, the software shall be capable of aborting the operation and automatically requests a new piece of media from the operations staff.

**Test Configuration:** Hardware - workstation  
Software - DDIST

**Input:** Commands are submitted to view, and then modify the correctable error threshold. Data transfer requests are submitted, to exceed the correctable error threshold.

**Output:** Notifications are displayed to the console, indicating over threshold limits. New media is requested.

**Expected Results:** Over threshold limits for correctable errors which exceed correctable error thresholds are detected. The error is recorded in a log and notification is sent, requesting new media.

**Test Case 4 FAX Transmission Test (T209-2.03.04)**

This test verifies the capability to distribute documents electronically through/via FAX transmissions.

**Test Configuration:** Hardware - workstation  
Software - DDIST

**Input:** A series of data distribution requests is submitted, requesting fax distribution.

**Output:** Documentation is sent by Fax to requester.

**Expected Results:** All data requests for Fax transmission of documents are accepted, and documents are successfully transmitted.

**Test Case 5 Media Label Generation Test (T209-2.03.05)**

This test verifies the capability to generate a physical "media label" that the operations staff can apply to the media. Also, this test shall associate the individual piece of media with any other media in the distribution. This is for physical media distributions.

Test Configuration: Hardware - workstation

Software - DDIST

Input: Data Requests are submitted for document distribution on media. Some requests result in multiple tape distribution.

Output: Media labels are generated.

Expected Results: Media labels are readable and contain complete and accurate content information.

**Test Case 6 Shipping Label Generation Test (T209-2.03.06)**

This test verifies the capability to generate a physical "shipping label" that the operations staff can affix to the shipping container and indicate the destination of the media. This is for physical media distributions.

Test Configuration: Hardware - workstation

Software - DDIST

Input: Data Requests are submitted for document distribution on media. Some requests result in multiple tape distribution.

Output: Shipping labels are generated.

Expected Results: Shipping labels are readable and contain complete and accurate destination information.

**Test Case 7 Media Cost Record Test (T209-2.03.07)**

This test verifies the capability to record the cost of the media to be used for accounting. This is for physical media distributions.

Test Configuration: Hardware - workstation

Software - DDIST

Input: A series of data distribution requests are submitted for various media distribution.

Output: Data media generation costs are recorded.

Expected Results: Correct and accurate costs are recorded for all media distribution requests submitted.

#### **5.20.2.4 Sequence 4 - Data Server System Management Sequence**

The following tests verify the ability to monitor the Data Server System, manage the storage archive devices and appropriately respond to system faults. Also verified is the ability of the Data Server to recover the system when a fault occurs. This includes verifying the ability of Data Server to interface with SMC software to send fault information to SMC and receive management directives from SMC.

##### **Test Case 1 Storage Operating Parameter Test (T209-2.04.01)**

This test verifies the capability to provide the operations staff with a mechanism to display/view a storage system operating parameters which affect storage system performance and scheduling. Also, this test verifies the capability to provide the operations staff the ability to change storage system operating parameters which affect storage system performance. Operating parameters are TBD.

Test Configuration: Hardware - workstation

Software - STMGT

Input: Operational commands to display operating parameters. Operational commands are submitted to modify operational parameters.

Output: Operational parameter displays.

Expected Results: Operational commands for display and modification of operating parameters are received. Operational parameters are noted before and after modifications. Parameters changes reflect the commands submitted.

##### **Test Case 2 Archive Media Removal Test (T209-2.04.02)**

This test verifies the capability to provide the operations staff the ability to alter the criteria that determines removal of archive media from storage devices to allow insertion of new or different archive media in the storage device. Note, that in determining the archive media that should be removed, the criteria shall consider the media's capacity for storing additional data, the last time data was accessed on the media and whether the media is currently in use to store or retrieve data.

Test Configuration: Hardware - workstation

Software - STMGT

Input: Operational commands are submitted to display the criteria of media device removal. Operational commands are submitted to modify the criteria. At least one request for each criteria selection is submitted. A series of Service Requests are submitted, enough to cause removal of media.

Output: Media criteria device display.

Expected Results: All operational commands are accepted and criteria information is displayed or modified according to the command. Archive is successfully removed according to current parameter criteria.

**Test Case 3 Storage System Report Generation Test (T209-2.04.03)**

This test verifies the capability to report information on the storage system. Information reported should include:

- file access time
- file accesses per hour
- size of files retrieved onto archive media
- size of files retrieved from archive media
- amount of storage allocated

Test Configuration: Hardware - workstation

Software - SDSRV and STMGT

Input: A series of Service Requests are submitted for the purpose of collecting system information. Commands are submitted to display system reports on data collected during Service Request Processing.

Output: Report are displayed.

Expected Results: Reports accurately display system data.

**Test Case 4 Archive Performance Monitoring Test (T209-2.04.04)**

This test verifies the capability to provide the ability to monitor the performance of the ECS archival storage system. Also, the operations staff is provided with the capability to view/display performance information on the storage system.

Test Configuration: Hardware - workstation

Software - STMGT

Input: A series of Service Requests are submitted for the purpose of collecting storage system performance data. Commands are submitted to display performance information.

Output: Reports are displayed.

Expected Results: Reports accurately display performance information.

**Test Case 5 Storage System Utilization Display Test (T209-2.04.05)**

This test verifies the capability to provide the operations staff with a mechanism to display/view storage system utilization by ECS element.

Test Configuration: Hardware - workstation

Software - SDSRV

Input: A series of Service Requests are submitted for the purpose of collecting system utilization information. Commands are submitted to display utilization information.

Output: Reports are displayed by ECS element.

Expected Results: Reports accurately display system utilization.

**Test Case 6 Document Data Server Fault Management Data Collection Test (T209-2.04.06)**

This test verifies the capability to collect fault management information and send the information to SMC. Fault Management Information includes the following:

- device failures
- Service Request failures
- transmission failures
- general failures

Test Configuration: Hardware - workstation

Software - DDSRV

Input: A series of Document Service Requests are submitted. Failures are introduced either by taking hardware off-line or by using UNIX utilities and commands to terminate processes.

Output: Failure information is logged and collected into files. These files are delivered to SMC.

Expected Results: All failures are logged and information is collected. This failure data is successfully sent to SMC.

**Test Case 7 SMC and Data Server Interface Test (T209-2.04.07)**

This test verifies the capability for SMC and Data Server to send and receive data. This is accomplished by utilizing and verifying operational commands to be used by the operations staff. SMC and Data Server data exchange includes:

- logistics status to SMC
- maintenance directives from SMC
- integration, testing, and simulation directives from SMC
- configuration management directives from SMC

- logistic management directives from SMC
- fault management directives from SMC
- security directives from SMC
- scheduling and adjudication directives from SMC
- integration, testing, and simulation status to SMC
- training management directives from SMC
- training information to SMC

Test Configuration: Hardware - workstation

Software - SDSRV

Input: A series of operational commands are submitted for the transfer of directives and status information between SMC and the Data Server.

Output: The data transfer is monitored and logged.

Expected Results: All data is transferred successfully and logged appropriately.

**Test Case 8 Resource Availability Test (T209-2.04.08)**

This test verifies the capability to inform the collocated elements of ECS if resource availability falls below nominal operating parameters.

Test Configuration: Hardware - workstation

Software - SDSRV

Input: Operator command to view nominal parameters. Configure system to have resource availability fall below nominal operating parameters.

Output: Notification to collocated elements of below nominal operating parameters.

Expected Results: Upon resource availability falling below nominal operating parameters, collocated elements are notified.

**Test Case 9 Restart Test (T209-2.04.09)**

This test verifies the capability for recovering the state of all Service Requests, which includes the rollback of incomplete Data Base Transactions, and the recovery of all complete Data Base Transactions in the event of a restart after a processing failure.

Test Configuration: Hardware - workstation

Software - SDSRV

**Input:** A series of Service Requests are submitted and monitored. During Service Request processing a system failure is imposed, either by taking hardware off-line or by using UNIX utilities and commands to terminate processes. Operator commands are submitted for system restart, rollback and recovery.

**Output:** System logs indicate system failure. System recovery is monitored.

**Expected Results:** All completed data base transactions are recovered. All incomplete data base transactions are returned to their state before interruption.

**Test Case 10 Operations Altering of Storage Devices Test (T209-2.04.10)**

This test verifies that the operations staff will provide the capability to manually alter the criteria that determines the physical storage device that data sets will be stored in.

**Test Configuration:** Hardware - workstation

Software - STMGT

**Input:** Operational commands are submitted for altering storage device criteria.

**Output:** Storage device criteria is displayed.

**Expected Results:** Criteria displayed reflects the changes submitted via operation command

**Test Case 11 Science Data Server Fault Management Data Collection Test (T209-2.04.11)**

This test verifies the capability to collect fault management information and send the information to SMC. Fault Management Information includes the following:

- device failures
- Service Request failures
- transmission failures
- general failures

**Test Configuration:** Hardware - workstation

Software - DDSRV

**Input:** A series of Science Service Requests are submitted. Failures are introduced either by taking hardware off-line or by using UNIX utilities and commands to terminate processes.

**Output:** Failure information is logged and collected into files. These files are delivered to SMC.

Expected Results: All failures are logged and information is collected. This failure data is successfully sent to SMC.

## 5.21 Data Server Manipulation Thread

### 5.21.1 Thread Objectives

The objectives of the Data Server Manipulation Thread are:

- staging disk services
- data distribution
- distribution cost and accounting
- subscriptions
- service request operations
- search operations

### 5.21.2 Thread Test Description

The following tests verify the basic retrieval and distribution capabilities. These capabilities include: data retrieval, data distribution, distribution cost accounting, subscription processing, and data request processing.

#### **Dependencies: (If Applicable)**

To verify the objectives of the Data Server Manipulation Thread, the following interface and functional capabilities are required:

- client simulator
- EDOS simulator
- CSMS

#### **Test Support Requirements**

- Hardware:
  - operational system
- Software:
  - operational software
- Data:
  - EOS instrument data
  - simulated instrument data
  - EDOS LO data
  - subsample, subsetted, summary data



Test Configuration: Hardware - workstation  
Software - STMGT and SDSRV

Input: A series of Data Retrieval Requests are submitted. These requests are for sub-sampled, subsetted and summary data. Retrieval requests submitted are in contention for hardware resources.

Output: Data Requests are received and properly logged. Estimates of staging device delay times are displayed to screen.

Expected Results: Estimates of delay time are displayed to the terminal screen.

**Test Case 3 Automatic Ingest of Inaccessible Data Test (T209-3.01.03)**

This test verifies that for any EOS Level 0 or Level 1A data item, which can not be located or is inaccessible and can not be re-created, the storage software will automatically request the data item be reingested from EDOS.

Test Configuration: Hardware - workstation  
Software - STMGT and SDSRV

Input: A request is submitted for Level 0 or Level 1A data products which are not accessible.

Output: A request is submitted for ingest of the data.

Expected Results: The requested data is successfully reingested.

**Test Case 4 Retrieval API Test (T209-3.01.04)**

This test verifies the capability to provide an application program interface, for the submission of Retrieval Requests and Retrieval Request Status.

Test Configuration: Hardware - workstation  
Software - STMGT

Input: Retrieval Requests and Retrieval Status Requests are submitted, via the API.

Output: Retrieval Request acknowledgments and Retrieval Request status.

Expected Results: All Retrieval Requests submitted are successfully received and processed. All requests are acknowledged. Request status is returned to the requester.

**5.21.2.2 Sequence 2 - Data Distribution Sequence**

The following tests verify the capability to successfully accept and fulfill Distribution Requests. Distribution costs are generated, according to the type of request, the type and size of data, and the method of distribution. Distribution costs are recorded.



Test Configuration: Hardware - workstation  
Software - DDIST

Input: A series of Media Distribution Requests are submitted for various sizes and types of data.

Output: Files containing distribution costs.

Expected Results: All Distribution Requests submitted are accepted and processed. Shipping and handling costs are generated and successfully recorded.

**Test Case 3 Network Distribution Cost Test (T209-3.02.03)**

This test verifies that data transmission costs associated with electronic distribution are correctly recorded. Along with the transmission cost, the User Identifier and the Request Identifier are recorded.

Test Configuration: Hardware - workstation  
Software - DDIST

Input: A series of Electronic Distribution Requests are submitted for various sizes and types of data.

Output: Files containing distribution costs.

Expected Results: All Distribution Requests submitted and processed successfully. Transmissions costs are generated and successfully recorded. User Identifier and Request Identifier information is correctly recorded with the cost information.

**Test Case 4 CPU Distribution Cost Test (T209-3.02.04)**

This test verifies that CPU costs, resulting from intensive operations performed on data to be distributed, are correctly recorded. Intensive operations include data compression, data decompression and data reformatting operations.

Test Configuration: Hardware - workstation  
Software - DDIST

Input: A series of Distribution Requests are submitted to include requests for data compression, data decompression and data reformatting.

Output: Files containing CPU costs for intensive operations performed.

Expected Results: All Distribution Requests submitted are processed successfully. CPU costs are generated and successfully recorded.



Expected Results: For each Service Request submitted, the appropriate format or conversion software is applied.

**Test Case 8 Data Server Availability Schedule Test (T209-3.02.08)**

This test verifies the capability for one Data Server to accept Data Availability Schedules from another Data Server.

Test Configuration: Hardware - workstation

Software - SDSRV

Input: A series of schedules submitted to the Data Server.

Output: A schedule of the data availability is supplied to another Data Server.

Expected Results: Each schedule submitted to the Data Server is accepted by Data Availability.

**Test Case 9 SMC and Data Distribution Interface Test (T209-3.02.09)**

This test verifies the capability to alert SMC when electronic transmission problems are encountered.

Test Configuration: Hardware - workstation

Software - DDIST

Input: When an electronic transmission problem occurs, the Data Server automatically alerts the SMC.

Output: SMC is aware of the electronic transmission problems.

Expected Results: SMC is successfully notified of any electronic transmission problems that have occurred through the Data Server.

### **5.21.2.3 Sequence 3 - Accounting Sequence**

The following tests verify the capability to successfully collect, estimate, record, and distribute accounting information. Utilization reports are generated and distributed electronically, on media, or in hard copy by the operations staff.

**Test Case 1 Accounting Data Collection Test (T209-3.03.01)**

This test verifies that the Storage Management software has the capability to collect information about the utilization of ECS services by individual users (specific accounts). The following information is collected:

- Request Identifier
- Data of Request

- Time of Request
- Media Cost
- CPU Utilization
- I/O Utilization
- Personnel Costs
- Shipping and Handling Costs
- Networking Costs
- Archival Costs

Test Configuration: Hardware - workstation  
 Software - STMGT

Input: A series of data access and service requests.

Output: Files containing accounting data.

Expected Results: Appropriate accounting data is collected for each data access and service request.

**Test Case 2 Administrative Accounting Request Test (T209-3.03.02)**

This test verifies that Storage Management software is capable of providing data to support Administrative Requests for Accounting Data. Administrative Requests include: TBD

Test Configuration: Hardware - workstation  
 Software - STMGT

Input: A series of Administrative Requests.

Output: Accounting data is sent to requester.

Expected Results: For each Administrative Request submitted a complete and appropriate response is given.

**Test Case 3 Client Session Accounting Test (T209-3.03.03)**

This test verifies the User Accounting Information is associated with Client Sessions. When a Client Session is established, accounting information is recorded. Information includes source identification and accounting information based on utilization of resources resulting from services requested.

Test Configuration: Hardware - workstation  
 Software - SDSRV

Input: A Client Session is established and data services are requested.  
Output: Accounting information related to the Client Session is recorded.  
Expected Results: Accurate and appropriate accounting information is recorded based on services requested.

**Test Case 4 CSMS Pricing Information Test (T209-3.03.04)**

This test verifies that Data Server software is capable of interfacing with CSMS software for the purpose of accepting pricing information. This information includes the following:

- disk utilization
- CPU utilization
- media utilization

Test Configuration: Hardware - workstation  
Software - SDSRV

Input: Pricing information is submitted to the Data Server from CSMS.  
Output: Files containing pricing information.  
Expected Results: All pricing information is accepted by the Data Server.

**Test Case 5 Distribution Media Utilization Test (T209-3.03.05)**

This test verifies that the Distribution software has the capability to report media utilization accounting information to the Data Server software.

Test Configuration: Hardware - workstation  
Software - SDSRV

Input: Distribution media utilization information is submitted to the Data Server from Distribution software.  
Output: Files containing media utilization information.  
Expected Results: All media utilization information is accepted by the Data Server.

**Test Case 6 Service Request Accounting Test (T209-3.03.06)**

This test verifies that accounting information associated with a Service Request is recorded. The information to be collected and recorded includes the following:

- request identifier
- user identifier
- amount of connect time

- CPU utilization
- I/O utilization

Test Configuration: Hardware - workstation

Software - SDSRV

Input: A series of Service Requests are submitted.

Output: Records containing accounting information.

Expected Results: For each Service Request submitted, the appropriate accounting information is recorded.

**Test Case 7 Service Request Operations Cost Test (T209-3.03.07)**

This test verifies that the Data Server software is capable of recording a fixed personnel cost for Service Requests requiring interaction with operations staff.

Test Configuration: Hardware - workstation

Software - SDSRV

Input: A series of Service Requests are submitted, each requiring operations staff intervention.

Output: Records containing accounting information.

Expected Results: For each Service Request submitted, the appropriate personnel cost accounting information is recorded.

**Test Case 8 SMC User Account (T209-3.03.08)**

This test verifies that the Data Server software is capable of interfacing with SMC to provide User Accounting Information.

Test Configuration: Hardware - workstation

Software - SDSRV

Input: User Account Information is submitted to SMC by the Data Server.

Output: Records containing accounting information.

Expected Results: The SMC successfully receives all User Account Information from the Data Server.

**Test Case 9 Utilization Report Distribution Test (T209-3.03.09)**

This test verifies that utilization reports can be successfully distributed. Distribution can be done electronically, on media, or in hard copy. Reports are distributed on a periodic basis to a predefined list of report recipients.

Test Configuration: Hardware - workstation  
Software - SDSRV

Input: A predefined list of report recipients.

Output: Reports are generated and distributed.

Expected Results: Complete and correct reports are successfully distributed to each recipient contained in the predefined list.

**Test Case 10**      **Data Server and Storage Management Interface Test**  
**(T209-3.03.10)**

This test verifies the capability of the Data Server to receive estimated and actual disk utilization from the STMGT CI.

Test Configuration: Hardware - workstation  
Software - SDSRV and STMGT

Input: A series of Service Requests are submitted. Estimated and actual disk utilization is recorded by the storage software and reported to the Data Server

Output: Actual and estimated disk utilization is recorded.

Expected Results: The storage software sends actual and estimated disk utilization information to the Data Server. The Data Server records this information.

**Test Case 11**      **Distribution Request Accounting Test (T209-3.03.11)**

This test verifies the ability to record certain amounts of media to be utilized for a Distribution Request.

Test Configuration: Hardware - workstation  
Software - SDSRV

Input: A series of media will be recorded and utilized.

Output: Distribution Request are utilized and recorded.

Expected Results: Different amounts of media are recorded and utilized for the Distribution Request.



Output: Valid Subscriptions are accepted and logged as valid. Invalid requests are recognized as invalid and are logged as invalid.

Expected Results: All requests are validated correctly.

**Test Case 2      Version Notification Test (T209-3.04.02)**

This test verifies the capability to notify a user that a new version of the data has been archived.

Test Configuration: Hardware - workstation

Software - SDSRV

Input: Subscription Requests are submitted to notify the requester of new version software. A new version of software is submitted for ingest.

Output: Notification of new version software is sent to the requester.

Expected Results: All subscriptions submitted for new version software are accepted. Upon successful archiving of the software, requesters are notified.

**Test Case 3      User Subscription Update Test (T209-3.04.03)**

This test verifies the capability to accept Subscription Update Requests to update stored Subscriptions by changing the event or the action. This test also verifies the capability to validate Subscription Update Requests by determining valid Subscription Identifiers if the update is a valid replacement Subscription.

Test Configuration: Hardware - workstation

Software - SDSRV

Input: Subscription update requests are submitted by users to update subscriptions. Updates are for events and actions.

Output: Subscriptions are viewed to verify that updates reflect new events and actions.

Expected Results: Upon updating the subscriptions, events and actions are imposed which reflect the updated subscriptions. The subscription respond appropriately.

**Test Case 4      Operations Subscription Update Test (T209-3.04.04)**

This test verifies the capability to update stored Subscriptions, by changing the event or the action, by operational command.

Test Configuration: Hardware - workstation

Software - SDSRV



Expected Results: All commands submitted for modifications to Service Requests are accepted. Fields are modified as requested.

**Test Case 3 User Cancellation of Service Request Test(T209-3.05.03)**

This test verifies the ability to accept user commands to cancel their own Service Requests.

Test Configuration: Hardware - workstation  
Software - SDSRV

Input: A series of Service requests are submitted. User commands to cancel Service Requests are submitted.

Output: User notification of Service Request cancellation. The Service Request queue is monitored to confirm cancellation of Request.

Expected Results: All cancellation requests are accepted and appropriate Service Requests are canceled. Notifications are sent to the requester.

**Test Case 4 Service Request API Test (T209-3.05.04)**

This test verifies the capability to provide an application program interface, for the submission of Service Requests.

Test Configuration: Hardware - workstation  
Software - SDSRV

Input: Services Requests are submitted, via the API.

Output: Processing results for the Service Request.

Expected Results: All Services Requests submitted are successfully received and processed. The requester is notified of Service Request Processing results.

**Test Case 5 Administrative Service Request API Test (T209-3.05.05)**

This test verifies the capability to provide an application program interface, for the submission of Administrative Service Requests.

Test Configuration: Hardware - workstation  
Software - SDSRV

Input: Administrative Services Requests are submitted, via the API.

Output: Processing results for the Service Request.

Expected Results: All Administrative Services Requests submitted are successfully received and processed. The requester is notified of Administrative Service Request Processing results.



Expected Results: Only Service Requests which have not begun processing are canceled. Requester is notified of the cancellation. If Service Requests have begun processing when cancellation request is received, the request is not canceled. The requester is notified of completion.

**Test Case 9 Metadata Field Extension Test (T209-3.05.09)**

This test verifies the capability to provide application programming interfaces which are capable of supporting the development of extensions for the additional Metadata fields which are unique to the data maintained at a specific DAAC.

Test Configuration: Hardware - workstation

Software - SDSRV

Input: Additions to metadata fields are requested via an API.

Output: Metadata is modified to include extension fields.

Expected Results: All requests are accepted and metadata extensions are added.

**Test Case 10 Update Metadata for Relocated Data Test(T209-3.05.10)**

This test verifies the capability to provide an update for the Metadata whenever a data item is relocated to another site.

Test Configuration: Hardware - workstation

Software - SDSRV

Input: Data is relocated to another site.

Output: Upon site relocation for data, the metadata is updated.

Expected Results: Metadata is successfully updated to reflect the change of data location.

### **5.21.2.6 Sequence 6 - Search Request Sequence**

The following tests verify the ability to perform search functions and to request status of searches submitted.

**Test Case 1 Accumulated Search Status for Active Search Test (T209-3.06.01)**

This test verifies the capability to accept Search Status Requests for a specified active Search Request. This test also verifies the ability to identify all Search Requests accumulated since the last Search Status Request for a specified Search Request.

Test Configuration: Hardware - workstation

Software - SDSRV

**Input:** A series of search requests. A Search Status Request for a specified active Search Request. A Request for Search Results accumulated since the last Search Status Request for that Search Request.

**Output:** Search Status Request results for specified active Search Request and accumulated Search Status Request results.

**Expected Results:** All Search Status Requests submitted are received and results are returned to the requester. Results are compared to a monitored log for accuracy.

**Test Case 2 Status for Active Search Test (T209-3.06.02)**

This test verifies the capability to accept Search Status Requests for a specified active Search Request and when requested, provide all Search Results accumulated for that Search Request.

**Test Configuration:** Hardware - workstation  
Software - SDSRV

**Input:** A series of search requests. A Search Status Request for a specified active Search Request. A Request for accumulated results for that Search Status Requests.

**Output:** Search Status Request results for specified active Search Request and accumulated Search Status Request results.

**Expected Results:** All Search Status Requests submitted are received and results are returned to the requester. Results are compared to a monitored log for accuracy.

**5.21.2.7 Sequence 7 - Product Processing Sequence**

The following tests verify the ability of Data Server to interface with product generation software for processing On-Demand Product Requests, Service Requests, and metadata problem reporting.

**Test Case 1 Data Server and Planning Interface Test (T209-3.07.01)**

This test verifies that the PLANG CI has the ability to receive the following resource utility estimations in support of cost accounting On-Demand Product Requests:

- estimated disk utilization
- estimated CPU utilization
- actual disk utilization
- actual CPU utilization

Test Configuration: Hardware - workstation  
Software - SDSRV

Input: Resource utilization estimates are sent by Planning software.

Output: The Data Server receives the utilization estimates from Planning software

Expected Results: All resource utilization estimates sent by the Planning software are received by the Data Server.

**Test Case 2      Metadata Problem Report Storage Test (T209-3.07.02)**

This test verifies the capability to store Metadata problem reports, notify operations staff of the receipt of Metadata problem reports, and have the Metadata problem reports given to operations staff upon request.

Test Configuration: Hardware - workstation  
Software - SDSRV

Input: Service Requests are submitted to ingest Metadata Problem Reports. Operational commands to view the Metadata Problem Reports.

Output: Notification of Metadata Problem Reports to operator console, upon ingest of reports. Display of Metadata Problem Reports upon request.

Expected Results: All Metadata Problem Reports are successfully ingested. Appropriate notifications are sent to operations consoles. Reports are successfully displayed. Report are readable and reflect the ingested Problem Report.

**Test Case 3      Reprocessing Service Request Test (T209-3.07.03)**

This test verifies the capability to accept Service Requests from the Data Processing subsystem and, as a result, this test shall provide access to Data for the purpose of reprocessing.

Test Configuration: Hardware - workstation  
Software - SDSRV

Input: Service Requests for access to data are submitted by the Processing System.

Output: Data for reprocessing is staged.

Expected Results: All Service Requests are accepted and data requested for reprocessing is staged.

### 5.21.2.8 Sequence 8 - Data Request Sequence

The following tests verify the capability to accept and process various types of Data Requests.

#### **Test Case 1                      Data Request Processing Test (T209-3.08.01)**

This test verifies that the Data Server software is able to successfully receive Data Requests for various data and data products. The following is a list of data types to be received by the Data Server :

- Attitude Data
- Orbit Data

Test Configuration: Hardware - workstation

Software - SDSRV

Input: A series of Data Requests is submitted.

Output: Data Requests are received and properly logged.

Expected Results: All Data Requests submitted are successfully received and logged.

#### **Test Case 2                      Compound Services Test (T209-3.08.02)**

This test verifies that access is successfully granted for Data Requests to provide compound data type services. Compound data types are TBD.

Test Configuration: Hardware - workstation

Software - SDSRV

Input: A series of Data Requests for compound data type services is submitted.

Output: Data Requests are received and properly logged.

Expected Results: All Data Requests submitted are successfully received and logged. Access is granted to compound data type services.

#### **Test Case 3                      Data Request Deletion Test (T209-3.08.03)**

This test verifies that a user can successfully delete their own queued Data Request.

Test Configuration: Hardware - workstation

Software - SDSRV

Input: A series of Data Requests is submitted. The user submits a deletion command for a Data Request still in the Data Request queue.

Output: Deleted Data Requests are no longer in the Data Request queue.

Expected Results: All user commands for Data Request Deletion are accepted. The Data Request is successfully deleted and is no longer in the queue.

**Test Case 4 Data Request Post Retrieval Processing Test (T209-3.08.04)**

This test verifies that Data Requests requiring post-retrieval processing are successfully accepted and logged appropriately. The log file indicates the file as requiring post-retrieval processing.

Test Configuration: Hardware - workstation

Software - SDSRV

Input: A series of Data Requests is submitted. Some requests are for data requiring post-retrieval processing.

Output: A log file is updated to indicate Data Requests.

Expected Results: All Data Requests submitted are accepted and logged. Those Data Requests requiring post-retrieval processing are indicated as needing post-retrieval processing in the log.

**Test Case 5 On-Demand Data Request Processing Test (T209-3.08.05)**

This test verifies that On-Demand Data Requests are successfully accepted and logged appropriately. The On-Demand Data Request is processed to determine if the data required to complete on-demand processing is available. If the data required to process the On-Demand Request is not available, a notification is displayed. Also the requester of the On-Demand Request is notified that the request cannot be completed.

Test Configuration: Hardware - workstation

Software - SDSRV

Input: An On-Demand Data Request is submitted. Not all data needed to complete the request is available.

Output: A log file indicates receipt of the On-Demand Data Request. Notices are sent to the operator and the requester.

Expected Results: A log file is updated to indicate receipt of the Data Request. A notification is displayed on the operators terminal indicating that data needed to complete the request is not available. A notification is also displayed on the requesters terminal indicating that on-demand data production cannot be completed.

### 5.21.2.9 Sequence 9 - Data Insert Sequence

The following tests verify the capability for Data Server to receive and store data and metadata, verify data, and interface with storage management software to store the data in the archive.

#### **Test Case 1 Data Receipt Test (T209-3.09.01)**

This test verifies the capability of receiving or storing the following types of data or production plans:

- LO-L4 data
- Metadata associated with Ancillary data
- FDF Orbit data
- FDF Metadata for Orbit and Attitude data
- Real EOS instrument data to support pre-launch checkout of the ground system
- Orbit/Attitude data
- Spacecraft Historical data
- TBD Special Data Products

Test Configuration: Hardware - workstation

Software - SDSRV and DDIST

Input: TBD

Output: TBD

Expected Results: TBD

#### **Test Case 2 Data Compliance Test (T209-3.09.02)**

This test verifies the capability to verify compliance of scientist provided data with EOSDIS defined standards for file content and structure (not scientific content):

Test Configuration: Hardware - workstation

Software - SDSRV

Input: A series of service requests are submitted. Some requests contain data which does not comply to EOSDIS defined standards for file content and structure.

Output: Status messages indicating successful or unsuccessful verification.

Expected Results: Service requests which follow EOSDIS standards are verified as valid. Service requests which do not follow EOSDIS standards are verified as invalid.









**Test Case 2                    Document Data Server System Throughput Performance Test (B209.01.02)**

This test verifies the capability to utilize the vendor's supply tools to assist in analyzing the system's throughput performance.

Test Configuration:    Hardware - workstation

Software - DDSRV

Input:                    Throughput intensive operations are initialized. As the system is running, the vendor tools are used to monitor and capture Throughput performance information.

Output:                  Statistics, displays, and vendor reports are generated and printed.

Expected Results:      Throughput performance data is successfully collected to perform throughput analysis.

**5.22.2.2    Sequence 2 - Data Server Performance Sequence**

The following tests verify the ability to utilize vendor supplied tools to analyze Data Server system performance.

**Test Case 1                    Data Server System CPU Test (B209.02.01)**

This test verifies the capability to utilize vendor tools to analyze system CPU performance.

Test Configuration:    Hardware - workstation

Software - SDSRV

Input:                    CPU intensive operations are initialized. As the system is running, the vendor tools are used to monitor and capture CPU performance information.

Output:                  Vendor reports are generated and printed.

Expected Results:      Vendor tool reports that reflect system performance are generated.

**Test Case 2                    Data Server Query Processing Performance Test (B209.02.02)**

This test verifies the capability to utilize vendor tools to analyze query processing performance.

Test Configuration:    Hardware - workstation

Software - SDSRV

Input:                    A series of queries are submitted. As the system is running, the vendor tools are used to monitor and capture query performance information.

Output: Vendor reports are generated and printed.

Expected Results: Vendor tool reports that reflect system query processing performance are generated.

**Test Case 3 Data Server System Storage Performance Test (B209.02.03)**

This test verifies the capability to utilize vendor tools to analyze system storage performance.

Test Configuration: Hardware - workstation

Software - SDSRV

Input: System storage intensive operations are initialized. As the system is running, the vendor tools are used to monitor and capture storage performance information.

Output: Vendor reports are generated and printed.

Expected Results: Vendor tool reports that reflect system storage performance are generated.

**Test Case 4 Data Server Throughput Performance Test (B209.02.04)**

This test verifies the capability to utilize vendor tools to analyze system throughput performance.

Test Configuration: Hardware - workstation

Software - SDSRV

Input: Throughput intensive operations are initialized. As the system is running, the vendor tools are used to monitor and capture throughput performance information.

Output: Vendor reports are generated and printed.

Expected Results: Vendor tool reports that reflect system throughput processing performance are generated.

## **5.23 Integrated System Services Build 2**

The System Setup Build 2 is an integrated build of the following system builds:

- Ingest Services
- Network Services
- MLCI
- System Initialization
- Data Server Management

### 5.23.1 Build Objectives

The objectives of the Integrated System Services Build 2 are:

- provide verification of ingest and data server for insert
- provide verification of simultaneous DAAC operations
- provide verification of fault system response
- Provide the capability to initialize the system for concurrent operational and test modes.
- Provide the capability to transfer data files and support interprocess communications per TCP/IP, and meet the performance requirements of the network and for ingest.
- Provide the capability to manage site and network communication including; configuration management, network performance monitoring and optimization, policy administration, inventory management and training management.
- Provide the capability to ingest metadata, ancillary data and Level 0 to Level 4 data through appropriate interfaces representing each of the instruments and spacecraft present in Release B, including: AM-1 (ASTER, CERES, MISR, MODIS and MOPPIT), Landsat 7 (ETM+), FOO (COLOR), ADEOS II (SeaWinds), and Meteor-3 (SAGE III) and V0 migration.

### 5.23.2 Build Test Description

Testing will demonstrate verification of the ingest and data server interface for data and document storage. Each DAAC interface will be tested for simultaneous data ingest, storage and distribution operations.

This Build tests the connectivity of the WAN, LAN and external networks, and that data files can be effectively transported (via TCP/IP) between DAACs, SMC and EOC internally and externally. Tests will verify the interface between the ECS and the NOAA Satellite Active Archives (SAAs), and support for two-way Level 2 or 3 catalog interoperability. Testing will ensure that the transparent transfer of product data, metadata and inter-DAAC queries is supported by the ESN WANs network interprocess communications. Tests are performed to verify that effective WAN/LAN connectivity is provided to support AM-1 ground support system, ASTER GDS, ADEOS II, Meteor-3, FOO (COLOR) and Landsat 7 Production System Network. Verification testing of performance requirements for local and remote communications and database updates from the DAACs will be performed.

Testing will verify the configuration management functions: automated Software License Administration, electronic distribution of the most current software and contingencies for alternative media delivery of software. Network performance monitoring of specific network and communication services and optimization through scheduling and load-balancing of network resources will be verified. Testing will also verify that policies and procedures are appropriately distributed and maintained at the sites and across the network. Testing is performed to ensure that inventories of spare parts and consumable items and replenishment can be monitored system-

wide and at the site level. Testing will verify that training management can be coordinated/supported between the SMC and the LSM.

Testing will also be performed to verify the proper archival of metadata, ancillary data and Level 0 to Level 4 data for each of the instruments and spacecraft present in Release B. Testing will also ensure that data can be received using a variety of media types. Testers will verify that data being ingested is monitored and integrity checked by the system. HDF and Native formats will be ingested for AM-1, ADEOS II, Meteor-3, FOO (COLOR) and V0 data. V0 data migration and migration coordination will be tested between V0 elements and ECS. Tests will be performed to ensure that system performance meets the requirements for ingest and archive functions.

### **Dependencies: (If Applicable)**

In order to verify the objectives of the Build 2, the following interface and functional capabilities are required:

- Network environment (LAN and WAN)
- Established policies and procedures for EOS and individual elements
- Interface to receive AM-1 platform data products
- Interface to receive Landsat 7 platform data products
- Interface to receive FOO (COLOR) platform data products
- Interface to receive ADEOS II platform data products
- Interface to receive Meteor-3 platform data products
- Interface to receive V0 data products

The following customary service interfaces are required:

- Data server/archive interface to perform data storage
- Scheduled file transfer interface
- File transfer application interface
- Interface between CSMS and SDPS segments

The following object services are required:

- TBD

If any the above interfaces or services are not supported by this release, then a simulation must be provided.

Test Support Requirements

- Hardware:
  - TBD
- Software:

- Data:
  - simulated data granules
  - metadata, ancillary data products

### 5.23.2.1 Sequence 1 - Data Insertion

The following tests verify the capability for the ingest software, data server client software and storage management software to successfully interface to perform data insertion into secondary storage. The ingest software must interface with the advertising service software to determine the availability of the data server for a given data type identifier.

#### **Test Case 1 Document Data Insertion (B210.01.01)**

This test verifies the capability for ingest software to interface with data server and storage management software for insertion of documentation into the archive. Status is provided by data server to the ingest software.

Test Configuration: Hardware - workstation

Software - DDSRV, SDSRV, INGT, STGMT, Advertising, CSMS

Input: A series of Data Requests are submitted to insert documentation. Status requests are submitted.

Output: Status is returned to the provider. Notification of successful insertion into the Data Archive.

Expected Results: Documentation is successfully inserted into the Document Archive.

#### **Test Case 2 Document Data Insertion with Fault (B210.01.02)**

This test verifies the capability for data server software to send status messages to ingest when a fault occurs. Data server collects fault management information and send the information to SMC. Fault Management Information includes the following:

- device failures
- transmission failures
- general failures

Test Configuration: Hardware - workstation

Software - DDSRV, SDSRV, INGST, SMC, CSMS, Advertising

Input: A series of ingest requests are submitted. Failures are introduced either by taking hardware off-line or by using UNIX utilities and commands to terminate processes.

**Output:** Failure information is logged and collected into files. These files are delivered to SMC. Ingest is provided with fault status.

**Expected Results:** All failures are logged and information is collected. This failure data is successfully sent to SMC. Ingest is successfully and correctly notified of the fault. Fault information is provided to the data provider.

**Test Case 3 Science Data Insertion (B210.01.03)**

This test verifies the capability for ingest software to interface with data server and storage management software for insertion of science data into the archive. Status is provided by data server to the ingest software.

**Test Configuration:** Hardware - workstation

Software - SDSRV, INGT, STGMT, Advertising, CSMS

**Input:** A series of Data Requests are submitted to insert data and metadata. Status requests are submitted.

**Output:** Status is returned to the provider. Notification of successful insertion into the Data Archive.

**Expected Results:** Data is successfully inserted into the Archive.

**Test Case 4 Science Data Insertion with Fault (B210.01.04)**

This test verifies the capability for data server software to send status messages to ingest when a fault occurs. Data server collects fault management information and send the information to SMC. Fault Management Information includes the following:

- device failures
- transmission failures
- general failures

**Test Configuration:** Hardware - workstation

Software - INGST, SMC, CSMS, Advertising

**Input:** A series of ingest requests are submitted. Failures are introduced either by taking hardware off-line or by using UNIX utilities and commands to terminate processes.

**Output:** Failure information is logged and collected into files. These files are delivered to SMC. Ingest is provided with fault status.

**Expected Results:** All failures are logged and information is collected. This failure data is successfully sent to SMC. Ingest is successfully and correctly notified of the fault. Fault information is provided to the data provider.

### 5.23.2.2 Sequence 2 - DAAC Simultaneous Data Ingest

The following tests verify the capability for each DAAC to simultaneously accept, process and store data and documents from various external interface.

#### **Test Case 1                    ASF Simultaneous Data Insert (B210.02.01)**

This test verifies the capability to simultaneously interface with multiple data providers for data ingest. External providers include: SAR, RGS, SPS, RADARSAT, RADAR-ALT, ERS-1, ERS-2, and JERS-1, V0, and SCF. The ingest software interfaces with data server client software and storage management software for data archiving.

Test Configuration:    Hardware - workstations

Software - INGST, SDSRV, STGMT, Advertising, CSMS

Input:                    Several simultaneous ingest requests are submitted at incremental time periods. The size of the data requests vary.

Output:                  The system is monitored to determine status of data archive. Performance data may also be collected. Status messages are returned to the data provider.

Expected Results:    All submitted requests are accepted, processed and the data is archived. Ingest and data server logs are updated to reflect the data archived. Status messages returned to the data providers are accurate, complete, and readable.

#### **Test Case 2                    ASF Simultaneous Data Insert with Invalid Request (B210.02.02)**

This test verifies the capability to simultaneously interface with multiple data providers for data ingest. External providers include: SAR, RGS, SPS, RADARSAT, RADAR-ALT, ERS-1, ERS-2, and JERS-1, V0, and SCF. The ingest software interfaces with data server client software and storage management software for data archiving. Some requests submitted for ingest are invalid. Invalid requests include : TBD

Test Configuration:    Hardware - workstations

Software - INGST, SDSRV, STGMT, Advertising, CSMS

Input:                    Several simultaneous ingest requests are submitted at incremental time periods. Some requests are invalid.

Output:                  The system is monitored to determine status of data archive. Performance data may also be collected. Status messages are returned to the data provider. Error messages are recorded in a log.

Expected Results: All valid requests are accepted, processed and the data is archived. Ingest and data server logs are updated to reflect the data archived. All invalid requests result in unsuccessful archive. Status messages returned to the data providers are accurate, complete, and readable.

**Test Case 3 EDC Simultaneous Data Insert (B210.02.03)**

This test verifies the capability to simultaneously interface with multiple data providers for data ingest. External data providers include: Landsat 7 LPS, Landsat 7 IGS, and Landsat 7 IAS, V0, and SCF. The ingest software interfaces with data server client software and storage management software for data archiving.

Test Configuration: Hardware - workstations  
Software - INGST, SDSRV, STGMT, Advertising, CSMS

Input: Several simultaneous ingest requests are submitted at incremental time periods. The size of the data requests vary.

Output: The system is monitored to determine status of data archive. Performance data may also be collected. Status messages are returned to the data provider.

Expected Results: All submitted requests are accepted, processed and the data is archived. Ingest and data server logs are updated to reflect the data archived. Status messages returned to the data providers are accurate, complete, and readable.

**Test Case 4 EDC Simultaneous Data Insert with Invalid Request (B210.02.04)**

This test verifies the capability to simultaneously interface with multiple data providers for data ingest. External data providers include: Landsat 7 LPS, Landsat 7 IGS, and Landsat 7 IAS, V0, and SCF. The ingest software interfaces with data server client software and storage management software for data archiving. Some requests submitted for ingest are invalid. Invalid requests include : TBD

Test Configuration: Hardware - workstations  
Software - INGST, SDSRV, STGMT, Advertising, CSMS

Input: Several simultaneous ingest requests are submitted at incremental time periods. Some requests are invalid.

Output: The system is monitored to determine status of data archive. Performance data may also be collected. Status messages are returned to the data provider. Error messages are recorded in a log.

Expected Results: All valid requests are accepted, processed and the data is archived. Ingest and data server logs are updated to reflect the data archived. All invalid requests result in unsuccessful archive. Status messages returned to the data providers are accurate, complete, and readable.



**Test Case 7**                    **LaRC Simultaneous Data Insert (B210.02.07)**

This test verifies the capability to simultaneously interface with multiple data providers for data ingest. External data providers include: ACRIM, SDPF, EDOS, SAGE III, V0, and SCF. The ingest software interfaces with data server client software and storage management software for data archiving.

Test Configuration:    Hardware - workstations

   Software - INGST, SDSRV, STGMT, Advertising, CSMS

Input:                                Several simultaneous ingest requests are submitted at incremental time periods. The size of the data requests vary.

Output:                                The system is monitored to determine status of data archive. Performance data may also be collected. Status messages are returned to the data provider.

Expected Results:                All submitted requests are accepted, processed and the data is archived. Ingest and data server logs are updated to reflect the data archived. Status messages returned to the data providers are accurate, complete, and readable.

**Test Case 8**                    **LaRC Simultaneous Data Insert with Invalid Request (B210.02.08)**

This test verifies the capability to simultaneously interface with multiple data providers for data ingest. External data providers include: ACRIM, SDPF, EDOS, SAGE III, V0, and SCF. The ingest software interfaces with data server client software and storage management software for data archiving. Some requests submitted for ingest are invalid. Invalid requests include : TBD

Test Configuration:    Hardware - workstations

   Software - INGST, SDSRV, STGMT, Advertising, CSMS

Input:                                Several simultaneous ingest requests are submitted at incremental time periods. Some requests are invalid.

Output:                                The system is monitored to determine status of data archive. Performance data may also be collected. Status messages are returned to the data provider. Error messages are recorded in a log.

Expected Results:                All valid requests are accepted, processed and the data is archived. Ingest and data server logs are updated to reflect the data archived. All invalid requests result in unsuccessful archive. Status messages returned to the data providers are accurate, complete, and readable.

**Test Case 9                      MSFC Simultaneous Data Insert (B210.02.09)**

This test verifies the capability to simultaneously interface with multiple data providers for data ingest. External data providers include: TSDIS, SDPF, V0, and SCF. The ingest software interfaces with data server client software and storage management software for data archiving.

Test Configuration:    Hardware - workstations

   Software - INGST, SDSRV, STGMT, Advertising, CSMS

Input:                                Several simultaneous ingest requests are submitted at incremental time periods. The size of the data requests vary.

Output:                              The system is monitored to determine status of data archive. Performance data may also be collected. Status messages are returned to the data provider.

Expected Results:                All submitted requests are accepted, processed and the data is archived. Ingest and data server logs are updated to reflect the data archived. Status messages returned to the data providers are accurate, complete, and readable.

**Test Case 10                      MSFC Simultaneous Data Insert with Invalid Request (B210.02.10)**

This test verifies the capability to simultaneously interface with multiple data providers for data ingest. External data providers include: TSDIS, SDPF, V0, and SCF. The ingest software interfaces with data server client software and storage management software for data archiving. Some requests submitted for ingest are invalid. Invalid requests include : TBD

Test Configuration:    Hardware - workstations

   Software - INGST, SDSRV, STGMT, Advertising, CSMS

Input:                                Several simultaneous ingest requests are submitted at incremental time periods. Some requests are invalid.

Output:                              The system is monitored to determine status of data archive. Performance data may also be collected. Status messages are returned to the data provider. Error messages are recorded in a log.

Expected Results:                All valid requests are accepted, processed and the data is archived. Ingest and data server logs are updated to reflect the data archived. All invalid requests result in unsuccessful archive. Status messages returned to the data providers are accurate, complete, and readable.

**Test Case 11                    JPL Simultaneous Data Insert (B210.02.11)**

This test verifies the capability to simultaneously interface with multiple data providers for data ingest. External data providers include: ALT/RADAR DFA/MR, SeaWinds ADEOS II, V0, and SCF. The ingest software interfaces with data server client software and storage management software for data archiving.

Test Configuration:    Hardware - workstations

   Software - INGST, SDSRV, STGMT, Advertising, CSMS

Input:                                Several simultaneous ingest requests are submitted at incremental time periods. The size of the data requests vary.

Output:                                The system is monitored to determine status of data archive. Performance data may also be collected. Status messages are returned to the data provider.

Expected Results:                All submitted requests are accepted, processed and the data is archived. Ingest and data server logs are updated to reflect the data archived. Status messages returned to the data providers are accurate, complete, and readable.

**Test Case 12                    JPL Simultaneous Data Insert with Invalid Request (B210.02.12)**

This test verifies the capability to simultaneously interface with multiple data providers for data ingest. External data providers include: ALT/RADAR DFA/MR, SeaWinds ADEOS II, V0, and SCF. The ingest software interfaces with data server client software and storage management software for data archiving. Some requests submitted for ingest are invalid. Invalid requests include : TBD

Test Configuration:    Hardware - workstations

   Software - INGST, SDSRV, STGMT, Advertising, CSMS

Input:                                Several simultaneous ingest requests are submitted at incremental time periods. Some requests are invalid.

Output:                                The system is monitored to determine status of data archive. Performance data may also be collected. Status messages are returned to the data provider. Error messages are recorded in a log.

Expected Results:                All valid requests are accepted, processed and the data is archived. Ingest and data server logs are updated to reflect the data archived. All invalid requests result in unsuccessful archive. Status messages returned to the data providers are accurate, complete, and readable.



**Test Case 15**            **ORNL Simultaneous Data Insert (B210.02.15)**

This test verifies the capability to simultaneously interface with multiple data providers for data ingest. External data providers include: SCF. The ingest software interfaces with data server client software and storage management software for data archiving.

Test Configuration:    Hardware - workstations

Software - INGST, SDSRV, STGMT, Advertising, CSMS

Input:                    Several simultaneous ingest requests are submitted at incremental time periods. The size of the data requests vary.

Output:                  The system is monitored to determine status of data archive. Performance data may also be collected. Status messages are returned to the data provider.

Expected Results:      All submitted requests are accepted, processed and the data is archived. Ingest and data server logs are updated to reflect the data archived. Status messages returned to the data providers are accurate, complete, and readable.

**Test Case 16**            **ORNL Simultaneous Data Insert with Invalid Request (B210.02.16)**

This test verifies the capability to simultaneously interface with multiple data providers for data ingest. External data providers include: External data providers include: SCF. The ingest software interfaces with data server client software and storage management software for data archiving. Some requests submitted for ingest are invalid. Invalid requests include : TBD

Test Configuration:    Hardware - workstations

Software - INGST, SDSRV, STGMT, Advertising, CSMS

Input:                    Several simultaneous ingest requests are submitted at incremental time periods. Some requests are invalid.

Output:                  The system is monitored to determine status of data archive. Performance data may also be collected. Status messages are returned to the data provider. Error messages are recorded in a log.

Expected Results:      All valid requests are accepted, processed and the data is archived. Ingest and data server logs are updated to reflect the data archived. All invalid requests result in unsuccessful archive. Status messages returned to the data providers are accurate, complete, and readable.



Input: To request to display the performance statistics of the operational mode environment in the mode management script.

Output: The performance statistics of operational mode is displayed.

Expected Results: The HP OpenView shows the statistics.

**Test Case 4 Operational mode fault detection (B210.03.04)**

This test verifies that the capability of the mode management service to monitor and provide the operational mode fault detection and isolation information.

Test Configuration: Hardware - Workstation, X terminal  
Software - mode management application

Input: To bring down the subsystem process.

Output: The message is displayed to indicate the fault occurs.

Expected Results: The HP OpenView shows the fault information.

**Test Case 5 Operational mode management statistics (B210.03.05)**

This test verifies that the capability of the mode management service to monitor and provide the test mode management statistics.

Test Configuration: Hardware - Workstation, X terminal  
Software - mode management application

Input: To request to display the management statistics of the test mode environment in the mode management script.

Output: The management statistics of test mode is displayed.

Expected Results: The HP OpenView shows the statistics.

#### **5.23.2.4 Sequence 4 - Network Services**

This testing will verify the network services functionality when the Network services software is integrated with the INGST, System Initialization, and MLCI Build software.

**Test Case 1 Change directory remotely (B210.04.01)**

This test verifies that the file access service allows user to change directory (cd) on the remote host.

Test Configuration: Hardware - Workstation, X-terminal.  
Software - DFS application, XRunner.

Input: Logon on to the remote host, and enter "cd <directory name>".

Output: The list of directory shows the directory has been changed.

Expected Results: The new directory is located.

**Test Case 2            PC dial-up to the host (B210.04.02)**

This test verifies that the capability of the CSS to accept the dial-in call to host to request the remote session. Use various modems and speeds for PC to dial-up to the host.

Test Configuration: Hardware - Workstation, X-terminal.

Software - PC communication package.

Input: Dial-up the number to the port on the host.

Output: The accepts the call and start the communications.

Expected Results: PC user receives the system prompt from the host.

**Test Case 3            Post Office Protocol support (B210.04.03)**

This test verifies that the capability of the e-mail to support the Post Office Protocol.

Test Configuration: Hardware - Workstation, X-terminal.

Software - E-mail application and protocol analyzer.

Input: Deliver a mail message via POP function.

Output: Protocol analyzer displays the packet of the message in the POP format.

Expected Results: The packet confirms the POP standard.

### **5.23.2.5 Sequence 5 - MLCI**

This testing will verify the MLCI services functionality when the MLCI Build software is integrated with the INGST, System Initialization, and Network services Build software.

**Test Case 1            Package Software, Databases, and Documentation for Delivery to Destinations (B210.05.01)**

This test verifies the ability of the Configuration Management Application Service to package software, databases, and documentation for delivery to destinations at both ECS and ECS-connected sites.

Test Configuration: Hardware - workstations

Software - MSS Configuration Management Application Service

Input: The tester simulating a software delivery, attempts to package software, databases, and documentation for delivery to destinations at both ECS and ECS-connected sites.

Output: Messages indicating that the software, databases, and documentation for delivery to the destinations are packaged.

Expected Results: The software, databases, and documentation for delivery to the destinations are packaged for both ECS and ECS-connected sites.

**Test Case 2**      **Schedule Automatic and Operator-Assisted Distribution of Software Packages (B210.05.02)**

This test verifies the ability of the Configuration Management Application Service to schedule via the EMC Planning and Scheduling Service automatic and operator-assisted distribution of software packages.

Test Configuration: Hardware - workstations

Software - MSS Configuration Management Application Service,  
EMC Planning and Scheduling Service

Input: The tester simulating a software delivery, attempts to schedule both automatic and operator-assisted distribution of software packages via the EMC Planning and Scheduling Service.

Output: Messages indicating that the both automatic and operator-assisted distribution of software packages are scheduled.

Expected Results: The both automatic and operator-assisted distribution of software packages are scheduled via the EMC Planning and Scheduling Service.

**Test Case 3**      **Push Software Packages from a Central Distribution Point (B210.05.03)**

This test verifies the ability of the Configuration Management Application Service to push software packages from a central distribution point/depot to remote target platforms (servers and workstations).

Test Configuration: Hardware - workstations

Software - MSS Configuration Management Application Service

Input: The tester simulating a software delivery, attempts to push a software package from a central distribution point/depot to a remote target platform.

Output: Messages indicating that a software package is pushed.

Expected Results: The a software package is pushed from a central distribution point/depot to a remote target platform.



Output: The description, quantity on hand, prescribed stock level, and operational status for the selected spare part at the specified site is displayed to the operator.

Expected Results: The specified site's spare parts inventory will be accessed to obtain the description, quantity on hand, prescribed stock level, and operational status for the selected spare part.

**Test Case 7      Access Consumable Items Inventory at a Site (B210.05.07)**

Testing will demonstrate the capability to access site consumable items inventory information. The accessed information will include a description, quantity on hand, prescribed stock level, quantity on order, and quantity issued for a given consumable item.

Test Configuration: Hardware - workstations  
Software - ILS Management

Input: A consumable item is selected by the operator to access its inventory information.

Output: The description, quantity on hand, prescribed stock level, quantity on order, and quantity issued for the selected consumable item at the specified site is displayed to the operator.

Expected Results: The site consumable items inventory is accessed to obtain the description, quantity on hand, prescribed stock level, quantity on order, and quantity issued for the selected consumable item.

**Test Case 8      Generating an Order for Spare Parts Inventory at a Site (B210.05.08)**

Testing will demonstrate that low levels of spare parts can be identified, and orders to replenish the spare parts will be generated at the site.

Test Configuration: Hardware - workstations  
Software - ILS Management

Input: The operator will run a report and will select a highlighted item whose on-hand quantity has reached the reorder point to generate an order. Values for the description, quantity on hand, prescribed stock level, quantity on order, date ordered, name of supplier, location of supplier, point of contact of supplier, order status, estimated delivery date, and actual delivery date is entered by the operator or defaulted by the system. After the order is generated, the operator will generate a report showing the order information for the appropriate order.

**Output:** A report with at least one highlighted item whose on-hand quantity has reached the reorder point is displayed to the operator. A report showing the order information for the appropriate order is displayed to the operator.

**Expected Results:** An order is generated for an item whose on-hand quantity has reached the reorder point. The order information is entered by the operator or defaulted by the system including the description, quantity on hand, prescribed stock level, quantity on order, date ordered, name of supplier, location of supplier, point of contact of supplier, order status, estimated delivery date, and actual delivery date of the spare part. The order information will match the information as entered by the operator, and any fields not entered by the operator contain default system values.

**Test Case 9      Updating an Order for Spare Parts Inventory at a Site  
(B210.05.09)**

Testing will demonstrate that orders to replenish the spare parts can be updated at the site.

**Test Configuration:** Hardware - workstations  
Software - ILS Management

**Input:** The operator will run a report showing orders at the site, and will select an order to be updated. Values for the description, quantity on hand, prescribed stock level, quantity on order, date ordered, name of supplier, location of supplier, point of contact of supplier, order status, estimated delivery date, and actual delivery date is changed by the operator. After the order is updated, the operator will generate a report showing the order information for the appropriate order.

**Output:** A report showing orders at the site is displayed to the operator. A report showing the order information for the appropriate order is displayed to the operator.

**Expected Results:** An order is updated by the operator. The order information is updated by the operator including the description, quantity on hand, prescribed stock level, quantity on order, date ordered, name of supplier, location of supplier, point of contact of supplier, order status, estimated delivery date, and actual delivery date of the spare part. The order information will match the information as entered by the operator, and any fields not entered by the operator will retain their original values.

**Test Case 10**      **Canceling an Order for Spare Parts Inventory at a Site**  
**(B210.05.10)**

Testing will demonstrate that orders to replenish the spare parts can be canceled at the site.

Test Configuration:    Hardware - workstations

Software - ILS Management

Input:                    The operator will run a report showing orders at the site, and will select an order to be canceled. After the order is canceled, the operator will generate a report showing the order information for the appropriate order.

Output:                  A report showing orders at the site is displayed to the operator. A report showing the order information for the appropriate order is displayed to the operator.

Expected Results:    An order is canceled by the operator. The appropriate order is canceled.

**Test Case 11**      **Access Site Spare Parts Order Information at the SMC**  
**(B210.05.11)**

Testing will demonstrate the capability to access specified site's spare parts inventory for order information. The accessed information will include a description, quantity on hand, quantity on order, prescribed stock level, name of supplier, location of supplier, point of contact for supplier, estimated delivery date, actual delivery date, and order status for a given spare part.

Test Configuration:    Hardware - workstations

Software - ILS Management

Input:                    A site is specified by the operator, and a spare part is selected to access it's order information for that site.

Output:                  The description, quantity on hand, quantity on order, prescribed stock level, name of supplier, location of supplier, point of contact for supplier, estimated delivery date, actual delivery date, and order status for the selected spare part at the specified site is displayed to the operator.

Expected Results:    The specified site's spare parts inventory order information is accessed to obtain the description, quantity on hand, quantity on order, prescribed stock level, name of supplier, location of supplier, point of contact for supplier, estimated delivery date, actual delivery date, and order status for the selected spare part.

**Test Case 12**      **Generating an Order for Consumable Items Inventory at a Site (B210.05.12)**

Testing will demonstrate that low levels of consumable items can be identified, and orders to replenish the consumable items are generated at the site.

Test Configuration:    Hardware - workstations

Software - ILS Management

Input:                    The operator will run a report and will select a highlighted item whose on-hand quantity has reached the established reorder point to generate an order. Values for the description, quantity on order, price, name of supplier, location of supplier, and point of contact of supplier will be entered by the operator or defaulted by the system. After the order is generated, the operator will generate a report showing the order information for the appropriate order.

Output:                    A report with at least one highlighted item whose on-hand quantity has reached the established reorder point is displayed to the operator. A report showing the order information for the appropriate order is displayed to the operator.

Expected Results:      An order is generated for an item whose on-hand quantity has reached the reorder point. The order information is entered by the operator or defaulted by the system including the description, quantity on order, price, name of supplier, location of supplier, and point of contact of supplier of the consumable item. The order information will match the information as entered by the operator, and any fields not entered by the operator contain default system values.

**Test Case 13**      **Access Consumable Items Order Information at a Local Site (B210.05.13)**

Testing will demonstrate the capability to access a local site's consumable items inventory for order information. The accessed information will include a description, quantity ordered, date ordered, name of supplier, location of supplier, point of contact for supplier, and estimated delivery date for a given consumable item.

Test Configuration:    Hardware - workstations

Software - ILS Management

Input:                    The operator will select a consumable item to access it's order information for that site.

Output: The description, quantity ordered, date ordered, name of supplier, location of supplier, point of contact for supplier, and estimated delivery date for the selected consumable item at the local site is displayed to the operator.

Expected Results: The local site's consumable items inventory order information is accessed to obtain the description, quantity ordered, date ordered, name of supplier, location of supplier, point of contact for supplier, and estimated delivery date of the consumable item.

**Test Case 14 Add Non-Expendable and Consumable ECS Resources to System-Wide Catalog (B210.05.14)**

This test will demonstrate the capability to add non-expendable and consumable ECS resources to the SMC's on-line system-wide catalog.

Test Configuration: Hardware - workstations  
Software - ILS Management

Input: An operator will select to add a non-expendable and a consumable ECS resource to the SMC's on-line system-wide catalog. After the non-expendable and consumable ECS resources are entered into the SMC's on-line system-wide catalog, a report showing the catalog contents is generated by the operator.

Output: A report showing the contents of the SMC's on-line system-wide catalog is generated.

Expected Results: The non-expendable and consumable ECS resources, entered by the operator, will appear on the generated report.

**Test Case 15 Delete Non-Expendable and Consumable ECS Resources from System-Wide Catalog (B210.05.15)**

This test will demonstrate the capability to delete non-expendable and consumable ECS resources from the SMC's on-line system-wide catalog.

Test Configuration: Hardware - workstations  
Software - ILS Management

Input: An operator will select to delete a non-expendable and a consumable ECS resource from the SMC's on-line system-wide catalog. After the non-expendable and consumable ECS resources are deleted from the SMC's on-line system-wide catalog, a report showing the catalog contents is generated by the operator.

Output: A report showing the contents of the SMC's on-line system-wide catalog is generated.

Expected Results: The non-expendable and consumable ECS resources, deleted by the operator, will not appear on the generated report.

**Test Case 16**      **Report Consolidated Spare Parts Order Information at the SMC (B210.05.16)**

Testing will demonstrate the capability to generate consolidated reports on site spare parts inventory order information. The reported information will include a description, quantity on hand, quantity on order, prescribed stock level, name of supplier, location of supplier, point of contact for supplier, estimated delivery date, actual delivery date, and order status for a given spare part.

Test Configuration: Hardware - workstations  
Software - ILS Management

Input: A spare part is selected to report on its order information for all sites.

Output: The description, quantity on hand, quantity on order, prescribed stock level, name of supplier, location of supplier, point of contact for supplier, estimated delivery date, actual delivery date, and order status for the selected spare part for all sites is reported.

Expected Results: The spare parts inventories at all sites are accessed to generate a report containing the description, quantity on hand, quantity on order, prescribed stock level, name of supplier, location of supplier, point of contact for supplier, estimated delivery date, actual delivery date, and order status for the selected spare part.

**Test Case 17**      **Input, Store, Maintain, and View/Print Training Information (B210.05.17)**

This test verifies the ability of the Training Management Application Service to input, store, maintain, and view/print training information.

Test Configuration: Hardware - workstations  
Software - MSS Training Management Application Service

Input: The tester, using the Training Management Application Service, attempts to input, store, maintain, and view/print training information.

Output: Messages indicating that the training information is stored. The training information is displayed and printed.

Expected Results: The training information is displayed and printed, as it is input by the tester.

**Test Case 18**      **Input, Store, Maintain, and View/Print Training Records Information (B210.05.18)**

This test verifies the ability of the Training Management Application Service to input, store, maintain, and view/print training records information.

Test Configuration:    Hardware - workstations

Software - MSS Training Management Application Service

Input:                    The tester, using the Training Management Application Service, attempts to input, store, maintain, and view/print training records information.

Output:                  Messages indicating that the training records information is stored. The training records information is displayed and printed.

Expected Results:    The training records information is displayed and printed, as it is input by the tester.

**Test Case 19**      **Retrieve and View/Print Training Courses and Schedules Information (B210.05.19)**

This test verifies the ability of the Training Management Application Service to retrieve and view/print training courses and schedules information from a SMC training information repository.

Test Configuration:    Hardware - workstations

Software - MSS Training Management Application Service

Input:                    The tester, using the Training Management Application Service, attempts to retrieve and view/print training courses and schedules information from the SMC training information repository.

Output:                  Messages indicating that training courses and schedules information is retrieved from the SMC training information repository and is viewed and printed.

Expected Results:    The training courses and schedules information viewed and printed as retrieved from the SMC training information repository.

**Test Case 20**      **Schedule Training Events via the MSS Planning and Scheduling Service (B210.05.20)**

This test verifies the ability of the Training Management Application Service to schedule training events via the MSS Planning and Scheduling Service.

Test Configuration:    Hardware - workstations

Software - MSS Training Management Application Service

Input: The tester, using the Training Management Application Service, attempts to schedule training events via the MSS Planning and Scheduling Service.

Output: Messages confirming the scheduling of training events.

Expected Results: The training events are scheduled as requested by the tester.

**Test Case 21 Prepare, Update, Store, View/Print, and Disseminate Training Course Information (B210.05.21)**

This test verifies the ability of the Training Management Application Service at the SMC to prepare, update, store, view/print, and disseminate training courses descriptions, course prerequisites, resource requirements, and schedules.

Test Configuration: Hardware - workstations  
Software - MSS Training Management Application Service

Input: The tester at a simulated SMC, using the Training Management Application Service, attempts to prepare, update, store, view/print, and disseminate a training course description, course prerequisites, resource requirements, and schedule.

Output: Messages indicating the preparation, update, and storage of training course description, course prerequisites, resource requirements, and schedule. The display and hard copy of training course description, course prerequisites, resource requirements, and schedule.

Expected Results: The tester successfully completes the preparation, update, and storage of training course description, course prerequisites, resource requirements, and schedule. The tester is able to produce a display and hard copy of training course description, course prerequisites, resource requirements, and schedule.

**Test Case 22 Produce PM and Corrective Maintenance Reports (B210.05.22)**

This test verifies the ability of the Maintenance Management Application Service to provide the M&O staff the capability to produce PM and corrective maintenance reports based on operator entered criteria.

Test Configuration: Hardware - workstations  
Software - MSS Maintenance Management Application Service

Input: The tester will attempt to produce PM and corrective maintenance reports by entering a criteria.

Output: The PM and corrective maintenance reports are displayed.

Expected Results: The PM and corrective maintenance reports are displayed, and will contain information pertaining to the criteria entered by the tester.

**Test Case 23**      **Receive Specified Site Maintenance Data at the SMC (B210.05.23)**

This test verifies the ability of the Maintenance Management Application Service to receive specified site maintenance data at the SMC for use in maintenance trends analysis.

Test Configuration: Hardware - workstations  
Software - MSS Maintenance Management Application Service

Input: The tester at a simulated SMC, using the MSS Maintenance Management Application Service, will attempt to receive specified site maintenance data for use in maintenance trends analysis.

Output: Statistics based on site maintenance data for use in maintenance trends analysis are displayed.

Expected Results: The tester will successfully receive specified site maintenance data into the simulated SMC, and view the statistics based on the site maintenance data.

**Test Case 24**      **Input, Store, Maintain, and View/Print PM Information for Site Equipment (B210.05.24)**

This test verifies the ability of the Maintenance Management Application Service to input, store, maintain, and view/print Preventive Maintenance (PM) information for site equipment.

Test Configuration: Hardware - workstations  
Software - MSS Maintenance Management Application Service

Input: The tester will attempt to input, store, maintain, and view/print PM information for a unit of site equipment.

Output: Messages indicating the input, storage, and update of PM information for a unit of site equipment. The PM information will be viewed and printed.

Expected Results: The PM information entered by the tester is input, stored and updated. The PM information is viewed and printed.

**Test Case 25**      **Schedule Maintenance Events via the MSS Planning and Scheduling Service (B210.05.25)**

This test verifies the ability of the Maintenance Management Application Service to schedule maintenance events via the MSS Planning and Scheduling Service.

Test Configuration: Hardware - workstations  
Software - MSS Maintenance Management Application Service,  
MSS Planning and Scheduling Service

Input: The tester, using the Maintenance Management Application Service, will attempt to schedule maintenance events via the MSS Planning and Scheduling Service.

Output: Messages indicating that maintenance events have been scheduled.

Expected Results: The requested maintenance events will be scheduled via the MSS Planning and Scheduling Service.

**Test Case 26 Provide Off-Site Maintenance Reports (B210.05.26)**

This test verifies the ability of the Maintenance Management Application Service to provide off-site maintenance reports based on operator entered criteria.

Test Configuration: Hardware - workstations  
Software - MSS Maintenance Management Application Service

Input: The tester will attempt to produce off-site maintenance reports.

Output: The off-site maintenance reports are displayed.

Expected Results: The off-site maintenance reports are provided, and will contain information pertaining to ongoing off-site maintenance.

**Test Case 27 Record Off-Site Maintenance Information (B210.05.27)**

This test verifies the ability of the Maintenance Management Application Service to record off-site maintenance information: identification of component; description of problem; and corrective action taken.

Test Configuration: Hardware - workstations  
Software - MSS Maintenance Management Application Service

Input: The tester will attempt to record, and view/print off-site maintenance information for a unit of site equipment.

Output: Messages indicating the recording of off-site maintenance information for a unit of site equipment. The off-site maintenance information is viewed and printed.

Expected Results: The off-site maintenance information as entered by the tester is recorded. The off-site maintenance information is viewed and printed.

## 5.24 Distributed Client Thread

### 5.24.1 Thread Objectives

The objectives of the Distributed Client Thread are:

- Provide the ability to authenticate user logon.
- Provide the ability to retrieve user comments.
- Provide the ability to process service requests.
- Provide the ability to display accounting status to the user.
- Provide the ability to offer general workbench functions.

### 5.24.2 Thread Test Description

Testing will demonstrate verification of logon authenticity, communication services, comment retrieval, presented accounting reports and service request processing. Processing of multiple concurrent service requests will be tested. Testing will include cancellation, suspension and restoration of requests. Status requests will be tested for the progress of a service request. Access to USENET news groups and WAIS clients will also be tested along with general workbench functions. These general workbench functions include; displaying documentation, policies and procedures; saving and restoring menus and forms; command language interfaces; and the displaying of interrupt messages.

#### **Dependencies: (If Applicable)**

To verify the objectives of the Distributed Client Thread, the following interface and functional capabilities are required:

- Network environment (LAN and WAN).
- User registration capability, scientist workbench, and EOSView.
- GUI and CHUI interfaces to the EOSDIS and ECS services
- Client-server interface

#### Test Support Requirements

- Hardware:
  - Workstations
  - Dumb terminals
  - Bit mapped-display terminals
- Software:
  - Desktop Manager, Desktop
  - Scientist Workbench

- Data Dictionary Server, Data Dictionary DBMS
- User Registration Tool
- SMC interface
- MSS Billing and Accounting Application Service
- Advertising Service
- Data:
  - ESDIS Project Policies and Procedures
  - Documentation files

### 5.24.2.1 Sequence 1 - Logon

The following tests verify logon authenticity. Valid and invalid user logons will be tested.

#### **Test Case 1 Initial System Access Procedures (T211-3.01.01)**

This test verifies that the user will be provided with initial system access procedures.

Test Configuration: Hardware - workstations

Software - User Registration Tool, SMC

Input: Users will access the logon authorization requests.

Output: Initial system access procedures will be provided along with the logon screen.

Expected Results: The User can access the procedures.

#### **Test Case 2 Invalid Authorization (T211-3.01.02)**

This test verifies that the system checks for valid user authorization. The workbench will send logon authorization requests to CSMS. The workbench should allow user system access based on the user validation status returned from CSMS.

Test Configuration: Hardware - workstations

Software - User Registration Tool, SMC

Input: Invalid user logon requests are entered from multiple users. Each request includes, a valid/invalid userid with its corresponding invalid password.

Output: Information returned from the client not allowing the user access based on the validation information.

Expected Results: Information is received stating an unsuccessful logon. The user will not have system access.





Output: Network interfaces are displayed.  
Expected Results: Ability to access networks through ESN. Functions performed using these networks are successfully completed.

**Test Case 7                    Access to ESN Electronic Bulletin Board (T211-3.02.07)**

This test verifies that the user can access the ESN electronic bulletin board.

Test Configuration: Hardware - workstations  
Software - Scientist workbench, Desktop manager

Input: Initiate the ESN electronic bulletin board.

Output: The ESN electronic bulletin board interface is displayed.

Expected Results: Ability to access the ESN electronic bulletin board and successfully read from and post to the bulletin board.

**5.24.2.3 Sequence 3 - User Comments**

The following tests verify comment entry and retrieval. Users will be able to enter user comments from any window on the desktop. User information is automatically attached to comments submitted by the user. The workbench will also be tested to show the capability to retrieve user comments.

**Test Case 1                    Enter User Comments (T211-3.03.01)**

This test verifies that the user can access the user comments window from any window on the desktop. The user will successfully enter and submit comments.

Test Configuration: Hardware - workstations  
Software - Scientist workbench, Desktop manager, SMC

Input: Initiate the user comments window from any window on the desktop. Fill in the comments form and submit comments.

Output: Comments are verified and sent to the SMC.

Expected Results: Comments are successfully entered and sent to the SMC. Responses are displayed to the user.

**Test Case 2                    Retrieve User Comments (T211-3.03.02)**

This test verifies that the workbench has the capability to retrieve user comments based on author, subject and date/time.

Test Configuration: Hardware - workstations  
Software - Scientist workbench, Desktop manager, SMC

Input: Initiate the retrieval of user comments based on author, subject, date, and time.

Output: Comments are retrieved and displayed.

Expected Results: Comments retrieved and displayed match the criteria stated in the retrieving process.

**Test Case 3 Information Attached to Comments (T211-3.03.03)**

This test verifies that certain information is attached to all comments submitted by the user. Information attached includes date, time and client release version identification.

Test Configuration: Hardware - workstations  
Software - Scientist workbench, Desktop manager, SMC

Input: Submit user comments.

Output: Comments are verified, information attached and sent to the SMC.

Expected Results: Comments are successfully entered and sent to the SMC. Responses are displayed to the user. Date, time and client release version identification are attached to the comment files.

**5.24.2.4 Sequence 4 - Accounting**

The following tests verify the user's ability to obtain current account balances and account histories. Current account balances and account histories are displayed on the screen. The user is not able to obtain another user's account information.

**Test Case 1 Sent Current Account Balance (T211-3.04.01)**

This test verifies that the user can obtain current account balances.

Test Configuration: Hardware - workstations  
Software - Scientist workbench, Desktop manager, MSS Billing and Accounting Application Service

Input: Populated account information is present in the billing and accounting application service. Request current account balance. Requests for other user's information are attempted.

Output: Current account balance is sent from MSS to the client. Account balance is displayed. Requests for other user's information are rejected. Response messages are displayed.

Expected Results: Account balances are current and match what is present in the billing and accounting application service provided by MSS. A user can not access another user's information.

**Test Case 2                      Display Account History (T211-3.04.02)**

This test verifies that the user can display their account history.

Test Configuration:    Hardware - workstations

Software - Scientist workbench, Desktop manager, MSS Billing and Accounting Application Service

Input:                      Populated account information is present in the billing and accounting application service. Request account history. Requests for other user's information are attempted.

Output:                     Account history is sent from MSS to the requesting client. Account history is displayed. Requests for other user's information are rejected. Response messages are displayed.

Expected Results:        Account histories match what is present in the billing and accounting application service provided by MSS. A user can not access another user's information.

**5.24.2.5    Sequence 5 - Service Request Processing**

The following tests verify service request processing. A service request is a message issued by a user or client that directs a component of the ECS system to perform a task. Processing of multiple concurrent service requests will be tested. Testing will include cancellation, suspension and restoration of requests. Status requests will be tested for the progress of a service request.

**Test Case 1                      Multiple Concurrent Service Requests (T211-3.05.01)**

This test verifies that the user can submit multiple service requests at one time. Each service request will be tested for proper execution.

Test Configuration:    Hardware - workstations

Software - Scientist Workbench, Desktop

Input:                      Submit several service requests.

Output:                     Concurrent service requests are accepted and tasks pertaining to these service requests are performed.

Expected Results:        Service requests are executed successfully.

**Test Case 2                      Cancel Service Requests (T211-3.05.02)**

This test verifies that the user can cancel any time-intensive service requests by issuing a cancellation request.

Test Configuration:    Hardware - workstations

Software - Scientist workbench, Desktop manager, SMC



or suspended and response messages are displayed to the user. Suspended service requests are restored and response messages are displayed to the use. Status requests are accepted and processed.

Expected Results: Correct status of requested service requests is obtained.

**Test Case 5      User Profile Specifies Defaults for Parameters      (T211-3.05.05)**

This test verifies that default parameters specified in the user profile are used to assist in forming a new service request. The parameters specified as defaults are applicable to an ECS service request. These parameters are displayed as default values when forming a new request.

Test Configuration: Hardware - workstations

Software - User Registration Tool, Workbench

Input: The user will request the user profile information. Default parameters are specified in the user profile. Service requests are created.

Output: The user profile will be displayed. Default parameters in the user profile are accepted. Service requests are accepted.

Expected Results: Default parameters specified in the user profile are displayed as default values when forming a service request.

### **5.24.2.6 Sequence 6 - Notification of Events**

The following tests verify functions pertaining to the notification of events. Such functions include suppressing and unsuppressing an event notification, entering default instructions, and entering response input to an event notification. Event notifications will be sent from multiple services and will be properly displayed to the user or suppressed, any response needed from the user will be obtained. Error handling for incorrect responses will also be tested.

**Test Case 1      Display (T211-3.06.01)**

This test verifies that the workbench will accept notifications of events associated with service requests and sessions. Such events will be displayed to the user. If the events require instructions from the user, input will be accepted and sent to the service requesting the feedback.

Test Configuration: Hardware - workstations

Software - Scientist workbench, Desktop manager, SMC

Input: Notifications are sent from a service. The user enters anyInput needed.

**Output:** The Notification is displayed to the user. Any requestedInput is returned to the service that sent the notification.

**Expected Results:** Notifications are displayed to the user. Input is prompted for certain notifications. RequestedInput is successfully sent to the requesting service.

### **Test Case 2                    Input Instructions (T211-3.06.02)**

This test verifies that the workbench will allow the user to input instructions for suppressed and unsuppressed event notifications associated with service requests and sessions. If the user has selected the event notifications as unsuppressed, the events will be displayed to the user. If the events require instructions from the user, manual input will be accepted or default instructions will be executed. Input will consist of valid and invalid entries.

**Test Configuration:** Hardware - workstations

Software - Scientist workbench, Desktop manager, SMC

**Input:** Several event notifications are suppressed. Default instructions are defined in response to event notifications that are suppressed. Several of the default instructions will be invalid. Notifications are sent from a service. The user enters anyInput needed for unsuppressed notifications. A several of the manual userInputs will be invalid.

**Output:** Unsuppressed event notifications are displayed to the user. Any requestedInput is returned to the service that sent the notification. Suppressed event notifications use default instructions as a response to the service that sent the notification. InvalidInput responses are returned to the user with error messages.

**Expected Results:** Unsuppressed event notifications are displayed to the user. Input is prompted for certain notifications. RequestedInput is successfully sent to the requesting service. For suppressed event notifications thisInput comes from default instructions specified by the user. InvalidInput is returned to the user with appropriate error messages.

### **Test Case 3                    Suppress & Unsuppress Display (T211-3.06.03)**

This test verifies that the workbench will allow the user to suppress and unsuppress the display of event notifications associated with service requests and sessions. If the user has selected the event notifications as unsuppressed, the events will be displayed to the user. If the events require instructions from the user, manual input will be accepted or default instructions will be executed.

**Test Configuration:** Hardware - workstations

Software - Scientist workbench, Desktop manager, SMC

**Input:** Several event notifications are suppressed. Default instructions are defined in response to event notifications that are suppressed. Notifications are sent from a service. The user enters anyInput needed for unsuppressed notifications. Default instructions are removed and the directive to suppress an event notification is rescinded. Notifications are sent from a service.

**Output:** Unsuppressed event notifications are displayed to the user. Any requestedInput is returned to the service that sent the notification. Suppressed event notifications use default instructions as a response to the service that sent the notification. Several default instructions are removed and several suppressed event notifications become unsuppressed.

**Expected Results:** Unsuppressed event notifications are displayed to the user. Input is prompted for certain notifications. RequestedInput is successfully sent to the requesting service. For suppressed event notifications thisInput comes from default instructions specified by the user. Default instructions specified are removed and specified suppressed event notifications become unsuppressed.

**Test Case 4      Define Default Instructions for Events (T211-3.06.04)**

This test verifies the users ability to define default instructions for events. Instructions are defined based on type of event and session.

**Test Configuration:** Hardware - workstations

Software - Scientist workbench, Desktop manager, SMC

**Input:** Define default instructions for events. Notifications are sent from a service.

**Output:** The notification is displayed to the user. Default instructions are performed on the notification as defined.

**Expected Results:** Notifications are displayed to the user. Each notification is dealt with successfully, according to default instructions.

**Test Case 5      Modify & Remove Default Instructions (T211-3.06.05)**

This test verifies the users ability to modify and remove default instructions for events. Instructions are defined based on type of event and session.

**Test Configuration:** Hardware - workstations

Software - Scientist workbench, Desktop manager, SMC

**Input:** Modify and remove default instructions for events. Notifications are sent from a service.

**Output:** The notification is displayed to the user. Default instructions are performed on the notification as defined. If no default instructions are provided for a notification userInput is prompted as needed.

**Expected Results:** Notifications are displayed to the user. Each notification, with defined default instructions, is dealt with successfully, according to its default instructions. Notifications without defined default instructions will prompt the user forInput.

**Test Case 6 Respond to Event w/Default Instructions (T211-3.06.06)**

This test verifies the ability to respond to event notifications with default instructions. Instructions are defined based on type of event and session.

**Test Configuration:** Hardware - workstations

Software - Scientist workbench, Desktop manager, SMC

**Input:** Define default instructions for events. Notifications are sent from a variety of services.

**Output:** The notification is displayed to the user. Default instructions are performed on the notification as defined.

**Expected Results:** Notifications are displayed to the user. Each notification is dealt with successfully, according to default instructions.

**5.24.2.7 Sequence 7 - Dumb Terminal Interface**

The following tests verify that a functional dumb terminal interface is provided. A number of general workbench and desktop functions will be tested using the dumb terminal interface. Such functions include helpful error messages, menu tree diagrams, command languages, save and restore, guide information, and data dictionary associations. Standardization between screens is also tested.

**Test Case 1 Save and Restore (T211-3.07.01)**

This test verifies that a user can access saved contents of menus and forms. The ECS desktop and workbench are used to create and save menus and forms. The user then logs off and back onto the system using the same valid user ID. The menus and forms previously saved will be retrieved.

**Test Configuration:** Hardware - dumb terminal

Software - Desktop Manager, Workbench, Data Dictionary Server, Data Dictionary DBMS

**Input:** Log onto the ECS system, create and save menus and forms. Log off and back onto the ECS system using the same user ID. Retrieve the menus and forms.

**Output:** The menus and forms are displayed when retrieved.

**Expected Results:** The menus and forms displayed are the same as those previously saved.

**Test Case 2      Non-standard Keys (T211-3.07.02)**

This test verifies that dumb terminal interfaces have minimal and consistent use of non-standard keys.

**Test Configuration:** Hardware - dumb terminal  
Software - Desktop Manager, Workbench, Data Dictionary Server, Data Dictionary DBMS

**Input:** Initiate a number of dumb terminal interfaces. Use non-standard keys.

**Output:** Dumb terminal interfaces are initiated. Valid non-standard keys are accepted. Invalid non-standard keys are rejected.

**Expected Results:** Non-standard keys are consistent across dumb terminal interfaces. Non-standard keys that are accepted are at a minimum.

**Test Case 3      Commands and Terminology Across Screens      (T211-3.07.03)**

This test verifies that dumb terminal interfaces have standardized use of commands and terminology across screens.

**Test Configuration:** Hardware - dumb terminal  
Software - Desktop Manager, Workbench, Data Dictionary Server, Data Dictionary DBMS

**Input:** Initiate a number of dumb terminal interfaces. Display a number of screens. List and issue commands.

**Output:** Dumb terminal interfaces are initiated. Screens are displayed. Command lists are displayed and valid commands are accepted. Invalid commands are rejected.

**Expected Results:** Commands and terminology are standard across dumb terminal interface screens.

**Test Case 4      Error Messages (T211-3.07.04)**

This test verifies that dumb terminal interfaces have self-explanatory error messages.

Test Configuration: Hardware - dumb terminal  
Software - Desktop Manager, Workbench, Data Dictionary Server,  
Data Dictionary DBMS

Input: Initiate a number of dumb terminal interfaces. Create situations to  
invoke error messages.

Output: Dumb terminal interfaces are initiated. Error messages are  
displayed.

Expected Results: Error messages are self-explanatory.

**Test Case 5      Menu Tree Diagram (T211-3.07.05)**

This test verifies the ability to display an accurate menu tree diagram. The menu tree  
diagram will be updated to represent the current files.

Test Configuration: Hardware - dumb terminal  
Software - Scientist Workbench, Desktop Manager

Input: Display the menu tree diagram.

Output: Menu tree diagram is displayed.

Expected Results: The menu tree diagram accurately reflects the files and services  
available. The diagram also correctly updates when there are  
changes to the desktop.

**Test Case 6      Command Language (T211-3.07.06)**

This test verifies that dumb terminal interfaces have the ability to use a command  
language.

Test Configuration: Hardware - dumb terminal  
Software - Desktop Manager, Workbench, Data Dictionary Server,  
Data Dictionary DBMS

Input: Initiate a number of dumb terminal interfaces. Display a number of  
screens. Issue commands using a command language.

Output: Dumb terminal interfaces are initiated. Screens are displayed.  
Valid commands are accepted. Invalid commands are rejected.

Expected Results: Command language entries are allowed in dumb terminal  
interfaces.

**Test Case 7      Local and Remote Dumb Terminals (T211-3.07.07)**

This test verifies that dumb terminal interfaces provide system access from local and  
remote dumb terminals.

Test Configuration: Hardware - dumb terminal  
Software - Desktop Manager, Workbench, Data Dictionary Server, Data Dictionary DBMS

Input: Initiate a number of dumb terminal interfaces from local and remote dumb terminals. Submit a number of service requests.

Output: Dumb terminal interfaces are initiated. Service requests are accepted and initiated.

Expected Results: Local and remote dumb terminals have access to dumb terminal interfaces.

**Test Case 8**      **Local and Remote Bit mapped Display Terminal**  
**(T211-3.07.08)**

This test verifies that dumb terminal interfaces provide system access from local and remote bit mapped-display terminals.

Test Configuration: Hardware - bit mapped-display terminals  
Software - Desktop Manager, Workbench, Data Dictionary Server, Data Dictionary DBMS

Input: Initiate a number of dumb terminal interfaces from local and remote bit mapped-display terminals. Submit a number of service requests.

Output: Dumb terminal interfaces are initiated. Service requests are accepted and initiated.

Expected Results: Local and remote bit mapped-display terminals have access to dumb terminal interfaces.

**Test Case 9**      **Context-sensitive Help (T211-3.07.09)**

This test verifies the ability to access context sensitive help functions. Context sensitive help enables the user to obtain definitions for words that are unfamiliar by selecting (highlighting) the word and clicking the 'help' option. Context sensitive help will be accessed from the scientist workbench.

Test Configuration: Hardware - Dumb Terminal  
Software - Scientist Workbench

Input: Highlight keywords for searching. Click on the highlighted word to obtain specific context information about the keyword.

Output: Meaningful definition/explanation about the item is displayed.

Expected Results: The tester is given detailed information about the particular item that is highlighted.

**Test Case 10 Valid Value lists for all attributes (T211-3.07.10)**

This test verifies that dumb terminal interfaces provide valid value lists for all attributes.

Test Configuration: Hardware - dumb terminal

Software - Desktop Manager, Workbench, Data Dictionary Server, Data Dictionary DBMS

Input: Initiate a number of dumb terminal interfaces. Display forms that require attributes. Display valid value lists.

Output: Dumb terminal interfaces are initiated. Forms are displayed. Valid value lists are displayed.

Expected Results: Valid value lists can be displayed for all attributes.

**Test Case 11 Data Dictionary Associations between Variables (T211-3.07.11)**

This test verifies that dumb terminal interfaces provide data dictionary associations between variables.

Test Configuration: Hardware - dumb terminal

Software - Desktop Manager, Workbench, Data Dictionary Server, Data Dictionary DBMS

Input: Initiate a number of dumb terminal interfaces. Access the data dictionary.

Output: Dumb terminal interfaces are initiated. The data dictionary is accessed.

Expected Results: Data dictionary associations are present between variables.

**Test Case 12 Guide Information as Plain Text Documents (T211-3.07.12)**

This test verifies the capability to access guide information as plain text documents for dumb terminals.

Test Configuration: Hardware - dumb terminal

Software - Desktop Manager, Workbench, Data Dictionary Server, Data Dictionary DBMS

Input: Initiate a number of dumb terminal interfaces. Access guide information.

Output: Dumb terminal interfaces are initiated. Guide information is displayed.

Expected Results: Guide information is displayed as plain text documents.

**Test Case 13 CHUI Term Conforming to VT-100 Standards (T211-3.07.13)**

This test verifies that a CHUI terminal support conforms to VT-100 standards.

Test Configuration: Hardware - dumb terminal, CHUI terminal support  
Software - Desktop Manager, Workbench, Data Dictionary Server, Data Dictionary DBMS

Input: CHUI terminal support

Output: CHUI display

Expected Results: CHUI terminal support conforms to VT-100 standards.

### 5.24.2.8 Sequence 8 - Interaction Level

The following tests verify the ability for the user to specify the interaction level option as expert, intermediate, or novice. Help is automatically supplied to the user based on the level option chosen. The expert level will provide direct information input without any automatic supplied help. Intermediate and novice levels will provide prompting and automatic supplied help.

**Test Case 1 Expert Level (T211-3.08.01)**

This test verifies the ability to specify the interaction level option as "Expert". This option will provide direct information input without any automatic supplied help.

Test Configuration: Hardware - workstation  
Software - Scientist Workbench, Desktop Manager

Input: Select the interaction level as "Expert". PerformInput functions.

Output: Interaction level is changed to expert. Direct informationInput is accepted.

Expected Results: No automatic supplied help is given to the user.

**Test Case 2 Intermediate Level (T211-3.08.02)**

This test verifies the ability to specify the interaction level option as "Intermediate". This option will provide prompting and automatic supplied help.

Test Configuration: Hardware - workstation  
Software - Scientist Workbench, Desktop Manager

**Input:** Select the interaction level as "Intermediate". PerformInput functions.

**Output:** Interaction level is changed to intermediate. Prompting and automatically supplied help is displayed.

**Expected Results:** Prompting and automatically supplied help of the intermediate level is displayed.

**Test Case 3      Novice Level (T211-3.08.03)**

This test verifies the ability to specify the interaction level option as "Novice". This option will provide prompting and automatic help facilities.

**Test Configuration:** Hardware - workstation

Software - Scientist Workbench, Desktop Manager

**Input:** Select the interaction level as "Novice". PerformInput functions.

**Output:** Interaction level is changed to novice. Prompting and automatic help facilities are displayed.

**Expected Results:** Prompting and automatic help facilities of the novice level are displayed.

**5.24.2.9 Sequence 9 - General Workbench**

The following tests verify general workbench function. This includes: displaying documentation, policies and procedures; saving and restoring menus and forms; command language interfaces; and the displaying of interrupt messages.

**Test Case 1      Display Documentation (T211-3.09.01)**

This test verifies that a user can display documentation on data formats and metadata standards.

**Test Configuration:** Hardware - workstation

Software - Desktop Manager, Workbench, Data Dictionary Server, Data Dictionary DBMS

**Input:** Display documentation on data formats and metadata standards.

**Output:** Documentation on data formats and metadata standards is displayed.

**Expected Results:** Documentation on data formats and metadata standards is available and can be displayed.



**Test Case 5                      Simultaneously View Requests & Results (T211-3.09.05)**

This test verifies that a user can simultaneously view search results and production requests. Optional fields in the production requests will be distinguished from the mandatory fields.

Test Configuration:    Hardware - workstation

Software - Desktop Manager, Workbench, Data Dictionary Server,  
Data Dictionary DBMS

Input:                      Display search results. Display production requests.

Output:                    Search results are displayed. Production requests are displayed.

Expected Results:    Search results and production requests can be viewed simultaneously.

**Test Case 6                      Interrupt Messages Display (T211-3.09.06)**

This test verifies that the workbench shall provide a capability to interactively display interrupt messages.

Test Configuration:    Hardware - workstation

Software - Desktop Manager, Workbench, Data Dictionary Server,  
Data Dictionary DBMS

Input:                    Display a variety of windows and applications. Interrupt messages are sent to the client.

Output:                   Interrupt messages are displayed on the screen.

Expected Results:    Interrupt messages are interactively displayed.

**Test Case 7                      Service Availability Status (T211-3.09.07)**

This test verifies that a user can view the service availability status of all ECS services. A variety of services are available.

Test Configuration:    Hardware - workstation

Software - Desktop Manager, Workbench, Advertising Service.

Input:                    Populate the system with services with varying degrees of availability. Display the service availability status.

Output:                   Service availability status is displayed.

Expected Results:    The Service availability status is displayed and correctly indicates the status of available services.



Software - Desktop, Workbench, simulator

Input: File containing Input parameters of the API. The simulator will Input the parameters one at a time into the API.

Output: File containing the Output from the Input parameters.

Expected Results: Through analysis, the Output from the Input parameters match the specified design of the API.

**Test Case 3 Bypass the Delivered ECS Interface (T211-3.10.03)**

This test verifies that APIs will be provided that are capable of supporting the development of a local user interface that can bypass the delivered ECS user interface for accessing DAAC-unique metadata searching services.

Test Configuration: Hardware - workstations

Software - Desktop, Workbench, simulator

Input: File containing Input parameters of the API. The simulator will Input the parameters one at a time into the API.

Output: File containing the Output from the Input parameters.

Expected Results: Through analysis, the Output from the Input parameters match the specified design of the API.

**Test Case 4 Independent DAAC Unique Search and Services (T211-3.10.04)**

This test verifies that APIs will be provided to support development of DAAC unique metadata search and access services that will operate independent of the delivered ECS services.

Test Configuration: Hardware - workstations

Software - Desktop, Workbench, simulator

Input: File containing Input parameters of the API. The simulator will Input the parameters one at a time into the API.

Output: File containing the Output from the Input parameters.

Expected Results: Through analysis, the Output from the Input parameters match the specified design of the API.

**Test Case 5 DAAC Specific Data Analysis Utilities (T211-3.10.05)**

This test verifies that APIs will be provided to support DAAC specific data analysis utilities.

Test Configuration: Hardware - workstations

Software - Desktop, Workbench, simulator

- Input: File containing Input parameters of the API. The simulator will Input the parameters one at a time into the API.
- Output: File containing the Output from the Input parameters.
- Expected Results: Through analysis, the Output from the Input parameters match the specified design of the API.

## 5.25 Self Registration Thread

### 5.25.1 Thread Objectives

The objectives of the Self Registration Thread are:

- Provide the ability to perform self registration by integrating the user interface with CSMS.
- Provide the ability to provide automatic guest, authorized user and individual (groups) authentication for distribution.

### 5.25.2 Thread Test Description

Testing will demonstrate verification of user access to registration capabilities. Self registration of a guest user will be tested through the user interface with CSMS. Different privileges established for distribution allowing the user automatic guest, authorized user and individual(groups) authentication will be verified based on the existence or non-existence of profile information.

#### **Dependencies: (If Applicable)**

To verify the objectives of the Self Registration Thread, the following interface and functional capabilities are required:

- Network environment (LAN and WAN).
- User registration capability, scientist workbench, and EOSView.
- GUI and CHUI interfaces to the EOSDIS and ECS services
- Client-server interface

#### Test Support Requirements

- Hardware:
  - Workstations
- Software:
  - Desktop Manager, Desktop
  - Scientist Workbench

- User Registration Tool
- SMC interface
- Data:
  - User account information

### 5.25.2.1 Sequence 1 - Registration

The following tests verify that a user can register as an ECS user. The client shall provide a user registration request to CSMS to create a new ECS user account. The user registration request will also supply user default information. The client will provide the users their user priorities and authorized user services. Valid and invalid user registration requests will be tested.

#### **Test Case 1            User Registration Request (T211-2.01.01)**

This test verifies that a user can successfully register as an ECS user. The client will provide registered users access to ECS services based on their account priorities and authorized user services. The client provides an interface by which a new user can complete an account application which is forwarded to the SMC.

Test Configuration:    Hardware - workstations

Software - User Registration Tool, Workbench, SMC

Input:                    The user will complete and submit a registration form. This form will contain valid information. The user will request data and services based on their user priorities and authorized user services.

Output:                  The SMC will supply the priority information and authorized user services. Access to data and services is granted.

Expected Results:    The registration process is completed and SMC provides the necessary access attributes to use ECS. The user is able to access the ECS system.

#### **Test Case 2            Invalid User Registration Request (T211-2.01.02)**

This test verifies that error messages are generated during the registration process as a result of entering invalid registration information. A registration process is required to use the full capabilities of ECS. Unregistered users' access to ECS is limited.

Test Configuration:    Hardware - workstations

Software - User Registration Tool, Workbench, SMC

Input:                    The user will complete and submit a registration form. This form will contain invalid information.

Output:                  An error message is generated each time invalid information is entered into each field on the registration form. The user is also

provided with proper data that should be entered into the field. Invalid forms cannot be submitted for processing.

Expected Results: ImproperInputs are detected and the user is prompted for the correct entry.

### **5.25.2.2 Sequence 2 - Profiles**

The following tests verify the ability to view and modify user profiles, account priorities, and authorized user services.

#### **Test Case 1 View User Profiles, Priorities & Services (T211-2.02.01)**

This test verifies that a user can view their user profile, account priorities, and authorized user services. The user will have the capability to request user profile information.

Test Configuration: Hardware - workstations

Software - User Registration Tool, Workbench

Input: The user will request the user profile information.

Output: The user profile will be displayed.

Expected Results: The user profile is displayed and provides information on account priorities and authorized user services. This information supports what is in the CSMS authorization tables.

#### **Test Case 2 Modify User Profile Information (T211-2.02.02)**

This test verifies that a user can modify their user profile, account priorities, and authorized user services. The user will have the capability to modify their user profile information.

Test Configuration: Hardware - workstations

Software - User Registration Tool, Workbench

Input: The user will request the user profile information. The user chooses the profile information that will be modified. Redisplay the user profile information after processing.

Output: The user profile will be displayed. The user is provided with the proper data that should be entered into the fields selected. Forms are processed.

Expected Results: Invalid requests are not processed and error messages are returned to the user. Valid forms are processed. Upon re displaying the profile, modifications requested will be displayed for valid forms and no changes will occur for invalid forms.

### 5.25.2.3 Sequence 3 - Priorities and Authorization

The following tests verify the ability to access data and services based on account priorities. Changes to account priorities and authorized user services will be tested using user requests. User requests will be both valid and invalid requests.

#### **Test Case 1 Access based on Priorities and Authorization (T211-2.03.01)**

This test verifies that a user can access data and services based on their account priorities and user service authorization.

Test Configuration: Hardware - workstations

Software - User Registration Tool, Workbench

Input: The user will request data and services.

Output: The user is granted access based on CSMS tables of authorization.

Expected Results: Users are granted access to data and services based on their account priorities, and authorized user services. Access is denied to data and services beyond this scope.

#### **Test Case 2 Request Changes to Priorities and Authorization (T211-2.03.02)**

This test verifies that a user can request changes to their account priorities and authorized user services.

Test Configuration: Hardware - workstations

Software - User Registration Tool, Workbench

Input: The user will complete and send a request to change account priorities and authorized user services.

Output: The request is sent to the SMC. After the request is processed a response to the request is displayed.

Expected Results: Requests will be processed and messages will be returned stating the out come of the requests. Reasons for request denial will be stated. Policies and procedures will determine if a user can acquire requested access.

## 5.26 Enhanced Sessions Handling Thread

### 5.26.1 Thread Objectives

The objectives of the Enhanced Sessions Handling Thread are:

- Provide the ability to allow user access to an individual user profile, saved search options and search results from any physical logon position.

- Provide the ability to enable, disable, obtain and review session logs .
- Provide the ability to support multiple sessions.
- Provide the ability to rebuild user sessions.

### **5.26.2 Thread Test Description**

Testing will demonstrate verification of user access to saved profiles, search options, and search results. Profiles, search options, and search results are saved on the host, allowing them to be retrieved by the user from different workstations. User connection from a variety of workstations will verify correct retrieval of saved user data and profiles. User connections will be made via direct connection, dial up connection and network link.

The support of multiple sessions will be tested. Sessions will be initiated and terminated. Profiles will be created for each session and status information about the sessions will be obtainable by the user. Connection to existing user sessions and rebuilding of a session will also be tested.

The ability to enable and disable session logs will be tested. Testing will demonstrate the ability to obtain and review these logs.

#### **Dependencies: (If Applicable)**

To verify the objectives of the Enhanced Sessions Handling Thread, the following interface and functional capabilities are required:

- Network environment (LAN and WAN).
- User registration capability, scientist workbench, and EOSView.
- GUI and CHUI interfaces to the EOSDIS and ECS services
- Client-server interface

#### **Test Support Requirements**

- Hardware:
  - Workstations
- Software:
  - Desktop Manager, Desktop
  - Scientist Workbench
- Data:
  - HDF data files

#### **5.26.2.1 Sequence 1 - Session Logs**

The following tests verify the ability to enable and disable session logs. Logs will be obtained and reviewed.



Expected Results: While session is being logged, interactions displayed in the session log match those performed in the session. The session log is successfully copied to a file and preserved.

**Test Case 4                    Replay User Session Log (T211-1.01.04)**

This test verifies that a user can use session logs when rebuilding a session.

Test Configuration: Hardware - workstations  
Software - Scientist Workbench, Desktop

Input: Session log. Rebuild a session using the session logs

Output: Session is rebuilt

Expected Results: Session is rebuilt using session logs.

**5.26.2.2 Sequence 2 - Multiple Sessions**

The following tests verify support of multiple sessions. Sessions will be initiated and terminated. Profiles will be created for sessions and status information about the sessions will be obtained. Connection to existing user sessions and rebuilding a user session while supporting multiple sessions will be tested.

**Test Case 1                    Initiate User Session (T211-1.02.01)**

This test verifies that user sessions can be initiated. A user session supports interactions between the user and all of ECS and allows the user to interact with ECS as a single entity. User sessions manage resources and results sets that are directly or indirectly controlled by the user interface client.

Test Configuration: Hardware - workstations  
Software - Scientist Workbench, Desktop

Input: Submit several service requests.

Output: Concurrent service requests between the user interface client and one or more servers is issued.

Expected Results: Service requests are executed successfully. A user session is successfully initiated.

**Test Case 2                    Suspend & Resume Sessions w/ Service Providers (T211-1.02.02)**

This test verifies that user sessions with service providers can be suspended and resumed. When a session is suspended the session is established, but will not accept service requests. Session resources are saved but not accessible.

Test Configuration: Hardware - workstations

Software - Scientist Workbench, Desktop

- Input: Initiate several user sessions. Suspend a number of the active sessions. Submit service requests to active and suspended sessions. Resume suspended sessions. Submit service requests to all resumed sessions.
- Output: Concurrent sessions are opened. A number of sessions are suspended and service requests are not accepted for those sessions. Service requests are accepted for all active sessions.
- Expected Results: Service requests are executed successfully on all active sessions. Suspended sessions save resources and do not accept service requests. When suspended sessions are reactivated service requests are accepted and are executed successfully.

**Test Case 3 Obtain Status Information on User Sessions (T211-1.02.03)**

This test verifies that user can obtain status information on user sessions.

Test Configuration: Hardware - workstations

Software - Scientist Workbench, Desktop

- Input: Initiate user sessions. Suspend and terminate a number of the sessions. Submit service requests to active sessions. Request status information on user sessions.
- Output: Sessions are initiated. A number of sessions are suspended and terminated. Accept and execute service requests. Display status information on user sessions.
- Expected Results: Status Information on user sessions correctly states the know status of the sessions.

**Test Case 4 Connect to an Existing User Session (T211-1.02.04)**

This test verifies that user can connect to existing user sessions.

Test Configuration: Hardware - workstations

Software - Scientist Workbench, Desktop

- Input: Initiate user sessions. Click on a user session already active on the desktop. Submit service requests associated with that user session.
- Output: Service requests are accepted on existing sessions.
- Expected Results: User successfully connects to an existing user session. Service requests are successfully executed.

**Test Case 5 Create Session Profiles (T211-1.02.05)**

This test verifies the capability to create a session profile for each user session. The session profile will be able to contain any of the parameters which are in the user profile and which may apply as defaults to ECS service requests.

Test Configuration: Hardware - workstations

Software - Scientist Workbench, Desktop

Input: Create session profiles for each user session. Create valid and invalid session profiles. Several profiles should contain parameters which are in the user profile.

Output: Valid session profiles are accepted. Invalid session profiles are rejected. Responses are displayed.

Expected Results: Valid session profiles are accepted. Invalid session profiles are rejected. The appropriate responses are displayed. Parameters which are in the user profile and which may apply as defaults to ECS service requests can be contained in the session profile.

#### **Test Case 6      Terminate User Sessions (T211-1.02.06)**

This test verifies that user can terminate user sessions.

Test Configuration: Hardware - workstations

Software - Scientist Workbench, Desktop

Input: Initiate user sessions. Terminate a number of the sessions. Submit service requests to active sessions.

Output: Sessions are initiated. A number of sessions are terminated. Accept and execute service requests.

Expected Results: User sessions are successfully terminated. Active sessions are not affected by terminated sessions.

### **5.26.2.3 Sequence 3 - User Sessions**

The following tests verify support of training, non-interactive remote and interactive sessions. User session context will be rebuilt. Service requests within the context of a user session will be issued.

#### **Test Case 1      Rebuild a User Session (T211-1.03.01)**

This test verifies that user can rebuild a user session context.

Test Configuration: Hardware - workstations

Software - Scientist Workbench, Desktop

Input: Establish a user session. Submit several service requests. Rebuild a user session.

Output: A user session is established. Concurrent service requests between the user interface client and one or more servers is issued. A user session is rebuilt.

Expected Results: The user session context is successfully rebuilt.

**Test Case 2 Issue Service Requests (T211-1.03.02)**

This test verifies that user can issue service requests within the context of a user session. A user session supports interaction between the user and all of ECS and allows the user to interact with ECS as a single entity.

Test Configuration: Hardware - workstations  
Software - Scientist Workbench, Desktop

Input: Establish a user session. Submit several service requests.

Output: A user session is established. Concurrent service requests between the user interface client and one or more servers is issued.

Expected Results: Service requests are executed successfully within the context of a user session.

**Test Case 3 Training Option (T211-1.03.03)**

This test verifies that a training option is provided. The training option consists of simulated user sessions for identifying, searching for and obtaining data and services.

Test Configuration: Hardware - workstations  
Software - Scientist Workbench, Desktop

Input: Select the training option. Establish a user session. Submit several service requests.

Output: The training option is accepted. A simulated user session is established. Service requests are issued.

Expected Results: The training option is successfully selected and simulated user sessions are established. Service requests are executed successfully.

**Test Case 4 Non-interactive Remote User Sessions (T211-1.03.04)**

This test verifies that an interface to APIs for use in non-interactive remote user sessions is provided.

Test Configuration: Hardware - workstations

Software - Scientist Workbench, Desktop

- Input: Initiate a number of non-interactive remote user sessions. Submit a number of service requests.
- Output: A number of non-interactive remote user sessions are established. Service requests are issued.
- Expected Results: Non-interactive remote user sessions are successfully established. Service requests are executed successfully.

**Test Case 5      Interactive User Sessions (T211-1.03.05)**

This test verifies that interactive user sessions are provided.

Test Configuration: Hardware - workstations

Software - Scientist Workbench, Desktop

- Input: Initiate a number of interactive user sessions. Submit a number of service requests.
- Output: A number of interactive user sessions are established. Service requests are issued.
- Expected Results: Interactive user sessions are successfully established. Service requests are executed successfully.

**Test Case 6      Create a Session Profile (T211-1.03.06)**

This test verifies that user can create a session profile for each user session.

Test Configuration: Hardware - workstations

Software - Scientist Workbench, Desktop

- Input: Establish a user session. Create a session profile.
- Output: A user session is established. A session profile for the user session is established.
- Expected Results: A session profile is successfully created for each user session established.

## **5.27 Enhanced Client Build**

The Enhanced Client Build is an integrated build of the following threads:

- Enhanced Sessions Handling Thread
- Self Registration Thread
- Distributed Client Thread

### **5.27.1 Build Objectives**

The objectives of the Enhanced Client Build are:

- Provide the ability to allow user access to an individual user profile, saved search options and search results from any physical logon position.
- Provide the ability to perform self registration by integrating the user interface with CSMS.
- Provide the ability to provide automatic guest, authorized user and individual (groups) authentication for distribution.
- Provide the ability to authenticate user logon, retrieve user comments, present accounting reports and process service requests.
- Provide the ability to offer general workbench functions.
- Provide the ability to enable, disable, obtain and review session logs .
- Provide the ability to support multiple sessions and rebuild a user session.

### **5.27.2 Build Test Description**

Testing will demonstrate verification of user access to registration capabilities, saved profiles, searches, and search results. Profiles, searches options, and results are saved on the host, allowing them to be retrieved by the user from different workstations. User connection from a variety of workstations will verify correct retrieval of saved user data and profiles. User connections will be made via direct connection, dial up connection and network link. Self registration of a guest user will be tested through the user interface with CSMS. Different privileges established for distribution allowing the user automatic guest, authorized user and individual(groups) authentication will be verified based on the existence or non-existence of profile information.

Testing will demonstrate multiple session handling. Multiple sessions will be requested, session logs will be studied, and user sessions will be rebuilt. Testing will demonstrate verification of logon authenticity, communication services, comment retrieval, presented accounting reports and service request processing.

#### **Dependencies: (If Applicable)**

To verify the objectives of the Enhanced Client build, the following interface and functional capabilities are required:

- Network environment (LAN and WAN).
- User registration capability, scientist workbench, and EOSView.
- GUI and CHUI interfaces to the EOSDIS and ECS services
- Client-server interface

## Test Support Requirements

- Hardware:
  - Workstations
  - Dumb terminals
  - Bit mapped-display terminals
- Software:
  - Desktop Manager, Desktop
  - Scientist Workbench
  - User Registration Tool
  - SMC interface
  - MSS Billing and Accounting Application Service
  - Advertising Service
- Data:
  - HDF data files

### 5.27.2.1 Sequence 1 - Logon

The following tests verify logon authenticity. Valid and invalid user logons will be tested.

#### **Test Case 1      Valid (B211.01.01)**

This test verifies that a user has the capability to logon. The users will be provided with initial system access procedures. The workbench will send logon authorization requests to CSMS. The workbench should allow user system access based on the user validation status returned from CSMS. To logon to ECS a user enters a valid user name and password.

Test Configuration:    Hardware - workstations

   Software - User Registration Tool, SMC

Input:                            Valid user logon requests are entered from multiple users. Each request includes, a valid userid with its corresponding password.

Output:                         Information returned from the client allowing the user access based on the validation information.

Expected Results:          Information is received stating a successful logon. The user has system access.



Expected Results: The registration process is completed and SMC provides the necessary access attributes to use ECS. The user is able to access the ECS system. Invalid registration requests are rejected.

**Test Case 2 Access based on Priorities and Authorization (B211.02.02)**

This test verifies that a user can access data and services based on their account priorities and user service authorization.

Test Configuration: Hardware - workstations  
Software - User Registration Tool, Workbench

Input: The user will request data and services.

Output: The user is granted access based on CSMS tables of authorization.

Expected Results: Users are granted access to data and services based on their account priorities, and authorized user services. Access is denied to data and services beyond this scope.

**5.27.2.3 Sequence 3 - Sessions**

The following tests verify multiple session handling, Multiple sessions will be requested, session logs will be studied, and user sessions will be rebuilt.

**Test Case 1 Sessions Logs (B211.03.01)**

The following tests verify the ability to enable and disable session logs. Logs will be obtained and reviewed.

Test Configuration: Hardware - workstations  
Software - Scientist Workbench, Desktop

Input: Session logging is enabled. Activity occurs in the session. View session log. Session logging is disabled. Activity occurs in the session. View session log. Copy session log to a file. View file.

Output: Interactions of sessions are displayed in the session log. The session log is copied to a file and re displayed as a flat file.

Expected Results: While session is being logged, interactions displayed in the session log match those performed in the session. Interactions that occurred after logging is disabled are not present in the session log. The session log is successfully copied to a file and preserved.

**Test Case 2 Multiple Sessions (B211.03.02)**

This test verifies that multiple user sessions can be supported. Sessions will be initiated, suspended and resumed, and terminated. When a session is suspended the session is

established, but will not accept service requests. Session resources are saved but not accessible. Status information about the sessions will be obtained.

Test Configuration: Hardware - workstations

Software - Scientist Workbench, Desktop

Input: Initiate several user sessions. Suspend a number of the active sessions. Submit service requests to active and suspended sessions. Resume suspended sessions. Terminate a number of active sessions. Submit service requests to all sessions. Request session status information.

Output: Concurrent sessions are opened. A number of sessions are suspended and service requests are not accepted for those sessions. A number of sessions are terminated. Service requests are accepted for all active sessions. Display information on user sessions.

Expected Results: Service requests are executed successfully on all active sessions. Suspended sessions save resources and do not accept service requests. When suspended sessions are reactivated service requests are accepted and are executed successfully. Status information on user sessions correctly states the know status of the sessions.

### **Test Case 3 Service Requests (B211.03.03)**

The following tests verify service request processing. A service request is a message issued by a user or client that directs a component of the ECS system to perform a task. Processing of multiple concurrent service requests will be tested. Testing will include cancellation, suspension and restoration of requests. Status requests will be tested for the progress of a service request.

Test Configuration: Hardware - workstations

Software - Scientist workbench, Desktop manager, SMC

Input: Submit several service requests. Select the desired service request to be canceled and suspended. Fill out a cancellation and a suspend request and submit it. Submit additional service requests. Submit restore requests. Submit status requests.

Output: Concurrent service requests are accepted and tasks pertaining to these service requests are performed. A service request is canceled or suspended and response messages are displayed to the user. Additional service requests are initiated. Suspended service requests are restored and response messages are displayed to the use. Status requests are accepted and processed.

Expected Results: Service requests are executed successfully. The service request associated with a cancellation or suspend request is successfully

canceled or suspended. A message is displayed to the user. Suspended requests are successfully restored. Correct status of requested service requests is obtained.

## **5.28 Enhanced Data Visualization Tools Thread**

### **5.28.1 Thread Objectives**

The objectives of the Enhanced Data Visualization Tools Thread are:

- Provide the ability to demonstrate data visualization capabilities.
- Provide the ability for users to add annotations on images.

### **5.28.2 Thread Test Description**

Testing will demonstrate verification of enhanced data visualization tools. Such capabilities include: modification and importation of color palettes; animation of data images; coordinate entries and displays; and modification and displaying of pseudo color images. The tester will demonstrate the use of a color table editor with sophisticated color table manipulations. Summarizing statistics will be correctly calculated from multi-dimensional arrays and user-selected columns.

#### **Dependencies: (If Applicable)**

To verify the objectives of the Enhanced Data Visualization Tools Thread, the following interface and functional capabilities are required:

- Network environment (LAN and WAN).
- User registration capability, scientist workbench, and EOSView.
- GUI and CHUI interfaces to the EOSDIS and ECS services
- IMS client-server interface

#### **Test Support Requirements**

- Hardware:
  - Workstations
- Software:
  - Desktop Manager, Desktop
  - Scientist Workbench
  - Visualization Tool
- Data:
  - HDF data files

### 5.28.2.1 Sequence 1 - Color Palettes

The following tests verify the modification and importation of color palettes.

#### **Test Case 1                    Import Color Palettes (T213-2.01.01)**

This test verifies that a user can import color palettes. The ECS desktop and workbench are used to import color palettes.

Test Configuration:    Hardware - workstations

Software - Desktop Manager, Scientist Workbench, Visualization Tool

Input:                    Log onto the ECS system, display Pseudo color image, import color palette files.

Output:                    Display of a Pseudo color image.

Expected Results:    Color palettes can be imported.

#### **Test Case 2                    Modify Color Palettes (T213-2.01.02)**

This test verifies that a user can modify color palettes. The ECS desktop and workbench are used to modify color palettes. The min/max values of the color tables for visualization of data products will also be changed.

Test Configuration:    Hardware - workstations

Software - Desktop Manager, Scientist Workbench, Visualization Tool

Input:                    Log onto the ECS system, display Pseudo color image, modify the color of the image. Change the min/max values of the color tables.

Output:                    Display of a Pseudo color image.

Expected Results:    Color palettes can be modified.

### 5.28.2.2 Sequence 2 - Pseudo color Images

The following tests verify modification and displaying of pseudo color images.

#### **Test Case 1                    Modify by Data Min/Max (T213-2.02.01)**

This test verifies that a user can modify pseudo color mapping by changing the data min/max values.

Test Configuration:    Hardware - workstations

Software - Desktop Manager, Scientist Workbench, Visualization Tool

Input:                    Display pseudo color images. Change data min/max values.

Output: Display of a pseudo color image. Data min/max values are accepted. pseudo color image is re displayed.

Expected Results: The pseudo color mapping is modified correctly by changing the data min/max values.

**Test Case 2      Modify by Adaptive Equalization (T213-2.02.02)**

This test verifies that a user can modify pseudo color mapping by adaptive equalization. Coloring is selected to distinguish data points.

Test Configuration: Hardware - workstations  
Software - Desktop Manager, Scientist Workbench, Visualization Tool

Input: Display pseudo color images. Modify colors.

Output: Display of a pseudo color image. Coloring is modified.

Expected Results: The pseudo color mapping is modified correctly by adaptive equalization. Data points are distinguishable.

**Test Case 3      Display Horizontal & Vertical Profiles (T213-2.02.03)**

This test verifies that a user can display horizontal and vertical profiles through pseudo color images.

Test Configuration: Hardware - workstations  
Software - Desktop Manager, Scientist Workbench, Visualization Tool

Input: Display pseudo color images. Display horizontal and vertical profiles through pseudo color images.

Output: Display of a pseudo color image. Display of horizontal and vertical profiles.

Expected Results: Horizontal and vertical profiles are correctly displayed through pseudo color images.

**Test Case 4      Display 2D Data Arrays (T213-2.02.04)**

This test verifies that a user can display two-dimensional data arrays as pseudo color images.

Test Configuration: Hardware - workstations  
Software - Desktop Manager, Scientist Workbench, Visualization Tool

Input: Two-dimensional data arrays. Display arrays as pseudo color images.

Output: Display pseudo color images.

Expected Results: Two-dimensional data arrays are correctly displayed as pseudo color images.

**Test Case 5 Display Multi-D Arrays of Data (T213-2.02.05)**

This test verifies that a user can display multi-dimensional arrays of data as a series of two-dimensional pseudo color images. Visualizations of multi-dimensional arrays needed for QA, validation, algorithm development, calibration functions, parameter verification and anomaly detection will be displayed.

Test Configuration: Hardware - workstations  
Software - Desktop Manager, Scientist Workbench, Visualization Tool

Input: Multi-dimensional data arrays. Display arrays as two-dimensional pseudo color images. Display visualizations of multi-dimensional arrays needed for QA, validation, algorithm development, calibration functions, parameter verification and anomaly detection.

Output: Display pseudo color images.

Expected Results: Multi-dimensional data arrays are correctly displayed as two-dimensional pseudo color images. Visualizations of multidimensional arrays needed for QA, validation, algorithm development, calibration functions, parameter verification and anomaly detection are correctly displayed.

**Test Case 6 Display Images (T213-2.02.06)**

This test verifies that a user can display visualizations of images needed for QA, validation, algorithm development, calibration functions, parameter verification and anomaly detection.

Test Configuration: Hardware - workstations  
Software - Desktop Manager, Scientist Workbench, Visualization Tool

Input: Display visualizations of images needed for QA, validation, algorithm development, calibration functions, parameter verification and anomaly detection.

Output: Display images.



Software - Desktop Manager, Scientist Workbench, Visualization Tool

Input: Display pseudo color images. Select different color palettes for images.

Output: Display pseudo color images. Pseudo color images are re displayed with new color palettes.

Expected Results: Different color palettes can be successfully selected for pseudo color visualizations.

**Test Case 10          Zoom & Pan (T213-2.02.10)**

This test verifies that a user can zoom and pan pseudo color visualizations of data.

Test Configuration: Hardware - workstations

Software - Desktop Manager, Scientist Workbench, Visualization Tool

Input: Display pseudo color images. Zoom and pan images.

Output: Pseudo color images displayed.

Expected Results: Displayed pseudo color images are successfully zoomed and panned.

**5.28.2.3 Sequence 3 - Raster Images**

The following tests verify the display of raster images.

**Test Case 1          Display 8-bit Raster Images (T213-2.03.01)**

This test verifies that a user can display 8-bit raster images.

Test Configuration: Hardware - workstations

Software - Desktop Manager, Scientist Workbench, Visualization Tool

Input: Display 8-bit raster images.

Output: 8-bit raster images displayed.

Expected Results: 8-bit raster images are successfully displayed.

**Test Case 2          Display 24-bit Raster Images (T213-2.03.02)**

This test verifies that a user can display 24-bit raster images.

Test Configuration: Hardware - workstations

Software - Desktop Manager, Scientist Workbench, Visualization Tool

Input: Display 24-bit raster images.

Output: 24-bit raster images displayed.

Expected Results: 24-bit raster images are successfully displayed.

**Test Case 3                    Zoom & Pan Raster Images (T213-2.03.03)**

This test verifies that a user can zoom and pan raster images.

Test Configuration: Hardware - workstations

Software - Desktop Manager, Scientist Workbench, Visualization Tool

Input: Display raster images. Zoom and pan images.

Output: Raster images displayed.

Expected Results: Displayed raster images are successfully zoomed and panned.

**5.28.2.4 Sequence 4 - Visualize Data Products**

The following tests verify animation of data images.

**Test Case 1                    Continuous Forward Animation (T213-2.04.01)**

This test verifies that a user has the option to display a series of visualizations as an animation. Data products can be visualized in continuous forward animation.

Test Configuration: Hardware - workstations

Software - Desktop Manager, Scientist Workbench, Visualization Tool

Input: Series of visualizations. Select to display in continuous forward animation.

Output: Series of visualizations are displayed.

Expected Results: A series of visualizations can be successfully displayed in continuous forward animation.

**Test Case 2                    Single Step Forward Animation (T213-2.04.02)**

This test verifies that a user has the option to display a series of visualizations as an animation. Data products can be visualized in single step forward animation.

Test Configuration: Hardware - workstations

Software - Desktop Manager, Scientist Workbench, Visualization Tool

Input: Series of visualizations. Select to display in single step forward animation.

Output: Series of visualizations are displayed.

Expected Results: A series of visualizations can be successfully displayed in single step forward animation.

**Test Case 3      Single Step Backward Animation (T213-2.04.03)**

This test verifies that a user has the option to display a series of visualizations as an animation. Data products can be visualized in single step backward animation.

Test Configuration: Hardware - workstations

Software - Desktop Manager, Scientist Workbench, Visualization Tool

Input: Series of visualizations. Select to display in single step backward animation.

Output: Series of visualizations are displayed.

Expected Results: A series of visualizations can be successfully displayed in single step backward animation.

**Test Case 4      Oscillating Animation (T213-2.04.04)**

This test verifies that a user has the option to display a series of visualizations as an animation. Data products can be visualized in oscillating animation (i.e., continuous forward then continuous backward, alternating throughout the loop until user-directed termination).

Test Configuration: Hardware - workstations

Software - Desktop Manager, Scientist Workbench, Visualization Tool

Input: Series of visualizations. Select to display in oscillating animation.

Output: Series of visualizations are displayed.

Expected Results: A series of visualizations can be successfully displayed in oscillating animation.

**Test Case 5      2D Color Scatter Plot (T213-2.04.05)**

This test verifies that a user can display ECS supported visualization data as a two-dimensional color scatter plot.

Test Configuration: Hardware - workstations  
Software - Desktop Manager, Scientist Workbench, Visualization Tool

Input: ESC supported visualization data. Display as a two-dimensional color scatter plot.

Output: Two-dimensional color scatter plot is displayed.

Expected Results: ECS supported visualization data is successfully displayed as two-dimensional color scatter plots.

**Test Case 6      Display of Line plots (T213-2.04.06)**

This test verifies that a user can display ECS supported visualization data as a series of line plots.

Test Configuration: Hardware - workstations  
Software - Desktop Manager, Scientist Workbench, Visualization Tool

Input: ESC supported visualization data. Display as a series of line plots.

Output: Series of line plots are displayed.

Expected Results: ECS supported visualization data is successfully displayed as series of line plots.

**Test Case 7      Display of Legend (T213-2.04.07)**

This test verifies that a legend describing the display of a data product is displayed in each window a data product is displayed.

Test Configuration: Hardware - workstations  
Software - Desktop Manager, Scientist Workbench, Visualization Tool

Input: Display multiple data products in multiple windows.

Output: Data products are displayed. Legends are displayed.

Expected Results: Legends are displayed in each window a data product is displayed. The legends successfully describe the display of the data products.

**5.28.2.5 Sequence 5 - Cursor**

The following tests verify coordinate entries and displays.



Expected Results: Lat/long lists are successfully displayed for the production of built-in vector overlays.

**Test Case 4 Position Using Lat/Long Entries (T213-2.05.04)**

This test verifies that users can position the cursor by entering a latitude/longitude value.

Test Configuration: Hardware - workstations

Software - Desktop Manager, Scientist Workbench, Visualization Tool

Input: Display visualizations. Enter a lat/long value for the cursor position.

Output: Visualizations are displayed. Cursor is moved and displayed.

Expected Results: The cursor is positioned correctly by entering a lat/long value.

**Test Case 5 Position Using Instrument Scan Line (T213-2.05.05)**

This test verifies that users can position the cursor by entering instrument scan line.

Test Configuration: Hardware - workstations

Software - Desktop Manager, Scientist Workbench, Visualization Tool

Input: Display visualizations. Enter instrument scan line for the cursor position.

Output: Visualizations are displayed. Cursor is moved and displayed.

Expected Results: The cursor is positioned correctly by entering instrument scan line.

**Test Case 6 Position Using Image X,Y Coordinate (T213-2.05.06)**

This test verifies that users can position the cursor by entering an image X,Y coordinate.

Test Configuration: Hardware - workstations

Software - Desktop Manager, Scientist Workbench, Visualization Tool

Input: Display visualizations. Enter an X,Y coordinate for the cursor position.

Output: Visualizations are displayed. Cursor is moved and displayed.

Expected Results: The cursor is positioned correctly by entering an X,Y coordinate.

**Test Case 7 Lat/Long Display (T213-2.05.07)**

This test verifies that the user has the option to display latitude/longitude pairs as lines, displayed in their proper geolocation on top of all visualizations produced.

Test Configuration: Hardware - workstations  
Software - Desktop Manager, Scientist Workbench, Visualization Tool

Input: Display visualizations. Select the option to display lat/long pairs as lines.

Output: Visualizations are displayed. lat/long lines are displayed.

Expected Results: Lat/long pairs are displayed as lines in their proper geolocation on top of all visualizations produced.

### 5.28.2.6 Sequence 6 - Calculate Summarizing Statistics

The following tests verify summarizing statistics will be correctly calculated from multidimensional arrays and user-selected columns.

#### **Test Case 1 Multi-Dimensional Arrays (T213-2.06.01)**

This test verifies that the user has the ability to calculate summarizing statistics of multi-dimensional arrays of EOS data.

Test Configuration: Hardware - workstations  
Software - Desktop Manager, Scientist Workbench, Visualization Tool

Input: Multi-dimensional arrays of EOS data. Calculate summarizing statistics.

Output: Multi-dimensional arrays are displayed. Statistics are calculated and displayed.

Expected Results: Summarizing statistics are calculated correctly for multi-dimensional arrays of EOS data.

#### **Test Case 2 User-Selected Columns (T213-2.06.02)**

This test verifies that the user has the ability to calculate summarizing statistics of user-selected columns from tables of values of EOS data.

Test Configuration: Hardware - workstations  
Software - Desktop Manager, Scientist Workbench, Visualization Tool

Input: Tables of values of EOS data. Select columns from the tables. Calculate summarizing statistics.

Output: Tables of values are displayed. Statistics are calculated and displayed.

Expected Results: Summarizing statistics are calculated correctly for user-selected columns from tables of values of EOS data.

### **5.28.2.7 Sequence 7 - Displayed Browse Information**

The following tests verify the ability to display browse information in table and text format. Browse information will also be displayed as a browse movie loop.

#### **Test Case 1 Display in Vector Graphic Format (T213-2.07.01)**

This test verifies that the user can display browse information in vector graphic format.

Test Configuration: Hardware - workstations

Software - Desktop Manager, Scientist Workbench, Visualization Tool

Input: Display browse information in vector graphic format.

Output: Browse information is displayed in vector graphic format.

Expected Results: Browse information is successfully displayed in vector graphic format.

#### **Test Case 2 Display in Table Format (T213-2.07.02)**

This test verifies that the user can display browse information in table format.

Test Configuration: Hardware - workstations

Software - Desktop Manager, Scientist Workbench, Visualization Tool

Input: Display browse information in table format.

Output: Browse information is displayed in table format.

Expected Results: Browse information is successfully displayed in table format.

#### **Test Case 3 Display in Text Format (T213-2.07.03)**

This test verifies that the user can display browse information in text format.

Test Configuration: Hardware - workstations

Software - Desktop Manager, Scientist Workbench, Visualization Tool

Input: Display browse information in text format.

Output: Browse information is displayed in text format.

Expected Results: Browse information is successfully displayed in text format.

## **Test Case 4                    Animation of a Browse Movie Loop (T213-2.07.04)**

This test verifies that a user has the option to display a series of visualizations as an animation. Animation of browse movie loops will be displayed.

Test Configuration:    Hardware - workstations

Software - Desktop Manager, Scientist Workbench, Visualization Tool

Input:                    Select to display browse movie loops.

Output:                  Browse movie loops are displayed.

Expected Results:      Animation of browse movie loops are displayed successfully.

## **5.29 Desktop Thread**

### **5.29.1 Thread Objectives**

The objectives of the Desktop Thread are:

- Provide the ability to manage the desktop.
- Provide the ability to provide the user with desktop objects and functions associated with those objects.
- Provide the ability to provide application interfaces and the ability to modify them.

### **5.29.2 Thread Test Description**

Testing will demonstrate verification of maintainable desktop objects, application interfaces, and a desktop manager. Functions of the desktop manager such as search, browse and displaying of objects will be tested. Additional functions of the desktop manager include listing, adding, and removing applications and services. Mailing of desktop objects will be tested using the desktop manager. Descriptions of interactions will also be obtained through the desktop manager.

Testing will demonstrate the ability to create, delete, open, copy, and move desktop objects. Binding and unbinding services to objects will be tested and demonstrated by invoking the services. Tests will also be performed to execute software and obtain and update object data.

Testing will demonstrate the installation and removal of application interfaces. Attributes of these application interfaces will be obtained and modified.

### **Dependencies: (If Applicable)**

To verify the objectives of the Desktop Thread, the following interface and functional capabilities are required:

- Network environment (LAN and WAN).
- Scientist workbench, and EOSView.

- GUI and CHUI interfaces to the EOSDIS and ECS services
- Client-server interface

### **Test Support Requirements**

- Hardware:
  - Workstations
- Software:
  - Desktop Manager, Desktop
  - Scientist Workbench
- Data:
  - HDF data files

#### **5.29.2.1 Sequence 1 - Desktop Manager**

The following tests verify the ability to manage the desktop. Functions of the desktop manager such as search, browse and the displaying of objects will be tested. Additional functions of the desktop manager include listing, adding, and removing applications and services. Mailing of desktop objects and obtaining descriptions of interactions will also be tested.

##### **Test Case 1 Search Container Objects (T213-1.01.01)**

This test verifies that a user can search container objects.

Test Configuration: Hardware - workstations

Software - Desktop Manager, Scientist Workbench

Input: Command the desktop to search for objects known to be in the container objects and for objects known not to be in the container objects.

Output: Messages are displayed, indicating that the container objects has been located or not found.

Expected Results: Objects that are in the container objects are located. Messages, indicating the object is not found, are displayed for objects that are not present in the container objects.

##### **Test Case 2 Browse Container Objects (T213-1.01.02)**

This test verifies that a user can browse container objects.

Test Configuration: Hardware - workstations

Software - Desktop Manager, Scientist Workbench

Input: Command the desktop to browse objects known to be in the container objects. This can be done using the drag and drop method or as a menu driven command.

Output: Container objects are displayed.

Expected Results: Objects request to be browsed are displayed to the user.

**Test Case 3      Display Objects (T213-1.01.03)**

This test verifies that a user can display objects.

Test Configuration: Hardware - workstations

Software - Desktop Manager, Scientist Workbench

Input: Command the desktop to display objects. This can be done using the drag and drop method or as a menu driven command.

Output: Objects are displayed.

Expected Results: Objects request to be displayed are displayed to the user.

**Test Case 4      List Object Types (T213-1.01.04)**

This test verifies that a user can list object types supported by a specific application or service class.

Test Configuration: Hardware - workstations

Software - Desktop Manager, Scientist Workbench

Input: Select a specific application or service class. Request a list of object types supported by the selected application or service class.

Output: List of object types is displayed.

Expected Results: List of object types displayed are object types supported by the specific application or service class selected.

**Test Case 5      List Applications & Service Classes (T213-1.01.05)**

This test verifies that a user can list applications or service classes supported by a specific object type.

Test Configuration: Hardware - workstations

Software - Desktop Manager, Scientist Workbench

Input: Select a specific object type. Request a list of applications or service classes supported by the selected object type.

Output: List of applications or service classes is displayed.

Expected Results: List of applications or service classes displayed are application or service classes supported by the specific object type selected.

**Test Case 6 Add Applications & Service Classes (T213-1.01.06)**

This test verifies that a user can add applications or services supported by a specific object type.

Test Configuration: Hardware - workstations

Software - Desktop Manager, Scientist Workbench

Input: Add applications and services supported by object types. Add invalid applications and services. Add applications and services not supported by object types. Request a list of applications and services supported by object types.

Output: Added applications and services supported by object types are accepted. Invalid added applications and services are rejected and an error message is returned. Lists of applications and services are displayed.

Expected Results: Lists of applications and services displayed include all added valid applications and services supported by object types. Invalid requests for adding applications and services are not present in the lists of applications and services.

**Test Case 7 Remove Applications & Service Classes (T213-1.01.07)**

This test verifies that a user can remove applications or services supported by a specific object type.

Test Configuration: Hardware - workstations

Software - Desktop Manager, Scientist Workbench

Input: Remove applications and services supported by object types. Remove invalid applications and services. Remove applications and services not supported by object types. Request a list of applications and services supported by object types.

Output: Removed applications and services supported by object types are accepted. Invalid removed applications and services are rejected and an error message is returned. Lists of applications and services are displayed.

Expected Results: Lists of applications and services displayed do not include all removed valid applications and services supported by object types. Invalid requests for removing applications and services are not reflected in the lists of applications and services.





Software - Desktop Manager, Scientist Workbench

- Input: Command the desktop to create a number of objects. Display the objects and the desktop menu tree.
- Output: Objects are created and displayed. Objects are added to the desktop menu tree. The desktop menu tree are displayed when invoked.
- Expected Results: Objects are successfully created and displayed. Objects will also be added to the desktop menu tree.

**Test Case 2      Destroy Objects (T213-1.02.02)**

This test verifies that a user can destroy and delete objects.

Test Configuration: Hardware - workstations

Software - Desktop Manager, Scientist Workbench

- Input: Command the desktop to destroy and delete a number of objects that exist and do not exist. Display the desktop menu tree.
- Output: Objects are destroyed or deleted. An error message is returned for objects that are not originally there to be destroyed or deleted. The desktop menu tree is displayed when invoked.
- Expected Results: Objects are successfully destroyed or deleted. Objects will be removed from the desktop menu tree.

**Test Case 3      Open Objects (T213-1.02.03)**

This test verifies that a user can open objects.

Test Configuration: Hardware - workstations

Software - Desktop Manager, Scientist Workbench

- Input: Command the desktop to open objects. This can be done using the drag and drop method, double clicking or as a menu driven command.
- Output: Objects are opened and displayed.
- Expected Results: Objects request to be opened are opened and displayed to the user.

**Test Case 4      Execute Software (T213-1.02.04)**

This test verifies that a user can execute software associated with a desktop object.

Test Configuration: Hardware - workstations

Software - Desktop Manager, Scientist Workbench

Input: Software associated with desktop objects is present. Initiate software by double clicking on a desktop object.

Output: Software associated with a desktop object is executed.

Expected Results: Software associated with a desktop object is executed. If no software is associated with a particular desktop object, no action is taken.

**Test Case 5 Copy References to Objects (T213-1.02.05)**

This test verifies that a user can copy the reference to objects for a desktop object.

Test Configuration: Hardware - workstations

Software - Desktop Manager, Scientist Workbench

Input: Desktop objects. References to objects. Command the reference to be copied.

Output: Desktop object references are copied.

Expected Results: References to objects are successfully copied.

**Test Case 6 Copy an Object (T213-1.02.06)**

This test verifies that a user can copy and deep copy a desktop object.

Test Configuration: Hardware - workstations

Software - Desktop Manager, Scientist Workbench

Input: Copy and deep copy desktop objects.

Output: Desktop objects are copied and deep copied.

Expected Results: Desktop objects are successfully copied and deep copied.

**Test Case 7 Move an Object (T213-1.02.07)**

This test verifies that a user can move desktop objects. Desktop objects will also be moved from and to the container objects.

Test Configuration: Hardware - workstations

Software - Desktop Manager, Scientist Workbench

Input: Move desktop objects. Desktop objects will also be moved from and to the container objects.

Output: Desktop objects are moved. A number of desktop objects are moved from and to the container objects.

Expected Results: Desktop objects are successfully moved. Desktop objects are able to be added and removed from the container objects.

**Test Case 8 Obtain and Update Object Data (T213-1.02.08)**

This test verifies that a user can obtain and update desktop object data associated with desktop objects. The user is prompted to save edits when quitting the editing of workbench objects, if there are any unsaved edits.

Test Configuration: Hardware - workstations

Software - Desktop Manager, Scientist Workbench

Input: Desktop object data associated with desktop objects is present. Obtain desktop object data and edit data. Quit before saving updates. Quit after saving updates.

Output: Desktop object data is displayed. A prompt is given to the user to save edits before quitting. Updates are accepted.

Expected Results: Desktop object data is successfully obtained and updated. Prompts are given when edits are not saved before quitting. Prompts are not given if edits are already saved before quitting.

**Test Case 9 Bind Services to Objects (T213-1.02.09)**

This test verifies that a user can bind a service to a desktop object. The available services associated with any desktop object are listed.

Test Configuration: Hardware - workstations

Software - Desktop Manager, Scientist Workbench

Input: List available services associated with a variety of desktop objects. Request valid and invalid binding of services to a variety of desktop objects. Re-display lists of available services associated with desktop objects.

Output: Lists of available services associated with desktop objects are displayed. Services are bound to desktop objects, for valid requests. Services that can not be bond to a specific desktop object are rejected and a response message is displayed. Lists of available services associated with desktop objects are displayed.

Expected Results: Lists of available services associated with desktop objects are displayed. Valid requests to bind services to a desktop object are successfully completed and are reflected in the available services lists. Invalid requests to bind services to a desktop object are rejected and are not present in the available services lists.

**Test Case 10 Unbind Services to Objects (T213-1.02.10)**

This test verifies that a user can unbind a service to a desktop object. The available services associated with any desktop object are listed.

Test Configuration: Hardware - workstations

Software - Desktop Manager, Scientist Workbench

Input: List available services associated with a variety of desktop objects. Request valid and invalid unbinding of services to a variety of desktop objects. Re-display lists of available services associated with desktop objects.

Output: Lists of available services associated with desktop objects are displayed. Services are unbound to desktop objects, for valid requests. Services that are not bound to a specific desktop object are rejected and a response message is displayed. Lists of available services associated with desktop objects are displayed.

Expected Results: Lists of available services associated with desktop objects are displayed. Valid requests to unbind services to a desktop object are successfully completed and are reflected in the available services lists. Invalid requests to unbind services to a desktop object are rejected.

#### **Test Case 11      Invoke Services Bound to Objects (T213-1.02.11)**

This test verifies that a user can invoke any service bound to a desktop object. Services can be accessed via a previously saved desktop object representing that service.

Test Configuration: Hardware - workstations

Software - Desktop Manager, Scientist Workbench

Input: Services associated with desktop objects are present. Invoke services by double clicking on a desktop object.

Output: Services associated with a desktop object are invoked.

Expected Results: Services associated with a desktop object are invoked. If no service is associated with a particular desktop object, no action is taken.

#### **Test Case 12      Change Default Icon Size (T213-1.02.12)**

This test verifies the ability to change the default icon sizes.

Test Configuration: Hardware - workstation

Software - Scientist Workbench, Desktop Manager

Input: Change the default icon sizes using the pull down menus. Logoff and back on again.

Output: Icons are displayed then re displayed.  
Expected Results: After changing the default icon size the size of the icons change. When the windows are re displayed the icon size is the specified default icon size.

**Test Case 13 Change Spacing of Icons (T213-1.02.13)**

This test verifies the ability to change the icon spacing.

Test Configuration: Hardware - workstation  
Software - Scientist Workbench, Desktop Manager

Input: Change the icon spacing by dragging and dropping the icons.

Output: Icons are repositioned.

Expected Results: The icons will remain where they have been placed.

**Test Case 14 Menu Tree Diagram (T213-1.02.14)**

This test verifies the ability to display an accurate menu tree diagram. The menu tree diagram will be updated to represent the current files.

Test Configuration: Hardware - workstation  
Software - Scientist Workbench, Desktop Manager

Input: Display the menu tree diagram.

Output: Menu tree diagram is displayed.

Expected Results: The menu tree diagram accurately reflects the files and services available. The diagram also correctly updates when their are changes to the desktop.

### **5.29.2.3 Sequence 3 - Application Interfaces**

The following tests verify the installation and removal of application interfaces. Attributes of these application interfaces will be obtained and modified.

**Test Case 1 Install an Application Interface (T213-1.03.01)**

This test verifies the ability to install an application interface.

Test Configuration: Hardware - workstation  
Software - Scientist Workbench, Desktop Manager

Input: Install a number of application interfaces.

Output: Application interfaces are installed.

Expected Results: Application interfaces are successfully installed.



Input: Initiate GUI interface  
Output: GUI interface is initiated  
Expected Results: GUI interface to data dictionary associations between attributes is successfully initiated.

**Test Case 6 Data Bases Interface (T213-1.03.06)**

This test verifies that the interface to access data bases conforms to the ECS style guidelines. Data bases may be dispersed.

Test Configuration: Hardware - workstation  
Software - Desktop Manager, Workbench

Input: Display GUI interface. Check to see if conform with the Style Guide. A checklist will be provided from the Style Guide.  
Output: GUI interface is displayed.  
Expected Results: The GUI conforms to the guidelines of the ECS User Interface Style Guide.

**Test Case 7 Multi-disciplined Directories & Inventories Interface (T213-1.03.07)**

This test verifies that the interface to access multi-disciplined directories and inventories conforms to the ECS style guidelines.

Test Configuration: Hardware - workstation  
Software - Desktop Manager, Workbench

Input: Display GUI interface. Check to see if conform with the Style Guide. A checklist will be provided from the Style Guide.  
Output: GUI interface is displayed.  
Expected Results: The GUI conforms to the guidelines of the ECS User Interface Style Guide.

**Test Case 8 Heterogeneous Data Sets Interface (T213-1.03.08)**

This test verifies that the interface to heterogeneous data sets conforms to the ECS style guidelines.

Test Configuration: Hardware - workstation  
Software - Desktop Manager, Workbench

Input: Display GUI interface. Check to see if conform with the Style Guide. A checklist will be provided from the Style Guide.

Output: GUI interface is displayed.  
Expected Results: The GUI conforms to the guidelines of the ECS User Interface Style Guide.

**Test Case 9                      Communication Networks Interface (T213-1.03.09)**

This test verifies that the interface to access communications networks conforms to the ECS style guidelines.

Test Configuration: Hardware - workstation  
Software - Desktop Manager, Workbench

Input: Display GUI interface. Check to see if conform with the Style Guide. A checklist will be provided from the Style Guide.

Output: GUI interface is displayed.

Expected Results: The GUI conforms to the guidelines of the ECS User Interface Style Guide.

**5.29.2.4 Sequence 4 - Windows**

The following tests verify the ability to display and use multiple windows. Functional buttons and pull down menus will be available. Non-standard keys, commands and terminology will be consistent. Windows will also be customizable, allowing color schemes, window sizes, and font sizes to change.

**Test Case 1                      Multiple Windows (T213-1.04.01)**

This test verifies the ability to access multiple windows.

Test Configuration: Hardware - workstation  
Software - Scientist Workbench, Desktop Manager

Input: Open multiple windows.

Output: Open windows are displayed.

Expected Results: Windows are successfully opened and operating normally.

**Test Case 2                      Buttons & Pull Down Menus (T213-1.04.02)**

This test verifies the desktop provides functional buttons and pull down menus. There is a standard ordering of menu items for the user interface.

Test Configuration: Hardware - workstation  
Software - Scientist Workbench, Desktop Manager

Input: Activate pull down menus.

Output: Pull down menus and buttons are displayed.  
Expected Results: Button functions and pull down menus are properly formatted.

**Test Case 3 Non-standard Keys (T213-1.04.03)**

This test verifies minimal and consistent use of non-standard keys.

Test Configuration: Hardware - workstations  
Software - Desktop Manager, Workbench

Input: Initiate a number of client interfaces. Use non-standard keys.

Output: Client interfaces are initiated. Valid non-standard keys are accepted. Invalid non-standard keys are rejected.

Expected Results: Non-standard keys are consistent across client interfaces. Non-standard keys that are accepted are at a minimum.

**Test Case 4 Commands & Terminology (T213-1.04.04)**

This test verifies that dumb terminal interfaces have standardized use of commands and terminology across screens.

Test Configuration: Hardware - workstations  
Software - Desktop Manager, Workbench

Input: Initiate a number of client interfaces. Display a number of screens. List and issue commands.

Output: Client interfaces are initiated. Screens are displayed. Command lists are displayed and valid commands are accepted. Invalid commands are rejected.

Expected Results: Commands and terminology are standard across screens.

**Test Case 5 Customizable Default Color Scheme (T213-1.04.05)**

This test verifies the ability to change the default color scheme.

Test Configuration: Hardware - workstation  
Software - Scientist Workbench, Desktop Manager

Input: Display windows. Change the default color scheme using the pull down menus. Logoff and back on again. Redisplay windows.

Output: Windows are displayed. The color of the desktop changes. Then the windows are re displayed.

Expected Results: After changing the default color scheme the colors of the desktop change to the default color scheme. When the windows are re displayed the color scheme is the specified color scheme.

**Test Case 6                      Resize Windows (T213-1.04.06)**

This test verifies the ability to resize windows.

Test Configuration: Hardware - workstation

Software - Scientist Workbench, Desktop Manager

Input: Resize the windows using the cursor and using default commands. Logoff and back on again. Redisplay windows.

Output: Windows are displayed at their new size after using the cursor and default commands. Sizing using the cursor is temporary.

Expected Results: Windows are resized after action to resize them is taken. Windows resized using cursors are returned to "normal" size after exiting and reentering the desktop. Windows resized using defaults are the same size after exiting and reentering the desktop.

**Test Case 7                      Change Default Screen Font Sizes (T213-1.04.07)**

This test verifies the ability to change the default screen font sizes.

Test Configuration: Hardware - workstation

Software - Scientist Workbench, Desktop Manager

Input: Display windows. Change the screen font sizes using the pull down menus. Logoff and back on again. Redisplay windows.

Output: Windows are displayed then re displayed.

Expected Results: After changing the default font size the font in the window changes. When the windows are re displayed the font size is the specified font size.

## **5.30 Client Services Build**

The Client Services Build is an integrated build of the following builds:

- Enhanced Client Build
- Enhanced Data Visualization Tools Thread

### **5.30.1 Build Objectives**

The objectives of the Client Services Build are:

- Provide the ability to allow user access to an individual user profile, saved search options and search results from any physical logon position.
- Provide the ability to perform self registration by integrating the user interface with CSMS.
- Provide the ability to provide automatic guest, authorized user and individual (groups) authentication for distribution.
- Provide the ability to provide data visualization capabilities.
- Provide the ability to provide an improved user-friendly scientist workbench.

### **5.30.2 Build Test Description**

Testing will demonstrate verification of user access to registration capabilities, saved profiles, searches, search results and visual capabilities for viewing retrieved data. Profiles, searches options, and results are saved on the host, allowing them to be retrieved by the user from different workstations. User connection from a variety of workstations will verify correct retrieval of saved user data and profiles. User connections will be made via direct connection, dial up connection and network link. Self registration of a guest user will be tested through the user interface with CSMS. Different privileges established for distribution allowing the user automatic guest, authorized user and individual(groups) authentication will be verified based on the existence or non-existence of profile information.

Data can be displayed to the user with a variety of visual tools. The tester will demonstrate the new capabilities of the scientist workbench and user interface. Such capabilities include multiple window display, self-explanatory error messages, and the ability to restore a session after interruption. The tester will demonstrate the use of a color table editor with sophisticated color table manipulations.

#### **Dependencies: (If Applicable)**

To verify the objectives of the Client Services build, the following interface and functional capabilities are required:

- Network environment (LAN and WAN).
- User registration capability, scientist workbench, and EOSView.
- GUI and CHUI interfaces to the EOSDIS and ECS services
- Client-server interface

#### **Test Support Requirements**

- Hardware:
  - Workstations
  - Dumb terminals
  - Bit mapped-display terminals



Test Configuration: Hardware - workstations  
Software - Desktop Manager, Client, Data Dictionary Server, Data Dictionary DBMS

Input: Log onto the ECS system, create and save search parameters for a variety of search requests. Log off and back onto the ECS system using the same user ID. Create a search request.

Output: The search parameters are given when generating a search request.

Expected Results: The search parameters given when generating a search request should be the same as those previously saved.

**Test Case 3      Saved Results (B213.01.03)**

This test verifies that a user can access saved search results. The ECS desktop and workbench are used to request and save search results from a variety of searches. If search services are unavailable, result files will be manually placed in the workbench. The user then logs off and back onto the system using the same valid user ID. The search results previously saved will be retrieved.

Test Configuration: Hardware - workstations  
Software - Desktop Manager, Client, Data Dictionary Server, Data Dictionary DBMS

Input: Log onto the ECS system, request and save search results from a variety of search requests. Log off and back onto the ECS system using the same user ID. Retrieve the search results.

Output: The search results are displayed when retrieved.

Expected Results: The search results displayed are the same as those previously saved.

**Test Case 4      Interactive Sessions Support (B213.01.04)**

This test verifies that interactive user sessions are provided. Sessions will be suspended, canceled, and resumed. Session logging will be enabled and disabled. Obtain, review and replay session logs. Obtain status information on user sessions.

Test Configuration: Hardware - workstations  
Software - Scientist Workbench, Desktop

Input: Initiate a number of interactive user sessions. Submit a number of service requests. Suspend, cancel and resume a number of user sessions. Enable and disable session logging. Obtain, review and replay session logs. Obtain status on sessions.

**Output:** A number of interactive user sessions are established. Service requests are issued. Sessions are suspended, canceled and resumed. Session logging is enabled and disabled. Session logs are obtained, reviewed and replayed. Invalid requests are rejected. Appropriate messages are displayed.

**Expected Results:** Interactive user sessions are successfully established. Service requests are executed successfully. Sessions are managed successfully. Invalid requests are rejected. Appropriate messages are displayed.

**Test Case 5      Non-interactive Remote Sessions (B213.01.05)**

This test verifies that an interface to APIs for use in non-interactive remote user sessions is provided. Sessions will be suspended, canceled, and resumed. Session logging will be enabled and disabled. Obtain, review and replay session logs. Obtain status information on user sessions.

**Test Configuration:** Hardware - workstations  
Software - Scientist Workbench, Desktop

**Input:** Initiate a number of non-interactive user sessions. Submit a number of service requests. Suspend, cancel and resume a number of user sessions. Enable and disable session logging. Obtain, review and replay session logs. Obtain status on sessions.

**Output:** A number of non-interactive user sessions are established. Service requests are issued. Sessions are suspended, canceled and resumed. Session logging is enabled and disabled. Session logs are obtained, reviewed and replayed. Invalid requests are rejected. Appropriate messages are displayed.

**Expected Results:** Non-interactive user sessions are successfully established. Service requests are executed successfully. Sessions are managed successfully. Invalid requests are rejected. Appropriate messages are displayed.

**Test Case 6      Simulated Sessions for Training Purposes (B213.01.06)**

This test verifies that a training option is provided. The training option consists of simulated user sessions for identifying, searching for and obtaining data and services.

**Test Configuration:** Hardware - workstations  
Software - Scientist Workbench, Desktop

**Input:** Select the training option. Establish a user session. Submit several service requests.

Output: The training option is accepted. A simulated user session is established. Service requests are issued.

Expected Results: The training option is successfully selected and simulated user sessions are established. Service requests are executed successfully.

**Test Case 7 Access from Dumb Terminals (B213.01.07)**

This test verifies that dumb terminal interfaces provide system access from local and remote dumb terminals.

Test Configuration: Hardware - dumb terminal

Software - Desktop Manager, Workbench, Data Dictionary Server, Data Dictionary DBMS

Input: Initiate a number of dumb terminal interfaces from local and remote dumb terminals. Submit a number of service requests.

Output: Dumb terminal interfaces are initiated. Service requests are accepted and initiated.

Expected Results: Local and remote dumb terminals have access to dumb terminal interfaces.

**Test Case 8 Bit map display workstations (no toolkit support) (B213.01.08)**

This test verifies that dumb terminal interfaces provide system access from local and remote bit mapped-display terminals.

Test Configuration: Hardware - bit mapped-display terminals

Software - Desktop Manager, Workbench, Data Dictionary Server, Data Dictionary DBMS

Input: Initiate a number of dumb terminal interfaces from local and remote bit mapped-display terminals. Submit a number of service requests.

Output: Dumb terminal interfaces are initiated. Service requests are accepted and initiated.

Expected Results: Local and remote bit mapped-display terminals have access to dumb terminal interfaces.

**Test Case 9 Interactively Apply Operations to Container Objects (T213-1.01.09)**

This test verifies that a user can interactively apply operations to container objects.

Test Configuration: Hardware - workstations

Software - Desktop Manager, Scientist Workbench

- Input: Apply operation commands interactively to container objects.
- Output: Operation commands will be processed. Invalid requests will be rejected. Response messages will be displayed.
- Expected Results: Interactively applied operations to container objects will be processed correctly.

### 5.30.2.2 Sequence 2 - User Registration

The following tests verify user access to registration capabilities. Self registration of a guest user will be tested through the user interface with CSMS. Different privileges established for distribution allowing the user automatic guest, authorized user and individual(groups) authentication will be verified based on the existence or non-existence of profile information.

#### **Test Case 1                    Automatic Guest Authentication for Distribution (B213.02.01)**

This test verifies that an unregistered user can access ECS services as authorized by the SMC. The client provides an interface by which unregistered users can access a limited version of ECS services.

Test Configuration: Hardware - workstations

Software - User Registration Tool, Client, SMC

- Input: Unregistered users will attempt to access authorized portions of ECS.
- Output: User scientist workbench will be operating after user has went through the access process.
- Expected Results: The user is able to successfully bring up scientist workbench and obtain access to the ECS system.

#### **Test Case 2                    Authorized User Authentication for Distribution (B213.02.02)**

This test verifies that a user can access data and services based on their account priorities and user service authorization.

Test Configuration: Hardware - workstations

Software - User Registration Tool, Workbench

- Input: The user will request data and services.
- Output: The user is granted access based on CSMS tables of authorization.
- Expected Results: Users are granted access to data and services based on their account priorities, and authorized user services. Access is denied to data and services beyond this scope.

**Test Case 3                    Individual (groups) Authentication for Distribution  
(B213.02.03)**

This test verifies that a user can access data and services based on their account priorities and user service authorization.

Test Configuration:    Hardware - workstations

Software - User Registration Tool, Workbench

Input:                    The user will request data and services.

Output:                  The user is granted access based on CSMS tables of authorization.

Expected Results:    Users are granted access to data and services based on their account priorities, and authorized user services. Access is denied to data and services beyond this scope.

**Test Case 4                    Self Registration (B213.02.04)**

This test verifies that a user can access registration capabilities.

Test Configuration:    Hardware - workstations

Software - Desktop Manager, Client, User Registration Tool

Input:                    Log onto the ECS system, create and submit registration form electronically. Invalid registration requests will also be submitted.

Output:                  Acknowledgment of registration. Invalid requests are rejected. Response messages are returned to the user.

Expected Results:    The user is correctly identified and assigned privileges. Invalid requests are rejected.

**5.30.2.3    Sequence 3 - Graphic and Textual Enhancements**

The following tests demonstrate enhanced data visualization tools. Such capabilities include: modification and importation of color palettes; animation of data images; coordinate entries and displays; and modification and displaying of pseudo color images.

**Test Case 1                    Pseudo color Images (B213.03.01)**

This test verifies that a user can display horizontal and vertical profiles, 2D and multi-D arrays of data, tables of numbers, and overlays. Images can be modified by data min/max values, color palettes, and adaptive equalizations. Images can be zoomed and panned.

Test Configuration:    Hardware - workstations

Software - Desktop Manager, Scientist Workbench, Visualization Tool

**Input:** Display pseudo color images. Display horizontal and vertical profiles, 2D and multi-D arrays of data, tables of numbers, and overlays. Modify images using data min/max values, different color palettes, and adaptive equalization. Zoom and Pan images.

**Output:** Pseudo color images are displayed. Images are modified. Images are zoomed and panned.

**Expected Results:** Pseudo color images are properly displayed, modified, zoomed and panned.

**Test Case 2 Raster Images (B213.03.02)**

This test verifies that a user can display 8-bit and 24-bit raster images. Images can be zoomed and panned.

**Test Configuration:** Hardware - workstations  
Software - Desktop Manager, Scientist Workbench, Visualization Tool

**Input:** Display 8-bit and 24-bit raster images. Zoom and Pan images.

**Output:** Raster images are displayed. Images are zoomed and panned.

**Expected Results:** Raster images are properly displayed, zoomed and panned.

**Test Case 3 Visualize Data Products (B213.03.03)**

This test verifies that a user has the option to display a series of visualizations as an animation. Data products can be visualized in continuous forward, single step forward, single step backward, and oscillating animation. ECS supported visualization data will be displayed as a series of lineplots and as 2D color scatter plots. Legends describing the display of a data product will be displayed in each window a data product is displayed.

**Test Configuration:** Hardware - workstations  
Software - Desktop Manager, Scientist Workbench, Visualization Tool

**Input:** Series of visualizations. Select to display in continuous forward, single step forward, single step backward, and oscillating animation. Display 2D color scatter plots. Display lineplots. Display legends.

**Output:** Series of visualizations are displayed. 2D color scatter plots, lineplots and legends are displayed.

**Expected Results:** A series of visualizations can be successfully displayed in continuous forward, single step forward, single step backward, and

oscillating animation. 2D color scatter plots, lineplots, and legends are displayed successfully.

## 5.31 Security Thread

### 5.31.1 Security Thread

The objective of the Security thread are as follows:

- Provide the ability to regulate access to networked resources based on names and group membership privilege for authorization.
- Provide the ability to prove authenticity in a client/ server environment before access is granted for the resource.
- Provide the ability to perform security risk processing and compromise.
- Provide statistical data collection via monitoring for valid and invalid system access attempts.

#### 5.31.1.2 Thread Test Description.

Testing is performed to verify that user authentication request for ASTER GDS privileges are processed and that product generation requests are generated for authorized users. The Security of sending and receiving the data is made possible by the unique key that is agreed upon by the sender and receiver.

The policies and procedures set forth by the administrator will allow receiving and transferring of data from various media and electronic data sources. To ensure that the security criteria adheres to the C2 ( Controlled Access Protection) as documented by the Department of Defense, security directive, parameters, and thresholds for the generation of alerts are established in the policies and procedures application services.

#### **Dependencies:** (If Applicable)

In order to verify the objectives of the CSMS security and monitoring build, the following interface and functional capabilities are required:

- Interface between ASTER and ECS to provide product delivery status.
- Availability of EOC reports to log security events.
- Reports generation application service must be established.
- GSFC, MSFC, LARC, and DAACs policies and procedures.

#### **Test Support Requirements**

- Hardware:  
-
- Software:

- Emulation for remote GSFC site

- Data:

### 5.31.2.1 Sequence 1 - Security Service

The following tests verify that security service combines authentication and authorization under a security mechanism. The security mechanism provides users a choice of either authenticated Kerberos security or authenticated PAC authorization under security.

#### **Test Case 1 Maintain security policies (T214-1.01.01)**

This test verifies that the EMC security management application service maintains security policies and procedures to include physical security, password management, operational security, data security, privileges, network security and compromise mitigation.

Test Configuration: Hardware - Workstation

Software -DCE

Inputs: Use authentication, authorization and tamper\_proofing on the ECS system

Outputs: Authentication should always be used in every conversation between a client and a server, the mechanisms for authorization, data integrity and privacy are based on security policies of the system(s).

Expected result: These mechanisms are authentication, authorization, tamper-proofing (for data integrity) and encryption (for data privacy).

#### **Test Case 2 Access control list (T214-1.01.02)**

This test verifies that the DOF service provides a security service ACL manager library.

Test Configuration Hardware - Workstation

Software - DCE

Inputs: ACL manager implements 3 permission bits:

R = read (for reading characteristics and counters)

W= write (for setting characteristics and counter)

C= control (to control the ACL itself)

Outputs: The ACL guards the RPC entry in the CDS namespace by the cds\_admin and cds\_server security groups the ACL protects the DOF object itself is controlled by the DOF-admin security group.

Expected result: ACL manager has three securities control, read and write.



Expected result: For a matched login DCE encrypts the password which is not in clear text.

**Test Case 6 Support encryption of the HTTP protocol (T214-1.01.06)**

This test verifies that the web service supports encryption of the HTTP protocol, and a user can encrypt the data. HTTP protocol receives data from users and translates the data into DCE. DCE security makes sure the data is right before it encrypts.

Test Configuration Hardware - Workstation

Software - DCE

Inputs: Using tool kit info. for HTTP protocol to encrypt the data.

Outputs: Encrypted data from HTTP protocol.

Expected result: Data encrypted from HTTP protocol DCE security.

**Test Case 7 Support private key (T214-1.01.07)**

This test verifies that the web service supports private keys , and a user can make a private key using tool kit. Server can recognize the client. This is the way to authenticate the users.

Test Configuration Hardware - Workstation

Software - DCE

Inputs: Create private key from clients/server to authenticate the user's.

Outputs: Created private key from the clients/server.

Expected result: By private key clients/ server authenticate the user's.

**Test Case 8 Two way authentication and authorization (T214-1.01.08)**

This test verifies that the web service supports a two-way (client and server) authenticate and authorize for use by the web server.

using web browser.

Test Configuration Hardware - Workstation

Software - DCE

Inputs: Login DCE system using web browser.

Outputs: Two way clients authenticate , client authorize and server authenticate , server authorize for web browser.

Expected result: Web browser clients and server both authenticated and authorized.



**Test Case 12      Verify resources access (T214-1.01.12)**

This test verifies that the security command monitors data access to sensitive and public file resources.

Test Configuration    Hardware-Workstation

Software-DCE

Inputs:                Define security command to monitor data access to sensitive and public file resources.

Outputs:              Security event is defined successfully.

Expected Results:    Any general access to public domain resources will be logged in an audit trail.

**Test Case 13      Use DCE's ACLs to protect all documents (T214-1.01.13)**

This test verifies the web service can use DCE's ACL so that all documents authenticated and authorized on the web server will be protected by DCE ACL.

Test Configuration    Hardware - Workstation

Software - DCE

Inputs:                Web admin. sets ACL for each documents on the web.

Outputs:              DCE ACL's control the permission and recognized.

Expected result:      Authenticate by login and authorized by ACL.

**Test Case 14      Message passing application (T214-1.01.14)**

This test verifies the web service can use the Extended Generic Security Service API for message passing to the DCE security through the server, and clients has enough privileges to access particular objects.

Test Configuration    Hardware - Workstation

Software - DCE

Inputs:                Client interface consists of set of API and data structure that client programs can use to establish a connection with a server, read and write message streams, and close the connection.

Outputs:              Server checks if the client has enough privileges to access a particular object( a database, routine ,or files, for instance).

Expected result:      Clients should have enough privileges to access objects.

**Test Case 15                    Special security restriction (T214-1.01.15)**

This test verifies that the web service provides attributes to the browser indicating documents with special security restrictions, and a DCE browser has special security options to check users request by DCE security.

Test Configuration    Hardware - Workstation

Software - DCE

Inputs:                    DCE browser uses three security restrictions.

-None.

-DCE authentication

-DES encryption

Outputs:                    User can not access without passing security privilege.

Expected result:        User can access only if user has privilege.

**Test Case 16                    Capability to manage encrypted information (T214-1.01.16)**

This test verifies the capability of the MSS security management application service to manage encrypted information including keys.

Test Configuration    Hardware - Workstation

Software - DCE

Inputs:                    Protected level selected Packet\_privacy

Outputs:                    Packet\_privacy will ensure the privacy of data through the use of secret-key encryption.

Expected result:        Packet\_privacy will ensure the privacy of data.

**Test Case 17                    Grant access permissions for AIT members (T214-1.01.17)**

This test verifies that the access control list manager has a set of permissions that it supports for the object that it manages.

Test Configuration:    Hardware-Workstation

Software - DCE

Inputs:                    Each ACL manager implementation has a set of permissions that it supports for the object that it manages. The valid test and control CDS permissions for objects are:

Control(c):

An ACL entry with this permission bit set allows the entry-type to modify the ACL that controls access to a CDS object.

Test(t):

An ACL entry with this permission bit set allows the entry-type to delete the values of attributes of a CDS object without reading the values themselves.

Outputs: Valid test permission bit set allows the test.

Expected Result: Permission bit set allows the test or control or valid key item.

**Test Case 18 ECS Login (T214-1.01.18)**

This test verifies a successful login capability and the ability to interface with the authentication. The objective of this test is to prove that user authentication is valid, reliable, and secure and that the user authentication directories can be maintained reliably.

Test Configuration: Hardware-Workstation

Software -DCE

Inputs: A valid user ID.

Outputs: Run an XRunner script that logs in using ScreenOutputs showing the success or failure of the login attempts. Response times of each login event .

Expected Result: Login valid success or Login invalid fails

**Test Case 19 Verify authentication between clients and servers (T214-1.01.19)**

This test verifies demonstration of a successful logon capability and ability to interface with the authentication database.

Test Configuration: Hardware-Workstation

Software -DCE

Inputs: A valid ID and a valid password.

Run an XRunner script that logs on and logs off using three valid ID/Password combinations. Gather the information using a network analyzer, verify that the password is not readable on the network.

Outputs: Network monitorOutput showing the data transmitted between the client and server.

Expected Result: Three successful logon and logoff attempts with each event occurring in under 15 seconds.

### **Test Case 20      Verify when user logs into the system (T214-1.01.20)**

This test verifies that the user accounts contain user name, password, group and user identification code, login directory and command line interpreter.

Configuration:      Hardware-Workstation

Software-DCE

Inputs:              A valid ID and a valid password. Verify that the user accounts contain user name, password, group and user identification code, login directory and command line interpreter.

Outputs:             ScreenOutputs showing the success, when applicable, of the logon/logoff attempts.

Expected Result:    User ID attempts to maintain directory are rejected.

### **Test Case 21      Verify validity of a principal (T214-1.01.21)**

This test verifies that the authorized uses of system resources by allowing the administrator to define the principals and the permissions in the access control list (ACL).

Configuration:      Hardware-Workstation

Software- DCE

Inputs:              Define access controls for public data as read and assign the permission and principal to the guest user class.

Outputs:             Recipient is able to access and read the message.

Expected Results:    The user's registration status is registered, and has access authority as defined by the registered class.

## **5.32 DCE Enhancements Thread**

### **5.32.1 Thread Objectives**

The objectives of the DCE enhancement thread are as follows:

- Provide the ability to perform message passing and web services.
- Provide the enhancements of the distributed object services.

### **5.32.2 Thread Test Description.**

Testing is performed to verify that user authentication request for ASTER GDS privileges are processed and that product generation requests are generated for authorized users. The Security of sending and receiving the data is made possible by the unique key that is agreed upon by the sender and receiver.



Software - DCE

Inputs: Message passing from application one to application two.  
-No changes on server side  
-Remote method invocation with multiple argument types  
-No store and forward

Outputs: Successful message passed by server.

Expected Results: Agent will notify the network node manager.

**Test Case 3 Persistent message passing (T214-2.01.03)**

This test verifies that persistent message passing stores and forwards with persistence.

Test Configuration: Hardware - Workstation

Software - DCE

Inputs: Persistent message  
-Transfers byte streams  
- Store and forward with persistence

Outputs: Successful stored and transferred bytes stream.

Expected Results: DSS will notify to planing that a certain type of data granule is inserted.

**Test Case 4 Event logger (T214-2.01.04)**

This test verifies the users can generate a permanent log of ECS event's functionality.

Test Configuration: Hardware- Workstation

Software - DCE

Inputs: Generate a permanent log of ECS events functionality. CSS provides a set of objects to allow developers to log messages to local files and to management logs with criteria to trigger SNMP traps.

Outputs: Successfully generated log message.

Expected Results: MSS will interface to SNMP trap.

**Test Case 5 Life cycle iniation of service, shutdown, move, recovery (T214-2.01.05)**

This test verifies the users can shutdown, move and recover objects on demand within applications.

Test Configuration: Hardware - Workstation  
Software- DCE

Inputs: To control ECS resources remotely  
- Provide application control  
- Creating and deleting distributed objects on demand within applications.

Outputs: All ECS application for startup / shutdown / suspend/ resume.

Expected Results: Completed test service, shutdown, move and recovery.

**Test Case 6 Standard ACL editor (T214-2.01.06)**

This test verifies that only system admin. can edit using the standard ACL editor.

Test Configuration: Hardware - Workstation  
Software - DCE

Inputs: Edit using a standard ACL editor from system admin. console.

Outputs: Only system admin can edit. However a general user can not edit.

Expected result: System admin will be able to edit on standard ACL editor.

**Test Case 7 Administration of the web server (T214-2.01.07)**

This test verifies that only the web admin will be able to modify ACL, register documents and / or delete documents on the web server.

Test Configuration: Hardware - Workstation  
Software - DCE

Inputs: DCE Web protocol will allows for distribution of Web server interface and administration responsibility.

Outputs: Security support provided by DCE will be modified to make administration of ACLs simpler.

Expected result: Only the web admin will be able to modify ACL, register documents and / or delete documents on the web server.

**Test Case 8 Get and post HTTP methods (T214-2.01.08)**

This test verifies that a user can use the get and post HTTP method from the web service.

Test Configuration: Hardware - Workstation  
Software - DCE

Inputs: Use get and post HTTP method command.  
Outputs: User will be able to interface with the secured web service.  
Expected result: After using get and post HTTP method user will be able to interface with the secured web service.

**Test Case 9      DOF provides a daemon process service (T214-2.01.09)**

This test will verify that the Distributed Object Framework (DOF) provides a daemon process service that enables completes, secure remote administration of object services and enables control of service configuration parameters.

Test Configuration: Hardware - Workstation  
Software - DCE

Inputs: Servers and daemons  
Outputs: CSS provides MSS the CSS e-mail, ftp, event logging, and message passing services for its processing requirements.  
Expected result: CSS depends on the MSS agent that runs in all ECS provided workstations and servers to provide management status and event notification of the CSS servers and daemons to MSS. In turn CSS provides MSS the CSS e-mail, ftp, event logging, and message passing services for its processing requirements.

**Test Case 10      Register documents to web server (T214-2.01.10)**

This test will verify that the web service provides an interface for the user to register documents to the web server.

Test Configuration: Hardware - Workstation  
Software - DCE

Inputs: Create an object register class or interactively register from an object command line.  
Outputs: Created register class from system admin. console.  
Expected result: Only system admin. has access to register document to the secured web server.

**Test Case 11      View non-secured documents (T214-2.01.11)**

This test will verify that the web service provides a mechanism for non-DCE browsers to view non-secured documents on the web server.

Test Configuration: Hardware - Workstation  
Software - DCE

Inputs: Non DCE browser need gateway tool kit to access DCE web server.

Outputs: Users can view unauthenticated access of web browser documents.

Expected result: Users can access and view web browsers documents.

**Test Case 12 HTML formatted error messages (T214-2.01.12)**

This test verifies that when an error occurs the HTML formatted error message will be displayed.

Test Configuration: Hardware - Workstation

Software - DCE

Inputs: Enter error commands.

Outputs: Login fail

Expected result: Message will display login fail try again.

**Test Case 13 All request from a client (T214-2.01.13)**

This test verifies that an unknown request from a client won't be able to access web browser.

Test Configuration: Hardware - Workstation

Software - DCE

Inputs: Login provided by the web server to the individual user name.

Outputs: Display message login fail.

Expected result: Message will display login incorrect.

## **5.33 DCE Encapsulation Thread**

### **5.33.1 Thread Objective**

The objectives of the DCE thread are as follows:

- Provide message passing service with asynchronous, synchronous, and deferred synchronous mechanisms.
- Provide time service, life cycle service, message passing service and transaction processing.

### **5.33.2 Thread Test Description.**

This thread has the function of encapsulating test, a COTS product, OODCE from HP was selected as the encapsulation method. With OODCE comes the ability for the application

developer to use object orientation in their client server development use of C++ class libraries and pass object. OODCE provides a C++ class library and a DCE Interface Definition Language (XIDL) to C++ compiler. OODCE encapsulates easy-to-use objects. Testing is performed to verify that user authentication request for ASTER GDS privileges are processed and that product generation requests are generated for authorized users. The Security of sending and receiving the data is made possible by the unique key that is agreed upon by the sender and receiver.

**Dependencies:** (If Applicable)

In order to verify the objectives of the CSMS security and monitoring Build, the following interface and functional capabilities are required:

- Interface between ASTER and ECS to provide product delivery status.
- Availability of EOC reports to log security events.
- Reports generation application service must be established.
- GSFC, MSFC, LARC, and DAACs policies and procedures.

**Test Support Requirements**

- Hardware:
  -
- Software:
  - Emulation for remote GSFC site
- Data:

**5.33.2.1 Sequence 1 - DCE encapsulation**

The following tests verify that each CSS service, that application developers need to interface to, provides these service specific DCE encapsulating APIs.

**Test Case 1 OODCE Commands (T214-3.01.01).**

This test verifies that the complex OODCE commands have been incorporated into easy-to-use objects.

Test Configuration: Hardware -Workstation

Software-DCE

Inputs: OODCE, C++ class libraries.

Outputs: Encapsulated easy-to-use OODCE objects.

Expected results: Successful use of the OODCE C++ class libraries.

**Test Case 2 DCE cell configuration (T214-3.01.02).**

This test verifies that the cell is a collection of DCE service unique names.

Test Configuration: Hardware - Workstation

Software-DCE

Inputs: Every resource that is made available through a DCE service is referenced by a unique name. This name is managed by the respective DCE service that implements the namespace. The cell is a collection of these names. A DCE cell is made up of a number of namespaces, each managed by a different service.

Outputs: List name of the nodes in EDF cell. Listing of the names of the cell nodes will be displayed.

Expected result: Names of the cell will be displayed.

**Test Case 3      Verify data integrity (T214-3.01.03)**

This test verifies that the system will prevent intrusion, relinquish connection, while maintaining data integrity.

Test Configuration: Hardware-Workstation

Software- DCE

Inputs: The system will prevent intrusion, relinquish connection, while maintaining data integrity.

Outputs: Recovery procedures will be verified.

Expected Results: The security procedures will adhere to C2 level security guidelines, and will be established through coordination with site managers.

**Test Case 4      Verify data privacy (T214-3.01.04)**

This test verifies that the system will prevent intrusion, relinquish connection, while maintaining data privacy.

Test Configuration: Hardware-Workstation

Software- DCE

Inputs: The system will prevent intrusion, relinquish connection, while maintaining privacy.

Outputs: Recovery procedures will be verified.

Expected Results: The security procedures will adhere to C2 level security guidelines, and will be established through coordination with site managers.

**Test Case 5      Verify data encryption (T214-3.01.05)**

This test verifies that the system will verify data encryption.

Test Configuration: Hardware-Workstation  
Software- DCE

Inputs: TBD

Outputs: TBD

Expected Results: TBD

**Test Case 6 Client's and server's identities (T214-3.01.06)**

This test verifies that the client and server will interface to native protocol.

Test Configuration: Hardware - Workstation  
Software - DCE

Inputs CSS using client/server.

Outputs: Client/Server session is being established(find and bind from the directory service, authentication and authorization from the security service).

Expected result: Client and server will interface to native protocol.

**Test Case 7 Allow the server to use DCE (T214-3.01.07)**

This test verifies that the tunneling tool kit, will allow the server to use DCE remote procedure call(RPC).

Test Configuration: Hardware - Workstation  
Software - DCE

Inputs: Using the tunneling tool kit, clients and servers communicate using DCE RPC.

Outputs: All DCE RPC communication is handled by the client and server DCE modules (to the clerk on the client side, and the DCE server daemon process on the server side), transparently to the client and server application.

Expected result: All RPC communication is handled by client and server. Communication among DCE services are done via RPC's (ex. the security service communications with the directory services through RPC)

**Test Case 8 Porting of existing application (T214-3.01.08)**

This test verifies that the tunneling tool kit can port existing porting application through the gateway.

Test Configuration: Hardware - Workstation

Software - DCE

Inputs: Send message to DCE through the gateway. Sitting on the port, gateway receives request and passes the message to tunnel.

Outputs: ECS Tool kit tunnel convert request into the DCE.

Expected result: Convert request using port by gateway.

**Test Case 9 Provide mechanism to view non-secured and secured documents (T214-3.01.09)**

This test verifies the DCE provide mechanism to view non-secured and secured documents.

Test Configuration: Hardware - Workstation

Software - DCE

Inputs: View non-secured and secured documents on the web server using DCE environment.

Outputs: Users can employ the same, familiar browser (DCE-based) interface to view documents managed by the DCE-web servers.

Expected result: Only DCE users can view secured & non-secured documents on the web server.

**Test Case 10 HTTP protocol for message passing (T214-3.01.10)**

This test verifies that the protocol tunneling, treats the RPC mechanism as a transport, replacing the TCP transport over which HTTP message are normally sent.

Test Configuration: Hardware - Workstation

Software - DCE

Inputs: Using tunneled protocol message passing for HTTP protocol on web service.

Outputs: Message passed by tunneled protocol on web service.

Expected result: Protocol tunneling, treats the RPC mechanism as a transport, replacing the TCP transport over which HTTP message are normally sent.

**Test Case 11 Browser used by client sub system (T214-3.01.11)**

This test verifies that using of web browser protocol tunneling is supported by the client sub system.

Test Configuration: Hardware - Workstation

Software - DCE

Inputs: Client must send and terminate all [in] data before any[out] data is returned.

Outputs: RPC can encapsulate , at best, a single message exchange between client and server using tunneling protocol.

Expected result: Client sub system support browser using tunneling protocol.

### 5.33.2.2 Sequence 2: Time service

The following test verifies the time service capability. Time service will provide time synchronization among different hosts within the ECS domain. This is achieved by adjusting the time kept by the operating system at every host. This service change the clock tick increments ( rather than the actual clock) so that clock will be in sync with some reference time provided by an external time provider

#### **Test Case 1                      Interpretable with the time service (T214-3.02.01)**

This test verifies that the CSS time service provides APIs to perform the functionality.

Test Configuration: Hardware - Workstation  
Software - DCE

Inputs: Distributed time with millisecond resolution (Provided by CSS time service.)

Outputs: Time in various formats.

Expected result: Time synchronization among different hosts within the ECS domain.

#### **Test Case 2                      Remote time access (T214-3.02.02)**

This test verifies that the remote time access will allow an external time source to connect to the time.

Test Configuration: Hardware - Workstation  
Software - DCE

Inputs: External time source.(TPI provided)

Outputs: Standardized time.

Expected result: Time provider provides access to standardized time.

### 5.33.2.3 Sequence 3 - Life cycle service

The following test verifies that the Life cycle services for objects provide the application users with the functionality to create and delete server objects residing in different address spaces.



This test verifies that an API returns an object invocation handle from the CDS.

Test Configuration: Hardware - Workstation

Software- DCE

Inputs: Application binding information is registered in the CDS. Shutdown removes that information from the CDS. Removing the information from the CDS prevents new clients from obtaining information about the server objects. Clients with existing binding information can no longer reach the server object.

Outputs: Error status will be returned to the caller

Expected Result: Error message will be returned.

**Test case 5 Available to service a user request (T214-3.03.05)**

This test verifies that server is available to service a user request.

Test Configuration: Hardware - Workstation

Software- DCE

Inputs: In order for an object to service requests, it should be registered in several places together with the object-related information. Firstly, the object needs to be registered in a directory service which provides clients with partial information of how to reach the server object; the remaining of the information, that is, how to reach the server object, is kept into the end point mapper running on the host.

Outputs: Service is available for request user.

Expected Result: Service will be offered by port.

**Test case 6 Client server connection phase (T214-3.03.06)**

This test verifies the controlled information to provide / limit the ability of clients to reach server objects.

Test Configuration: Hardware - Workstation

Software- DCE

Inputs: The server object needs to be registered with the endpoint map.

Outputs: Shutdown, suspend, and resume controlled information to provide / limit the ability of clients to reach server objects.

Expected Result: After acquiring information client, makes a call to that port on a particular host. Global server object receives the call and dispatches it to one of the objects residing in its address space.

Shutdown, suspend, and resume control this information to provide / limit the ability of clients to reach server objects.

**Test case 7                    Shutdown an application process (T214-3.03.07)**

This test verifies that the shutdown application process needs to suspend all the server objects.

Test Configuration:    Hardware - Workstation

Software- DCE

Inputs:                    Shutdown suspends all the server objects.

Outputs:                  Shutdown will call the suspend, listen the loop and exit.

Expected Result:        Internally shutdown calls the suspend first and then comes out of the listen loop and exits the application.

**Test case 8                    Suspend an application process (T214-3.03.08)**

This test verifies that the an application process is suspended and saves the information about the suspended objects with the Global Server Object.

Test Configuration:    Hardware - Workstation

Software- DCE

Inputs:                    Suspend provided by OODCE removes all the objects from the local runtime.

Outputs:                  Removes only the application objects from the local run time, and saves the information about the suspended objects with the Global Server Object.

Expected Result:        CSS provides this (custom developed) functionality by removing only the application objects from the local run time, and saves the information about the suspended objects with the Global Server Object.

**Test case 9                    Resume a suspended application process (T214-3.03.09)**

This test verifies that the resume a suspend an application process.

Test Configuration:    Hardware - Workstation

Software- DCE

Inputs:                    Resume provided by OODCE resumes all the objects.

Outputs:                  Suspended earlier objects will be registered back with the local runtime.

Expected Result: After the resume, the global server object listening for the entire server application can receive calls destined to the other objects in that application and then, dispatch them.

**Test case 10 Construct an object and dispatch the incoming call to the object (T214-3.03.10)**

This test verifies that the server application to construct an object and dispatch the incoming call to the object.

Test Configuration: Hardware - Workstation  
Software- DCE

Inputs: Clients makes a call to the port on a particular host.

Outputs: Global server object receives call from clients object and dispatches it to one of the objects residing in its address

Expected Results: A client after acquiring all this information, makes a call to that port on a particular host. A control application (global server object) running on that port now receives the call and dispatches it to one of the objects residing in its address space.

#### **5.33.2.4 Sequence 4: Transaction processing**

This series of tests verifies that the transaction processing application service has the capability to ensure data integrity during data exchange when the process fails.

**Test Case 1 Object Oriented Distributed Environment (T214-3.04.01)**

This test verifies the capability of the transaction processing application (TPA) service to support the Object Oriented Distributed Environment service.

Configuration: Hardware - Workstation  
Software -DCE

Inputs: Login to the ECS system based on the OODCE service transaction per user request.

Outputs: The transaction processing will implement distributed on - line transaction processing by running on top of and extending the capabilities of OODCE.

Expected result: Requested transaction will be processed.

**Test Case 2 CSS security service (T214-3.04.02)**

This test verifies the capability of the transaction processing application (TPA) service to support the CSS security service.

Test Configuration: Hardware - Workstation, X-terminal.  
Software - DCE

Input: CSS security TPA will provide a computing environment.

Output: The status of the security service processes is displayed.

Expected Results: The transaction process application can show the security status.

**Test Case 3 Management of OODCE-based servers (T214-3.04.03)**

This test verifies the capability of the transaction processing application (TPA) service to support the management of OODCE-based servers.

Test Configuration: Hardware - Workstation, X-terminal.  
Software - The TPA software, and OODCE servers.

Input: Select TPA management function, enter "status servers" command.

Output: The status of the server processes is displayed.

Expected Results: The TPA can show the server status and can activate or deactivate the server.

**Test Case 4 Atomicity function (T214-3.04.04)**

This test verifies that the transaction processing application (TPA) service can provide for the clients and servers that all components of the transaction shall succeed or fail as a unit.

Test Configuration: Hardware - Workstation, X-terminal.  
Software - The TPA software, client and server.

Input: Bring down the server after invoking transaction.

Output: The transaction should failed and the message is sent regarding the transaction error.

Expected Results: The database should show the complete data is not updated

**Test Case 5 Consistency function (T214-3.04.05)**

This test verifies that the transaction processing application (TPA) service can provide for the clients and servers the actions performed by a transaction shall take data from one consistent state to another consistent state.

Test Configuration: Hardware - Workstation, X-terminal.  
Software - The TPA software, client and server.

Input: Start a transaction to update an item in the database.

**Output:** The transaction state should changed to "completed".

**Expected Results:** The transaction shows data is changing from "pending" to "completed" state.



Test Configuration: Hardware - Workstation, X-terminal.  
Software - The TPA software, client and server.

Input: Start a transaction, then bring down the server.

Output: The transaction state should show "incompleted" after server is down.

Expected Results: The audit trail file can be rolled back to start the transaction again.

**Test Case 10 Client request queuing (T214-3.04.10)**

This test verifies that the transaction processing application (TPA) service can provide client request queuing during data server unavailability.

Test Configuration: Hardware - Workstation, X-terminal.  
Software - The TPA software, client and server.

Input: Start a transaction, then bring down the server.

Output: The status of the queue shows the request exists in the queue.

Expected Results: The request can be invoked after the server is up.

**Test Case 11 Client request dequeuing (T214-3.04.11)**

This test verifies that the transaction processing application (TPA) service can provide client request dequeuing of queued requests when data server has rebooted.

Test Configuration: Hardware - Workstation, X-terminal.  
Software - The TPA software, client and server.

Input: Start a transaction, then bring down the server and bring it up again.  
Check the queue and enter "delete" command to the selected request.

Output: Check the queue, the selected request is not in the queue.

Expected Results: The request is deleted.

**Test Case 12 Data recovery after multiple failures (T214-3.04.12)**

This test verifies that the transaction processing application (TPA) service can provide the capability of recovering from multiple failures without loss of data.

Test Configuration: Hardware - Workstation, X-terminal.  
Software - The TPA software, client and server.

Input: Start a transaction, then bring down the server and bring down the communication links and database application. Then bring them all up again.

Output: The data set in the database should still not be clobbered

Expected Results: The status of the database is in a good condition.

### 5.33.2.5 Sequence 5- Message passing

This series of tests verifies that the message passing provides asynchronous and deferred synchronous message passing between client and server applications running on different platforms.

#### **Test Case 1**      **The message service API receives messages from certain sender (T214-3.05.01)**

This test verifies that the capability of the CSS message service provides an API for the receiver to register interest in receiving message from a certain sender.

Test Configuration: Hardware - Workstation, X-terminal.

Software - A sender application.

Input: The receiver sends the sender's process name to the API, and the sender sends data to the receiver. Another sender also sends the data to the receiver.

Output: The receiver receives and displays the data.

Expected Results: The receiver receives the data from the first sender only.

#### **Test Case 2**      **The message service API allows thread process to be scheduled (T214-3.05.02)**

This test verifies that the capability of the CSS message service provides an API that will allow thread process to be scheduled.

Test Configuration: Hardware - Workstation, X-terminal.

Software - A user application and a thread process.

Input: The user application assigns the thread process to the message scheduler.

Output: The thread process is in the queue of the scheduler.

Expected Results: The status of the scheduler shows the thread process is in the queue.

#### **Test Case 3**      **The user retrieves the execution results of a thread (T214-3.05.03)**

This test verifies that the capability of the CSS message service of the deferred synchronous mode provides an API that will allow a user to retrieve the results of the execution of a thread.

Test Configuration: Hardware - Workstation, X-terminal.

Software - A user application and a thread process.

Input: The user application sends the thread process name to the message service.

Output: The message service replies to the application with the execution results.

Expected Results: The user application displays the results.

**Test Case 4**      **The message service provides the status of a thread process (T214-3.05.04)**

This test verifies that the capability of the CSS message service provides an API that will supply the status of a thread process.

Test Configuration: Hardware - Workstation, X-terminal.

Software - A user application and a thread process.

Input: The user application sends "status <thread name>" to the message service.

Output: The message service replies with the status of the thread process.

Expected Results: The user application displays the status.

**Test Case 5**      **The message service informs the completion of process executing (T214-3.05.05)**

This test verifies that the capability of the CSS message service provides an API that will inform the user when a thread process has finishing executing.

Test Configuration: Hardware - Workstation, X-terminal.

Software - A user application and a thread process.

Input: A thread is executed, and the message service monitors the status.

Output: The user application receives "execution completed" from the message service.

Expected Results: The user application displays the message.

## 5.34 DCE Information Service Thread

### 5.34.1 Thread Objective

The objective of the DCE information service thread is as follows:

- Provide the ability to implement policy and procedures.
- Provide the ability to access and maintain a multi site directory.

### 5.34.2 Thread Test Description.

Testing is performed to verify that user authentication request for ASTER GDS privileges are processed and that product generation requests are generated for authorized users. Product generation request will include an associated product distribution request.

The policies and procedures set forth by the administrator will allow receiving and transferring of data from various media and electronic data sources. The test is to ensure that the security criteria adheres to the C2 ( Controlled Access Protection) as documented by the Department of Defense, security directive, parameters, and thresholds for the generation of alerts are established in the policies and procedures application services.

#### **Dependencies:** (If Applicable)

In order to verify the objectives of the CSMS security and monitoring build, the following interface and functional capabilities are required:

- Interface between ASTER and ECS to provide product delivery status.
- Availability of EOC reports to log security events.
- Report generation application service must be established.
- GSFC, MSFC, LARC, and other DAACs policies and procedures.

#### **Test Support Requirements**

- Hardware
  -
- Software
  - Emulation for remote GSFC site
- Data

#### **5.34.2.1 Sequence 1 - Directory service**

Directory service is an infrastructure key mechanism and is used by ECS subsystem who need to use the cell directory naming space as a database to enter information in the form of attribute-value pairs.



### 5.34.2.2 Sequence 2 - Naming service

In the naming service, each service maintains its own resources, and a name-type in one service might not necessarily correspond to the same name-type in another service. Where the name is formatted according to the conventions of X.500.

#### **Test Case 1                    X.500 standard for naming and locating DCE cells (T214-4.02.01)**

This test verifies that the secure web supports the X.500 standard for naming and locating DCE cells.

Test Configuration:    Hardware - Workstation

Software - DCE

Inputs:                    Using DCE naming service and directory naming service to locate DCE cells.

Outputs:                  Names are stored in the Global directory service (GDS) and are accessible from each cell.

Expected result:        GDS is an implementation of directory service standard known as X.500 directory service(XDS).

#### **Test Case 2                    Domain name service specification (T214-4.02.02)**

This test verifies that the web service supports the domain name service (DNS) specification.

Test Configuration:    Hardware - Workstation

Software - DCE

Inputs:                    Using domain name service (DNS) on web service.

Outputs:                  DCE Directory service provides support for cell to address each cell through domain name service(DNS).

Expected result:        Networks use DNS primarily as a name service for internet host name.

## 5.35 System Security & Monitoring Build

### 5.35.1 Build Objectives

The objective of the System Security & Monitoring Build are as follows:

- Provide the ability to implement policy and procedures.
- Provide the ability to access and maintain a cell directory.

- Provide the ability to regulate access to networked resources based on names and group membership privilege. (Authorization)
- Provide the ability to prove authenticity in a client/ server environment before access is granted for the resource. (Authentication)
- Provide the ability to perform event logging and generate reports for event auditing purposes.
- Provide the ability to perform security risk processing and compromise.
- Provide statistical data collection via monitoring for valid and invalid system access attempts.

### **5.35.2 Build Test Description.**

Testing is performed to verify that user authentication request for ASTER GDS privileges are processed and that product generation requests are generated for authorized users. Product generation request will include an associated product distribution request. Testing is performed to ensure that the authentication of secured communication protocol between ASTER GDS and ECS uses a public key and allows Level 0 - Level 4 data to be sent and received. Network security or authentication for access to resources in a client/server environment is verified by validating users authorization to use the system and make request to a server in the network, authenticate the server, and in turn, the server authenticates the client prior to resources being accessed. The Security of sending and receiving the data is made possible by the unique key that is agreed upon by the sender and receiver.

The policies and procedures set forth by the administrator will allow receiving and transferring of data from various media and electronic data sources. To ensure the security criteria adheres to the C2 ( Controlled Access Protection) as documented by the Department of Defense, security directive, parameters, and thresholds for the generation of alerts are established in the policies and procedures application services.

Testing is performed to verify each DAAC collects management data which the communication and system management functions will have access to inorder to report and log security events, and generate a security compromise report. A security compromise report indicates compromises of ground resources and facilities. Security breeches will also be tested. Testing is performed to verify security requirements of local and remote access and enhanced e-mail and bulletin board access.

#### **Dependencies: (If Applicable)**

In order to verify the objectives of the CSMS security and monitoring build, the following interface and functional capabilities are required:

- Interface between ASTER and ECS to provide product delivery status.
- Availability of EOC reports to log security events.
- Report generation application service must be established.

- GSFC, MSFC, LARC, and other DAACs policies and procedures.

### **Test Support Requirements**

- Hardware
  -
- Software
  - Emulation for remote GSFC site
- Data

#### **5.35.2.1 Sequence 1: Security service**

The following test verifies that mechanisms are authentication, authorization, tamper-proofing (for data integrity) and encryption (for data privacy). While authentication should always be used in every conversation between a client and a server, the mechanisms for authorization, data integrity and privacy are based on security policies of the system(s) and the application-specific need for those mechanisms.

##### **Test Case 1 Kerberos standard (B214.01.01)**

This test verifies the Kerberos standard via the tool kit, encryption, integrity protection, replay protection, and kerberos-derived authentication.

Test Configuration: Hardware - Workstation

Software - DCE

Inputs: HTTP is communicated via the tool kit, encryption, integrity protection, replay protection, and kerberos-derived authentication are transparently provided.

Outputs: Client uses a tool kit API routine to set the security-level for a connection.

Expected result: Connected to the secure web server.

##### **Test Case 2 Authenticate and authorize DCE users (B214.01.02)**

This test verifies based upon the access control list(ACL), authenticate and authorization.

Test Configuration: Hardware - Workstation

Software - DCE

Inputs: Authenticate by login and authorize by using ACL.

Outputs: Based upon request ACL authenticate and authorized to DCE users.

Expected result: ACL controlled the permission and authorized using the private key.

**Test Case 3      POSIX compliant Access (B214.01.03)**

This test verifies that a POSIX compliant ACL manager will provide a mechanism to make an authorization decision based on the client's identity.

Test Configuration: Hardware - Workstation

Software - DCE

Inputs: Using DCE's POSIX compliant ACL server ACL manager will provide a mechanism to make an authorization decision based on the client's identity or group membership.

Outputs: Server can make authorization decisions based on a number of factors.

Expected result: Server will make authorization decisions based on a request.

**Test Case 4      Data encryption standard (B214.01.04)**

This test verifies that users can access web server using login and password through DCE security.

Test Configuration: Hardware - Workstation

Software -DCE

Inputs: DCE user's should be able to login and access web server.

Outputs: Matched login and password will be encrypted by DCE.

Expected result: For a matched login DCE encrypts the password which is not in clear text.

**Test Case 5      Support private key (B214.01.05)**

This test verifies that the web service supports private keys, and a user can make a private key using tool kit. Server can recognize the client. This is the way to authenticate the users.

Test Configuration Hardware - Workstation

Software - DCE

Inputs: Create private key from clients/server to authenticate the user's.

Outputs: Created private key from the clients/server.

Expected result: By private key clients/ server authenticate the user's.



Inputs: In the process of shutting down an application, shutdown needs to suspend all the server objects.

Outputs: It will call the suspend , listen the loop and exit.

Expected Result: Internally it calls the suspend first and then comes out of the listen loop and exit the application.

**Test Case 3 Remote time access (B214.02.03)**

This test verifies that the remote time access will allow an external time source to connect to the time.

Test Configuration: Hardware - Workstation

Software - DCE

Inputs: Time provider interface (TPI) will allow an external time source to connect to the time.

Outputs: Time provider provides access to standardize or Government controlled time devices such as radios, satellites or telephone lines.

Expected result: Time provider provides access to standardize.

**Test Case 4 Provide mechanism to view non-secured and secured documents (B214.02.04)**

This test verifies that the DCE service provides mechanism to view non-secured and secured documents.

Test Configuration: Hardware - Workstation

Software - DCE

Inputs: View non-secured and secured documents on the web server using DCE environment.

Outputs: Users can employ the same, familiar browser (DCE-based) interface to view documents managed by the DCE-web servers.

Expected result: Only DCE users can view secured & non-secured documents on the web server.

**Test Case 5 The message service API allows thread process to be scheduled (B214.04.05)**

This test verifies the capability of the CSS message service to provided an API that will allow thread process to be scheduled.

Test Configuration: Hardware - Workstation, X-terminal.

Software - A user application and a thread process.

Input: The user application assigns the thread process to the message scheduler.

Output: The thread process is in the queue of the scheduler.

Expected Results: The status of the scheduler shows the thread process is in the queue.

**Test Case 6      Directory service to permit administration (B214 .02.06)**

This test will verify that the DOF service provides namespace aliases for directory service to permit administrative ease of changes.

Test Configuration: Hardware - Workstation

Software - DCE

Inputs: DCE administrator provides a name alias to a resource.

Outputs: Resource with a name alias.

Expected result: Users can access the resource with the name alias.

**Test Case 7      X.500 standard for naming and locating DCE cells (B214.02.07)**

This test verifies the web server supports X.500 standard for naming and locating DCE cells.

Test Configuration: Hardware - Workstation

Software - DCE

Inputs: Using DCE naming service and directory naming service to locate DCE cells.

Outputs: Names stored directly in Global directory service (GDS) also are accessible from each cell.

Expected result: GDS is an implementation of directory service standard known as X.500 directory service(XDS).

### **5.36 Integrated Client Services Build 3**

The Integrated Client Services Build 3 is an integrated build of the following builds:

- System Security and Monitoring Build
- Client Services Build
- System Setup Build 1

### **5.36.1 Build Objectives**

The objectives of the Integrated Client Services build 3 are:

- Provide the capability to transfer data files and support interprocess communications.
- Provide the capability to manage site and network communication.
- Provide the capability to perform event logging and generate reports for auditing purposes.
- Provide the capability to perform system security and monitoring.
- Provide the capability to perform client and ingest services.
- Provide the capability to perform self registration and authentication

### **5.36.2 Build Test Description**

Testing is performed to verify system security and monitoring while using the client interface. The tester, using the client interface, can access registration capabilities, saved profiles, saved searches, search results and visual capabilities for viewing retrieved data. Different privileges established for distribution allowing the user automatic guest, authorized user and individual(groups) authentication will be verified based on the existence or non-existence of profile information. Access is regulated to networked resources based on names and group membership privileges. Authenticity is proven in a client/server environment before access is granted for a resource.

Testing is performed to verify the collection of management data in order to report and log security events, and perform security risk processing and compromise. Policies and procedures will be adhered to when generating alerts and receiving and transferring data. The capability to transfer data files and support interprocess communications will be verified. Site and network communication management including configuration management, network performance monitoring and policy administration will be verified. Ingest services through appropriate interfaces will be performed.

#### **Dependencies: (If Applicable)**

In order to verify the objectives of the Integrated Client Services Build 3, the following interface and functional capabilities are required:

- Network environment (LAN and WAN).
- Interface to network communication management tools.
- Interface to EOSView.
- Report generation application service must be established.
- Data server containing simulated data.
- Interface to data server, data dictionary, LIM, and DIM for data access.
- Interface between SDPS and CSMS.

- Interface to ECS for non-ECS-clients.

### **Test Support Requirements**

- Hardware:
  - Workstations
  - Dumb terminals
  - Bitmapped-display terminals
- Software:
  - Desktop Manager, Desktop
  - Scientist Workbench
  - Data Dictionary Server, Data Dictionary DBMS
  - User Registration Tool
  - Visualization Tool
  - SMC interface
  - MSS Billing and Accounting Application Service
  - Advertising Service
- Data:
  - simulated data granules
  - metadata, ancillary data products

#### **5.36.2.1 Sequence 1 - User Access**

The following tests verify user access to saved profiles, saved search options and saved search results. Profiles, search options, and search results are saved on the host, allowing them to be retrieved by the user from different workstations. User connection from a variety of workstations will verify correct retrieval of saved user data and profiles. User connections will be made via direct connection, dial up connection and network link.

##### **Test Case 1                      Saved Profiles, Search Options and Search Results (B215.01.01)**

This test verifies that a user can access saved profiles, search options and search results. The ECS desktop and workbench are used to create and save profiles, search parameters for a variety of search requests, and search results from a variety of searches. If search services are unavailable result files will be manually placed in the workbench. The user then logs off and back onto the system using the same valid user ID. The profile, search options, and search results previously saved will be retrieved.

Test Configuration:    Hardware - workstations



Input: Logon via a network link. Access ECS services by entering a number of service requests.

Output: Logon accepted. Service requests are accepted and processed.

Expected Results: The user successfully accesses ECS services via a network link.

**Test Case 4 Access via a Direct Connection (B215.01.04)**

This test verifies that the user can access ECS services via a direct connection.

Test Configuration: Hardware - workstations  
Software - Desktop, Workbench

Input: Logon via a direct connection. Access ECS services by entering a number of service requests.

Output: Logon accepted. Service requests are accepted and processed.

Expected Results: The user successfully accesses ECS services via a direct connection.

**Test Case 5 Access via a Dialup Link (B215.01.05)**

This test verifies that the user can access ECS services via a dialup link.

Test Configuration: Hardware - workstations  
Software - Desktop, Workbench

Input: Logon via a dialup link. Access ECS services by entering a number of service requests.

Output: Logon accepted. Service requests are accepted and processed.

Expected Results: The user successfully accesses ECS services via a dialup link.

**Test Case 6 Predicted Time for Resumption (B215.01.06)**

This test verifies that the user will be provided the predicted time for resumption of ECS services which are temporarily unavailable.

Test Configuration: Hardware - workstations  
Software - Desktop, Workbench

Input: ECS services become temporarily unavailable.

Output: Predicted time for resumption is displayed to the user.

Expected Results: The user is successfully provided with the predicted time for resumption of ECS services which are temporarily unavailable.



data and services beyond this scope. Requests will be processed and messages will be returned stating the out come of the requests. Reasons for request denial will be stated. Policies and procedures will determine if a user can acquire requested access.

### **5.36.2.2 Sequence 2 - Graphic and Textual Enhancements**

The following tests demonstrate enhanced data visualization tools. Such capabilities include: modification and importation of color palettes; animation of data images; coordinate entries and displays; and modification and displaying of pseudo color images.

#### **Test Case 1 Pseudo color Images (B215.02.01)**

This test verifies that a user can display horizontal and vertical profiles, 2D and multi-D arrays of data, tables of numbers, and overlays. Images can be modified by data min/max values, color palettes, and adaptive equalizations. Images can be zoomed and panned.

Test Configuration: Hardware - workstations

Software - Desktop Manager, Scientist Workbench, Visualization Tool

Input: Display pseudo color images. Display horizontal and vertical profiles, 2D and multi-D arrays of data, tables of numbers, and overlays. Modify images using data min/max values, different color palettes, and adaptive equalization. Zoom and Pan images.

Output: Pseudo color images are displayed. Images are modified. Images are zoomed and panned.

Expected Results: Pseudo color images are properly displayed, modified, zoomed and panned.

#### **Test Case 2 Raster Images (B215.02.02)**

This test verifies that a user can display 8-bit and 24-bit raster images. Images can be zoomed and panned.

Test Configuration: Hardware - workstations

Software - Desktop Manager, Scientist Workbench, Visualization Tool

Input: Display 8-bit and 24-bit raster images. Zoom and Pan images.

Output: Raster images are displayed. Images are zoomed and panned.

Expected Results: Raster images are properly displayed, zoomed and panned.





**Test Case 4**                    **Data encryption standard (B215.03.04)**

This test verifies that users can access web server using login and password through DCE security.

Test Configuration:    Hardware - Workstation

Software -DCE

Inputs:                    DCE user's should be able to login and access web server. DCE Security will be checked.

Outputs:                  Matched login and password will be encrypted by DCE.

Expected result:        For a matched login DCE encrypts the password which is not in clear text.

**Test Case 5**                    **Support Private Key (B215.03.05)**

This test verifies that a user can make private key using tool kit. So server can recognize the client. This is the way to authenticate the user's.

Test Configuration:    Hardware - Workstation

Software - DCE

Inputs:                    Create private key from clients/server to authenticate the user's.

Outputs:                  Created private key from the clients/server.

Expected result:        By private key clients/ server authenticate the user's.

**Test Case 6**                    **Grant access permissions for AIT members (B215.03.06)**

This test verifies that the access control list manager has a set of permissions that it supports for the objects that it manages.

Test Configuration:    Hardware-Workstation

Software - DCE

Inputs:                    Each ACL manager implementation has a set of permission that it support for the object that it manages. The valid test and control CDS permissions for objects are:

Control(c):

An ACL entry with this permission bit set allows the entry-type to modify the ACL that controls access to a CDS object.

Test(t):

An ACL entry with this permission bit set allows the entry-type to delete the values of attributes of a CDS object without reading the values themselves.

Outputs: Valid test permission bit set allows to the test.  
Expected Result: Permission bit set allows to the test or control or valid key item.

**Test Case 7      Directory Service to Permit Administrative (B215.03.07)**

This test will verify that the Directory service permits administrative ease of changes

Test Configuration: Hardware - Workstation  
Software - DCE

Inputs: Ease of changes directory service using API.  
Outputs: Using API users can create, modify, and delete entries.  
Expected result: API provide access to directory service function.

**Test Case 8      X.500 Standard for Naming and Locating DCE Cells. (B215.03.08)**

This test verifies the X.500 standard for naming and locating DCE cells.

Test Configuration: Hardware - Workstation  
Software - DCE

Inputs: Using DCE naming service and directory naming service to locate DCE cells.  
Outputs: Names stored directly in Global directory service (GDS) also are accessible from each cell.  
Expected result: GDS is an implementation of directory service standard known as X.500 directory service(XDS).

**Test Case 9      Perform Naming Service using x.500 (B215.03.09)**

This test will verify the ability to perform naming service using x.500 service

Test Configuration: Hardware - workstations  
Software - DCE

Input: Performing naming service using x.500  
Output: One service can not correspond to the same name type in another service. Where the name is formatted according to the conventions of X.500

Expected Result: Same name type service can not correspond in another service.

**Test Case 10 Perform Naming Service using DNS (B215.03.10)**

This test will verify the ability to perform naming service using domain naming service.

Test Configuration: Hardware - workstations

Software - DCE

Input: Each cell has a unique name registered with an external "naming" authority. In the naming service, each service maintains its own resources, and a name-type in one service might not necessarily correspond to the same name-type in another service. Where the name is formatted according to the conventions of DNS domain naming system.

Output: One service can not correspond to the same name type in another service according to the conventions of **DNS** domain naming system.

Expected Result: Same service can not corresponds to the another service.

**Test Case 11 Atomicity function (B215.03.11)**

This test verifies that the transaction processing application (TPA) service can provide for the clients and servers that all components of the transaction shall succeed or fail as a unit.

Test Configuration: Hardware - Workstation, X-terminal.

Software - The TPA software, client and server.

Input: Bring down the server after invoking transaction.

Output: The transaction should failed and the message is sent for transaction error.

Expected Results: The database should show the complete data is not updated

**Test Case 12 Shutdown an Application Process (B215 .01.12)**

This test verifies that the shutdown an application process needs to suspend all the server objects.

Test Configuration: Hardware - Workstation

Software- DCE

Inputs: In the process of shutting down an application, shutdown needs to suspend all the server objects.

Outputs: It will call the suspend , listen the loop and exit.

Expected Result: Internally it calls the suspend first and then comes out of the listen loop and exit the application.

**Test Case 13 Remote Time Access (B215.03.13)**

This test verifies that the remote time access will allow an external time source to connect to the time.

Test Configuration: Hardware - Workstation  
Software - DCE

Inputs: Time provider interface (TPI) will allow an external time source to connect to the time.

Outputs: Time provider provides access to standardize or Government controlled time devices such as radios, satellites or telephone lines.

Expected result: Time provider provides access to standardize.

**Test Case 14 Security Policies (B215.03.14)**

This test verifies that security policies will use authentication, authorization, tamper-proofing (for data integrity) and encryption (for data privacy).

Test Configuration: Hardware - Workstation  
Software -DCE

Inputs: Using authentication and authorization, tamper\_proofing on ECS system

Outputs: Authentication should always be used in every conversation between a client and a server, the mechanisms for authorization, data integrity and privacy are based on security policies of the system(s).

Expected result: These mechanisms are authentication, authorization, tamper-proofing (for data integrity) and encryption (for data privacy).

**5.36.2.4 Sequence 4 - Ingest**

This testing will verify the ingest functionality when the INGST software is integrated with the System Initialization, Network services, and MLCI Build software.

**Test Case 1 GSFC EDOS Nominal Rate Ingest Test (B215.04.01)**

This test verifies that the GSFC DAAC has the capability of ingesting data from the EDOS at the nominal daily rate.

Test Configuration: Hardware - workstation  
Software - INGST

**Input:** A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

**Output:** Rate performance data is collected.

**Expected Results:** Performance data is examined. The performance data is analyzed to determine if ingest data is ingested at an acceptable nominal rate.

**Test Case 2                    GSFC EDOS Maximum Rate Ingest Test (B215.04.02)**

This test verifies that the GSFC DAAC has the capability of ingesting data from EDOS at a maximum daily rate that is three times the nominal rate.

**Test Configuration:** Hardware - workstation  
Software - INGST

**Input:** A series of Ingest requests are submitted continuously over timed intervals. The number of ingest requests is increased, until the system can no longer accept requests. Requests are for data of various size and type. The system is monitored during Ingest processing.

**Output:** Rate performance data is collected.

**Expected Results:** Performance data is examined. The performance data is analyzed to determine if ingest data can be ingested at a rate that is three times the acceptable nominal rate.

**Test Case 3                    LaRC EDOS Nominal Rate Ingest Test (B215.04.03)**

This test verifies that the LaRC DAAC has the capability of ingesting data from the EDOS at the nominal daily rate.

**Test Configuration:** Hardware - workstation  
Software - INGST

**Input:** A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

**Output:** Rate performance data is collected.

**Expected Results:** Performance data is examined. The performance data is analyzed to determine if ingest data is ingested at an acceptable nominal rate.

**Test Case 4                    LaRC EDOS Maximum Rate Ingest Test (B215.04.04)**

This test verifies that the GSFC DAAC has the capability of ingesting data from EDOS at a maximum daily rate that is three times the nominal rate.

Test Configuration:    Hardware - workstation

   Software - INGST

Input:                                    A series of Ingest requests are submitted continuously over timed intervals. The number of ingest requests is increased, until the system can no longer accept requests. Requests are for data of various size and type. The system is monitored during Ingest processing.

Output:                                    Rate performance data is collected.

Expected Results:                    Performance data is examined. The performance data is analyzed to determine if ingest data can be ingested at a rate that is three times the acceptable nominal rate.

**Test Case 5                    EDC Landsat 7 LPs Nominal RateTest (B215.04.05)**

This test verifies that the LaRC DAAC has the capability of ingesting data from the EDC at the nominal rate.

Test Configuration:    Hardware - workstation

   Software - INGST

Input:                                    A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

Output:                                    Rate performance data is collected.

Expected Results:                    Performance data is examined. The performance data is analyzed to determine if ingest data is ingested at an acceptable nominal rate.

**Test Case 6                    EDC Landsat 7 IAS Nominal RateTest (B215.04.06)**

This test verifies that the EDC DAAC has the capability of ingesting data from Landsat7 IAS at the nominal rate.

Test Configuration:    Hardware - workstation

   Software - INGST

Input:                                    A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

Output: Rate performance data is collected.

Expected Results: Performance data is examined. The performance data is analyzed to determine if ingest data is ingested at an acceptable nominal rate.

**Test Case 7 EDC Landsat 7 IGS Nominal RateTest (B215.04.07)**

This test verifies that the ECD DAAC has the capability of ingesting data from Landsat7 IGS at the nominal rate.

Test Configuration: Hardware - workstation  
Software - INGST

Input: A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

Output: Rate performance data is collected.

Expected Results: Performance data is examined. The performance data is analyzed to determine if ingest data is ingested at an acceptable nominal rate.

**Test Case 8 GSFC NMC Nominal RateTest (B215.04.08)**

This test verifies that the GSFC DAAC has the capability of ingesting data from the NMC at the nominal rate.

Test Configuration: Hardware - workstation  
Software - INGST

Input: A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

Output: Rate performance data is collected.

Expected Results: Performance data is examined. The performance data is analyzed to determine if ingest data is ingested at an acceptable nominal rate.

**Test Case 9 ASF RADARSAT Nominal RateTest (B215.04.09)**

This test verifies that the ASF DAAC has the capability of ingesting data from the RADARSAT at the nominal rate.

Test Configuration: Hardware - workstation  
Software - INGST

Input: A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

Output: Rate performance data is collected.

Expected Results: Performance data is examined. The performance data is analyzed to determine if ingest data is ingested at an acceptable nominal rate.

**Test Case 10 ASF RADAR-ALT Nominal RateTest (B215.04.10)**

This test verifies that the ASF DAAC has the capability of ingesting data from the RADAR-ALT at the nominal rate.

Test Configuration: Hardware - workstation  
Software - INGST

Input: A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

Output: Rate performance data is collected.

Expected Results: Performance data is examined. The performance data is analyzed to determine if ingest data is ingested at an acceptable nominal rate.

**Test Case 11 ASF ERS-1/ERS-2 Nominal RateTest (B215.04.11)**

This test verifies that the ASF DAAC has the capability of ingesting data from the ERS-1/ERS-2 at the nominal rate.

Test Configuration: Hardware - workstation  
Software - INGST

Input: A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

Output: Rate performance data is collected.

Expected Results: Performance data is examined. The performance data is analyzed to determine if ingest data is ingested at an acceptable nominal rate.

**Test Case 12 ASF JERS-1 Nominal RateTest (B215.04.12)**

This test verifies that the ASF DAAC has the capability of ingesting data from the JERS-1 at the nominal rate.

Test Configuration: Hardware - workstation  
Software - INGST

Input: A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

Output: Rate performance data is collected.

Expected Results: Performance data is examined. The performance data is analyzed to determine if ingest data is ingested at an acceptable nominal rate.

**Test Case 13 LaRC SAGE III Nominal RateTest (B215.04.13)**

This test verifies that the LaRC DAAC has the capability of ingesting data from the SAGE III at the nominal rate.

Test Configuration: Hardware - workstation  
Software - INGST

Input: A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

Output: Rate performance data is collected.

Expected Results: Performance data is examined. The performance data is analyzed to determine if ingest data is ingested at an acceptable nominal rate.

**Test Case 14 ASF RGS Nominal RateTest (B215.04.14)**

This test verifies that the ASF DAAC has the capability of ingesting data from the RGS at the nominal rate.

Test Configuration: Hardware - workstation  
Software - INGST

Input: A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

Output: Rate performance data is collected.

Expected Results: Performance data is examined. The performance data is analyzed to determine if ingest data is ingested at an acceptable nominal rate.

**Test Case 15            ASF SPS Nominal RateTest (B215.04.15)**

This test verifies that the ASF DAAC has the capability of ingesting data from the ASF SPS at the nominal rate.

Test Configuration:    Hardware - workstation

   Software - INGST

Input:                            A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

Output:                         Rate performance data is collected.

Expected Results:    Performance data is examined. The performance data is analyzed to determine if ingest data is ingested at an acceptable nominal rate.

**Test Case 16            ACRIM Nominal RateTest (B215.04.16)**

This test verifies that the TBD DAAC has the capability of ingesting data from the ACRIM at the nominal rate.

Test Configuration:    Hardware - workstation

   Software - INGST

Input:                            A series of Ingest requests are submitted. Requests are for data of various size and type. The system is monitored during Ingest processing.

Output:                         Rate performance data is collected.

Expected Results:    Performance data is examined. The performance data is analyzed to determine if ingest data is ingested at an acceptable nominal rate.

**Test Case 17            Ingest GSFC TSDIS Resource Test (B215.04.17)**

This test verifies the capability for Ingest interface and storage resources to adequately support ingest functions for the TSDIS interface at GSFC.

Test Configuration:    Hardware - workstation

   Software - INGST

Input:                            A series of data request are submitted. Ingest interface and storage resources are monitored.

Output:                         Data interface and storage performance data is collected.

Expected Results: Interface and storage data is successfully collected and recorded. The data is analyzed to determine if hardware resources adequately support TSIDS interface and storage requirements at GSFC.

**Test Case 18                    Ingest LaRC AM-1 Resource Test (B215.04.18)**

This test verifies the capability for Ingest interface and storage resources to adequately support ingest functions for the AM-1 interface at LaRC.

Test Configuration: Hardware - workstation

Software - INGST

Input: A series of data request are submitted. Ingest interface and storage resources are monitored.

Output: Data interface and storage performance data is collected.

Expected Results: Interface and storage data is successfully collected and recorded. The data is analyzed to determine if hardware resources adequately support AM-1 interface and storage requirements at LaRC.

**5.36.2.5 Sequence 5 - System Initialization**

This testing will verify the System Initialization functionality when the System Initialization software is integrated with the INGST, Network services, and MLCI Build software.

**Test Case 1                    Concurrent execution of operational mode and test mode (B215.05.01)**

This test verifies that the capability of the concurrent execution of operational mode and test mode.

Test Configuration: Hardware - Workstation, X terminal

Software - mode management application

Input: Initialize the operational mode environment in the mode management script.

Output: The message is displayed the execution of the operational mode and test mode.

Expected Results: The HP OpenView shows the successful execution of the operational and test system environment.

**Test Case 2                    Concurrent execution of operational mode and training mode (B215.05.02)**

This test verifies that the capability of the concurrent execution of operational mode and training mode.

Test Configuration: Hardware - Workstation, X terminal  
Software - mode management application

Input: Initialize the operational mode environment in the mode management script.

Output: The message is displayed the execution of the operational mode and training mode.

Expected Results: The HP OpenView shows the successful execution of the operational and training system environment.

**Test Case 3 Operational mode performance statistics (B215.05.03)**

This test verifies that the capability of the mode management service to monitor and provide the operational mode performance statistics.

Test Configuration: Hardware - Workstation, X terminal  
Software - mode management application

Input: To request to display the performance statistics of the operational mode environment in the mode management script.

Output: The performance statistics of operational mode is displayed.

Expected Results: The HP OpenView shows the statistics.

**Test Case 4 Operational mode fault detection (B215.05.04)**

This test verifies that the capability of the mode management service to monitor and provide the operational mode fault detection and isolation information.

Test Configuration: Hardware - Workstation, X terminal  
Software - mode management application

Input: To bring down the subsystem process.

Output: The message is displayed to indicate the fault occurs.

Expected Results: The HP OpenView shows the fault information.

**Test Case 5 Operational mode management statistics (B215.05.05)**

This test verifies that the capability of the mode management service to monitor and provide the test mode management statistics.

Test Configuration: Hardware - Workstation, X terminal  
Software - mode management application

Input: To request to display the management statistics of the test mode environment in the mode management script.

Output: The management statistics of test mode is displayed.

Expected Results: The HP OpenView shows the statistics.

### 5.36.2.6 Sequence 6 - MLCI

This testing will verify the MLCI services functionality when the MLCI Build software is integrated with the INGST, System Initialization, and Network services Build software.

#### **Test Case 1**      **Package Software, Databases, and Documentation for Delivery to Destinations (B215.06.01)**

This test verifies the ability of the Configuration Management Application Service to package software, databases, and documentation for delivery to destinations at both ECS and ECS-connected sites.

Test Configuration: Hardware - workstations

Software - MSS Configuration Management Application Service

Input: The tester simulating a software delivery, attempts to package software, databases, and documentation for delivery to destinations at both ECS and ECS-connected sites.

Output: Messages indicating that the software, databases, and documentation for delivery to the destinations are packaged.

Expected Results: The software, databases, and documentation for delivery to the destinations are packaged for both ECS and ECS-connected sites.

#### **Test Case 2**      **Schedule Automatic and Operator-Assisted Distribution of Software Packages (B215.06.02)**

This test verifies the ability of the Configuration Management Application Service to schedule via the EMC Planning and Scheduling Service automatic and operator-assisted distribution of software packages.

Test Configuration: Hardware - workstations

Software - MSS Configuration Management Application Service, EMC Planning and Scheduling Service

Input: The tester simulating a software delivery, attempts to schedule both automatic and operator-assisted distribution of software packages via the EMC Planning and Scheduling Service.

Output: Messages indicating both automatic and operator-assisted distribution of software packages are scheduled.



**Input:** The tester via the Configuration Management Application Service attempts to generate a report of license utilization statistics.

**Output:** Report of license utilization statistics areOutput.

**Expected Results:** The tester can successfully generate the report of license utilization statistics using the Configuration Management Application Service.

**Test Case 6      Add Non-Expendable and Consumable ECS Resources to System-Wide Catalog (B215.06.06)**

This test will demonstrate the capability to add non-expendable and consumable ECS resources to the SMC's on-line system-wide catalog.

**Test Configuration:** Hardware - workstations  
Software - ILS Management

**Input:** An operator will select to add a non-expendable and a consumable ECS resource to the SMC's on-line system-wide catalog. After the non-expendable and consumable ECS resources are entered into the SMC's on-line system-wide catalog, a report showing the catalog contents will be generated by the operator.

**Output:** A report showing the contents of the SMC's on-line system-wide catalog will be generated.

**Expected Results:** The non-expendable and consumable ECS resources, entered by the operator, will appear on the generated report.

**Test Case 7      Input, Store, Maintain, and View/Print Training Information (B215.06.07)**

This test verifies the ability of the Training Management Application Service to input, store, maintain, and view/print training information.

**Test Configuration:** Hardware - workstations  
Software - MSS Training Management Application Service

**Input:** The tester, using the Training Management Application Service, attempts toInput, store, maintain, and view/print training information.

**Output:** Messages indicating training information is stored. The training information is displayed and printed.

**Expected Results:** The training information is displayed and printed, as it isInput by the tester.

**Test Case 8**                    **Input, Store, Maintain, and View/Print PM Information for Site Equipment (B215.06.08)**

This test verifies the ability of the Maintenance Management Application Service to input, store, maintain, and view/print Preventive Maintenance (PM) information for site equipment.

Test Configuration:    Hardware - workstations

Software - MSS Maintenance Management Application Service

Input:                    The tester will attempt to input, store, maintain, and view/print PM information for a unit of site equipment.

Output:                 Messages indicating the input, storage, and update of PM information for a unit of site equipment. The PM information will be viewed and printed.

Expected Results:    The PM information entered by the tester will be input, stored and updated. The PM information will be viewed and printed.

**Test Case 9**                    **Schedule Maintenance Events via the MSS Planning and Scheduling Service (B215.06.09)**

This test verifies the ability of the Maintenance Management Application Service to schedule maintenance events via the MSS Planning and Scheduling Service.

Test Configuration:    Hardware - workstations

Software - MSS Maintenance Management Application Service, MSS Planning and Scheduling Service

Input:                    The tester, using the Maintenance Management Application Service, will attempt to schedule maintenance events via the MSS Planning and Scheduling Service.

Output:                 Messages indicating that maintenance events have been scheduled.

Expected Results:    The requested maintenance events will be scheduled via the MSS Planning and Scheduling Service.

**Test Case 10**                    **Record Off-Site Maintenance Information (B215.06.10)**

This test verifies the ability of the Maintenance Management Application Service to record off-site maintenance information: identification of component; description of problem; and corrective action taken.

Test Configuration:    Hardware - workstations

Software - MSS Maintenance Management Application Service

Input:	The tester will attempt to record, and view/print off-site maintenance information for a unit of site equipment.
Output:	Messages indicating the recording of off-site maintenance information for a unit of site equipment. The off-site maintenance information will be viewed and printed.
Expected Results:	The off-site maintenance information as entered by the tester will be recorded. The off-site maintenance information will be viewed and printed.

## 5.37 Enhanced Data Services Thread

### 5.37.1 Thread Objectives

The objectives of the Enhanced Data Services thread are as follows:

- Provide the capability to create, submit, and delete and distribute data server subscriptions by means of subscriptions.
- Provide capabilities to perform data service administrative functions such as full backup, manual and automatic recovery.
- Provide the capabilities to perform gateway functions and verify application programming interfaces.

### 5.37.2 Thread Test Description

Testing will be performed to verify that the system has the capability to accept subscriptions from clients. Along with subscription requests will be specification of a well-defined advertised event and the actions to be triggered upon its occurrence such as deleting subscriptions, adding subscriptions and updating subscriptions.

This thread will also focus on some the data services administrative functions such as manual recoveries, automatic recoveries and backups. Appropriate logging will be recorded and tested. Gateway functions will also be tested.

#### **Dependencies: (If Applicable)**

To verify the objectives of the enhanced data services thread, the following interface and functional capabilities are required:

- Write permissions to the defined data dictionary
- Ability to access the LIM schema to determine data locations.
- Access to DAAC and DAAC interfaces.
- Ability to access the DIM schema to determine data locations.
- Ability to access the data dictionary using views and contexts. Direct access to the top levels of the data server.

- Heterogeneous data server environment within a local site.
- Gateways.
- LIM and DIM schema defined for heterogeneous data server environment. Write permissions to allow changes to the LIM and DIM schema.
- Simulated or actual services availability.
- File transfer interfaces.
- CSMS and SDPS interface.

### **Test Support Requirements**

- Hardware:
  - TBS
- Software:
  -
- Data:
  -

#### **5.37.2.1 Sequence 1 - Data Services Administration**

The following tests demonstrates the ability for data services to support a data administration utilities. Such administrator's capabilities will include being able to perform On-line full and incremental backups. Other capabilities are data imports and exports, manual and automatic recovery and some form of access control. Testing is performed to verify that invalid entries for the Data services are also rejected.

##### **Test Case 1 On-line full Backup (T216-1.01.01)**

The following tests the authorized user's capability to perform on-line full backup. All the advertising service operations that will be performed before the recovery, such as executing several data/service searches and browsing through the available advertisements will be recorded.

Test Configuration: Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input: Enter full backup data command.

Output: Fully backed-up advertising Service Database. Administrative log contains an entry for the above function.

Expected Results: This test is considered successful if all the files have been backup up completely.

##### **Test Case 2 On-line Incremental Backup (T216-1.01.02)**

The following tests the authorized user's capability to perform on-line incremental backup. A set of advertising service operations will be performed before the recovery, such as executing several data/service searches and browsing through the available advertisements. The results of this operation is recorded.

Test Configuration: Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input: Enter incremental backup data command.

Output: Incremented back-up of advertising Service Database.  
Administrative log contains an entry for the above function.

Expected Results: This test is considered successful if all the incremented backup files have been backed-up completely.

**Test Case 3**      **Manual recovery of advertising services data from media (T216-1.01.03)**

The following tests the authorized user's capability to perform manual recovery of advertising services data from media. A set of advertising service operations will be performed before the recovery.

Test Configuration: Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input: Use the latest backup data to perform manual recovery.

Output: Fully restored advertising Service Database after recovery.  
Administrative log contains an entry for the above function.

Expected Results: This test is considered successful if all the files and screens have been restored back on to the system.

**Test Case 4**      **Automatic recovery of advertising services data from system failures (T216-1.01.04)**

The following tests the authorized user's capability to perform automatic recovery of advertising services data from system failures. A set of advertising service operations will be performed before the recovery.

Test Configuration: Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input: Simulate system failure. Method used to simulate a system failure is TBD.

**Output:** Fully restored advertising Service Database after recovery. Administrative log contains an entry for the above function.

**Expected Results:** This test considered successful if all the original files and screens have been restored back to their original status.



Expected Results: This test is considered successful when the system is completely restored and the data is compared with the initial data.

**Test Case 8 Display Log of all Information (T216-1.01.08)**

The following test verifies that the log contains all functions performed and is displayed to show such functions.

Test Configuration: Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input: Enter the advertising service display command for the log.

Output: All logged information is displayed.

Expected Results: This test is considered successful if all functions performed within a certain time period is the recorded onto the log and shows such entries during display.

**5.37.2.2 Sequence 2 - Data Subscription Services**

The following tests verify the administrator's capabilities to perform data subscription functions such as create, submit, delete, renew, list and other subscription functions. Testing is performed to verify that invalid entries for the data subscription services are also rejected.

**Test Case 1 Create subscription (T216-1.02.01)**

The following test demonstrates the ability to support the creation of subscriptions. The client will provide GUI interface to create subscription.

Test Configuration: Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input: Select create subscription option from GUI interface

Output: Subscription is created for the user. Administrative log contains an entry for the above function.

Expected Results: This test is considered successful when the user's subscription is created and displayed.

**Test Case 2 Submit Data Server subscription (T216-1.02.02)**

The following test demonstrates the ability to submit data server subscriptions. The client will provide GUI interface to submit data server subscription.

Test Configuration: Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input: Select submit data server subscription option from GUI interface

Output: Data server subscription has been submitted for subscription. Administrative log contains an entry for the above function.

Expected Results: This test is considered successful when a response is received saying data server subscription has been submitted.

**Test Case 3 Delete Data Server subscription (T216-1.02.03)**

The following test demonstrates the ability to support deletion of subscriptions. The client will provide GUI interface to delete subscription.

Test Configuration: Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input: Select delete subscription option from GUI interface

Output: Subscription is delete from the subscription list. Administrative log reflects an entry for the above function.

Expected Results: This test is considered successful when the subscription list for that particular user does not show his subscription in the list.

**Test Case 4 Distribute data by means of subscription (T216-1.02.04)**

The following test demonstrates the ability to distribute data by means of subscriptions. The client will provide GUI interface to distribute data by means of subscription.

Test Configuration: Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input: Select distribute data by means of subscription option from GUI interface

Output: Data is distributed to all the listed subscribers from the subscription list. Administrative log reflects an entry for the above function.

Expected Results: This test is considered successful when the data is received by the individual users from the subscription list.

**Test Case 5 Renew subscription (T216-1.02.05)**

The following test demonstrates the ability to support renewal of subscriptions. The client will provide GUI interface to renew subscription.

Test Configuration: Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input: Select renew subscription option from GUI interface

Output: Subscription is renewed for the user. Administrative log reflects an entry for the above function.

Expected Results: This test is considered successful when the user's subscription is renewed.

**Test Case 6 Update subscription (T216-1.02.06)**

The following test demonstrates the ability to support updating of subscriptions with the most current information such as changed information. The client will provide GUI interface to update subscription.

Test Configuration: Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input: Select update subscription option from GUI interface

Output: Subscription is updated with the most current information so as to accurately distribute information to user. Administrative log reflects an entry for the above function.

Expected Results: This test is considered successful when the updated information is saved with the most current information.

**Test Case 7 List subscription (T216-1.02.07)**

The following test demonstrates the ability to support listing of subscriptions. The client will provide GUI interface to list subscription.

Test Configuration: Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input: Select list subscription option from GUI interface

Output: Subscriptions are listed showing all the users that have subscribed. Administrative log reflects an entry for the above function.

Expected Results: This test is considered successful when all the users subscriptions have been displayed.

**5.37.2.3 Sequence 3 - Application Programming Interface Services**

The following tests verify the capabilities of the following services to be able to provide interfaces for service requests and submission of requests for administrative services. Testing is performed to verify those API's exist for the LIM, DIM and Data dictionary.



**Test Case 4**      **Verify API for submission of requests for administrative (DIM) (T216-1.03.04)**

The following test demonstrates the ability for the system to provide application programming interface for submission of requests for administrative services by the DIM.

Test Configuration:    Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input:                    User Interface. (Interface may be simulated or stubbed). Send an administrative request thru the DIM User Interface.

Output:                    Administrative request sent to destination. DIM log contains an entry for the successful submission of administrative request.

Expected Results:      Administrative request sent.

**Test Case 5**      **Verify API for submission of service requests (DD) (T216-1.03.05)**

The following test demonstrates the ability for the system to provide application programming interface for submission of service requests by the DD.

Test Configuration:    Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input:                    User Interface. (Interface may be simulated or stubbed). Send a service request thru the DD User Interface.

Output:                    Service request sent to destination. DD log contains an entry for the successful submission of service request.

Expected Results:      Service request sent.

**Test Case 6**      **Verify API for submission of requests for administrative service (DD) (T216-1.03.06)**

The following test demonstrates the ability for the system to provide application programming interface for submission of requests for administrative services by the DD.

Test Configuration:    Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input:                    User Interface. (Interface may be simulated or stubbed). Send an administrative request thru the DD User Interface.

Output:                    Administrative request sent to destination. DD log contains an entry for the successful submission of administrative request.

Expected Results:      Administrative request sent.



Expected Results: Administrative request sent.

**Test Case 10            Verify API for submission of service requests (GATEWAY)  
(T216-1.03.10)**

The following test demonstrates the ability for the system to provide application programming interface for submission of service requests by the GATEWAY.

Test Configuration: Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input: User Interface. (Interface may be simulated or stubbed). Send a service request thru the GATEWAY User Interface.

Output: Service request sent to destination. GATEWAY log contains an entry for the successful submission of service request.

Expected Results: Service request sent.

#### **5.37.2.4 Sequence 4 - Gateway General Function**

The following tests verify the administrator's capabilities to manipulate the service request by performing saves, suspend, terminate, and resume processing of service requests.

**Test Case 1            Save the result of a service request for later reuse (T216-  
1.04.01)**

This test verifies the testers ability to save the results of a service request for later reuse. After a service request has been carried out, the result is stored into a file or later.

Test Configuration: Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input: Initiate command to save results of a service request.

Output: Service requests results are stored into a file for later reuse. Log file is updated.

Expected Results: Tester is able to store the result onto a file for later reuse.

**Test Case 2            Terminate processing of active or suspended service request  
(T216-1.04.02)**

This test verifies the testers ability to terminate processing of an active or suspended service request. The service request that has already been issued and is still active or one that has been suspended will be terminated.

Test Configuration: Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input: Initiate command to terminate processing of any particular service request that is either active or has been suspended.

Output: The active or suspended service request will automatically be terminated and will be taken off the queue. Log is updated.

Expected Results: Tester is able to terminate active or suspended service request.

**Test Case 3 Suspend processing of active service request (T216-1.04.03)**

This test verifies the testers ability to suspend processing of an active service request. The service request that has already been issued and is still active will be suspended.

Test Configuration: Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input: Initiate command to suspend processing of an active service request.

Output: The active service request will automatically be suspended. Log is updated.

Expected Results: Tester is able to suspended an active service request.

**Test Case 4 Resume processing of a previously suspended service request (T216-1.04.04)**

This test verifies the testers ability to resume processing of a previously suspended service request. The service request that has already been suspended can be resumed back to an active status.

Test Configuration: Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input: Initiate command to resume processing of any particular suspended service request.

Output: The suspended service request is automatically resumed and back to active status. Log is updated.

Expected Results: Tester is able to resume suspended service request.

**Test Case 5 Estimate the resources required to execute a pending service request (T216-1.04.05)**

This test verifies the administrator's capabilities to estimate the resources required to execute a pending service.

Test Configuration: Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input: From the user interface. Select option to estimate resource required to execute a service

Output: Estimated resources are automatically chosen

Expected Results: Estimated resources are chosen for the selected pending service

**Test Case 6**                    **Report the status of service requests submitted to the gateway (T216-1.04.06)**

This test verifies the capability to report status of service request submitted by the Gateway. This test case demonstrates the capability to retrieve status of service requests that are visible to the Gateway. If the user wants to know the status of the service requests, user would interface with an object on the desktop representing the retrieval. This object will interface with service request to obtain the status information for which the user requested.

Test Configuration: Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input: Inputs includes the user intimating the request by clicking on the status of service request established by Gateway object.

Output: Outputs include information regarding the status of service requests.

Expected Results: This test is deemed successful if the status of the retrieval request is returned to the user.

**Test Case 8**                    **View gateway log for all sessions and service request activities (T216-1.04.08)**

This test demonstrates ability to view all the different logs for sessions and service requests. Entries in the log are sorted by data type and time frame.

Test Configuration: Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input: From the science workbench. View log for all the session and service request.

Output: Entries made during any session or service request is logged. Log displays entries of several session and service request functions.

Expected Results: Log contains sessions and service request functions.

**Test Case 9**                    **Provide current result set. (T216-1.04.09)**

This test verifies the testers ability to view current result set of a search request.

Test Configuration: Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input: Initiate command to view the current result set of a search query.

Output: Current result set is displayed. Log file is updated.

Expected Results: Current result set is displayed with the most current information.

### **5.37.2.5 Sequence 5 - Sessions (Gateway)**

The following tests verify the capabilities to establish sessions with the Gateway. Some of the sessions functions include suspend, open, resume, close etc., Testing will be performed to check whether each function is carried out by the Gateway.

#### **Test Case 1 Establish a client session (T216-1.05.01)**

This test verifies the capability to establish a client session by GATEWAY. Testing verifies the ability to open a client session.

Test Configuration: Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input: User Interface. (Interface may be simulated or stubbed). Execute command to establish client session.

Output: Client session is established as per request. GATEWAY log contains an entry for the successful client session opened.

Expected Results: Session established.

#### **Test Case 2 Suspend an ongoing client session (T216-1.05.02)**

This test verifies the capability to suspend an ongoing client session. Testing will be checked to confirm whether an ongoing client session is suspended.

Test Configuration: Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input: User Interface. (Interface may be simulated or stubbed). Execute command to suspend an ongoing client session.

Output: Client session is suspended as per request. GATEWAY log contains an entry for the successful client session suspension.

Expected Results: Session suspended.

#### **Test Case 3 Resume a suspended client session (T216-1.05.03)**

This test verifies the capability to resume a suspended client session. Testing will be checked to confirm whether the suspended client session is resumed.

Test Configuration: Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input: User Interface. (Interface may be simulated or stubbed). Execute command to resume suspended client session.

Output: Client session is resumed as per request. GATEWAY log contains an entry for the successful resuming of suspended sessions.

Expected Results: Session is resumed.

**Test Case 4 Terminate an established client session (T216-1.05.04)**

This test verifies the capability to terminate an established client session. Testing will be checked to confirm whether the established client session is terminated.

Test Configuration: Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input: User Interface. (Interface may be simulated or stubbed). Execute command to terminate an established client session.

Output: Client session is terminated as per request. GATEWAY log contains an entry for the successful termination of established session.

Expected Results: Session is terminated.

**Test Case 5 Report status of sessions established by it (T216-1.05.05)**

This test verifies the capability to report status of sessions established by the Gateway. This test case demonstrates the capability to retrieve status of sessions that are visible to the Gateway. If the user wants to know the status of the sessions, user would interface with an object on the desktop representing the retrieval. This object will interface with session services to obtain the status information for which the user requested.

Test Configuration: Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input: Inputs includes the user intimating the request by clicking on the status of sessions established by gateway object.

Output: Outputs include information regarding the status of sessions.

Expected Results: This test is deemed successful if the status of the retrieval request is returned to the user.

**Test Case 6**                    **Verify that sessions that have been inactive for a specified time are automatically suspended (T216-1.05.06)**

This test verifies the that inactive sessions for a specified time are automatically suspend. Testing will be checked to confirm that inactive sessions do automatically get suspended within a specified period of time.

Test Configuration:    Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input:                    User Interface. (Interface may be simulated or stubbed). Execute command to establish an active session. Leave that session for a period of time.

Output:                  The client session is automatically suspended after a period of time. Check gateway log to see when the suspension took place.

Expected Results:    Inactive client session is automatically suspended.

**Test Case 7**                    **Open multiple concurrent sessions (T216-1.05.07)**

This test verifies the capability to open concurrent sessions by the gateway. Testing verifies the ability to open several client sessions.

Test Configuration:    Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input:                    User Interface. (Interface may be simulated or stubbed). Execute command to establish a client session. Repeat the execution for several number of session.

Output:                  Client sessions are established concurrently as per request. gateway log contains an entry for the successful client session opening for all the sessions.

Expected Results:    Concurrent sessions opened.

**Test Case 8**                    **Verify multiple service request within a session (T216-1.05.08)**

This test verifies that multiple service request can be within a session. Testing will be checked to confirm that multiple service request exist within a session.

Test Configuration:    Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input:                    User Interface. (Interface may be simulated or stubbed). Open several service request within that session.

Output:                  Several service request appear within one session.

Expected Results: This test is deemed successful when several service request appear within a session.

**Test Case 9 Specify a time-out period for inactive sessions (T216-1.05.09)**

This test verifies the capability to specify a time-out period for inactive sessions. Testing will be checked to confirm that the specified time-out period is accurate when implemented.

Test Configuration: Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input: User Interface. (Interface may be simulated or stubbed). Bring up the sessions configuration menu to change the time-out period for inactivity. Wait for the time-out period.

Output: Client session times out after specified period of time. Gateway log indicates changes to the session configuration file.

Expected Results: Client session times-out after specified period of time.

**Test Case 10 Suspend all sessions active sessions (T216-1.05.10)**

This test verifies the capability to suspend all active client sessions. Testing will be checked to confirm whether all active sessions.

Test Configuration: Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input: User Interface. (Interface may be simulated or stubbed). Execute command to suspend all active sessions.

Output: All client sessions are suspended as per request. GATEWAY log contains an entry for the successful suspension of all active sessions.

Expected Results: All active session are suspended.

**Test Case 11 Resume all sessions previously suspended (T216-1.05.11)**

This test verifies the capability to resume all suspended client sessions. Testing will be checked to confirm whether all the suspended sessions have been resumed.

Test Configuration: Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input: User Interface. (Interface may be simulated or stubbed). Execute command to resume all suspended client sessions.

Output: All client sessions are resumed as per request. GATEWAY log contains an entry for the successful resuming of all suspended sessions.

Expected Results: All session is resumed.

**Test Case 12 Terminate all active or suspended sessions (T216-1.05.12)**

This test verifies the capability to terminate all active or suspended sessions. Testing will be checked to confirm whether the all active sessions or suspended sessions have been terminated.

Test Configuration: Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input: User Interface. (Interface may be simulated or stubbed). Execute command to terminate all active or suspended session.

Output: All client session is terminated as per request. GATEWAY log contains an entry for the successful termination of all active or suspended session.

Expected Results: All sessions are terminated.

**Test Case 13 Send notification to users via email in the event that user request is canceled (T216-1.05.13)**

This test verifies the testers ability to send notification to users via email in the event that the user request is cancelled. The user will get an email of if the user's request is cancelled.

Test Configuration: Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input: Initiate command to send email to user after user request is cancelled.

Output: Email sent to user and received by user upon cancellation of user request. Log file is updated.

Expected Results: Email sent to user after request cancellation.

**Test Case 14 Restore sessions after interruption (T216-1.05.14)**

This test verifies the capability to restore sessions after interruptions. Testing will be checked to confirm whether the client session is restored after the interruption.

Test Configuration: Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input: User Interface. (Interface may be simulated or stubbed). Injection interruption into the system. Execute command to restore client session.

Output: Client session is restored after the interruption. Gateway log contains an entry for the successful restoration of the client sessions.

Expected Results: Sessions are restored back to normal.

### 5.37.2.6 Sequence 6 - General Request Processing

The following tests verify the administrator's capabilities to perform data and service request functions such as queuing, viewing acknowledging, setting threshold, deleting, modifying, and canceling request. This sequence also demonstrates the capability to send acknowledgment of order and data availability at the time the order is placed, answer user request of status and handle notification of product distribution to users.

#### **Test Case 1                      Data request with (User Id, Request Priority and Data Id (T216-1.06.01))**

This test verifies the tester ability to initiate a data request. The test will confirm that User Id, Request Priority and Data Id are all present.

Test Configuration: Hardware - workstations  
Software - Scientist workbench, Storage device, Desktop manager

Input: Data request with (User Id., Request Priority and Data Id

Output: Data Availability Notification to signal availability of data.

Expected Results: Tester is able to access data via through the internet

#### **Test Case 2                      Service request with (User Id, Request Priority and Data Id (T216-1.06.02))**

This test verifies the tester ability to initiate a service request. The test will confirm that User id, Request Priority and Data Id are all present.

Test Configuration: Hardware - workstations  
Software - Scientist workbench, Storage device, Desktop manager

Input: Service request with (User Id., Request Priority and Data Id

Output: Service Notification to signal service request processed. Log is updated.

Expected Results: Tester is able to view the service request processed.

#### **Test Case 3                      Queue Service request (T216-1.06.03)**

This test verifies the tester ability to queue service request. The test will confirm to see whether all the service requests that have been initiated are all queued up for processing.

Test Configuration: Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input: Enter several service request with (User Id., Request Priority and Data Id

Output: Service notification to signal all the service request initiated. All the service request will be queued for processing in the queue buffer. Log is updated.

Expected Results: Tester is able to view all the service request queued in the buffer waiting to be processed.

**Test Case 4 View queued service request (T216-1.06.04)**

This test verifies the tester ability to view queued service request. The test will be able to view all the already queued service requests waiting to be processed.

Test Configuration: Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input: Enter command to view queued service request in the buffer

Output: Service requests information is displayed. Log is updated.

Expected Results: Tester is able to view the contents all the service request queued in the buffer waiting to be processed.

**Test Case 5 Acknowledge receipt of service req. from local or remote clients (T216-1.06.05)**

This test verifies the tester ability to acknowledge receipt of service request from local or remote clients. The test will be able to issue an acknowledgment stating receipt of the service request.

Test Configuration: Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input: Enter command to acknowledge receipt of the service request.

Output: A confirmation message is displayed to show receipt. Log is updated.

Expected Results: Tester is able to acknowledge service request.

**Test Case 6 Set threshold for number of service request to be queued (T216-1.06.06)**

This test verifies the tester ability to set the threshold for the number of service request to be queued. The test will be able to define the number of service request that can be queued at a time.

Test Configuration: Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input: Enter the number of service request that can be queued into the service request configuration window.

Output: The number of service request that can be queued at a time will be set to the definedInput by the tested. Log is updated.

Expected Results: The queue will only store the predefined number of service request in the configuration window.

**Test Case 7 Delete a queued data request (T216-1.06.07)**

This test verifies the tester ability to delete a queued service request. The test will be able to delete individual queued service request before they are processed.

Test Configuration: Workstation, x-terminal, storage devices, X-runner tool

Input: Enter command to delete queued service request in the buffer

Output: Service requests information is deleted from queue. Log is updated the deletion.

Expected Results: Tester is able to view the contents all the service request queue and the deleted service request is not displayed.

**Test Case 8 Update priority Info. for a queued service request (T216-1.06.08)**

This test verifies the tester ability to update priority info. for a queued service request. The test will be able to change the priority settings for a particular service request.

Test Configuration: Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input: Enter command to change the priority settings for a specified queued service request in the buffer

Output: The queued service request priority will reflect the change. Log is updated with the change.

Expected Results: Tester is able to see that the queued service request's priority has been changed.

**Test Case 9 Modify any field in a queued service request (T216-1.06.09)**

This test verifies the tester ability to modify any field in a queued service request. The test will be able to change any field within the queued service requests waiting to be processed.

Test Configuration: Hardware - workstations  
Software - Scientist workbench, Storage device, Desktop manager

Input: Change any of the fields within the queued service request.

Output: Queued service request field is changed to reflect adjustment. Log is updated.

Expected Results: Tester is able to view the fields of the queued service request and see that the fields changed.

**Test Case 10      Cancel any service request (T216-1.06.10)**

This test verifies the tester ability to cancel any service request. The test will be able to initiate a cancel command to get rid of the service request before it is processed.

Test Configuration: Hardware - workstations  
Software - Scientist workbench, Storage device, Desktop manager

Input: Enter command to cancel service request in the buffer

Output: Service request is canceled. Log is updated to reflect cancellation.

Expected Results: Tester is able to view the contents all the service request queued in the buffer to see that the service request have been canceled.

**Test Case 11      Delivery status request (T216-1.06.11)**

This test case demonstrates the capability for users to submit requests for periodic delivery of data stored at the data servers and advertised through advertising service.

Test Configuration: Hardware - workstations  
Software - Scientist workbench, Storage device, Desktop manager

Input: Inputs includes the submitting the request for the incessant delivery of data.

Output: Outputs include the delivered data at intervals as specified by the requests.

Expected Results: This test is deemed successful when the request for periodic delivery is received and the specified data is transmitted in intervals.

**Test Case 12      Product distribution status (T216-1.06.12)**

Users, after ordering products, may request status of the distribution of the products. This test illustrates the capability to obtain product distribution status for ECS data products for the product requesters.

Test Configuration: Hardware - workstations

Software - Scientist workbench, Storage device, Desktop manager

Input: Inputs includes the user initiating the request status of distribution of the products by clicking the corresponding object.

Output: Outputs include information regarding the status of the request for distribution of the products.

Expected Results: The user submits the request for the status of distribution. This test is deemed successful if the status of the distribution of products is displayed.