**EOS GROUND SYSTEM
INTEGRATION AND TEST
(EGS I&T)**

AverStar Inc.,
A Titan Company

**REPORT OF THE INTERFACE CONFIDENCE TEST (ICT)
BETWEEN ECS AND THE ASTER GROUND DATA SYSTEM
ECS – ASTER INTEROPERABILITY TEST
(ICT12.3)**

February 16, 2001

REPORT OF THE ICT BETWEEN ECS AND ASTER GDS
ECS – ASTER INTEROPERABILITY TEST
(ICT 12.3)

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1.0 <u>Purpose</u>

The purpose of this document is to provide a report of the interoperability testing performed between Earth Core Systems (ECS) and the Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER) Ground Data System (GDS) located in Japan. The testing was conducted from 30 January - 9 February 2001, using the EGS I&T Interface Confidence Test (ICT) 12.3 Revision B, November 2000, as the basis for interface verification. This test was performed as a dry run.

2.0 Background

Users in the United States access the ASTER GDS databases via the ECS Data Gateway (EDG) client. The EDG user will perform inventory searches against the ASTER GDS database and place orders for available data including browse products. All messages sent to the ASTER are transmitted in Object Data Language (ODL).

An ECS user will access the EDG tool to submit search and order requests to the ASTER GDS. This test was performed at the ECS Verification and Acceptance Test Center (VATC) and the Performance Verification Center (PVC), which was used as the simulated System Monitoring Center (SMC). The system had been deployed to the EROS Data Center (EDC) Distributed Active Archive Center (DAAC) but because of the many problems associated with the On Demand Tool a decision was made to return to the VATC for further testing and for access to the developers.

3.0 Test Objectives

The objectives of this test were to:

Submit INVENTORY_SEARCH_REQUEST using the following options:
- Global Search with no temporal/spatial constraints
- Spatial Search by RANGE_LOC
- Spatial Search by POLYGON_LOC and Map Projection
- Temporal Search – with start and stop date
- BROWSE_ONLY
- DAY_NIGHT (Day only, Night only, Day/Night)
- XAR_ID (after a XER_ID is returned from previous request
- CLOUD_COVERAGE
- GLOBAL_GRANULES_ONLY

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- BROWSE_REQUEST and INTEGRATED_BROWSE_RESULT
- Submit Browse Request and check for acknowledge messages
- Standard PRODUCT_REQUEST
    - Submit requests for granules based on inventory results returned
    - Request different media types
- Check formats against ICD 505-41-34 Section 6.2.1.2.2.

ASTER GDS to ECS
- Submit price estimate request
- Submit directory searches
- Submit INVENTORY_SEARCH_REQUEST to ECS
- Submit PRICE_ESTIMATE_REQUEST to ECS
- Submit PRODUCT_REQUEST to ECS
- Submit BROWSE_REQUEST to ECS

4.0 Test Results

The test was executed in TS2 mode in the VATC and the TS3 mode in the PVC using ECS version 6A.03 software with the following patches:
- DMS.01
- DMS.02

Several inventory searches were submitted to the ASTER GDS and the results were as follows:
- Spatial Search by RANGE_LOC – Search for data using this option was successful.
- Spatial Search by POLYGON_LOC & Map Projection – Search for data using this option was successful.
- Temporal Search –using start and stop date – Search for data using this option was successful.
- BROWSE_ONLY was successful.
- DAY_NIGHT (Day only, Night only, Day/Night) – was not fixed with the new installed version of EDG – search for data using this option was not successful. NCR29740 was written.
- XAR_ID – This option was not available through the EDG for the ASTER data.
- CLOUD_COVERAGE – This option was not available through the EDG for THE ASTER data.
- GLOBAL_GRANULES_ONLY – search for data using this option was successful.
- Standard PRODUCT_REQUEST was successful.

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- ODLs were not available in the log files for analysis. NCR 29810 was written

The results for the ASTER GDS to ECS are as follows:
- After DMS02 was installed, DIRECTORY_SEARCH_REQUEST to ECS was successful.
- Price Estimate was not successful because the maximum length per string of PRICE_COMMENT keyword is over 128 bytes in the results ODL, which is not in accordance with the ICD which states that the maximum length should be less than 128 bytes.
- The characters of DATASET_ID keyword in PRODUCT_DELIVERY group are all upper case characters instead of mixed case characters.

The following requests are still being tested by the ASTER:
- INVENTORY_SEARCH_REQUEST to ECS
- PRICE_ESTIMATE_REQUEST to ECS
- PRODUCT_REQUEST to ECS
- BROWSE_REQUEST to ECS

Following is a list of data types tested. For more information consult the ICT test package.

- AST LIA
- AST LIB

5.0 Test Summary
A summary of the test results is as follows:

- There were no requirements verified during this test because the testing was done between VATC, PVC and the ASTER GDS. Requirements will be verified when the system is tested at the DAAC.
- Test artifacts are available by request to authorized personnel.
- An ECS user was able to search and order products from the ASTER GDS.
- Six NCRs were generated. See attachment 2 for listing of NCRs.
- Eight objectives were verified during this test.
- Global Search no temporal/spatial constraints
- Spatial Search by RANGE_LOC
- Spatial Search by POLYGON_LOC and Map Projection

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♦ Temporal Search -start and stop date
♦ BROWSE_ONLY
♦ GLOBAL_GRANULES_ONLY
♦ Standard PRODUCT_REQUEST
 ❖ Submit requests for granules based on inventory results returned
 ❖ Request different media types

6.0 Test Recommendations
The following are recommendations based on the results of the testing performed:
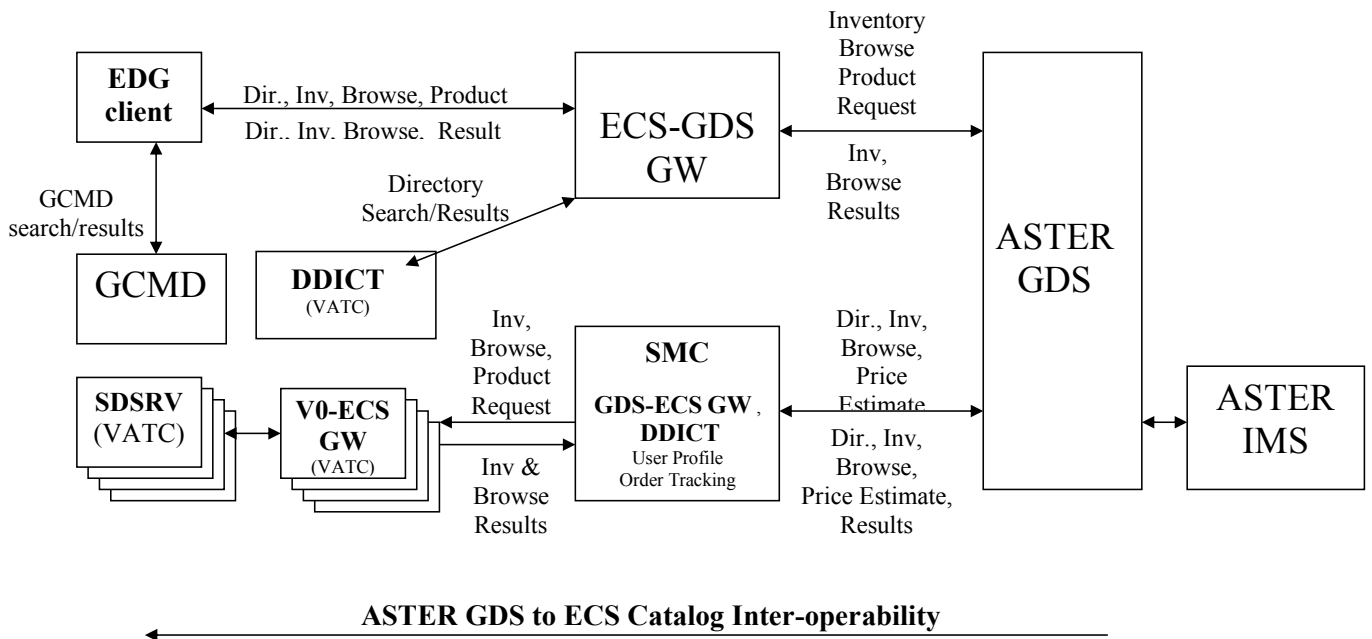
- Requests for non-standard order should be re-tested at the VATC once problems are resolved before reinstalling the tool at the EDC DAAC.
- Test executable or patches (fixes for NCRs relating to the ASTER Interoperability) need to be delivered and installed at the DAAC before the tool can be re-tested at the DAAC.

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7.0 Reference Diagram

ECS EDC - ASTER GDS 2W Inter-Operability
Test Configuration Information
ECS to ASTER GDS Catalog Inter-operability

ASTER GDS to ECS Catalog Inter-operability

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Attachment 1

Requirements

There were no requirements verified during this test because the test was done in preparation for a formal run.

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Attachment 2

Discrepancies

The following is a list of discrepancies noted during the execution of this test.

Discrepancy	Description
ECSed29731 Sev2	PACKAGE_SIZE = "123" is coded as a String type in the ODL results sent to the ASTER instead of an Integer type.
ECSed29733 Sev2	According to the ECS-ASTER ICD the maximum bytes per string in PRICE_COMMENT group should not exceed 128 bytes. The RESULT ODL sent to the ASTER from ECS exceeds 128 bytes.
ECSed29734 Sev2	The DATASET_ID should consist of Upper and Lower Case instead of all Upper Case.
ECSed29740 Sev2	When performing inventory searches with the Day/Night, Day, and Night flags set, only Night granules returned.
ECSed29820 Sev3	GDS sent Inventory Search Request to ECS gateway. But GDS didn't receive anything from ECS gateway for 10 minutes. Therefore GDS shut downed socket. (The value of timeout is 10 minutes)
ECSed29810 Sev3	Even though the ennvar file is modified and the Debug level of the ECS-GDS gateway server is set to 3 all ODLs does not show up in the Debug log file.