

420-WP-004-001

ECS Response to NASA DID 304 SDPS Comments

White Paper

White paper - Not intended for formal review
or Government approval.

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Abstract

This white paper is a response to comments received from NASA regarding the SDPS DID 304 published for PDR.

Keywords: Level-4, Requirement, Segment Requirements Specification, SDPS

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Abstract

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1. Introduction

1.1 Purpose

The purpose of this white paper is to respond to comments made by NASA in a letter dated May 9, 1995. The letter was from Rebecca L. Ragusa to R. L. Raisola. The subject line of that letter was "NAS5-60000; SDPS Requirements Specification for the ECS Project, March 1995. These comments were made against the PDR version of SDPS's DID 304.

1.2 Organization

This paper is primarily a table presented in chapter 2 with NASA's comments in the left column and ECS's responses to these comments in the right column.

1.3 Review and Approval

This White Paper is an informal document approved at the Office Manager level. It does not require formal Government review or approval; however, it is submitted with the intent that review and comments will be forthcoming.

Most responses presented here are or will be reflected in the RTM database. Some comments and their responses cannot be reflected in the RTM database. Comments such as the grouping of requirements would not be apparent until the requirements are published again. This publication is planned for the Release B IDR timeframe as the Release B SDPS/CSMS Segment Requirements Specification, DID 304-CD-005-001.

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2. Response

2.1 ECS Response

Table 2.1-1 presents the ECS response to comments in a NASA letter dated 5/9/95 regarding the NASA review of the PDR version of SDPS DID 304.

NOTE: The "NASA Comment" column was scanned in from hard copy and, therefore, may contain errors as a result of this process which may not have been detected and corrected manually. Occasionally the text of a referenced requirement was added to the NASA Comment column in square [] brackets.

Table 2.1-1. ECS Responses to NASA Comments (1 Of 15)

NASA Comment	ECS Response
<p>1) The Level 4 requirements traced to DADS1350 and DADS 1375 need to be expanded.</p> <p>(a) The system should allow operators to monitor the number of media access for those tapes that include in their format the number of media accesses. This is important so that the operators know to inspect cassettes to check for wear (for example, cracks), and to identify possible causes of failure.</p> <p>(b) The system should allow for tape "sniffing". For tapes that have not been access over an operator-set period of time, a random sample (not all of the tapes) will be checked.</p> <p>(c) The term "refresh" needs to be defined in a glossary. Does it imply writing to a fresh tape, or can it mean re-writing to the same tape. Is the data copied to disk, then copied to tape, or can it be copied directly tape-to-tape?</p>	<p>(a) Not sure that we understand this statement, but operators can generate reports using the number of accesses and media form factor as key parameters.</p> <p>(b) Already a function planned for a post Release A version. The existing L4 rqmts traced cover tape viability of which tape "sniffing" is one method.</p> <p>(c) Refresh will be added to the glossary. Yes, it is writing a fresh tape. Capabilities exist or are in progress by vendors to do it either tape-to-tape or tape-to-disk-to-tape. Design trades are in progress.</p>
<p>2) Need TBDs tracked/filled in for requirements: S-DSS-00890, S-DSS-00895, S-DSS-00910, S-DSS-00915, S-DSS-03310, S-DSS-03320, S-DSS-03330, S-DSS-03340, S-DSS-60970, S-DSS-61020, S-INS-00740, S-INS-60210, S-INS-60720, S-INS-60725, S-INS-60730, S-INS-60735, S-INS-60740, S-INS-60745, S-INS-60750, S-INS-60755</p>	<p>The TBDs have been filled in for some requirements. The remaining TBDs are being tracked and the requirements are being updated as the data becomes available.</p>

Table 2.1-1. ECS Responses to NASA Comments (2 Of 15)

NASA Comment	ECS Response
<p>3) The following Level 3 requirements are not traced to Level 4 requirements: Critical Requirement: DADS2030 Each DADS shall maintain a list/schedule of data to be received from EDOS.</p> <p>Other Requirements: DADS1950 Each DADS shall access, via the system database at the SMC, the allocation of ground event functions and capabilities to each site/element. DADS1960 Each DADS shall access, from the SMC via the system database, the priorities used in scheduling ground events. DADS1970 Each DADS shall access from the SMC, via the system database, the product thread information for each standard and quick-look product generated by EOSDIS.</p> <p>DADS2110 The DADS shall provide scheduling information to the SMC</p> <p>DADS2120 The DADS shall have access to the system wide scheduling information. Such information includes, at a minimum, ESDIS Policies and Procedures regarding instrument and ground event scheduling, other element plans and schedules, element allocations of ground event functions and capabilities, product thread information, and scheduling directives for testing, maintenance, and emergency situations.</p> <p>DADS2180 Each DADS shall maintain a list/schedule of reprocessed data</p>	<p>Requirements S-INS-00319 and S-INS-00320 are now traced to DADS2030 in the current RTM baseline.</p> <p>Release B L4 requirements are being developed to cover the Release B L3 RbRs DADS1950 and DADS1960. DADS1970 is being recommended for deletion since the new architecture uses a different approach.</p> <p>L4 traces have been added in the RTM database</p> <p>DADS2120 is satisfied through manual access to this information at Release A, with L4s traced at Release B for automated implementation.</p> <p>Requirements S-DSS-00690, S-DSS-04220, S-DSS-04230, S-DSS-04360, S-DSS-10095, S-DSS-10238, and S-DSS-03600 are now traced to DADS2180 in the current RTM baseline.</p>

Table 2.1-1. ECS Responses to NASA Comments (3 Of 15)

NASA Comment	ECS Response
<p>4)PGS requirements not traced in DID 304: PGS-0420-PGS shall provide tools to analyze system performance (maybe now allocated to CSMS) PGS-0430- The PGS shall utilize the LSM to monitor and account for data and information transfer between it and other EOSDIS elements. (maybe now allocated to CSMS) PGS-0900- send test products to SCF for analysis PGS-0910- The PGS shall have the capability to support analysis of algorithm test results. PGS-0925-The PGS shall validate algorithms used for conversions, calibrations and transformations of EOS engineering data. PGS-1010- The PGS shall provide mass storage allocation subroutines that provide algorithms with a means for dynamic allocation of storage for temporary files. PGS-1015 - The PGS shall provide ancillary data access subroutines that provide Standard Product software access to ephemeral data (e.g., solar, lunar, and satellite ephemeris), Earth rotation data, and time and position measurement data These subroutines shall perform operations such as: a Interpolation b. Extrapolation c. Coordinate system conversion PGS-1020- The PGS shall provide mathematical libraries including: a Linear algebra and analysis (e.g., LINPAC, IMSL) b. Statistical calculations (e.g., SAS, SPSS) PGS-1025- The PGS shall provide a Science Processing Library containing routines such as: a Image processing routines b. Data visualization routines c. Graphics routines PGS-1030 The PGS shall provide a toolkit to the SCF containing versions of the routines specified in requirements PGS 0970 to PGS-1020.</p>	<p>PGS-0420, -0430, -0900, 0910, and -1025 are now traced in RTM.</p> <p>PGS-0925 is being recommended for deletion as it specifies only that ECS perform testing on software it generates.</p> <p>PGS-1010, 1015, 1020, and -1030 are satisfied by SDP Toolkit requirements as published in the SDP Toolkit Requirements Specification document, June 1995. Requirements from this document will be loaded in the RTM database.</p>

Table 2.1-1. ECS Responses to NASA Comments (4 Of 15)

NASA Comment	ECS Response
5)The RMA requirements need specificity.	<p>The Level 3 functional RMA requirements are mapped to hardware, usually across subsystems, to form "RMA strings" (reliability block diagrams). The availability modeling report (DID 515) documents the use of these RMA strings. The RMA modeling results are then compared to the Level 3 RMA requirements to verify compliance.</p> <p>A level 4 RMA requirement will be generated for each hardware CI (Configuration Item) that supports an "RMA string". For example, the Level 4 hardware CI which is required to support the Level 3 functional RMA requirement, would be written restating the Level 3 requirement: "The DRPHW CI shall be configured to support the SDPS function of Archiving and Distributing Data's Availability requirement of .98 and a Mean Down Time of < 2 hours during times of staffed operation."</p> <p>This allows the "RMA strings" to expand in support of the growth and/or changes of the hardware architecture across releases while making the subsystem designer aware that their design is part of a larger "RMA string" affecting other subsystems.</p>
6) The HMI requirements are not explicitly documented. For example, the CSMS will collect usage stats, but requirements for a HMI to query them or generate reports is missing.	L4 requirements do not exist stating explicitly what the HMI is to review management data. This is a design issue. L4 reporting requirements do exist for all forms of management data.
7 Requirements for no degradation of functionality or service as compared to V0 is missing. Specific Level 4 requirements need to be generated.	L4 requirements covering service degradation will be added.
8) All user interfaces that will be accessed by a given user group shall be consistent (i.e., adhere to common style and usage requirements) and compatible (i.e., usable side-by-side on the same screen).	Requirements in the PDR DID 304 like S-CLS-00010, -01480, and -01500 were intended to provide this consistent and compatible interface. But COTS may not provide consistency to that level. This is an issue being worked per an HMI process agreed upon by ESDIS SDPS and M&O.
<i>Additional Comments to DID 304, SDPS Requirements Specification for the ECS Project</i>	
Requirements S-DSS-03004 and S-DSS-03006 should not be traced to DADS0130.	This trace is removed in the current RTM baseline.
Level 4 requirements traced to DADS0140 do not include receiving data in addition to receiving requests to insert data.	Requirements have been added and now exist in the current RTM baseline.

Table 2.1-1. ECS Responses to NASA Comments (5 Of 15)

NASA Comment	ECS Response
Requirement S-DSS-01520 is vague and should be rephrased. If the requirement means that notification will be through a bulletin board, it should be so stated.	This requirement is one of many addressing notification. Specific cases are specified in additional requirements.
Level 4 requirements traced to DADS0475 do not include storage of documents.	Requirements have been added and now exist in the current RTM baseline.
Requirement S-DSS-21365 states that the software CI STMGT will store (not "will manage storage onto media") all data products in Appendix F, which would include both LIS level 0 and level 1A data.	Corrected and in the current RTM baseline.
Requirements S-DSS-00770, -00790, and -00810 specify that vendor supplied tools must be used.	The tools being used to meet the performance monitoring L3 requirements will be vendor supplied performance monitoring tools. There are currently no plans to write specific tools for these functions because tools would be Operating System and host platform dependent. Thus, functionality across a heterogeneous system could not be assured.
Level 4 requirements traced to DADS0901 require that data distribution records the cost of data distribution, but does not appear to include a mechanism for receiving information on cost or computing cost.	Requirements have been added and are pending CCR approval for addition to the current RTM baseline.
Level 4 requirements traced to DADS 1070 require STMGT to accept Archive Status Requests, but do not required it to respond.	Corrected and in the current RTM baseline.
Level 4 requirements traced to DADS1180 do not specify that data requests must be acted upon: only accepted. Data store requests are neither acted-upon or accepted.	Corrected and in the current RTM baseline.
Not clear how STMGT (software) will refresh archive media (S-DSS-20330).	The current perspective of media refreshing is that the older medium is recopied to a blank medium of the same form factor or it may be recopied to a newer technology in a different form factor.
Level 4 requirements traced to DADS 1400 interpret "Transmission Difficulties" as too high a data volume coming into Ingest, however, there are other potential difficulties.	At PDR DADS1400 was traced to S-INS-00380, -00390, and - 00450 which includes number of ingest requests and number of data transfer retry attempts in addition to volume of data. The trace has since been extended to include S-INS-00340 and S-INS-00060 which address various other specific transmission difficulties.
Level 4 requirements traced to DADS 1450 do not include concept of automatically screening archive for missing data. If data is missing, "STMGT shall automatically request the data item be re-ingested from EDOS": to whom will this automatic request be made? EDOS? Operations Staff? A bit bucket?	Requirements exist in the current RTM baseline.

Table 2.1-1. ECS Responses to NASA Comments (6 Of 15)

NASA Comment	ECS Response
Requirement S-DSS-00650 states the SDSRV "Shall expect an acknowledgment", but does not identify an action if no acknowledgment is received.	True, this requirement states one of a number of expectations when a request is sent. It is mapped with several others in the current RTM baseline that perform logging, etc. for each L3 requiring these capabilities. There is a separate requirement in the existing RTM baseline to perform actions when no acknowledgment is received.
Level 4 requirements traced to DADS1530 do not include files that have been staged.	As per the ECS design, staged files are managed by WSHW CI and SDSRV CSCI, not by the STMGT CI and DRHW CI.
Requirement S-DSS-21510 is not implementable. The system must be able to handle an unbounded data volume without architecture or design change. (It specifies that it must be possible to double the capacity without design or architecture changes, but since no base capacity is specified, it must be possible to double an already "doubled" system.) Without a specified and approved baseline for data volumes, it is meaningless to require the system to be able to handle double the unspecified data volumes. However, in Appendix E, Tables E-2, E-3, and E-5 do at least partially specify a Release A data volume baseline. If this baseline is completed and approved, then the requirement S-DSS-21510 becomes meaningful and can be tested	We agree that a requirement that can be interpreted that we can store ANY (unbounded) amount of data without architecture change is not implementable, and requires that a data volume baseline exist to avoid this interpretation. However, the intent is to produce such a baseline for each release in time for design review. Developing volume estimates is an ongoing effort between ECS, ESDIS, and the ITs. A complete, approved technical baseline for Release A now exists and is reflected in the updated L4 requirements baseline, so requirement S-DSS-21510 is now indeed meaningful for Release A.
The requirements traced to requirement DADS2070 should support an automated process. [DADS2070 Each DADS shall interact with EDOS, SDPF, and SMC to resolve schedule conflicts.]	ECS is not getting schedules any more from SDPF and EDOS, so schedule conflicts will not be identifiable. The requirement has become obsolete, and ECS plans to discuss with ESDIS the possibility of deleting DADS2070.
The requirements traced to requirement DADS2270 should support an automated process (scheduling provided by the system, not by the operators). [DADS2270 Each DADS shall provide, on a scheduled basis, an off-site backup copy of all EOS data which would be impossible or difficult to recover in case of loss (e.g., ancillary data, metadata, command history, algorithms, engineering data, calibration data, systems and applications software, selected data products, depending on need).]	The entire idea of off site backup is being revisited by NASA due to cost constraints. A fully automated process supports the key files for the STMGT CIs major COTS component. Mostly automated processes for these capabilities are being provided. Full automation is limited since all data considered critical to a DAAC is site specific.
Requirement S-DSS-30710 is too vague on what an appropriate subset would be.	Appropriate subsets are data product related and are defined in the Data Type Matrix (Appendix F for each product and instrument supported.) If a product has possible subsets they will be listed in the Inventory.

Table 2.1-1. ECS Responses to NASA Comments (7 Of 15)

NASA Comment	ECS Response																																
The requirements traced to requirement DADS3055 should include the concept of automatic mounts.	Requirements exist in the current RTM baseline.																																
<p>The following Level 4 requirements appear in appendix B as being traced to Level 3 requirements, but do not have text identified in the body of the requirements document.</p> <table border="0"> <thead> <tr> <th>Level 3</th> <th>Level 4</th> </tr> </thead> <tbody> <tr><td>DADS1080</td><td>S-DSS-00490</td></tr> <tr><td>DADS1085</td><td>S-DSS-00490</td></tr> <tr><td>DADSII00</td><td>S-DSS-00490</td></tr> <tr><td>DADS0175</td><td>S-DSS-03070</td></tr> <tr><td>DADS0175</td><td>S-DSS-03080</td></tr> <tr><td>DADS0175</td><td>S-DSS-03090</td></tr> <tr><td>DADS0440</td><td>S-DSS-03415</td></tr> <tr><td>DADS0475</td><td>S-DSS-03415</td></tr> <tr><td>DADS0450</td><td>S-DSS-03510</td></tr> <tr><td>DADS0440</td><td>S-DSS-03530</td></tr> <tr><td>DADS0465</td><td>S-DSS-03530</td></tr> <tr><td>DADS0120</td><td>S-DSS-03610</td></tr> <tr><td>DADS0160</td><td>S-DSS-03670</td></tr> <tr><td>DADS2780</td><td>S-INS-00890</td></tr> <tr><td>DADS0145</td><td>S-INS 00980</td></tr> </tbody> </table>	Level 3	Level 4	DADS1080	S-DSS-00490	DADS1085	S-DSS-00490	DADSII00	S-DSS-00490	DADS0175	S-DSS-03070	DADS0175	S-DSS-03080	DADS0175	S-DSS-03090	DADS0440	S-DSS-03415	DADS0475	S-DSS-03415	DADS0450	S-DSS-03510	DADS0440	S-DSS-03530	DADS0465	S-DSS-03530	DADS0120	S-DSS-03610	DADS0160	S-DSS-03670	DADS2780	S-INS-00890	DADS0145	S-INS 00980	Corrected and in the current RTM baseline.
Level 3	Level 4																																
DADS1080	S-DSS-00490																																
DADS1085	S-DSS-00490																																
DADSII00	S-DSS-00490																																
DADS0175	S-DSS-03070																																
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DADS0450	S-DSS-03510																																
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DADS0160	S-DSS-03670																																
DADS2780	S-INS-00890																																
DADS0145	S-INS 00980																																
<p>The following Level 4 requirements are traced to nonexistent level 3 requirements:</p> <table border="0"> <thead> <tr> <th>Level 3</th> <th>Level 4</th> </tr> </thead> <tbody> <tr><td>DADS0231</td><td>S-DSS-04100</td></tr> <tr><td>DADS0231</td><td>S-DSS-04110</td></tr> <tr><td>DADS3770</td><td>S-DSS-04100</td></tr> <tr><td>DADS3770</td><td>S-DSS-04110</td></tr> </tbody> </table>	Level 3	Level 4	DADS0231	S-DSS-04100	DADS0231	S-DSS-04110	DADS3770	S-DSS-04100	DADS3770	S-DSS-04110	Typographical errors corrected and in the current RTM baseline.																						
Level 3	Level 4																																
DADS0231	S-DSS-04100																																
DADS0231	S-DSS-04110																																
DADS3770	S-DSS-04100																																
DADS3770	S-DSS-04110																																
Requirement S-DSS-21655 rephrases DADS0425 in an overly restrictive manner. It should include media rated by a professional organization	NARA and NIST are professional organizations. If others are required they must be specified by ESDIS.																																
The requirements traced to requirement DADS0140 do not include receipt of calibration data, correlative data, algorithms, or metadata not associated with ancillary data.	Requirements have been identified and are pending CCR approval for addition to the current RTM baseline.																																

Table 2.1-1. ECS Responses to NASA Comments (8 Of 15)

NASA Comment	ECS Response
Requirements S-DSS-10202 and S-DSS-10208 require DDSRV to ingest documents in WORD and WordPerfect formats without reference to versions. Will all versions of WORD and WordPerfect be supported? This implies that every new release of WORD and WordPerfect must be incorporated into DDSRV as they become available.	Yes, we will support the new versions. But we will not reformat those that the DDSRV already has stored. But note that Word and WordPerfect can read their own old formats to some extent.
The requirements traced to requirement DADS0440 do not include storage of documents or format descriptions.	Requirements now exist in RTM for storage of documents and their formats; Trace will be corrected.
Requirements S-DSS-03460 and S-DSS-03560 are entirely covered by S-DSS-03414 (SDSRV will interface with STMGIT to provide storage for Ancillary data (S-DSS-03414) includes storage for Orbit/Attitude data and Orbit Data for AM-1).	This may well be the case, and if so, NASA must relieve ECS of separate responsibility for the L3s in the F & PRS. Since this has not occurred to date, these requirements are needed to insure consistent and complete requirements coverage.
Requirement S-DSS-03470 is entirely covered by S-DSS-03570.	Orbit and attitude data coming from FDF has been corrected due to errors. (DSS-03470) DSS-03570 talks about data that did not need FDF correction.
The requirements traced to requirement DADS0475 do not include storage of correlative data.	Corrected and in the current RTM baseline.
Requirement S-DSS-20470 should be traced to requirement DADS0210.	Corrected and in the current RTM baseline.
The requirements traced to requirement DADS0220 do not include storage of scientific calibration data or providing instrument calibration data and metadata to DDIST. There is no requirement for receiving scientific calibration data, although there is a requirement to receive "Instrument Characterization" data which is not identified in the Level 3 requirement.	Corrected and in the current RTM baseline.
The requirements traced to requirement DADS0350 do not include the physical location of a granule as part of its metadata.	S-DSS-04380 has since been traced to DADS0350 and does specify physical location - The STMGIT CI shall store the following Metadata: granule id, date and time of storage, physical storage location, data check status and data format type.
The requirement traced to DADS0740 is less specific than DADS0740.	Corrected and in the current RTM baseline. Note that specific subset and subsample capabilities are listed by product in Appendix F.
The Level 4 requirement traced to DADS0760 does not address DADS0760.	The requirements mapping is inaccurate. Requirements have been added and are pending CCR approval for addition to the current RTM baseline. All data entering ECS will be placed in ECS standard format (HDF-EOS) unless it is migrated in V0 format to support V0 incorporated services. Landsat will be ingested in Landsat format.

Table 2.1-1. ECS Responses to NASA Comments (9 Of 15)

NASA Comment	ECS Response
Requirements S-INS-00400 and S-INS-00402 are vague, and the difference between them is unclear. ("convert" and "reformat" "ingested data into a form accepted by the SDSRV CI/DDSRV CI")	S-INS-00400 and S-INS-00402 are place holders for future (Release B) capabilities). However, we are working with Ancillary Data Preprocessing (ADPP) team to specific Release A conversions/reformatting for NMC data. This is a new task assigned by NASA.
Requirement DADS0890 requires DADS to generate inputs to the billing process including media cost, CPU utilization, I/O utilization, personnel costs, shipping/handling/ networking cost, and archival storage cost. SDSRV receives information from CSMS on pricing for disk, CPU, and media utilization, but not I/O utilization, personnel costs, shipping/handling/ networking cost, and archival storage cost. Ingest and DDIST generate cost numbers without the benefit of pricing data. DDSRV does not appear to generate cost numbers.	L3 requirements will be examined and L4 requirements will be added as appropriate. But accounting policy has yet to be established for Release B.
SDPS-60350, 60360, and 60370 trace to the EOSDs that say Level 1,2,3 processing will be complete within 24 hrs of availability to ECS of all inputs. Hughes is extending this 24 hrs to include the time it takes to get the data from its entry point within ECS to the DAAC working storage where it will be used. This is an unacceptable float of the original requirement.	If the comment is meant to imply that S-DPS-60350, 60360, and 60370 claim the entire 24 hours strictly for processing, that is not their intent. They only specify an upper limit not to be exceeded. Nevertheless, the somewhat inconsistent coverage of the L3 requirements specifying product availability time frame based on input availability (EOSD1050, -1060, -1070, and 1080) is noted and will be resolved with NASA, either through rewriting the L3s, the L4s, or both. The issue of L3 performance requirement interpretation is the subject of a cost benefit trade study being performed with the system performance modeling group between IDR and CDR for Release B.
Please put the term "granule" in the glossary.	The DID 304 Appendix A, Data Glossary, defines the terms used throughout the L4 requirements. An additional "Glossary" defines the terms used throughout the DID 304 text. The term "Data Granule" was in Appendix A in the PDR DID 304 document.
There are no planning (or Processing) subsystem requirements to update the profiling information for the PGE database. AI&T has the initial profiling steps, but after the PGE goes operational, there are no requirements to keep track of its performance in that database.	S-PLS-01200, item d, provides the capability for operations to update PGE information, including PGE resource utilization information. That information is available to operations as a result of S-DPS-21780.

Table 2.1-1. ECS Responses to NASA Comments (10 Of 15)

NASA Comment	ECS Response
There are no planning, or AI&T requirements that state we're keeping dependency relationships between PGEs in the PGE database.	Planning plans for the generation of standard data products using PGEs. PGEs require standard data products, and other data as input. The interrelationship between PGEs is through the data products. The input and output data product information is captured at AIT (S-DPS-41320) in the PGE information that is a part of the PDPS Database.
S-PLS-61280, why is the dynamic analyzer to support checking science software for memory leaks a part of planning? I would think it would be in PRONG.	This requirement has been deleted from the current set of Level 4 requirements. Requirement S-DPS-61171 now provides the memory leak checking tool to be used during AIT.
Section 4.7, First two paragraphs are redundant.	The redundant text will be eliminated when this document is reissued.
There needs to be another requirement similar to S-DPS-21160 and 21170 that supports the "Report Log File".	No reference to a "Report Log File" appeared in DID 304 at PDR. If it is being suggested to add one, it needs to be defined what it is.
Section 4.7.3.1, in the sentence before the requirement, part b) is true, but we're not using it in the toolkit	The text will be updated when this document is reissued to reflect that ECS only uses orbit data from the FDF.
The following Level 4s were the subject of communication between Narayan Prasad and Dan Marinelli in early April with the goal of resolving TBDs and clarifying the intent of the associated Level 3s (PGS-0455, PGS-0456 and PGS-1100). The next publication of the DID should reflect the proposed changes. S-DPS-30310, S-DPS-30320, S-DPS-30600, S-DPS-30610, S-DPS-30300	The recommended changes have been incorporated into the RTM database.
S-DPS-31020 and 31030 talk about providing the following metadata info to the SDP toolkit for EDOS and SDPF-generated Level 0, g. Orbit number of the staged file. This needs to be clarified. A file can span more than one orbit. Is this capability just for sci. s/w that needs Level 0 on some kind of orbit based scheme, is it for all the L1A sci. s/w? Either way, we need to define what this orbit number tags to (e.g., beginning of file, middle, or end?) or define it as a range of orbit numbers.	A CCR has been submitted to change this in RTM to "Orbit number or orbit number range of the staged L0 data file". The original requirements spoke only of providing the SDP Toolkit with orbit information for Level 0 and ephemeris data files for Release A. Possible extensions to other levels of data for orbit number access where this is appropriate will be considered.
Objects that realize identical capabilities in several subsystems shall be instances of classes with a common superclass. For example, sessions should be the same in the DSS and DM.	This is not thought to be a requirements issue. Review of the design of the object models should identify these reuse opportunities.

Table 2.1-1. ECS Responses to NASA Comments (11 Of 15)

NASA Comment	ECS Response
<p>There appears to be a structural inconsistency problem with the subsystem requirement documentation as it relates to CSMS/MSS. The subsystems document make references differently, some "provide data to", "collect data for", "view data (from where not stated)" and one "collects and provides data to" MSS. Some subsystems, but not all, have sections dedicated to the CSMS/MSS requirements. Shouldn't there be such a dedicated section for each of the subsystems?</p>	<p>Each subsystem now has similar MSS interface requirements usually written as "... shall collect ... Data and provide it to the MSS." But the groupings of L4 requirements in the next publication of DID 304 has yet to be determined.</p>
<p><i>SDPS Requirements Specification 304 CD-003 002, 3/95</i></p>	
<p>1.1 Missing requirements to provide management data from Client Subsystem Reference: 4-1 through 4-26. Description: The SDPS Client Subsystem identifies requirements to provide user registration requests and user feedback information to CSMS (S-CLS--13420, - 11100, - 11110, - 11120), however there are no requirements to provide management data such as usage statistics, fault or performance data. For example, Section 4.7.1.2 refers to level 4 requirements which define the interface between CSMS and the PRONG CI and defines other services which the Processing CI requires from CSMS. Recommendation: Include Client Subsystem requirements to provide all management data as in Section 4.7.1.2 excluding accounting. For example, fault, performance, and accountability data will be provided to CSMS via message passing or logs.</p>	<p>The Client Subsystem will not provide management data from user managed hardware (i.e., non-ECS provided hardware) to ECS. Therefore, these requirements are inappropriate for the Client.</p>

Table 2.1-1. ECS Responses to NASA Comments (12 Of 15)

NASA Comment	ECS Response
<p>1.2 Missing requirements to provide management data from the Data Management Subsystem Reference: 4-33 through 4-54. Description: The SDPS Data Management Subsystem identifies requirements in Section 4.3.3.3 to provide management data to CSMS (e.g., S-DMS-20260, -20270), however there are no requirements to provide this data to CSMS. For example, Section 4.7.1.2 refers to level 4 requirements which define the interface between CSMS and the PRONG CI and defines other services which the Processing CI requires from CSMS. Recommendation: Include DMS requirements to provide all management data as in Section 4.7.1.2 excluding accounting. For example, fault, performance, and accountability data will be provided to CSMS via message passing or logs.</p>	<p>S-DMS-20820 through S-DMS-20860 have been added in accordance with the recommendation.</p>
<p>1.3 Missing requirements to provide management data from the Data Server Subsystem Reference: 4-54 through 4- 111. Description: The SDPS Data Server Subsystem identifies requirements to provide or use management data (e.g., S-DSS-00520, -00620, -00640), however there are no requirements to provide/use this data to/from MSS. Except for transmission faults and data distribution activity logs (S-DSS-30296, -30288), requirements are missing for providing CSMS with subsystem fault & performance management data For example, status information is available (e.g., S-DSS-01140, -01150, -01160, -01180), however this data is not provided to CSMS. The level of definition is not consistent with other subsystem (e.g., Section 4.7.1.2 is providing services for Release A which DSS is leaving out until Release B). Recommendation: Include DSS requirements to provide all management data as in Section 4.7.1.2 excluding accounting. An interface section like 4.7.1.2 should be enumerated in DSS and other subsystems .</p>	<p>L3 Requirements in this area will be reviewed and L4 requirements will be added as appropriate.</p>

Table 2.1-1. ECS Responses to NASA Comments (13 Of 15)

NASA Comment	ECS Response
<p>1.4 Missing requirements to provide management data from the Ingest Subsystem Reference: 4-112 through 4-134. Description: The SDPS Ingest Subsystem description indicates administrative data will be exchanged with MSS, and that the SMC staff may interrogate the ingest history log, however there are no specific requirements to provide management data to CSMS. Examples of subsystem error logs and status reports arc identified in Ingest Subsystem requirements (S-INS-00040, -00060 -00170, -00209, -00220, -00340), however there are no requirements to provide this data to MSS. Recommendation: Include INS requirements to provide management data (e.g., fault, performance, and accountability data) to CSMS. The interface requirements for INS subsystem are missing and need to be defined as done for the DPS subsystem in Section 4.7.1.2.</p>	<p>INS requirements will be included as recommended.</p>
<p>1.5 Duplicate and/or imprecise capability requirements in Interoperability Subsystem Reference: 4-30 Description: The SDPS Interoperability Subsystem appears to require some of the same functions as other SDPS subsystems and as the MSS subsystem for collection of Fault Management Data, Configuration Management Data, and Accountability Management Data (S-IOS-00490, -00500, -00510). Recommendation: Indicate the scope (e.g., local site, for all SDPS subsystems) and purpose of the IOS collection process (i.e., what distinguishes it from MSS collection capabilities). Indicate what CSMS services are to be used (i.e., message passing, logging).</p>	<p>Agree with recommendation to indicate scope. However, CSMS services required are design issues, and are captured in DID-305 (System Design Specification).</p>

Table 2.1-1. ECS Responses to NASA Comments (14 Of 15)

NASA Comment	ECS Response
<p>The glossary is somewhat sparse. For example, the terms "subscription" and "service request" could be defined.</p> <p>1-1 1.3, p#1 Release names should match other ECS documents; either IR-1 (or Ir-1 or Irl) or TRMM Infrastructure, either Release A or TRMM Development.</p>	<p>The DID 304 Appendix A, Data Glossary, defines the terms used throughout the L4 requirements. An additional "Glossary" defines the terms used throughout the DID 304 text. The terms "subscription" and "service request" do appear in the Data Glossary. Release names are being standardized across all ECS documents.</p>
<i>CHAPTER 4: Requirements</i>	
<p>4-4 s-cl-00210 What is the difference between opening and creating a desktop object? Is open paired with s-cl-00390 and s-cl-00400?</p>	<p>Pre-existing desktop objects can be opened. Create is used to create a new desktop object.</p>
<p>4-4 s-cl-00240 What is the meaning of "deep copy"? (Not in glossary.)</p>	<p>In a deep copy operation, the contents of the object are transferred. In a shallow copy operation, only references to the contents are copied.</p>
<p>4-13 4.1.2.7 I would expect that users would also want to print documents, and/or save them to a file. Shouldn't this capability be mentioned in some manner?</p>	<p>Yes. Will be included.</p>
<p>4-15 s-cl-11130 Shouldn't "users" be "authorized users"? s-cl-11160 4-18 s-cl-10760</p>	<p>Yes, Will modify.</p>
<p>4-15 s-cl-11210 What processing? Processing of their Production Request, data search request, data distribution request, all of these, ...?</p>	<p>All of the above with the exception of distribution request. This is covered elsewhere. Will reword the requirement.</p>
<p>4-16 s-cl-14240 Is there a default for this time period?</p>	<p>This is a GUI/User interaction issue. It is unknown at this time what the correct default value should be. This will be determined via prototypes and user feedback. This is why client requirements are incremental, and not fixed until As-Built documentation is delivered.</p>
<p>4-17 s-cl-14520 Are there any default values for these optional and mandatory fields? Are they displayed?</p>	<p>Same as 4-16</p>
<p>4-24 4.1.2.17 Should "application program interfaces" be "command language interfaces"?</p>	<p>Yes. Will reword.</p>
<p>4-25 s-cl-13300 What about access to other documents" Why just guide documents?</p>	<p>Will re-word to include text documents.</p>
<p>4-29 s-ios-00090 What system is being monitored? The ADSHW?</p>	<p>Yes, the ADSHW is being monitored.</p>
<p>Operations Support sections (all): What are "integration, testing, and simulation status"?</p>	<p>These types of status are provided to the SMC so that these planned, non-operational activities can be monitored for progress.</p>

Table 2.1-1. ECS Responses to NASA Comments (15 Of 15)

NASA Comment	ECS Response
Where are the contents of these various "XXX Data" defined?	Specific examples of XXX Data were not apparent. Desktop object data was located, but all data terms used in the L4 requirements are to be defined in the Appendix A, Data Glossary.
4-32 4.2.2.2 Should "Science Processing" be "Advertising"?	Yes, will reword.
OS/Utils/Tools General comment #1 (it may not bite us here, but could elsewhere): man page implementations can be grossly different between OS's. Just because it's POSIX-compliant doesn't mean we won't tear our hair out between systems. (AIX doesn't use anything close to BSD/SunOS/UNICOS/... systems, even though the outward appearance to the user is identical.)	Concur, but the man utility does provide some kind of common method of documenting packages and POSIX should help standardize this even more.
Why isn't Fortran 90 in the list? I thought it was in the approved list of languages now.	FORTRAN 90 is in the approved list of languages for Science Software. It remains to be seen if it will be used for application development.
4-36 s-dms-00560 Is this abort capability on-demand (manual entry) or automatic or both (configurable/can be disabled)?	Both
4-41 s dms-10730 Is "temporarily discontinue" the same as "suspend"? If so, why not use suspend (which is used elsewhere)?	Agreed. Will reword
4-42 s-dms-10240 Is this "individual Schema" a LIM Schema? If so, how does the change propagate back to the LIM? If not, what is it?	Yes, it is a LIM schema. No changes propagate back to the LIM, The additions, deletions, etc. all happen in the DIM database.
4-45 s-dms-10830 The presence of default instructions implies the capability to override the defaults. I don't see a corollary requirement.	New requirement has been added to allow setting the values.
4-5 s-clc-01520 "to access to" > "access to" s-clc-01530	Re-worded.
4-25 s-clc-13265 "CHUI" is not in the acronym list (and isn't it "ChUI"?).	Re-capitalized.
4-32 4.2.2.2 "ADSHW CI" inconsistent with 4.2.2.1 (ADSHW HWC).	All server CI names have been made consistent.
4-36 s-dms-00200 "use forward" isn't quite right - one of these words shouldn't be here? I can't parse this sentence (what pieces belong to what other pieces?). Too many "on behalfs".	This was a typo, and has been reworded.
4-37 s-dms-00470 "a any" => "any"	This was a typo, and has been reworded.
4-38 4.3.1.5 "in information" => "information"	This was a typo, and has been reworded.

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Abbreviations and Acronyms

(Authors should use this as necessary)

ECS EOSDIS Core System