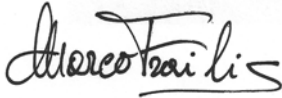| Publication Year	2007
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Issue	Date	Sheet	Description of Change	Release
0.0	March 2007		First draft of the acceptance test plan	
1.0	14th May 2007		First release of the Acceptance Test Plan	IDIS 2.3.2
1.1	23rd May 2007		Update of the document after the Test Readiness Review	IDIS 2.3.2

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TABLE OF CONTENTS

1   INTRODUCTION

This document describes the test plan envisaged from the LFI DPC to accept the IDIS system tools. The intent is to validate that the IDIS software components released to the LFI DPC are compliant with the user requirements.

The tests defined in this document are meant to be performed at the LFI DPC site after successful installation of the IDIS system tools. The IDIS software components are expected to be already tested at system level. Therefore we simply define here the tests to be performed at DPC site to fully cover the user requirements while, when applicable, for a subset of the requirements we simply indicate test cases defined in the IDIS system test reports.

1.1   APPLICABLE DOCUMENTS

[AD-1] Plack IDIS Data Management Component URD
　　　G. Giardino
　　　PL-COM-SD-UR-0030

[AD-2] Plance IDIS Process Coordinator URD
　　　W. Hovest
　　　PL-LFI-MPA-UR-001

[AD-3] Planck IDIS Federation Layer User Requirements Document
　　　M. Bremer
　　　PL-COM-SSD-UR-0034

1.2   REFERENCE DOCUMENTS

[RD-1] ESA Software Engineering Standards
　　　PSS-05-0

[RD-2] Guide to applying the ESA software engineering standards to small software projects
　　　BSSC-96-2

[RD-3] Planck IDIS System Test Plan
　　　J. Sternberg, A. Hazell
　　　PL-COM-SSD-TP-0040

[RD-4] Planck IDIS System Test Specification
　　　J. Sternberg et al.
　　　PL-COM-SSD-TP-0043

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[RD-5] IDIS System Test Reports
M. Bremer, K. Phipps, K. Phipps, M. Reinecke
IDIS_04 (for Planck SGS Implementation Delta-Review)

[RD-6] Planck IDIS Use Cases Document
A. Hazell, F. Pasian et al.
PL-COM-SSD-TN-0041

[RD-7] Planck LFI - Science Operations Implementation Plan
F. Pasian et al.
PL-LFI-OAT-PL-001

[RD-8] Planck IDIS DMC Exchange Format Design Document
J. Sternberg, A. Zacchei, C. Mercier
PL-COM-SSD-IF-47

1.3 ACRONYMS LIST

AC	Acquisition Chain
DAE	Digital Acquisition Electronic
DMC	Data Management Component
DPC	Data Processing Centre
FL	Federation Layer
HK	House-Keeping
LFI	Low Frequency Instrument
OD	Operational Day
ProC	Process Coordinator
REBA	Radiometer Electronic Box Assembly
SCI	Scientific
SGS	Science Ground Segment
TMH	Telemetry Handler
TOI	Time Ordered Information
URD	User Requirement Document

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2 TEST PLAN

2.1 INTRODUCTION

The purpose of this test plan is to validate that the IDIS software components released to the LFI DPC are compliant with the user requirements defined in [AD-1, AD-2, AD-3]. This document mainly follows the ESA software engineering standards [RD-1, RD-2].

The IDIS software components are expected to be already tested at system level, according to the IDIS System Test Specification [RD-3, RD-4]. Hence this document defines test cases (and procedures) that are considered necessary to fully cover essential user requirements and, when applicable, it indicates which requirements are properly covered by test cases already performed in the IDIS System Test Reports [RD-5]. The test cases will be designed on the basis of real usage scenarios, including part of the use cases defined in the Planck IDIS Use Cases Document [RD-6].

Before delivering this plan, a test readiness review teleconference among the IDIS CCB will be kept to verify that all parties (users and developers) agree on the tests and criteria defined in this document for the acceptance of the IDIS tools.

The purpose of the test cases defined in this document is to provide proper criteria for the provisional acceptance of the IDIS software. The final acceptance will be performed after a warranty period in which the software will be used in an operational environment. During this period, a new version of this plan will be written by including new test cases and procedures which correspond to real operational tasks, according to the scenarios provided by end-users representatives.

2.2 TEST ITEMS

The IDIS software components covered by this acceptance test plan are those available in the IDIS Release Repository, i.e.:

- The MPA Data Management Component (MPA-DMC)
- The Process Coordinator (ProC)
- The Federation Layer (FL)

Since IDIS follows an incremental delivery approach also this acceptance plan will follow an evolutionary development, addressing the user requirements implemented in each new release. At present, the IDIS Release Repository provides the following software releases:

- MPA-DMC version 2.3.2
- ProC version 0.8.7 (IDIS 2.3.1)
- FL (Java client) version 2.3.1

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2.3 FEATURES TO BE TESTED

The current versions of the IDIS software components are focused on a subset of the user requirements classified as SGS1 [RD-7] while the remaining requirements, classified as SGS2, will be completed in the subsequent IDIS releases. Hence, the acceptance tests defined in the current version of this document will cover the requirements classified as SGS1 in each URD.

2.3.1 MPA-DMC FEATURES

The MPA-DMC features to be tested include:

- **Usability of the Data Description Layer (DDL)** to properly define data structures to be used as input and output of the pipelines in each level of the LFI DPC
- **Basic Planck LFI data types operations with the DMC**, with particular emphasis on the data types used for the Level 1. For these tests, a dataset size comparable to an entire year of Planck mission should be generated. In particular, for Level 1 data, the dataset should contain all the data types that will be used during flight operations. The basic operations to be tested are:
  - o Creation and storing of new DMC objects, using also associations
  - o Update and deletion of existing objects, verifying the consistency of references between objects
  - o Simultaneous retrieval of DMC objects (by at least two concurrent processes)
  - o Simultaneous writing of DMC objects, to verify the proper handling of data integrity
  - o Commit or abort transactions during a session
- **More advanced Planck LFI data types operations**:
  - o Query the DMC using search criteria based on: version ID, author, creator/modifier, creation/modification date
  - o Query DMC objects using, in the search criteria, expressions built on primary-keys and/or common data fields
  - o Retrieve the history of the modification of a particular object
- **Performance and resource estimation**:
  - o Estimate average input and output speed. In particular, using simulated Level 1 data, the time needed to ingest LFI data retrieved during an Operational Day should be evaluated and compared to the time constraints expected during flight operations. This estimate should take into account also the performance loss with respect to the increase of the database size.
  - o Estimate how the DMC database size increases with respect to the effective dimension of the data ingested, i.e. estimate the redundancy generated by the DMC mapping of the DDL data types.
  - o Estimate how different data chunk sizes affect input/output speed and disk occupancy

- **Usability of the DMC GUI browser**, verifying that the results of the queries performed through this interface coincide with the same queries performed trough the DMC API
- **Completeness of the DMCI documentation**

2.3.2 PROCESS COORDINATOR FEATURES

In order to classify the ProC features to be tested, it is useful to distinguish between a stand-alone (local) usage of ProC, in which modules binaries, pipelines descriptions (i.e. the pipelines definitions and the corresponding pipelines configurations) and the IDIS Process Coordinator reside in the same computer used to run the tests, and a networked usage of ProC, where modules binaries and pipelines are accessed through the SWR and the DMC, after authenticating to the IDIS system. If possible, the pipelines used for this tests should include loops and most of the data types defined in the DMC for Level 2, 3.

The ProC features to be tested in a local usage are:

- **Usability of the ProC GUI:**
    - Proper display of all the locally available software modules and pipelines descriptions, even if located into several directories
    - Creation and editing of new pipelines from existing software modules.
    - Saving and re-editing of incomplete pipelines
    - Proper feedback displayed when the user tries to start a syntactical incorrect pipeline
    - Start, stop, pause and continue a pipeline
    - Query the status of the pipeline processing, in particular to obtain the modules already ran and the data objects produced
    - Possibility to display the output produced by each software module
- **Logging capabilities**, verifying for a subset of data products generated that the exact history information and the logs of the corresponding pipeline runs are available
- **Pipeline characteristics**, including the possibility to link pipelines together (by exporting them as subpipelines), run pipelines iteratively, execute a pipeline without the GUI

The ProC features to be tested in a networked usage are:

- **Usability of the ProC GUI** :
    - Store and retrieve pipeline descriptions from the DMC
    - Use the Federation Layer authentication functionalities to control the access to pipelines descriptions and databases

2.3.3 FEDERATION LAYER FEATURES

Since the Federation Layer includes both a web application (MyIDIS portal) to administer user-related data and a Java (and C) library which provides authentication and session management to

the DMC and ProC, the tests planned in this document will focus on the library, to verify proper authentication and session handling.

2.4 FEATURES NOT TO BE TESTED

The features that will not be covered by the current version of this plan are mainly those labeled as SGS2 features in each URD, since these features will be implemented in the next releases of the IDIS tools. Additional information can be found in the user requirement traceability matrices in section 4.

2.5 APPROACH

The test cases defined in this document will mainly follow a black-box testing approach. Hence, a set of known inputs and the corresponding expected outputs will be generated or defined for this purpose. Moreover, since part of the IDIS tools provide an API, several test procedures will be defined by software programs that can be run automatically.

2.6 ITEM PASS/FAIL CRITERIA

The pass/fail criteria are specified within each test case. Moreover, five categories of test execution status are defined:

PASSED – OK: this status confirms that the pass criteria defined in the test case were satisfied obtaining the expected output. No errors or limitations were found.

PASSED – with errors/limitations: this status means that the test execution has produced the expected output but during execution non-critical side errors have been detected or non-critical features were not available.

FAILED: this status means that the expected output was not produced by the test execution or that critical errors where detected.

BLOCKED: this status is used when the test case did not succeed because access to the targeted functionality was blocked by code that was not functioning correctly.

NOT IMPLEMENTED: this status is used when the test case did not succeed because the main features of the targeted functionality had not yet been implemented.

2.7 ENVIRONMENTAL NEEDS

The hardware and software environment in which the acceptance tests will be executed is setup as follow:

Hardware	Software
Workstation 1: Astarte	**Operating system**: Kubuntu 7.04 **Applications**: • DMC version 2.3.2 • ProC version 2.3.2 • Federation layer client version 2.3.1 • XMLSpy editor **NFS**: • shared partition /LFIData mounted
Workstation 2: Telperion	**Operating system**: Suse 10.2 **Applications**: DMBS Oracle **NFS**: • export of the partition named /LFIData

Network setup
Workstation 1 and Workstation 2 must be connected to the same LAN. Workstation 1 needs also an internet connection to access the Federation Layer server.

3 TEST CASE SPECIFICATION

3.1 DMC TEST CASES

3.1.1 DMC-AT-TC01

Test case identifier	DMC-AT-TC01
Purpose	Verify that all the data structures defined as the output of the Level 1 software and represented as FITS files have an equivalent mapping in the DDL.
Test type	Procedure
Description	- Following the TOI ICD document, determine all primitive types used by all the FITS files defined in the document and verify that they are available in the DDL - Define a suitable mapping between the SCI TOIs described in FITS file format and the DMC types provided by the DDL - Define an hierarchy of DMC objects to map the HK TOIs - Define useful associations between DMC objects, e.g. between TOIs and TM packet tertiary headers - Define a circular association to verify if the DMC complains about it
Input	- FITS file structures representing the outputs of the Level 1 software: scientific TOIs, housekeeping TOIs, TM packets information (TOI ICD) - DDL Document Type Definition
Output	XML files defining the DDL representation of data structures equivalent to the FITS file structures of the Level 1
Environmental needs	Software: XML editor with DTD validation
Pass/Fail criteria	Pass criteria: - Each primitive type in the FITS file as a counterpart in the DDL representation with the same size (in bytes) and meaning (e.g. signed, unsigned, etc.) - The information contained in the FITS header must be represented as metadata in the DDL representation - Possibly, the DMC should complain about the circular references

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3.1.2 DMC-AT-TC02

Test case identifier	DMC-AT-TC02
Purpose	Verify that it is possible to retrieve, through the DMC API or GUI, a single index of all meta-data definitions used in the whole DDL and the list of templates each item is used in
Test type	Procedure and/or test program
Description	• Verify if the DMC API provides a set of functions to retrieve and index of all meta-data definitions included in the DDL files • If yes, write a program which retrieves the list of DMC types which contain the APID and the SID definitions • Otherwise use the DMC GUI to retrieve the same information
Input	• DDL files with the definition of the Level 1 data structures • DDL Document Type Definition • List of meta-data keywords to be searched in the DDL
Output	For each meta-data definition, a list of the templates containing that definition
Environmental needs	Software: • MPA DMC • Oracle DB with the instantiation of the Level 1 database Hardware: • Local network connecting Workstation1 and Workstation2
Pass/Fail criteria	Pass criteria: • The DMC API provides functions to retrieve the index of all meta-data definitions in the DDL and to retrieve the list of templates each definition is used in • If the above functions are not provided, at least the GUI should provide this information • The list of all templates containing the meta-data definitions requested are found

3.1.3 DMC-AT-TC03

Test case identifier	DMC-AT-TC03
Purpose	Verify that the creation and storing into the DMC of the Level 1 data is performed correctly
Test type	Test program
Description	• For each SCI and HK TOI in the dataset, open a new session, create and fill a corresponding DMC object with the input TOI and commit the changes. When creating a new object, try both the implicit and the explicit definition of the version ID. • Then, retrieve the data just ingested, using the same order of

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	insertion, and compare the values obtained with the original input
Input	• A dataset containing SCI and HK TOIs simulating an Operational Day of the LFI instrument acquisition • DDL files defining the Level 1 data structures
Output	A message displayed by the test program with the following possible outcomes: • Operation completed successfully • Exception raised during insertion • Exception raised during retrieval • Mismatch between data retrieved from the DMC and the original input The test program should provide additional information to help understanding the reason of the failure
Environmental needs	Software: • MPA DMC • Oracle DB with the instantiation of the Level 1 database Hardware: • Local network connecting Workstation1 and Workstation2
Pass/Fail criteria	Pass criteria: • All the Level 1 input data is stored correctly in the DMC

3.1.4 DMC-AT-TC04

Test case identifier	DMC-AT-TC04
Purpose	Verify, with a software program, that: • using the DMC API it is possible to update an existing DMC object • Deletion of a DMC object is performed correctly and consistency is maintained for the associated objects
Test type	Test program
Description	• For each TOI with updated values, start a new session, retrieve the TOI object covering the same time interval from the DMC and update it with the new information • Then, in a new session, retrieve all TOI objects covering the time interval provided in input and delete then from the DMC • Perform a query to verify that the data has been correctly removed
Input	• A new dataset containing SCI TOIs that is used to update a dataset previously ingested into the DMC and covering the same time interval • A time interval determining the objects that must be removed from the DMC

	• DDL files defining the Level 1 data structures
Output	A message displayed by the test program with the following possible outcomes: • Operation completed successfully • Exception raised during update • Exception raised during retrieval • Mismatch between data retrieved from the DMC and the original input • Exception raised during deletion The test program should provide additional information to help understanding the reason of the failure
Environmental needs	Software: • MPA DMC • Oracle DB with the instantiation of the Level 1 database Hardware: • Local network connecting Workstation1 and Workstation2
Pass/Fail criteria	Pass criteria: • The dataset has been correctly updated into the DMC • The objects have been removed from the DMC

3.1.5 DMC-AT-TC05

Test case identifier	DMC-AT-TC05
Purpose	Verify, with two software programs, that: • The two software programs can read the same object simultaneously • While the first program first locks and starts modifying an object, a simultaneous modification of the same object by the second program is rolled-back
Test type	Test program
Description	Reading step: • The fist program opens a new session and start reading a particular TOI object. It loops over the TOI until a certain key is pressed • The second program opens a new session and starts reading the same TOI object while the first program is still looping over it • Once the second program has terminated the first program starts the updating step (triggered by the user input) Updating step: • The first program starts updating a TOI object and commits the changes only when the user press a certain key • The second program starts updating the same TOI object while

	• the first program has not yet committed the changes • Both program verify if the update succeeded
Input	• A dataset containing SCI and HK TOIs simulating an Operational Day of the LFI instrument acquisition already ingested into the DMC • A time rage identifying a particular SCI TOI object to be read from the DMC • 2 dataset containing updated information for the same DMC TOI object • DDL files defining the Level 1 data structures
Output	The output of this test is differentiated between the two test programs: • Test program 1: a message indicating that the retrieval step has been performed correctly and that the update has been completed • Test program 2: a message indicating that the retrieval step has been performed correctly followed by a message indicating the failure of the update operation and the reason
Environmental needs	Software: • MPA DMC • Oracle DB with the instantiation of the Level 1 database Hardware: • Local network connecting Workstation1 and Workstation2
Pass/Fail criteria	Pass criteria: • The first data retrieval step has been performed correctly by both test programs. The second update step has been successfully completed by the first program while it has failed for the second test program

3.1.6 DMC-AT-TC06

Test case identifier	DMC-AT-TC06
Purpose	Verify that sessions and transactions are correctly handled by the DMC.
Test type	Test program

Description	• An input dataset has to be ingested into the DMC using different type of transactions:
	    o A session is opened, the input data is stored into a DMC object and the session is closed without and explicit commit
	    o A session is opened and the input data is stored into the DMC with several commit and resume operations
	    o A session is opened and the input data is stored into the DMC with a single commit
	• After each session, the data ingested is retrieved and verified with the original input

	• A last session is opened to insert the input data but then it is aborted (without committing) • The program verifies that the data ingested in the previous step was not committed into the DMC
Input	• A dataset containing SCI and HK TOIs simulating an Operational Day of the LFI instrument acquisition already ingested into the DMC • A number of time ranges specifying the part of the dataset to be ingested in each session • DDL files defining the Level 1 data structures
Output	A message displayed by the test program with the following outcomes: • Session number X: data ingestion completed and verified. Persistent objects available/not available in memory • Last session: data ingestion aborted successfully. If and exception is raised during the execution of each step, than suitable error messages are shown
Environmental needs	Software: • MPA DMC • Oracle DB with the instantiation of the Level 1 database Hardware: • Local network connecting Workstation1 and Workstation2
Pass/Fail criteria	Pass criteria: • All (implicitly or explicitly) committed data chunk have been correctly ingested into the DMC after closing the session. • After a commit (without resume) the DMC objects have been deleted from main memory • The result of a query to the DMC for the last data chunk is empty

3.1.7 DMC-AT-TC07

Test case identifier	DMC-AT-TC07
Purpose	Verify query capabilities with the DMC
Test type	Test program
Description	• Perform a query to retrieve all nominal scientific TOIs with respect to a given on board time interval • Perform a query to retrieve the TOIs with SKY and LOAD samples and determine which samples belong to a certain packet by a cross-correlation with the associated packet tertiary headers • Perform a query to retrieve only a sub-range of a TOI • Query for the last 20 objects created or modified in the DMC and determine their version ID, author and creator/modifier • Retrieve the history of the modification of the last object modified

	in the DMC
Input	• A dataset containing SCI and HK TOIs simulating an Operational Day of the LFI instrument acquisition already ingested into the DMC • Proper search criteria for each query to be performed • DDL files defining the Level 1 data structures
Output	For each query, the program outputs the list of objects matching the query
Environmental needs	Software: • MPA DMC • Oracle DB with the instantiation of the Level 1 database Hardware: • Local network connecting Workstation1 and Workstation2
Pass/Fail criteria	Pass criteria: • For each query, all the DMC objects matching the query are returned. For each object returned, the exact information requested is shown

3.1.8   DMC-AT-TC08

Test case identifier	DMC-AT-TC08
Purpose	Verify that: • the average writing speed into the DMC is compatible with the amount of data that must be ingested by the Level 1 into the database for each Operational Day • the average reading speed from the DMC is compatible with the time constraints imposed by the software generating the Daily Quality Report Estimate how the DMC database size increases with respect to the effective dimension of the data ingested
Test type	Test program

Description	• Create simulated nominal SCI TOIs and HK TOIs with a size comparable to one year of the LFI acquisition
	• Ingest the data using different DMC writing options:
	   o One DMC object per OD, with segments of one hour, all data and metadata in the database
	   o One DMC object per OD, with segments of fixed size, all data and metadata in the database
	   o One DMC object per hour, with just one segment, all data and metadata in the database
	   o As above, but with metadata in the database and data in FITS files
	• For each OD ingested, calculate the average time spent for the

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	operation • Calculate the average time required to read the data of an entire OD
Input	• Dataset simulating SCI and HK TOIs with a size comparable to one year of the LFI acquisition • DDL files defining the Level 1 data structures
Output	Several statistics of the performances obtained: • Average time to ingest one OD • Average write speed in MB/s • Average time to read one OD • Average read speed in MB/s • Percentage of space redundancy generated by the DMC
Environmental needs	Software: • MPA DMC • Oracle DB with the instantiation of the Level 1 database Hardware: • Local network connecting Workstation1 and Workstation2
Pass/Fail criteria	Pass criteria: • At least one of the DMC persistency options must meet the time constraints imposed by the flight operations of the LFI for the Level 1 database

3.2 PROC TEST CASES

3.2.1 PROC-AT-TC01

Test case identifier	PROC-AT-TC01
Purpose	Usability of the Pipeline Editor: display of the modules, creation and editing of new pipelines, incomplete pipelines feedback, link pipelines together.
Test type	Procedure
Description	Creating new pipeline and running it: • Execute the Pipeline Editor in Local Mode. • Open the editor and add the local folders used for storing modules definition. • Create a pipeline using modules from different folders. • Save incomplete pipeline and test it. • Close the pipeline, reopen it and complete it. • Configure the pipelines. • Start, stop, pause and continue the pipeline. Linking pipelines together:

	• Export the previous pipeline as a subpipeline • Create new pipeline and export it as subpipeline • Try to link the two subpipelines created, try to run the new pipeline created.
Input	• Xml module definition stored in different folders created using the testXml.sh script given with the ProC package.
Output	For the first step: • An error message must appear when try to use a syntactical incorrect pipeline. • At the end of the procedure the results must be in the database. For the second step: • At the end of the procedure the results must be in the database.
Environmental needs	Software: • ProC • MPA-DMC • Oracle DB Hardware: • Workstation1 with proC and DMC. • Workstation2 with the Oracle DB.
Pass/Fail criteria	Pass criteria: • The Pipeline Editor recognizes modules definition from different folders. • The Pipeline Editor creates correctly the new pipeline. • The ProC doesn't run an incorrect pipeline. • The ProC runs a correct pipeline. • The ProC runs a correct pipeline created by linking together different subpipelines.

3.2.2   PROC-AT-TC02

Test case identifier	PROC-AT-TC02
Purpose	Query the status of a running pipeline and obtain data objects created by modules already ran. Display the output of each module. Run pipelines iteratively.
Test type	Procedure
Description	• Execute the ProC in Local Mode. • Create new pipeline with at least one loop and using modules output as input to another module. • Run the pipeline and verify that it displays information about the processing status and objects created • Recover data objects produced by modules already ran from the DMC.

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Input	• Xml modules definition.
Output	• Display data of modules already ran, recovering them from the database.
Environmental needs	Software: • ProC • MPA-DMC • Oracle DB Hardware: • Workstation1 with proC and DMC. • Workstation2 with the Oracle DB.
Pass/Fail criteria	Pass criteria: • The ProC execute the pipeline and produce partial results. • The partial results are available in the database and can be recovered from the DMC. • The ProC execute iteratively a pipeline.

3.2.3 PROC-AT-TC03

Test case identifier	PROC-AT-TC03
Purpose	Verify logging capabilities.
Test type	Procedure
Description	• Execute ProC in Local Mode. • Create new pipeline or open an existing pipeline. • Run the pipeline.
Input	• Xml modules definition.
Output	• Logging information in ProC • Logging information in DMC
Environmental needs	Software: • ProC • MPA-DMC • Oracle DB Hardware: • Workstation1 with proC and DMC. • Workstation2 with the Oracle DB.
Pass/Fail criteria	Pass criteria: • Logging information are available in the ProC window. • Logging information are available in the Database.

3.2.4 PROC-AT-TC04

Test case identifier	PROC-AT-TC04

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Purpose	Execute a pipeline without the GUI.
Test type	Procedure
Description	• Execute startCoordinator.sh with an existing pipeline.
Input	• Pipeline definition. • Pipeline configuration.
Output	• The pipeline output.

Environmental needs	Software:
	   • ProC
	   • MPA-DMC
	   • Oracle DB
	Hardware:
	   • Workstation1 with proC and DMC.
	   • Workstation2 with the Oracle DB.

Pass/Fail criteria	Pass criteria: • The pipeline output is available.

3.2.5 PROC-AT-TC05

Test case identifier	PROC-AT-TC05
Purpose	Store and retrieve definitions from the DMC. Display pipelines in the DMC.
Test type	Procedure
Description	• Execute ProC in Local Mode. • Open an existing pipeline or create a new one. • Save the pipeline in the DB. • Close the pipeline. • Open the pipeline from the DB.
Input	• Xml modules definition.
Output	

Environmental needs	Software:
	   • ProC
	   • MPA-DMC
	   • Oracle DB
	Hardware:
	   • Workstation1 with proC and DMC.
	   • Workstation2 with the Oracle DB.

Pass/Fail criteria	Pass criteria: • The pipeline definition is available in the DB.

3.3 FEDERATION LAYER TEST CASES

3.3.1 FEDL-AT-TC01

Test case identifier	FEDL-AT-TC01
Purpose	Verify proper authentication and session handling.
Test type	Procedure
Description	• Execute the ProC using FedLayer server • Open and running a pipeline.
Input	• Xml modules definition.
Output	

Environmental needs	Software:
	   • ProC
	   • MPA-DMC
	   • Federation Layer (Java client)
	   • Oracle DB
	Hardware:
	   • Workstation1 with ProC, DMC and Federation Layer.
	   • Workstation2 with the Oracle DB.
	   • Network connection to IDIS server.

Pass/Fail criteria	Pass criteria: • The ProC executes the pipeline and produce results using Federation Layer authentication.

3.3.2 FEDL-AT-TC02

Test case identifier	FEDL-AT-TC02
Purpose	Verify proper authentication and session handling in a DMC module
Test type	Test program

Description	Using a software program perform the following steps
	   • Login as a user who doesn't have access rights to the DB containing Level 1 test data
	   • Try to retrieve a set of TOIs from the DMC
	   • If it fails, login as a user with proper access rights
	   • Try to retrieve a set of TOIs from the DMC

Input	• A time range and radiometer ID to retrieve the corresponding TOIs • Two accounts with different access rights to the database containing Level 1 data
Output	• The first access to the DMC with Level 1 data must output an access failure

	• The TOIs retrieved on the second access

Environmental needs	Software:
	    • MPA-DMC
	    • Federation Layer (Java client)
	    • Oracle DB
	Hardware:
	    • Workstation1 with DMC and Federation Layer.
	    • Workstation2 with the Oracle DB.
	    • Network connection to IDIS server.

Pass/Fail criteria	Pass criteria:
	    • First access to the Level 1 data stored in the DMC must be prevented (the first user has no access rights to the database)
	    • On second access, the TOIs are correctly retrieved

4 TRACEABILITY MATRIX

4.1 DMC USER REQUIREMENTS

URD	Covered?	Test Case	Comments
DMC-UR-3.1-01	X	DMC-AT-TC[02-08]	
DMC-UR-3.1-02	X	DMC-AT-TC[02-08]	
DMC-UR-3.1-03	X	DMC-AT-TC08	
DMC-UR-3.1-04	N/A		Currently all tests are performed on Linux
DMC-UR-3.1-05	SGS2		Feature that will be implemented in the next releases
DMC-UR-3.1-06	SGS2		Feature that will be implemented in the next releases
DMC-UR-3.1-07	SGS2		Feature that will be implemented in the next releases
DMC-UR-3.1-08	X	DMC-AT-TC03	
DMC-UR-3.1-09	SGS2		Feature that will be implemented in the next releases
DMC-UR-3.1-10	X	DMC-AT-TC01	
DMC-UR-3.1-11	X	DMC-AT-TC01	
DMC-UR-3.1-12	N/A		Since the DDL is a set of xml files they can be put under CVS control
DMC-UR-3.1-13	X	DMC-AT-TC01	
DMC-UR-3.1-14	X	DMC-AT-TC02	
DMC-UR-3.1-15	X	DMC-AT-TC01	
DMC-UR-3.1-16	X	DMC-AT-TC01	
DMC-UR-3.1-17	X	DMC-AT-TC07	
DMC-UR-3.1-18	X	DMC-AT-TC03	
DMC-UR-3.1-19	X	DMC-AT-TC03	
DMC-UR-3.1-20	N/A		The primary key is given by the combination of the object name and its version (see requirement DMC-UR-3.1-21)
DMC-UR-3.1-21	X	DMC-AT-TC03	
DMC-UR-3.1-22	X	DMC-AT-TC04	
DMC-UR-3.1-23	X	DMC-AT-TC03	
DMC-UR-3.1-24	X	DMC-AT-TC04	This requirement, even if labelled as SGS2, is considered essential also for the SGS1
DMC-UR-3.1-25	X	DMC-AT-TC01	
DMC-UR-3.1-26	X	DMC-AT-TC06	
DMC-UR-3.1-27	SGS2		Feature that will be implemented in the next releases
DMC-UR-3.1-28	X	DMC-AT-TC06	
DMC-UR-3.1-29	X	DMC-AT-TC06	
DMC-UR-3.1-30	X	DMC-AT-TC06	

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URD	Covered?	Test Case	Comments
DMC-UR-3.1-31	X	DMC-AT-TC06	
DMC-UR-3.1-32	X	DMC-AT-TC08	
DMC-UR-3.1-33	X	DMC-AT-TC07	
DMC-UR-3.1-34	X	DMC-AT-TC05	
DMC-UR-3.1-35	X	DMC-AT-TC05	
DMC-UR-3.1-36	SGS2		Feature that will be implemented in the next releases
DMC-UR-3.1-37	X	DMC-AT-TC07	
DMC-UR-3.1-38	X	DMC-AT-TC07	
DMC-UR-3.1-39	X	DMC-AT-TC07	
DMC-UR-3.1-40	X	DMC-AT-TC07	
DMC-UR-3.1-41	SGS2		Feature that will be implemented in the next releases
DMC-UR-3.1-42	X	DMC-AT-TC[03-08]	
DMC-UR-3.1-43	X	DMC-AT-TC[03-08]	
DMC-UR-3.1-44	SGS2		Feature that will be implemented in the next releases
DMC-UR-3.1-45	SGS2		Feature that will be implemented in the next releases
DMC-UR-3.1-46	N/A		This feature relies on the DBMS used (Oracle, filesystem)
DMC-UR-3.1-47	SGS2		Feature that will be implemented in the next releases
DMC-UR-3.1-48	N/A		
DMC-UR-3.2-01	X	DMC-AT-TC08	
DMC-UR-3.2-02	X	DMC-AT-TC08	
DMC-UR-3.2-03	N/A		This feature relies on the DBMS used (Oracle + filesystem)
DMC-UR-3.2-04	SGS2		Feature that will be implemented in the next releases
DMC-UR-3.2-05A	SGS2		Feature that will be implemented in the next releases
DMC-UR-3.2-05B	SGS2		Feature that will be implemented in the next releases
DMC-UR-3.2-06	X	DMC-AT-TC08	
DMC-UR-3.2-07	SGS2		Feature that will be implemented in the next releases
DMC-UR-3.3-01	Version 2.4		This feature will be fully available starting from version 2.4 of the DMC
DMC-UR-3.3-02	N/A		Checked trough the DMCI API
DMC-UR-3.4-01	N/A		This feature relies on the DBMS used (Oracle + filesystem)
DMC-UR-3.5-01	X	DMC-AT-TC[02-08]	
DMC-UR-3.5-02	X	DMC-AT-TC[02-08]	
DMC-UR-3.5-03	N/A		The DDL for LFI is under the LFI DPC responsibility
DMC-UR-3.5-04	N/A		MyIDIS provides a web interface displaying the DDL
DMC-UR-3.6-01	X	DMC-AT-TC03	
DMC-UR-3.6-02	X	DMC-AT-TC01	
DMC-UR-3.6-03	X	DMC-AT-TC01	

URD	Covered?	Test Case	Comments
DMC-UR-3.7-01	N/A		Access control is available through the Federation Layer
DMC-UR-3.7-02	N/A		Access control is available through the Federation Layer
DMC-UR-3.7-03	SGS2		Feature that will be implemented in the next releases

4.2 PROC USER REQUIREMENTS

URD	Covered?	Test Case	Comments
URPC-3.1-1	X	PROC-AT-TC01	This feature is partly labelled as SGS2 and hence will be fully implemented in the next releases
URPC-3.1-2	X	PROC-AT-TC01	This feature is partly labelled as SGS2 and hence will be fully implemented in the next releases
URPC-3.1-3	X	PROC-AT-TC01	
URPC-3.1-4	X	PROC-AT-TC01	This feature is partly labelled as SGS2 and hence will be fully implemented in the next releases
URPC-3.1-5	X	PROC-AT-TC01	
URPC-3.1-6	X	PROC-AT-TC02	This feature is partly labelled as SGS2 and hence will be fully implemented in the next releases
URPC-3.1-7	X	PROC-AT-TC01	
URPC-3.1-8	X	PROC-AT-TC01	
URPC-3.1-9	X	PROC-AT-TC02	
URPC-3.1-10	SGS2		Feature that will be implemented in the next releases
URPC-3.1-11	SGS2		Feature that will be implemented in the next releases
URPC-3.1-12	SGS2		Feature that will be implemented in the next releases
URPC-3.1-13	SGS2		Feature that will be implemented in the next releases
URPC-3.1-14	SGS2		Feature that will be implemented in the next releases
URPC-3.1-15	SGS2		Feature that will be implemented in the next releases
URPC-3.1-16	SGS2		Feature that will be implemented in the next releases
URPC-3.2-1	X	PROC-AT-TC02	
URPC-3.2-2	X	PROC-AT-TC02	
URPC-3.2-3	SGS2		Feature that will be implemented in the next releases
URPC-3.3-1	X	PROC-AT-TC03	
URPC-3.3-2	SGS2		Feature that will be implemented in the next releases
URPC-3.4-1	X	PROC-AT-TC05	

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URD	Covered?	Test Case	Comments
URPC-3.4-2	X	PROC-AT-TC05	
URPC-3.4-3	SGS2		Feature that will be implemented in the next releases
URPC-3.5-1	SGS2		Feature that will be implemented in the next releases
URPC-3.6-1	X	PROC-AT-TC01	
URPC-3.6-2	SGS2		Feature that will be implemented in the next releases
URPC-3.6-3	SGS2		Feature that will be implemented in the next releases
URPC-3.6-4	X	PROC-AT-TC01, PROC-AT-TC03	
URPC-3.6-5	X	PROC-AT-TC02	
URPC-3.6-6	X	PROC-AT-TC01, PROC-AT-TC04, PROC-AT-TC05	
URPC-3.6-7	X	PROC-AT-TC04	
URPC-3.6-8	X	PROC-AT-TC01	
URPC-3.6-9	X	PROC-AT-TC01	
URPC-3.6-10	X	PROC-AT-TC02	
URPC-3.6-11	SGS2		Feature that will be implemented in the next releases
URPC-3.6-12	SGS2		Feature that will be implemented in the next releases
URPC-3.7-1	SGS2		Feature that will be implemented in the next releases
URPC-3.7-2	SGS2		Feature that will be implemented in the next releases
URPC-3.7-3	SGS2		Feature that will be implemented in the next releases
URPC-3.7-4	SGS2		Feature that will be implemented in the next releases
URPC-3.7-5	N/A		

4.3 FEDERATION LAYER USER REQUIREMENTS

URD	Covered?	Test Case	Comments
FL-2.1-01	X	FEDL-AT-TC[01-02]	Only Java is considered
FL-2.1-02	X	FEDL-AT-TC[01-02]	The administration tools are only partially covered
FL-2.1-03	N/A		Part of MyIDIS
FL-2.1-04	N/A		Part of MyIDIS
FL-2.1-05	X	FEDL-AT-TC[01-02]	Only ProC and DMC are considered
FL-2.1-06	SGS2		Feature that will be implemented in the next releases
FL-2.1-07	N/A		
FL-2.1-08	X		
FL-2.1-09	SGS2		Feature that will be implemented in the next releases

URD	Covered?	Test Case	Comments
FL-2.1-10	X	FEDL-AT-TC[01-02]	
FL-2.1-11	X	FEDL-AT-TC[01-02]	
FL-2.1-12	N/A		
FL-2.1-13	SGS2		Feature that will be implemented in the next releases
FL-2.1-14	SGS2		Feature that will be implemented in the next releases
FL-2.1-15	N/A		
FL-2.1-16	N/A		
FL-2.1-17	N/A		
FL-2.2-01	SGS2		Feature that will be implemented in the next releases
FL-2.2-02	N/A		A local server will also be available

APPENDIX A TEST REPORT TEMPLATE

Test report ID	DMC-AT-TR01
Test case ID	DMC-AT-TC01
Start date / hour	
End date / hour	
Tester name / Organization	
Test program name (if applicable)	
Input dataset ID (if applicable)	
Output dataset ID (if applicable)	(expected output)
Log location / ID (if applicable)	
Execution status	**PASSED – OK** / **PASSED** – with errors/limitations / **FAILED** / **BLOCKED** / **NOT IMPLEMENTED**
Comments/notes	
SPRs/SCRs raised	(references to possible SPRs and SCRs raised in Mantis)