



EGI-InSPIRE

UMD DATA CAPABILITIES QUALITY CRITERIA v3 DRAFT 2

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Abstract

This document describes the Quality Criteria for the Functional Capabilities identified in the UMD Roadmap.



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Document Log

Issue	Date	Comment	Author/Partner
1.0	20/01/2011	Reorganisation of capabilities according to UMD Roadmap v2	Enol Fernández
1.1	07/02/2011	Added LFC	Enol Fernández
2 DRAFT 1	10/05/2011	Adapted to new template, revision of criteria	Enol Fernández, Mario David
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1 DATA ACCESS

Criteria for the Data Access Capability are based on OGSA-DAI and WS-DAI interface as reference.

1.1 WS-DAI Interface

WS-DAIR API	
ID	DATAACCESS_API_1
Description	Data Access Appliances must implement (at least one of) the WS-DAI realizations and support all the functionality included in the interface.
Mandatory	YES
Applicability	Data Access Appliances
Input from Technology Provider	WS-DAI API support using the relational [R 2] or XML [R 3] realization. Ideally include a test-suite that covers all the documented functions in the WSDL.
Test Description	<p>Pre-condition Valid user credentials.</p> <p>Test Test all functionality of WS-DAI using the relational or XML realization, with correct/incorrect input and with valid and invalid credentials.</p> <p>Expected Outcome Log of all the operations performed. All the functions work as documented.</p>
Pass/Fail Criteria	WS-DAI API is provided for the supported realizations. Check both correct and invalid input. Invalid output should throw an exception as documented. Test also with valid and invalid credentials. Invalid credentials should throw security related exceptions.
Related Information	UMD Roadmap [R 1] WS-DAIR [R 2] WS-DAIX[R 3] #665: Data availability
Revision Log	V2: Merged DATAACCESS_API_* V3: changed wording

1.2 OGSA-DAI Criteria

Deployment of data resources	
ID	DATAACCESS_OGSADAI_1
Description	The OGSA-DAI implementation should allow the deployment of data resources with SQL, XML or files sources.
Mandatory	YES
Applicability	OGSA-DAI Data Access Appliance.
Input from Technology Provider	Support for deployment of SQL, XML and file data resources.
Test Description	Pre-condition Existing SQL data resource. Test Deploy SQL data resource. Test queries against deployed resource. Expected Outcome SQL data resources is available, queries are executed correctly.
	Pre-condition Existing XMLDB data resource. Test Deploy XMLDB data resource. Test queries against deployed resource. Expected Outcome XMLDB data resource is available, queries are executed correctly.
	Pre-condition Existing file data resource. Test Deploy file data resource. Test queries against deployed resource. Expected Outcome File data resource is available, queries are executed correctly.
	Pre-condition Existing remote resource. Test Deploy remote resource. Test queries against deployed resource. Expected Outcome Remote resource is available, queries are executed correctly.
	Pre-condition Deployed data resource. Test Undeploy resource. Test queries against resource. Expected Outcome Remote resource is no longer available; queries are not executed correctly.
	Pass/Fail Criteria Data resources can be deployed/undeployed and queries against the resources are executed correctly.
Related Information	OGSA-DAI [R 4]
Revision Log	V3: changed wording

Management of data resources access	
ID	DATAACCESS_OGSADAI_2
Description	The OGSA-DAI implementation must allow the definition of which users are allowed to access the deployed resources
Mandatory	YES
Applicability	OGSA-DAI Data Access Appliance.
Input from Technology Provider	Support for user management of data resources.
Test Description	Pre-condition Existing data resource. Valid user credentials Test Allow access to user. Test the access. Expected Outcome User is allowed to access the data resource.
	Pre-condition Existing data resource. Valid user credentials Test Deny access to user. Test the access. Expected Outcome User is not allowed to access the data resource.
Pass/Fail Criteria	Appliance must allow the admission/denial of users to data resources.
Related Information	OGSA-DAI [R 4]
Revision Log	V3: changed wording

Deployment of activities at resource	
ID	DATAACCESS_OGSADAI_3
Description	The OGSA-DAI implementation should allow the deployment of activities in server.
Mandatory	YES
Applicability	OGSA-DAI Data Access Appliance.
Input from Technology Provider	Support for deployment of activities.
Test Description	<p>Pre-condition OGSA-DAI server available; Activity classes available at server.</p> <p>Test Deploy activity at server. Add activity to resource. Test execution of activity.</p> <p>Expected Outcome Activity is available and executed correctly.</p>
Pass/Fail Criteria	Appliance must allow the deployment of activities and their execution.
Related Information	OGSA-DAI [R 4]
Revision Log	V3: changed wording

Workflow creation and execution	
ID	DATAACCESS_OGSADAI_4
Description	The OGSA-DAI implementation should allow the creation of workflows with activities
Mandatory	YES
Applicability	OGSA-DAI Data Access Appliance.
Input from Technology Provider	Support for the creation and execution of workflows.
Test Description	Pre-condition Existing OGSA-DAI server.
	Test Create simple workflow, synchronous execution in server.
	Expected Outcome Workflow is executed. Status and data results of workflow can be retrieved.
	Pre-condition Existing OGSA-DAI server.
Test Description	Test Create simple workflow, asynchronous execution in server.
	Expected Outcome Workflow is executed. Status and data results of workflow can be retrieved.
	Expected Outcome Workflow is executed. Status and data results of workflow can be retrieved.
Pass/Fail Criteria	Appliance must allow the creation of workflows and their execution in both synchronous and asynchronous mode.
Related Information	OGSA-DAI [R 4]
Revision Log	V3: changed wording

2 METADATA CATALOGUE

Criteria for the Metadata Catalogue Capability are based on gLite LFC [R 5] and gLite AMGA [R 6]

2.1 LFC Implementation

2.1.1 LFC API

LFC API	
ID	METADATA_LFC_API_1
Description	LFC Metadata Catalogue Appliances must implement the LFC API.
Mandatory	YES
Applicability	LFC Metadata Catalogue Appliances
Input from Technology Provider	Support for the LFC API. Any deviation from the API should be documented. Ideally, provide a complete test suite that includes tests for all the documented functions.
Test Description	Pre-condition Valid user credentials. Test Test all functionality of LFC API, with correct/incorrect input and with valid and invalid credentials. Expected Outcome Log of all the operations performed. All the documented functions work as documented.
Pass/Fail Criteria	Pass if the LFC API support is tested for all the available language bindings.
Related Information	gLite LFC [R 5]
Revision Log	

2.1.2 LFC Functionality

Directory Management	
ID	METADATA_LFC_FUNC_1
Description	LFC Metadata Catalogue Appliances must allow users to organize the files in directories.
Mandatory	YES
Applicability	LFC Metadata Catalogue Appliances
Input from Technology Provider	Support for directory management operations.
Test Description	Pre-condition Valid user credentials. Available Catalogue server. Test Create new directory. Expected Outcome New directory is created at server.
	Pre-condition Valid user credentials. Available Catalogue server. Existing directory Test List contents of directory. Expected Outcome Contents of directory are returned.
	Pre-condition Valid user credentials. Available Catalogue server. Existing empty directory Test Remove directory. Expected Outcome Directory is removed.
	Pre-condition Valid user credentials. Available Catalogue server. Existing non-empty directory Test Remove directory. Expected Outcome Directory is not removed. Message is shown.
Pass/Fail Criteria	Pass if the Appliance provides support for managing directories.
Related Information	gLite LFC [R 5]
Revision Log	

ACL Operations	
ID	METADATA_LFC_FUNC_2
Description	LFC Metadata Catalogue Appliances must allow users to set permissions on the entries.
Mandatory	YES
Applicability	LFC Metadata Catalogue Appliances
Input from Technology Provider	Support for ACL management of LFC.
Test Description	Pre-condition Valid user credentials. Available LFC server. Existing entry Test Show entry owner and permission Expected Outcome Entry owner and permission are returned.
	Pre-condition Valid user credentials with administrator privileges. Available LFC server. Existing entry. Test Change owner of entry. Show entry owner. Expected Outcome Owner of entry is changed and returned.
	Pre-condition Valid user credentials with administrator privileges. Available LFC server. Existing entry. Test Change group of entry. Show entry group. Expected Outcome Group of entry is changed and returned.
	Pre-condition Valid user credentials. Available LFC server. Existing entry. Test Check the entry ACL is enforced. Expected Outcome The permissions of entry are correctly enforced.
Pass/Fail Criteria	Pass if the Appliance provides support for managing ACL on catalogue entries.
Related Information	gLite LFC [R 5]
Revision Log	

Entry Comments	
ID	METADATA_LFC_FUNC_3
Description	LFC Metadata Catalogue Appliances must allow users to set comments on the catalogue entries.
Mandatory	YES
Applicability	LFC Metadata Catalogue Appliances
Input from Technology Provider	Support for the comment management of LFC
Test Description	Pre-condition Valid user credentials. Available LFC server. Existing entry Test Set comment of an entry. Show comment to entry. Expected Outcome The comment is correctly set and shown.
	Pre-condition Valid user credentials. Available LFC server. Existing entry with comment. Test Delete comment of an entry. Show comment to entry. Expected Outcome The comment is correctly removed and nothing is shown.
Pass/Fail Criteria	Pass if the Appliance provides support for managing comments on catalogue entries.
Related Information	gLite LFC [R 5]
Revision Log	

User/Group Map Management	
ID	METADATA_LFC_FUNC_4
Description	LFC Metadata Catalogue Appliances must allow the definition and management of user and group maps.
Mandatory	YES
Applicability	LFC Metadata Catalogue Appliances
Input from Technology Provider	Support for the user/group management of LFC.
Test Description	Pre-condition Valid admin user credentials. Available LFC server. Test List all user/group mappings Expected Outcome List of all user/group mappings is shown.
	Pre-condition Valid admin user credentials. Available LFC server. Test List user mappings for specific user DN. Expected Outcome List of user mappings is shown.
	Pre-condition Valid admin user credentials. Available LFC server. Test List group mappings for specific group name. Expected Outcome List of group mapping is shown.
	Pre-condition Valid admin user credentials. Available LFC server. Non existing user/group mapping. Test Set new user/group mapping. List the user/group mapping. Expected Outcome New mapping is set and shown accordingly.
	Pre-condition Valid admin user credentials. Available LFC server. Existing user/group mapping. Test Set new user/group mapping for a user/group. List the user/group mapping. Expected Outcome New mapping is set and shown accordingly.
	Pre-condition Valid admin user credentials. Available LFC server. Existing user/group mapping. Test Remove user/group mapping for a user/group. List the user/group mapping. Expected Outcome Mapping is removed and not shown.
Pass/Fail Criteria	Pass if the Appliance provides support for managing the mapping of users and groups.



Related Information	gLite LFC [R 5]
Revision Log	

Entry Management	
ID	METADATA_LFC_FUNC_5
Description	LFC Metadata Catalogue Appliances must allow users to create entries and to manage those entries.
Mandatory	YES
Applicability	LFC Metadata Catalogue Appliances
Input from Technology Provider	Support for the entry management operations.
Test Description	<p>Pre-condition Valid user credentials. Available Catalogue server. Available SE with file to register.</p> <p>Test Create new entry (register file in server).</p> <p>Expected Outcome New entry is created at server. GUID is returned</p>
	<p>Pre-condition Valid user credentials. Available Catalogue server with existing entry. Available SE to register replica</p> <p>Test Register new replica of the file in a new SE</p> <p>Expected Outcome Entry is updated with the new replica</p>
	<p>Pre-condition Valid user credentials. Available Catalogue server. Existing entry</p> <p>Test List replicas of entry.</p> <p>Expected Outcome Replica list is returned.</p>
	<p>Pre-condition Valid user credentials. Available Catalogue server. Existing entry.</p> <p>Test Remove one of the entry replicas</p> <p>Expected Outcome Replica is removed. If it was the last one, remove also the entry.</p>
	<p>Pre-condition Valid user credentials. Available Catalogue server. Existing entry.</p> <p>Test Remove entry.</p> <p>Expected Outcome Entry is removed (with all replicas)</p>
Pass/Fail Criteria	Pass if the Appliance provides support for managing entries.
Related Information	gLite LFC [R 5]
Revision Log	

2.2 AMGA Implementation

2.2.1 AMGA Interface

AMGA Soap Interface	
ID	METADATA_AMGA_API_1
Description	AMGA Metadata Catalogue Appliances must implement the complete AMGA WSDL API [R 7]
Mandatory	YES
Applicability	AMGA Metadata Catalogue Appliances
Input from Technology Provider	Support for the AMGA SOAP API. Any deviation from the API should be documented. Ideally, provide a complete test suite that includes tests for all the functionality.
Test Description	<p>Pre-condition Valid user credentials.</p> <p>Test Test all functionality of AMGA WSDL, with correct/incorrect input and with valid and invalid credentials.</p> <p>Expected Outcome Log of all the operations performed. All the documented functions work as documented.</p>
Pass/Fail Criteria	Pass if the AMGA WSDL API is tested and works as documented.
Related Information	gLite AMGA [R 6]
Revision Log	

AMGA Streaming Interface	
ID	METADATA_AMGA_API_2
Description	AMGA Metadata Catalogue Appliances must implement the complete AMGA streaming API [R 8]
Mandatory	YES
Applicability	AMGA Metadata Catalogue Appliances
Input from Technology Provider	Support for the AMGA Streaming API. Any deviation from the API should be documented. Ideally, provide a complete test suite that includes tests for all the functionality.
Test Description	<p>Pre-condition Valid user credentials.</p> <p>Test Test all functionality of AMGA Stream protocol, with correct/incorrect input and with valid and invalid credentials.</p> <p>Expected Outcome Log of all the operations performed. All the documented functions work as documented.</p>
Pass/Fail Criteria	Pass if the API is tested and working as documented for all the available language bindings.
Related Information	gLite AMGA [R 6]
Revision Log	

2.2.2 AMGA Functionality

AMGA Streaming Interface	
ID	METADATA_AMGA_FUNC_1
Description	AMGA Metadata Catalogue Appliances must allow users to organize the files in directories.
Mandatory	YES
Applicability	AMGA Metadata Catalogue Appliances
Input from Technology Provider	Support for the directory management operations of AMGA.
Test Description	Pre-condition Valid user credentials. Available AMGA server. Test Create new directory. Expected Outcome New directory is created at AMGA server.
	Pre-condition Valid user credentials. Available AMGA server. Existing directory Test List contents of directory. Expected Outcome Contents of directory are returned.
	Pre-condition Valid user credentials. Available AMGA server. Existing empty directory Test Remove directory. Expected Outcome Directory is removed.
	Pre-condition Valid user credentials. Available AMGA server. Existing non-empty directory Test Remove directory. Expected Outcome Directory is not removed. Message is shown.
	Pre-condition Valid user credentials. Available AMGA server. Existing directory (different to current) Test Change current directory to existing directory. Check current directory. Expected Outcome Current directory has changed
Pass/Fail Criteria	Pass if users can manage directories in the server.
Related Information	gLite AMGA [R 6]
Revision Log	

Entry Management	
ID	METADATA_AMGA_FUNC_2
Description	AMGA Metadata Catalogue Appliances must allow users to manage the entries in the server.
Mandatory	YES
Applicability	AMGA Metadata Catalogue Appliances
Input from Technology Provider	Support for the entry management operations of AMGA.
Test Description	Pre-condition Valid user credentials. Available AMGA server. Test Create a new entry. List entry's attributes Expected Outcome Entry is created. The attributes are listed correctly.
	Pre-condition Valid user credentials. Available AMGA server. Test Create a new set of entries. List entries' attributes Expected Outcome Entries are created. The attributes are listed correctly.
	Pre-condition Valid user credentials. Available AMGA server. Existing entry. Test Remove existing entry. List entry's attributes Expected Outcome Entry is removed. The list command exits with an error.
Pass/Fail Criteria	Pass if users can manage entries in the server.
Related Information	gLite AMGA [R 6]
Revision Log	

Attribute Management	
ID	METADATA_AMGA_FUNC_3
Description	AMGA Metadata Catalogue Appliances must allow users to manage the attributes in the server.
Mandatory	YES
Applicability	AMGA Metadata Catalogue Appliances
Input from Technology Provider	Support for the attribute management operations of AMGA.
Test Description	Pre-condition Valid user credentials. Available AMGA server. Test Add new attribute to directory. List directory attributes Expected Outcome Attribute is added. List returns all attributes of directory.
	Pre-condition Valid user credentials. Available AMGA server. Existing attributes for dir/entry Test Remove attribute to from dir/entry. List dir/entry attributes Expected Outcome Attribute is removed. List does not return removed attribute.
	Pre-condition Valid user credentials. Available AMGA server. Existing attribute list for file Test Clear attribute list for a file. Get file's attributes. Expected Outcome All file's attributes are set to NULL. Attributes values are shown.
	Pre-condition Valid user credentials. Available AMGA server. Entry with attribute list. Test Clear attribute list for a file. List file's attributes Expected Outcome Attribute list file. They are listed correctly.
Pass/Fail Criteria	Pass if users can manage the attributes for the entries in the server.
Related Information	gLite AMGA [R 6]
Revision Log	

Metadata Queries	
ID	METADATA_AMGA_FUNC_4
Description	AMGA Metadata Catalogue Appliances must allow users to find and update entries based on their metadata.
Mandatory	YES
Applicability	AMGA Metadata Catalogue Appliances
Input from Technology Provider	Support for the metadata queries in AMGA.
Test Description	<p>Pre-condition Valid user credentials. Available AMGA server.</p> <p>Test Test the complete functionality (find, update, select) of the metadata queries in AMGA. Test available functions</p> <p>Expected Outcome Queries work as expected.</p>
Pass/Fail Criteria	Pass if the metadata queries are supported as documented.
Related Information	gLite AMGA [R 6] AMGA Metadata Queries [R 9]
Revision Log	

Attribute Management	
ID	METADATA_AMGA_FUNC_5
Description	AMGA Metadata Catalogue Appliances must allow users to set permissions on the entries.
Mandatory	YES
Applicability	AMGA Metadata Catalogue Appliances
Input from Technology Provider	Support for ACL related operations of AMGA.
Test Description	Pre-condition Valid user credentials. Available AMGA server. Test Get current user. Expected Outcome Current user is returned.
	Pre-condition Valid user credentials. Available AMGA server. Existing entry/dir Test Show entry/dir owner and permission Expected Outcome Entry/dir owner and permission are returned.
	Pre-condition Valid user credentials. Available AMGA server. Existing entry/dir Test Change owner of entry/dir. Show entry/dir owner. Expected Outcome Owner of entry/dir is changed and returned.
	Pre-condition Valid user credentials. Available AMGA server. Existing entry/dir Test Change entry/dir permissions. Check the permission is enforced. Expected Outcome The permissions of entry/dir are changed and correctly enforced.
Pass/Fail Criteria	Pass if users can manage the ACLs of the entries in the server.
Related Information	gLite AMGA [R 6]
Revision Log	

3 REFERENCES

R 1	UMD roadmap: https://documents.egi.eu/public/ShowDocument?docid=100
R 2	Web Services Data Access and Integration – The Relational Realisation (WS-DAIR) Specification, Version 1.0
R 3	Web Services Data Access and Integration – The XML Realization (WS-DAIX) Specification, Version 1.0
R 4	OGSA-DAI: http://www.ogsadai.org.uk/
R 5	gLite LFC: https://twiki.cern.ch/twiki/bin/view/EGEE/GliteLFC
R 6	AMGA: http://amga.web.cern.ch/amga/
R 7	AMGA WSDL: http://amga.web.cern.ch/amga/downloads/Metadata.wsdl
R 8	AMGA streaming API: http://amga.web.cern.ch/amga/protocol.html
R 9	AMGA Metadata Queries: http://amga.web.cern.ch/amga/queries.html
R 10	A. Konstantinov, ARC Computational Job Management Component – A-REX, NORDUGRID-TECH-14
R 11	CREAM: http://grid.pd.infn.it/cream/
R 12	EMI-ES: https://twiki.cern.ch/twiki/bin/view/EMI/EmiExecutionService
R 13	GRAM5: http://www.globus.org/toolkit/docs/latest-stable/execution/gram5/
R 14	OGF DRMAA: http://www.drmaa.org/
R 15	OGSA Basic Execution Service v1.0: http://www.ogf.org/documents/GFD.108.pdf
R 16	UNICORE UAS: http://www.unicore.eu/unicore/architecture/service-layer.php#anchor_uas
R 17	gLite WMS: http://web.infn.it/gLiteWMS/
R 18	SAGA-CORE-WG: A Simple API for Grid Applications (SAGA) v1.0 (GFD.90)
R 19	SAGA (A Simple API for Grid Applications): http://saga.cct.lsu.edu/
R 20	Instrument Element: http://www.dorii.eu/resources/adaptation:middleware:IE
R 21	DORII (Deployment of Remote Instrumentation Infrastructure) Project: http://www.dorii.eu/
R 22	GlueSchema Specification v1.3: http://glueschema.forge.cnaf.infn.it/Spec/V13

R 23	GlueSchema Specification v2.0: http://www.ogf.org/documents/GFD.147.pdf
R 24	JMS (Java Message Service Specification) 1.1: http://www.oracle.com/technetwork/java/jms/index.html
R 25	AMQP (Advanced Message Queuing Protocol): http://www.amqp.org/confluence/display/AMQP/Advanced+Message+Queuing+Protocol
R 26	Nagios Config Generator: https://tomtools.cern.ch/confluence/display/SAM/NCG
R 27	My EGI portal: https://tomtools.cern.ch/confluence/display/SAM/MyEGI
R 28	SAM Probes Documentation: https://tomtools.cern.ch/confluence/display/SAM/Probes
R 29	Accounting Portal: http://accounting.egi.eu/
R 30	GridSite Delegation Protocol: http://www.gridsite.org/wiki/Delegation_protocol
R 31	Globus Delegation Service: http://www.globus.org/toolkit/docs/4.0/security/delegation/
R 32	European Policy Management Authority for Grid Authentication (EuGridPMA): http://www.eugridpma.org/
R 33	ARGUS Authorization Service: https://twiki.cern.ch/twiki/bin/view/EGEE/AuthorizationFramework
R 34	XACML: http://docs.oasis-open.org/xacml/2.0/access_control-xacml-2.0-core-spec-os.pdf
R 35	Hydra encrypted file storage: https://twiki.cern.ch/twiki/bin/view/EGEE/DMEDS
R 36	gLite FTS: https://twiki.cern.ch/twiki/bin/view/EGEE/GLiteFTS
R 37	SRM v2.2: http://www.ggf.org/documents/GFD.129.pdf
R 38	S2 Test: http://s-2.sourceforge.net/
R 39	SRM-Tester: https://sdm.lbl.gov/twiki/bin/view/Software/SRMTester/WebHome
R 40	Lcg-utils: http://grid-deployment.web.cern.ch/grid-deployment/documentation/LFC_DPM/lcg_util/
R 41	Lcg-utils test suite: http://glite.cvs.cern.ch/cgi-bin/glite.cgi/org.glite.testsuites.ctb/UI/tests/test-lcg-utils.sh?view=markup
R 42	Open Cloud Computing Interface WG, OGF, http://www.ggf.org/gf/group_info/view.php?group=occi-wg
R 43	Virtualization Management (VMAN), DMTF http://www.dmtf.org/standards/vman