EGI-InSPIRE

UMD QUALITY CRITERIA VIRTUALISATION CAPABILITIES v4

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Abstract

This document describes the Quality Criteria that all software of the UMD distribution must meet.

Document Log

Issue	Date	Comment	Author/Partner
v0.1	02/11/2010	First draft	Enol Fernández
v1.0	03/11/2010	Changed Management, Traceability and Monitoring section	Enol Fernández
v1.1	03/11/2010	Added Probe description in GEN_MON_1	Enol Fernández
v1.2	11/11/2010	Some formatting update	Enol Fernández
v1.3	31/01/2011	Better test specification	Enol Fernández
1.4	09/02/2011	Review of criteria	Enol Fernández
2 DRAFT 1	24/06/2011	Preparation of new release	Enol Fernández
2	02/08/2011	Reorganisation, added new criteria.	Enol Fernández
3 DRAFT 1	13/10/2011	First draft of release 3	Enol Fernández
3 DRAFT 2	24/01/2012	Second draft of release 3	Enol Fernández
4 DRAFT 1	21/05/2012	First public draft of release 4	Enol Fernández
4 DRAFT 2	23/07/2012	Second public draft of release 4	Enol Fernández

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1 VIRTUAL MACHINE MANAGEMENT

1.1 Virtual Machine Management API

OCCI RESTful HTTP Rendering Support	
ID	**VIRT_MGMT_API_1**
Description	Virtual Machine Management Appliances should support the OCCI RESTful HTTP rendering.
Mandatory	NO
Applicability	Virtual Machine Management Appliances

Input from Technology Provider	Valid OCCI RESTful HTTP API implementation, any deviations from the API implementation should be documented. Ideally, also provide a complete test suite and results for the API support
Pass/Fail Criteria	Pass if OCCI RESTful HTTP support is provided. If the API is not completely supported, this should be documented.
Related Information	UMD Roadmap [R 1] OCCI API [R 44]
Revision Log	

1.2 Virtual Machine Management Operations

Management of images	
ID	**VIRT_MGMT_OPS_1**
Description	Virtual Machine Management Appliances must provide support for management of images.
Mandatory	YES
Applicability	Virtual Machine Management Appliances

Input from Technology Provider	Support for managing the images that can be instantiated: - Upload new image. - List available images - List/Update metadata of an image. - Create new image from running instance. - Delete image.
Pass/Fail Criteria	Pass if the volume management operations are supported.
Related Information	UMD Roadmap [R 1]
Revision Log	

Management of Virtual Machine Instances	
ID	**VIRT_MGMT_OPS_2**
Description	Virtual Machine Management Appliances must provide support for starting, stopping and listing instances.
Mandatory	YES
Applicability	Virtual Machine Management Appliances

Input from Technology Provider	Support for Virtual Machine Instance management operations: - Start an instance from a given image - Query the status of an instance - Pause and resume a given instance (optional) - List the current existing instances - Stop/Delete an instance. When starting the instance, an optional key may be specified with for ssh access. Support for additional instance metadata should be provided.
Pass/Fail Criteria	Pass if the management operations are supported. Ideally provide support for specifying image metadata.
Related Information	UMD Roadmap [R 1]
Revision Log	

Management of network addresses	
ID	**VIRT_MGMT_OPS_3**
Description	Virtual Machine Management Appliances must provide support for requesting and assigning network addresses to instances.
Mandatory	YES
Applicability	Virtual Machine Management Appliances

Input from Technology Provider	Support for managing the network addresses of instances: - List network addresses for a given instance. - Allocate a new network address for a given instance. - Remove network address for a given instance.
Pass/Fail Criteria	Pass if the network address management operations are supported.
Related Information	UMD Roadmap [R 1]
Revision Log	

Management of volumes	
ID	**VIRT_MGMT_OPS_4**
Description	Virtual Machine Management Appliances must provide support for creating, attaching, detaching and delete volumes (block level storage)
Mandatory	YES
Applicability	Virtual Machine Management Appliances

Input from Technology Provider	Support for managing the volumes: - Create new volumes. - Attach/Detach volume to running instance. - Delete existing volume.
Pass/Fail Criteria	Pass if the volume management operations are supported.
Related Information	UMD Roadmap [R 1]
Revision Log	

2 VIRTUAL MACHINE IMAGE FORMAT

OVF Image Format Support	
ID	**VIRT_IMG_1**
Description	OVF Image Format support.
Mandatory	NO
Applicability	Virtual Machine Image Format Appliances

Input from Technology Provider	Support for the OVF (Open Virtualisation Format) to deploy images on the virtualisation platforms.
Pass/Fail Criteria	Pass if OVF images can be deployed.
Related Information	UMD Roadmap [R 1] OVF [R 45]
Revision Log	

3 IMAGE DISTRIBUTION CAPABILITY

The Image Distribution Capability Criteria is based on the StratusLab MarketPlace [R 46].

3.1 StratusLab MarketPlace

The StratusLab MarketPlace is a server for virtual image metadata. It does not provide storage for the images, which must be supported by other services.

Image Metadata Registration	
ID	**VIRT_IMGDIST_1**
Description	Support for registration of virtual machine images metadata.
Mandatory	YES
Applicability	Image Distribution Appliances

Input from Technology Provider	Support for registration of new virtual machine metadata. The metadata must follow the schema of the StratusLab MarketPlace as described in the technical documentation and the compliance with that schema must be checked during the registration procedure. Metadata must be signed in order to avoid possible alterations of metadata. Any addition to the server must be confirmed by email.
Pass/Fail Criteria	Pass if metadata registration is possible.
Related Information	UMD Roadmap [R 1]
Revision Log	

Fetch Image Metadata	
ID	**VIRT_IMGDIST_2**
Description	Support for fetching image metadata.
Mandatory	YES
Applicability	Image Distribution Appliances

Input from Technology Provider	Support for fetching all metadata of an image by using its unique identifier
Pass/Fail Criteria	Pass if fetching image metadata is possible.
Related Information	UMD Roadmap [R 1]
Revision Log	

Image Metadata Query	
ID	**VIRT_IMGDIST_3**
Description	Support for queries of virtual machine images metadata.
Mandatory	YES
Applicability	Image Distribution Appliances

Input from Technology Provider	Support for querying the metadata stored in the server. The server must show a list of image identifiers and selected fields for all the images in the server. A paginated interface may be used.
Pass/Fail Criteria	Pass if metadata queries are possible in the server showing all the images registered.
Related Information	UMD Roadmap [R 1]
Revision Log	

Image Metadata Search	
ID	**VIRT_IMGDIST_4**
Description	Support for searches of virtual machine images metadata.
Mandatory	YES
Applicability	Image Distribution Appliances

Input from Technology Provider	Support for searching the metadata stored in the server by specifying constraints on the metadata values. Any metadata field may be used for searching. The query language is dependent on the server implementation.
Pass/Fail Criteria	Pass if searches can be performed on the metadata stored in the server.
Related Information	UMD Roadmap [R 1]
Revision Log	

4   REFERENCES

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

R 23	GlueSchema Specification v1.3: http://glueschema.forge.cnaf.infn.it/Spec/V13
R 24	GlueSchema Specification v2.0: http://www.ogf.org/documents/GFD.147.pdf
R 25	Glue Validator: https://tomtools.cern.ch/confluence/display/IS/GLUEValidator
R 26	JMS (Java Message Service Specification) 1.1: http://www.oracle.com/technetwork/java/jms/index.html
R 27	AMQP (Advanced Message Queuing Protocol): http://www.amqp.org/confluence/display/AMQP/Advanced+Message+Queuing+Protocol
R 28	Nagios Config Generator: https://tomtools.cern.ch/confluence/display/SAM/NCG
R 29	My EGI portal: https://tomtools.cern.ch/confluence/display/SAM/MyEGI
R 30	SAM Probes Documentation: https://tomtools.cern.ch/confluence/display/SAM/Probes
R 31	Accounting Portal: http://accounting.egi.eu/
R 32	GridSite Delegation Protocol: http://www.gridsite.org/wiki/Delegation_protocol
R 33	Globus Delegation Service: http://www.globus.org/toolkit/docs/4.0/security/delegation/
R 34	European Policy Management Authority for Grid Authentication (EuGridPMA): http://www.eugridpma.org/
R 35	ARGUS Authorization Service: https://twiki.cern.ch/twiki/bin/view/EGEE/AuthorizationFramework
R 36	XACML: http://docs.oasis-open.org/xacml/2.0/access_control-xacml-2.0-core-spec-os.pdf
R 37	Hydra encrypted file storage: https://twiki.cern.ch/twiki/bin/view/EGEE/DMEDS
R 38	gLite FTS: https://twiki.cern.ch/twiki/bin/view/EGEE/GLiteFTS
R 39	SRM v2.2: http://www.ggf.org/documents/GFD.129.pdf
R 40	S2 Test: http://s-2.sourceforge.net/
R 41	SRM-Tester: https://sdm.lbl.gov/twiki/bin/view/Software/SRMTester/WebHome
R 42	Lcg-utils: http://grid-deployment.web.cern.ch/grid-deployment/documentation/LFC_DPM/lcg_util/
R 43	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 44	Open Cloud Computing Interface WG, OGF, http://www.ggf.org/gf/group_info/view.php?group=occi-wg

R 45	Virtualization Management (VMAN), DMTF http://www.dmtf.org/standards/vman
R 46	StratusLab http://stratuslab.eu/
R 47	StratusLab MarketPlace Technical Note TN-Marketplace (V3.0)