



EGI-InSPIRE

UMD QUALITY CRITERIA v5

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Abstract

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



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Document Log

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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
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3 DRAFT 1	13/10/2011	First draft of release 3	Enol Fernández
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4 DRAFT 2	23/07/2012	Second public draft of release 4	Enol Fernández
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1 DOCUMENTATION

Services in UMD must include a comprehensive documentation written in a uniform and clear style. All Quality Criteria described below may be met by a single document that contains all the requested sections.

Functional Description	
ID	GENERIC_DOC_1
Description	All products must provide a document with a brief functional description of the product.
Mandatory	NO
Applicability	All products
Input from Technology Provider	Document (or link) with a general description of the product that includes: <ul style="list-style-type: none">• Purpose of the product• Capabilities meet by the product
Pass/Fail Criteria	The document should exist and contain the requested information.
Related Information	
Revision Log	V2: clarified the required documentation

Release Notes	
ID	GENERIC_DOC_2
Description	All products must provide a document with the release notes.
Mandatory	YES
Applicability	All products
Input from Technology Provider	Document (or link) with release notes of the product. They must include major the changes in the product: bug fixes, new features.
Pass/Fail Criteria	The document should exist and contain the requested information.
Related Information	
Revision Log	

User Documentation	
ID	GENERIC_DOC_3
Description	All products must provide a document describing how to use it.
Mandatory	NO
Applicability	All products with end-user tools and services.
Input from Technology Provider	Document (or link) with user guide describing the functionality of the software and how to use it.
Pass/Fail Criteria	The document should exist and contain the requested information.
Related Information	
Revision Log	

Online help (man pages)	
ID	GENERIC_DOC_4
Description	All products with end user command line tools must include man pages or online help.
Mandatory	NO
Applicability	All products with command line tools.
Input from Technology Provider	Man pages with information about the usage of commands. If man pages are not available, comprehensive help options must be included with the command with information about the usage (i.e. -h/--help option)
Pass/Fail Criteria	Online help should be available (man pages or command line help). Command line help should give meaningful cues (i.e., only a list of single-letter options is not sufficient) If both command line help (-h option) and man pages are provided they must be mutually consistent (describe the same set of options and their meaning).
Related Information	GGUS ticket # 73214
Revision Log	V3: Tighten wording to avoid situations as described in GGUS #73214

API Documentation	
ID	GENERIC_DOC_5
Description	Public API of product/appliances must be documented.
Mandatory	NO
Applicability	All products with public API.
Input from Technology Provider	Documentation (or link) of the API of the product. The documentation <i>should</i> cover all the existing public functionality of the API.
Pass/Fail Criteria	The document should exist and contain the API documentation. If the product implements a well-known or standard API, any missing functionality must be documented.
Related Information	
Revision Log	V2: review of the description

Administrator Documentation	
ID	GENERIC_DOC_6
Description	Products must provide an administrator guide describing installation, configuration and operation of the system.
Mandatory	NO
Applicability	All products managed by an administrator.
Input from Technology Provider	Documentation (or link) with requested documentation.
Pass/Fail Criteria	The document should exist and contain the requested information.
Related Information	
Revision Log	

Service Reference Card																			
ID	GENERIC_DOC_7																		
Description	For each of the services that a product runs, document its characteristics with a reference card.																		
Mandatory	NO																		
Applicability	All products that need services for operation.																		
Input from Technology Provider	Documentation (or link) with requested documentation.																		
Pass/Fail Criteria	<p>The document must exist and contain the following information for each service:</p> <table border="1"> <thead> <tr> <th colspan="2">ServiceName</th> </tr> </thead> <tbody> <tr> <td>Description</td> <td>Description of the service</td> </tr> <tr> <td>Init scripts</td> <td>List of init scripts for the service, expected run levels</td> </tr> <tr> <td>Daemons</td> <td>List of daemons needed for the service</td> </tr> <tr> <td>Configuration</td> <td>List of configuration files used by the service</td> </tr> <tr> <td>Logs</td> <td>List of log files used by the service</td> </tr> <tr> <td>Open ports</td> <td>List of ports the service uses</td> </tr> <tr> <td>Cron</td> <td>List of crons used by the service</td> </tr> <tr> <td>Other information</td> <td>Any other relevant information about the service.</td> </tr> </tbody> </table>	ServiceName		Description	Description of the service	Init scripts	List of init scripts for the service, expected run levels	Daemons	List of daemons needed for the service	Configuration	List of configuration files used by the service	Logs	List of log files used by the service	Open ports	List of ports the service uses	Cron	List of crons used by the service	Other information	Any other relevant information about the service.
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Related Information																			
Revision Log																			

Software License	
ID	GENERIC_DOC_8
Description	Products must have a compatible license for using them in the EGI Infrastructure
Mandatory	YES
Applicability	All products.
Input from Technology Provider	Product License (link or document).
Pass/Fail Criteria	<p>Pass: if the license is available and is compatible with the EGI infrastructure.</p> <p>For Open Source products, compatible licenses are those accepted by the Open Source Initiative and categorized as “Popular and widely used or with strong communities”:</p> <ul style="list-style-type: none"> - Apache License, 2.0 (Apache-2.0) - BSD 3-Clause "New" or "Revised" license (BSD-3-Clause) - BSD 3-Clause "Simplified" or "FreeBSD" license (BSD-2-Clause) - GNU General Public License (GPL) - GNU Library or "Lesser" General Public License (LGPL) - MIT license (MIT) - Mozilla Public License 1.1 (MPL-1.1) - Common Development and Distribution License (CDDL-1.0) - Eclipse Public License (EPL-1.0) <p>Other licenses accepted by the Open Source Initiative and listed as “Special Purpose” are compatible with the infrastructure (when applicable):</p> <ul style="list-style-type: none"> - Educational Community License - IPA Font License (IPA) - NASA Open Source Agreement 1.3 (NASA-1.3) - Open Font License 1.1 (OFL-1.1) <p>Any other license, and non Open Source products will be evaluated by the verification team in coordination with the Operations Community.</p>
Related Information	Open Source Initiative Licenses by Category: http://www.opensource.org/licenses/category
Revision Log	V2: Moved from Software Release to documentation.

Release changes testing	
ID	GENERIC_DOC_9
Description	Changes in a release of a product must be tested.
Mandatory	NO
Applicability	All Products.
Input from Technology Provider	Tests (or documentation for the test results) for relevant changes described in the product release notes, including bug fixes and any new features.
Pass/Fail Criteria	<p>Pass if the TP provides documentation of the tests performed to certify the release quality. The documentation <i>should</i> describe tests (and tests results) for all the changes included, especially bug fixes.</p> <p>The granularity of the testing documentation will be determined per release basis. In the case of missing tests, the verifier will decide if the provided information is enough to trust quality of the changes introduced in the software.</p>
Related Information	MS503: Software Provisioning Process
Revision Log	<p>V2: Better specification of the pass/fail criteria. Moved to documentation criteria</p> <p>V3: improvement of the pass/fail criteria.</p> <p>V4: better wording after IGE review, turned into NOT mandatory.</p>

2 SOFTWARE DISTRIBUTION

Source Code Availability	
ID	GENERIC_DIST_1
Description	Open Source Products should provide their source code.
Mandatory	NO
Applicability	All Open Source Products.
Input from Technology Provider	Source code repository or source distribution of product with building documentation.
Pass/Fail Criteria	Open source products must publicly offer their source code and the license with the binaries. Build documentation (or link to it) should be available. Ideally, automatic or continuous build procedures exist.
Related Information	
Revision Log	V2: Changed ID (previously GENERIC_REL_2) V4: Merged GENERIC_DIST_1 and GENERIC_DIST_2 & Turned into not mandatory

Binary Distribution	
ID	GENERIC_DIST_3
Description	Products must be available in the native packaging format of the supported platform.
Mandatory	YES
Applicability	All Products.
Input from Technology Provider	Binary distribution of product in the native packaging format of the supported platform (RPM, DEB, ...)
Pass/Fail Criteria	<ul style="list-style-type: none"> - Binary packages using the standard packaging format of the OS (i.e. RPM, DEB...) must be provided for all the supported OS and/or architectures. - Packages must be signed by the TP - Packages <i>should</i> follow OS packaging policies (e.g. names of packages, <u>use of filesystem hierarchy</u>, init scripts). Any deviance from the policies must be documented. - Second level dependencies (i.e. software not provided by the TP in their repository) must be provided by the OS distribution or standard OS repositories (EPEL in SL5 & SL6). In the case of needing a different version for a specific package or packages from other repositories, the verifier will decide whether to accept or not the packages depending on the reason given for such dependencies on external packages.
Related Information	Verification reports from EMI release 1. #1357: Middleware use standard file locations GGUS #82417: https://ggus.eu/ws/ticket_info.php?ticket=82417
Revision Log	V2: Turn to mandatory, better description to avoid problems found in verification. Changed ID (previously GENERIC_REL_5) V4: Added requirement for signed packages.

3 SOFTWARE FEATURES

Backwards Compatibility	
ID	GENERIC_SOFT_1
Description	Minor/Revision releases of a product must be backwards compatible.
Mandatory	YES
Applicability	All Products.
Input from Technology Provider	Products must maintain backwards compatibility between releases of the same major version. Ideally, TP provides tests to assure the backwards compatibility of the product.
Pass/Fail Criteria	All the changes in a minor or revision release <i>must</i> be backward compatible (test should be done with previous releases of clients within the same major version). Any new features should not introduce changes in the previous features.
Related Information	MS503: Software Provisioning Process IGE QC
Revision Log	

New features testing	
ID	GENERIC_SOFT_2
Description	Verification should cover testing of new features and bug fixes.
Mandatory	YES
Applicability	All Products.
Input from Technology Provider	Release notes with changes in the software. The verifier will review each of the changes and check its correctness (whenever possible)
Pass/Fail Criteria	New features and bug fixes specified in the release notes work as documented. Some new features may not be tested if they are not relevant to the main capability of the product.
Related Information	MS503: Software Provisioning Process IGE QC
Revision Log	

4 SERVICE CRITERIA

4.1 Service Management

UMD products should have mechanisms for managing them, monitoring their status and tracing actions they perform on the system. Ideally, these should be also available remotely, allowing operators to react timely to problems in the infrastructure. This generic criteria for services is the minimum set of service related

Service control and status	
ID	GENERIC_SERVICE_1
Description	Services run by the product must provide a mechanism for starting, stopping and querying the status of the services.
Mandatory	YES
Applicability	All products that use services for operations.

Input from Technology Provider	Start/stop mechanism for each of the services following OS conventions. Ideally, provide a test suite for the mechanism as described below.						
Test Description	<table border="0"> <tr> <td>Pre-condition</td> <td>Service is started</td> </tr> <tr> <td>Test</td> <td>Start service</td> </tr> <tr> <td>Expected Outcome</td> <td>No action taken, show a message stating the service is already started.</td> </tr> </table>	Pre-condition	Service is started	Test	Start service	Expected Outcome	No action taken, show a message stating the service is already started.
	Pre-condition	Service is started					
	Test	Start service					
	Expected Outcome	No action taken, show a message stating the service is already started.					
	<table border="0"> <tr> <td>Pre-condition</td> <td>Service is stopped</td> </tr> <tr> <td>Test</td> <td>Start service</td> </tr> <tr> <td>Expected Outcome</td> <td>Service is started, show a message when it is started.</td> </tr> </table>	Pre-condition	Service is stopped	Test	Start service	Expected Outcome	Service is started, show a message when it is started.
	Pre-condition	Service is stopped					
	Test	Start service					
	Expected Outcome	Service is started, show a message when it is started.					
	<table border="0"> <tr> <td>Pre-condition</td> <td>Service is started</td> </tr> <tr> <td>Test</td> <td>Stop service</td> </tr> <tr> <td>Expected Outcome</td> <td>Service is stopped, show a message stating the service is stopped.</td> </tr> </table>	Pre-condition	Service is started	Test	Stop service	Expected Outcome	Service is stopped, show a message stating the service is stopped.
	Pre-condition	Service is started					
	Test	Stop service					
	Expected Outcome	Service is stopped, show a message stating the service is stopped.					
<table border="0"> <tr> <td>Pre-condition</td> <td>Service is stopped</td> </tr> <tr> <td>Test</td> <td>Stop service</td> </tr> <tr> <td>Expected Outcome</td> <td>No action taken, show a message stating the service is already stopped.</td> </tr> </table>	Pre-condition	Service is stopped	Test	Stop service	Expected Outcome	No action taken, show a message stating the service is already stopped.	
Pre-condition	Service is stopped						
Test	Stop service						
Expected Outcome	No action taken, show a message stating the service is already stopped.						
<table border="0"> <tr> <td>Pre-condition</td> <td>Service is stopped</td> </tr> <tr> <td>Test</td> <td>Check service status</td> </tr> <tr> <td>Expected Outcome</td> <td>Show a message stating the service is stopped.</td> </tr> </table>	Pre-condition	Service is stopped	Test	Check service status	Expected Outcome	Show a message stating the service is stopped.	
Pre-condition	Service is stopped						
Test	Check service status						
Expected Outcome	Show a message stating the service is stopped.						

Test Description	<p>Pre-condition Service is started</p> <p>Test Check service status</p> <p>Expected Outcome Show a message stating the service is started.</p>
Pass/Fail Criteria	<p>Services run by the product must provide a mechanism for starting, stopping and querying the status of the services following the OS init scripts conventions (e.g. for Linux Distributions, check http://refspecs.freestandards.org/LSB_3.1.0/LSB-Core-generic/LSB-Core-generic/inisrptact.html). They must work properly in all the cases described above.</p> <p>If the OS provides tools for configuring the services (chkconfig in RH based distros), these <i>should</i> work out of the box with the init scripts of the services</p>
Related Information	<p>#2274: Service under RH following SystemV init system</p> <p>#1201: Homogeneity in service control.</p>
Revision Log	<p>V3: Added related information, fix test conditions.</p>

4.2 Service logs

Log Files	
ID	GENERIC_SERVICE_2
Description	All services should create log files where the service administrator can trace most relevant actions taken.
Mandatory	YES
Applicability	All products that use services for operations.
Input from Technology Provider	List of logs generated by the service (the reference card of service should already include them)
Pass/Fail Criteria	List of logs is provided. They should follow the OS conventions for location and format so they can be treated with the standard tools of the OS (log rotation, collection with syslog, ...)
Related Information	This criterion may be further specialized in the specific criteria for each product/capability determining which information must be logged or number/types of logs. #1357: Middleware use standard file locations
Revision Log	V2: Review of the criteria. V4: Added related information

4.3 Service Monitoring

All services in the EGI Infrastructure should provide monitoring probes that can be executed automatically by the EGI monitoring framework (based in Nagios). The probes should check the service responsiveness and correctness (good replies for typical requests).

Particular monitoring probes are defined at the Specific Quality Criteria document for Operations tools. The probes that apply to all capabilities (generic probes) are identified as MON_PROBE_GENERIC_xx. For specific capabilities there might exist other probes that are described in the same document.

4.4 Service Accounting

All services in the EGI Infrastructure should provide ways of recording the use of resources within the infrastructure. The Accounting Capability described in the Operations Capabilities Criteria document specifies the criteria for the different appliances.

4.5 Availability, Reliability and Scalability.

The EGI Infrastructure depends on the uninterrupted performance of the installed software. All products should provide a reliable operation and should be able to handle growing amounts of work in a graceful manner. Specific criteria for the availability, reliability or scalability of appliances may be also defined in the criteria documents for each of the capabilities.

Service Reliability	
ID	GENERIC_SERVICE_3
Description	Services must maintain a good performance and reliability over long periods of time with normal operation.
Mandatory	NO
Applicability	All products that use services for operations.
Input from Technology Provider	Long running unattended operation test measuring performance of the product.
Test Description	<p>Pre-condition Product is properly configured.</p> <p>Test Start service and measure performance during operations.</p> <p>Expected Outcome No significant performance degradation is observed in the system.</p>
Pass/Fail Criteria	<p>Service must not show performance degradation during a 3-day period. The most important parameters to check are:</p> <ul style="list-style-type: none"> • stable memory usage • throughput and/or response times remain stable during the period of activity (they should be as good or better than at the beginning of the test for similar requests)
Related Information	
Revision Log	V2: detailed pass/fail criteria

Service Robustness	
ID	GENERIC_SERVICE_4
Description	Services should not produce unexpected results or become uncontrollable when taxed beyond normal capacity.
Mandatory	NO
Applicability	All products that use services for operations.
Input from Technology Provider	Assure that the services taxed beyond normal capacity do not produce unexpected results or become uncontrollable.
Pass/Fail Criteria	Services taxed beyond normal capacity: <ul style="list-style-type: none"> • should not become unresponsive to normal start/stop operations • must be able to start after a forceful stop • must not expose (potentially sensitive) memory contents to other processes • must not leave sensitive data in world-readable files • must not accept connections that would be refused under normal operating conditions
Related Information	TST_2 from IGE Quality Assurance.
Revision Log	

4.6 Service Configuration

Automatic Configuration	
ID	GENERIC_SERVICE_5
Description	Products that provide tools for configuration (yaim) that covers typical deployments must assure tools work as documented.
Mandatory	NO
Applicability	Products with automatic configuration tools
Input from Technology Provider	Tests of the automatic configuration tool (yaim) in typical deployment scenario.
Pass/Fail Criteria	Pass if the product can be configured as documented with the provided tool. Resulting configuration must prepare the product for operation without extra manual configuration steps (unless clearly documented).
Related Information	Yaim: https://twiki.cern.ch/twiki/bin/view/EGEE/YAIM UMD 1.0.0 Verification Reports.
Revision Log	V3: Removed the requirement for keeping manual configurations.

Default Password Configuration	
ID	GENERIC_SERVICE_6
Description	Products should not use default passwords. If the service needs a password, it must be generated randomly or force the admin to introduce one.
Mandatory	YES
Applicability	All products with passwords.
Input from Technology Provider	Configuration should never have default passwords. If there is an automated configuration generator (e.g. yaim) it must request the user to set one or generate a random one.
Pass/Fail Criteria	No default passwords are used for configuration of services.
Related Information	SVG Advisory 1414: https://wiki.egi.eu/wiki/SVG:Advisory-SVG-2011-1414
Revision Log	

Default Configuration	
ID	GENERIC_SERVICE_7
Description	Default configuration of the service should be <i>usable</i> .
Mandatory	YES
Applicability	All Products.
Input from Technology Provider	Documentation on the default values of any optional configuration parameters. Default values for those values reasonable for the normal operation of the service in a standard installation.
Pass/Fail Criteria	Pass if the documentation of the default values of the optional configuration parameters is available and the service runs with those default values (in a standard installation).
Related Information	VOMS mass user suspension (RT #3585)
Revision Log	

5 SECURITY

World Writable Files	
ID	GENERIC_SEC_1
Description	Products must not create world-writable files or directories.
Mandatory	YES
Applicability	All products.
Input from Technology Provider	World-writable files and directories are dangerous since they allows anyone to modify them, several vulnerabilities in recent years have been due to world writable files and directories being present when they should not be. Technology Provider must assure that they software do not produce world writable files in order to prevent new vulnerabilities being introduced in the future. Ideally a test that checks that those files do not exist should be provided.
Test Description	<p>Pre-condition Service correctly configured and started</p> <p>Test Check the existence of world writable or unowned files in the system.</p> <p>Expected Outcome No world writable or unowned files exist.</p>
Pass/Fail Criteria	The product should not create world-writable files or directories. If any world-writable files are needed for the normal operation of the service, these should be documented. Logs and config files must not be world-writable.
Related Information	Proposed by the EGI SVG RAT to prevent new vulnerabilities in the future.
Revision Log	V1.3 Changed test description. V4: improved pass/fail criteria.

Passwords in world readable files	
ID	GENERIC_SEC_3
Description	Service password must not be stored in world readable files.
Mandatory	YES
Applicability	All products with passwords.
Input from Technology Provider	If the product uses passwords stored in files, those files must not be world readable.
Pass/Fail Criteria	No passwords are stored in world readable files.
Related Information	SVG Advisory 1414: https://wiki.egi.eu/wiki/SVG:Advisory-SVG-2011-1414
Revision Log	

6 MISCELLANEOUS

Bug Tracking System	
ID	GENERIC_MISC_1
Description	TP must enrol as 3 rd level support in the EGI Helpdesk.
Mandatory	YES
Applicability	All Products.
Input from Technology Provider	Technology Providers must enrol in GGUS as 3 rd level support for the products verified by the Quality Assurance team of EGI. Any further integration with TP-specific bug tracking software is entirely up to the Technology Provider.
Pass/Fail Criteria	Pass if Technology Provider enlisted as 3 rd level support in GGUS.
Related Information	IGE QC
Revision Log	

7 AUTHENTICATION

An authentication token that is strongly bound to an individual must be applied consistently across the software used within the production infrastructure. The authentication system should be capable of supporting a delegation model.

7.1 Authentication Credentials

X.509 Certificate support	
ID	AUTHN_CRED_1
Description	Primary authentication token within the infrastructure is the X.509 certificate and its proxy derivatives.
Mandatory	YES
Applicability	Authentication Appliances.
Input from Technology Provider	Support for X.509 certificate (and proxy derivatives) as credential token for authentication.
Pass/Fail Criteria	Pass if the appliance is able to use X.509 certificates as authentication token. The appliance <i>should</i> also support proxy derivatives.
Related Information	UMD Roadmap [R 1]
Revision Log	

SHA-2 Certificate support	
ID	AUTHN_CRED_2
Description	SHA-2 certificates should be accepted by middleware.
Mandatory	NO
Applicability	Authentication Appliances.
Input from Technology Provider	Support for certificates and proxies with SHA-2 cryptographic hash functions.
Pass/Fail Criteria	Pass if the appliance is able to use SHA-2 certificates as authentication token. Information on how to get and test with SHA-2 certificates is available at [R 2]
Related Information	UMD Roadmap [R 1] Support for SHA2 proxies RT #3078
Revision Log	

RFC Proxy support	
ID	AUTHN_CRED_3
Description	RFC proxies should be accepted by middleware.
Mandatory	NO
Applicability	Authentication Appliances that
Input from Technology Provider	Support for RFC proxies as credential tokens for authentication.
Pass/Fail Criteria	Pass if the appliance is able to use RFC proxies as authentication token. Information on how to create RFC proxies is available at [R 2]
Related Information	UMD Roadmap [R 1]
Revision Log	

7.2 Authentication Protocols

TLS/SSLv3 Support	
ID	AUTHN_PROTO_1
Description	TLS/SSLv3/v2 with client-side authentication must be supported.
Mandatory	YES
Applicability	Authentication Appliances.
Input from Technology Provider	Support for accessing resources through protocols that are secured using SSL or TLS (e.g. plain socket, or https connections). If the component exposes a WebService that requires authentication, it should use the X.509 certificates/proxies with the https protocol.
Pass/Fail Criteria	Pass if the product uses SSL or TLS for accessing it. For the current releases of UMD, products still using GSI authentication (with httpg for WebServices) may be accepted, <u>this exception may be dropped</u> in future releases of the criterion.
Related Information	UMD Roadmap [R 1]
Revision Log	V2: Added GSI (httpg) exception for products that have not yet transitioned V4: changed from AUTH_IFACE_1 to AUTH_PROTO_1.

8 INFORMATION MODEL

8.1 Information Model Schema

GlueSchema Support	
ID	INFOMODEL_SCHEMA_1
Description	Resource information exchanged in the EGI Infrastructure must conform to GlueSchema.
Mandatory	YES
Applicability	Information Model Appliances
Input from Technology Provider	Resource information published by Information Discovery Appliances must conform to the GlueSchema v1.3.
Test Description	<p>Pre-condition None.</p> <p>Test Check that information published conforms to GlueSchema 1.3. The suggested tool for testing the conformance is the GlueValidator [R 26]</p> <p>Expected Outcome Information conforms to GlueSchema.</p>
Pass/Fail Criteria	Information published must be available in GlueSchema v1.3 Ideally the Technology Provider should assure this by a test suite of the appliances.
Related Information	UMD Roadmap [R 1] GlueSchema v1.3 [R 24] GlueValidator [R 26]
Revision Log	V2: Merged INFOMODEL_SCHEMA_* into this criterion. Rephrasing. V4: Added reference to Glue Validator

Middleware Version Information	
ID	INFOMODEL_SCHEMA_2
Description	The middleware version must be published in the resource information.
Mandatory	NO
Applicability	Information Model Appliances
Input from Technology Provider	Resource information published by Information Discovery Appliances must include the version of the middleware.
Pass/Fail Criteria	Middleware version of service is published correctly by the service.
Related Information	Requirement #1378
Revision Log	

GlueSchema 2.0 Support	
ID	INFOMODEL_SCHEMA_3
Description	Resource information exchanged in the EGI Infrastructure must conform to GlueSchema.
Mandatory	NO
Applicability	Information Model Appliances
Input from Technology Provider	Resource information published by Information Discovery Appliances should conform to the GlueSchema v2.0
Test Description	<p>Pre-condition None.</p> <p>Test Check that information published conforms to GlueSchema 2.0. The suggested tool for testing the conformance is the GlueValidator [R 26]</p> <p>Expected Outcome Information conforms to GlueSchema.</p>
Pass/Fail Criteria	Information published must be available in GlueSchema v2.0 Ideally the Technology Provider should assure this by a test suite of the appliances.
Related Information	UMD Roadmap [R 1] GlueSchema v2.0 [R 25] GlueValidator [R 26]
Revision Log	

9 MONITORING PROBES

The Monitoring Capability executes a set of probes defined by the operations community. These probes *should* be provided by the TP for each product.

9.1 Service Probes

Certificate Lifetime Probe	
ID	MON_PROBE_GENERIC_1
Description	Provide a monitoring probe that assures that the host certificate lifetime for the service is valid.
Mandatory	NO
Applicability	All products that use host certificates
Input from Technology Provider	Certificate Validity Probe. The probe should only use the public interface of the service and run integrated in the monitoring infrastructure of EGI
Pass/Fail Criteria	The QC will pass if the TP provides with the service a probe for checking the certificate lifetime. This probe may be provided also indirectly as part of other probes.
Related Information	
Revision Log	V1.1 Added probe description. V2: Simplified description

Service Probe	
ID	MON_PROBE_GENERIC_2
Description	Provide monitoring probes that test the functionality of the service
Mandatory	NO
Applicability	All Services
Input from Technology Provider	Monitoring probe that tests that the service provides the expected functionality. The probe should only use the public interface of the service and run integrated in the monitoring infrastructure of EGI. The exact tests to perform for each service are determined by the operations community. For the current probes specification check the SAM documentation [R 32]
Pass/Fail Criteria	Probes must exist, they must be integrated with the EMI monitoring infrastructure and provide the expected functionality.
Related Information	SAM documentation [R 32]
Revision Log	

10 ACCOUNTING CAPABILITY

The use of resources within the e-Infrastructure must be recorded for understanding usage patterns by different user communities and by individuals within their communities.

10.1 Accounting Store and Transmission for Job Execution Appliances.

The accounting information should be stored in a local database and transmitted in regular intervals to a central registry where information of the whole EGI infrastructure is stored.

Local Accounting Store	
ID	ACC_STORE_1
Description	APEL must be able to store the information collected from the execution manager in a site database.
Mandatory	YES
Applicability	Accounting Appliances
Input from Technology Provider	<p>The accounting appliance must store the information collected from the execution manager in a site level database, where information about all the jobs executed at the site is stored.</p> <p>The appliance must include information for all the jobs submitted via the grid interface. The information collected for each job <i>should</i> contain the fields recommended by OGF:</p> <ul style="list-style-type: none"> • ExecutingSite: Site name (example: RAL-LCG2) • LocalJobID: Local job name (example: 12311.lcgce02.gridpp.rl.ac.uk) • LCGJobID: <i>Optional</i> (default value: NULL) • LocalUserID: Local user name (example: alicesgm 001) • LCGUserID: User DN (example:/C=IT/O=INFN/OU=Personal Certificate ..) • LCGUserVO: Local user group (example: alice) • ElapsedTime: Job Wall duration (example: P8H24M47S) • BaseCpuTime: Job CPU duration (example: P8H21M34S) • ElapsedTimeSeconds: Job Wall duration in seconds (example: 3500) • BaseCpuTimeSeconds: Job CPU time duration in seconds (example: 3000) • StartTime: Job start time (example: 2010-03-14T11:06:08Z) • StopTime: Job stop time (example: 2010-03-14T19:30:55Z) • StartTimeUTC: Job start UTC time (example: 2010-03-14T11:06:08Z) • StopTimeUTC: Jobs stop UTC time (example: 2010-03-14T19:30:55Z) • StartTimeEpoch: Job start time epoch (example: 1079262368) • StopTimeEpoch: Job stop time epoch (example: 1079292655) • ExecutingCE: Submit Host (example: lcgce02.gridpp.rl.ac.uk) • MemoryReal: Used real memory (example: 769548) • MemoryVirtual: Used virtual memory (example: 1244948) • SpecInt2000: SpecInt2000 value (example: 40322) • SpecFloat2000: SpecFloat2000 value (example: 30234)

	<ul style="list-style-type: none"> • EventDate: Event record date (example: 2010-03-14) • EventTime: Event record time (example: 19:30:55)
Test Description	<p>Pre-condition Configured system. Accounting records are correctly generated.</p> <p>Test Store accounting records into site registry.</p> <p>Expected Outcome Accounting records are stored in the site registry. Log of operations is available.</p>
Pass/Fail Criteria	Pass if the accounting records are stored correctly. The information contained in the records should cover the fields recommended by OGF. If any fields are missing, the verifier will decide if the information is enough or not to pass. Storage of the records should not compromise the availability and reliability of the system.
Related Information	
Revision Log	V4: general review of criterion

Accounting Records Transmission	
ID	ACC_STORE_2
Description	APEL must be able to send the records stored in the site registry to a central registry database by using a messaging system.
Mandatory	YES
Applicability	APEL Accounting Appliances.
Input from Technology Provider	Test for the transmission of records to the central registry using ActiveMQ.
Test Description	<p>Pre-condition Configured system. Accounting records are correctly generated and stored in local registry.</p> <p>Test Send new records to the central registry using ActiveMQ.</p> <p>Expected Outcome Only new records are sent to central registry by default but site administrators are able also to republish accounting records in a specific interval using accounting configuration files. They are stored correctly there. Log of operations is generated.</p>
Pass/Fail Criteria	Pass if the test is provided and passes. The transmission of the records should not compromise the availability and reliability of the system.
Related Information	
Revision Log	

Periodic Local Registry Store	
ID	ACC_CRON_1
Description	The accounting appliance must periodically submit new accounting records to the local (site level) registry
Mandatory	YES
Applicability	APEL Accounting Appliances.
Input from Technology Provider	The accounting appliance must periodically submit new accounting records to the local registry. This action should be executed daily to check new executed jobs.
Test Description	<p>Pre-condition Configured system.</p> <p>Test Send new records to the local registry each day.</p> <p>Expected Outcome Only new records are sent to local registry. They are stored correctly there. Accounting logs are generated locally.</p>
Pass/Fail Criteria	Pass if the periodic update mechanism (e.g. cron) is provided and works as expected.
Related Information	
Revision Log	V3: removed most cron references.

Periodic Central Registry Update.	
ID	ACC_CRON_2
Description	The accounting appliance must periodically submit new accounting records to the global (central) registry
Mandatory	YES
Applicability	APEL Accounting Appliances.
Input from Technology Provider	Local registry must be able to submit new accounting records to global accounting registry using a message system. This action should be executed daily to check new executed jobs.
Test Description	<p>Pre-condition Configured system.</p> <p>Test Send new records to the global registry each day.</p> <p>Expected Outcome Only new records are sent to global registry by default but site administrators are able also to republish accounting records in a specific interval using accounting configuration files. They are stored correctly there. Logs about the update are generated locally.</p>
Pass/Fail Criteria	Pass if the periodic update mechanism (e.g. cron) is provided and works as expected.
Related Information	
Revision Log	V3: removed most cron references.

11 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_wsdaire.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	QCG-Broker: http://www.qoscosgrid.org/trac/qcg-broker
R 18	UNICORE UAS: http://www.unicore.eu/unicore/architecture/service-layer.php#anchor_uas
R 19	gLite WMS: http://web.infn.it/gLiteWMS/
R 20	SAGA-CORE-WG: A Simple API for Grid Applications (SAGA) v1.0 (GFD.90)
R 21	SAGA (A Simple API for Grid Applications): http://saga.cct.lsu.edu/
R 22	Instrument Element: http://www.dorii.eu/resources/adaptation:middleware:IE

R 23	DORII (Deployment of Remote Instrumentation Infrastructure) Project: http://www.dorii.eu/
R 24	GlueSchema Specification v1.3: http://glueschema.forge.cnaf.infn.it/Spec/V13
R 25	GlueSchema Specification v2.0: http://www.ogf.org/documents/GFD.147.pdf
R 26	Glue Validator: https://tomtools.cern.ch/confluence/display/IS/GLUEValidator
R 27	JMS (Java Message Service Specification) 1.1: http://www.oracle.com/technetwork/java/jms/index.html
R 28	AMQP (Advanced Message Queuing Protocol): http://www.amqp.org/confluence/display/AMQP/Advanced+Message+Queuing+Protocol
R 29	OASIS WS-Notification: https://www.oasis-open.org/committees/tc_home.php?wg_abbrev=wsn
R 30	Nagios Config Generator: https://tomtools.cern.ch/confluence/display/SAM/NCG
R 31	My EGI portal: https://tomtools.cern.ch/confluence/display/SAM/MyEGI
R 32	SAM Probes Documentation: https://tomtools.cern.ch/confluence/display/SAM/Probes
R 33	Accounting Portal: http://accounting.egi.eu/
R 34	GridSite Delegation Protocol: http://www.gridsite.org/wiki/Delegation_protocol
R 35	Globus Delegation Service: http://www.globus.org/toolkit/docs/4.0/security/delegation/
R 36	European Policy Management Authority for Grid Authentication (EuGridPMA): http://www.eugridpma.org/
R 37	ARGUS Authorization Service: https://twiki.cern.ch/twiki/bin/view/EGEE/AuthorizationFramework
R 38	XACML: http://docs.oasis-open.org/xacml/2.0/access_control-xacml-2.0-core-spec-os.pdf
R 39	Hydra encrypted file storage: https://twiki.cern.ch/twiki/bin/view/EGEE/DMEDS
R 40	gLite FTS: https://twiki.cern.ch/twiki/bin/view/EGEE/GLiteFTS
R 41	SRM v2.2: http://www.ggf.org/documents/GFD.129.pdf
R 42	S2 Test: http://s-2.sourceforge.net/
R 43	SRM-Tester: https://sdm.lbl.gov/twiki/bin/view/Software/SRMTester/WebHome
R 44	Lcg-utils: http://grid-deployment.web.cern.ch/grid-deployment/documentation/LFC_DPM/lcg_util/
R 45	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 46	Open Cloud Computing Interface WG, OGF, http://www.ggf.org/gf/group_info/view.php?group=occi-wg
R 47	Virtualization Management (VMAN), DMTF http://www.dmtf.org/standards/vman
R 48	StratusLab http://stratuslab.eu/
R 49	StratusLab MarketPlace Technical Note TN-Marketplace (V3.0)