



EGI-InSPIRE

UMD QUALITY CRITERIA V2 DRAFT 1

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Abstract

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



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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



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1 CRITERIA TEMPLATE

Criterion Name	
ID	GENERIC_TEMPLATE
Description	Provide a description of the criterion captured in this template.
Mandatory	YES/NO
Applicability	Specify which appliances/products must meet this criterion.
Input from Technology Provider	Describe here what is expected from the TP to fulfil the criterion
Test Description	<p>Pre-condition Describe here the preconditions of the test</p> <p>Test Describe in this field what the actions should the test perform</p> <p>Expected Outcome Describe the expected outcome of the test execution, including any outputs.</p>
Pass/Fail Criteria	Criteria that will determine whether it passes or not verification.
Related Information	Resources found elsewhere (e.g. web pages, Wiki entries, publications and papers) which help to describe the requirement in further detail.
Revision Log	Give the history of the changes in the criterion.

2 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	YES
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 must 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 must 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	YES
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 must 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	YES
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 must be available (man pages or command line help)
Related Information	
Revision Log	

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 must exist and contain the API documentation.
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	YES
Applicability	All products managed by an administrator.

Input from Technology Provider	Documentation (or link) with requested documentation.
Pass/Fail Criteria	The document must 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	YES																		
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" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: center;">ServiceName</th> </tr> </thead> <tbody> <tr> <td style="width: 30%;">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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3 SOFTWARE RELEASES

Software License	
ID	GENERIC_REL_1
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	Pass: if the license is available and is compatible with the EGI infrastructure.
Related Information	
Revision Log	

Source Code Availability	
ID	GENERIC_REL_2
Description	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
Pass/Fail Criteria	The source code of each product of the UMD middleware should follow a coherent and clear programming style that helps in the readability of the code and eases maintenance, testing, debugging, fixing, modification and portability of the software. Open source products must publicly offer their source code and the license with the binaries.
Related Information	
Revision Log	

Source Distribution	
ID	GENERIC_REL_3
Description	Technology Providers should provide buildable source distributions of products.
Mandatory	NO
Applicability	All Open Source Products.

Input from Technology Provider	Source code distribution (repository or tar.gz/zip or source package) with building documentation. Ideally continuous building server should be in place.
Pass/Fail Criteria	Open source products must publicly offer their source code and the license. Build documentation (or link to it) must be available. Ideally, automatic or continuous build procedures exist.
Related Information	
Revision Log	V2: Merged all source related criteria into this one.

Binary Distribution	
ID	GENERIC_REL_4
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	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 <i>should</i> follow OS packaging policies (e.g. names of packages, <u>use of filesystem hierarchy</u> , init scripts). 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). 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
Revision Log	V2: Turn to mandatory, better description.to avoid problems found in verification

Release changes testing	
ID	GENERIC_REL_5
Description	Changes in a release of a product must be tested.
Mandatory	YES
Applicability	All Products.

Input from Technology Provider	Tests for relevant changes described in the product release notes, including bug fixes and any new features.
Pass/Fail Criteria	All the changes in a release <i>should</i> be tested especially bug fixes. The granularity of testing will be determined per release basis.
Related Information	MS503: Software Provisioning Process
Revision Log	V2: Better specification of the pass/fail criteria.

Backwards Compatibility	
ID	GENERIC_REL_6
Description	Minor/Revision releases of a product must be backwards compatible.
Mandatory	YES
Applicability	All Products.

Input from Technology Provider	Tests for backwards compatibility of the product.
Pass/Fail Criteria	All the changes in a minor or revision release <i>must</i> be backward compatible. Any new features should not introduce changes in the previous features.
Related Information	MS503: Software Provisioning Process IGE QC
Revision Log	



Bug Tracking System	
ID	GENERIC_REL_7
Description	TP must provide a system for submitting bugs found in the product.
Mandatory	YES
Applicability	All Products.
Input from Technology Provider	Bug tracking system that can be used by EGI Communities for submitting bugs found in the software.
Pass/Fail Criteria	A bug tracking system that allows the submission of new bugs must be available for the product.
Related Information	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	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 stopped Test Start service Expected Outcome Service is started, show a message when it is started.
	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 stopped Test Stop service Expected Outcome No action taken, show a message stating the service is already stopped.
	Pre-condition Service is stopped Test Check service status Expected Outcome Show a message stating the service is started.

Test Description	Pre-condition Service is started Test Check service status Expected Outcome Show a message stating the service is stopped.
Pass/Fail Criteria	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/iniscrptact.html). They must work properly in all the cases described above. 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
Related Information	#2274: Service under RH following SystemV init system
Revision Log	

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.
Revision Log	V2. Review of the criteria.

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 [0]. 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 [0] 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	

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 does not create world-writable files or directories.
Related Information	Proposed by the EGI SVG RAT to prevent new vulnerabilities in the future.
Revision Log	V1.3 Changed test description.

Directory Traversal Attacks testing	
ID	GENERIC_SEC_2
Description	Products should assure that directory traversal exploits are not possible using their interfaces. Special care must be taken to products exposing part of the file system (e.g. file access capabilities) and web services.
Mandatory	NO
Applicability	All products with previous known Directory Traversal exploits (See list at related information), any other product <i>should</i> also include this kind of testing.
Input from Technology Provider	A directory traversal (or path traversal) consists in exploiting insufficient security validation/sanitization of user-supplied input file names, so that characters representing "traverse to parent directory" are passed through to the file APIs. The Technology Provider must test that directory traversal attacks are not possible using the product interface. Products that need to run as root user, must have special care in this case of attacks, since they may give access to whole file system.
Test Description	<p>Pre-condition Service correctly configured and started</p> <p>Test Try to exploit directory traversal in product</p> <p>Expected Outcome No directory traversal succeeds.</p>
Pass/Fail Criteria	Test for directory traversal exploiting do not successfully access the file system.
Related Information	Advisory-SVG-2011-1569 (https://wiki.egi.eu/wiki/SVG:Advisory-SVG-2011-1569)
Revision Log	



6 REFERENCES

	UMD roadmap v1: https://documents.egi.eu/public/ShowDocument?docid=100
	UMD Operations Capabilities Quality Criteria