



# EGI-InSPIRE

## UMD QUALITY CRITERIA v1.4

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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



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## 1 CRITERIA TEMPLATE

<b>Criterion Name</b>	
<b>ID</b>	<b>GENERIC_TEMPLATE</b>
<b>Mandatory/Non Mandatory</b>	
<b>Applicability</b>	If the criterion is not always applicable, specify here when it is
<b>Related Requirements</b>	Specify here any requirements that originated this criterion
<b>Description</b> Provide a description of the criterion captured in this template.	
<b>Input from TP</b> Specify what the TP should provide for the verification of the QC. If the TP must provide a software test, use the Test Description field below.	
<b>Test Description (only for criterion with explicit tests) or Probe Description (for Monitoring Probes)</b>	
<b>Pre-condition</b>	Describe here the preconditions of the test
<b>Test</b>	Describe in this field what the actions should the test perform
<b>Expected Outcome</b>	Describe the expected outcome of the test execution, including any outputs.
<b>Pass/Fail Criteria</b> Criteria that will determine whether it passes or not verification.	
<b>Related Information</b> Resources found elsewhere (e.g. web pages, Wiki entries, publications and papers) that help describe the requirement in further detail.	
<b>History</b> Give the history of the changes in the document describing the requirement.	

## 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.

<b>Functional Description</b>	
<b>ID</b>	<b>GENERIC_DOC_1</b>
<b>Mandatory</b>	
<b>Applicability</b>	All products.
<b>Related Requirements</b>	None

<b>Description</b> Document with a functional description of the component.
<b>Input from TP</b> Document (or link) with requested documentation.
<b>Pass/Fail Criteria</b> The document must exist and contain the requested information.
<b>Related Information.</b>
<b>History.</b>

<b>Release Notes</b>	
<b>ID</b>	<b>GENERIC_DOC_2</b>
<b>Mandatory</b>	
<b>Applicability</b>	All products.
<b>Related Requirements</b>	None
<b>Description</b> Document with release notes of the component. They must include all the changes in the component: bug fixes, new features.	
<b>Input from TP</b> Document (or link) with requested documentation.	
<b>Pass/Fail Criteria</b> The document must exist and contain the requested information.	
<b>Related Information.</b>	
<b>History.</b>	

<b>User Documentation</b>	
<b>ID</b>	<b>GENERIC_DOC_3</b>
<b>Mandatory</b>	
<b>Applicability</b>	All products with end-user tools and services.
<b>Related Requirements</b>	None
<b>Description</b> User guide describing the functionality of the software and how to use it.	
<b>Input from TP</b> Document (or link) with requested documentation.	
<b>Pass/Fail Criteria</b> The document must exist and contain the requested information.	
<b>Related Information.</b>	
<b>History.</b>	

<b>Online help (man pages)</b>	
<b>ID</b>	<b>GENERIC_DOC_4</b>
<b>Mandatory</b>	
<b>Applicability</b>	All products with command line tools
<b>Related Requirements</b>	None
<b>Description</b> If the component provides command line tools, they should have complete online documentation (man pages) with information about the usage. If man pages are not available, comprehensive help options must be included with the command with information about the usage.	
<b>Input from TP</b> Document (or link) with requested documentation.	
<b>Pass/Fail Criteria</b> The document must exist and contain the requested information.	
<b>Related Information.</b>	
<b>History.</b>	



<b>API Documentation</b>	
<b>ID</b>	<b>GENERIC_DOC_5</b>
<b>Mandatory</b>	
<b>Applicability</b>	All products with a public API
<b>Related Requirements</b>	None
<b>Description</b> Documentation of the API of the component (including all its functions).	
<b>Input from TP</b> Document (or link) with requested documentation.	
<b>Pass/Fail Criteria</b> The document must exist and contain the requested information.	
<b>Related Information.</b>	
<b>History.</b>	

<b>Administrator Documentation</b>	
<b>ID</b>	<b>GENERIC_DOC_6</b>
<b>Mandatory</b>	
<b>Applicability</b>	All products managed by an administrator
<b>Related Requirements</b>	None
<b>Description</b> Administrator guide describing installation, configuration and operation of the system.	
<b>Input from TP</b> Document (or link) with requested documentation.	
<b>Pass/Fail Criteria</b> The document must exist and contain the requested information.	
<b>Related Information.</b>	
<b>History.</b>	

<b>Service Reference Card</b>	
<b>ID</b>	<b>GENERIC_DOC_7</b>
<b>Mandatory</b>	
<b>Applicability</b>	All products that need services for operation.
<b>Related Requirements</b>	None

<b>Description</b>																			
For each of the services that a component runs, document its characteristics with a reference card. Use the following template:																			
<table border="1"> <thead> <tr> <th colspan="2"><b>ServiceName</b></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>Include here any other relevant information about the service.</td> </tr> </tbody> </table>		<b>ServiceName</b>		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	Include here any other relevant information about the service.
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<b>Pass/Fail Criteria</b>																			
The document must exist and contain the requested information.																			
<b>Related Information.</b>																			
<b>History.</b>																			

### 3 SOFTWARE RELEASES

<b>Software License</b>	
<b>ID</b>	<b>GENERIC_REL_1</b>
<b>Mandatory</b>	
<b>Applicability</b>	All products.
<b>Related Requirements</b>	None
<b>Description</b> All UMD components must have a compatible license for using it in the EGI infrastructure.	
<b>Input from TP</b> Component license (link or document).	
<b>Pass/Fail Criteria</b> Pass: if the license is available and is compatible with the EGI infrastructure.	
<b>Related Information.</b>	
<b>History.</b>	

<b>Source Code Availability</b>	
<b>ID</b>	<b>GENERIC_REL_2</b>
<b>Non Mandatory</b>	
<b>Applicability</b>	All Open Source products.
<b>Related Requirements</b>	None
<b>Description</b> The source code of each component 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 components must publicly offer their source code and the license with the binaries.	
<b>Input from TP</b> Link to source code of component or tarball containing source.	
<b>Pass/Fail Criteria</b> Pass if the source code is provided.	
<b>Related Information.</b>	
<b>History.</b>	

<b>Build Procedure Documentation</b>	
<b>ID</b>	<b>GENERIC_REL_3</b>
<b>Non Mandatory</b>	
<b>Applicability</b>	All Open Source products.
<b>Related Requirements</b>	None
<b>Description</b> Open Source components should provide a documented and reproducible build procedure.	
<b>Input from TP</b> Build documentation (or link to it).	
<b>Pass/Fail Criteria</b> Pass if the build documentation exists and describe the correct build procedures for the component.	
<b>Related Information.</b>	
<b>History.</b>	

<b>Automatic Builds</b>	
<b>ID</b>	<b>GENERIC_REL_4</b>
<b>Non Mandatory</b>	
<b>Applicability</b>	All products.
<b>Related Requirements</b>	None

<b>Description</b> Components should be built using automatic procedures. Ideally continuous building server should be in place.
<b>Input from TP</b> Link (or documentation) for automatic build. Link to continuous building server.
<b>Pass/Fail Criteria</b> Pass if automatic or continuous build procedures exist
<b>Related Information.</b>
<b>History.</b>

<b>Binary Distributions</b>	
<b>ID</b>	<b>GENERIC_REL_5</b>
<b>Non Mandatory</b>	
<b>Applicability</b>	All products.
<b>Related Requirements</b>	None
<b>Description</b>	
<p>UMD Software must be available in the packaging formats of the supported OS.</p>	
<b>Input from TP</b>	
<p>TP should provide their software in a source tar.gz/zip that can be built. Binary packages using the standard packaging format of the OS (i.e. RPM, DEB, ...) must be provided for all the mandatory supported OS and/or architectures.</p> <p>Minimum requested platforms are defined by the operations community.</p> <p>External dependencies of packages (i.e. software not provided by the TP) should be provided by the OS distribution or standard OS repositories. In the case of needing a different version for a specific package, a justified reason must be given.</p>	
<b>Pass/Fail Criteria</b>	
<p>Pass if the source packages are provided (for Open Source components) and if the binary packages follow the OS packaging format. Correct dependencies for those packages must be specified.</p>	
<b>Related Information.</b>	
<b>History.</b>	



<b>Release changes testing</b>	
<b>ID</b>	<b>GENERIC_REL_6</b>
<b>Mandatory</b>	
<b>Applicability</b>	All products.
<b>Related Requirements</b>	None

<b>Description</b> All the changes in a release should be tested, especially bug fixes.
<b>Input from TP</b> The testsuite of the component with explicit tests for any bug fixes or new functionality of release.
<b>Pass/Fail Criteria</b> Pass if the component testsuite includes tests for the bug fixed in the release (as specified in the release notes)
<b>Related Information.</b>
<b>History.</b>

## 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.

Service Control and Status	
<b>ID</b>	<b>GENERIC_SERVICE_1</b>
<b>Mandatory</b>	
<b>Applicability</b>	All products that need services for operation.
<b>Related Requirements</b>	None.
<b>Description</b>	
Services run by the component 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 <a href="http://refspecs.freestandards.org/LSB_3.1.0/LSB-Core-generic/LSB-Core-generic/iniscrptact.html">http://refspecs.freestandards.org/LSB_3.1.0/LSB-Core-generic/LSB-Core-generic/iniscrptact.html</a> ).	
<b>Input from TP</b>	
Start/stop mechanism for each of the services following OS conventions and testsuite for the mechanism.	
<b>Test 1</b>	
<b>Pre-condition</b>	Service is started
<b>Test</b>	Start service
<b>Expected Outcome</b>	No action taken, show a message stating the service is already started.
<b>Test 2</b>	
<b>Pre-condition</b>	Service is stopped
<b>Test</b>	Start service
<b>Expected Outcome</b>	Service is started, show a message when it is started.
<b>Test 3</b>	
<b>Pre-condition</b>	Service is started
<b>Test</b>	Stop service
<b>Expected Outcome</b>	Service is stopped, show a message stating the service is stopped.
<b>Test 4</b>	
<b>Pre-condition</b>	Service is stopped
<b>Test</b>	Stop service

<b>Expected Outcome</b>	No action taken, show a message stating the service is already stopped.
<b>Test 5</b>	
<b>Pre-condition</b>	Service is stopped
<b>Test</b>	Check service status
<b>Expected Outcome</b>	Show a message stating the service is started.
<b>Test 6</b>	
<b>Pre-condition</b>	Service is started
<b>Test</b>	Check service status
<b>Expected Outcome</b>	Show a message stating the service is stopped.
<b>Pass/Fail Criteria</b>	Service must provide mechanisms for starting and stopping services. They must work properly in <b>all</b> the cases described above
<b>Related Information</b>	
<b>History</b>	V1.3 Complete specification of tests to perform.

## 4.2 Service logs

<b>Log files</b>	
<b>ID</b>	<b>GENERIC_SERVICE_2</b>
<b>Non Mandatory</b>	
<b>Applicability</b>	All products that need services for operation.
<b>Related Requirements</b>	None.
<b>Description</b> All services should create log files where the service administrator can trace most relevant actions taken. 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, ...)	
<b>Input from TP</b> List of logs generated by the service. They must be created in the OS standard location.	
<b>Pass/Fail Criteria</b> List of logs is provided, they are created in the OS standard location.	
<b>Related Information</b>	
<b>History</b> V1. Changed QC from Traceability to Log Files. V1.2 changed applicability to all components that run services. V1.3 Changed criteria specification	

### 4.3 Service monitoring

All components in the EGI testbed must provide monitoring probes that can be executed automatically by a monitoring framework such as 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 [R 2]. 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 documented in the same documented.

### 4.4 Service Accounting

All components in the EGI testbed should provide ways of recording the use of resources within the infrastructure. The Accounting Capability described in the Operations Capabilities Criteria document [R 2] specifies the criteria for the different appliances.

### 4.5 Availability, Reliability, Scalability.

The EGI testbed depends on the uninterrupted performance of the installed software components. 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.

<b>Service Reliability</b>	
<b>ID</b>	<b>GENERIC_SERVICE_3</b>
<b>Not Mandatory</b>	
<b>Applicability</b>	All products that need services for operation.
<b>Related Requirements</b>	#657: Quality of service #660: Quality of grid service

<b>Description</b>	
Services run by the component must maintain a good performance and reliability over long periods of time with normal operation.	
<b>Input from TP</b>	
Long running unattended operation test measuring performance of the product.	
<b>Test 1</b>	
<b>Pre-condition</b>	Product is properly configured.
<b>Test</b>	Start service and measure performance during operations.
<b>Expected Outcome</b>	No significant performance degradation is observed in the system.
<b>Pass/Fail Criteria</b>	
Service must not show performance degradation during a 3-day period.	
<b>Related Information</b>	



## History

## 5 SECURITY

<b>World Writable Files</b>	
<b>ID</b>	<b>GENERIC_SEC_1</b>
<b>Mandatory</b>	
<b>Applicability</b>	All products.
<b>Related Requirements</b>	None.
<b>Description</b>	
<p>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</p> <p>TP should assure that they software do not produce world writable files in order to prevent new vulnerabilities being introduced in the future.</p>	
<b>Input from TP</b>	
Test for the generation world writable files or unowned files.	
<b>Test 1</b>	
<b>Pre-condition</b>	Service correctly configured and started
<b>Test</b>	Check the existence of world writable or unowned files in the system.
<b>Expected Outcome</b>	No world writable or unowned files exist.
<b>Pass/Fail Criteria</b>	
Probe exists and and passes.	
<b>Related Information</b>	
<b>History</b>	
V1.3 Changed test description.	



## 6 REFERENCES

<b>R 1</b>	UMD roadmap v1: <a href="https://documents.egi.eu/public/ShowDocument?docid=100">https://documents.egi.eu/public/ShowDocument?docid=100</a>
<b>R 2</b>	UMD Operations Capabilities Quality Criteria