



EGI-InSPIRE

UMD QUALITY CRITERIA OPERATIONS CAPABILITIES v4

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Abstract

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



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1 MONITORING CAPABILITY

This section documents the Specific Quality Criteria for the monitoring system (NAGIOS) and the web portal to check the results.

1.1 Nagios Configuration Generation

Generation of Nagios Configuration Files	
ID	MON_NCG_1
Description	The NCG must be able to generate a correct configuration for Nagios that includes all the hosts and services to be monitored.
Mandatory	YES
Applicability	Nagios Configuration Generator (NCG) component.
Input from Technology Provider	Support for the automatic generator of configuration files for Nagios: /etc/nagios and /etc/nagios/wlcfg.d/* files must be generated based on the information gathered from the information gathered from GOCDDB.
Test Description	<p>Pre-condition Configured system.</p> <p>Test Generate Nagios configuration files according to the information available in the databases.</p> <p>Expected Outcome Working Nagios configuration files.</p>
Pass/Fail Criteria	Pass if the automatic generation of configuration files works.
Related Information	NCG [R 28]
Revision Log	

Generation of Failover Nagios Configuration	
ID	MON_NCG_2
Description	The NCG must allow a redundant service configuration for Nagios that includes failover capability.
Mandatory	YES
Applicability	Nagios Configuration Generator (NCG) component.
Input from Technology Provider	Support for the automatic generation of configuration files for Nagios with redundant services: <ul style="list-style-type: none"> • Several WMS • Robot certificates • Several VOs and VOMSES
Test Description	<p>Pre-condition Configured system.</p> <p>Test Generate Nagios configuration files according to the information available in the databases.</p> <p>Expected Outcome Working Nagios redundant configuration files using failover services.</p>
Pass/Fail Criteria	Pass if the redundant services are configured and used correctly.
Related Information	NCG [R 28]
Revision Log	

1.2 Visualization Portal (MyEGI)

Resource Summary View	
ID	MON_PORTAL_1
Description	Provide a view of the summary status of resources.
Mandatory	YES
Applicability	MyEGI monitoring visualization portal
Input from Technology Provider	<p>Summary view in visualization portal that provides the following basic information:</p> <ul style="list-style-type: none"> • Site of the resource • Resource name • Type of service • Current status • Link to detailed and historical views • Use colors to display the status of the resource.
Test Description	<p>Pre-condition Configured system.</p> <p>Test Browse the summary view of resources.</p> <p>Expected Outcome All requested information is provided</p>
Pass/Fail Criteria	Pass if the resource summary view is provided for any selected resource with all the information specified above.
Related Information	MyEGI Portal [R 29]
Revision Log	

Resource Detail View	
ID	MON_PORTAL_2
Description	Provide a view of the detailed status of resources.
Mandatory	YES
Applicability	MyEGI monitoring visualization portal
Input from Technology Provider	<p>Detailed view of the current status for resources that shows the results of the last execution of all the probes. Include all information requested in the summary view plus:</p> <ul style="list-style-type: none"> • List of probes executed • Detailed results of probes • Last execution time for probe • Link to historical view
Test Description	<p>Pre-condition Configured system.</p> <p>Test Browse the detailed view of resources.</p> <p>Expected Outcome All requested information is provided</p>
Pass/Fail Criteria	Pass if the detailed view is provided for any selected resource with all the information specified above.
Related Information	MyEGI Portal [R 29]
Revision Log	

Resource Historical View	
ID	MON_PORTAL_3
Description	Provide a view of the historical status of resources.
Mandatory	YES
Applicability	MyEGI monitoring visualization portal
Input from Technology Provider	Historical view of the probes executed at resources. Show graphically in a timeline the results for the probes. For any given probe show the detailed view fields when selected.
Test Description	<p>Pre-condition Configured system.</p> <p>Test Browse the historical view of resources.</p> <p>Expected Outcome All requested information is provided</p>
Pass/Fail Criteria	Pass if the historical view is provided for any selected resource with all the information specified above.
Related Information	MyEGI Portal [R 29]
Revision Log	

Resource Filters	
ID	MON_PORTAL_4
Description	Provide ways to filter the information shown in the web interface for all the possible views of the portal.
Mandatory	YES
Applicability	MyEGI monitoring visualization portal
Input from Technology Provider	<p>Provide ways to filter the information shown in the web interface for all the possible views of the portal. At least, the displayed resources should be filtered by the following constrains:</p> <ul style="list-style-type: none"> • status of resource (select just one status or several) • type of service • supported VO • site which the resource belongs to • specific name of resource <p>for historical view, range of dates which will be used for the information.</p>
Test Description	<p>Pre-condition Configured system.</p> <p>Test Test the resource filters available.</p> <p>Expected Outcome Resrouces are shown according to the filters tested.</p>
Pass/Fail Criteria	Pass if the resource filters are provided and they work as expected.
Related Information	MyEGI Portal [R 29]
Revision Log	

Responsiveness	
ID	MON_PORTAL_5
Description	Visualization portal should provide fast response to user requests.
Mandatory	YES
Applicability	MyEGI monitoring visualization portal
Input from Technology Provider	Information should be displayed as soon as possible. If too much information is to be shown, the portal should use a paginated interface or dynamically load the content and provide as soon as possible a first set of results.
Test Description	<p>Pre-condition Configured system.</p> <p>Test Browse complex page (e.g. lots of resources)</p> <p>Expected Outcome Page responsiveness is fast enough for navigation. Information is loaded dynamically or shown in a paged interface.</p>
Pass/Fail Criteria	Pass if the complex pages are responsive for navigation (no more than 15 seconds for showing the first set of results)
Related Information	MyEGI Portal [R 29]
Revision Log	

Linkable Views	
ID	MON_PORTAL_6
Description	Views should have unique URLs that are independent to the user session
Mandatory	YES
Applicability	MyEGI monitoring visualization portal
Input from Technology Provider	Views should have unique URLs that are independent to the user session. These links should work for different users.
Test Description	<p>Pre-condition Configured system.</p> <p>Test Generate view link with user A, try it with user B</p> <p>Expected Outcome Both users A and B get the same view results.</p>
Pass/Fail Criteria	Views links must work for different users and/or sessions.
Related Information	MyEGI Portal [R 29]
Revision Log	

1.3 Database

Metric List Fetching	
ID	MON_DB_1
Description	The list of metrics to use in each of the services must be fetch at regular intervals from a given central location.
Mandatory	YES
Applicability	Metrics Database
Input from Technology Provider	Test of the metric fetch mechanism.
Test Description	<p>Pre-condition Configured system.</p> <p>Test Fetch metrics from central metric database. Generate list of updates for the current local metric database.</p> <p>Expected Outcome Metrics are fetched correctly. A list of updates is generated.</p>
Pass/Fail Criteria	Test must exist and execute correctly.
Related Information	
Revision Log	

Resource List Fetching	
ID	MON_DB_2
Description	The list of resources to be tested should be dynamically discovered
Mandatory	YES
Applicability	Metrics Database
Input from Technology Provider	<p>The list of resources to be tested should be dynamically discovered using the various information systems available. The list of sites to be tested meet the following requirements:</p> <ul style="list-style-type: none"> • listed in the BDII • listed in the GOCDB • status in the GOCDB is Certified
Test Description	<p>Pre-condition Configured system.</p> <p>Test Fetch resources by quering BDII and GOCDB. List of updates to perform to the local resource DB.</p> <p>Expected Outcome Resources are fetched correctly. A list of updates is generated.</p>
Pass/Fail Criteria	Resource list is generates correctly according to the requirements.
Related Information	
Revision Log	

2 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.

Probe Template	
ID	MON_PROBE_1
Description	A template and documentation for the creation of new probes that can be integrated in the monitoring framework must exist.
Mandatory	YES
Applicability	Monitoring Capability
Input from Technology Provider	Template for probes and documentation for the creation and integration of probes into the framework (or link to those documents)
Pass/Fail Criteria	The QC will pass if the template and documentation is available for external developers and is usable for creating new probes.
Related Information	
Revision Log	

2.1 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 30]
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 30]
Revision Log	

The criteria described in the next sections make reference to probes that are used by the EGI Operations community to monitor the Infrastructure. The specific appliances must support the execution of these probes.

2.1.1 Job Execution Capability Probes

Job Execution Probe	
ID	MON_PROBE_JOBEXEC_1
Description	Provide monitoring probes that test the functionality of Job Execution Capability
Mandatory	YES
Applicability	Job Execution Appliances
Input from Technology Provider	CE probes as described at: https://tomtools.cern.ch/confluence/display/SAM/CE
Pass/Fail Criteria	Probes must exist and behave as expected in the probe documentation.
Related Information	SAM documentation [R 30]
Revision Log	

CREAM Job Execution Probe	
ID	MON_PROBE_JOBEXEC_2
Description	Provide monitoring probes that test the functionality of CREAM
Mandatory	YES
Applicability	CREAM Appliances
Input from Technology Provider	CREAM CE probes as described at: https://tomtools.cern.ch/confluence/display/SAM/CREAMCE-DJS
Pass/Fail Criteria	Probes must exist and behave as expected in the probe documentation.
Related Information	SAM documentation [R 30]
Revision Log	

WN Probes	
ID	MON_PROBE_JOBEXEC_3
Description	Provide monitoring probes that test the correct function of Worker Nodes
Mandatory	YES
Applicability	Worker Node.
Input from Technology Provider	WN probes as described at: https://tomtools.cern.ch/confluence/display/SAM/WN .
Pass/Fail Criteria	Probes must exist and behave as expected in the probe documentation.
Related Information	SAM documentation [R 30]
Revision Log	

2.1.2 Compute Job Scheduling Probes

WMS Probes	
ID	MON_PROBE_JOBSCH_1
Description	Provide monitoring probes that test the functionality of WMS.
Mandatory	YES
Applicability	WMS Job Scheduling Appliances.
Input from Technology Provider	WMS probes as described at: https://tomtools.cern.ch/confluence/display/SAM/WMS .
Pass/Fail Criteria	Probes must exist and behave as expected in the probe documentation.
Related Information	SAM documentation [R 30]
Revision Log	

2.1.3 File Access Capability Probes

SRM Probes	
ID	MON_PROBE_STORAGE_1
Description	Provide monitoring probes that test the functionality of SRM.
Mandatory	YES
Applicability	Storage Management Appliances
Input from Technology Provider	SRM probes as described at: https://tomtools.cern.ch/confluence/display/SAM/SRM .
Pass/Fail Criteria	Probes must exist and behave as expected in the probe documentation.
Related Information	SAM documentation [R 30]
Revision Log	

2.1.4 Metadata Catalogue Capability Probes

LFC Probes	
ID	MON_PROBE_METADATA_1
Description	Provide monitoring probes that test the functionality of LFC.
Mandatory	YES
Applicability	LFC Appliances
Input from Technology Provider	LFC probes as described at: https://tomtools.cern.ch/confluence/display/SAM/LFC .
Pass/Fail Criteria	Probes must exist and behave as expected in the probe documentation.
Related Information	SAM documentation [R 30]
Revision Log	

3 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.

3.1 Generation of Accounting Records

Job Execution Appliances Accounting	
ID	ACC_JOBEXEC_1
Description	Job Execution Appliances must generate accounting records for all the actions of the users into the local resources.
Mandatory	YES
Applicability	Accounting Appliances for Job Execution Capability (APEL)
Input from Technology Provider	<p>The Job Execution Capability must generate accounting records for the actions of the users into the local resources (jobs submitted to the underlying execution manager). These records must include, at least, the following information for all the jobs submitted to the system:</p> <ul style="list-style-type: none"> • User DN • VO • Job start execution time • Job end execution time • SPECint information • CPU & Wall Time • Number of slots/CPU's used by the job <p>The generation of accounting records must be available for the execution managers supported by the Job Execution Capability implementations.</p>
Test Description	<p>Pre-condition Configured system.</p> <p>Test Creation of accounting records</p> <p>Expected Outcome Accounting records for the jobs submitted to the execution manager through the Capability.</p>
Pass/Fail Criteria	Pass if the accounting records are generated correctly for all execution managers supported. The generation of the records should not compromise the availability and reliability of the system.
Related Information	
Revision Log	V4: Minor rephrasing

3.2 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) • EventDate: Event record date (example: 2010-03-14) • EventTime: Event record time (example: 19:30:55)
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Test Description	Pre-condition Configured system. Accounting records are correctly generated. Test Store accounting records into site registry. Expected Outcome Accounting records are stored in the site registry. Log of operations is available.
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.

3.3 Visualization Portal

Accounting Portal Summary View	
ID	ACC_PORTAL_1
Description	Accounting portal must provide a front-end view of published CPU resources.
Mandatory	YES
Applicability	Accounting Portal Implementation
Input from Technology Provider	Accounting portal provides a front-end view of published CPU resources that have been aggregated into summaries. These summaries may view per: <ul style="list-style-type: none"> • Site • Countries • VO • NGI • Tier1 / Tier2
Test Description	<p>Pre-condition Configured accounting portal.</p> <p>Test Browse summaries.</p> <p>Expected Outcome Summary views are shown with correct data for all the possible levels.</p>
Pass/Fail Criteria	Pass if the summary view is provided and is correctly generated for all possible levels
Related Information	EGI Accounting Portal [R 31]
Revision Log	

Accounting Portal Access Policy	
ID	ACC_PORTAL_2
Description	Sensitive information about VO usage and Users DNs must be encrypted and only accessible to their VO managers via X.509 certificate.
Mandatory	YES
Applicability	Accounting Portal Implementation
Input from Technology Provider	Portal must include access policies for VO managers that restricts the information that can be accessed.
Test Description	<p>Pre-condition Configured accounting portal. Valid VO manager certificate.</p> <p>Test Browse VO view with VO usage and user DNs.</p> <p>Expected Outcome Information is displayed correctly.</p>
Pass/Fail Criteria	Pass if the access policy is applied correctly.
Related Information	EGI Accounting Portal [R 31]
Revision Log	

Accounting Portal Global View	
ID	ACC_PORTAL_3
Description	Accounting Portal views must include a production global view
Mandatory	YES
Applicability	Accounting Portal Implementation
Input from Technology Provider	<p>Accounting Portal views must include a production global view. This view must include a custom view where users can select how display desired accounting data, users can select these options:</p> <ul style="list-style-type: none"> • Data to graph: Users can select Norm. Sum CPU in kSI2000-hours, or HEPSPEC-2006 number of jobs, Norm Sum elapsed time in kSI-2000 hours and HEPSPEC-2006 hours or CPU efficiency. • Data period to view. • Show data for Region, Date or VO and as function of Region, Date, VO or Country. • Group results by VO, Region or Date • Chart type: Accumulative bar, group bar or lines. • Scale: Linear or logarithmic. • A button to exclude operations VOs like dteam and ops. <p>This general view must include also a list of certified sites which are not publishing accounting data since last 3 months. Accounting Portal views must include different charts and graphs for ease of use.</p>
Test Description	<p>Pre-condition Configured System.</p> <p>Test Visualize data with charts</p> <p>Expected Outcome Charts are correctly generated for the accounting data available based on users selection.</p>
Pass/Fail Criteria	Pass if the charts are correctly generated for all the accounting data available and for all the chart models.
Related Information	EGI Accounting Portal [R 31]
Revision Log	

Accounting Portal VO Manager View	
ID	ACC_PORTAL_4
Description	Accounting Portal views must include a production VO manager view.
Mandatory	YES
Applicability	Accounting Portal Implementation
Input from Technology Provider	<p>Accounting Portal views must include a production VO manager view. This view must include a custom view where only VO managers can select and display desired accounting data, available options are:</p> <ul style="list-style-type: none"> • VO to query including Group and Role. • NGI/Country to display. • Order by: Number of jobs, Norm. sum CPU, sum CPU, Norm sum time elapsed and sum. Time elapsed. • Data period to display <p>This view generates a list with desired accounting information (including CPU efficiency for each VO group), a percentage pie chart and a bar chart for selected period of time.</p>
Test Description	<p>Pre-condition Configured System.</p> <p>Test Visualize data with charts</p> <p>Expected Outcome Charts are correctly generated for the accounting data available based on VO managers selection.</p>
Pass/Fail Criteria	Pass if the charts are correctly generated for all the accounting data available and for all the chart models.
Related Information	EGI Accounting Portal [R 31]
Revision Log	

Accounting Portal VO Member View	
ID	ACC_PORTAL_5
Description	Accounting Portal views must include a production VO member view.
Mandatory	YES
Applicability	Accounting Portal Implementation
Input from Technology Provider	<p>Accounting Portal views must include a production VO member view. This view must include a custom view where only VO members can select and display desired accounting data:</p> <ul style="list-style-type: none"> • VO including Group and Role. • Order by: Number of jobs, Norm. sum CPU, sum CPU, Norm sum time elapsed and sum. Time elapsed. • Data period to display. <p>This view generates a list with desired accounting information (including CPU efficiency for each VO group), a percentage pie chart and a bar chart for selected period of time.</p>
Test Description	<p>Pre-condition Configured System.</p> <p>Test Visualize data with charts</p> <p>Expected Outcome Charts are correctly generated for the accounting data available based on VO members selection.</p>
Pass/Fail Criteria	Pass if the charts are correctly generated for all the accounting data available and for all the chart models.
Related Information	EGI Accounting Portal [R 31]
Revision Log	

Accounting Portal Site Admin View	
ID	ACC_PORTAL_6
Description	Accounting Portal views must include a site admin view.
Mandatory	YES
Applicability	Accounting Portal Implementation
Input from Technology Provider	<p>Accounting Portal views must include a production Site Admin view. This view must include a custom view where only site administrators can select and display desired accounting data for their sites, site administrator can select:</p> <ul style="list-style-type: none"> • Site to display accounting data. • Order by: Number of jobs, Norm. sum CPU, sum CPU, Norm sum time elapsed and sum. Time elapsed. • Data period to display. <p>This view generates a list with desired accounting information (including CPU efficiency for each VO group), a percentage pie chart and a bar chart for selected period of time.</p>
Test Description	<p>Pre-condition Configured System.</p> <p>Test Visualize data with charts</p> <p>Expected Outcome Charts are correctly generated for the accounting data available based on site administrators selection.</p>
Pass/Fail Criteria	Pass if the charts are correctly generated for all the accounting data available and for all the chart models.
Related Information	EGI Accounting Portal [R 31]
Revision Log	

4 REFERENCES

R 1	UMD roadmap: https://documents.egi.eu/public/ShowDocument?docid=100
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