EGI-InSPIRE

UMD Operations Capabilities Quality Criteria v2 DRAFT 1

Document identifier:	EGI-OPERATIONS-QC-V2.DRAFT-1.docx
Date:	**23/06/2011**
Document Link:	https://documents.egi.eu/document/364

Abstract

This document describes the Quality Criteria for the Operations Capabilities identified in the UMD Roadmap.



Document Log

Issue	Date	Comment	Author/Partner
1.0	03/11/2010	First draft	Enol Fernández
1.1	04/11/2010	Added configuration modules QC	Enol Fernández
1.2	11/11/2010	Formatting and review of some criteria, changed name from monitoring to Operational	Enol Fernández
1.3	31/01/2011	Added Nagios failover configuration and APEL QC	Álvaro Simón
1.4	08/02/2011	Review of Accounting portal criteria.	Álvaro Simón
1.5	08/02/2011	Review of Accounting criteria.	Álvaro Simón
2 DRAFT 1	10/05/2011	Update to new template. Update of monitoring section.	Enol Fernández

TABLE OF CONTENTS

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	Test for the generator of configuration files for Nagios.	
Test Description	**Pre-condition**	Configured system.
	Test	Generate Nagios configuration files according to the information available in the databases.
	Expected Outcome	Working Nagios configuration files.
Pass/Fail Criteria	Pass if the testsuite is provided and passes.	
Related Information	NCG [R 2]	
Revision Log		

Generation of Failover Nagios Configuration	
ID	**MON_NCG_2**
Description	The NCG must be able to understand a redundant service configuration for Nagios that includes failover capability. • Several WMS • Robot certificates • Several VOs and VOMSES
Mandatory	YES
Applicability	Nagios Configuration Generator (NCG) component.

Input from Technology Provider	Test for the generator of configuration files for Nagios.	
Test Description	**Pre-condition**	Configured system.
	Test	Generate Nagios configuration files according to the information available in the databases.
	Expected Outcome	Working Nagios redundant configuration files using failover services.
Pass/Fail Criteria	Pass if the testsuite is provided and passes.	
Related Information	NCG [R 2]	
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	Summary view in visualization portal that provides the following basic information: • 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	**Pre-condition** Configured system. **Test** Browse the summary view of resources. **Expected Outcome** All requested information is provided
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 3]
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	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: • List of probes executed • Detailed results of probes • Last execution time for probe • Link to historical view
Test Description	**Pre-condition** Configured system. **Test** Browse the detailed view of resources. **Expected Outcome** All requested information is provided
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 3]
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	**Pre-condition**	Configured system.
	Test	Browse the historical view of resources.
	Expected Outcome	All requested information is provided
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 3]	
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	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: • status of resource (select just one status or several) • type of service • supported VO • site which the resource belongs to • specific name of resource for historical view, range of dates which will be used for the information.
Test Description	**Pre-condition** Configured system. **Test** Test the resource filters available. **Expected Outcome** Resrouces are shown according to the filters tested.
Pass/Fail Criteria	Pass if the resource filters are provided and they work as expected.
Related Information	MyEGI Portal [R 3]
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.	
Test Description	**Pre-condition**	Configured system.
	Test	Browse complex page (e.g. lots of resources)
	Expected Outcome	Page responsiveness is fast enough for navigation. Information is loaded dynamically or shown in a paged interface.
Pass/Fail Criteria	Pass if the complex pages are responsive for navigation.	
Related Information	MyEGI Portal [R 3]	
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	**Pre-condition**	Configured system.
	Test	Generate view link with user A, try it with user B
	Expected Outcome	Both users A and B get the same view results.
Pass/Fail Criteria	Views links must work for different users and/or sessions.	
Related Information	MyEGI Portal [R 3]	
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	**Pre-condition**	Configured system.
	Test	Fetch metrics from central metric database. Generate list of updates for the current local metric database.
	Expected Outcome	Metrics are fetched correctly. A list of updates is generated.
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	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: • listed in the BDII • listed in the GOCDB • status in the GOCDB is Certified	
Test Description	**Pre-condition**	Configured system.
	Test	Fetch resources by quering BDII and GOCDB. List of updates to perform to the local resource DB.
	Expected Outcome	Resources are fetched correctly. A list of updates is generated.
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 4]
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 4]
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 work as expected documented
Related Information	SAM documentation [R 4]
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 work as expected documented
Related Information	SAM documentation [R 4]
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 work as expected documented
Related Information	SAM documentation [R 4]
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 work as expected documented
Related Information	SAM documentation [R 4]
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 work as expected documented
Related Information	SAM documentation [R 4]
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 work as expected documented
Related Information	SAM documentation [R 4]
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	The Job Execution Capability must generate accounting records for all the actions of the users into the local resources. These records must include, at least, the following information for all the jobs submitted to the system: • User DN • VO • Job start execution time • Job end execution time • SPECint information • CPU & Wall Time • Number of slots/CPUs used by the job The generation of accounting records must be available for the execution manager supported by the Job Execution Capability implementation. Support is expected for the following systems: • Torque • SGE • Condor • LSF
Test Description	**Pre-condition** Configured system. **Test** Creation of accounting records **Expected Outcome** Accounting records for all the jobs submitted to the execution manager through the Capability.
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	

Job Scheduling Appliances Accounting	
ID	**ACC_JOBSCH_1**
Description	Job Scheduling Capability must generate accounting records for all the actions of the users.
Mandatory	NO
Applicability	Accounting Appliances for Job Scheduling Capability

Input from Technology Provider	The Job Scheduling Capability must generate accounting records for all the actions of the users. These records must include, at least, the following information for each submitted job: • status of job • submission time • completion time • failures Summary information (number of submitted jobs, success rate, average submission time, etc) should also be provided.	
Test Description	**Pre-condition**	Configured system.
	Test	Creation of accounting records
	Expected Outcome	Accounting records for all the jobs submitted the system through the Capability.
Pass/Fail Criteria	Pass if the accounting records are generated correctly.The generation of the records should not compromise the availability and reliability of the system.	
Related Information		
Revision Log		

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 databse.
Mandatory	YES
Applicability	APEL Accounting Appliances.

Input from Technology Provider	APEL must be able to store the information collected from the execution manager in a site registry database, where information about all the jobs executed at the site is stored. The records must include the following information, as recommended by OGF community: • ExecutingSite: Site name (example: RAL-LCG2) • LocalJobID: Local job name (example: 12311.lcgce02.gridpp.rl.ac.uk) • LCGJobID: Optional 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)
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. Storage of the records should not compromise the availability and reliability of the system.

Related Information	
Revision Log	

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	**Pre-condition**	Configured system. Accounting records are correctly generated and stored in local registry.
	Test	Send new records to the central registry using ActiveMQ.
	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.
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 registry
Mandatory	YES
Applicability	APEL Accounting Appliances.

Input from Technology Provider	The accounting appliance must periodically submit new accounting records to the local registry using a cron script. This action should be executed daily to check new executed jobs.	
Test Description	**Pre-condition**	Configured system.
	Test	Send new records to the local registry each day after cron execution.
	Expected Outcome	Only new records are sent to local registry. They are stored correctly there. Cron and accounting logs are generated locally.
Pass/Fail Criteria	Pass if the cron is provided and work as expected.	
Related Information		
Revision Log		

Periodic Central Registry Update.	
ID	**ACC_CRON_2**
Description	The accounting appliance must periodically submit new accounting records to the global registry
Mandatory	YES
Applicability	APEL Accounting Appliances.

Input from Technology Provider	Cron script located at local registry must be able to submit new accounting records to global accounting registry using a message system. This script should be executed daily to check new executed jobs.	
Test Description	**Pre-condition**	Configured system.
	Test	Send new records to the global registry each day after cron execution.
	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. Cron and accounting logs are generated locally.
Pass/Fail Criteria	Pass if the cron is provided and work as expected.	
Related Information		
Revision Log		

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: • Site • Countries • VO • NGI • Tier1 / Tier2	
Test Description	**Pre-condition**	Configured accounting portal.
	Test	Browse summaries.
	Expected Outcome	Summary views are shown with correct data for all the possible levels.
Pass/Fail Criteria	Pass if the summary view is provided and is correctly generated for all possible levels	
Related Information	EGI Accounting Portal [R 5]	
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	**Pre-condition**	Configured accounting portal. Valid VO manager certificate.
	Test	Browse VO view with VO usage and user DNs.
	Expected Outcome	Information is displayed correctly.
Pass/Fail Criteria	Pass if the access policy is applied correctly.	
Related Information	EGI Accounting Portal [R 5]	
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	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: • 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. 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.
Test Description	**Pre-condition** Configured System. **Test** Visualize data with charts **Expected Outcome** Charts are correctly generated for the accounting data available based on users selection.
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 5]
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	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: • 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 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.
Test Description	**Pre-condition** Configured System. **Test** Visualize data with charts **Expected Outcome** Charts are correctly generated for the accounting data available based on VO managers selection.
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 5]
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	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: • 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. 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.	
Test Description	**Pre-condition**	Configured System.
	Test	Visualize data with charts
	Expected Outcome	Charts are correctly generated for the accounting data available based on VO members selection.
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 5]	
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	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: • 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. 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.	
Test Description	**Pre-condition**	Configured System.
	Test	Visualize data with charts
	Expected Outcome	Charts are correctly generated for the accounting data available based on site administrators selection.
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 5]	
Revision Log		

4 REFERENCES

R 1	UMD roadmap: https://documents.egi.eu/public/ShowDocument?docid=100
R 2	Nagios Config Generator: https://tomtools.cern.ch/confluence/display/SAM/NCG
R 3	My EGI portal: https://tomtools.cern.ch/confluence/display/SAM/MyEGI
R 4	SAM Probes Documentation: https://tomtools.cern.ch/confluence/display/SAM/Probes
R 5	Accounting Portal: http://accounting.egi.eu/