

EGEE-III

SERVICE LEVEL AGREEMENT BETWEEN ROCS AND SITES

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Abstract: This document formalizes the services which a site provides to its Regional Operations Centre, and vice-versa.

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1. INTRODUCTION

EGEE makes a collection of hardware, software and support resources available to the European academic community and others. This Service Level Agreement (SLA) is intended to specify the constraints imposed on Regional Operations Centres (ROCs) and sites (resource centres) in order to ensure an available and reliable grid infrastructure.

2. PARTIES TO THE AGREEMENT

The parties to this agreement, which is not legally binding, are:

Regional Operating Centre: **ROC CERN**

Site (Resource Centre):

2.1. ROCS

EGEE is divided into Regional Federations, each hosting a ROC. A ROC consists of a manager or a management team and support staff. ROCs provide a framework of support, to both users and sites, in order to allow them to use the data and computational resources of the grid. The list of EGEE ROCs is maintained at [R 1]. All EGEE ROCs must sign this Service Level Agreement with their sites.

2.2. SITES (RESOURCE CENTRES)

All EGEE sites that run grid middleware and are members of one of the afore-mentioned ROCs must sign this Service Level Agreement with their ROC. Grid middleware is defined as being supported versions of gLite middleware [R 7], or middleware that is interoperable with it. The Site (Resource Centre) provides the actual computational resources, such as Computing Elements (CE), Storage Elements (SE), and middleware services.

3. DURATION OF THE AGREEMENT

This SLA is valid for as long as the site is part of the EGEE production infrastructure, i.e. the site is registered in GOCDB as being certified for production.

4. AMENDMENT PROCEDURE

The SLA may be amended at any time if there is mutual agreement by both parties. This will usually take the form of a signed and dated SLA addendum.

5. SCOPE OF THE AGREEMENT

This Service Level Agreement (SLA) covers the commitments made by a site with respect to its ROC and, correspondingly, the commitments that a ROC makes to its member sites. It does not cover specific core infrastructure services, such as GOCDB, GGUS, and SAM. Neither does this SLA cover the relationship that specific VOs might have with sites; those should be detailed in VO-specific agreements.

6. RESPONSIBILITIES

This section defines the responsibilities of each party. The overall task for all concerned is to operate, support, and manage a production quality grid infrastructure across the European Research Area.

6.1. REGIONAL OPERATIONS CENTRE (ROC)

The main responsibilities of the ROC are:

- provide Help Desk facilities (first-level support) either by using GGUS [R 6] support units to create a regional Help Desk within GGUS, or by providing a regional Help Desk which is interfaced with GGUS;
- register site administrators in the available Help Desk facilities;
- provide third-level support by helping in the resolution of advanced and specialized operational problems that cannot be solved by site administrators. If necessary, the ROC will propagate and follow-up problems with higher-level operational or development teams;
- ticket follow-up (ensure that sites work on tickets opened against them).
- respond to tickets from sites in a timely manner (see Section 11)

ROCs manage and support the deployment of gLite middleware on sites, and are also responsible for registering new sites. Their administrative tasks include:

- maintaining accurate GOCDB entries for the ROC manager and their deputies;
- adhering to the Operational Procedures described in the Operations Procedures Manual [R 2];
- raising any issues deemed necessary by the sites to the attention of operational, development, deployment, monitoring, and/or certification teams, and ensuring that these issues are properly dealt with;
- follow-up of site-specific issues in the weekly EGEE SA1 operations meeting.

The ROC must provide, using GOCDB, details (name, phone number, e-mail address) of a set of contact points for security, operational and administrative matters. The ROC is responsible for ensuring the accuracy of the contact details in the GOCDB database.

6.2. SITES (RESOURCE CENTRES)

Sites provide second-level level support, have one or several site administrators, and have a designated security officer. Sites are expected to:

- adhere to the Operational Procedures described in the Operations Procedures Manual [R 2];
- maintain accurate information on the services they provide in GOCDB [R 3];
- adhere to the Grid Site Operations Policy [R 4], and other policy documents referenced therein;
- adhere to the requirements stated in the Security and Availability Policy document [R 5];
- adhere to the criteria and metrics that are defined in this Service Level Agreement (SLA);
- run supported versions of gLite (or compatible) middleware [R 7]¹.
- respond to GGUS tickets in a timely manner (see Section 11)

¹ Sites are encouraged to stay abreast of grid middleware updates in order to benefit from the latest bug-fixes.

The site must provide, using GOCDB, details (name, phone number, e-mail address) of a set of contact points for security, operational and administrative emergencies. The site is responsible for ensuring the accuracy of site contact details in the GOCDB database.

7. HARDWARE AND CONNECTIVITY CRITERIA

The site must ensure sufficient computational and storage resources and network connectivity to support the proper operation of its services, as indicated by consistently passing all relevant SAM critical tests [R 10].

8. DESCRIPTION OF SERVICES COVERED

The services that are offered by a site must be specified in the GOCDB and be monitored by SAM.

Sites are encouraged to provide both Computing Elements and Storage Elements². However, the minimum requirements in terms of the resources that a site must provide are as follows:

- **one** site BDII;
- at least **one** CE or SE
 - CE must have a number of Worker Nodes totalling at least **eight** CPUs/cores attached to it
 - SE must have a capacity of **one TB** or more;
- an EGEE-supported Accounting Service.

9. SERVICE HOURS

The site should offer the services specified in Section 8 with an intended availability of 24/7. The site support service must be available during the regular business hours of the site's host organization. A site's service hours must be specified in GOCDB. Response times to trouble-tickets are expressed in service hours.

10. AVAILABILITY

Sites and ROCs must commit to achieve the availability and reliability of grid services specified in this SLA. Reasonable steps must be taken to ensure that scheduled downtimes are kept to the specified levels. Unplanned outages can have a considerable impact on availability figures, and will also adversely affect jobs that are running at the time. Careful monitoring of resources and the local fabric should help reduce the number of such outages, so sites are expected to take a proactive role in this domain.

Out of the list of site services monitored by SAM, only the "CE, SE, SRM and sBDII" services are taken into account for site availability and reliability calculations. GridView is used to calculate a site's SLA conformance, using data from GOCDB and SAM. Details of the GridView algorithms are documented in [R 9].

For a site to be available, all of the afore-mentioned services must be available (logical AND of all service types). If a site has several instances of a service type (e.g. Computing Elements), the service is deemed to be available if any of the instances are available (logical OR). Availability figures include scheduled downtimes, which should be kept to a minimum.

- 1. Site must be available (UP) at least 70% of the time per month
(Daily availability is measured over 24 hrs)**

² Classic SE, SRMv1 or SRMv2

2. Site reliability must be at least 75% per month

$$(\text{Reliability} = \text{Availability} / (\text{Availability} + \text{Unscheduled Downtime}))^3$$

Scheduled Downtime must be declared in advance in the GOCDB according to the procedure and deadlines specified in the Operational Procedures [R 2]. Note that Scheduled Downtimes negatively affect Availability figures, but not Reliability figures.

11. SUPPORT

GGUS [R 6] is the central support tool (Service Desk) used by EGEE, and as such, provides the mechanism for entering problem reports, tracking and escalating them, and providing statistics. Statistics from GGUS will be used to determine the responsiveness of sites, and the efficiency of the ROC in problem tracking.

- the ROC must respond to tickets raised by its sites within **four hours** of the ticket having been assigned to it

In terms of support provided by sites, the following applies:

- the site will provide at least **one** system administrator who is reachable during service hours;
- the site must respond to GGUS tickets within **four hours** of the ticket having been assigned to it, and resolve incidents⁴ within **five working days**.

Missing any of these metrics on an incident constitutes a violation.

11.1. VO SUPPORT

- The site must support the “ops” VO (the “ops” VO is a pre-requisite for SAM monitoring to function correctly).

Each site must support at least **one** user-community VO, but sites are encouraged to support as many VOs as they reasonably can. Specific agreements between sites and individual VOs should be covered in a separate SLA.

12. SERVICE REPORTING AND REVIEWING

Tracking of SLA conformance shall be done on a **monthly** basis. Site availability reports will be published by GridView [R 8], and sites are responsible to provide justifications for any SLA violations. Similarly, ROCs must justify any violations on their side, if any.

13. PERFORMANCE INCENTIVES/PENALTIES

This Service Level Agreement is to set expectations and targets. No penalties for missing targets will be applied, but results will be published openly.

³ In the extreme case of a site being in scheduled downtime over the whole period, reliability is considered to be undefined.

⁴ We use the ITIL distinction between incidents and problems. An incident can be resolved (quickly) by a site, whereas a problem needs to be escalated and requires more time. The metric pertains only to incidents.

14. TABLE OF METRICS

	Value	Section
Minimum number of site BDII's	one	8
Minimum number of CEs or SEs	one	8
Minimum number of WN CPUs/cores	eight	8
Minimum capacity of SE(s)	one TB	8
Minimum site availability	70%	10
Minimum site reliability	75%	10
Period of availability/reliability/outage calculations	per month	10
Minimum number of system administrators	one	11
Maximum time to acknowledge GGUS tickets	four hours	11
Maximum time to resolve GGUS incidents	five working days	11
Minimum number of supported user-community VOs	one	11
Tracking of SLA conformance	monthly	12

Nb. Ticket response times are measured in site office-hours as defined in the GOCDB

15. SIGNATORIES

Authorized representatives of the parties to this Service Level Agreement:

For the ROC:

Name **Diana Bosio**

Title **CERN ROC manager**

Date: 21st November 2008

For the Site:

Name

Title **Site administrator**

Date:

16. REFERENCED DOCUMENTS AND WEB-SITES

R 1 - List of EGEE ROCs

<http://egee-sa1.web.cern.ch/egee-sa1/>

R 2 - Operational Procedures

<https://twiki.cern.ch/twiki/bin/view/EGEE/EGEEROperationalProcedures>

R 3 - GOCDB

<https://goc.gridops.org/>

R 4 - Grid Site Operations Policy

<https://edms.cern.ch/document/819783/1>

R 5 - Security and Availability Policy for LCG

<https://edms.cern.ch/document/428008>

R 6 - Global Grid User Support (GGUS)

<https://gus.fzk.de/pages/home.php>

R 7 - Supported versions of gLite middleware

<http://glite.web.cern.ch/glite/packages/latestRelease.asp>

R 8 - GridView Monitoring and Visualization Tool

<http://gridview.cern.ch/GRIDVIEW/>

R 9 - GridView Availability and Reliability Calculations

https://twiki.cern.ch/twiki/pub/LCG/GridView/GridView_Service_Availability_Computation.pdf

R 10 - Site Availability Monitoring (SAM)

<https://lcg-sam.cern.ch:8443/sam/sam.py>