



omii europe

open middleware infrastructure institute



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Project acronym: **OMII-Europe**

Project title: **Open Middleware Infrastructure Institute for Europe**

Instrument: **Integrated Infrastructure Initiative**

Thematic Priority: **Communication network development**

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RE	Restricted to a group specified by the consortium (including the Commission Services)	
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This single deliverable entitled “Support Activity Operation Specification” has been divided into 2 separate deliverables as the audience for each deliverable is different. The 2 separate deliverables are entitled; “Evaluation Infrastructure and Support” and “User Support Operations Manual”.

The “Evaluation Infrastructure and Support” deliverable should be read by OMII-Europe personnel who are interested in the Evaluation Infrastructure (EI) that has been set up by the OMII-Europe project. Potential users of the EI may also benefit from reading this document. This document describes the process of establishing the Evaluation Infrastructure at the 6 partner sites and the nature of the resources available at these sites.

The second part of this deliverable is the “User Support Operations Manual”. This document is intended to be read by the SA3 partners. It establishes the support processes that are to be used by the OMII-Europe project. As such it may also be of interest to other OMII-Europe project partners, users of the OMII-Europe Evaluation Infrastructure and users of the middleware components that OMII-Europe will host in its repository. Information on the actual support mechanisms available to users of the Evaluation Infrastructure are given in this document.

The above mentioned two reports are concatenated to form this document.

Project no: **RI1031844-OMII-Europe**

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SA3 Evaluation Infrastructure and Support

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Executive Summary

This document should be read by OMII-Europe personnel who are interested in the Evaluation Infrastructure (EI) that has been set up by the OMII-Europe project. Potential users of the EI may also benefit from reading this document.

The Evaluation Infrastructure consists of a set of six test-beds, three funded and three unfunded, provided by the seven activity partners: the University of Edinburgh, the Forschungszentrum Juelich, the Poznan Supercomputing and Networking Centre, the Istituto Nazionale di Fisica Nucleare, the University of Southampton, Beihang and Tsinghua Universities. Each test-bed will host at least one of the following middleware stacks: Globus, gLite, UNICORE, OMII-UK Platform and CROWN Grid. As OMII-EU software becomes available in the repository it will be deployed on the test-beds.

In the first year of the project the EI will be acquired and set-up. In the second year the EI will become open to the public. This resource may be used by the Joint Research Activities, JRA1, JRA2 and JRA3 for development of OMII-EU components, and JRA4 for benchmarking.

Support for the evaluation infrastructure will be handled by this activity. Initially each site will manage their own user accounts for their test-bed, however migration to a more centralised system is anticipated.

The key to providing a high quality EI service is anticipation and matching of user requirements and also the requirements of other activities within the OMII-Europe project. The EI service and accompanying support activity has a flexible setup to achieve this.

A description of the support process to operate within the OMII-Europe project is provided in a companion document¹.

¹ See the “SA3 User Support and Operations Manual” document, D:SA3.0.2 [1]

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List of Acronyms and Abbreviations

AGORA	A dvanced G rid O bservation R eliable A lgorithms
BDII	B erkeley D atabase I nformation I ndex
BES	B asic E xecution S ervices
BU	B eihang U niversity
CE	C omputing E lement
CEMON	C omputational E lement M onitor
CNGrid	C hina G rid
CREAM	C omputing R esource A nd M anagement
CROWN	C hina R esearch and D evelopment environment O ver W ide-area N etwork
DGAS	D istributed G rid A ccounting S ervice
EI	E valuation I nfrastructure
EGEE	E nabling G rids for E - S cience
ETICS	E -infrastructure for T esting, I ntegration and C onfiguration of S oftware
FZJ	F orschungszentrum J uelich
GRIP	G rid I nteroperability P roject
GT	G lobus T oolkit
HLR	H ome L ocation R egister
INFN	I stituto N azionale di F isica N ucleare
ISM	I nformation S uper M arket
JRA	J oint R esearch A ctivities
JSDL	J ob S ubmission D escription L anguage
MDS	M onitoring and D iscovery S ystem
NJS	N etwork J ob S upervisor
OGF	O pen G rid F orum
OMII	O pen M iddleware I nfrastructure I nstitute
PSNC	P oznan S upercomputing and N etworking C entre
QA	Q uality A ssurance
SA	S upport A ctivity
SE	S torage E lement
SRM	S torage R esource E lement
RT	R equest T racker
RUS	R esource U sage S ervice
TBD	T o B e D etermined
TSI	T arget S ystem I nterface
TU	T singhua U niversity
UEDIN	U niversity of E dinburgh
UNICORE	U niform I nterface to C omputing R esources
UADB	U niform I nterface to C omputing R esources U ser D atabase
VOMS	V irtual O rganization M embership S ervice
WMS	W orkload M anagement S ervice

1 Introduction

1.1 Motivation and Activity Goals

The purpose of the Evaluation Infrastructure (EI) is to provide a mechanism for the OMII-Europe repository components to be deployed, evaluated and tested by third-parties and OMII-Europe partners². The Evaluation Infrastructure itself will consist of funded hardware test-bed clusters located at the University of Edinburgh (UEDIN), Forschungszentrum Juelich (FZJ) and the Poznan Supercomputing and Networking Centre (PSNC); these will operate along with unfunded hardware provided by the University of Southampton (SOTON), Istituto Nazionale di Fisica Nucleare (INFN), Beihang University (BU) and Tsinghua University (TU). One of the roles of the OMII-Europe support staff will be to deal with requests and queries which arise from use of the EI.

This report describes the current status of the EI, including the location, configuration and facilities of the hardware clusters. To enable an efficient, proactive support network for a multi-national, distributed project, the activity needs to both anticipate and monitor usage levels as these will influence the processes put in place.

1.2 Document Amendment Procedure

This document will evolve as the OMII-Europe project matures and as OMII-Europe components are deployed on to the EI. Updated versions of this document will become available on the OMII-Europe Website to address any issues that arise and to streamline the support and EI processes as and when required as part of on-going quality assurance activities within SA3.

2 Evaluation Infrastructure Requirements

There are several factors to consider in the establishment of both the EI and the support mechanisms, namely:

- Components to be deployed
- User base
- Timescales for availability
- Expected load

This section will address these considerations, based on the current status of the activities within the OMII-Europe project, and on our prediction of how usage will develop in the near future. The information in this section is based on our partners' prior knowledge of similar systems in place, and on the Description of Work [2]. As with any support system, the requirements of the project can and will change, and the EI support processes and systems need to be agile and flexible.

² Funds have explicitly been provided for three funded SA3 test-beds, see the second paragraph in 5.B.4.2.2 of [2], and three unfunded test-beds.

2.1 Components to be deployed

OMII-Europe's repository will contain software that can run on a number of grid-middleware stacks. These are:

1. **gLite** [4]: Current version is 3.0.0. It uses Globus 2.4.3 which is expected to change in the next few months to a newer version of Globus (4.0.x), but which only uses the pre-web services components of Globus. This new version will be gLite 3.1 (experimental) and 3.2 (stable).
2. **UNICORE** [5]: Current stable server is version 4.6 and the stable client is version 5. Specifically:
 - Unicore_Gateway 4.1.1_build3
 - Unicore_NJS 4.6.2_build1
 - Unicore_UUDB 1.0.0
 - Unicore_TSI 4.1.2_build1
 - Unicore_Client 5.6_build3
 UNICORE 6 will be available as soon as possible.
3. **Globus** [6]: Currently recommended version for Globus is any GT 4.0.x release. Minor version changes should be transparent to both users and developers using Globus.
4. **CROWN** [7]: Version 2.5.
5. **OMII-UK Platform** [8]: Version 3.2.

Note that it is not the middleware stacks that are being supported, but their deployment on the test-beds and the OMII-Europe repository components that run on them. Table 1 lists the middleware stacks that the EI test-beds will deploy and where these will be deployed.

Middleware Stack	Institution
Globus	University of Edinburgh
UNICORE	Forschungszentrum Juelich
gLite	Poznan Supercomputing and Networking Centre Istituto Nazionale di Fisica Nuclear
OMII-UK Platform	University of Southampton
CROWN Grid	Beihang and Tsinghua Universities

Table 1: Support responsibilities for OMII-Europe components running on supported middleware stack.

Each test-bed will deploy the components from the OMII-Europe repository as dictated by user requirements and demand – see Section 0 for additional information and more details.

As the project continues throughout its 24 month lifetime, it is proposed that each test-bed will try and support another middleware system, For example, UEDIN may attempt to deploy a UNICORE installation on its test-bed. The SA3 Partners believe that this will allow knowledge transfer between each organisation, and also allow for users to deploy repository components on more than one test-bed. However, the time scales for deploying a second middleware stack on the test-beds, or what this will be, have not been determined as yet.

2.2 User base

In the last six months, the SA3 Activity has spent most of its effort establishing the test-beds that compose the Evaluation Infrastructure, and the support processes. In the next 18 months, the emphasis will change to provide support for users of the test-beds and the components from the

OMII-Europe repository as this is populated, and users begin to evaluate OMII-Europe components on the corresponding test-beds. The SA3 activity anticipates supporting both users within the OMII-Europe project, and external third-party users wishing to evaluate OMII-Europe repository products. All support queries, regardless of origin, will be treated equally.

2.3 Timescales for availability and Expected Load

The SA3 Activity needs to both predict and monitor usage of its EI. Usage of this resource can then be reported to the Networking Activity 2 that can then publicise the availability of the EI resource. Pro-active support requires SA3 to track the progress made in Joint Research Activities (JRA) 1 and 2 and the SA1 Repository activities closely. We can expect usage to be initially constrained to internal OMII-Europe partners for the first year of operation, and in the second year more widespread usage. To aid this, there is a ramping of effort in the Description of Work [2]. The companion document D:SA3.0.2 [1], contains more details on recording and reporting of metrics.

3 Current Test-Bed Systems

3.1 Introduction

This section outlines the hardware currently in place at each of the test-bed sites, as well as the middleware stacks currently deployed at that site. It also details any immediate pending work. Unless otherwise stated access to any of the test-beds may be obtained by placing a request to support@omii-europe.org. Currently the accesses policy to a test-bed is devolved to each test-bed site. As the OMII-Europe components become available these will be deployed on to the test-beds – the Appendix in Section 7 gives an indication of what is expected to go on the test-beds (according to the middleware stack deployed) and when, where this is known.

Usage instructions for each of the test-beds will be expanded over the next few months, as the repository components are completed and are ready to be evaluated at the corresponding test-beds. Instructions will initially become available at the OMII-Europe web site and will then migrate to future versions of this document. The most current version of these instructions will always be found on the OMII-Europe support web site.

3.2 University of Edinburgh

3.2.1 Hardware

Initially the University of Edinburgh is providing:

- Front-end:
 - Sun e3000 server running Solaris 10
 - Four SMP processors³ operating at 336 MHz
 - 1Gb of RAM
 - 21Gb of disk space in RAID1 and RAID5 configuration
- Back-end:
 - Sun e3500 server running Solaris 10

³ A processor here is taken as a CPU.

- Eight SMP processors operating at 400 MHz
- 8Gb of RAM
- 88Gb of disk space in RAID1 and RAID5 configuration

This has allowed the middleware stack to be tested on a Solaris system. However, Edinburgh plan to migrate to a Linux based platform in the near future.

3.2.2 Middleware stack deployed

The University of Edinburgh has deployed version 4.0.3 of the Globus Toolkit on to its test-bed. Accounts for the Edinburgh test-bed can be created by sending a request to support@omii-europe.org.

Edinburgh also hopes to deploy UNICORE on to their test-bed at some future point.

3.3 *Forschungszentrum Juelich*

3.3.1 Hardware

FZJ has deployed:

- Front-end:
 - Two AMD Opteron 248 running SUSE 10.1
 - 8 Gb RAM
 - Two 36Gb SCSI HDD (RAID 1) System drives
 - Four 300Gb SCSI HDD (RAID 5) NFS Drives
- 10 Nodes:
 - One AMD Opteron 246 running SUSE 10.1
 - 2Gb RAM
 - 73Gb SCSI

with a 1Gbit interconnect (within DFN-network).

3.3.2 Middleware stack deployed

FZJ is already offering a UNICORE 5 installation for the EI. The UNICORE 5 Installation is accessible via the gateway at:

- <url://omii.zam.kfa-juelich.de:6644>.

The gateway authenticates the connection with a DFN-PKI Grid Server CA - G01 certificate, thus users have to import the DFN-Server CA certificate to the 'trusted certificates' into their key store.

The gateway will accept connections secured by an EUGridPMA issued certificate. Users have to request an account via the OMII-Europe support homepage. UNICORE 6 installation will also be deployed during November 2006.

3.4 *Poznan Supercomputing and Networking Centre*

3.4.1 Hardware

PSNC aim to have two servers for their OMII-Europe test-bed, these are:

- pinus.man.poznan.pl, configuration:
 - 8 logical CPUs (Intel 64bit architecture (but fully compatible with 32bit)),
 - 8Gb memory
- larix.man.poznan.pl, configuration:
 - 4 logical CPUs (Intel 32bit processors),
 - 4Gb memory.

3.4.2 Middleware stack deployed

The above hardware will have a set of OMII-Europe Grid services setup as required by all test-bed partners as these become available, gLite services for development and testing, and an instance of GridSphere that will serve as the OMII- Europe Portal.

3.5 *Istituto Nazionale di Fisica Nucleare*

3.5.1 Hardware

For the initial phase, INFN are planning to set up the Grid services on virtual machines run by two system hosts with the following specifications:

- Two Intel Xeon 2800 MHz.
- 2 Gb RAM.
- 2 x 80 Gb HDD SATA.

More dedicated hardware will be acquired during the project lifetime if required according to the test-bed users' needs.

3.5.2 Middleware stack deployed

INFN are planning to provide support for the following components, developed under JRA1, for the OMII-Europe test-beds:

- VOMS (Virtual Organization Membership Service) service.
- DGAS (Distributed Grid Accounting Service) service [9].
- A job submission service + CE (CREAM, Computing Resource Execution and Management) [10].

And in addition other services:

1. SE (Storage Elements) based on SRM (Storage Resource Management) protocol.
2. WMS (Workload Management Service) [11] + BDII (Berkeley Database Information Index) [12].
3. Monitoring system GridICE [13] and CEMON (Computational Element Monitor) [14].

The INFN test-bed will be geographically distributed at INFN-Padova and INFN-CNAF (Bologna) sites.

As a starting point, the following gLite 3.1 services will be deployed:

- at INFN-Padova
 - UI (User Interface)
 - WMS
 - CREAM-CE+CEMON
 - CREAM-WN (Worker Node)
- at INFN-CNAF:
 - VOMS server
 - HLR (Home Location Register, the basic component of the DGAS system)

INFN is planning to use ETICS (E-infrastructure for Testing, Integration and Configuration of Software) [15] and the SA1 repository for the services engineered by OMII-EU. The deployment will not start before gLite 3.1 components are migrated to the ETICS repository and automatic installation/configuration tools (like apt and yaim used for gLite 3.0 production release) are available.

INFN is also planning to provide support for the JRA3 Infrastructure Integration activity. In particular, a major use of the test-bed is expected from JRA3 concerning the study and prototyping of the integration between EGEE and UNICORE regarding job submission. The approach will involve the gLite WMS and UNICORE via the Globus GT4 information system: the UNICORE Computing Element will be published to a GT4 information System (MDS4) and a special purchase will be defined as a channel between the WMS ISM (Information Super Market) and the GT4 MDS. An integration development and testing roadmap based on the role of the ISM component of the gLite WMS under definition is available [16].

3.6 University of Southampton

3.6.1 Hardware

Initially the University of Southampton will provide:

- 3.0Ghz Intel Pentium 4 with Hyper-threading
- 2Gb RAM
- 80Gb Hard disk
- Red Hat Enterprise Linux AS release 4

3.6.2 Middleware stack deployed

The University of Southampton has deployed the latest version of the OMII-UK platform – version 3.2. Information on accessing the test-bed is available from “What do I do next?” section in the “Client Installation” Guide [17].

3.7 Beihang and Tsinghua Universities

3.7.1 Hardware

Beihang and Tsinghua Universities will provide:

- 4 Nodes:
 - 2 Intel Xeon 3.0GHz
 - 2Gb RAM
 - 73Gb SCSI

Redhat Enterprise Linux version 4.0 for advanced server is installed on each node.

3.7.2 Middleware stack deployed

Beihang and Tsinghua Universities has deployed CROWN Grid Middleware Version 2.5 on to their test-bed.

3.8 Summary

Initially the management of the test-beds will be carried out locally by the owner institutions. Access requests should be carried out through the central OMII-Europe support activity so they may be monitored. The creation of user accounts is at the discretion of the local sites. Reporting test-beds usage is critical so under usage can be flagged. It is important to note that the test-beds are an evaluation environment and not a production environment. Users that require a production environment should be directed to the corresponding national grid centre where appropriate.

4 Support Processes and Procedures

Only a brief overview of the support processes is given here; the details are provided in the *User Support and Operations Manual*, D:SA3.0.2 [1] but is outlined here for the sake of completeness.

Support will be provided for the base middleware stacks and the repository components deployed on each test-bed. The support service comprises of an online support, a bug reporting service and direct help by expert.

Support will be provided for the middleware stacks as operated in the test-beds and the OMII-Europe Repository components as they are released. Any other general queries associated with the OMII-Europe project will also be addressed. Support requests for middleware problems will be directed to the corresponding institutions as outlined in Table 1.

The University of Edinburgh hosts on behalf of the SA3 activity the following:

- Ticketing System: the RT (Request Tracker) [18] developed by Best Practical is being used to manage e-mail support for the OMII-Europe allowing bugs/defects/issues to be tracked⁴.
- A support web-site which will be populated with:
 - Documentation for the EI test-beds and the OMII-Europe developed components.
 - Frequently Asked Question (FAQ) lists.
 - Best practice documentation and case histories.
 - Account application procedure⁵.

Each of the SA3 partners is expected to provide support for queries related to their test-beds. In addition, an SA3 partner may provide users in direct contact with an expert to discuss their use of OMII-Europe components.

⁴ The RT instance is available at <http://omiieurt.epcc.ed.ac.uk> but it requires a log-in. It is not publicly accessible and is being operated by SA3 personnel. Access to other OMII-Europe personnel may be granted on request.

⁵ More details on the processes in place are described in the User Support and Operations manual, D:SA3.0.2 [1].

5 Future Plans

An indication of future activities to be undertaken by SA3:

- Deployment of OMII-Europe repository components to the appropriate test-beds as these becomes available.
- Deployment of secondary middleware stacks across the EI test-beds.

Additional items will be added to this list as the project evolves.

6 Outstanding Questions

Outstanding issues are described below. These will be addressed in future versions of this document.

- What is the upgrade policy of the infrastructure?
- Certification Authorities – We are unclear at present as to whether one or more certification authorities are required by the OMII-Europe project.
- Accounts policies – Currently the creation of accounts on individual test-beds within the EI is delegated to the corresponding institutions that manage these test-beds. We are open to the requirement of centralised management of user accounts.

Certification and account policies need to be defined at a project-wide level, and this is currently under review by the OMII-Europe Technical Committee.

7 Appendix: Middleware and Repository components

This appendix gives a more detailed outline of what is expected to become available on the OMII-Europe repository and roughly by when. It is expected that these components will subsequently be deployed on to the corresponding OMII-Europe test-beds soon after. If a component is currently unavailable its expected OMII-EU delivery month (M) is given⁶:

- Execution Service
 - gLite: gLite-WMS (Workload Management Server).
 - UNICORE: Network Job Supervisor (NJS) & Target System Interface (TSI).
 - GT4: Grid Resource Allocation Manager (GRAM).
- Data Integration Service
 - OGSA-DAI
 - Works on the Globus Toolkit.
 - OGSA-DAI needs to be ported to:
 - UNICORE (M12 – alpha quality, M24 – release quality).
 - gLite (M12 – alpha quality, M24 – release quality).
- Virtual Management Service
 - VOMS works with:
 - Globus Toolkit (there appears to be limited inter-operability).
 - gLite (only some components support VOMS).
 - Needs to be ported to UNICORE:

⁶ Month 1 is taken to be May 2006.

- Prototype implementations for SAML support into VOMS and prototype integration of VOMS under UNICORE (M12).
 - Extension of VOMS to support OGSA AuthZ specifications [19] and availability of VOMS under UNICORE (M24).
- Accounting Service
 - gLite: DGAS (though not currently in gLite 3.0)
 - UNICORE: TBD.
 - GT4: TBD⁷.
- Portal Capability
 - GridSphere
 - Deployed on UNICORE and EGEE test-beds (M6).
 - Portlets for UNICORE and EGEE (M12).

In addition the test-beds also need to provide OMII-EU developers a platform which they can use to test and deploy their components. From JRA1 these include⁸:

- Data access: OGSA-DAI, which already operate under the Globus Toolkit, will be ported to run under UNICORE and EGEE (gLite).
- Virtual Organisation Management: VOMS, which already runs under EGEE and the Globus Toolkit, will be extended and ported to UNICORE.
- Accounting: work will be done to unify accounting information under UNICORE, EGEE (gLite) and the Globus Toolkit taking account of the emerging *Resource Usage Service (RUS)*⁹ specification of the OGF.
- Job submission and monitoring: existing job submission systems within UNICORE, EGEE (gLite) and Globus Toolkit will be developed to meet the emerging BES and JSDL standards, proposing extensions to those standards as appropriate.
- Portal Interfaces: GridSphere already running under Globus Toolkit will be ported to UNICORE and EGEE (gLite).
- Services will be exchanged between CROWN Grid and OMII-Europe

Other deliverables that may have an impact on the running/operation of the test-beds:

- Accounting services:
 - Preliminary Accounting design documents completed (M3).
 - Feature-complete Accounting alpha implementations (M12).
 - First release of integrated Accounting components (M20).
- Job Execution Services:
 - Definition of the required extensions needed to the Job Submission Description Language (JSDL) to satisfy OMII-Europe requirements (M6).
 - Basic Execution Services (BES) will be evaluated with respect to its adoption in the middleware of the OMII-Europe partners (M9).
 - GridSAM integration into UNICORE: architecture and implementation available (M12).
 - Implementation of JSDL into OMII-Europe middleware together with the extensions identified (M18).
 - OMII-Europe supports BES plus required extensions (M20).

⁷ GT4 can use SGAS (www.sgas.se) - A RUS interface in SGAS is now in active development in JRA1-accounting

⁸ This is paraphrasing Section 4.3 of the OMII-EU "Description of Work" document [2].

⁹ <http://forge.gridforum.org/sf/projects/rus-wg>.

- Portals:
 - GridSphere deployed on the EGEE and UNICORE test-beds (M6).
 - GridSphere portlets for EGEE and UNICORE available (M15).
 - GridSphere packages for EGEE and UNICORE available (M24).
- OMII-Europe Repository:
 - Components for porting to CNGrid [20] Identified (M12).
 - Grid Interoperability Project (GRIP) [21] ported to the OMII-Europe repository (M12).
 - Advanced Grid Observation Reliable Algorithms (AGORA) [22] ported to the OMII-Europe repository (M24).

JRA4¹⁰ may use the EI:

- Assess the performance of components available in the OMII-Europe Repository.
- Integrate performance assessment tools into the OMII-Europe repository.
- Develop of tutorial material for the assessment tools.

8 References

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Executive Summary

This document is intended to be read by the SA3 partners. It establishes the support processes that are to be used by the OMII-Europe project. As such it may also be of interest to other OMII-Europe project partners, users of the OMII-Europe Evaluation Infrastructure and users of the middleware components that OMII-Europe will host in its repository.

The SA3 activity supports both internal OMII-Europe partners and any other users who may wish to examine, test and evaluate OMII-Europe Repository components; and users using the Evaluation Infrastructure itself.

Support for the OMII-Europe Project is as follows:

- An email contact support@omii-europe.org.
- A support website <http://support.omii-europe.org>, containing on-line self-help for users, consisting of Frequently Asked Questions and documentation.
- Personnel to triage, resolve and escalate user queries and issues.

To ensure a high quality of service, the activity has put in place the following:

- A Service Level Agreement, which sets the user service expectations and sets a metric against which we can track our quality of service.
- Systems and guidelines for personnel dealing with user queries.
- A process for recording usage and metrics.
- Quality Assurance to measure our performance and review process.

All of the above are in place and in operation.

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List of Acronyms and Abbreviations

BU	B eihang University
CROWN	C hina R esearch and Development environment O ver W ide-area N etwork
EI	E valuation I nfrastructure
FAQ	F requently Asked Q uestions
FZJ	F orschungszentrum J uelich
GT	G lobus T oolkit
INFN	I stituto Nazionale di F isica N ucleare
JRA	J oint R esearch A ctivities
NJS	N etwork J ob S upervisor
OMII	O pen M iddleware I nfrastructure I nstitute
QA	Q uality A ssurance
PSNC	P oznan S upercomputing and N etworking C entre
RT	R equest T racker
SA	S ervice A ctivity
TU	T singhua U niversity
UEDIN	U niversity of E dinburgh
UNICORE	U niform I nterface to C omputing R esources

1 Introduction

1.1 Motivation and Goals

The support activity within the OMII-Europe will attempt to facilitate the use of the OMII-Europe developed components and provide an Evaluation Infrastructure (EI) consisting of six test-beds, each of which has one of the currently available grid middleware stacks deployed, together with the OMII-Europe developed components as these become available. The EI will be available to interested parties seeking to try out Grid middleware and to use the OMII-Europe developed components. It is also envisaged that the EI will be used to provide OMII-Europe training. By providing such a framework, commercial and academic parties will see the benefits of employing Grid technologies within their respective field of interest.

In addition to providing the Evaluation Infrastructure the support activity will also provide:

- Online email support via the RT ticketing system.
- A repository of documentation for the EI test-beds, OMII-Europe developed components as deployed in the test-beds or links to documentation in the OMII-Europe repository itself as well as any other OMII-Europe documentation.
- Frequently Asked Question (FAQ) lists.
- Best practice documentation, case histories and information on how to access and use the OMII-Europe developed components will be provided.
- Direct expert contact via email and telephone.

Support may also be offered to users by Service Activity 3 (SA3) personnel, via the training activity, through face-to-face meetings or other means of communication. This provides a forum which allows users to interact with grid experts.

In its first year of operation all of the support effort will be focused on setting up the EI test-beds along with the associated support services. In its second year of operation, the emphasis will change to provide support to third party users of the infrastructure.

The support activity will provide valuable feedback on the use of the components in the OMII-Europe repository, on the effectiveness of the quality assurance processes and on any other problems and incompatibilities.

User support is one of the most important aspects of an IT project: it is the only human face of a technology, and along with documentation and installation has a massive effect on a user's perception of an organisation's attention to quality. We should deal with user support issues effectively, offering solutions and workarounds for problems as quickly as possible, and using feedback to help improve overall service quality. To help achieve this, the SA3 activity will implement the following processes and guidelines:

- A Service Level Agreement, based on the resources available to the activity. This gives users an expectation of the support they will receive.
- An audit trail, facilitated by our ticketing system so we can review, track and trace queries as they are processed.

- A process for recording and analysing the number of queries, the final resolution status of each query and the time each query took to conclude.
- Quality assurance exercises to aid support process improvement.

The remainder of this document outlines the support processes that will operate within the OMII-Europe project.

1.2 Document Amendment Procedure

It is envisaged that this document will evolve as the support processes mature, the test-beds become available and the OMII-Europe repository is populated. The expectation is that new versions of this document will become available as and when required as part of on-going QA activities within SA3. Most of the content in this document will also be made available as web pages on the support website.

2 Scope of Support

Each partner has a nominated area of expertise (Table 1) where queries will be directed. These also correspond to the software deployment across the test-beds.

Middleware Stack	Institution
Globus	University of Edinburgh
UNICORE	Forschungszentrum Juelich
gLite	Poznan Supercomputing and Networking Centre
OMII-UK Release	University of Southampton
CROWN Grid	Beihang and Tsinghua Universities
gLite	Istituto Nazionale di Fisica Nucleare

Table 1: Support responsibilities for OMII-Europe components running on supported middleware stack.

Support is to be provided on:

- General issue regarding the OMII-Europe project.
- Use of a software component from the OMII-Europe repository.
- Use of the test-beds.

In order to make best use of resources available, queries arising from problems relating to a specific piece of middleware will be directed toward the original middleware providers, see Section 8 for a summary of known support desk access points.

3 User Support Processes and Support Staff Instructions

3.1 Overview

This section details the support processes and guidelines for both OMII-Europe users and SA3 staff dealing with OMII-Europe related queries.

3.2 Partner Contributions

UEDIN, FZJ and PSNC have funded effort at 2.5, 2.0 and 2.0 staff years respectively for the duration of the project.

Each partner provides **primary contacts** and **experts** for the resolution of queries.

1. A **primary contact** is the person who initially reads and triages the support request. This role is rotated among funded partners. If a primary contact can not resolve a query, the issue is escalated to an expert.
2. An **expert** addresses problems within their specific area – for example UEDIN will supply Globus expertise. If they can not resolve an issue, it will be assigned to the relevant activity within the OMII-Europe, or indeed a third-party.
3. Staff will be both primary contacts and experts.

3.3 Access to support for users

The following support options are provided to users.

3.3.1 Support web page

In the first instance users should read the information available from the support web pages at:

- <http://support.omii-europe.org>

This will include user guides, frequently asked questions, best practice guidelines, document repository and the entry point to user support.

3.3.2 Support email address

Failing to find an answer to their problem on the support web pages, users should be encouraged to use designated e-mail address support@omii-europe.org to submit a query. An RT system¹ has been set up to manage e-mail queries. Each query will be assigned a reference number and acknowledgement will be sent to the user. Both the support staff and the user should use this reference number for all contact regarding the issue raised. The RT system also allows support staff and other members of staff to log thoughts, issues and actions taken. It also gives an instant audit trail. The support staff can choose when to copy the user into an e-mail or comment. Each ticket becomes a complete record of a support request and therefore is an excellent tool for resolving similar problems by using RT's search engine.

Users should not be able to view the ticketing system queue. We intend to provide mechanisms that will allow a user to query the status of their ticket and provide a means of revealing the ticket's audit trail. RT provides mechanisms to comment on tickets. These comments may contain confidential or sensitive information that will not be visible to the user.

¹ <http://www.bestpractical.com/rt>

As part of the SA3 activity, we will publish solutions to common problems as part of a FAQ list.

3.3.3 Direct access to experts - telephone

Users should only try to contact support staff directly when they fail to resolve their problem in any other way. At the same time users are strongly encouraged to use dedicated support email address (see section 3.3.2). Direct contact is possible via expert's telephone number or indeed in person. Support personnel at all sites is listed in table 2.

3.4 Support Request Lifecycle

3.4.1 The process

The suggested process is outlined below:

1. A user sends a support request via email to support@omii-europe.org.
2. The RT system replies thanking user for their e-mail. The reply contains a ticket reference number for future correspondence. The ticket is automatically marked **NEW**.
3. The ticketing system informs the support staff that a new support request has been received.
4. A primary contact reads and triages the support request and marks the message as **OPEN**.
5. After triaging, if the primary contact is not able to deal with the problem immediately, they assign it to an expert. In this case, the ticket is marked **OWNED**.
6. All correspondence must be via the ticketing system.
7. Support staff should log any defect reports² or feature request. The support request ticket is cross-referenced with any arising defect report, or indeed any reference to a third-party ticketing system.
8. Once a resolution is found, the ticket is marked **RESOLVED**. The RT system automatically emails the user and informs them that it has been resolved. However if the user believes this is not the case, they are encouraged to re-open the query.

3.4.2 Triage

Triage is a process to determine what action is required to resolve a support request. This should include following steps:

1. Immediately resolve the problem.
2. Resolve the problem by checking if it has occurred previously. The primary contact should:
 - i. Search FAQs, documents etc
 - ii. Search the ticketing system.
 - iii. Search the defect tracking system(s).
 - iv. Confer with colleagues.
3. Replicate the problem described in the request. If this is non-trivial, detailed instructions of how to do this **must** be noted.
4. Get any extra information from the user.
5. Assign the request to the appropriate expert.
6. Inform the user of all steps taken.

² Defect tracking systems for the various software/middleware supported by OMII-Europe.

3.4.3 Primary Contact Duty

A member of staff will be assigned primary contact duty for a period of time, typically one working week. Along with triage, the primary contact has the following responsibilities:

1. Read and respond to requests as soon as possible, certainly within one working day – as specified in the SLA
2. Initial triage of the request to establish what the problem is.
3. Communicating what steps are being taken to ensure resolution to the user.
4. Ensuring at the end of a support period, any un-resolved requests are flagged for handover to the next member of staff.
5. Highlighting any un-resolved requests or critical problems to the attention of the team at status meetings, or to the attention of the activity leader if escalation is required.

3.5 OMII-Europe Staff

Names of support personnel currently involved in the OMII-Europe support are given in Table 2. Support staff that will initially act as primary contacts are in bold.

Institution	Personnel
University of Edinburgh	Mario Antonioletti
	Maciej Olchowik
Forschungszentrum Juelich	Bastian Tweddell
Poznan Supercomputing and Networking Centre	Malgorzata Wolniewicz
University of Southampton	Chris Brown
Beihang and Tsinghua Universities	Lei Lei
	Jinlei Jiang
Istituto Nazionale di Fisica Nucleare	Marco Verlatto

Table 2: Personnel involved in the OMII-Europe support process.

4 Service Level Agreement

The activity aims to meet the expectations of the following Service Level Agreement. In certain circumstances, when support issues have to be directed to third-parties, we are dependent on their service level agreements. Some third-parties do not publish their service level agreements. In these cases we can only offer our best effort.

OMII-Europe Support SLA

1. Queries will be acknowledged with an automated response within one hour.
2. A primary contact will respond within one working day.
3. Queries will be evaluated and categorised. An indication of the time to resolution will be provided.
4. Problems that cannot be immediately resolved will be escalated to a corresponding expert.
5. The progress for all queries will be monitored and regular feedback will be provided to users.
6. The support website will be regularly maintained.
7. Evaluation Infrastructure users will be informed of any activity that may effect their work.
8. Members of the support team can be contacted directly.

5 Metrics, Reporting and Quality Assurance

The following metrics have been established to determine if the service is being used appropriately, and that we are delivering a quality service.

For support:

- Number of queries being generated.
- Performance against our service level agreement.
- Traffic in the support web pages.
- Direct feedback from users.

For the EI:

- Number of users.
- Number of jobs and average load of the system.
- Direct feedback from users.
- Feedback from training sessions that use the EI (possibly using evaluation forms).

For OMII-Europe as a whole:

- Adoption of OMII-Europe components.

These metrics are being recorded and reported on a monthly basis during SA3 Teleconferences, at which point the activity leader can report to the Project Management Committee, if required. Metrics are being included in the monthly activity reports as they become available and are archived in the restricted pages of the OMII-Europe support web site.

Quality assurance exercises will be carried out on a regular basis. On a weekly basis, support staff should discuss with their peers and the Activity leader weakness in the process. The activity will have a set of check-points in place to formally monitor both usage and process. This will take place at end of quarter one 2007, and then on a bi-monthly until the end of the project at month 24.

6 Future Plans

The activity will investigate the potential use of other forms of support mechanisms, for example:

- Discussion forums and mailing lists: both engender a sense of community and can provide a self-help ethos.

Additional items will be added to this list as the project evolves.

7 Outstanding Issues

- Accounts policies – Currently the creation of accounts on individual test-beds within the EI is delegated to the corresponding institutions that manage these test-beds. Centralised management of user accounts will be considered.
- As the activity ramps up in year two, a more formalised process for assigning queries to the relevant experts will be considered.

8 Appendix: Existing Support Desks

This appendix lists the primary support desks for middleware stacks and applications that will be used by the OMII-Europe infrastructure.

Middleware	Help Desk
Globus	http://dev.globus.org/wiki/Bugzilla
UNICORE	http://sourceforge.net/tracker/?group_id=102081
gLite	https://savannah.cern.ch/support/?group=jra1mdw https://gus.fzk.de
OMII-UK Release	http://www.omii.ac.uk/support/HelpDesk.jsp
CROWN Grid	http://www.crown.org.cn/en/support/
OGSA-DAI	http://bugs.ogsadai.org.uk

Table 3: Established support help desks for middleware components.

9 References

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