



omii europe

open middleware infrastructure institute



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Executive Summary

This document sets out in a detailed and verifiable manner, the terms of use and dissemination of the knowledge arising from the project. This information is owned by the contractors and is in accordance with their interests (Article II.34.1 of the contract). It is an evolving document which is updated annually with this document being the first edition.

The final plan for using and disseminating the knowledge, as required at the end of the project, will provide a complete picture of all activities undertaken and most importantly will provide information on the future route to full use (exploitation or use in further research) and dissemination of the knowledge.

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Section 1 - Exploitable knowledge and its Use

This presents all exploitable results, defined as knowledge having a potential for industrial or commercial application in research activities or for developing, creating or marketing a product or process or for creating or providing a service.

Below is a summary table of exploitable knowledge. A short paragraph containing further information on each item in the table is provided in the subsequent paragraphs.

Overview table

Exploitable Knowledge (description)	Exploitable product(s) or measure(s)	Sector(s) of application	Timetable for commercial use	Patents or other IPR protection	Owner & Other Partner(s) involved
<i>Grid Training</i>	<i>Training programme for grid application developers</i>	<i>Targeted at scientific research community</i>	<i>N/A</i>	<i>N/A</i>	UEDIN
<i>Software Repository</i>	<i>Software for publishing and maintaining a software repository</i>	<i>All software development organisations</i>	<i>No current plans</i>	<i>Open source software</i>	SOTON, INFN (Owner) CERN, BU, CNIC (Partic.)
<i>Software Quality Assurance Programme</i>	<i>Processes, procedures and tools for managing software quality</i>	<i>All software development organisations</i>	<i>No current plans but opportunities exist</i>	<i>Open source and public documents</i>	SOTON (Owner), CERN, UCHIC, UWM, BU, CNIC (Partic.)
<i>Implementation and support of Evaluation Infrastructure</i>	<i>An interoperable Grid infrastructure containing Globus, gLite, UNICORE and CROWN</i>	<i>E-infrastructure operators, Grid developers</i>	<i>N/A</i>	<i>Public documents</i>	UEDIN, SOTON, INFN, FZJ, PSNC, BU, TU (Owner)
<i>OGSA-DAI for EGEE</i> <i>OGSA-DAI for UNICORE</i>	<i>OGSA-DAI software service that is available for the gLite and UNICORE Grid platforms.</i>	<i>Grid Infrastructures employing gLite or web services UNICORE versions</i>	<i>Anticipating deployment within EGEE in 2008.</i>	<i>Open Source software</i>	UEDIN (Owner), INFN, FJZ, FLE (Partic.)
<i>VOMS service extended to comply with OGSA AuthZ specification</i> <i>Extended VOMS service for EGEE, Globus and UNICORE</i>	<i>Extended VOMS software service available for gLite, Globus and UNICORE Grid platforms</i>	<i>Grid Infrastructures employing gLite, Globus and UNICORE</i>	<i>Deployment of VOMS in gLite 3.1 in planning. Intended deployment in UNICORE 6.1 by end 2007</i>	<i>Open Source software</i>	INFN (Owner), FZJ, FLE (Partic.)

<i>Job Submit and Job monitoring Service</i>	<i>BES standards compliant service accepting JSDL specified jobs</i>	<i>Grid Infrastructures employing gLite or web services UNICORE versions</i>	<i>Intended deployment within UNICORE 6.1 by end of 2007</i>	<i>Open Source software</i>	<i>INFN, FZJ, SOTON (Owner), FLE, UEDIN, UCHIC, USC, UWM (Partic.)</i>
<i>Grid Accounting</i>	<i>Implementation of the RUS Standardised data exchange and porting to multiple grid distributions</i>	<i>Accounting (Resource Usage) and Grid Economic Services required by all infrastructure providers</i>	<i>N/A</i>	<i>Open Source Software</i>	<i>KTH - SGAS, INFN - DGAS, FZJ and FLE - UNICORE (Owner)</i>
<i>Grid Portal Interface</i>	<i>Portal based Web interface to all grid middleware platforms</i>	<i>All users of either public or private e-infrastructures of any size</i>	<i>Under discussion</i>	<i>Open Source Software</i>	<i>PSNC (Owner), INFN, FZJ (Partic.)</i>
<i>Exchange of Components with China</i>	<i>BES compliant Meta-scheduler for e-infrastructures</i>	<i>e-infrastructure brokers</i>	<i>N/A</i>	<i>Open Source software</i>	<i>BU (Owner), SOTON (Partic)</i>
<i>Development of new Grid Components</i>	<i>Implementation of the GLUEII common information model</i>	<i>Grid Infrastructures employing gLite, Globus and UNICORE</i>	<i>N/A</i>	<i>Open Source software</i>	<i>INFN (Owner), FZJ (Partic.)</i>
<i>Security Integration</i>	<i>Interoperable security solution between heterogeneous grid software distributions</i>	<i>Used by grid middleware developers to facilitate end-user ease of use.</i>	<i>N/A</i>	<i>Open Source software</i>	<i>KTH(Owner), FZJ (Partic.)</i>
<i>Integration of e-infrastructures</i>	<i>Interoperable suite of OMII-Europe components available for UNICORE, gLite, Globus and CROWN</i>	<i>e- infrastructures deploying UNICORE, gLite, Globus or CROWN</i>	<i>Interoperable suite will be recommended for its use within EGEE, DEISA & D-Grid in 2008 and also to business partners that already use OMII-Europe platforms</i>	<i>Open Source software</i>	<i>FZJ (Owner), INFN, KTH (Partic.)</i>

<i>Grid Benchmarking techniques</i>	<i>Instrumentation API for Performance Monitoring and visualisation tools</i>	<i>Grid Systems administrators, e-infrastructure decision makers and grid users</i>	<i>N/A</i>	<i>Open Source software and public reports</i>	<i>KTH(Owner) INFN (Partic.)</i>
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Grid Training

The NA3 training activity exists to communicate knowledge and expertise concerning the use of grid middleware, especially the components being created and re-engineered by OMII-Europe. As such these training courses are focused on delivery to the Grid Application Developer. So far, all courses have further been targeting the grid application developer that is either a research scientist or working within a team supporting research scientists. Internal training has also been given to ensure that a common view and understanding is shared within the project. No effort has yet been given to specifically targeting users outside the research community (or commercial users) due to the fact that only a limited set of components is currently available from the project and even these components are in relatively early development and are not widely available across all grid middleware platforms. Although this situation will change towards the end of the second year of the project, the project does not intend to directly target commercial grid users within this time period as all efforts will be addressing the training requirements of the research community. The training activity takes place both within Europe and in China, where our Chinese partners are delivering the courses developed within the project.

The OMII-Europe training complements training effort within related grid initiatives (EGEE, DEISA, national grid initiatives). It benefits from the experience of UEDIN in leading the EGEE training activity and the ICEAGE project, among others. The artifacts from this activity will be material for web-based and face-to-face courses for the research community.

Software Repository

The Software repository provides a place to store and manage releases of software packages and related documentation. The focus of the tool is more on supporting the chain of tasks which lead to the production of a software package (build from source, tests, management of releases) than to provide an integrated communication support tool for the team of developers (like Sourceforge or Savannah). As such the software repository is able to work with a number of community software development tools like Sourceforge. This software repository tool specifically targets software development organizations which need to manage many different software projects in a centralized way. The current software release is a beta and the first stable release is planned for month 15 of the project.

It should be borne in mind that the development of the software repository tool was one of necessity for the project in order to meet the project's quality assurance requirements. Development of this tool followed a thorough evaluation of a number of other systems available. Although there were no plans to distribute this tool at the start of the project, we now intend to distribute the software under an open source license upon maturity.

Software Quality Assurance Programme

The Software Quality Assurance Programme is multi-faceted containing a number of tasks that together combine to provide quality assured software. Although there are outputs from each of the 5 tasks that could be used in isolation, it is the combination and interweaving of these tasks that provide a complete solution. The artifact most visible from this process is the software "build and test" automated infrastructure that is used by contributing authors and organisations to assist in ensuring the software meets its design objectives. In our case, these design objectives are, amongst

other things, ensuring the portability and standards compliance of software components. Hence associated with this build and test facility are a set of compliance tests and a documented software release process.

Exploitation of the outputs of this task could be simply in the form of organizations implementing the documented software release process. Although it would be possible to offer a consultancy service around this documented process, this is not considered due to the need to focus on providing this information to the research community and, possibly more significantly, that this type of service is already available commercially. More realistic options for exploitation are in the form of the software infrastructure providing the “build and test” facility and the “compliance tests”. All software components used in developing this facility are open source, as is the additional software developed. Hence, many possibilities present themselves for exploitation. The first of these would be to provide a service to industrial users of this facility. This would not involve them installing or maintaining any software but rather using the distributed facilities currently located at Southampton University, Cern, UWM and INFN. Other options include providing assistance to people interested in setting up such a service themselves or even providing an auditing service for compliance tests. Although all these options are considered realistic, they are not currently considered due to the focus on completing development of this system as well as ensuring thorough documentation of the QA process. These options will be further elaborated in a successor document.

Implementation and support of the evaluation Infrastructure

The Evaluation Infrastructure comprises Globus, gLite, UNICORE, OMII-UK and CROWN grid middleware installations. Each Grid middleware installation itself consists of multiple machines with each grid middleware platform additionally providing instances of all services currently under deployment by OMII-Europe. This will provide potential users of the grid services with an easily accessible evaluation platform containing the services, but will additionally contain the components required to facilitate grid interoperability. The Evaluation Infrastructure is currently used by a number of people trying out different grid middleware distributions.

The intention of providing the evaluation infrastructure is to promote the work being done by OMII-Europe and additionally to provide confidence to users on the functionality and robustness of the work. Our exploitable knowledge is the fact that we know how to obtain grid interoperability. Anyone wanting to interoperate with a grid consisting of a different grid middleware distribution could come to us for both the components and "know-how". We are also offering a service, even if it isn't commercial, for people to try things out. No plans exist for providing either of these services on a commercial basis, but if there is significant demand from both the research community and commercial sector, we may have to look at options to support all users. Some of these options could include financial support from the commercial sector.

OGSA-DAI for gLite and UNICORE

OGSA-DAI is currently available for Globus with this activity focused on providing the same functionality for both gLite and UNICORE. A complication has been to address both the changing grid middleware distributions to gLite 3.x and UNICORE 6.x and at the same time the new developments in OGSA-DAI 3.0. Making OGSA-DAI 3.0 available under different grid middleware platforms has provided feedback to the main OGSA-DAI activity based at the University of Edinburgh, which in turn will allow future versions of OGSA-DAI be more generic, and therefore achieve wider uptake in the grid community as a whole. It has enabled Edinburgh to move away from specific Grid-based solutions for a specific grid problem, and concentrate on solving problems on a per use case need.

Deployment of OGSA-DAI 3.0 within the EGEE infrastructure is currently planned for 2008. Further details are not available as the majority of the work to make OGSA-DAI available under gLite is yet to be done. A more detailed plan will be submitted in a revised edition of this report.

Currently no explicit deployments of OGSA-DAI within UNICORE e-infrastructures is planned, but consideration is being given to including OGSA-DAI as part of the standard UNICORE 6.x distribution. As with the gLite middleware platform, this can only really be considered following the completion of this work and as such, plans will be described in a revised version of this document.

Extended and Ported VOMS Service

The VOMS service is natively used as part of the EGEE infrastructure, and hence modifications being made to the service will become part of this e-infrastructure in due course. The most significant benefits will however occur with other grid systems use of VOMS. This is an important step towards grid integration, as it provides a common understanding of the concept of Virtual Organisations for all grids.

A timetable for deployment of the SAML extended VOMS within EGEE is currently under discussion with the EGEE project. It would be premature to speculate on a timetable for this, although a gradual phasing in of the service starting with deployment within Italy is expected. Deployment and integration of the VOMS service within UNICORE is also at the discussion phase, although all parties are working towards making this available as part of UNICORE vs 6.1 due to be released at the end of 2007.

Job Submit and Job Monitoring Service

A key aspect of any e-infrastructure is the ability to initiate, monitor and manage computational services. Hence, a fundamental part for inter-operation of these infrastructures is therefore the ability of all middleware to accept identically specified jobs and to be able to manage these jobs in the same way irrespective of the grid middleware deployed.

OMII-Europe has developed an implementation of the OGSA-BES standard. This is currently implemented as CREAM-BES for gLite and UNICORE-BES for UNICORE. Initial demonstrations of both these services are available. Deployment of CREAM-BES within EGEE is subject to CREAM being adopted which is within the roadmap, while the deployment of UNICORE-BES is foreseen as part of the standard UNICORE 6.1 distribution which is scheduled for release at the end of 2007.

Grid Accounting

This task will achieve interoperability between Grid Accounting Systems through the implementation and integration of the OGSA-RUS specification within the different grid middleware platforms. Although there is much talk about accounting standards, there is little real commitment in this area. As such OMII-Europe is taking a leading role in organising the development of the RUS public specification. We foresee that local resources will probably need to run multiple accounting systems until the UR and RUS specifications are completed and implemented. While this could be a barrier to acceptance, it also provides the opportunity for a simple and safe transition for resource owners. We also anticipate the demand for such uniform services will be considerably higher when resources and/or services become overloaded and quota enforcement becomes important.

Existing e-infrastructures currently use alternative accounting methods such as APEL within EGEE. This is largely due to the fact that little effort was spent in developing standards. This is now being addressed through the OGF RUS-WG. Nonetheless, significant development is still required in the specification. A demonstration of the accounting work being done within OMII-Europe was presented at OGF20 to the Grid community. The adoption and inclusion of this work within existing e-infrastructures and grid middleware distributions is expected to have a horizon after the completion of the project, although OMII-Europe will offer this facility as a “bolt-on” service.

Grid Portal Interface

The Grid Portal interface provides users of any e-infrastructure with the ability to access the resources on that infrastructure through a web page irrespective of the grid middleware managing the grid resources. Most significantly, the portal interface provides access to and manages the user credentials through PURSE and MyProxy giving a single sign-on and facility.

The portal was demonstrated at OGF20 and received substantial interest both from end users as well as grid systems administrators. Both users and administrators felt hampered by the fact that they were restricted to working with the grid from a specific machine with the relevant client software installed. Although this solution will be released as open source during the project, discussions are ongoing with PSNC regarding commercial exploitation. The portal effort will provide a showcase for many services developed in the OMII-Europe project as there is no effort allocated for client tool development. The portal effort as such uses much of the work done in the project and in providing access to UNICORE, the security team are developing complimentary modules for UNICORE to enable handling of proxy certificates.

Exchange of Components with China

The exchange of components with China has been particularly fruitful in providing the project with a BES compliant meta-scheduler. This scheduler provides a BES interface so that work can be scheduled to any other BES system. This has already been demonstrated in the context of scheduling jobs either to CROWN grid, or the OMII-UK platform. Subsequent queries to the scheduler on job status *etc.*, are routed to the appropriate BES endpoint, where the job was submitted by the meta-scheduler, and returned to the user. This form of meta-scheduling is therefore completely transparent to the end-user. Work is ongoing to demonstrate this capability to schedule between the gLite, Globus and UNICORE systems in addition to the above two mentioned.

A number of commercial meta-schedulers already exist in the market although these are typically targeted at providing a level of transparency between commercial proprietary systems. By providing a BES compliant meta-scheduler, we are enabling the integration of any number of different middleware platforms provided they contain a standards compliant BES endpoint. Interest from a number of commercial grid providers was evident at OGF20, although there are no plans within the project to commercially exploit this work.

Development of new grid components

This activity has as yet not started new code development. However, it has already established itself as an expert in the grid architecture space through publications that perform a comparative analysis of services offered by different grid middleware technologies and through identifying key components that are required for interoperability.

In the second year of the project, this activity will focus on developing an implementation of a common information model through the OGF OGSA-GLUE II WG. This is another key element in the grid integration space as it will enable all grid middleware solutions to speak a common language in publicising their available resources. This will be available at the end of the project on the three major platforms of gLite, UNICORE and Globus. Exploitation paths will be elaborated on in an updated version of this document.

Security Integration

The security Integration activity provides a proxy certificate authentication mechanism for UNICORE, integration of PURSE into UNICORE, and an enhanced credential management system utilising tools such as MyProxy. By defining a common security profile, it will enable interoperability among different grid middleware platforms with advanced secure features transparent to the end users.

This is currently being developed for UNICORE version 5 (current deployed version) and will enable interoperability with other systems such as gLite and Globus that already have this functionality. This will also be ported to UNICORE 6 during the second year of the project.

Deployment of these technologies is difficult, not least of all because people are reluctant to change from their current known solutions. In particular, EGEE currently shows a preference for using Condor-U for credential management, while many UNICORE installations (like DEISA) remain suspicious of accepting proxy certificates. What is clear is that such a common security profile would substantially simplify and ease the user experience (and facilitate the use of portal solutions). Our approach of showing the simplicity of this approach (such as at OGF 20) attracts end users and systems administrators, while it is also clear that the major e-infrastructure providers and grid distribution providers also need to be convinced. In this light, initial discussions with UNICORE leaders have indicated their intention to include the software for optional use of such a security profile in UNICORE 6.1 scheduled for release towards the end of 2007.

Interoperability Suite

Today, most components of the Grid platforms UNICORE, gLite, and Globus are not interoperable. Even where common standards are adopted, different versions of standards hamper interoperability. The innovation that the e-Infrastructure Integration activity brings is an interoperable suite of OMII-Europe components that are tested and modified towards native interoperability and to be compliant with common open standards of OGF and OASIS. This is a highly visible activity with a member of OMII-Europe as the official secretary of the OGF – Grid Interoperation Now (GIN) group that deals with the interoperation of production e-Infrastructures (DEISA, EGEE, TeraGrid, *etc.*)

The OMII-Europe repository will initially be the primary source for these tested interoperable components. The long term goal is however, that the official Grid middleware providers incorporate these components into their main middleware releases. As mentioned above, plans are already underway for the integration of specific components into forthcoming grid middleware releases. Of course, not everyone upgrades software immediately and as such the repository provides the interoperable functionality for already deployed grid infrastructures.

The difficulties of achieving grid interoperability cannot be overstated. These are mostly non-technical and relate to governance, legal, site and use policies. Confidence in the technical operation of this will however be shown through the evaluation infrastructure provided by the project.

The impact of the e-Infrastructure Integration activity is very high since it proves that through the use of common open standards from OGF and OASIS interoperability on a technical level between different grid technologies can be achieved. In addition, it identifies gaps where more common open standards are still required.

Further collaboration is needed with the middleware providers (UNICORE, gLite, Globus) of the e-Infrastructures to ensure that the interoperable suite of OMII-Europe components will be integrated into the production middleware releases and thus can be used in future e-Infrastructures to enable interoperability. This raises the demand for continuous support and maintenance of the components developed within OMII-Europe to keep the interoperability suite ready for production deployments and to update the results of the latest standardization efforts.

In the context of the UNICORE interoperability components, business partners that already use UNICORE such as Intel, T-Systems and FLE have already stated interest. Furthermore, through the contact of the developers of OMII-Europe in the Infrastructure Integration activity, the interoperability suite will be recommended for use within EGEE, DEISA, D-Grid, TeraGrid and CROWNGrid.

A particular use case of Grid interoperability are scientific projects that require the resources from two or more existing e-Infrastructures; *e.g.*, EGEE resources and DEISA supercomputers. An example of this is the “Wide In Silicio Docking On Malaria” (WISDOM) project. This project intends to use EGEE and DEISA with the interoperable set of OMII-Europe components (gLite, UNICORE). Of course, this scenario can also apply to similar scientific projects that would like to use different interoperable e-Infrastructures for their future research.

Grid Benchmarking techniques

The grid benchmarking activity will produce tools and instrumentation API for performance data extraction from the different grid distributions and reports on comparative performance data for gLite, Globus and UNICORE.

Despite the interest in grid benchmarking this is a sensitive area that requires some skill in order to be seen as impartial and make efforts to show both the positive and negative sides of different systems. This has cautiously been welcomed by the different grid middleware developers as it can provide useful feedback to them in order to improve performance in specific area. Likewise, good performance in specific areas can also be lauded as a strength of a particular grid middleware distribution.

We anticipate the reports to be read by both e-infrastructure providers in order to influence their decision as to the appropriate grid middleware to deploy and the grid middleware providers themselves. The tools could be used in the development process of grid components by comparing their performance with earlier versions and for tracking performance of existing grid applications. We also anticipate that the tools will be used in conjunction with the reports to verify correct installation of grid middleware systems to achieve optimal performance. As both the tools and reports are still very much in preparation there are no explicit exploitation plans as yet.

Section 2 – Dissemination of knowledge

A summary of public activities is given below. Further details of any of these activities can be found on the public website at <http://omii-europe.org>.

Press releases

- The University of Southampton gave a press release following the award of the project. Full details of the press release can be found on the OMII-Europe website (<http://omii-europe.com/OMII-Europe/News/Press%20Release.htm>)

Presentations

- Achim Streit, "Topic 3 ‘Grid Computing’ - An Overview", Presentation to the Perspective Committee of the Research Program "Scientific Computing", Jülich, 6 June 2006
- Achim Streit, "Competence in e-Science and Grid at FZJ", Visit of Jack Dongarra (University of Tennessee & Oak Ridge National Lab) at Research Centre Jülich, Jülich, 23 June 2006
- Alistair Dunlop, OMII-Europe project overview at Viola Workshop, and OMII-Europe first European training event. This overview talk can be downloaded from the OMII-Europe website. 6 August 2006
- Achim Streit, "Competence in e-Science and Grid at FZJ", Visit at Philips Research, Eindhoven, 16 August 2006
- Alistair Dunlop, “Interoperability and Usability of Grid Infrastructures in OMII-Europe”, EuroPar 2006 Conference, 28 August 2006, Invited talk.

- Mike Mineter, OMII-Europe project overview in presentation for gLite applications developers course, "A Glance Towards the Future" at The GridKa School, Karlsruhe, September 2006; CERN, 23 September; IPP-BAS, Sophia, 30 November 2006.
- Steven Newhouse, Plans and Interactions with ETICS", from EGEE '06, 25-29 September 2006, CIGG, Geneva, Switzerland
- Attended the UK all-hands meeting, EGEE conference and the EU Grid Days. September 2006
- Steven Newhouse, OMII-Europe: Grid Standards Activity", Background and context of OMII-Europe, from BeGrid Seminar 27 Oct 2006, Brussels
- Mike Mineter, OMII-Europe project overview in presentation "NGS in the future: Emerging middleware" at EUCS, Edinburgh, 5 October 2006; eSI, Edinburgh, 10 November 2006; Reading, 21 November 2006.
- Morris Reidel, "Interoperability Experience of OMII-Europe Middleware Components", OGF20 Manchester, 2007-05-09
- "Standard Compliance & Interoperability of OMII-Europe Middleware Components", University of Manchester, ETICS Tutorial, 2007-05-12
- Morris Reidel, "Interoperability & Interoperation within OMII-Europe and EGEE-II", Workshop on Helmholtz Association Research Programme Scientific Computing, Karlsruhe, 2007-05-22
- Fredrik Hedman, MWSG10, CERN, Geneva, Switzerland, "OMII-Europe Security" , available at <http://indico.cern.ch/conferenceDisplay.py?confId=a063487>
- Fredrik Hedman, MWSG11, SDSC, San Diego, USA, "Interoperability Security Concerns" available at <http://indico.cern.ch/conferenceDisplay.py?confId=12654>

Other

- Initial flyers distributed at GGF 16 in Athens (13-16 February 2006). An updated version of this flyer can be downloaded from the website.
- Initial flyers distributed to members of Viola workshop in Bonn (22 March 2006) and at the OGF 19 (Chapel Hill, North Carolina, Jan 29th – Feb 2nd 2007)
- Chairing of various sessions at OGF19 and OGF20.
- Brand new set of flyers distributed at OGF20 which explained the activities in the project in a simple and journalistic style. May 2007
- Booth at OGF20, Manchester, England, May 2007.
- A selection of demonstrations of technology developed within OMII-Europe was demonstrated at OGF20. These included a portal preview, RUS preview, meta-scheduler preview, BES preview.
- A video presentation of OMII-Europe, EGEE, DEISA and Geant was shot in April 2007. We are expecting the release of this video in July.

Future Events

There are several events that we believe we can play a significant role at in the year ahead. Some of them are yet to be confirmed. The events already finalised are:

- 4th June 2007: OMII-Europe Services for Building e-Infrastructures
- 25-30th June 2007, Budapest, Hungary: Introduction to the Grid and EGEE/gLite at the Joint EGEE and SEE-GRID Summer School on Grid Application Support
- 15-19th October 2007, Seattle, USA: OGF21
- 10-13th December 2007, Bangalore, India: Grid interoperability workshop at the 3rd IEEE International Conference on e-Science and Grid Computing
- The International Grid Interoperability and Interoperation Workshop (IGIIW) at the e-Science 2007 Conference in Bangalore, India (10th – 13th of December 2007). Planned events are:

- Poster: Valerio Venturi, “Cross-Grid Virtual Organization membership”
- Presentation and paper: Gilbert Netzer and Fredrik Hedman: “ RUS and LLView”
- Presentation: Daniel Mallman and Fredrik Hedman: “Interoperability of security, MWSG”