



# EGI-InSPIRE

## Integrating Resources into the EGI Production Infrastructure

### EU MILESTONE: MS414

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Document identifier:	EGI-MS414-V0-1.doc
Date:	<b>23/09/2010</b>
Activity:	<b>SA1</b>
Lead Partner:	<b>KTH</b>
Document Status:	<b>DRAFT</b>
Dissemination Level:	<b>PUBLIC</b>
Document Link:	<a href="https://documents.egi.eu/document/650">https://documents.egi.eu/document/650</a>

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#### Abstract

<< The abstract should provide a brief neutral overview of the document and its contents and main conclusions. Once complete the abstract should be copied into the abstract field on the document server.>> This document describes and defines the operational interfaces that must be supported for resources to be integrated into EGI. This includes operational tools provided by the EGI-InSPIRE JRA1 activity and procedures and policies defined to ensure interoperability within EGI and in the interaction with other DCIs, the adoption of best practices and compliance with service level agreements.

<<document handling and production procedure is provided in <https://documents.egi.eu/document/33> >>

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## II. DELIVERY SLIP

	Name	Partner/Activity	Date
From	Michaela Barth	KTH/SA1	
Reviewed by	<b>Moderator:</b> <b>Reviewers:</b> <<To be completed by project office on submission to AMB/PMB>>		
Approved by	<b>AMB &amp; PMB</b> <<To be completed by project office on submission to EC>>		

## III. DOCUMENT LOG

Issue	Date	Comment	Author/Partner
0	05/07/2011	Incomplete placeholder	Michaela Barth /KTH
1	06/07/2011	ToC	Michaela Barth /KTH
2		First draft	

## IV. APPLICATION AREA

This document is a formal deliverable for the European Commission, applicable to all members of the EGI-InSPIRE project, beneficiaries and Joint Research Unit members, as well as its collaborating projects.

## V. DOCUMENT AMENDMENT PROCEDURE

Amendments, comments and suggestions should be sent to the authors. The procedures documented in the EGI-InSPIRE “Document Management Procedure” will be followed:

<https://wiki.egi.eu/wiki/Procedures>

## VI. TERMINOLOGY

A complete project glossary is provided at the following page: <http://www.egi.eu/about/glossary/>.



<<The authors should check if the acronyms are covered by the glossary page and if the definition is still correct; all the amendments should be communicated to [glossary@egi.eu](mailto:glossary@egi.eu)>>



## VII. PROJECT SUMMARY

To support science and innovation, a lasting operational model for e-Science is needed – both for coordinating the infrastructure and for delivering integrated services that cross national borders.

The EGI-InSPIRE project will support the transition from a project-based system to a sustainable pan-European e-Infrastructure, by supporting ‘grids’ of high-performance computing (HPC) and high-throughput computing (HTC) resources. EGI-InSPIRE will also be ideally placed to integrate new Distributed Computing Infrastructures (DCIs) such as clouds, supercomputing networks and desktop grids, to benefit user communities within the European Research Area.

EGI-InSPIRE will collect user requirements and provide support for the current and potential new user communities, for example within the ESFRI projects. Additional support will also be given to the current heavy users of the infrastructure, such as high energy physics, computational chemistry and life sciences, as they move their critical services and tools from a centralised support model to one driven by their own individual communities.

The objectives of the project are:

1. The continued operation and expansion of today’s production infrastructure by transitioning to a governance model and operational infrastructure that can be increasingly sustained outside of specific project funding.
2. The continued support of researchers within Europe and their international collaborators that are using the current production infrastructure.
3. The support for current heavy users of the infrastructure in earth science, astronomy and astrophysics, fusion, computational chemistry and materials science technology, life sciences and high energy physics as they move to sustainable support models for their own communities.
4. Interfaces that expand access to new user communities including new potential heavy users of the infrastructure from the ESFRI projects.
5. Mechanisms to integrate existing infrastructure providers in Europe and around the world into the production infrastructure, so as to provide transparent access to all authorised users.
6. Establish processes and procedures to allow the integration of new DCI technologies (e.g. clouds, volunteer desktop grids) and heterogeneous resources (e.g. HTC and HPC) into a seamless production infrastructure as they mature and demonstrate value to the EGI community.

The EGI community is a federation of independent national and community resource providers, whose resources support specific research communities and international collaborators both within Europe and worldwide. EGI.eu, coordinator of EGI-InSPIRE, brings together partner institutions established within the community to provide a set of essential human and technical services that enable secure integrated access to distributed resources on behalf of the community.



The production infrastructure supports Virtual Research Communities (VRCs) – structured international user communities – that are grouped into specific research domains. VRCs are formally represented within EGI at both a technical and strategic level.

### **VIII. EXECUTIVE SUMMARY**

<< The text should provide a summary of the full report so that the reader can 'in a page' understand the problem it has been written to cover. This includes an overview of the background material and motivation for the report, a summary of the analysis, and the report's main conclusions.>>



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## 1 INTRODUCTION

<< The 'introduction' of the document provides information on why it has been written, who the target audience is and what they will learn from reading it.>>





## 2 INTEGRATION OF MIDDLEWARE ON OPERATIONAL TOOL LEVEL

### 2.1 *Interoperation at an Infrastructure Level*

### 2.2 *Overview Status of Middleware Integration for each Operational Tool*

### 2.3 *Definition and Description of a Management Interface*

#### 2.3.1 **Functionality**

#### 2.3.2 **Requirements**

#### 2.3.3 **Integration of new Resources into GOCDB**

Link to list of servicetypes on Wiki!

For bugs: <https://savannah.cern.ch/bugs/?group=gocdb>

New dev requests: RT

Operational/support issues: ggus.

See the list of external links at the bottom of the following page:

[https://wiki.egi.eu/wiki/GOCDB/Documentation\\_Index](https://wiki.egi.eu/wiki/GOCDB/Documentation_Index)

##### 2.3.3.1 *Integration of new MW service types*

##### 2.3.3.2 *Integration of new non-MW service types*

##### 2.3.3.3 *Declaration of new resources of an already available service type*

##### 2.3.3.4 *Regular review of the list of available service types*

##### 2.3.3.5 *Summary*

##### 2.3.3.6 *Integration of gLite resources*

No longer the whole list



### **2.3.3.7 Integration of ARC resources**

As of release 0.8 of ARC, the ARC-CE runs a resource BDII with GLUE

schema 1.3, in the same way as gLite resources. Hence setting up a special site BDII is no

longer needed. More details are found in [R 22].

→ Verify

### **2.3.3.8 Integration of UNICORE resources**

List as referred to in <https://rt.egi.eu/rt/Ticket/Display.html?id=944>

### **2.3.3.9 Integration of Globus resources**

Update with latest discussion in Globus integration task force

## **2.4 Definition and Description of a Monitoring Interface**

### **2.4.1 Functionality**

### **2.4.2 Requirements**

### **2.4.3 Interoperability of different MW Stacks with SAM/Nagios**

### **2.4.4 Procedures to integrate new Nagios Probes**

<https://wiki.egi.eu/wiki/PROC07>

<https://wiki.egi.eu/wiki/PROC06>

#### **2.4.4.1 Tests and Nagios probes for gLite resources**

#### **2.4.4.2 Tests and Nagios probes for ARC resources**

#### **2.4.4.3 Tests and Nagios probes for UNICORE resources**

#### **2.4.4.4 Tests and Nagios probes for Globus resources**



## ***2.5 Definition and Description of an Accounting Interface***

### **2.5.1 Functionality**

### **2.5.2 Requirements**

### **2.5.3 Current Status**

Needs surely reference to EMI Compute Accounting working group

## ***2.6 Definition and Description of a Support Interface***

### **2.6.1 Functionality**

### **2.6.2 Requirements**

### **2.6.3 Integration of new Resources into GGUS**

#### ***2.6.3.1 Integration of a new Resource Centre into the infrastructure***

#### ***2.6.3.2 Integration of a new NGI into the infrastructure***

#### ***2.6.3.3 Integration of a new Technology Provider into the infrastructure***

## ***2.7 Definition and Description of a Dashboard Interface***

### **2.7.1 Functionality**

### **2.7.2 Requirements**

### **2.7.3 The Operations Portal**

#### ***2.7.3.1 Integration of a new resource***



***2.7.3.2 Integration of a gLite resources***

***2.7.3.3 Integration of a ARC resources***

***2.7.3.4 Integration of a UNICORE resources***

***2.7.3.5 Integration of a Globus resources***

## ***2.8 User Management, Authentication and Authorization***

### **2.8.1 Functionality**

### **2.8.2 Requirements**

### **2.8.3 Argus**

EMI has selected the ARGUS authorization framework as general approach for user authorization based on the common SAML profile which shall be supported over all middleware stacks.

#### ***2.8.3.1 Argus and gLite***

#### ***2.8.3.2 Argus and ARC***

#### ***2.8.3.3 Argus and UNICORE***

#### ***2.8.3.4 Argus and Globus***



### **3 INTEROPERATION AT PROCEDURES AND POLICY LEVEL**

#### ***3.1 Scope***

#### ***3.2 Current EGI Procedures and Policies***

#### ***3.3 Future Procedures***



## **4 OUTLOOK AND FUTURE PLANS**

***4.1 Operational requirements coming from NGIs***

***4.2 Operational requirements coming from Collaborations with other DCIs***



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