



# EGI-InSPIRE

## Operational Tools Regionalisation Work Plan

### EU MILESTONE: MS703

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#### Abstract

This document assesses the work plan on the regionalisation of the operational tools, identifying the upcoming releases and associated functionality.



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EGI-InSPIRE (“European Grid Initiative: Integrated Sustainable Pan-European Infrastructure for Researchers in Europe”) is a project co-funded by the European Commission as an Integrated Infrastructure Initiative within the 7th Framework Programme. EGI-InSPIRE began in May 2010 and will run for 4 years.

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## 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 the 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 the ESFRI projects. 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 structured international user communities– that are grouped into specific research domains. VRCs are formally represented within EGI at both a technical and strategic level.



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## TABLE OF CONTENTS

<b>1. INTRODUCTION.....</b>	<b>5</b>
1.1. PURPOSE .....	5
1.2. APPLICATION AREA.....	5
1.3. REFERENCES.....	5
1.4. DOCUMENT AMENDMENT PROCEDURE .....	5
1.5. TERMINOLOGY .....	5
<b>2. EXECUTIVE SUMMARY .....</b>	<b>7</b>
<b>3. OPERATIONAL TOOLS REGIONALISATION STATUS IN EGI-INSPIRE.....</b>	<b>8</b>
<b>4. ROADMAPS IN THE REGIONALISATION PROCESS .....</b>	<b>9</b>
4.1. ACCOUNTING PORTAL .....	13
4.2. METRICS PORTAL .....	14
4.3. MONITORING INFRASTRUCTURE .....	14
<b>5. CONCLUSIONS .....</b>	<b>15</b>

## 1. INTRODUCTION

### 1.1. PURPOSE

This document is a report on the work plan of the regionalisation process of the operational tools that needs to be addressed by the WP7. The upcoming functionality is presented here.

### 1.2. 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.

### 1.3. REFERENCES

**Table 1: Table of references**

<b>R 1</b>	Milestone MS401: Operational Tools Regionalization Status ( <a href="https://documents.egi.eu/document/48">https://documents.egi.eu/document/48</a> )
<b>R 2</b>	The CIC Operations Portal ( <a href="https://cic.gridops.org">https://cic.gridops.org</a> )
<b>R 3</b>	<i>Global Grid User Support (GGUS) Plan, EGEE-III Deliverable DSA1.1, August 2008</i> ( <a href="https://edms.cern.ch/document/931935">https://edms.cern.ch/document/931935</a> )
<b>R 4</b>	Mathieu, G.; Casson, J.; <i>GOCDB4, a New Architecture for the European Grid Infrastructure</i> ; to appear in the Proc. of the Int. Symposium on Grid Computing 2010, Mar 2010, Academia Sinica, Taipei, Taiwan
<b>R 5</b>	Jiang, M.; Del Cano Novales, C.; Mathieu, G. et al; <i>An APEL Tool Based CPU Usage Accounting Infrastructure for Large Scale Computing Grids, in the Proc. of ISGC 2010</i> , Mar 2010, Academia Sinica, Taipei, Taiwan
<b>R 6</b>	The Accounting Portal ( <a href="http://www3.egee.cesga.es">http://www3.egee.cesga.es</a> )
<b>R 7</b>	The Service Availability Monitoring Framework ( <a href="http://www.youtube.com/watch?v=PADq2x8q0kw">http://www.youtube.com/watch?v=PADq2x8q0kw</a> )
<b>R 8</b>	The Metrics Portal ( <a href="http://www3.egee.cesga.es/gridsite/accounting/CESGA/links/EGEE-III-SA1-Metrics Portal Roadmap and Requirements-v3.1.xls">http://www3.egee.cesga.es/gridsite/accounting/CESGA/links/EGEE-III-SA1-Metrics Portal Roadmap and Requirements-v3.1.xls</a> )
<b>R 9</b>	The Regional Dashboard ( <a href="https://operations-portal.in2p3.fr/index.php">https://operations-portal.in2p3.fr/index.php</a> )
<b>R 10</b>	The Messaging Infrastructure ( <a href="https://twiki.cern.ch/twiki/bin/view/LCG/MessagingSystemforGrid">https://twiki.cern.ch/twiki/bin/view/LCG/MessagingSystemforGrid</a> )
<b>R 11</b>	<i>The Apache ActiveMQ messaging system</i> ( <a href="http://activemq.apache.org">http://activemq.apache.org</a> )
<b>R 12</b>	Nagios ( <a href="http://www.nagios.org/">http://www.nagios.org/</a> )

### 1.4. 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>

### 1.5. TERMINOLOGY



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A complete project glossary is provided in the EGI-InSPIRE glossary:  
<http://www.egi.eu/results/glossary/>.

## 2. 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.>>

### 3. OPERATIONAL TOOLS REGIONALISATION STATUS IN EGI-INSPIRE

The regionalisation of the operational tools is an activity that started and was very much developed during the EGEE-III project. For some of the tools, this activity took longer than expected and is being continued within EGI's JRA1.

The status of the regionalisation process is fully described in the 'Operational Tools Regionalisation Status' EGI's milestone [R1], covering the following tools: the *Operations Portal* [R2], *GGUS* [R3], *GOCDDB* [R4], the *Accounting Repository* [R5], the *Accounting Portal* [R6], the *Service Availability Monitoring Framework* [R7], the *Metrics Portal* [R8] and the *Regional Dashboard* [R9].



## 4. ROADMAPS IN THE REGIONALISATION PROCESS

### 4.1. OPERATIONS PORTAL AND REGIONAL DASHBOARD

#### REFERENCE

<b>R 1</b>	SVN repository for Operations Portal Regional Package : <a href="https://cvs.in2p3.fr/operations-portal/package/">https://cvs.in2p3.fr/operations-portal/package/</a>
<b>R 2</b>	Validation of Operations Regional Package : <a href="https://cvs.in2p3.fr/operations-portal/package/validation.pdf?revision=HEAD">https://cvs.in2p3.fr/operations-portal/package/validation.pdf?revision=HEAD</a>
<b>R3</b>	MS701 , Operations Portal Work plan <a href="https://documents.egi.eu/document/39">https://documents.egi.eu/document/39</a>

#### STATUS OF THE REGIONALISATION

For around one year we have started the work on a regional package: the goal of this work is to distribute the different features and modules present into the Central Operations Portal into a regional package for NGIs to cope with NGI needs.

The first release of the first production package was on June 8th and this release included the first release of the dashboard module. The different part of the package and the documentation are distributed via a SVN repository [R1].

The regional package has been deployed in production in 2 NGI:

- NGI\_CZ
- NGI\_GRNET

2 NGIs are currently deploying it :

- NGI\_IBERGRID – the validation process is completed but they want to extend the test period
- NGI\_BY

#### ARCHITECTURE AND SYNCHRONIZATION

The application is composed of

- a web service named Lavoisier configured to handle Nagios notifications, store and provide data cache from GOC DB, GGUS and to generate metrics reports about the use of the dashboard (alarms raised, tickets handled ...)
- a PHP web application to provide a user interface based on Symfony framework.
- A database generated automatically with the web application during the installation.

The regional instance is linked with the central instance of Lavoisier; and creation, update, delete of records are synchronized so as not to disrupt global oversight operations. Synchronisation is achieved through REST and SOAP and records are synchronized every 10 minutes by using php scripts. Any problem detected during the synchronisation is reported in a mail sent to webmasters.

The central and the regional instances (Instance 1 and 2 on the schema) have been built on the same model to behave in the same way and to be easily interoperable. A validation procedure [R2] has been established to validate the regional instances when a given region expresses this need. All regions or NGIs are able to opt for either the central or the regional instance. We will continue to offer as now regional views for the future features – when it makes sense - to the NGIs.

As you can see on the schema the architecture is exactly the same on a NGI and central instance.

The distributed components are the same, just the configuration changes:

- with some piece of codes in the PHP application that permits to distinguish a regional instance from a central one
- On the Lavoisier side to filter information and to keep only the information related to the NGI.

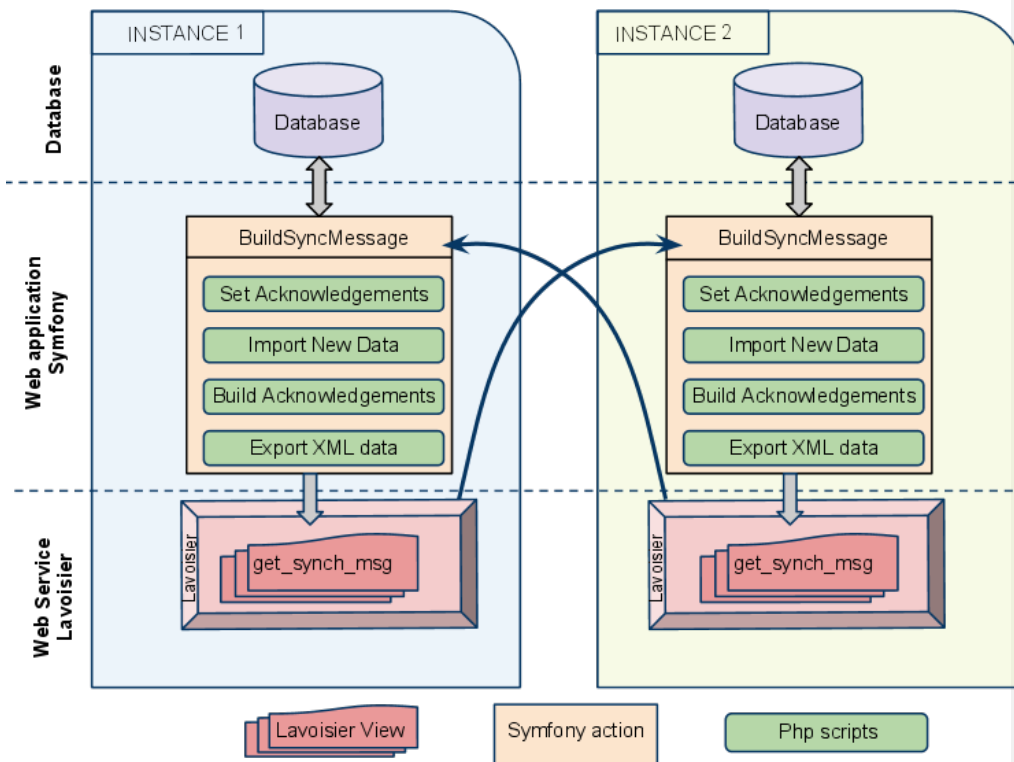


Figure 1 - Overview of the architecture and synchronization

## WORK PLAN

This regional package is currently using the same central data sources as the central instance but this package is designed to integrate the regional version of GOCDB and regional helpdesks if they are deployed. This regional package will be constantly improved during the coming year:

- To add some of the other features that will be integrated step by step into the Central Instance. These features will be added one by one into the central instance and if relevant to a regional instance we will provide an update to the package.
- To ease upgrade and set-up of the package in the regions

For each central feature released, we will provide it in the regional package when applicable in the following months.

For the central Instance the different timelines are summarized in the table below.  
For each new feature we have to study if it is meaningful to propose it on a regional instance.

Features	Timeline for central Instance
Migration to Symfony for the VO ID Card	August 2010
Migration to Symfony for the Broadcast	September 2010
Migration to Symfony for the Downtime notifications	December 2010
Enhancements of Lavoisier Programmatic Interface	December 2010
Integration of VO specific tests within the Dashboard	February 2011
Release of Lavoisier 2.0	March 2011

For more details about the complete work plan, please read MS701, Operations Portal Work plan [R3].

### 4.2. GGUS

No information available.

### 4.3. GOCDB

#### GOCDB latest status

As of the end of July GOCDB is in a transition phase between GOCDB3 and GOCDB4.

- GOCDB4 central portal is online since November 2009. Data appearing there are synchronised from GOCDB3 data

- GOCDB3 Programmatic Interface has been decommissioned on the 15th of July. As a result, all client tools connecting to GOCDB are all contacting GOCDB4 and there is no more dependency on GOCDB3

- the GOCDB4 input system which is due to replace GOCDB3 web portal is under finalisation and testing.

### Latest status on regionalisation

The last released version of GOCDB regional module dates from March 2010 (gocdb4.0d3). It is not a fully functional tool but all the basic components are included so that initial deployment can be tested using that version. It is available from [http://www.sysadmin.hep.ac.uk/rpms/egee-SAI/centos5-devel/x86\\_64/repoview/gocdb.html](http://www.sysadmin.hep.ac.uk/rpms/egee-SAI/centos5-devel/x86_64/repoview/gocdb.html)

The latest development version of the module has not been packaged yet, but the code is available from the SVN repository at <http://www.sysadmin.hep.ac.uk/svn/grid-monitoring/trunk/gocdb/>

This development version is a fully functional system, although there are minor development and polishing issues before this can be labelled "production". The estimated timeline for this is September 2010.

The documentation is available on the wiki page:

[http://goc.grid.sinica.edu.tw/gocwiki/GOCDB\\_Regional\\_Module\\_Technical\\_Documentation](http://goc.grid.sinica.edu.tw/gocwiki/GOCDB_Regional_Module_Technical_Documentation)

GOCDB regionalisation status is available online at

[http://goc.grid.sinica.edu.tw/gocwiki/GOCDB4\\_Regionalisation](http://goc.grid.sinica.edu.tw/gocwiki/GOCDB4_Regionalisation)

**Important note:** GOCDB regional modules can't be operated in production until GOCDB3 has been fully decommissioned.

### Regionalisation roadmap

Main GOCDB development items linked to the tool regionalisation are as follows, with the expected release date:

- Provide a production quality package for GOCDB regional module (Sep 2010)
- Optimize data access for the regional module to improve overall performances (Oct 2010)
- finalise the publication interface from regional to central GOCDB (Oct 2010)
- Consolidate and polish the web admin interface for GOCDB regional module (Oct 2010)
- propose a basic definition fo a publication interface from regional non-GOCDB system to the central GOCDB (Nov 2010)
- Provide a MySQL version of the GOCDB regional module (Apr 2011)

GOCDB development plans are published on the following wiki page:

[http://goc.grid.sinica.edu.tw/gocwiki/GOCDB4\\_development](http://goc.grid.sinica.edu.tw/gocwiki/GOCDB4_development)

#### 4.4. ACCOUNTING REPOSITORY

##### **APEL server latest status**

As of the end of July the APEL server is in a transition phase between the R-GMA based system and its ActiveMQ based replacement.

- The ActiveMQ based APEL client has been released to production within gLite3.2 early June 2010.
- around 12 sites are using this version at the time of writing.
- The server accepts publication from both systems in parallel. They are then processed and archived in exactly the same way.

##### **Latest status on regionalisation**

The Accounting repository is not ready for regionalisation yet.

A design study of APEL regionalised architecture has been presented as a poster in EGEE09 conference and is available from the APEL home wiki page at <http://goc.grid.sinica.edu.tw/gocwiki/ApelHome>

##### **Regionalisation roadmap**

The regionalisation roadmap is not defined yet.

#### 4.5. ACCOUNTING PORTAL

The initial version of the regional accounting portal is already available. Currently several NGIs have expressed their interest in deploying a regional instance of the regional portal.

During the following months the installation scripts will be improved making it easier to deploy the portal. Additional improvements will be incorporated based on the feedback from the candidate NGIs. New functionalities incorporated into the central accounting portal will be ported to the regional accounting portal.

In the future the regional accounting portal will use the new accounting infrastructure based on Messaging [R10]. This new accounting infrastructure allows greater flexibility to configure regional accounting repositories. Several modifications are foreseen in the regional accounting portal to support ActiveMQ [R11].

Besides the regional accounting portal a country view is offered in the central accounting portal that allows NGIs to review the usage in their region. This view will be continuously improved based on NGI feedback.

The roadmap for the accounting portal is the following:

Release date	New functionalities
Dec 2010	Improved installation support GOCDBPI-V4 support
March 2011	New improvements based on NGI feedback
June 2011	ActiveMQ support

#### 4.6. MONITORING INFRASTRUCTURE

The monitoring infrastructure based on Nagios [R12] and Messaging is already completely regionalized, as described in the EGI-InSPIRE milestone MS401 [R1]

#### 4.7. METRICS PORTAL

There are currently no regionalization plans for the Metrics Portal.

## 5. CONCLUSIONS

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