



## **Comparison of European Grid Projects**

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**Project:**

GEMSS

**Area:**

Information Services

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## 1. Introduction

### 1.1. Objective and Structure

This document is one of thirteen templates that have common goal to gather information related to main European Grid Projects in order to make their accurate comparison in the framework of GRIDSTART initiative. We believe that the participation of particular projects members in preparation of this document will allow comparing all activities in a credible and exhaustive way.

The proposed structure of the description consists of two parts. The former is concerned with the general overview and architecture together with the contents of layers (the first template). The latter includes the main components of the Grid infrastructure (remaining 12 templates). Since information regarding the project architecture is to be quite general, more detailed description should be provided in the review of the main aspects of the Grid infrastructure. In order to prepare uniform description for each project, we identify the important issues that have to, should or can be included into particular components. Common issues for all components and these specific for this component are briefly described in the next section.

We ask you to proceed according to this schema. However, a feedback is obviously welcome. For some projects the document has been partially completed on the basis of descriptions found at the official web pages. In this case, we ask you to revise already filled in sections, correct and complete them if necessary.

You should take into consideration future plans while you fill in particular sections. Actually they are even more important than the current state of the project components. If you are not going to design some elements in the scope of the project at all, please, note it in the proper section.

### 1.2. Uniform description

All the descriptions of the Grid infrastructure components are divided into three parts: **General** section includes main requirements and functionality, **Details** section relates to the issues specific for particular component and **External** defines its connections with other components and users.

As it was mentioned above, some of the issues are common for all components or at least repeat for many of them. Such issues, appearing for many or even all areas are shortly characterized below.

In **General** section:

**Main requirements** determine the objectives and requirements of the workpackage or the software module responsible for the design of functionality related to the particular domain of the Grid infrastructure.

**Functionality** contains a set of operations provided by the project in the given area.

In **External** section:

**Interfaces** define services, SDKs, APIs and so forth which can be used in order to access the functionality of the component.

**Low level Grid middleware** is the middleware providing basic Grid functionality as for example Globus or UNICORE.

**Relations with other components** determine components that utilize or are utilized by component being described as well as data and information flow between them.

Issues that are specific for this particular domain of the Grid infrastructure are presented in the sequel. Some of them, which we consider to be clear, have been skipped, however, if they turn out to be vague, please, contact the authors of this document ([ariel@man.poznan.pl](mailto:ariel@man.poznan.pl)).

The **Details** section describes mechanisms responsible for providing information about the components of grid environment, its structure and state.

**Details in Information types** paragraph specifies what kinds of information are accessible. They may include processes, CPU usage, memory usage, number of processors, queue information etc.

**Methods for information gathering** describe how data is gathered. It may be done by queries to monitoring system, by system administrators' updates or using other mechanisms.

**Methods for information storage** define **Formats** for information storing such as LDAP servers or relational databases and **Schemas** defining structure of information, for example, schemas in LDAP tree or schemas of tables in relational databases.

## 2. Information Services

### 2.1. General

Within GEMSS, a number of medical services will be developed. The GEMSS infrastructure will provide support for discovering services dynamically based on a service registry. The GEMSS design is still being discussed by the project and not all issues have been finalized yet.

Moreover each GEMSS service will implement a generic interface which will allow clients and service providers to agree upon specific QoS attributes. Negotiation of QoS properties (price, required service completion time, etc.) is an iterative, dynamic process which takes into account the actual state and capabilities of each GEMSS service (provider) and will be supported by generic operations which are provided by all GEMSS applications.

In the following only information with respect to the GEMSS registry will be provided.

- **Main requirements**

The GEMSS registry is required to provide service providers with methods to publish/remove their services, and service consumers (client users) to lookup available services.

- **Functionality**

The GEMSS registry will provide the following basic functionality:

- publish service (for service providers)
- service lookup (for clients)
- service removal (for service providers)

## 2.2.Details

- **Information types**

**Static**

- service name
- service description
- service protocol
- service provider

**Dynamic (changing during job execution time)**

Such information will not be accessible via the registry

**Details**

- **Methods for information gathering**

Upon deployment of a GEMSS application service, the corresponding entries are inserted (automatically) into the GEMSS registry.

- **Methods for information storage**

**Format**

**Schemas**

## 2.3.External

- **Interfaces**

The GEMSS registry will be based on UDDI. The interface to the GEMSS registry will be provided to clients as WSDL document. Moreover a Java-based API will be provided.

- **Low level grid platform**

- **Relations with other components**

The GEMSS registry will be accessed by service providers upon deployment or removal of services, and by client-side components upon service selection.