

# WLCG-RUS: An Extensible Solution to Resource Usage Service

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The project originated from providing a RUS compliant solution for WLCG accounting, which requires collection of usage data from three operational Grids, the Open Science Grid (OSG), EGEE and NorduGrid. The collection of usage data are to be stored centrally and summarized for usage reporting on per site, per VO, per month basis. These collected usage data are persistent in relational database based on WLCG accounting schema. At present, usage providers from each operational Grid simply email SQL statements for insertion of summary usage records to project manager who runs a simple script to populate usage data into storage. The WLCG-RUS project is therefore proposed to automate and standardize usage data sharing and reporting processes with interoperability to RUS implementations available or being developed in operational Grid projects.

### 3. Impact

The WLCG-RUS design is based on the proposed framework of “Review of Grid Accounting and Usage Monitoring”, a three-month review project funded by JISC in UK. The WLCG-RUS framework is composed of a set of abstract components that enable implementation of standard RUS core operations while allowing customization on usage data persistence in various storage format (either XML and relational database). A component known as XML-Object Mapping (XOM) is used to convert custom usage representation to standard OGF URF format, or vice versa during the execution of RUS data operations. WLCG-RUS also allows implementations to provide custom functionalities on authorization, usage filtering, operational logics, data access pattern, and summarization. Therefore the WLCG-RUS provides a flexible and extensible development framework for RUS implementations.

### 4. Conclusions / Future plans

In summary, the WLCG-RUS project provides an extensible framework for RUS implementations that bridges the gap between relational usage representation and OGF URF standard. The WLCG-RUS is going to be deployed at Rutherford Tier 1 sites and London Tier 2 sites for performance and interoperability test.

## Provide a set of generic keywords that define your contribution (e.g. Data Management, Workflows, High Energy Physics)

Usage Record Format, Resource Usage Service, XML-Object Mapping, WLCG

### 1. Short overview

The main goal of WLCG-RUS project is to provide a development framework facilitating implementations of OGF Resource Usage Service. The WLCG-RUS is designed to be extensible and allows usage records to be persistent in various storages, either XML or Relational database. With a set of abstract components implementations can provide custom solutions in accordance to deployment requirements. In addition to RUS core features, the WLCG-RUS allows advanced operations on summary usage records.

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