The P-Grade Portal for White Rose Grid Users

Introduction

With significant upgrades of Leeds WRG systems to be implemented early next year and continuous upgrades in Sheffield and York, the WRG user community will be broadened through the arrival of novice users e.g. new researchers from Transport Studies, Music, Arts, Management, Economics and Medicine and other disciplines. They will benefit from more convenient access to grid resources through a graphical interface from their desktop using the ubiquitous web browser. After a comprehensive evaluation of several portals, such as EnginFrame, EASA and P-Grade, it was decided to adopt the latter package for the WRG.

About P-Grade

The WRG has installed version 2.7 of the P-Grade portal [1] which enables the three Universities' users to use a web browser from their PC desktops for job submission and transfer of input files to high performance computing (HPC) systems and retrieval of output files from remote computers (Leeds, Sheffield and York). The portal has been customised specifically for White Rose users to offer them a simplified graphical interface.

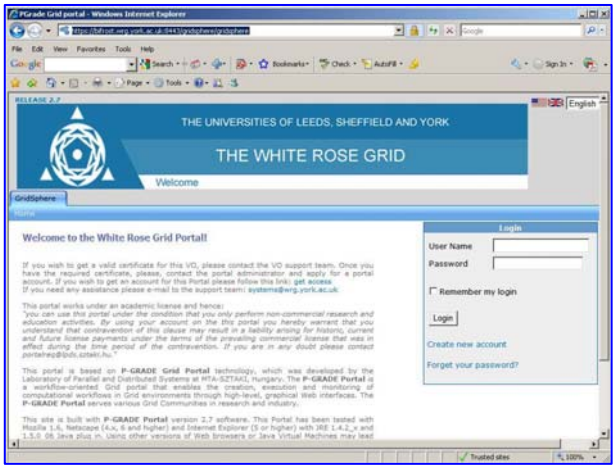

Figure 1: The P-Grade portal entry page

The core of the P-Grade portal has been developed by the Laboratory of Parallel and Distributed Systems at MTA SZTAKI [2] in Budapest, Hungary. Further developments are undertaken by The P-Grade Portal Developer Alliance, which currently also includes the Middle East Technical University in Ankara, Turkey, and the University of Westminster [3] in London, UK.

The P-Grade portal (Figure 1) enables users to submit and run a variety of jobs (e.g. a simple serial job, complex serial jobs executing on distributed resources as well as parallel jobs) on computational resources known to the portal.

Login to the Portal

The portal is available at:
https://bifrost.wrg.york.ac.uk:8443/gridsphere/

Users first need to obtain a username and password before login to the portal. Furthermore, the portal uses digital certificates for user credentials to back-end computers. Thus users need to obtain a digital certificate prior to use of the portal. They will need to deposit their proxy certificate, e.g. using the MyProxy Upload

tool, in the MyProxy server prior to their login into the portal.

Creating a Job to Back-end Computers

A job in P-Grade (Figure 2) is constructed from a set of building blocks which form a workflow. Each of the building blocks must specify the software to be run (application) and the processing system (back-end computer) to be used. Many jobs will specify an input file (dataset) and/or an output file (dataset). Optionally, for each of the sub-jobs arguments may be specified.

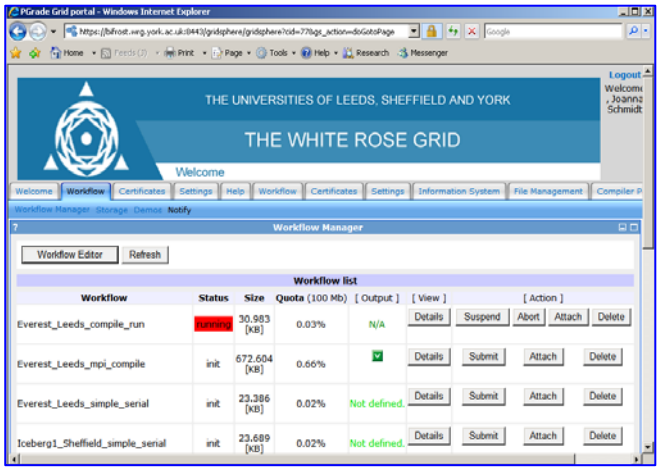

Figure 2: Workflow view

Job Examples

There are example workflows available for download within the P-Grade portal. They will help users to build their own workflows describing their jobs.

Help and Support

The P-Grade comes together with a built-in help file which contains comprehensive information on the portal.

There is also a separate document *Getting started with the P-Grade portal on the White Rose Grid systems at the Universities of Leeds, Sheffield and York* , which is available from our Centre's website [4].

Leeds users are encouraged to report any problems to the ISS Helpdesk (ext 33333; email: helpdesk@leeds.ac.uk); Sheffield users may email their Helpdesk: helpdesk@sheff.ac.uk, and York users need to report their problems to systems@wrg.york.ac.uk.

Concluding Remarks

The P-Grade portal performs well and a variety of jobs (e.g. a simple serial job, complex serial jobs executing on distributed resources as well as parallel jobs) have been submitted and run on computational resources known to the portal. P-Grade has been proven to be extremely stable running for several months without the need of a restart or attention. However, it has not been tested under particularly high loads. It is anticipated that it could potentially be very useful to new WRG users who do not like to login to Linux systems and would prefer to submit their jobs to WRG HPC systems directly from their desktop.

Further Information

Contacts

Dr Joanna Schmidt (j.g.schmidt@leeds.ac.uk)

Dr Shiv Kaushal (s.kaushal@leeds.ac.uk)

Dr Mike Griffiths (m.griffiths@sheffield.ac.uk)

Mr Aaron Turner (aaron@cs.york.ac.uk)

Mt Mark Hewitt (m.hewitt@york.ac.uk)

References

[1] Laboratory of Parallel and Distributed Systems at MTA-SZTAKI, Hungary: http://www.lpds.sztaki.hu/

[2] University of Westminster Centre for Parallel Computing http://www.cpc.wmin.ac.uk/cpcsite/index.php/Main_Page

[3] The P-Grade Portal: http://portal.pgrade.hu/

[4] The Project's Web site: http://www.wrgrid.org.uk

Acknowledgements

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