

Experiment Software CG Installation Experience Enabling Grids for E-science in Europe in LGC-2



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Introduction

The middleware software is often installed/configured by system administrators at sites via customized tools like LCFGnq or Quattor that provide also for centralized management of the entire computing facility.

Gigabytes of Virtual Organization (VO) specific software need too to be installed and managed at each site. As of today a flexible tool to reliably do so is not available.

The difficulty here is mainly connected to the existence of disparate ways of installing, configuring and validating experiment software.

Each LHC Experiment wants to maintain its own proprietary method for distributing the software in LCG.

Furthermore the system for accomplishing this task can change with time even

The Experiment Software Installation in LCG and more in general in a grid-aware system is a hot issue only partially solved by current solutions.

Requirements

Site administrators

- No daemon running on the WN
- No root privileges for VO software installation on WN
- Traceable access to the site (no pool accounts)
- In/Outbound connectivity to be avoided
- Site policies applied for external action triggering
- Strong authentication required

2. Experiments Requirements

- Only special users allowed to install software at a site
- 2. Management of simultaneous and concurrent installations
- Failure recovery
- Publication of relevant information for the software
- Installation/validation/removal of software should be done not only through a Grid Job but also via a direct service request.
- 6. Validation of the software installation could be done in different steps and at different times with respect to the installation.



Once installed, the software must be accessible from any WN at a site

Current Situation



Sites can choose between providing VO space in a shared file system or allow for local software installation on a WN. This is indicated through the local environment variable VO_<EXP>_SW_DIR



The ESM prepares a stand-alone self-contained distribution of the experiment software (all dependencies are solved and needed packages included). The software bundles are packaged together with scripts used to perform the installation (or validation).

Such a bundle is then uploaded to a SE in GRID through the Replica Manager. The ESM directs an Installation and Validation job to a chosen site. Depending on the VO_<EXP>_SW_DIR the job installs the software in the selected location and runs the certification suite. This results in a report on which the ESM bases the next actions.

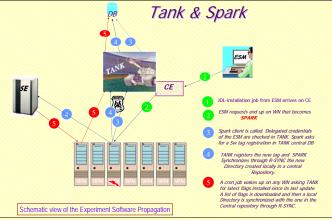


In case of a shared file system, ESMs of a VO are the only ones having write access to the Experiment space

The VO Manager creates the software administrator Group. People belonging to this group are napped to a special Administrative VO account in the local grid-mapfile of all sites.



For sites on which the installation/certification has been successfully run, the ESM adds in the IS a Tag that indicates the version of the VO software that has successfully passed the tests. This is done by adding a new value in the GlueHostApplicationsSoftwareRunTimeEnv Attribute using the GRIS running on the CE.



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