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PiLite: a unified interface to local resource managers on supercomputing resources

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The PiLite program is a gateway designed to unify the process of remote jobs execution and management on supercomputing resources. The program provides a common interface that masks the real local resource manager (LRM) used on remote supercomputer installation. PiLite allows to execute the following tasks:

- jobs submission;
- obtaining job status;
- premature job termination on user's command;
- input and output files management;
- a real time downloading of the special monitoring file intended to track the correctness of the job execution.

The program consists of two components: the server-side component and the client-side one. The server-side component is a common interface that could be used via direct remote access to the supercomputing resource as well as in GridNNN infrastructure as a regular gateway. For the direct remote access the client-side component is provided. The client-side component is a set of the command-line tools that could be combined with the web interface thus providing more simplicity in use of supercomputing resources and improving user's operational performance. As for use in GridNNN, PiLite is fully compatible with the GridNNN RESTful web services in program interface and job definition format.

At the present time the program has been proved to correctly interoperate with PBS and Fork LRMs. Support for other LRMs can be provided by request. The program was used as the gateway to the supercomputing resources during execution of the contract No 14.514.11.4058 "Creating a numerical model of the water flow around a ship with account of the wave formation and laminar-turbulent transition in the boundary layer on the ship's hull".

Primary author: Ms DUBENSKAYA, Yulia (Scobeltsyn Institute of Nuclear Physics Lomonosov Moscow State University)

Co-authors: Mr KRYUKOV, Alexander (Scobeltsyn Institute of Nuclear Physics Lomonosov Moscow State University); Mr DEMICHEV, Andrey (Scobeltsyn Institute of Nuclear Physics Lomonosov Moscow State University); Mr PRIKHODKO, Nikolay (Yaroslav-the-Wise Novgorod State University, Veliky Novgorod)

Presenter: Ms DUBENSKAYA, Yulia (Scobeltsyn Institute of Nuclear Physics Lomonosov Moscow State University)

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