



Contribution ID: 163

Type: not specified

Web service for analysis of experimental data on HPC platforms using package ROOT

Tuesday, July 4, 2017 2:45 PM (15 minutes)

Scientists get large amount of raw experimental data when conducting experiments. These data are analyzed using package ROOT. Processing of large data requires high-performance computers; thus, analysis of experimental data is performed on high-performance clusters.

Conducting data analysis on cluster requires some preparatory work: it is necessary to download files to the cluster, write macros, download results, etc. Also, it is important to note that users work remotely and this might cause some problems, in particular, slow response time of GUI.

For a more efficient work on the cluster and optimization of the process of experimental data analysis, a dedicated web service has been developed. This web service allows computing users tasks on high-performance cluster while visualizing results on the client computer. The web service communicates with task manager and distributed file system of the computing complex.

Users can create, delete, start and stop tasks on cluster. The web app has several templates for different types of user tasks that makes it possible to quickly create new task and submit it for computation on the cluster. Users can also browse directories and open files on the file system of the cluster using web interface.

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Session Classification: Distributed and parallel computing and tools for scientific computing (I)