

# CHReME C-DAC HPC Resource Management Engine

The growth of Parallel Applications in Scientific and Engineering domain has posed a serious challenge of efficient and easy usage and management of resources of HPC systems. To address this challenge, C-DAC has indigenously developed CHReME, which is a web-based Portal that empowers Scientists, Researchers, System administrators and HPC Users with intuitive GUI to exploit the various resources of HPC systems.

## Administration:

- User Credential Management
- Job Management / Monitoring
- Queue Management / Configuration
- Resource Monitoring
- Compiler and Libraries Configuration
- Scheduler Configuration

## User Area:

- Job Creation/Submission
- Job Monitoring
- File Upload/Download
- Directory Structure
- Cluster Resource Information
- Online Tutorials/Manuals



## Features:

- Developed on an open source platform and ecosystem
- A single deployment package to install CHReME on any Linux platform
- GUI based Web Interface to access various cluster resources
- Job Submission/Management/Monitoring
- Comprehensive Monitoring
- Extensive Runtime Environment
- Security through HTTPS encryption and SSH network protocol for a secure data communications
- Application Specific Interface for pre-compiled applications in various domains viz. Physics, Bioinformatics and Weather Forecasting
- Customized integration of new HPC application according to the client requirement in various domains viz. Weather Forecasting, Bioinformatics, Computational Chemistry, Physics etc.
- Fully integrated environment with Industry standard Schedulers
- Timely Alerts and Reporting



**"The innovation excellence award from IDC for outstanding application of HPC Computing for Business and Scientific Achievements".**



# CHReME

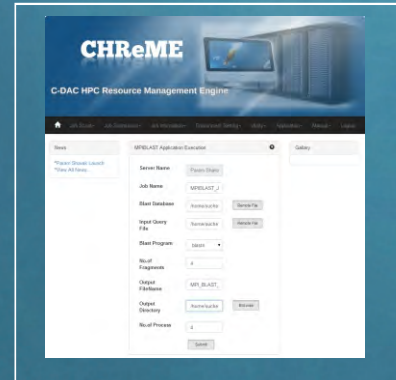
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### Application Specific Portals:

- Scientific and Engineering application portals viz. CHReME MPIBLAST Portal.
- Customization of GUI to create execution workflow for pre-compiled applications and visualization of output etc.

### Description:

CHReME MPIBLAST Portal is an integrated solution with MPIBLAST application execution interface. MPIBLAST graphical user interface (GUI) guides users through the entire cycle of execution of MPIBLAST. The portal is targeted to address the need of novice as well as expert system users in the scientific domains. The GUI facilitates the user with a modular approach for MPIBLAST execution by creating various execution script, storing the workflow execution scripts, setting up of environment variables, submission of the MPIBLAST execution jobs and monitoring the status of the jobs and display of the output.



### Salient Features:

- Portal organizes, simplifies the MPIBLAST execution through intuitive graphical interface.
- Allows the creation of execution scripts viz MPIBLAST database formatting, runtime parameter, job execution and displaying of output.
- Integrated with torque resource manager facilitating MPIBLAST in utilizing cluster resources optimally.
- Portal helps in maintaining the logs for various stages of the execution which helps in tracking the execution completion path.
- The portal provides all possible input field validations that are required in execution of MPIBLAST model.
- Email notifications are sent regarding the various stages of the execution such as suspension, restart, hold or completion of the jobs.
- Biological data required in the MPIBLAST execution can be uploaded through GUI onto the clusters.
- Similarly, integration of execution interfaces for several applications from weather forecasting, oceanography, computation chemistry etc. is under process.



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