

Grid Training for Power Users Institute of Physics Belgrade

Hands on Session: MPI Job Submission

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- MPI description
- MPI job JDL details
- Hands On example
- MPI references

- Message Passing Interface
- A message-passing library specification
 - extended message-passing model
 - not a language or compiler specification
 - not a specific implementation or product
- For parallel computers, clusters, and heterogeneous networks
- Designed to provide access to advanced parallel hardware for end users, library writers, and tool developers

- Currently, there are two standards of MPI:
 - MPI-1
 - MPI-2
- Number of MPI implementations:
 - MPICH (MPI-1)
 - LAM (MPI-1)
 - MPICH2 (MPI-2)
 - OpenMPI(MPI-2)

- MPI-Start – developed by HLRS, is a set of scripts which main advantage is the possibility to detect and use site specific configuration
- Different MPI implementations on a site are supported:
 - Open MPI
 - MPICH
 - MPICH2
 - LAM-MPI

```
JobType          = "Normal";
CPUNumber        = 3;
Executable       = "mpi-start-wrapper.sh";
Arguments        = "pi OPENMPI";
StdOutput        = "mpi-start.out";
StdError         = "mpi-start.err";
InputSandbox     = {"mpi-start-wrapper.sh", "mpi-hooks.sh", "pi.c"};
OutputSandbox    = {"mpi-start.err", "mpi-start.out"};
Requirements     = Member("MPI-START",
    other.GlueHostApplicationSoftwareRunTimeEnvironment)
    && Member("OPENMPI",
    other.GlueHostApplicationSoftwareRunTimeEnvironment);
```

- Navigate to following address:
 - https://http.ipb.ac.rs/documents/glite_mpi_user_guide/
- Analyze and submit provided MPI Grid job

- Official MPI (Message Passing Interface) standards documents, errata, and archives of the MPI Forum:
 - <http://www.mpi-forum.org>
- Pointers to lots of stuff, including talks and tutorials, a FAQ, other MPI pages:
 - <http://www.mcs.anl.gov/mpi>
- MPI-Start page:
 - <http://www.hlr.de/organization/av/amt/research/mpi-start/>