



Enabling Grids for E-science

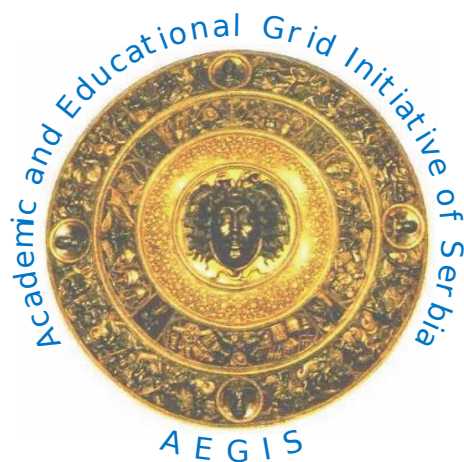
How to use computing resources at Grid

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SEE-GRID-SCI
SEE-GRID infrastructure for regional eScience



Information Society



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- **JDL**

The Job Description Language (JDL) is a high-level language used to describe jobs and aggregates of jobs with arbitrary dependency relations

- **Simple example**

```
[
Type = "Job";
Executable = "/bin/hostname";
Arguments = "";
StdOutput = "std.out";
StdError = "std.err";
OutputSandbox = {"std.out", "std.err"};
Requirments = "";
]
```

• Additional attributes

```

InputSandbox = {"test.sh", "fileA", "fileB", ...}
InputSandbox = {
  "gsiftp://lxb0707.cern.ch/cms/doe/data/fileA", "fileB"};
VirtualOrganisation = "cms";
RetryCount = 0;
MyProxyServer = "myproxy.ipb.bg.ac.rs"
  
```

• Requirements

```

Requirements =RegExp("ce64.ipb.bg.ac.rs*",other.GlueCEUniqueID);
Requirements = Member("VO-cms-CMSSW_2_0_0",
  other.GlueHostApplicationSoftwareRunTimeEnvironment);
Requirements = (other.GlueHostArchitecturePlatformType ==
  "x86_64");
  
```

- **Single Job Submission**

```
glite-wms-job-list-match -a <jdl file>  
glite-wms-job-delegate-proxy -d <delegID>  
glite-wms-job-submit -a <jdl file>  
glite-wms-job-status <jobID>  
glite-wms-job-cancel <jobID>  
glite-wms-job-output <jobID>  
glite-wms-job-logging-info <jobID>
```

- **Simple job example**

```
Executable = "test.sh";  
Arguments = "fileA fileB";  
StdOutput = "std.out";  
StdError = "std.err";  
InputSandbox = {"test.sh", "fileA", "fileB"};  
OutputSandbox = {"std.out", "std.err"};
```

http://wiki.ipb.ac.rs/index.php/Submitting_jobs

- **Job collection**

Job1.jdl

```
Executable = "/bin/hostname";  
StdOutput = "std.out";  
StdError = "std.err";  
OutputSandbox = {"std.out", "std.err"};
```

Job2.jdl

```
Executable = "/bin/date";  
StdOutput = "std2.out";  
StdError = "std2.err";  
OutputSandbox = {"std2.out", "std2.err"};
```

- **Parametric Job**

```
[  
  JobType = "Parametric";  
  Executable = "/bin/sh";  
  Arguments = "message_PARAM_.sh";  
  InputSandbox = "message_PARAM_.sh";  
  Parameters= 6;  
  ParameterStep = 2;  
  ParameterStart = 0;  
  StdOutput = "myoutput_PARAM_.txt";  
  StdError = "myerror_PARAM_.txt";  
  OutputSandbox = {"myoutput_PARAM_.txt",  
  "myerror_PARAM.txt"};  
  ShallowRetryCount = 1;]  
]
```

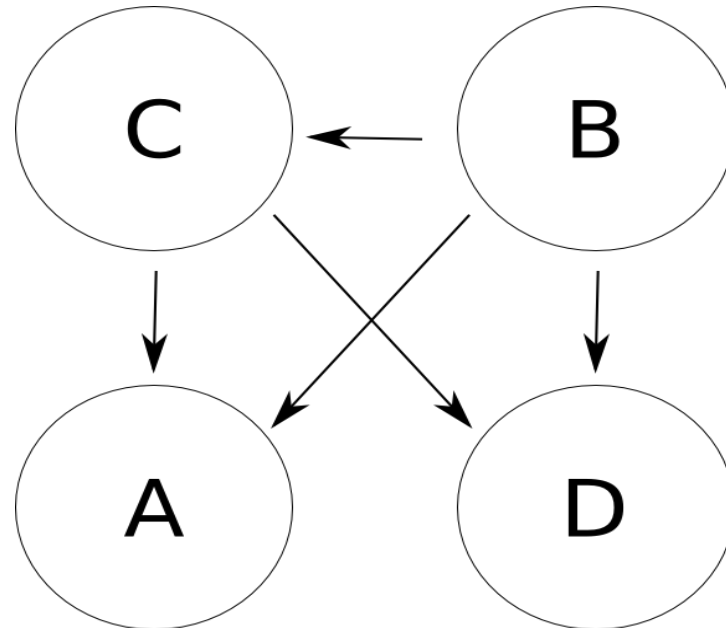
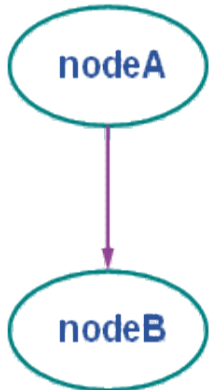
- **MPI job**

```
Type = "Job";
JobType = "MPICH";
CpuNumber = 2;
Executable = "test-mpi.sh";
Arguments = "test-mpi";
StdOutput = "test-mpi.out";
StdError = "test-mpi.err";
InputSandbox = {"test-mpi.sh", "test-mpi.c"};
OutputSandbox = {"test-mpi.err", "test-mpi.out",
"mpiexec.out"};
Requirements = Member("MPICH");
```


- **DAG (directed acyclic graph) Jobs**

Dependencies =

$\{\{nodeA,nodeB\},\{nodeA,nodeC\},\{\{nodeB,nodeC\},nodeD\}$



• Interactive Job

```
JobType = "Interactive" ;
Executable = "interactive.sh" ;
InputSandbox = {"interactive.sh"} ;
```

```
#!/bin/sh
echo "Welcome!"
echo "Please tell me your name: "
read name
echo "That is all, $name."
echo "Bye bye."
read name2
echo "Go away, $name2."
exit 0
```

