

LCG2 Tutorial

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Grid certificates

- Each user must have a valid X.509 certificate issued by a recognized **Certification Authority (CA)**
- Before doing any Grid operation, user must log in **User Interface (UI)** machine and create a proxy certificate.
- A **proxy certificate** is a **delegated user credential** that authenticates the user in every secure interaction, and has a **limited lifetime**: in fact, it prevents having to use one's own certificate, which could compromise its safety

Creating proxy

- `grid-proxy-init` command

```
[viet@cluster2 viet]$ grid-proxy-init
Your identity: /C=SK/O=SlovakGrid/O=IISAS/CN=Viet Tran
Enter GRID pass phrase for this identity:
Creating proxy ..... Done
Your proxy is valid until: Wed Aug 25 02:37:05 2004
```

Job submission

- User have to create a file describing the submitted job in **Job Description Language (JDL)**
- User submits jobs to **Resource Broker (RB)**

JDL for simple job

```
[viet@cluster2 viet]$ cat hostname.jdl  
Executable = "/bin/hostname";  
StdOutput = "std.out";  
StdError = "std.err";  
OutputSandbox = {"std.out", "std.err"};
```

Submitting a job

edg-job-submit command

```
[viet@cluster2 viet]$ edg-job-submit hostname.jdl
```

```
Selected Virtual Organisation name (from UI conf file): cg
```

```
Connecting to host rb01.lip.pt, port 7772
```

```
Logging to host rb01.lip.pt, port 9002
```

```
*****
```

JOB SUBMIT OUTCOME

```
The job has been successfully submitted to the Network  
Server.
```

```
Use edg-job-status command to check job current status.  
Your job identifier (edg_jobId) is:
```

```
- https://rb01.lip.pt:9000/vrTuD4Tm-rQZvtdMma0a7w
```

```
*****
```

Getting info about jobs

edg-job-status command

```
[viet@cluster2 viet]$ edg-job-status  
https://rb01.lip.pt:9000/vrTuD4Tm-rQZvtdMma0a7w
```

```
*****
```

BOOKKEEPING INFORMATION:

```
Status info for the Job : https://rb01.lip.pt:9000/vrTuD4Tm-  
rQZvtdMma0a7w
```

```
Current Status:      Done (Success)
```

```
Exit code:           0
```

```
Status Reason:       Job terminated successfully
```

```
Destination:         ce.grid.cesga.es:2119/jobmanager-pbs-infinite
```

```
reached on:          Tue Aug 24 12:48:53 2004
```

```
*****
```

Getting output from a job

edg-job-get-output command

```
[viet@cluster2 viet]$ edg-job-get-output https://rb01.lip.pt:9000/vrTuD4Tm-rQZvtdMma0a7w
```

```
Retrieving files from host: rb01.lip.pt ( for  
https://rb01.lip.pt:9000/vrTuD4Tm-rQZvtdMma0a7w )
```

```
*****
```

JOB GET OUTPUT OUTCOME

Output sandbox files for the job:

- https://rb01.lip.pt:9000/vrTuD4Tm-rQZvtdMma0a7w

have been successfully retrieved and stored in the directory:

`/tmp/viet_vrTuD4Tm-rQZvtdMma0a7w`

```
*****
```

```
[viet@cluster2 viet]$ ls -lA /tmp/viet_vrTuD4Tm-rQZvtdMma0a7w
```

```
total 4
```

```
-rw-rw-r-- 1 viet viet 0 Aug 24 14:53 std.err
```

```
-rw-rw-r-- 1 viet viet 21 Aug 24 14:53 std.out
```

```
[viet@cluster2 viet]$ cat /tmp/viet_vrTuD4Tm-rQZvtdMma0a7w/std.out  
grid01.grid.cesga.es
```


File transfer: GridFTP

globus-url-copy

```
globus-url-copy gsiftp://storage.ui.sav.sk/home/viet/grid-  
data/Malpasset.2dm file://$PWD/Malpasset.2dm
```

A simple JDL and script for DaveF

```
[viet@cluster2 testgrid]$ cat davef.jdl
```

```
Executable      = "davef.sh";  
StdOutput       = "davef.out";  
StdError        = "davef.err";  
InputSandbox    = {"davef.sh"};  
OutputSandbox   = {"davef.out", "davef.err"};
```

```
[viet@cluster2 testgrid]$ cat davef.sh
```

```
globus-url-copy gsiftp://storage.ui.sav.sk/~ /grid-data/davef  
file://$PWD/davef
```

```
chmod a+x davef
```

```
globus-url-copy gsiftp://storage.ui.sav.sk/home/viet/grid-  
data/Malpasset.prj file://$PWD/Malpasset.prj
```

```
./davef Malpasset.prj
```

```
globus-url-copy file://$PWD/Malpasset.flo  
gsiftp://storage.ui.sav.sk/home/viet/grid-data/Malpasset.flo
```

Listing suitable CEs

edg-job-list-match

```
[viet@cluster2 testgrid]$ edg-job-list-match davef.jdl
```

```
Selected Virtual Organisation name (from UI conf file): cg  
Connecting to host rb01.lip.pt, port 7772
```

```
*****
```

COMPUTING ELEMENT IDs LIST

The following CE(s) matching your job requirements have been found:

CEId

```
ce.grid.cesga.es:2119/jobmanager-pbs-infinite  
ce.grid.cesga.es:2119/jobmanager-pbs-long  
ce.grid.cesga.es:2119/jobmanager-pbs-short  
ce001.grid.ucy.ac.cy:2119/jobmanager-pbs-infinite  
ce001.grid.ucy.ac.cy:2119/jobmanager-pbs-long  
ce001.grid.ucy.ac.cy:2119/jobmanager-pbs-short  
cluster.ui.sav.sk:2119/jobmanager-pbs-workq  
cms.fuw.edu.pl:2119/jobmanager-pbs-infinite  
cms.fuw.edu.pl:2119/jobmanager-pbs-long  
cms.fuw.edu.pl:2119/jobmanager-pbs-short  
grid01.physics.auth.gr:2119/jobmanager-pbs-infinite
```

A real JDL for DaveF

```
[viet@cluster2 testgrid]$ cat davef-client-cluster.jdl
```

```
Executable      = "davef_loader_script.sh";
Arguments       = "davef_param_sk.cfg";
StdOutput       = "davef.out";
StdError        = "davef.err";
InputSandbox    = {"davef_loader_script.sh",
                  "davef_param_sk.cfg"};
OutputSandbox   = {"davef.out", "davef.err"};
JobType         = "MPICH";
NodeNumber      = 16;
Requirements    = other.GlueCEUniqueID ==
                  "cluster.ui.sav.sk:2119/jobmanager-pbs-workq"
```

Bypassing resource broker

- **globus-job-run**

```
[viet@cluster2 testgrid]$ globus-job-run  
cluster.ui.sav.sk /bin/ls
```

```
8queen_speedup
```

```
Desktop
```

```
bin
```

```
davef_param.cfg
```

```
davef_vis.cfg
```

```
encrypt.pl
```

```
flo2dh_310_src.zip
```

```
gr
```

```
gram_job_mgr_11873.log
```

```
gram_job_mgr_11904.log
```

Using Myproxy server

- Myproxy server is used for
 - Very long jobs (that normal proxy may be expired)
 - Getting proxy on other machines than UI (typical for portals)

Storing proxy on myproxy server

myproxy-init

```
[viet@cluster2 testgrid]$ myproxy-init -s
  kentauros.rtd.algo.com.gr
Your identity: /C=SK/O=SlovakGrid/O=IISAS/CN=Viet Tran
Enter GRID pass phrase for this identity:
Creating proxy ..... Done
Proxy Verify OK
Your proxy is valid until: Tue Aug 31 15:25:40 2004
Enter MyProxy pass phrase:
Verifying password - Enter MyProxy pass phrase:
A proxy valid for 168 hours
```

Getting proxy

myproxy-get-delegation

```
[viet@cluster viet]$ myproxy-get-delegation -s  
kentauros.rtd.algo.com.gr
```

```
Enter MyProxy pass phrase:
```

```
A proxy has been received for user viet in /tmp/x509up_u1005
```


Some other useful commands

- `grid-proxy-info`
- `grid-proxy-destroy`
- `edg-job-cancel`
- `myproxy-info`
- `myproxy-destroy`
- `globus-job-submit`
- `globus-job-status`
- `globus-job-cancel`
- `globus-job-get-output`

In short, command sequence for submitting jobs

- grid-proxy-init
- edg-job-submit job.jdl
- edg-job-status
- edg-job-get-output

```
Executable    = "davef.sh";  
StdOutput     = "davef.out";  
StdError      = "davef.err";  
InputSandbox  = {"davef.sh"};  
OutputSandbox =  
{"davef.out","davef.err"};
```

Thank you for your attention