

# GLite 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

- voms-proxy-init

```
[bratislava01]$ voms-proxy-init --voms gilda
Your identity: /C=IT/O=GILDA/OU=Personal
Certificate/L=BRATISLAVA/CN=BRATISLAVA01/Email=viet.ui@s
avba.sk
Enter GRID pass phrase:
Creating temporary proxy..... Done
Contacting voms.ct.infn.it:15001
[/C=IT/O=INFN/OU=Host/L=Catania/CN=voms.ct.infn.it]
"gilda" Done
Creating proxy ..... Done
Your proxy is valid until Tue Nov 28 03:37:12 2006
```

# 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

```
[bratislava01]$ cat hostname.jdl
```

```
Executable = "/bin/hostname";
```

```
StdOutput = "std.out";
```

```
StdError = "std.err";
```

```
OutputSandbox = {"std.out", "std.err"};
```

# Submitting a job

## glite-job-submit

```
[bratislava01]$ glite-job-submit hostname.jdl
Selected Virtual Organisation name (from proxy certificate
extension): gilda
Connecting to host glite-rb2.ct.infn.it, port 7772
Logging to host glite-rb2.ct.infn.it, port 9002
```

```
*****
```

### JOB SUBMIT OUTCOME

The job has been successfully submitted to the Network Server.

Use `glite-job-status` command to check job current status.  
Your job identifier is:

- [https://glite-rb2.ct.infn.it:9000/VvHO3XlQVF\\_Ya3DTx3PzrA](https://glite-rb2.ct.infn.it:9000/VvHO3XlQVF_Ya3DTx3PzrA)

```
*****
```

# Getting info about jobs

## glite-job-status

```
[bratislava01]$ glite-job-status https://glite-  
rb2.ct.infn.it:9000/VvHO3XlQVF_Ya3DTx3PzrA
```

```
*****
```

### BOOKKEEPING INFORMATION:

```
Status info for the Job : https://glite-  
rb2.ct.infn.it:9000/VvHO3XlQVF_Ya3DTx3PzrA
```

```
Current Status:      Running
```

```
Status Reason:       Job successfully submitted to Globus
```

```
Destination:         dgt01.ui.savba.sk:2119/jobmanager-  
lcpbbs-infinite
```

```
Submitted:           Mon Nov 27 15:42:40 2006 CET
```

```
*****
```

# Getting output from a job

## glite-job-output

```
[bratislava01]$ glite-job-output https://glite-  
rb2.ct.infn.it:9000/VvHO3XlQVF_Ya3DTx3PzrA
```

```
Retrieving files from host: glite-rb2.ct.infn.it ( for  
https://glite-  
rb2.ct.infn.it:9000/VvHO3XlQVF_Ya3DTx3PzrA )
```

```
*****
```

```
JOB GET OUTPUT OUTCOME
```

```
Output sandbox files for the job:
```

```
- https://glite-rb2.ct.infn.it:9000/VvHO3XlQVF_Ya3DTx3PzrA  
have been successfully retrieved and stored in the  
directory:
```

```
/tmp/bratislava01_VvHO3XlQVF_Ya3DTx3PzrA
```

```
*****
```



# Checking output from a job

```
[bratislava01]$ ls -lA
/tmp/bratislava01_VvHO3XlQVF_Ya3DTx3PzrA
total 4
-rw-r--r--    1 bratislava01 users      0 Nov 27 15:51
  std.err
-rw-r--r--    1 bratislava01 users     18 Nov 27 15:51
  std.out
```

```
[bratislava01]$ cat
/tmp/bratislava01_VvHO3XlQVF_Ya3DTx3PzrA/std.out
dgt06.ui.savba.sk
```

# Running your own program

- If your program and data are small (~ 1MB or smaller), you can include your program in InputSanbox

```
Executable = "povray-script.sh";
```

```
StdOutput = "povray.out";
```

```
StdError = "povray.err";
```

```
InputSanbox = {"povray-script.sh", "povray-data.pov"};
```

```
OutputSanbox = {"povray.out", "povray.err", "povray-  
picture.png"};
```

# Running your own program (2)

- If your program and/or data are large, store them on storage elements, and write a small script to download them to computing elements via GridFTP

# File transfer: GridFTP

**globus-url-copy**

**globus-url-copy**

```
gsiftp://storage.ui.sav.sk/home/viet/mydat.dat
```

```
file://$PWD/mydata.dat
```

# A simple JDL 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"};
```

# A simple script for DaveF

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

```
globus-url-copy gsiftp://storage.ui.sav.sk/~viet/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

## glite-job-list-match

```
[bratislava01]$ glite-job-list-match povray-jdl.jdl
```

```
Selected Virtual Organisation name (from proxy certificate  
extension): gilda
```

```
Connecting to host glite-rb2.ct.infn.it, port 7772
```

```
*****
```

### COMPUTING ELEMENT IDs LIST

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

\*CEId\*

```
dgt01.ui.savba.sk:2119/jobmanager-lcgpbs-infinite
```

```
dgt01.ui.savba.sk:2119/jobmanager-lcgpbs-long
```

```
dgt01.ui.savba.sk:2119/jobmanager-lcgpbs-short
```

```
grid-ce.bio.dist.unige.it:2119/jobmanager-lcgpbs-infinite
```

```
grid010.ct.infn.it:2119/jobmanager-lcgpbs-infinite
```

```
. . .
```

# Bypassing Resource Broker

- globus-job-run

```
[bratislava01]$ globus-job-run dgt01.ui.savba.sk  
/bin/hostname  
dgt01.ui.savba.sk
```

```
[bratislava01]$ globus-job-run dgt01.ui.savba.sk  
/bin/pwd  
/home/gilda087
```



# 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

```
[bratislava01]$ myproxy-init -o gilda
```

```
Your identity: /C=IT/O=GILDA/OU=Personal Certificate/  
L=BRATISLAVA/CN=BRATISLAVA01/Email=viet.ui@savba.sk
```

```
Enter GRID pass phrase:
```

```
verify OK
```

```
Creating temporary proxy ..... Done
```

```
Contacting voms.ct.infn.it:15001
```

```
[/C=IT/O=INFN/OU=Host/L=Catania/CN=voms.ct.infn.it] "gilda"
```

```
Done
```

```
Creating proxy ..... Done
```

```
Your proxy is valid until Mon Dec 4 16:09:52 2006
```

```
Enter MyProxy pass phrase:
```

```
Verifying password - Enter MyProxy pass phrase:
```

```
A proxy valid for 168 hours (7.0 days) for user bratislava01  
now exists on grid001.ct.infn.it.
```

# Getting proxy

myproxy-get-delegation

```
[bratislava01]$ myproxy-get-delegation
```

```
Enter MyProxy pass phrase:
```

```
A proxy has been received for user bratislava01 in  
/tmp/x509up_u5536
```

# Some other useful commands

- `grid-proxy-info`
- `grid-proxy-destroy`
- `glite-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

- voms-proxy-init
- glite-job-submit job.jdl
- glite-job-status
- glite-job-output

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

Let's see the demo!