

Certificates Usage and Simple Job Submission

GILDA Tutors

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*Minor changes and adaptation for Bulgarian users by
Plamena Nenkova - plamena@acad.bg*

- **VOMS proxy usage**
- **MyProxy Usage**
- **Simple Job Submission**

How to access the User Interface (valid only 14 days!)

User Interface: `ui.grid.acad.bg`

Login : `plovdivXX` where `XX=02,..18`

Passwd : `GridPLOXX`

PEM PASSPHRASE : `PLOVDIV`

- <http://egee-2-na3.acad.bg/>
- <http://indico.cern.ch/conferenceDisplay.py?confId=77297>

- **.globus directory contains your personal public / private keys**

```
•[sofia01@hp ~]$ ls -l .globus
•total 24
•-rw-r--r--  1 sofia01 gridusers 1797 Mar 10 14:33 SOFIA01.p12
•-rw-r--r--  1 sofia01 gridusers 1107 Mar 16 12:35 usercert.pem
•-r-----  1 sofia01 gridusers  963 Mar 16 12:35 userkey.pem
```

- `userkey.pem` contains your private key, and must be readable just by yourself (400)
- `usercert.pem` contains your public key, which should be readable also from outside (644)

- **Main options**

-voms <vo-name>:[command]>

- **command** syntax is :/<voname>/group for group specify (default none)
- **command** syntax is :/<voname>/Role=<role name> for Role choice (default none)

```
voms-proxy-init --voms gilda
voms-proxy-init --voms gilda:/gilda
```

-valid x:y, create a proxy valid for x hours and y minutes

-vomslife x, create a proxy with AC valid for x hours (max 24 h)

-cert <certfile> Non-standard location of user certificate

-key <keyfile> Non-standard location of user key

-out <proxyfile> Non-standard location of new proxy cert

-userconf <file> Non-standard location for user-defined voms server addresses

- **Default** location for voms server address file is /opt/glite/etc/vomses or \$HOME/.glite/vomses.

Syntax : "vo-nickname" "voms server FQDN" "port" "voms server \ certificate subject" "vo name"

Parameters for vomses are usually provided by VOs manager

Exercise 1 : **create** a voms proxy :

```
voms-proxy-init --voms gilda
```

then verify obtained credentials with

```
voms-proxy-info -all
```

- **voms-proxy-info**
 - Main options :
 - **-all** prints all proxy options
 - **-file** specifies a different location of proxy file

```
[plamena@hp ~]$ voms-proxy-info -all
```

```
subject      : /DC=bg/DC=acad/O=people/O=IPP-BAS/OU=DDSN/CN=Plamena S.
                Nenkova/CN=proxy
```

```
issuer       : /DC=bg/DC=acad/O=people/O=IPP-BAS/OU=DDSN/CN=Plamena S.
                Nenkova
```

```
identity    : /DC=bg/DC=acad/O=people/O=IPP-BAS/OU=DDSN/CN=Plamena S.
                Nenkova
```

```
type        : proxy
```

```
strength    : 1024 bits
```

```
path        : /tmp/x509up_u502
```

```
timeleft     : 9:38:43
```

```
=== VO gilda extension information ===
```

```
VO          : gilda
```

```
subject     : /DC=bg/DC=acad/O=people/O=IPP-BAS/OU=DDSN/CN=Plamena S.
                Nenkova
```

```
issuer      : /C=IT/O=INFN/OU=Host/L=Catania/CN=voms.ct.infn.it
```

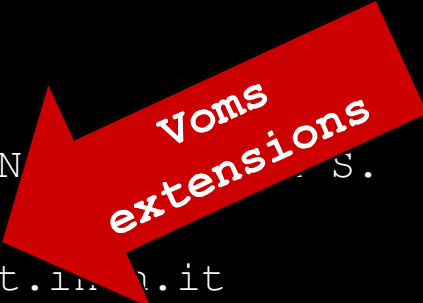
```
attribute   : /gilda/Role=NULL/Capability=NULL
```

```
timeleft     : 9:38:43
```

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



Standard globus attributes



Voms extensions

- **myproxy server:**
 - myproxy-init
 - Allows to create and store a long term proxy certificate:
 - myproxy-info
 - Get information about stored long living proxy
 - myproxy-get-delegation
 - Get a new proxy from the MyProxy server
 - myproxy-destroy
 - Check out them with myproxy-xxx --help option
- **A dedicated service on the RB can renew automatically the proxy**
 - contacting the myproxy server


```
[plamena@hp test]$ myproxy-init -s myproxy.ct.infn.it
Your identity: /DC=bg/DC=acad/O=people/O=IPP-BAS/OU=DDSN/CN=Plamena
S. Nenkova
Enter GRID pass phrase for this identity:
Creating proxy
.....
..... Done
Proxy Verify OK
Your proxy is valid until: Mon Mar 23 17:58:12 2009
Enter MyProxy pass phrase:
Verifying - Enter MyProxy pass phrase:
A proxy valid for 168 hours (7.0 days) for user plamena now exists
on myproxy.ct.infn.it.
```

- **Principal options**
- **-c hours** specifies lifetime of stored credentials
- **-t hours** specifies the maximum lifetime of credentials when retrieved
- **-s <hostname>** specifies the myproxy server where to store credentials
- **-d** stores credential with the distinguished name in proxy, instead of user name (mandatory for some data management services and proxy renewal)
- For proxy renewal it's also mandatory **-n** (no passphrase). You've to specify also subject of principals that can renew a delegation (**-R** subject, or **-A** for any principal)

- Useful to retrieve info on stored credentials
- Need local credentials to be performed
- If credentials have been **initialized** with **-d** switch, you have also to specify it there

```
[plamena@hp test]$ myproxy-info -s myproxy.ct.infn.it
username: plamena
owner: /DC=bg/DC=acad/O=people/O=IPP-BAS/OU=DDSN/CN=Plamena S. Nenkova
timeleft: 167:56:47 (7.0 days)
```

- This command is used to retrieve a delegation from a long lived proxy stored on myproxy server
- It is independent by the machine ! You don't need to have your certificate on board
- If credentials have been initialized with `-d` switch, you have to specify it also in myproxy-get-delegation request

```
[plamena@hp test]$ myproxy-get-delegation -s  
myproxy.ct.infn.it
```

```
Enter MyProxy pass phrase:
```

```
A credential has been received for user plamena in  
/tmp/x509up_u502.
```

- Delete, if existing, the long lived credentials on the specified myproxy server

```
[plamena@hp test]$ myproxy-destroy -s myproxy.ct.infn.it  
Default MyProxy credential for user plamena was  
successfully removed.
```

- **Exercise 2 (optional)**
 - Create a myproxy on the server `myproxy.ct.infn.it`, with lifetime set to 96
 - Visualize information on that
 - Create a myproxy with `-d` option
 - Which differences you note ?
 - Destroy both

```
[plamena@hp test]$ myproxy-init -s myproxy.ct.infn.it -d -n -R  
"gilda-wms-01.ct.infn.it" -t 12 -c 160
```

```
Your identity: /DC=bg/DC=acad/O=people/O=IPP-BAS/OU=DDSN/CN=Plamena  
S. Nenkova
```

```
Enter GRID pass phrase for this identity:
```

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

```
Proxy Verify OK
```

```
Your proxy is valid until: Mon Mar 23 09:36:39 2009
```

```
A proxy valid for 160 hours (6.7 days) for user  
/DC=bg/DC=acad/O=people/O=IPP-BAS/OU=DDSN/CN=Plamena S. Nenkova now  
exists on myproxy.ct.infn.it.
```

```
[plamena@hp test]$ myproxy-info -s myproxy.ct.infn.it -d
```

```
username: /DC=bg/DC=acad/O=people/O=IPP-BAS/OU=DDSN/CN=Plamena S.  
Nenkova
```

```
owner: /DC=bg/DC=acad/O=people/O=IPP-BAS/OU=DDSN/CN=Plamena S.  
Nenkova
```

```
renewal policy: */CN=gilda-wms-01.ct.infn.it
```

```
timeleft: 159:59:32 (6.7 days)
```

Workload Management System

- In the glite middleware a user can submit and cancel jobs, query their status, and retrieve their output. These tasks go under the name of *Workload Management*.
- There are two different User Interfaces to accomplish these tasks. One is the Command Line Interface and the other is the Graphical User Interface.

Exercise 3

Simple Job Submit

- Create a simple job
- Submit it to the GRID for execution
- Check the status of the job
- Retrieve output of the job

Create or modify **hello.jdl** with following contents :

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

Create or modify **hello.sh** with following contents :

```
#!/bin/sh  
date  
hostname  
echo "**** Hello World****"  
ls -al  
echo "End."
```

Just to speed up the exercise—the files can be obtained like this:

```
cd ~
```

```
mkdir test
```

```
cd test
```

```
wget http://people.acad.bg/~plamena/hello.sh
```

```
wget http://people.acad.bg/~plamena/hello.jdl
```

Make hello.sh script executable with

```
chmod +x hello.sh
```

Before actually submitting the job, it is possible to see which CEs are eligible to run a job specified by a given JDL file using the command

glite-wms-job-list-match -a hello.jdl

Connecting to the service https://gilda-wms-01.ct.infn.it:7443/glite_wms_wmproxy_server

=====

COMPUTING ELEMENT IDs LIST

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

CEId

- ce-edu.grid.acad.bg:2119/jobmanager-pbs-gilda
- iceage-ce-01.ct.infn.it:2119/jobmanager-lcgpbs-infinite
- iceage-ce-01.ct.infn.it:2119/jobmanager-lcgpbs-long
- iceage-ce-01.ct.infn.it:2119/jobmanager-lcgpbs-short
- vega-ce.ct.infn.it:2119/jobmanager-lcgsge-gilda
- grid010.ct.infn.it:2119/jobmanager-lcgpbs-infinite
- grid010.ct.infn.it:2119/jobmanager-lcgpbs-long
- grid010.ct.infn.it:2119/jobmanager-lcgpbs-short
- gilda-01.pd.infn.it:2119/jobmanager-lcgpbs-gilda

=====

- **Job Submission**

- Perform the job submission to the Grid.

```
$ glite-wms-job-submit [options] <jdl_file>
```

- where <jdl file> is a file containing the job description, usually with extension .jdl.

--vo <vo name> : perform submission with a different VO than the UI default one.

--output, -o <output file> save jobId on a file.

--resource, -r <resource value> specify the resource for execution.

--nomsgi neither message nor errors on the stdout will be displayed.

```
$ glite-wms-job-submit -o test.id -a hello.jdl
```

```
$ glite-wms-job-submit -o test.id -a -r ce-  
edu.grid.acad.bg:2119/jobmanager-pbs-gilda hello.jdl
```

If the request has been correctly submitted this is the typical output that you can get:

```
Connecting to the service https://gilda-wms-01.ct.infn.it:7443/glite_wms_wmproxy_server
```

```
===== glite-wms-job-submit Success =====
```

```
The job has been successfully submitted to the WMPProxy  
Your job identifier is:
```

```
https://gilda-lb-01.ct.infn.it:9000/7KccDhz3FOqqMVtUgu0ayw
```

```
The job identifier has been saved in the following file:  
/home/plamena/test/test.id
```

```
=====
```

In case of failure, an error message will be displayed instead, and an exit status different from zero will be returned.

If the command returns the following error message:

```
*** Error: API_NATIVE_ERROR ***
```

```
Error while calling the 'NSClient::multi' native api
```

```
AuthenticationException: Failed to establish security context...
```

```
*** Error: UI_NO_NS_CONTACT ***
```

```
Unable to contact any Network Server
```

it means that there are authentication problems between the UI and the *Network Server* (check your proxy or contact the site administrator).

After a job is submitted, it is possible to see its status using the `glite-job-status` command.

```
$ glite-wms-job-status -i test.id
```

```
*****
```

BOOKKEEPING INFORMATION:

Status info for the Job : <https://gilda-lb-01.ct.infn.it:9000/gNH28IETELVlybUSHiZgdw>

Current Status: Ready

Status Reason: unavailable

Destination: ce-edu.grid.acad.bg:2119/jobmanager-pbs-gilda

Submitted: Mon Mar 16 19:17:42 2009 EET

```
*****
```

More information on `glite-wms-job-status`

The option `-i <file path>` can be used to specify a file with a list of job identifiers (saved previously with the `-o` option of `glite-job-submit`).

```
glite-wms-job-status -i test.id
```

```
-----  
1 : https://gilda-lb-01.ct.infn.it:9000/7KccDhz3FOqqMVtUgu0ayw  
2 : https://gilda-lb-01.ct.infn.it:9000/_eYQl1Y34PvjBlpXzQHpsA  
3 : https://gilda-lb-01.ct.infn.it:9000/FUEi1MWNB-Y5WBcQTTIs3g  
a : all  
q : quit  
-----
```

Choose one or more jobId(s) in the list - [1-3]all:

If the `--all` option is used instead, the status of all the jobs owned by the user submitting the command is retrieved.

A job can be canceled before it ends using the command `glite-job-cancel`.

```
glite-wms-job-cancel -i test.id
```

```
Are you sure you want to remove specified job(s) [y/n]y : y
```

```
Connecting to the service https://gilda-wms-01.ct.infn.it:7443/glite_wms_wmproxy_server  
===== glite-wms-job-cancel Success =====
```

```
The cancellation request has been successfully submitted for the following job(s):
```

```
- https://gilda-lb-01.ct.infn.it:9000/RsnUbPWtY2ec4dnp7uWkjg
```

```
=====
```

After the job has finished (it reaches the DONE status), its output can be copied to the UI

```
$ glite-wms-job-output -i test.id --dir outdir
```

Connecting to the service https://gilda-wms-01.ct.infn.it:7443/glite_wms_wmproxy_server

=====

JOB GET OUTPUT OUTCOME

Output sandbox files for the job:

<https://gilda-lb-01.ct.infn.it:9000/gNH28IETELVlybUSHiZgdw>

have been successfully retrieved and stored in the directory:

`/home/plamena/test/outdir`

=====

By default, the output is stored under `/tmp`, but it is possible to specify in which directory to save the output using the `--dir <path name>` option.

Check the output files

```
ls -la  
cd outdir  
cat test.out
```

If the proxy is not necessary anymore
consider destroying it !

```
voms-proxy-destroy
```

