Manipulating certificates and proxies

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CAPACITIES

Certificates

- CA certificates: located in `$X509_CERT_DIR`, defaults to `/etc/grid-security/certificates`. Uses following naming conventions:
  - file name without extension: Hash of CA's name (DN)
  - f.0: CA certificate;
  - f.crl_url: URL to get the CA's CRL;
  - f.r0: last CRL.
- VOMS server certificates: located in `$X509_VOMS_DIR`, defaults to `/etc/grid-security/vomsdir`;
- User certificate:
  - In web browser (*mozilla*: *Edit* → *Preferences*, then *Privacy&Security* → *Certificates* → [Manage Certificates...])
  - On the UI. Default location in `$HOME/.globus`

```
-rw-------  1 esrsgm esr 5930 Jan  4  2008 cert.p12
-rw-r--r--  1 esrsgm esr 1941 Jan  4  2008 usercert.pem
-rw-------  1 esrsgm esr 1916 Jan  4  2008 userkey.pem
```

useful commands

Info about (display) a certificate:

```
grid-cert-info [-file cert.pem]
```

Exporting a certificate from web browser (*mozilla*):

Manage Certificates. . . → *select cert.* → Backup

Will ask for filename & “Backup Password”.

Watch file mode!!

Converting a certificate:

```
openssl pkcs12 -in cert.p12 -nokeys -clcerts \
      -out usercert.pem
```

Will ask for “Import Password”

```
openssl pkcs12 -in cert.p12 -nocerts -out userkey.pem
```

Will ask for “Import Password”, then key (GRID) pass phrase (twice).

Watch file mode for private key!!

VOMS proxy

Proxy creation (asks for private key (GRID) pass phrase):

```
voms-proxy-init --voms vo_alias
voms-proxy-init \
    --voms alias[:/vo_fullname/group/[Role=Master]]
    [-out filename] # better use $X509_USER_PROXY
    [--valid HH:MM]
```

Default proxy location: `/tmp/x509up_u$(id -u)`

Proxy file mode is and must always remain 0600.

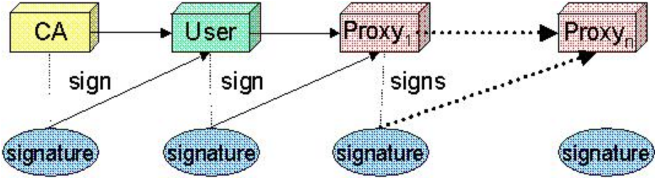
Must have access to voms server certificate (see Slide 1)

Configuration file: vo_name-server_name in

`$GLITE_LOCATION/etc/vomses` or `$HOME/.vomses`,
or file as `--vomses` option to `voms-proxy-init`

```
$ cat /opt/glite/etc/vomses/astro.vo.eu-egee.org-grid12.lal.in2p3.fr
"astro" "grid12.lal.in2p3.fr" "20012" \
"/O=GRID-FR/C=FR/O=CNRS/OU=LAL/CN=grid12.lal.in2p3.fr" "astro.vo.eu-egee.org"
```

Proxy contents: `voms-proxy-info -all [-file pxfile]`



- A proxy is a complete certificate (public + unencrypted private keys) issued and signed by the user;
- two kind of proxies: full and limited (which prevent job submission). The full proxy is kept by the WMS and only limited proxies are issued afterwards;
- a job must have a valid proxy during its execution;
- a different proxy (but from the same user) can be used for job status queries output retrieval.

myproxy (I): long jobs

Environment variable: `$MYPROXY_SERVER`

Proxy creation:

```
myproxy-init [-s server] [-c lifetime] -d -n
```

Notes:

- doesn't create a proxy on the UI;
- can be created/renewed during job execution.
- short proxies including voms extensions for the job are created by the WMS and updated on CE and WN.

```
myproxy-info [-s server] -d
myproxy-destroy [-s server] -d
```

Difficulties:

1. myproxy itself is not voms enabled.
2. WMS used for submitting jobs should be explicitely allowed by myproxy server to get the delegations.

myproxy (II): continuous submission

```
voms-proxy-init --pwstdin < some_file
```

Very dangerous if the UI is compromised.

It is much safer to use a myproxy in this case: it can be easily destroyed, and the user private key is still temporay safe (time for CRL to be updated).

```
myproxy-init -a  [-l username]  \
[-c $cred_lifetime] [-t $temp_lifetime]
```
→ provide a password.

in the crontab:

```
    myproxy-get-delegation --voms $voms_attr \
    -t $temp_lifetime --sdtin_pass < some_file
```

Eventually don't forget to renew proxy delegations on used WMSes!

source: http://www.gridpp.ac.uk/deployment/users/myproxy.html