

Workaround for the GSI bug in XrootD 3.1.1

The GSI workaround for the bug in XrootD 3.1.1 involves adding only two lines to a sites "setup.sh.local" and a copy of a valid "vomses" file.

Why the workaround is needed:

The current implementation of XRDGSI requires that the voms role "atlas/atlas" occur first in the list of voms attributes within a proxy. Unfortunately, the proxy as delivered to a site within the pilot does not have this role first.

The workaround:

This workaround creates a new limited proxy by using "voms-proxy-init" to put "atlas:/atlas" at the beginning of the attributes list.

The following lines, when executed by the pilot, will create a new proxy with the reordered attributes using the current proxy as the template.

```
export XrdSecGSIUSERPROXY=${X509_USER_PROXY}_XrdProxy

voms-proxy-init -quiet \
  -voms atlas:/atlas \
  -vomses "path-to-a-vomes/vomses" \
  -key $X509_USER_PROXY \
  -cert $X509_USER_PROXY \
  -out $XrdSecGSIUSERPROXY \
  -limited
```

In the above example, the current proxy must be defined by the variable \$X509_USER_PROXY (the default used within a pilot). The new proxy will be defined by \$XrdSecGSIUSERPROXY. If this variable is defined, XrootD will use this definition as the location of the proxy it should use for GSI. Appending "_XrdProxy" to the value of \$X509_USER_PROXY is an easy way of locating the new proxy in the same location as the original.

For example, if

```
$X509_USER_PROXY = /tmp/x509_up
```

Then the new proxy would be

```
$XrdSecGSIUSERPROXY = /tmp/x509_up_XrdProxy
```

Where to put the workaround:

It is very important to put the workaround in a "setup" file executed by the pilot when it starts on a node. This way, whatever job the pilot starts on the node will have the workaround in place. If done this way, the user submitting the job will not need to know of the workaround

When a pilot starts, it begins a source chain starting in CVMFS.

```
1    source $OSG_APP/atlas_app/atlas_rel/setup.sh
      RO    Part of atlas.cern.ch repository
2    source $ATLAS_LOCAL_AREA/setup.sh
      RO    Can be overwritten by LJSFi updates
3    source $ATLAS_LOCAL_AREA/setup.sh.local
      RW    Site local
```

The source chain in script 1 invokes script 2 which invokes script 3.

For most sites running CVMFS,

```
$ATLAS_LOCAL_AREA = $OSG_APP/atlas_app/local
```

For example, at MWT2, the definitions are

```
$OSG_APP = /share/osg/mwt2/app
$ATLAS_LOCAL_AREA = /share/osg/mwt2/app/atlas_app/local
```

Thus the source chain would be

```
1    source /share/osg/mwt2/app/atlas_app/atlas_rel/setup.sh
2    source /share/osg/mwt2/app/atlas_app/local/setup.sh
3    source /share/osg/mwt2/app/atlas_app/local/setup.sh.local
```

The best option is to put the workaround in

```
$ATLAS_LOCAL_AREA/setup.sh.local
```

as this is a writeable setup script in the source path of the pilot.

Implementation at MWT2

At MWT2 a valid "vomses" file was placed in the \$ATLAS_LOCAL_AREA

```
[root@~]# ll /share/osg/mwt2/app/atlas_app/local/
total 17K
drwxr-xr-x 1 cvmfs cvmfs 4.0K Jun 24 2011 lib
drwxr-xr-x 1 cvmfs cvmfs 4.0K Jun 24 2011 lib64
-rw-r--r-- 1 cvmfs cvmfs  89 Apr 20 04:50 setup-dq2.sh
-rw-r--r-- 1 cvmfs cvmfs  511 Apr 20 04:50 setup.sh
-rwxr-xr-x 1 cvmfs cvmfs  733 Apr 20 04:50 setup.sh.local
-rw-r--r-- 1 cvmfs cvmfs  511 Apr 20 04:50 setup.sh.orig
-rw-r--r-- 1 cvmfs cvmfs 4.7K Apr 20 04:50 vomses
```

The standard distribution of "wn-client" includes voms-proxy-init but does not contain a valid vomses file, thus the need for a current copy.

The workaround was added to the local "setup.sh.local"

```
[root@~]# more /share/osg/mwt2/app/atlas_app/local/setup.sh.local
```

```
# Xrd Proxy
```

```
export XrdSecGSIUSERPROXY=${X509_USER_PROXY}_XrdProxy
```

```
voms-proxy-init -quiet \
  -voms atlas:/atlas \
  -vomses /share/osg/mwt2/app/atlas_app/local/vomses \
  -key $X509_USER_PROXY \
  -cert $X509_USER_PROXY \
  -out $XrdSecGSIUSERPROXY \
  -limited
```

When a pilot runs on an MWT2 worker node, the source chain is executed, which eventually executes

```
source /share/osg/mwt2/app/atlas_app/local/setup.sh.local
```

Thus for every job running on an MWT2 worker node, the variable \$XrdSecGSIUSERPROXY is defined and a new limited proxy is created in the pilot working area. Every job which is run by this pilot will have the new limited proxy available to use. Any "xrdcp" or direct I/O access via root to an XRD GSI enabled site should properly authenticate and transfer the file.