



Enabling Grids for E-scienceE

gLite IO Server Installation

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- **gLite DMS overview**
- **gLite IO Server**
- **gLite IO Client**
- **Functionality tests**

- **File Management**
 - Storage
 - Access
 - Placement
 - Cataloguing
 - Security

- **What does “Data Management” mean ?**
 - Users and applications produce and require data
 - Data may be stored in Grid files
 - Granularity is at the “file” level (no data “structures”)
 - Users and applications need to handle files on the Grid
- **Files are stored in appropriate permanent resources called “Storage Elements” (SE)**
 - Present almost at every site together with computing resources
 - We will treat a storage element as a “black box” where we can store data
 - Appropriate data management utilities/services hide internal structure of SE
 - Appropriate data management utilities/services hide details on transfer protocols

- **Storage Element**

- Storage Resource Manager
- POSIX-I/O
- Access protocols

rely on existing implementations
not provided by gLite

gLite-I/O

gsiftp, https, rfio, ...

- **Catalogs**

- File Catalog
- Replica Catalog
- File Authorization Service
- Metadata Catalog



gLite FiReMan Catalog
(MySQL and Oracle)

gLite Standalone Metadata Catalog
AMGA

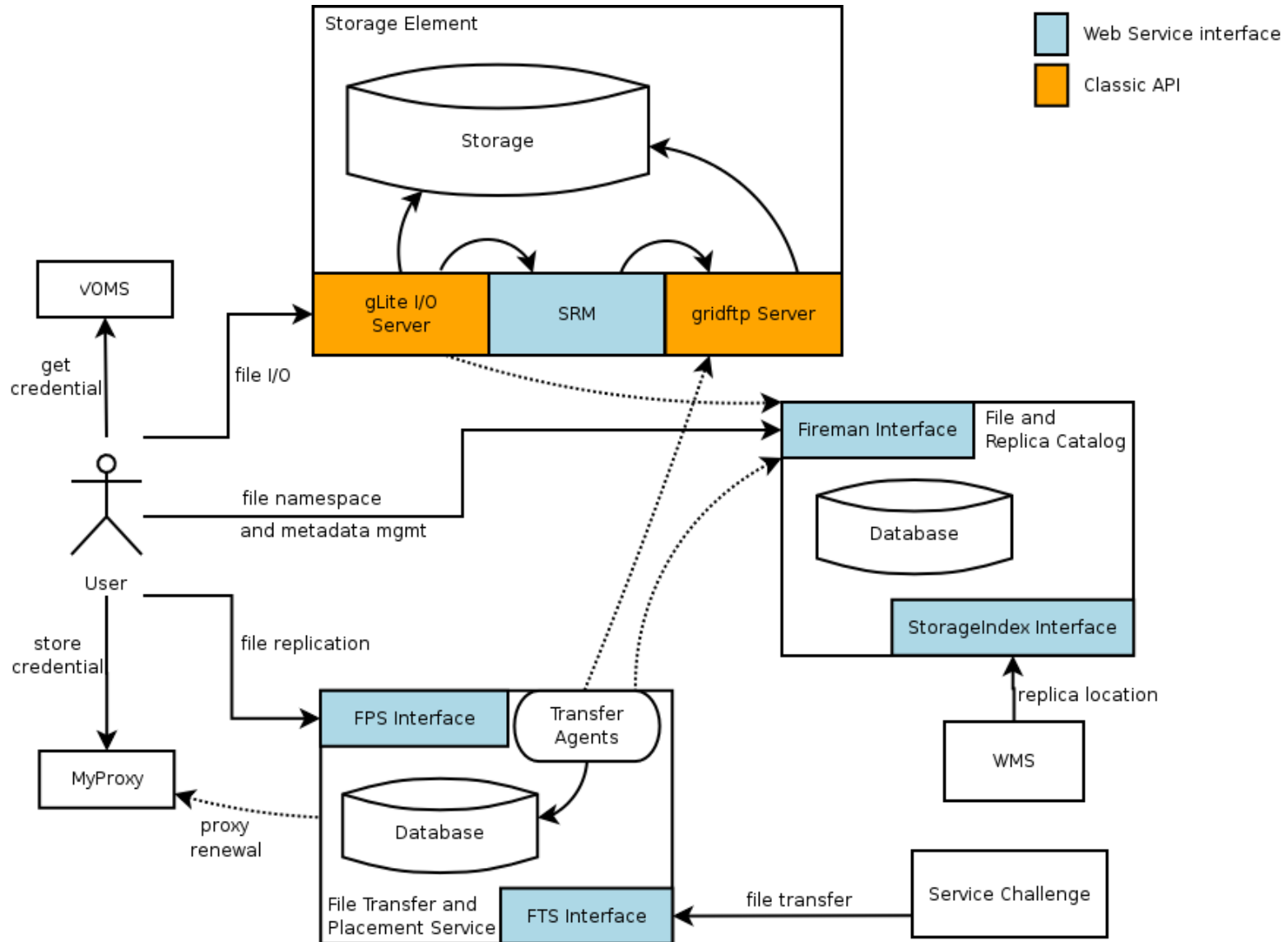
- **File Transfer**

- Data Scheduler
- File Transfer Service
- File Placement Service

planned for Release 2

gLite FTS and glite-url-copy

gLite FPS



- **gLite IO server relies against a Mass Storage System implementing SRM interface**
- **gLite IO server communicates with MSS through SRM**
- **SRM is not provided by gLite !**
- **Tested MSS are, till now, CASTOR, dCache and DPM**
- **Full support to functionalities may depend from used MSS**
- **Installing and configuring MSS is apart from gLite issues (see Reference)**

- The “official” gLite catalog is FiReMan
- Other catalogs types are supported
 - File and Replica Catalog (AliEn) → `fr`
 - EDG RLS & RMC → `catalogs`
- Value to be set is **init.CatalogType**
- If, for any reason, IO Server cannot contact any catalog, won't be able to run
- Need to configure only parameters needed by the supported catalog (typically its endpoints)

- **Start from a fresh install of Scientific Linux \geq 3.0.4**
- **IO server can be installed via a gLite deployment package**
 - Download: <http://glite.web.cern.ch/glite/packages>
- **Installation via**
 - Installer script
 - APT
- **Installation will install all dependencies, including**
 - other necessary gLite modules
- **You will need to install non-freely available packages yourself (e.g. Java)**
- **Security module (*gLite Security Utilities*) will install only LCG supported CA rpms...**

1. Verify if apt is present:

- rpm -qa | grep apt
- Install apt if necessary:
 - rpm -ivh <http://linuxsoft.cern.ch/cern/slc30X/i386/SL/RPMS/apt-0.5.15cnc6-8.SL.cern.i386.rpm>

2. Add gLite apt repository:

- Put one of the following lines in a file (e.g. glite.list) inside the /etc/apt/sources.list.d directory
- rpm http://glitesoft.cern.ch/EGEE/gLite/APT/R1.4/ rhel30 externals Release1.4 updates

3. Update apt repository:

- apt-get update
- apt-get upgrade

4. Install IO server:

- apt-get install glite-io-server-config

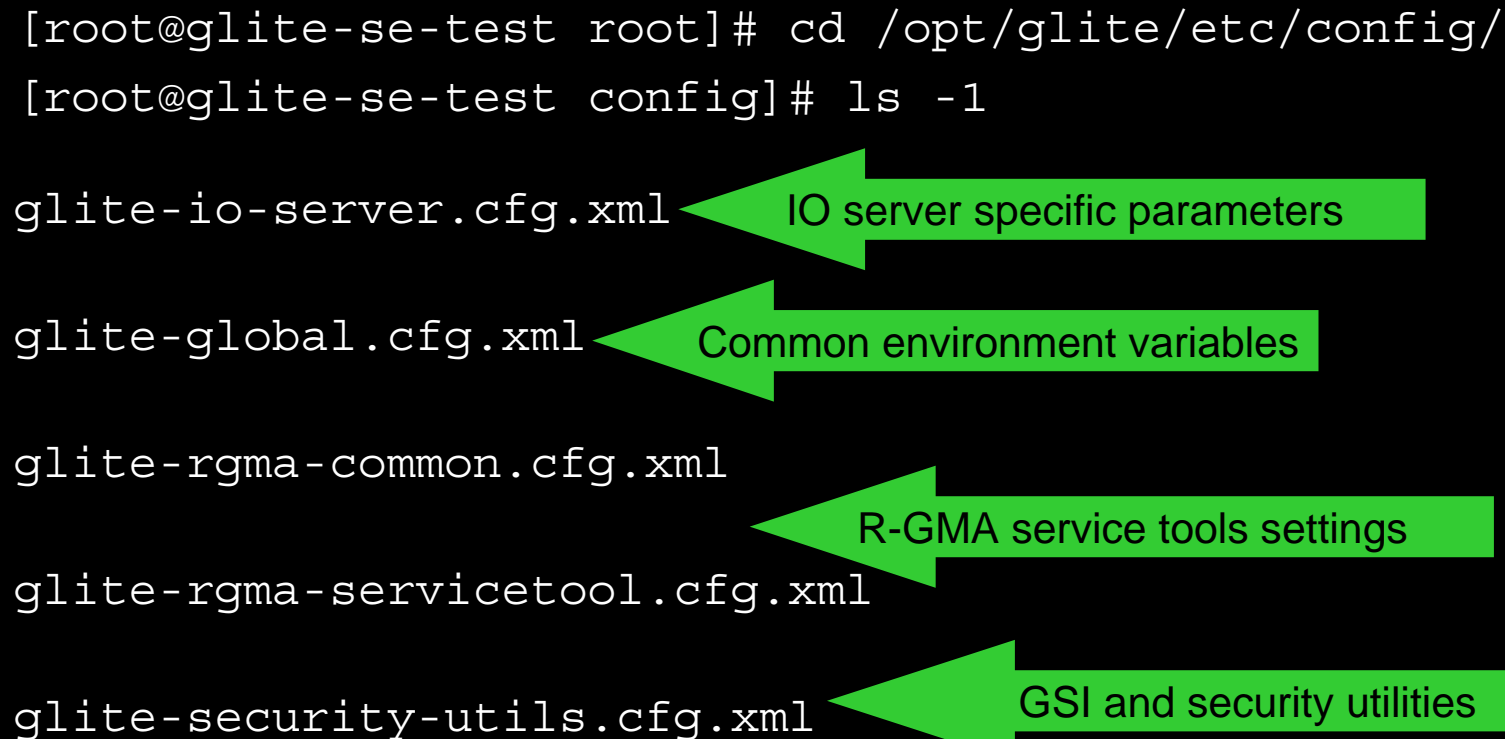
Extra packages needed (non freely distributable) :

- J2SE v 1.4.2_08 JRE: <http://java.sun.com/j2se/1.4.2/download.html>

See <http://glite.web.cern.ch/glite/packages/APT.asp>

- From `/opt/glite/etc/config/templates`
copy conf files to the configuration directory

```
[root@glite-se-test root]# cd /opt/glite/etc/config/
[root@glite-se-test config]# ls -l
-rw-r--r-- 1 root root 10240 Aug 10 10:10 glite-io-server.cfg.xml
-rw-r--r-- 1 root root 10240 Aug 10 10:10 glite-global.cfg.xml
-rw-r--r-- 1 root root 10240 Aug 10 10:10 glite-rgma-common.cfg.xml
-rw-r--r-- 1 root root 10240 Aug 10 10:10 glite-rgma-servicetool.cfg.xml
-rw-r--r-- 1 root root 10240 Aug 10 10:10 glite-security-utils.cfg.xml
```



glite-io-server.cfg.xml ← IO server specific parameters
 glite-global.cfg.xml ← Common environment variables
 glite-rgma-common.cfg.xml ← R-GMA service tools settings
 glite-rgma-servicetool.cfg.xml
 glite-security-utils.cfg.xml ← GSI and security utilities

Easy to configure: attribute description is self-explaining
Check that value for JAVA_HOME attribute in glite-global.cfg.xml is coherent with the path of installed JVM

- gLite IO Server supposes a MSS with SRM interface
- Separated instance for each VO
- Key parameters per instance
 - name (VO) VO name **gildav**
 - Port Listening Port for IO daemon **9999**
 - CatalogType One of supported catalog type **fireman**
 - SrmEndPoint MSS SRM endpoint
httpg://aliserv6.ct.infn.it:8443/srm/managerv1
 - SeHostname MSS hostname **aliserv6.ct.infn.it**
 - RootPath VO-dedicated path on MSS **/dpm/ct.infn.it/home/gilda**
 - SeProtocol MSS native protocol **rfio**
- Common parameters
 - username / groupname / uid / gid
 - voms.voname VO name
 - voms.vomsnode FQDN of voms server **} one per vo instance**

- Before starting....
- Further settings may be needed depending from used MSS
- On SE (DPM) → Put subject of IO server host certificate in grid-mapfile
- Other additional package may be needed...

http://grid-deployment.web.cern.ch/grid-deployment/download/SE_dpm_disk-rpm-i386-sl3-LCG-2_6_0.html

- See References

Then start IO Server

```
[root@glite-se-test]# cd /opt/glite/etc/config/scripts/
[root@glite-se-test]# ./glite-io-server-config.py --configure
. . . .
[root@glite-se-test]# ./glite-io-server-config.py --start
```

- **IO client installation comes with UI and WN's ones**
- **Xml file to be edited is**
`/opt/glite/etc/config/glite-io-client.cfg.xml`
- **Needs only to have specified**
 - IO server hostname and listening port
- **Configuration is effective when is run *glite-io-client.py*, or by editing manually**

`/opt/glite/etc/glite-io-client.properties.xml`

- **Supported catalog on the UI are the ones listed under**
`/opt/glite/etc/services.xml`

Copy a local file to Storage Element

- `glite-put local-file lfn:///lfn-name`

Copy a file from Storage element

- `glite-get lfn:///lfn-name localfile-path`

Remove a file from Storage element

- `glite-rm lfn:///lfn-name`

if the lfn is the last replica, file entry is removed from the catalog

Before of executing glite-put or glite-rm, Fas checks that user has rights to perform requested operation.

<https://uimon.cern.ch/twiki/bin/view/LCG/DpmAdminGuide>

(EN, DPM install)

http://www.gridpp.ac.uk/storage/status/GridPPDPM/Ed_DPM_Install.html (EN, DPM install)

<http://storage.esc.rl.ac.uk/documentation/html/D-Cache-Howto>

(EN,dCache install)

<https://edms.cern.ch/file/608442/1/dpm-glite-io.pdf>

(EN,DPM+IO server)

<http://www.ba.infn.it/~fioretti/dCache/dCache-tutorial.txt>

(IT,dCache+IO server)

http://egee-na4.ct.infn.it/wiki/out_pages/dCache-SRM.html

(EN,dCache+IO server)

